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**REVISION OF THE TRIBES QUEDIINI AND ATANYGNATHINI. PART II.
THE HIMALAYAN REGION (COLEOPTERA: STAPHYLINIDAE),^{1,2}**

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ABSTRACT

A revision of the staphylinid tribes Quediini and Atanygnathini (Coleoptera) of the Himalayan region is presented including a historical review, a discussion of diagnostic characters and techniques, and some remarks, mostly on the zoogeography of the group.

Nine genera (8 in Quediini and 1 in Atanygnathini) and 104 species (96 in Quediini and 8 in Atanygnathini) are recognized. Forty one species (36 in Quediini and 5 in Atanygnathini) are described as new, new combinations are proposed for 5 species and new status for 1 species.

Quedius leptocephalus Coiffait 1982 is placed in synonymy with Q. inquietus Champion 1925; Quedius flavoterminatus Cameron 1932 and Q. sherpai Coiffait 1982 with Q. apicicornis Eppelsheim 1895; Quedius mimeticus Cameron 1932, Q. notabilis Cameron 1932 and Q. peraffinis Cameron 1932 with Q. beesoni Cameron 1932; Quedius analoka Smetana 1975 and Q. queinneci Coiffait 1983 with Q. stvensi Cameron 1932; Quedius sodalis Cameron 1932 with Q. ripicola Cameron 1926; Quedius trisulensis Coiffait 1982 with Q. franzi Smetana 1975; Quedius mandra Smetana 1975 and Q. deuvei Coiffait 1983 with Q. kashmirensis Cameron 1944; Quedius kasmiricus Cameron 1932, Q. nichinaiensis Coiffait 1982 and Q. cachemiricus Coiffait 1982 with Q. fluviatilis Cameron 1932; Quedius decipiens Cameron 1944 with Q. aureiventris Bernhauer 1915; Quedius dohertyi Cameron 1932 and Q. heterogaster Cameron 1944 with Q. muscicola Cameron 1932; Quedius lama Coiffait 1982 and Q. dhaulagirensis Coiffait 1982 with Q. kanyasa Smetana 1975; Quedius mussooriensis Cameron 1932 with Q. rugosus Cameron 1921; Quedius coeruleus Coiffait 1977 with Q. gardneri Cameron 1932; Quedius akalita Smetana 1977 and Algon cyanipennis Coiffait 1982 with Indoquedius sikkimensis (Cameron 1932); Acylophorus ventralis Coiffait 1983 with A. beesoni Cameron 1926; Acylophorus ruficollis Kraatz 1859 with A. ruficollis Motschulsky 1858; Atanygnathus ruficollis Kraatz 1859 with A. pictus Motschulsky 1858 and

¹(133rd contribution to the knowledge of Staphylinidae).

²Part I is the revision of the North American Quediini (Smetana 1971).

Atanygnathus fuscus Kraatz 1859 with *A. piceus* Motschulsky 1858.

Heterothops flavicollis Motschulsky 1858 is transferred to the genus *Gabronthus* Tottenham 1955 (comb.nov.) and the name *Philonthus pulchellus* Kraatz 1859 becomes a junior synonym of it (syn.nov.). *Heterothops magniceps* Bernhauer 1920 is transferred to the genus *Ctenandropus* (comb.nov.); *Quedius junio* Sharp 1874 and *Q. praeditus* Sharp 1889 are transferred to the genus *Indoquedius* (comb.nov.). *Cyrtothorax vulneratus* Fauvel 1878 is transferred to the genus *Bolitogyrus* (comb.nov.), and *Acylophorus nepalicus* Coiffait 1981 is transferred to the genus *Erichsonius* Fauvel 1874 (comb.nov.) and placed tentatively in synonymy with *E. basalis* Motschulsky 1858. *Heterothops indicus* Cameron 1926 is removed from synonymy with *H. oculatus* Fauvel 1895 and reinstated as a separate species (stat.nov.).

Lectotypes are designated for *Quedius beelsoni* Cam., *Q. mimeticus* Cam., *Q. notabilis* Cam., *Q. adjacens* Cam., *Q. placidus* Cam., *Q. ripicola* Cam., *Q. sodalis* Cam., *Q. chatterjeei* Cam., *Q. fluviatilis* Cam., *Q. muscicola* Cam., *Q. heterogaster* Cam., *Q. anomalus* Cam., *Q. assamensis* Cam., *Q. aureipilis* Cam., *Q. rugosus* Cam., *Q. mussooriensis* Cam., *Q. intricatus* Fauv., *Q. gardneri* Cam., *Q. lineipennis* Cam., *Q. bipunctatus* Epp., *Q. oculatus* Fauv., *Heterothops oculatus* Fauv., *H. indicus* Cam., *H. hindustanus* Cam., *H. persimilis* Cam., *Ctenandropus nigriceps* Cam., *Paratolmerus pilosiventris* Cam., *Acylophorus beelsoni* Cam., *A. microcephalus* Cam., *A. furcatus* Motsch., *A. flavipes* Motsch., *A. tibialis* Cam., *Anchocerus monticola* Cam., *Atanygnathus ruficollis* Kr., *A. pictus* (Motsch.), *A. brevicollis* Fauv., *A. piceus* (Motsch.) and *A. fuscus* (Kr.).

A key to the two tribes, and keys to all genera and species are provided. The tribes and genera are described; each species is described and illustrated, all available bionomic and distributional data are presented and distributional records are mapped.

RÉSUMÉ

Une révision des espèces des tribus *Quediini* et *Atanygnathini* (Coleoptera, Staphylinidae) de la région Himalayenne, incluant une revue historique, une discussion des caractères importants et des techniques, ainsi que certaines remarques sur la biogéographie du groupe, est présentée.

Neuf genres (8 parmi les *Quediini* et 1 parmi les *Atanygnathini*) et 104 espèces (96 parmi les *Quediini* et 8 parmi les *Atanygnathini*) sont reconnues. Quarante et une nouvelles espèces (36 parmi les *Quediini* et 5 parmi les *Atanygnathini*) sont décrites, de nouvelles combinaisons sont proposées et le statut d'une espèce est redéfini.

Quedius leptocephalus Coiffait 1982 est placée en synonymie avec *Q. inquietus* Champion 1925; *Quedius flavoterminalis* Cameron 1932 et *Q. sherpai* Coiffait 1982 avec *Q. apicicornis* Eppelsheim 1895; *Quedius mimeticus* Cameron 1932, *Q. notabilis* Cameron 1932 et *Q. peraffinis* Cameron 1932 avec *Q. beelsoni* Cameron 1932; *Quedius analoka* Smetana 1975 et *Q. queinneci* Coiffait 1983 avec *Q. stevensi* Cameron 1932; *Quedius sodalis* Cameron 1932 avec *Q. ripicola* Cameron 1926; *Quedius trisulensis* Coiffait 1982 avec *Q. franzi* Smetana 1975; *Quedius mandra* Smetana 1975 et *Q. devei* Coiffait 1983 avec *Q. kashmirensis* Cameron 1944; *Quedius kasmiricus* Cameron 1932, *Q. nichinaiensis* Coiffait 1982 et *Q. cachemiricus* Coiffait 1982 avec *Q. fluviatilis* Cameron 1932; *Quedius decipiens* Cameron 1944 avec *Q. aureiventris* Bernhauer 1915; *Quedius dohertyi* Cameron 1932 et *Q. heterogaster* Cameron 1944 avec *Q.*

musciicola Cameron 1932; *Quedius lama* Coiffait 1982 et *Q. dhaulagirensis* Coiffait 1982 avec *Q. kanyasa* Smetana 1975; *Quedius mussooriensis* Cameron 1932 avec *Q. rugosus* Cameron 1921; *Quedius coeruleus* Coiffait 1977 avec *Q. gardneri* Cameron 1932; *Quedius akalita* Smetana 1977 et *Algon cyanipennis* Coiffait 1982 avec *Indoquedius sikkimensis* (Cameron 1932); *Acylophorus ventralis* Coiffait 1983 avec *A. beelsoni* Cameron 1926; *Acylophorus ruficollis* Kraatz 1859 avec *A. ruficollis* Motschulsky 1858; *Atanygnathus ruficollis* Kraatz 1859 avec *A. pictus* Motschulsky 1858 et *Atanygnathus fuscus* Kraatz 1859 avec *A. piceus* Motschulsky 1858.

L'espèce *Heterothops flavicollis* Motschulsky 1858 est transférée au genre *Gabronthus* Tottenham 1955 (nouv. comb.) et le nom *Philonthus pulchellus* Kraatz 1859 devient un synonyme plus récent de *Gabronthus flavicollis* (Motschulsky) (nouv. syn.). *Heterothops magniceps* Bernhauer 1920 est transférée au genre *Ctenandropus* (nouv. comb.). *Quedius juno* Sharp 1874 et *Q. praeditus* Sharp 1889 au genre *Indoquedius* (nouv. comb.), *Cyrtothorax vulneratus* Fauvel 1878 au genre *Bolitogyrus* (nouv. comb.) et *Acylophorus nepalicus* Coiffait 1981 au genre *Erichsonius* Fauvel 1874; cette dernière espèce est tentativement placée en synonymie avec *E. basalis* Motschulsky 1858. *Heterothops indicus* Cameron 1926, auparavant considéré comme un synonyme plus récent de *H. oculatus* Fauvel 1895, est traité comme une espèce valide (nouv. stat.).

Un lectotype est désigné pour chacune des espèces suivantes: *Quedius beelsoni* Cam., *Q. mimeticus* Cam., *Q. notabilis* Cam., *Q. adjacens* Cam., *Q. placidus* Cam., *Q. ripicola* Cam., *Q. sodalis* Cam., *Q. chatterjeei* Cam., *Q. fluviatilis* Cam., *Q. musciicola* Cam., *Q. heterogaster* Cam., *Q. anomalus* Cam., *Q. assamensis* Cam., *Q. aureipilis* Cam., *Q. rugosus* Cam., *Q. mussooriensis* Cam., *Q. intricatus* Fauv., *Q. gardneri* Cam., *Q. lineipennis* Cam., *Q. bipunctatus* Epp., *Q. oculatus* Fauv., *Heterothops oculatus* Fauv., *H. indicus* Cam., *H. hindustanus* Cam., *H. persimilis* Cam., *Ctenandropus nigriceps* Cam., *Paratolmerus pilosiventris* Cam., *Acylophorus beelsoni* Cam., *A. microcephalus* Cam., *A. furcatus* Motsch., *A. flavipes* Motsch., *A. tibialis* Cam., *Anchocerus monticola* Cam., *Atanygnathus ruficollis* Kr., *A. pictus* (Motsch.), *A. brevicollis* Fauv., *A. piceus* (Motsch.) et *A. fuscus* (Kr.).

Ce travail inclut des tableaux de détermination pour les tribus, genres et espèces. Les tribus et genres sont décrits; chaque espèce est décrite et illustrée, les données sur l'écologie et la répartition géographique sont indiquées et des cartes de distribution sont fournies.

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INTRODUCTION

My interest in the tribe Quediini of the Himalayan region started some 12 years ago while working on the quediine material collected in Nepal by Dr. H. Franz. Although the material was rather limited, it nevertheless clearly indicated that 1) the Himalaya harbors a rich fauna of this tribe, and 2) the species from higher elevations (above 3000 m) are of temperate origin and show obvious relationships to the east-palaearctic fauna, particularly to species described from higher mountains in Sichuan in China.

Some time later, during my first joint collecting trip to the Nepal Himalaya with my friend Ivan Löbl, Genève, Switzerland, I realized that the Quediini fauna and, as a matter of fact, the entire fauna of the family Staphylinidae of the middle and higher elevations throughout the Himalaya is even less known than I suspected. It was during the long strenuous treks of the first trip that I decided to go ahead with the revision of the tribe.

This revision was originally intended to include only the species occurring in the Nepal Himalaya. But, as work on the revision progressed, it became obvious that the only way to do the project right was to include the fauna of the entire Himalaya, since the original material of all species described from throughout the Himalaya had to be examined anyway. In addition, the material collected in Nepal, particularly during my five collecting trips (three together with Ivan Löbl and one together with my wife), formed by far the most numerous and diverse material available from the area, so that the expansion to include the entire Himalaya did not actually add enough additional material to substantially increase the work required to complete the project.

The only previous treatment of the tribes from the Himalaya was that by Cameron (1932) within his treatment of the family Staphylinidae in the series "The Fauna of British India". When using Cameron's keys and descriptions in this book, I surprisingly often ran into problems in interpreting the species. Later, after revising the types, I realized, that, oddly enough, many of Cameron's comparisons of the Himalayan species with well known European species were misleading and some quite wrong. His species and generic descriptions omitted important characters and many of the species were assigned to the wrong genus or subgenus. These problems significantly contributed to my difficulty in using his works and to the fact that many of Cameron's species were later redescribed by those authors who did not study the older types (see also Historical Review). However, in spite of these criticisms, Cameron's contribution to the knowledge of the family Staphylinidae, particularly from the Oriental region, is enormous. The reason for the criticism is

purely practical: to emphasize that the study of the types is “*conditio sine qua non*”, a condition without which there is no solid base for taxonomic work. This statement cannot be overemphasized.

The present study incorporates all available information about the systematics, geographical distribution, and bionomics of adults. The larvae of the Himalayan species are virtually unknown.

In the Himalayan region (the term is used here freely and has nothing to do with the zoogeographical faunal regions - see the discussion under Techniques) the tribe Quediini consists of 8 genera and 96 species, and the tribe Atanygnathini of 1 genus and 8 species. The Himalaya has recently become a focus of interest and a lot of collecting is being done there. This is fortuitous, because, considering the rate of destruction of the forests in Nepal, quite a few species are likely to disappear before they can be discovered.

I hope that this revision will stimulate interest in this group and that additional collecting in the future will provide the additional material needed to fill in many of the gaps that still exist in our knowledge of these two tribes in the Himalayan region.

HISTORICAL REVIEW

A few papers, dealing to various extents with the Quediini and Atanygnathini of the Himalayan region have been published in the past.

The two widely distributed Palearctic species, *Quedius fulgidus* and *Q. ochripennis* do not really belong to the Himalayan fauna and are not considered in this review. I also do not consider the species *Quedius chlorophanus* and *Q. spectabilis* described from India by Erichson (1840) and Kraatz (1859) respectively, and *Acylophorus microcerus* Fauvel 1895 from Burma (see more in the discussion following the description of *Quedius*).

In 1858 Motschulsky (1858 a,b) described several species of the genera *Acylophorus* and *Atanygnathus* from “Indes orientales”. Three of them, *Acylophorus furcatus*, *A. ruficollis* and *Atanygnathus pictus* occur in the Himalayan region and are the first quediines and atanygnathines to be described from this area. The species *Acylophorus flavipes* and *Atanygnathus piceus* probably do not occur in the Himalaya; their actual distributional ranges are not known.

In 1859 Kraatz described *Acylophorus ruficollis*, *Atanygnathus ruficollis* and *A. fuscus* from “Ceylan” and/or “India orientalis”. Two of them, *Acylophorus ruficollis* and *Atanygnathus ruficollis*, occur in the Himalayan region; all three names are junior synonyms of species described by Motschulsky in 1858.

In 1878 Fauvel treated the genus *Cyrtothorax* (synonym of *Bolitogyrus*); one of the species he described from “Cochinchine”, *B. vulneratus*, occurs in the Himalayan region.

In 1895 Eppelsheim (1895 a,b) described *Quedius filicornis*, *Q. bipunctatus* and *Q. apicicornis*, all from the Himalayan region. The first two species belong to the genus *Indoquedius*.

In 1895 Fauvel, in his series on new species of Staphylinidae from India and Malaysia, described the species *Quedius oculatus*, *Q. intricatus*, *Heterothops oculatus*, *Acylophorus puncticeps*, and *Atanygnathus brevicollis*. All species are valid; three of them occur in the Himalayan region and two (*Q. intricatus* and *A. puncticeps*) are still known only from the original specimens collected in Burma. *Quedius oculatus* belongs to the genus *Indoquedius*.

In 1905 Fauvel erected the genus *Anchocerus* for one new species, *A. birmanus*, from Burma.

In 1915 Bernhauer described the species *Quedius himalayicus* and *Q. aureiventris* from the Himalaya (Kumaon).

In 1922 and 1925 respectively Champion described the species *Quedius conicus* and *Velleius inquietus*, both from Kumaon. The former species belongs to the genus *Indoquedius* and is a junior synonym of *Q. filicornis*, the latter species belongs to the subgenus *Microsaurus* of *Quedius*.

In 1926 Cameron, in his series on new staphylinids from India, erected the genus *Ctenandropus* for the single new species *C. nigriceps* and described the species *Heterothops indicus*, *Quedius sodalis*, *Q. adjacens*, *Q. ripicola*, *Q. fluviatilis*, *Q. anomalus*, *Q. chatterjeei*, *Acylophorus beesonii* and *Anchocerus monticola* all of them from the Himalayan region. *Heterothops indicus* was combined with *H. oculatus* (Cameron 1932), but is in fact a distinct species. The species *Q. sodalis* and *Q. ripicola* proved to be identical.

In 1932 Cameron treated both tribes (as one tribe Quediini) in the series "The Fauna of British India...". His treatment included the genera *Heterothops*, *Ctenandropus*, *Algon* Sharp 1874, *Securipalpus* Schubert 1908, *Barypalpus* Cameron 1932, *Cyrtothorax* (synonym of *Bolitogyrus*), *Velleius* Mannerheim 1831, *Quedius*, *Acylophorus*, *Anchocerus* and *Atanygnathus*; many new species were described, particularly in the genus *Quedius*. The genera *Algon* and *Securipalpus* (congeneric with *Rientis* Sharp 1874) were subsequently excluded from Quediini (Smetana 1977 b) as is now the genus *Barypalpus* (see the discussion following the Quediini). The genus *Velleius* does not occur in the Himalayan region, the only species included by Cameron in fact belongs to the subgenus *Microsaurus* of *Quedius* (see above).

In 1944 Cameron described additional species from the Himalayan region: *Quedius kashmirensis*, *Q. flavocaudatus*, *Q. deceptor*, *Q. decipiens* and *Q. heterogaster*. *Quedius decipiens* proved to be identical with *Q. aureiventris* and *Q. heterogaster* with *Q. muscicola*.

In the following 30 years nothing was published on the subject until Smetana (1975) gave results of the study of the Quediini collected in Nepal by H. Franz in 1970 and 1971. Only the genera *Quedius* and *Acylophorus* were represented in this

material. Ten new species of the genus *Quedius* were described in this paper; two of them were found to be identical with species previously described by Cameron: *Quedius analoka* with *Q. stevensi* and *Q. mandra* with *Q. kashmirensis*.

In 1976 Scheerpeltz (1976b) described the species *Q. cyanopterus* from Nepal. It proved to be a junior synonym of *Q. apicicornis*.

In 1977 Smetana (1977a) presented the results of the study of the Quediini of the Bhutan Expedition 1972 of the Naturhistorisches Museum in Basel, Switzerland. All species in this paper were recorded from Bhutan for the first time. *Quedius (Indoquedius) akalita* and *Anhocerus punctatissimus* were described as new; the former species was found to be identical with *Indoquedius sikkimensis*.

In 1977 Coiffait presented the results of the study of the subfamilies Xantholininae and Staphylininae of the same expedition to Bhutan. He described one new species of *Quedius*: *Q. coeruleus*. It proved to be identical with *Q. gardneri* previously described by Cameron.

In the early eighties Coiffait (1981, 1982 a,b, 1983 a,b) described within a series of papers on the Staphylinidae of the Himalayan region 15 new species in the genera *Quedius* (10), *Algon* (1) (the species is identical with *Indoquedius sikkimensis*), *Heterothops* (2) and *Acylophorus* (2). Except for the two species of *Heterothops* and one species of *Quedius* (*Q. daksumensis*) all other species were found to be identical with species described by previous authors. The larger number of synonyms created was to some extent caused by the fact that Coiffait relied too much on the keys and descriptions of Cameron, which, after the study of Cameron's material and types, proved to be very inaccurate and partly misleading (see also Introduction).

DIAGNOSTIC CHARACTERS

The diagnostic characters of the Quediini were discussed in detail in my revision of the tribe Quediini of America north of México (Smetana 1971:3–6). I refer the user to the above paper for all the information he may need.

In my 1971 revision I did not discuss the sclerites of the male and female genital segments, since they were not studied at that time. Subsequently (Smetana 1976:176–178) the possible importance of the tergite 10 and sternite 9 of the male genital segment was demonstrated (wrongly referred to as tergite 10 and sternite 7). Since both the male and female genital segments are referred to in this revision, I briefly discuss them below.

The male genital segment consists of tergite 9, which is divided into two sclerites, each narrowed distally into a stylus, a fairly small tergite 10 located between the two sclerites of tergite 9, and of fairly large sternite 9 closing the genital segment ventrally (Figs. 42, 171, 297, 308, 324, 351). Both tergite 10 and sternite 9 are thickly sclerotized (Figs. 219, 237, 238, 271, 272), except they are semimembranous in *Ctenandropus* and obsolete in *Atanygnathus* (Figs. 306, 357). In some genera the styli of tergite 9 each bear one strong or, more or less strong,

apical spines (Figs. 308, 324) or spiniform setae (Fig. 351) and their setation may be modified by being either very strong or long, or both (Figs. 171, 297, 306). The shape of tergite 10 and sternite 9, particularly the condition of their apical margins (*e.g.*, rounded, truncate or emarginate - Figs. 219, 237, 238) seems to provide useful characters.

The female genital segment consists of tergite 9, which is divided into two sclerites, each narrowed distally into a stylus; a fairly large tergite 10 located between the two sclerites of tergite 9 (both conditions similar to those of the male genital segment), and the ventral gonocoxites 1 and 2, with each of the second gonocoxites having a minute papilla-like stylus bearing a strong and long apical seta; each stylus of tergite 9 usually bears two strong and very long apical setae (Figs. 384–387, 392–399). The condition of the apical portion of tergite 10 (Figs. 385, 393) seems to be of importance.

Unlike in my 1971 revision (see above), the abdominal segments are numbered morphologically, therefore the 6th visible segment is segment 8 and is the segment immediately preceding the genital segment (see above).

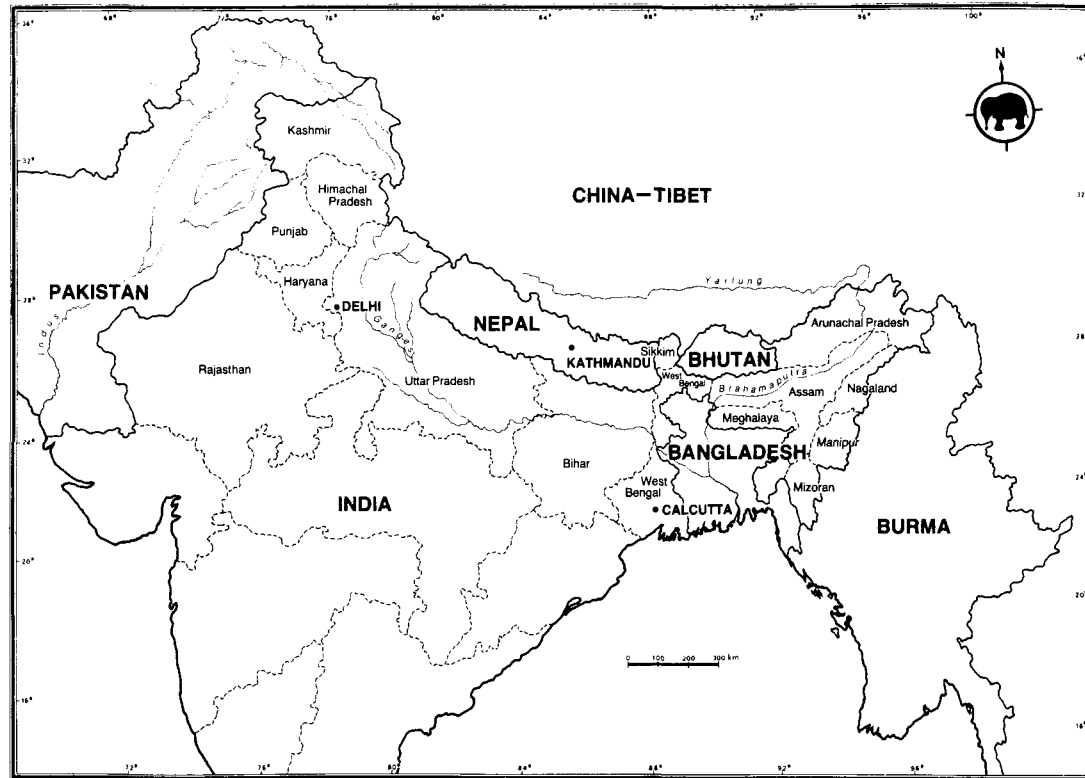
The measurements of body parts were taken in the same way as described in my 1971 revision.

TECHNIQUES

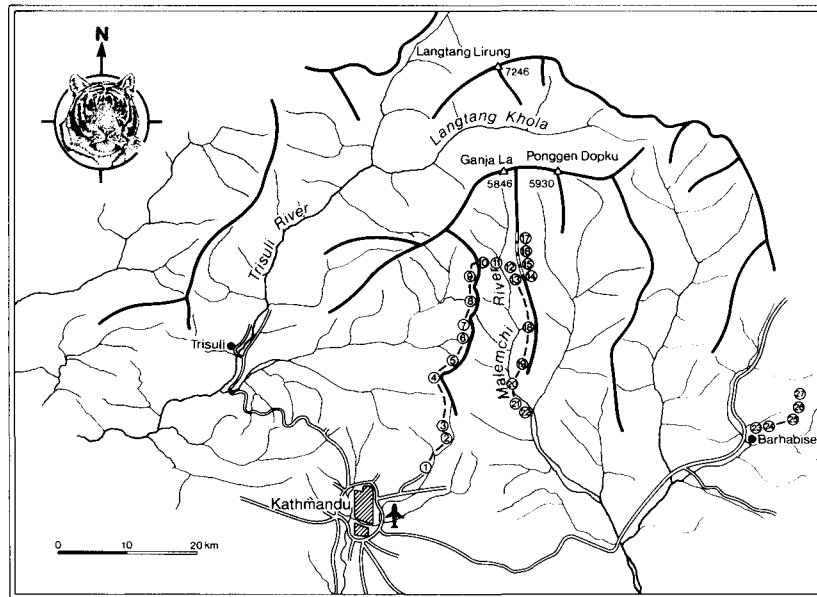
Material

I attempted to accumulate for this revision as many specimens from all known sources, as was reasonably possible. Undoubtedly there are specimens housed somewhere that I did not see; however, I am sure that the material at hand is the largest and most complete collection ever assembled from the Himalaya. In addition to the fairly large collection from the British Museum (Natural History), London, which was mostly collected by G.C. Champion and M. Cameron in northern India prior to Second World War, the vast majority of my material comes from the expeditions to northern India of Drs. C. Besuchet and I. Löbl from the Muséum d'Histoire Naturelle, Genève, Switzerland, and from my expeditions to the Nepal Himalaya, most of them undertaken together with my friend I. Löbl from the above institution. At least two thirds of the available material came from these two sources. The value of this material is accentuated by the fact that it is accompanied by detailed field notes on habitats, *et cetera*.

The material at hand totalled about 3600 specimens.



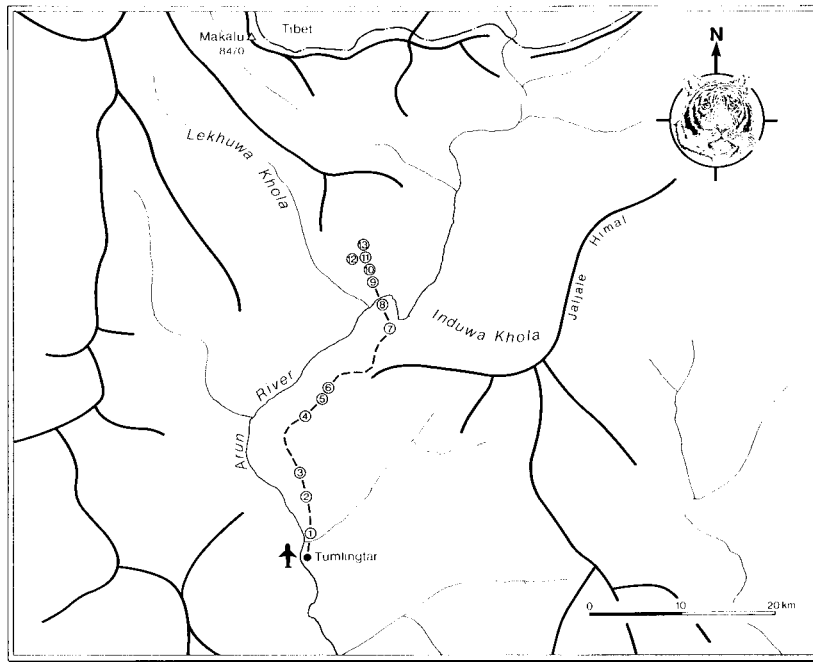
Map 1. Countries and Indian States of the area treated in this revision.



Map 2. 1981 expedition to Nepal, collection localities. 1, above Sundarjal, 2000 m. 2, Chaubas, 2500 m, 2600 m. 3, Burlang Bhanjyang, 2600 m. 4, Chipling, 2300 m. 5, Gul Bhanjyang, 2600 m. 6, Kutumsang, 2200–2700 m. 7, near Mere Dara, 3000 m. 8, Mere Dara, 3100–3300 m. 9, ridge between Mere Dara and Thare Pati, 3500 m. 10, below Thare Pati, 3300–3500 m. 11, Malemchi, 2750–2900 m. 12, below Tarke Ghyang, 2000 m. 13, Tarke Ghyang, 2750 m. 14, above Tarke Ghyang, 3000–3400 m. 15, Yangri-top, 4150 m. 16, Yangri Ridge, saddle Phedi, 3800 m. 17, Yangri Ridge, 4200–4800 m. 18, above Shermathang, 2900 m. 19, Kakani, 2200 m. 20, Tarang Marang, 1000 m. 21, 4 km S Tarang Marang, 900 m. 22, 3 km N Bahunepati, 900 m. 23, Barabise, 1600 m. 24, NE Barabise, 2500 m. 25, Dobate Ridge NE Barabise, 2700–3000 m. 26, below Jangtang Ridge NE Barabise, 3150 m. 27, Jangtang Ridge NE Barabise, 3250–3300 m.

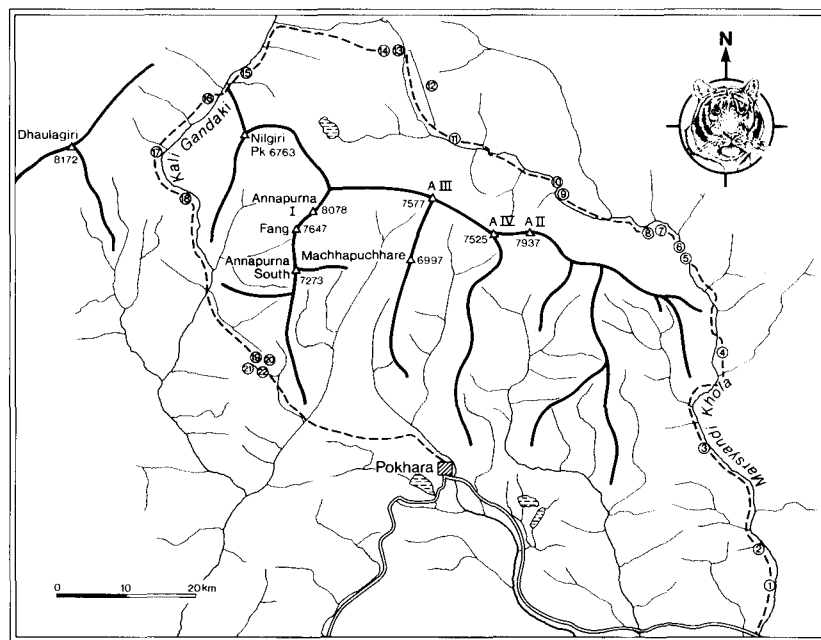
Area

The paper treats the fauna of the following area: 1) The great mountain system of the Himalaya, extending some 2500 km between the rivers Indus in the west and Brahmaputra in the east and covering an area more than 590,000 square kilometers. Included are from north to south: a) Great Himalaya, or the main range, with a crest-line of about 6000 m. b) Lesser Himalaya with altitudes of about 2100–4600 m, running parallel and sometimes merging with the main range and enclosing some large valleys, like Vale of Kashmir in the west, or the Nepal Valley in the central portion; the range Mahabharat Lekh, with the highest mountain Phulcoke (2762 m), closing the Kathmandu Valley in the south, belongs to this system. c) Outer Himalaya with altitudes of about 700–1500 m and consisting mainly of the Siwalik Range, which in Nepal is known as the Churia Range. 2) Also included are the hill ranges in northeastern India, such as the Khasi Hills and the Garo Hills in



Map 3. 1982 expedition to Nepal, collection localities. 1, Dunge Dara N of Tumlingtar, 1100 m. 2, Khandbari, 1700 m. 3, Pangma, 1900 m. 4, Forest above Ahale, 2250–2400 m. 5, Kuwapani, 2100 m. 6, Forest NE Kuwapani, 2450–2550 m. 7, Num, 2000 m. 8, Arun River at Num, 1500–1600 m. 9, below Sheduwa, 2100–2550 m. 10, Sheduwa, 2800 m. 11, above Sheduwa, 3000–3050 m. 12, “Bakan” west of Tashigaon, 3200–3250 m. 13, above Tashigaon, 3100–3600 m.

Meghalaya, or Naga Hills in Nagaland, as long as material for study was available from them. 3) For practical reasons also species from Burma, treated by Cameron (1932) in the series *The Fauna of British India...*, are included. However, not included are species described from Burma after Cameron's publication, particularly those described by Scheerpeltz (1965). The mountains in Burma are not part of the Himalaya proper, although those in northern Burma are in every respect an eastern extension of the Himalaya. There is also a practical reason why Scheerpeltz's species are not treated. Not only would their inclusion further extend the extent of this revision, but also, there are difficulties in interpreting these species most of which were described from single specimens (many of them females), or without considering the characters on the aedoeagus (the slides with the aedoeagi and the drawings were apparently lost during the confused times around the end of the Second World War, see Scheerpeltz 1965:93–95). The interpretation of these species should be attempted within the framework of a revision of the Oriental Quediini and after the accumulation of recent collections from Burma.



Map 4. 1983 expedition to Nepal, collection localities. 1, Turture Dara, 800 m. 2, Tarku, 850 m. 3, Besisahar, 900 m. 4, Bahudanda, 1300 m. 5, below Tal, 1500 m. 6, Tal, 1600 m. 7, Forest W Bagarchhap, 2200–2250 m. 8, Latha Manang W Bagarchhap, 2350–2450 m. 9, 4 km SE Pisang, 3050 m. 10, 2 km SE Pisang, 3050 m. 11, Manang airstrip, 3200 m. 12, Manang to Thorong Pass, 2600–4000 m. 13, below Thorong Pass, east side, 4400 m. 14, Thorong Pass, west slope, 4300–4550 m. 15, Jomsom, 2750 m. 16, 3 km SE Marpha, 2650 m. 17, 2 km N Kalopani, 2550 m. 18, Lete, 2550 m. 19, Ghoropani Pass, N slope, 2700–2750 m. 20, Ridge E Ghoropani Pass, 3100–3150 m. 21, Pun Hill at Ghoropani Pass, 3050–3100 m. 22, Ghoropani Pass, 2850 m.

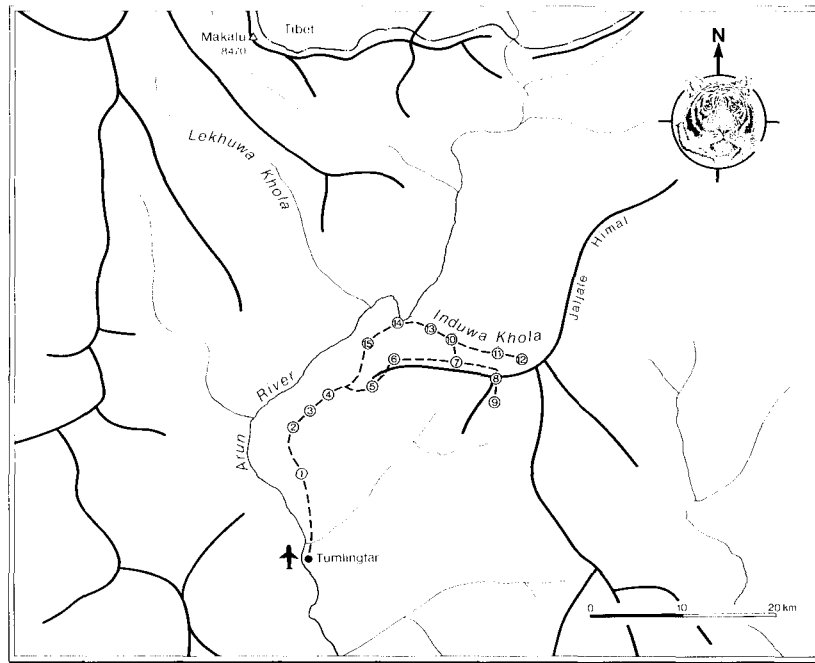
A few species (*Acylophorus flavipes*, *A. bipunctatus* and *Atanygnathus piceus*) were included here for practical reasons (to treat all the species included in Cameron 1932); they either do not (*Acylophorus bipunctatus*), or very likely do not occur in the Himalayan region.

Distributional records and maps

All records and the general distribution given for each species are based, with very few exceptions, on specimens that I have seen.

The geographic distribution of each species is also shown on maps, but again only records of specimens that I have examined are included.

Specimens under “Type material” do not appear again under the “Distribution”, except where such a specimen represents the only record from a particular province or state.



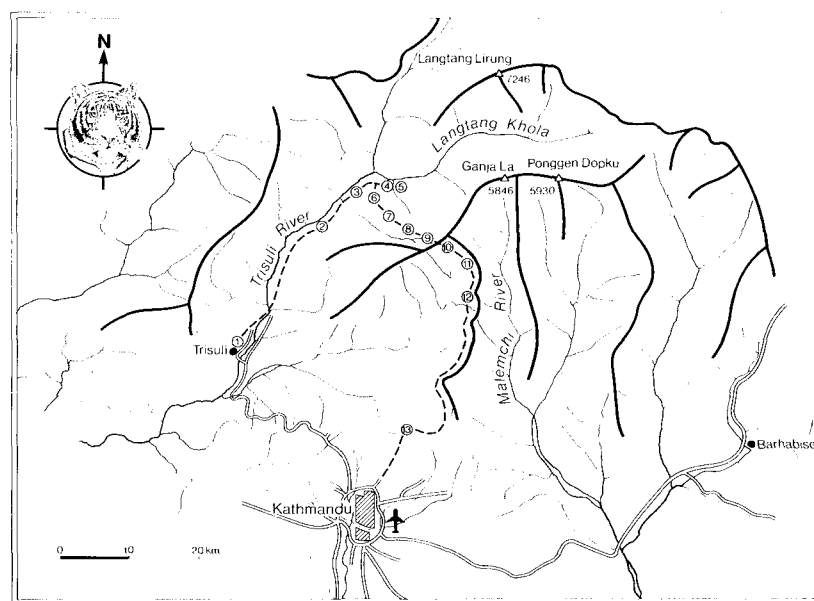
Map 5. 1984 expedition to Nepal, collection localities. 1, Pangma, 1700 m. 2, Forest above Ahale, 2200 m. 3, Sangrati, 2 km SW Kuwapani, 2250 m. 4, Forest NE Kuwapani, 2250–2400 m. 5, Pass NE Mangmaya, 2300 m. 6, Ridge NE Mangmaya, 2800 m. 7, Ridge S Mansingma, 2600–2800 m. 8, Goru Dzire Dara, W slope, 3600 m. 9, Goru Dzire Dara, E Slope, 3350 m. 10, Forest S Mansingma, 2200–2300 m. 11, Induwa Khola Valley, 1700–2150 m. 12, Induwa Khola Valley, 2600–2850 m. 13, 2 km E Mansingma, 2900 m. 14, Arun Valley at Num main bridge, 1000–1150 m. 15, above Num, 1900–2200 m.

Map 1 shows all countries and states of India in the area treated in this revision, to allow quick general orientation.

There were some difficulties in listing some records because of a) different ways of transcription from the native languages, b) because different collectors related some collecting sites to different settlements and c) because of difficulties in obtaining detailed maps of many areas, names provided by native people were used, but were subsequently found unusable since they were not to be found on any maps or in any available lists. This is particularly true for some of the recent collecting sites in Nepal.

The most important cases are listed below:

1) All Nepalese localities from the 1982 and 1984 trips, listed as in Khandbari District, are correctly in Sindhupalchok District. I used Khandbari because it is a well known center on the main trail from the Tumlingtar airstrip to the Tibetan border. I continue to use the term Khandbari District, because it is on all locality



Map 6. 1985 expedition to Nepal, collection localities. 1, 1.5 km N Trisuli Bazar, 550 m. 2, above Bokhahundo, 1950 m. 3, 1.5 km NE Bhargu, 2000 m. 4, Langtang Khola Valley, 2.5 - 3.5 km E Syabru, 1720–1750 m. 5, Langtang Khola Valley, Forest Camp, 1900–1950 m. 6, Shin Gumba above Dhunche, 3300–3400 m. 7, North slope above Syabru, 3600–3900 m. 8, Gosaikund area, Larabina Pass, 4000–4100 m. 9, Gosaikund Lakes, 4200–4450 m. 10, between Gosaikund and Ghopte, 3600 m. 11, between Ghopte and Thare Pati, 3100–3250 m. 12, Thare Pati - Mere Dara, 3200–3600 m. 13, Siwapuri Dara, 2300–2550 m.

labels attached to the beetles.

2) The locality “Forest above Ahale” in Khandbari District (1982 and 1984 trips) is identical with the locality “Chichila s. Ahale” of other collectors;.

3) The locality “Dobate Ridge NE Barahbise” (1981 trip) should correctly read “Pokhare NE Barahbise” (not to be confused with the city of Pokhara). The term “Dobate Ridge” was provided by native people, but it is otherwise unknown.

4) The locality “Jangtang Ridge NE Barahbise” (1981 trip) should correctly read “Yardang Ridge NE Barahbise”.

5) The localities “Arun Valley at Num main bridge” and “Val. Arun ss/Num” (1984 trip) are identical. They both refer to the area around the large bridge across the river Arun just north of Num, and are not to be confused with the narrow hanging bridge across Arun west of Num on the trail to Sheduwa and further on to the Makalu base camp.

Maps 2–6 give all collection localities of the 1981–1985 expeditions to allow easy location of any of them.

Illustrations

All illustrations were drawn to scale in transmitted light by using a Prado-Universal microprojector (Leitz, Wetzlar). Some details shown in the drawings, such as minute setae on the parameres or on the median lobe, or the details of the internal sac of the aedoeagus of some taxa cannot be seen clearly through a stereomicroscope. A compound microscope is recommended for the study of these details.

All photographs of body parts were taken at the facilities of the Electron Microscope Centre, Chemistry and Biology Research Institute, Ottawa, with the aid of an AMR 1000 scanning electron microscope at an accelerating voltage of 10 KV. The parts to be photographed were routinely coated with gold.

Type material

I was able to study the original material of almost all previously described taxa included in this revision. The exceptions are *Quedius spectabilis* Kraatz 1859, *Quedius chlorophanus* Erichson 1840, and *Acylophorus microcerus* Fauvel 1895. I was unable to locate the type material of these species and it is possible that these specimens have been destroyed or lost. I did not attempt to study the type material of the two well known Palearctic species *Q. fulgidus* and *Q. ochripennis*.

The detailed information on the type material of all the respective species is included under “Type material” following the species description.

The type material of the species described as new in this revision is deposited in the collections of the Institutions from which it was originally sent out for study. The type material of the species I collected in Nepal is deposited in the section of my own collection in Ottawa I still own (subfamilies Staphylininae and Xantholininae). It is readily available for study; this portion of my collection will eventually be deposited in the Muséum d’Histoire Naturelle, Genève, Switzerland.

Miscellaneous

This revision is based exclusively on adults. Therefore, whenever a “species” is compared with another “species” or a “genus” with another “genus”, it is understood that the adults of the two particular species, or the adults of the species of the two particular genera, are being compared. Similarly, if under Bionomics *A-us b-us* is said to occur in such and such habitats, it is the adults of *A-us b-us* that prefer these habitats.

In the references for each genus and species (except for original references) only papers pertaining to the area included in this revision, and only subgenera and/or synonyms based on specimens from the area are included. However, at least one paper giving the complete references and synonymies is mentioned at appropriate

place in the revision.

The manuscript of this revision was concluded in May 1986. Any information published after this date is not included.

The Institutions which loaned material for this revision are listed below together with the abbreviations used in the text when referring to the material studied. The assistance of the curators responsible for the loan of the specimens from their respective institutions is gratefully acknowledged.

BMNH	British Museum (Natural History), London, Mr. M.E. Bachus, P.M. Hammond, Mrs. S.L. Shute
CNCC	Canadian National Collection of Insects, Ottawa
FMNH	Field Museum of Natural History, Chicago, Dr. L.E. Watrous
MHNG	Muséum d'Histoire Naturelle, Genève, Dr. I. Löbl
NHMB	Naturhistorisches Museum, Basel, Dr. M. Brancucci
SMFM	Senckenberg Museum, Frankfurt a.M., Dr. R. zu Strassen
USNM	United States National Museum, (now known as National Museum of Natural History), Smithsonian Institution, Washington, D.C., Dr. P.J. Spangler

The following individuals also generously loaned or donated material from their private collections:

HCCC	H. Coiffait, collection in Muséum National d'Histoire Naturelle, Paris, France
HFCC	Dr. H. Franz, Mödling, Austria
SMFM	Dr. J. Martens, Mainz, Federal Republic of Germany (material in SMFM)
GDRC	Mr. G.M. de Rougemont, London, England

SYSTEMATICS

The two tribes Quediini and Atanygnathini were treated by most modern authors as one tribe, the Quediini. However, most recently, I have pointed out (Smetana, 1984:279) that the genus *Atanygnathus* actually does not exhibit any of the characters of the Quediini and that a separate tribe should be restored for it (see Smetana, *l.c.*, and page 368 for more details). The two tribes are easily separated using the following key:

- | | |
|----|-----------------------------------------------------------------------------------------------------|
| 1 | Tarsal formula 5,4,4. Maxillary and labial palpus conspicuously elongate..... Atanygnathini, p. 368 |
| 1' | Tarsal formula 5,5,5. Maxillary and labial palpus not conspicuously elongate. Quediini, p. 179 |

1. Tribe Quediini

Ganglbauer 1895:378; Cameron 1932:264 (*ex parte*); Smetana 1977b:178-180; 1984:279.

The tribe is characterized by: front angles of pronotum distinctly produced beyond anterior margin of prosternum; inflexed lateral portions of front pronotal angles markedly inflexed, meeting prosternum at sharp, almost 90° angle in some taxa; anterior margin of prosternum clearly below level of lower surface of pronotal front angles, both sclerites separated by suture; prothoracic hypomera (epipleura) markedly inflexed and therefore not visible in lateral view; superior marginal line of prothoracic hypomera not curved ventrally in apical portion of prothorax and therefore situated entirely on dorsal surface; inferior line of prothoracic hypomera, if present, usually disappearing before reaching front margin of procoxal cavities and therefore not meeting superior marginal line; head with infraorbital ridge ventrally, at least on basal portion of head (ridge rarely missing).

The above characters of Quediini were discussed in detail (Smetana 1977b:178-180) and I refer the reader to this paper for more information and illustrations.

In the genera *Quedius*, *Indoquedius* and *Bolitogyrus* the aedeagus rests in the abdomen rotated 90°, resting on its right side, that is with the proximal opening and the paramere on left side (the orientation of the aedeagus was unfortunately not recorded for *Quedius gardneri* and *Q. lineipennis*). On the other hand, in the genera *Heterothops*, *Ctenandropus*, *Paratolmerus* and *Acylophorus* the aedeagus rests in the abdomen with the ventral side (where the proximal opening and the paramere are) facing ventrally.

Unlike in my previous treatments of this tribe (Smetana 1958, 1971), the Quediini here do not include the genus *Atanygnathus* which is believed to form a separate tribe (see Smetana 1984:281 and page 368 in this revision).

The tribe is represented by many genera in all zoogeographical regions, eight genera occur in the Himalayan region. Several genera, assigned to Quediini by Cameron (1932), in fact do not belong there. The genera *Rientis* Sharp 1874 (*Securipalpus* Schubert 1908) and *Algon* Sharp 1874 were already assigned to the tribe Staphylinini, Subtribe Xanthopygi (Smetana 1977b:180) and the same is true for the genus *Barypalpus* Cameron 1932. The single species, *B. ruficornis* Cameron 1932, most likely belongs to the genus *Rientis*.

Key to genera of Quediini

- 1 Antenna not geniculate (Figs. 380, 388, 401) 2
- 1' Antenna geniculate (Fig. 409) 6
- 2 (1) Last segment of maxillary palpus very small, thin and sharp,
 subulate; at base only about half as wide as penultimate
 segment at apical margin and much shorter than penultimate

- segment 3
- 2' Last segment of maxillary palpus not subulate, at base more than half as wide as penultimate segment at apical margin and about as long or longer than penultimate segment 4
- 3 (2) Head constricted before neck; infraorbital ridge present. Middle tibia spinose on lateral face..... 4. Genus *Heterothops* Stephens, p. 318
- 3' Head not constricted before neck; infraorbital ridge absent. Middle tibia not spinose on lateral face..... 5. Genus *Ctenandropus* Cameron, p. 334
- 4 (2') Middle tibia not spinose on lateral face. First five segments of antenna lacking fine and dense pubescence, each bearing only strong and long setae. Frons behind antennal insertions with V-shaped impression. Posterolateral and basal margins of pronotum markedly and abruptly explanate. 3. Genus *Bolitogyrus* Chevrolat, p. 314
- 4' Middle tibia markedly spinose on lateral face. First three segments of antenna lacking fine and dense pubescence, each bearing only strong and long setae (Figs. 380, 388, 401). Frons behind antennal insertions without V-shaped impression (Fig. 379). Posterolateral and basal margins of pronotum no more than slightly and gradually explanate 5
- 5 (4') Two or three setiferous punctures between anterior and posterior frontal punctures situated directly at median margin of eye (Fig. 400). Dorsal surface of head and pronotum without microsculpture (microsculpture rarely present in lateral pronotal groove). Dorsal rows of pronotum each with two punctures 2. Genus *Indoquedius* Cameron, p. 300
- 5' No setiferous punctures between anterior and posterior frontal punctures (Fig. 379); if, rarely, punctures present, then separated from median margin of eye by distance at least equal to diameter of puncture. Dorsal surface of head and pronotum with distinct microsculpture and dorsal rows of pronotum each with at least three punctures; if, rarely, dorsal surface of head and pronotum without microsculpture, then dorsal rows of punctures on pronotum absent 1. Genus *Quedius* Stephens, p. 181
- 6 (1') Middle and hind tarsus with empodial setae short, hardly visible between claws and considerably shorter than claws 7
- 6' Middle and hind tarsus with empodial setae long, distinctly protruding between claws and at least as long as claws, but usually longer (Fig. 413).....

-7. Genus *Acylophorus* Nordmann, p. 337
- 7 (6) Middle tibia with numerous strong and long spines on lateral face. First antennal segment lacking fine and dense pubescence..... 8. Genus *Anhocerus* Fauvel, p. 361
- 7' Middle tibia with one or two fine and short spines on lateral face. First antennal segment with fine and dense pubescence.....
- 6. Genus *Paratolmerus* Cameron, p. 335

1. Genus *Quedius* Stephens³

Quedius Stephens 1829:22; Cameron 1932:280.

Subg. *Microsaurus* Dejean 1833:61; Stephens 1835:435; Cameron 1932:281.

Ediquus Mulsant et Rey— 1875:616; Cameron 1932:281.

Subg. *Distichalius* Casey 1915:398, 404.

Subg. *Raphirus* Stephens 1829:23; Cameron 1932:281.

Sauridus Mulsant et Rey 1875:700; Cameron 1932:281.

Type species: *Staphylinus tristis* Gravenhorst 1802, designated by Curtis 1837, pl. 638.

Descriptive notes.— A conventional formal description of this genus is presented by Smetana (1971:40) and Coiffiat (1987:9). I discuss some unconventional characters, particularly those used to distinguish higher taxa of the region covered in this revision.

The head has on dorsal side a set of setiferous punctures characteristically located (chaetotaxy); they were described and named in Smetana 1971 and I refer the reader to this paper for details. In general, there are no additional setiferous punctures present at medial margin of the eye between the anterior and posterior frontal punctures. They are present only in one species (*Q. taruni*), but unlike in species of *Indoquedius*, they are separated from medial margin of the eye by a distance at least equal to the diameter of the puncture. In a few taxa, there are also other additional punctures present around the posterior frontal puncture (e.g., *Q. franzi*), but those are far away from the margin of the eye. Additional setiferous punctures may be present between the two anterior frontal punctures (e.g., *Q. kashmirensis*). The frons behind the antennal insertions is even and lacks the V-shaped impression characteristic of species of the genus *Bolitogyrus*. The eyes vary considerably in size, ranging from minute and flat and considerably shorter than tempora to very large and convex, occupying most of the lateral portions of the head. The dorsal surface of the head bears fine microsculpture; it is missing only in *Q. lineipennis*, which differs also in other characters from all other species (see below and page 300). The three basal antennal segments lack fine and dense pubescence; the large setae on antennal segments, particularly on those past segment 3, are relatively short and moderately strong (Fig. 380, 388). The penultimate

³Only subgenera and references pertaining to the area treated in this revision are given. See Smetana (1971: 38–40) for a complete synonymy with all references up to 1970.

segments of both the maxillary and labial palpi bear only a few fine setae.

The pronotum is usually narrowed anteriorly and evenly transversely convex; its posterolateral and basal margins are occasionally slightly and gradually explanate. The dorsal rows on pronotum are each composed of three punctures, rarely of four punctures (*Q. taruni*), or are entirely missing (*Q. lineipennis*). The scutellum is impunctate, variably punctate, or impunctate but bearing irregular transverse rugae on the basal portion. Elytra vary considerably in length, in correlation with the development of the wings. They are usually variably, simply punctate, occasionally each elytron bears three inconspicuous longitudinal rows of three or four coarser punctures.

On the legs the front tarsi are sexually dimorphic, with four first segments slightly to considerably (Fig. 381) more dilated in the males than in the females. Middle and hind tibiae are spinose on lateral face. The empodial setae of all tarsi are short, considerably shorter than claws (Fig. 389).

On the abdomen the tergites are simple, rarely the first three visible tergites bear a median basal keel (*Q. gardneri*). The tergite 7 bears a whitish apical seam of palisade setae in winged species; brachypterous and apterous species lack this seam (Figs. 382, 383, 391). Female tergite 8 is simple, without a median notch. Male sternite 8, and occasionally also sternites 7 and 6, bear secondary sexual characters consisting of an emargination in the middle of the apical margin (Fig. 18) and a small flattened and smooth triangular area before it.

Male genital segment with tergite 10 and sternite 9 not emarginate apically, except emarginate in *Q. lineipennis*; styli of tergite 9 blunt apically, without strong apical spine (Fig. 171), rarely bearing dense and strong, conspicuously long setae (Fig. 42). Female genital segment with tergite 10 obtusely rounded or arcuate apically (Figs. 384, 392).

Aedoeagus with median lobe symmetrical or occasionally asymmetrical with parameres present. The median lobe never bears microsetae apically. The parameres are fused in one solid sclerite, rarely divided anteriorly in two branches (Fig. 233). The paramere usually bears sensory peg setae on the surface adjacent to the median lobe; these setae vary considerably in number and arrangement. They are missing from some assemblages of species (e.g., *Q. beasoni*, *Q. antennalis*, *Q. apicicornis*, or *Q. ripicola* and *Q. milansaar*, and *Q. kailo*, *Q. tanderi* and *Q. angnimai*). These assemblages of species, based on other characters, do not seem to be closely related; the loss of the sensory peg setae on the paramere therefore apparently occurred independently several times during the evolution. The paramere bears variably developed setae on the apical portion. There are typically two pairs of apical setae and a pair of subapical setae on each lateral margin below the apex (Figs. 5, 9, 31); subapical setae are sometimes missing (*Q. placidus* - Fig. 38), or they are sometimes shifted apically to form with the apical setae one apical group (e.g., *Q. beasoni* or *Q. tanderi* - Figs. 13, 68). In addition to the normal setae, usually there are microsetae at lateral margins (Figs. 94, 102), occasionally also on the surface adjacent to the

median lobe (e.g., *Q. inquietus* or *Q. beesoni* - Figs. 5, 13). The internal sac of aedeagus is in general simple and lacks large heavily sclerotized structures (Figs. 47, 57).

The genus *Quedius* has more than 600 species occurring in all zoogeographical regions. Fifty-seven species are at present known from the Himalayan region.

Classification and comparisons.— I use here the three “classical” subgenera of *Quedius*: *Microsaurus*, *Distichalius* and *Raphirus* as in Smetana (1971). However, it should be mentioned that the concepts of these (and also other) subgenera of *Quedius*, which were established based on limited faunas, need to be revised; other sets of characters will have to be found to meaningfully define those that really deserve the subgeneric status. The currently used characters, such as the size of the eyes, the character of the elytral punctation, etc, clearly are not sufficient. The difficulties to characterize and delimit these subgenera grow with the size of the geographical area included in the study. New characters perhaps can be found in the development of the male and female genital segments and in the re-examination and re-evaluation of the chaetotaxy of the head and pronotum, particularly that of the head. For example, all Palaearctic, Nearctic and also Himalayan species belonging to the subgenus *Microsaurus* always have two setiferous punctures posteromedial of the posterior frontal puncture (Fig. 379), whereas all species belonging to the subgenus *Raphirus* (in my sense, which includes *Sauridus*) have only one puncture posteromedial of posterior frontal puncture (Fig. 421). The species belonging to the subgenus *Distichalius* (characterized mainly by the presence of the two additional setiferous punctures between the anterior frontal punctures) also have, just like those of the subgenus *Microsaurus*, two punctures posteromedial of the posterior frontal puncture. Also, the presence and absence of other setiferous punctures on the head, such as additional punctures between the anterior frontal punctures, or between the anterior and posterior frontal puncture on each side of the head may be more significant than considered at present (see also Bordoni 1973:42, etc.).

These are just a few simplified thoughts that need more exploration and correlation with other possible characters. Should these ideas prove correct, they would lead to the reassignment of many species to different subgenera.

Within the fauna treated in this paper, two species are quite isolated and their assignment to existing subgenera poses serious problems. I believe that their subgeneric or perhaps generic assignment can be properly assessed only within a study involving possibly the entire Oriental fauna. These species are 1) *Q. gardneri*, assigned here tentatively to the subgenus *Raphirus*, and 2) *Q. lineipennis* which is not assigned to any subgenus (see also the discussions following the descriptions of either of the species).

Two species of *Quedius*: *Q. spectabilis* Kraatz 1859 and *Q. chlorophanus* Erichson 1840, are not treated in this revision, because their types are apparently lost and their correct interpretation is therefore not possible. *Quedius spectabilis* was described from “India borealis”, apparently from one single female. It is probable

that one of the species related to *Q. apicicornis*, possibly *Q. beesoni* (of which some specimens have antennae and abdomen uniformly black), is in fact synonymous with it. *Quedius chlorophanus* was described from Bengal ("Habitat in Bengalia"); it very likely does not occur in the Himalayan region; I also have some doubts about the assignment of this species to *Quedius*, although Erichson (l.c.) compares its general habitus to that of *Q. fulgidus*.

Key to subgenera of *Quedius*

- 1 Pronotum with dorsal rows of punctures, each row with three or rarely more punctures; or, rarely, dorsal rows irregular and formed by very coarse pit-like punctures. Clypeus without extremely fine punctures..... 2
- 1' Pronotum without dorsal rows of punctures. Clypeus with extremely fine punctures
 -*Q. lineipennis* Cameron (subgenus ?), p. 297
- 2 (1) First three abdominal tergites with elevated median keel
 -3. subg. *Raphirus* Stephens (pars) (*Q. gardneri*), p. 295
- 2' None of abdominal tergites with elevated median keel..... 3
- 3 (2) Head, pronotum and elytra bright metallic green or dark green, bluish-green or purplish-green. Head with deep and coarse punctures forming more or less distinct rugae on posterior portion, or at least with numerous coarse punctures posteromedial of each eye.....
 - 3. subg. *Raphirus* Stephens (pars), p. 231
- 3' Head, pronotum and elytra at most with metallic reflections. Head with scattered setiferous punctures 4
- 4 (3') No additional setiferous punctures between anterior frontal punctures 5
- 4' Two additional setiferous punctures between anterior frontal punctures2 subg. *Distichalius* Casey, p. 227
- 5 (4) Two or three additional punctures on each side along medial margin of eye between anterior and posterior frontal punctures3 subg. *Raphirus* Stephens (pars) (*Q. taruni*), p. 271
- 5' No additional punctures between anterior and posterior frontal punctures 6
- 6 (5') Two or rarely three setiferous punctures between posterior frontal puncture and posterior margin of head (Fig. 379) (occasionally one puncture missing unilaterally). Eyes small to moderately large, only occasionally distinctly larger than tempora 1. subg. *Microsaurus* Dejean, p. 185
- 6' Only one puncture between posterior frontal puncture and

posterior margin of head (fig. 421). Eyes large, distinctly to considerably longer than tempora
 3. subg. *Raphirus* Stephens (pars), p. 231

1. Subgenus *Microsaurus* Dejean

Type species: *Staphylinus lateralis* Gravenhorst 1802, fixed by Westwood (1838:16).

The subgenus is used here in general in the same sense as in Smetana (1971:49). However, see the discussion following *Quedius* (*s. lat.*) for the ever increasing difficulties to satisfactorily characterize and delimit the conventional "classical" subgenera of *Quedius*.

Taxonomic notes.— I do not recognize species-groups in this subgenus, for similar reasons as discussed under *Acylophorus*. As there, in *Microsaurus* there are assemblages of species linked together by some characters, but I found it impossible to meaningfully characterize them as definite species-groups. I had a distinct feeling that there are many gaps and/or missing links which possibly could be found in purely tropical faunas of other areas of the Oriental region.

Quedius inquietus is fairly isolated by the markedly incrassate antennae with outer segments subserrate; this was the main reason why the species was originally placed in the genus *Velleius* by Champion (1925:107).

The species *Q. apicicornis*, *Q. beesoni* (most specimens), *Q. flavocaudatus*, *Q. antennalis* and *Q. birmanus* share the character state of the pale tips of antenna and the pale tip of abdomen, and, except for *Q. apicicornis*, the character state of scutellum bearing irregular transverse rugae. Most species in this assemblage share the character state of the absence of the sensory peg setae on the underside of the paramere (*Q. apicicornis*, *Q. beesoni*, *Q. antennalis* and possibly *Q. birmanus*); however, the sensory peg setae are present on the paramere of *Q. flavocaudatus*. The two species *Q. apicicornis* and *Q. beesoni* are very similar externally and also share some characters on the aedeagus, but *Q. apicicornis* lacks the transverse rugae on the scutellum, characteristic of all other species of this assemblage.

The species *Q. martensi*, *Q. dui*, *Q. adjacens*, *Q. ochripennis* and *Q. fulgidus* are an obviously artificial assemblage which is difficult to characterize; they do not fit in any other assemblage. They are mostly of the habitus of a "classical *Microsaurus*" with more or less small eyes, except for *Q. adjacens* with moderately large eyes.

Quedius placidus and *Q. lesagei* are unique by the presence of irregular longitudinal rows of coarser punctures on the elytra.

The species *Q. stevensi*, *Q. ripicola* and *Q. milansaar* are characterized by the very deep and coarse punctation of the elytra. They are quite similar to each other in all external characters; however, despite this similarity, *Q. stevensi* differs from both other species by the drastically different, unique shape of the aedeagus and by the

styli of tergite 9 of the male genital segment bearing dense, strong and conspicuously long setae (Fig. 42).

The remaining five species *Q. franzi*, *Q. goropanus*, *Q. tanderi*, *Q. kailo* and *Q. angnimai* are brachypterous with more or less short elytra and with abdominal tergite 7 lacking the whitish apical seam of palisade setae. They are endemic Himalayan species with more or less restricted ranges, occurring at elevations above 3000 m.

Key to species of *Microsaurus*

- 1 Antenna markedly incrassate, segment 4 transverse, outer segments subserrate. Aedoeagus as in Figs. 2–5. Length 10.5–13.0 mm 1. *Q. inquietus* (Champion), p. 189
- 1' Antenna not markedly incrassate, segment 4 about as long as wide, outer segments not subserrate. Aedoeagi different..... 2
- 2 (1') Scutellum with sculpture consisting of irregular transverse rugae in middle of basal portion. 3
- 2' Scutellum smooth, without sculpture of irregular transverse rugae on basal portion..... 6
- 3 (2) Dorsal rows on pronotum each with four punctures. Elytra red. Aedoeagus as in Figs. 15, 16. Length 12.0–13.3 mm..... 4. *Q. flavocaudatus* Cameron, p. 200
- 3' Dorsal rows on pronotum each with three punctures. Elytra never red (occasionally reddish-piceous in teneral specimens). Aedoeagi different 4
- 4 (3') Abdominal tergite 3 (first visible) with smooth impunctate area in middle. Sublateral rows on pronotum each with two to four punctures, last puncture situated behind level of large lateral puncture. If only two punctures present (usually only unilaterally), posterior puncture may be situated at level of large lateral puncture. Aedoeagus as in Figs. 11–13. Length 8.0–12.0 mm 3. *Q. beesoni* Cameron, p. 196
- 4' Abdominal tergite 3 (first visible) evenly punctate, without smooth impunctate area in middle. Sublateral rows on pronotum each with one or two punctures, posterior puncture (if present) situated no further back than about level of large lateral puncture 5
- 5 (4') Large lateral puncture on pronotum situated not far from lateral margin, separated from it by distance about equal to width of apex of antennal segment 2. Aedoeagus as in Figs. 17, 19, 20. In general smaller and less robust species. Length 11.0 mm..... 5. *Q. antennalis* Cameron, p. 201

- 5' Large lateral puncture on pronotum situated very far from lateral margin, separated from it by distance almost twice as large as width of apex of antennal segment 2. Male unknown. In general larger and more robust species. Length 12.0 mm.....
.....6. *Q. birmanus* Cameron, p. 202
- 6 (2') Abdominal tergite 7 (fifth visible) with whitish apical seam of palisade setae. Elytra relatively long, at suture about as long as and at sides variably longer than pronotum at midline. Fully winged species. 7
- 6' Abdominal tergite 7 (fifth visible) without whitish apical seam of palisade setae. Elytra short, both at suture and at sides variably shorter than pronotum at midline. Brachypterous species... 17
- 7 (6) Posterior frontal puncture situated much closer to posterior margin of head than to posteromedian margin of eye. Aedoeagus as in Figs. 25–27. Length 8.7 mm.....
..... 8. *Q. dui spec. nov.*, p. 204
- 7' Posterior frontal puncture situated at least slightly closer to posteromedian margin of eye than to posterior margin of head, sometimes quite close to margin of eye..... 8
- 8 (7') Punctuation of elytra not uniform, each elytron with three inconspicuous longitudinal rows of three or four coarser punctures. 9
- 8' Punctuation of elytra uniform, without longitudinal rows of coarser punctures. 10
- 9 (8) Eyes small, tempora much longer than length of eyes seen from above (ratio 1.66). Aedoeagus as in Figs. 36–38. Length 7.8–8.0 mm..... 12. *Q. placidus* Cameron, p. 210
- 9' Eyes large, tempora considerably shorter than length of eyes seen from above (ratio 0.23). Aedoeagus as in Figs. 40, 41. Length 5.7–6.5 mm.....
..... 13. *Q. lesagei spec. nov.*, p. 211
- 10 (8') Sublateral rows on pronotum each with no more than two punctures, posterior puncture situated before level of large lateral puncture 11
- 10' Sublateral rows on pronotum each with at least three punctures, posterior puncture situated behind level of large lateral puncture (rarely last puncture missing unilaterally) 12
- 11 (10) Posterior frontal puncture situated close to posteromedian margin of eye, separated from it by distance somewhat larger than diameter of puncture. Eyes large and convex, about as long as tempora seen from above. Elytra at least slightly dark bluish or greenish-blue. Aedoeagus as in Figs. 7–9. Length 7.1–12.0 mm.....2. *Q. apicicornis* Eppelsheim, p. 192

- 11' Posterior frontal puncture situated far from posteromedian margin of eye, just slightly closer to posteromedian margin of eye than to posterior margin of head. Eyes small and rather flat, considerably shorter than tempora seen from above. Elytra piceous-black. Aedoeagus as in Figs. 22, 23. Length 10.0 mm ..
.....7. *Q. martensi* Smetana, p. 203
- 12 (10') Posterior frontal puncture situated away from posteromedian margin of eye, separated from it by distance at least twice as large as diameter of puncture..... 13
- 12' Posterior frontal puncture situated quite close to posteromedian margin of eye, separated from it by distance not longer than diameter of puncture or actually touching it; no additional setiferous puncture between it and posteromedian margin of eye..... 15
- 13 (12) One additional setiferous puncture between posterior frontal puncture and posteromedian margin of eye..... 14
- 13' No additional setiferous puncture between posterior frontal puncture and posteromedian margin of eye. Elytra red. Length 7.0–11.5 mm 11. *Q. fulgidus* (Fabricius), p. 209
- 14 (13) Elytra red. Aedoeagus as in Figs. 33, 34. Length 8.0–10.2 mm 10. *Q. ochripennis* Ménétries, p. 207
- 14' Elytra piceous-black. Aedoeagus as in Figs. 29–31. Length 9.5–11.2 mm 9. *Q. adjacens* Cameron, p. 205
- 15 (12') Aedoeagus conspicuously large and voluminous, paramere very wide basally, markedly narrowed anteriorly (Fig. 44). Length 6.9–8.6 mm 14. *Q. stevensi* Cameron, p. 212
- 15' Aedoeagus narrow and elongate, paramere of different shape (Figs. 46–49, 51–54) 16
- 16 (15') Apical portion of median lobe of aedoeagus forming short rounded hook in lateral view (Fig. 48). Length 6.8–8.3 mm 15. *Q. ripicola* Cameron, p. 215
- 16' Apical portion of median lobe of aedoeagus forming large, elongate hook in lateral view (Fig. 53). Length 7.5–8.3 mm 16. *Q. milansaar spec. nov.*, p. 217
- 17 (6') Sublateral rows on pronotum each with three or four punctures, posterior puncture situated distinctly behind level of large lateral puncture 18
- 17' Sublateral rows on pronotum each with only two punctures, posterior puncture situated before level of large lateral puncture. Head with one additional setiferous puncture anteromedial and occasionally another additional setiferous puncture posteromedial of posterior frontal puncture. Aedoeagus as in Figs. 74–77. Length 7.6–9.5 mm.....

- 21. *Q. angnimai spec. nov.*, p. 223
- 18 (17) Head with two or three additional setiferous punctures posteromedial and usually one anterior of posterior frontal puncture; posteromedian additional punctures form with two usual punctures near posterior margin of head an irregular group of four or five punctures. Aedoeagus as in Figs. 56–59. Length 5.8–7.1 mm..... 17. *Q. franzi* Smetana, p. 217
- 18' Head without additional setiferous punctures near posterior frontal puncture 19
- 19 (18') Median lobe of aedoeagus, except for small lateral lobe on each side just below middle, entirely covered by paramere; paramere with sensory peg setae forming two lateral groups situated well posterior of apex of paramere (Figs. 61–64). Male sternite 8 with three strong setae on each side (Fig. 60). Length 6.9–7.4 mm 18. *Q. goropanus* Smetana, p. 220
- 19' Median lobe of aedoeagus without small lateral lobe on each side, entirely covered by paramere except for apex; paramere without sensory peg setae (Figs. 66–68, 70–72). Male sternite 8 with four strong setae on each side (Fig. 65)..... 20
- 20 (19') Apical narrowed portion of median lobe short; paramere with four apical setae at each side of median emargination (Figs. 67, 68). Length 6.9–7.4 mm 19. *Q. tanderi spec. nov.*, p. 222
- 20' Apical narrowed portion of median lobe long; paramere with three apical setae at each side of median emargination (Figs. 71, 72). Length 7.1–7.3 mm 20. *Q. kailo spec. nov.*, p. 223

1. *Quedius (Microsaurus) inquietus* (Champion)

Figs. 1–5; Map 1

Velleius inquietus Champion 1925:107; Cameron 1932:279.

Quedius leptocephalus Coiffait 1982b:276 (*syn.nov.*)

Description.— Deep black, head no more than feebly iridescent, pronotum and abdomen iridescent; appendages black, tarsi usually slightly paler, rather piceous– black to piceous. Head in male narrower than pronotum, of rounded quadrangular shape, wider than long (ratio 1.2), parallel-sided behind eyes, with obtuse posterior angles. Head in female small and relatively narrow, much narrower than pronotum, as long as wide to feebly longer than wide (ratio 1.08), parallel-sided to slightly narrowed behind eyes, posterior angles quite obtuse and hardly noticeable; eyes small or moderately large (female) and only slightly protruding from lateral outlines of head, tempora distinctly (male, ratio 1.6) or slightly (female, ratio 1.3) longer than length of eyes seen from above; no additional punctures between anterior frontal punctures; posterior frontal puncture situated closer to posteromedian margin of eye than to posterior margin of head, two additional setiferous punctures between it and posterior margin of head; temporal puncture situated closer to posterior margin of head than to posterior margin of eye; deflexed portion of tempora with numerous fine punctures bearing rather short but stiff setae; surface of head with very dense and fine microsculpture of transverse waves. Antenna short and stout, incrassate anteriorly, segments 2 and 3 short, segment 2 only feebly to slightly longer than wide, segment 3 slightly stronger and about as long as to slightly longer than segment 2, segment 4 slightly transverse, following segments becoming increasingly

transverse and subserrate, last segment shorter than 2 preceding segments combined. Pronotum wider than long (ratio 1.2), broadly rounded basally and markedly narrowed anteriorly, with lateral portions somewhat explanate, disc markedly transversely convex; dorsal rows each with three fine punctures; sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; microsculpture of pronotum similar to that of head, but still finer and denser. Scutellum large, usually impunctate, but in some specimens with two or three fine punctures with setae comparable in length to those on elytra. Elytra rather long, at base hardly narrower than pronotum at widest point, at suture slightly longer (ratio 1.2), at sides distinctly longer (ratio 1.4) than pronotum at midline; punctation and pubescence fine and dense, pubescence deep black, surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 bearing distinct whitish apical seam of palisade setae, punctation and pubescence of abdominal tergites similar to that on elytra, but slightly sparser, pubescence deep black. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with three long setae on each side; apical margin with rather shallow, obtusely triangular emargination and numerous, dark and long setae (Fig. 1), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 2–5) small, both median lobe and paramere asymmetrical apically; median lobe obtuse apically; apical part, when paramere removed, with two subapical hooks markedly projecting ventrally in lateral view. Paramere not quite reaching apex of median lobe, with four apical setae, median pair distinctly longer than lateral pair, and with one pair of setae at each lateral margin rather far below apex; underside of paramere distinctly excavate, with only two sensory peg setae at each lateral margin below apex and with numerous extremely fine setae.

Length 10.5–13.0 mm.

Type material.—*Quedius inquietus*. Champion (1925:107) described the species from a single specimen from Kumaon. The male holotype in the British Museum (Natural History), London, is labelled as follows: “3109” (label upside down)/“Type H.T.” (round label with red margin)/ “Sunderhunga V.W. Almora Divn. 8000–12000 feet June '19 H.G.C.”/ “G.C. Champion. Brit. Mus. 1925–42.” (label upside down)/ “E.M.M. 1925. det. G.C.C.” (label upside down)/ “Velleius inquietus, Champ.”/ “Velleius himalayanus type Ch.”. The specimen was dissected, and the aedoeagus and sternite 8 were mounted into Canada Balsam; tergite 8 and the genital segment were glued to plate with beetle.

Quedius leptocephalus. Coiffait (1982b:276) described the species from a single female specimen from Nepal. It is deposited in the Naturhistorisches Museum, Basel, Switzerland, and is labelled as follows: “Manigow 10.VI.1200–1900 m”/ “Nepal 1978 Bhakta B. Ch.”/ “TYPE”/ “*Quedius* (*Microsaurus*) *leptocephalus* H. Coiffait 1981”. This female agrees in all essential characters with the male holotype of *Q. inquietus*; the name *Q. leptocephalus* is a junior synonym of *Q. inquietus*. The specimen was accordingly labelled.

Geographical distribution.—*Quedius inquietus* is at present known from Uttar Pradesh, West Bengal and from Nepal (Map 7).

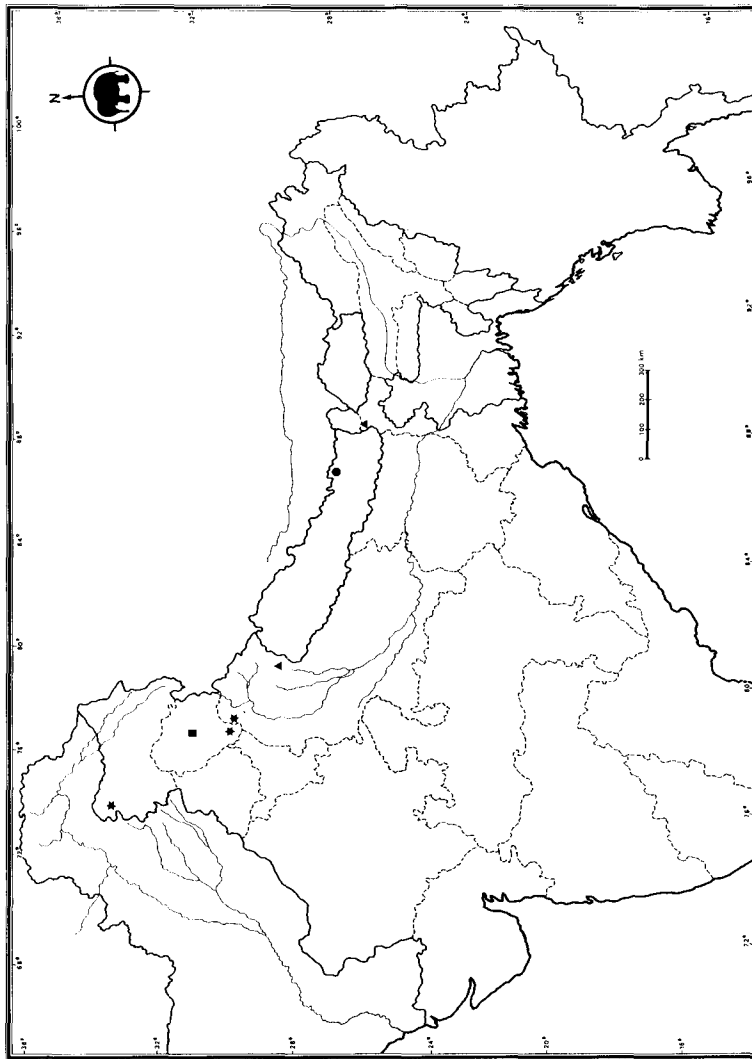
Material studied.— 4 specimens.

INDIA. *Uttar Pradesh*. Kumaon (see Type material of *Q. inquietus*). *West Bengal*. Gonglu-Garibas, 3050 m, 7.VI.75, W. Wittmer (NHMB) 1.

NEPAL. Chandam Bari, 3350 m, 22.VI.78, B. Bhakta (NHMB) 1.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons and variations.—*Quedius inquietus* is very distinctive due to the very short, incrassate antenna with outer segments subserrate, in combination with the deep black colouration of the body, and the small head in the female sex. It



Map 7. Distribution records for: *Quedius inquitus* (▲); *Q. adjacens* (★); *Q. marteni* (●); and *Q. ditii* (■).

cannot be confused with any other species of *Quedius* occurring in the Himalayan region. The antenna of *Q. inquietus* resembles to some extent that of the species of the genus *Velleius*. However, the antennal segments 5–10 are not pectinate as in the species of *Velleius*, the scutellum is impunctate, the general habitus and the type of the aedoeagus is that of a typical *Microsaurus*. There seems to be little doubt that the species belongs to the subgenus *Microsaurus* of *Quedius*. Champion (1925:108) himself assigned it to *Velleius* with some doubts.

The holotype of *Q. inquietus* is a male, not a female as suspected by Champion (1925:108).

In the female of *Q. inquietus*, the head is distinctly narrower and more narrowed posteriorly behind the eyes, and the eyes are larger than in the male. However, the female head looks narrower than it actually is (see the description).

2. *Quedius (Microsaurus) apicicornis* Eppelsheim

Figs. 6–9, 379–387; Map 8

Quedius apicicornis Eppelsheim 1895b:391; Cameron 1932:286; Smetana 1975:325; Coiffait 1982a:32

Quedius flavoterminatus Cameron 1932:290 (*syn.nov.*)

Quedius cyanopterus Scherpeltz 1976b:150; Coiffait 1982a:32

Quedius sherpai Coiffait 1982a:77 (*syn.nov.*)

Description.— Black, head and pronotum usually feebly to distinctly, abdomen markedly iridescent, elytra usually more or less dark bluish, apical third of abdominal segment 7 (fifth visible) and apex of abdomen yellowish-red, occasionally segment 7 only vaguely paler apically and also base of segment 8 darkened, rarely almost entire abdomen dark; palpi brownish to piceous; antennae piceous-black, usually with segments 8–10 pale yellowish to whitish-yellow with last segment variably darkened, either partially or entirely; occasionally also segment 7 partially or entirely pale, and/or last segment entirely pale, or only segments 9–10 pale; legs piceous-black to black with more or less paler tarsi. Head (Fig. 379) in general of rounded quadrangular shape, about as long as wide, moderately to distinctly narrowed posteriorly behind eyes, posterior angles rounded and indistinct; eyes convex and prominent, tempora about as long as length of eyes seen from above; no additional punctures between anterior frontal punctures; posterior frontal puncture situated close to posteromedian margin of eye, but separated from it by distance distinctly larger than diameter of puncture; two additional setiferous punctures between it and posterior margin of head; temporal puncture situated closer to posterior margin of eye than to posterior margin of head; surface of head with very fine and dense microsculpture of transverse waves becoming gradually irregular anteriorly on clypeus. Last segment of maxillary palpus much longer than penultimate segment, slightly attenuate basally. Antenna moderately long and only slightly thickened toward apex, segment 3 much longer than segment 2 (Fig. 380), segments 4–7 longer than wide, gradually becoming shorter, outer segments about as long as wide, occasionally slightly longer than wide, last segment shorter than two preceding segments combined. Pronotum about as long as wide, broadly rounded basally, slightly to distinctly narrowed anteriorly, rather markedly transversely convex, lateral portions hardly to slightly explanate laterally, lateral margins evenly arcuate, occasionally somewhat flattened basally; dorsal rows each with three fine punctures, sublateral rows each with only two punctures, posterior puncture situated before level of large lateral puncture; microsculpture on pronotum similar to that on head, but still finer and denser. Scutellum large, impunctate, smooth. Elytra moderately long, at base narrower than pronotum at widest point, at suture shorter (ratio 0.80), at sides about as long as pronotum at midline; punctation and pubescence moderately dense, fine to moderately coarse, surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 bearing whitish apical seam of palisade setae (Figs. 382, 383); punctation and pubescence of abdominal tergites finer than that of elytra and about equally dense, gradually becoming slightly sparser toward apex; middle portion of tergite 3 (first visible) and occasionally also that of following tergite, to less extent, impunctate. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus slightly more dilated than in female (Fig. 381). Apical margin of sternite 8 with moderately wide and not deep emargination (Fig. 6), triangular area before emargination flattened and smooth. Aedeagus (Figs. 7–9) elongate, median lobe parallel-sided in middle part, then dilated toward apical part which is markedly narrowed anteriorly, deeply emarginate apically and broadly grooved at midline before emargination to accommodate apical part of paramere; both portions of apical part of median lobe just laterad to median emargination distinctly hooked on surface adjacent to paramere. Paramere variably exceeding apex of median lobe, very narrow and elongate, variably dilated, rounded, obtusely truncate to feebly emarginate apically; four short apical setae and one pair of long lateral setae on each side close to apex; underside of paramere without sensory peg setae, often variably swollen; internal sac with typically shaped, markedly sclerotized structure with short and stout subacute tubercles.

Length 7.1–12.0 mm.

Type material.— *Quedius apicicornis*. Eppelsheim (1895b:391) described the species from a single female from Sikkim. The holotype is deposited in the Eppelsheim collection in the Naturhistorisches Museum in Wien, Austria. It is labelled as follows: pink square label/ “Sikkim”/ “apicicornis Sikkim Epp. Himalaya. leg. Waagen”/ “Je ne l’ai pas”/ “c. Epplsh. Stend d.”/ “Typus” (white label)/ “Typus” (red label). It is very well preserved and intact (see also Smetana 1975:325).

Quedius cyanopterus. Scheerpeltz (1976b:150) described the species from six specimens from Nepal. They are deposited in the Zoologische Staatssammlung des Bayerischen Staates, München, Federal Republic of Germany, and are labelled as follows: Spec. No. 1: “♂”/ “Nepal Kathmandu 10.–15.IV.62 1400 m leg. G. Ebert”/ “*Quedius cyanopterus* Scheerp.”/ “Holotypus”/ “Typus *Quedius cyanopterus* Scheerpeltz”/ “*Quedius cyanopterus* nov. spec. det. Scheerpeltz. 1966”. Spec. no. 2: “♀”/ “Nepal Ting-Sang-La 3800 m 6/7.V.62, Leg. G. Ebert”/ “*Quedius cyanopterus* Scheerp.”/ “Allotypus”/ “*Quedius cyanopterus* O. Scheerpeltz”. Spec. No. 3: first two labels as in allotype, plus label “Cotypus *Quedius cyanopterus* O. Scheerpeltz”. Spec. No. 4 and 5: same three labels as in Spec. No. 3. Spec. No. 6: “♀”/ “Nepal Prov. nr. 1 East Pultschuk”/ “30.V.1964 1700 m Löffler leg. (6)”/ “Staatslg. München”/ “Cotypus *Quedius cyanopterus* O. Scheerpeltz”.

All six specimens are conspecific; the allotype is in fact a male as is the holotype. They cannot be distinguished from the holotype of *Q. apicicornis*; the name *Q. cyanopterus* is a junior synonym of *Q. apicicornis*, as already suggested by Coiffait (1982:32). All specimens were accordingly labelled.

Quedius sherpai. Coiffait (1982a:77) described the species from three specimens from Nepal. I was able to study two specimens deposited in the Senckenberg Museum, Frankfurt a.M., Federal Republic of Germany. They are labelled as follows: Spec. No. 1: “Trisuli-Tal Gosaikund, 3200 m 23.–26.IV.1973”/ “Nepal-Expedition Jochen Martens”/ “TYPE”/ “Holo-typus” SMFC 15106 (underside)/ “*Quedius (Microsaurus) sherpai* H. Coiffait 1979”. Spec. No. 2 (female): first two labels as in holotype, plus “PARATYPE”/ “Para-typus SMFC 15107” (underside). Both specimens cannot be specifically distinguished from the holotype of *Q. apicicornis* (see the discussion for all details); the name *Q. sherpai* is a junior synonym of *Q. apicicornis*. Both specimens were accordingly labelled.

Quedius flavoterminalis. Cameron (1932:290) described the species from a single specimen from the Darjeeling district. The female holotype in the British Museum (Natural History), London, is labelled as follows: "Type" (round label with red margin)/ "Rangirum, 6000' Darjeeling, Bengal. J.C.M. Gardner 8.IX.1929"/ "500"/ "Quedius flavoterminalis Cam. TYPE"/ "M. Cameron. Bequest. B.M. 1955-147".

The specimen is in poor general shape and the base of the abdomen is damaged. It cannot be distinguished from small females of *Q. apicicornis*. The name *Q. flavoterminalis* is a junior synonym of *Q. apicicornis*. My determination label "Quedius apicicornis Epp. Smetana det. 1983" has been attached to it.

Geographical distribution.— *Quedius apicicornis* is known from Nepal, West Bengal, Sikkim and Bhutan (Map 8).

Material studied.— 149 specimens.

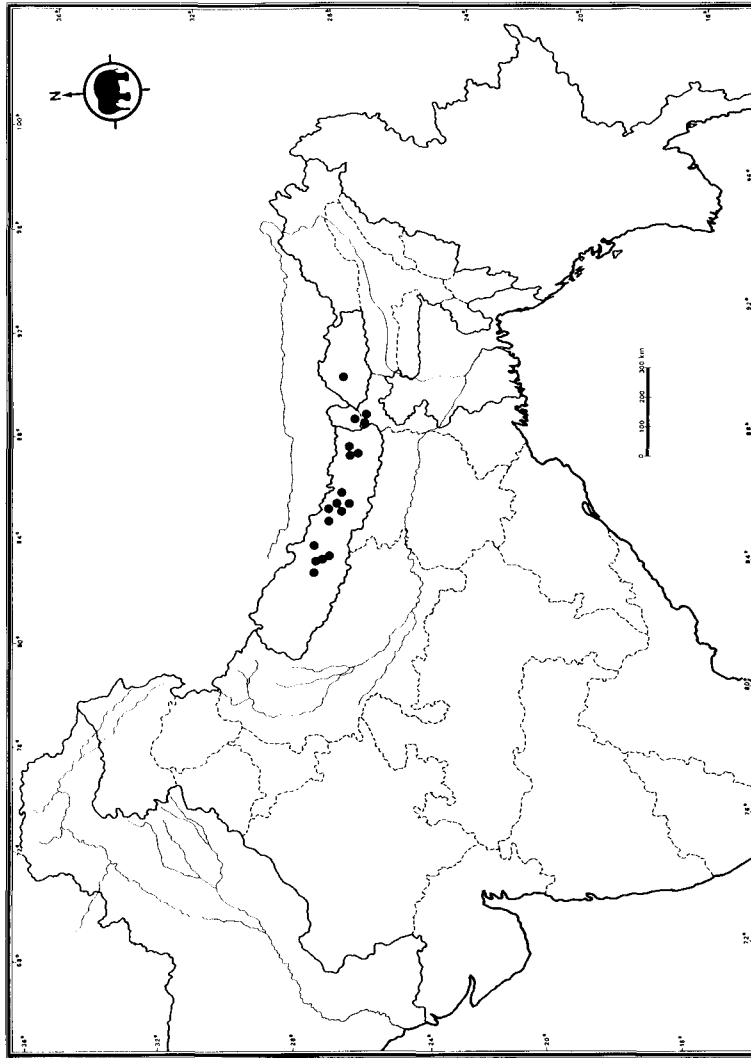
BHUTAN. Dechhi Paka, 3300 m, 19-20.VI.72 (NHMB) 1.

INDIA. "India" (BMNH) 1. *West Bengal*. Ghum Distr., Tiger Hill, 8500-10000', V.VI.1931. Cameron (BMNH) 1. *Sikkim*. See Type material of "*Q. apicicornis*".

NEPAL. *Kathmandu Distr.* Siwapuri, 24.III.82, de Rougemont (GDRC) 3; Siwapuri Dara, 2300-2500 m, 29.IV., 30.IV., 1.V. and 3.V.85, A. Smetana (ASCC, BMNH, CNCC) 15. *Khandbari Distr.* above Shedwa, 3000-3050 m, 31.III.-2.IV.82, A. & Z. Smetana (ASCC, CNCC) 9; "Bakan". W of Tashigaon, 3200 m, 3.-5.IV.82, A. & Z. Smetana (ASCC, CNCC, BMNH) 11; above Tashigaon, 3100 m, 7.-8.IV.82, A. & Z. Smetana (ASCC, CNCC) 7; Forest above Ahale, 2400 m, 25.III.82, A. & Z. Smetana (ASCC) 1; Forest NW Kuwapani, 2250-2550 m, 11.-15.IV.82, A. & A. Smetana; 24.IV.84, Smetana & Löbl (ASCC, MHNG) 7; above Num, 1900-2200 m, 23.IV.84, Smetana & Löbl (ASCC) 1; Induwa Khola Valley, 2000-2600 m, 15.-18.IV.84, Smetana & Löbl (ASCC, CNCC, MHNG) 9; Forest S Mansingma, 2200-2600 m, 11.-13.IV.84, Löbl & Smetana (MHNG) 2. *Lalitpur Distr.* Phulcoki, Franz (CNCC) 2; Phulcoki, 2400-2650 m, 20.-22.IV.82, A. & Z. Smetana; 14.-15.X.83, Smetana & Löbl; 28.-30.IV.84, Löbl & Smetana (ASCC, BMNH, CNCC, MHNG) 30. *Manang Distr.* Forest W Bagarchhap, 2200 m, 21.IX.83, Smetana & Löbl (ASCC, MHNG) 4; Marsyandi above Bagarchhap, 2400 m, 13.-14.IV.80, Martens & Ausobsky (SMFM) 4; same 2550 m, 14.17.IV.80, Martens & Ausobsky (SMFM) 2. *Mustang Distr.* S Lethe, 2450-2600 m, 30.IV.-1.V.80, Martens & Ausobsky (SMFM) 1; Thaksang, 3150-3400 m, 26.-29.IV.80, Martens & Ausobsky (SMFM) 1. *Nuwakot Distr.* Malemchi, 2800 m, 17.IV.81, Löbl & Smetana (ASCC) 3; Kutumsang, 2200-2700 m, 6-7.IV.81, Löbl & Smetana (ASCC, CNCC) 3; Gul Bhanjung, 2600 m, 6.IV.81, Löbl & Smetana (MHNG) 2. *Parbat Distr.* Ghoropani Pass, N Slope, 2700-2800 m, 5-6.X.83, Smetana & Löbl (ASCC, CNCC) 4; ridge E Ghoropani Pass, 3100 m, 7.X.83, Smetana & Löbl (MHNG) 1; forest below Fulung, Franz (CNCC) 1. *Dhaulagiri* Thankur, N Dhorpatan, 3350 m, 24.-28.V.73, J. Martens (SMFM) 1; S Dhaulagiri Dhorpatan, 3000-3200 m, 18.-21.V.73, J. Martens (SMFM) 1; Gosaikund, Trisuli Valley, 3200 m, 23.-26.IV.73, J. Martens (SMFM) 1; Chordung - Jiri, 2900 m, III.73, J. Martens (SMFM) 1; Ghar Khola below Deorali Pass, 2000 m, 25.III.78 (MHNG) 2; Pha Kumpe, 2300 m, IV.84, Morvan (GMRC) 5; Dobate Ridge NE Barabbise, 2800 m, 3.V.81, Löbl & Smetana (ASCC) 2.

Bionomics.— In Nepal *Quedius apicicornis* was typically collected in association with dead fallen trees. Most specimens were taken from under loose bark or in moss on fallen trees. Specimens from Malemchi were taken from moss and debris soaked with fermenting sap around pieces of a large tree felled during a storm. Occasionally, specimens can also be found under rocks or in the forest floor debris.

Comparisons and variations.— *Quedius apicicornis* varies considerably in most external characters, particularly in the colouration of the antennae and of the tip of the abdomen, in the shape of the head and pronotum, and also in the coarseness of



Map 8. Distribution records for *Quedius apicicornis*.

the punctation of the elytra. The apical portion of median lobe of aedeagus is rather constant in shape (Fig. 3); however, the apical portion of the paramere varies considerably (see the description, Fig. 5 and Figs. 2 and 3 in Smetana 1975:324) and so also does the distance by which it exceeds the apex of median lobe.

The aedeagus of *Q. sherpai* is supposed to differ from that of *Q. apicicornis* by the absence of the hooks on the apical portion of median lobe (see the description). However, the hooks are present on the median lobe of the holotype of *Q. sherpai* and can be clearly seen especially in lateral view.

3. *Quedius (Microsaurus) beesoni* Cameron

Figs. 10–13; Map 9

Quedius beesoni Cameron 1932:285

Quedius mimeticus Cameron 1932:286 (*syn.nov.*)

Quedius notabilis Cameron 1932:286 (*syn.nov.*)

Quedius peraffinis Cameron 1932:286 (*syn.nov.*)

Description.— In all external characters very similar to *Q. apicicornis* and displaying similar variability in colouration of antennae and tip of abdomen as described for *Q. apicicornis*. However, it differs as follows: elytra black, without bluish metallic lustre, abdominal tergite 7 entirely dark, even in specimens with apex of abdomen yellowish. Posterior frontal puncture situated closer to posteromedian margin of eye and separated from it by distance not or only slightly larger than diameter of puncture. Antenna in general stouter. Pronotum with lateral portions in general slightly more explanate, especially posteriorly; sublateral rows of punctures with two to four (usually three) punctures, posterior puncture situated behind level of large lateral puncture. Scutellum impunctate; however, triangular area at base transversely rugose. Punctation of elytra in general coarser and deeper.

Male. First four segments of front tarsus slightly more dilated than in female. Apical margin of sternite 8 (Fig. 10) with emargination similar to that of *Q. apicicornis* (Fig. 6). Aedeagus (Figs. 11–13) similar to that of *Q. apicicornis*; however, median lobe no more than slightly emarginate apically, apical portion shallowly and broadly impressed medially to accommodate apical part of paramere and not hooked on surface adjacent to paramere. Paramere not or just about reaching apex of median lobe, usually slightly emarginate apically, without sensory peg setae; four apical setae considerably longer than those of *Q. apicicornis*; internal sac different, without markedly sclerotized structure with short stout subacute tubercles.

Length 8.0–12.0 mm.

Type material.— *Quedius beesoni*. Ten syntypes in the British Museum (Natural History), London, are labelled as follows: Spec. No. 1 (♂): “Type” (round label with red margin/ “Dung”/ “Deoban, 9331. Chakrata, U.P.”/ “Cameron 3.5.21”/ “Quedius beesoni TYPE Cam.”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. No. 2 (♀): “Deoban, 9331. Chakrata, U.P.”/ “Dr. Cameron 3.5.21”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. No. 3 (♂): “Chakrata Dist. Sainj Khud 6500”/ “Dr. Cameron 27.V.22”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. No. 4 (♀): “Chakrata Dist. Chulli Khud 8000”/ “Dr. Cameron 14.V.22”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. No. 5 (♂): “Chakrata Dist. Patra Khud 8000”/ “Dr. Cameron 15.V.22”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. Nos. 6–8 (2♀, 1♂): “Chakrata Dist. Kanasar 7050”/ “Dr. Cameron 14–22.V.22”/ “M. Cameron. Bequest. B.M. 1955–147.”

“SYN-TYPE” (round label with blue margin). Spec. No. 9 (♀): “Ghum district V-VI-31 Dr. Cameron”/ “M. Cameron. Bequest. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. No. 10 (♀): “Ghum dist. Rongdong Valley V-VI-31 Dr. Cameron”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). All specimens are conspecific. All males were dissected. The first male, bearing the label “TYPE” is hereby designated as the lectotype of *Q. beesoni*. The aedeagus, genital segment and sternite 8 of this specimen were glued to plate with beetle. The label “Lectotype *Q. beesoni* Cam. Smetana des. 1983” was attached to it.

Quedius mimeticus. Four syntypes in the British Museum (Natural History), London, are labelled as follows: Spec. No. 1(♀): “TYPE” (round label with red margin)/ “Ghum Dist. Rongdong Valley V-VI-31 Dr. Cameron”/ “*Q. mimeticus* Cam. TYPE”/ “M. Cameron. Bequest B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. Nos. 2–4 (2♀, 1♂): “Ghum dist. Rongdong Valley V-VI-31 Dr. Cameron”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). All specimens are conspecific. The male specimen was dissected and the aedeagus, genital segment and sternite 8 were glued to plate with beetle. The specimen is hereby designated as the lectotype of *Q. mimeticus*; the label “Lectotype *Q. mimeticus* Cam. Smetana des. 1983” was attached to it.

The specimens of this original series cannot be specifically distinguished from the lectotype of *Q. beesoni*. The name *Q. mimeticus* is a synonym of *Q. beesoni*.

Quedius notabilis. Five syntypes in the British Museum (Natural History), London, are labelled as follows: Spec. No. 1 (♂): “TYPE” (round label with red margin)/ “Ghum distr. Rongdong Valley V-VI-31 Dr. Cameron”/ “*Q. notabilis* Cam. TYPE”/ “Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. Nos. 2–4 (2♀, 1♂): “Ghum dist. Rongdong Valley V-VI-31 Dr. Cameron”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Spec. No. 5: (♂): “Ghum dist. Mangpo V-31 Dr. Cameron”/ “M. Cameron. Bequest. B.M. 1955–147.”/ “SYN-TYPE” (round label with blue margin). Both males were dissected. The first male, bearing the label “TYPE” is hereby designated as the lectotype of *Q. notabilis*. The aedeagus, genital segment and sternite 8 of this specimen were glued to plate with beetle. The label “Lectotype *Q. notabilis* Cam. Smetana des. 1983” was attached to it.

The specimens of this original series cannot be specifically distinguished from the lectotype of *Q. beesoni*. The name *Q. notabilis* is a synonym of *Q. beesoni*.

Quedius peraffinis. Two syntypes in the British Museum (Natural History), London, are labelled as follows: Spec. No. 1 (♂):⁴ “Type” (round label with red margin)/ “Ghum dist. Rongdong Valley V-VI-31 Dr. Cameron”/ “*Q. peraffinis* Cam. TYPE”/ “M. Cameron. Bequest. B.M. 1955–147.”. Spec. No. 2: “Ghum dist. Rongdong Valley V-VI-31 Dr. Cameron”/ “M. Cameron. Bequest. B.M.

⁴It is a male, although Cameron (1932:286) stated “♂ unknown”.

1955–147.”/ “peraffinis Cam. syntype”/ “SYN-TYPE” (round label with blue margin).

The first specimen (male) was dissected and the aedoeagus, genital segment and sternite 8 were glued to plate with beetle. The tip of the abdomen, as well as both front legs are missing in this specimen. The specimen is hereby designated as the lectotype of *Q. peraffinis*; the label “Lectotype *Q. peraffinis* Cameron Smetana des. 1983” was attached to it.

Both specimens cannot be specifically distinguished from the lectotype of *Q. beesoni*. The name *Q. peraffinis* is a synonym of *Q. beesoni*.

Geographical distribution.— *Quedius beesoni* is distributed from northern Uttar Pradesh eastward through Nepal to the Darjeeling area (Map 9).

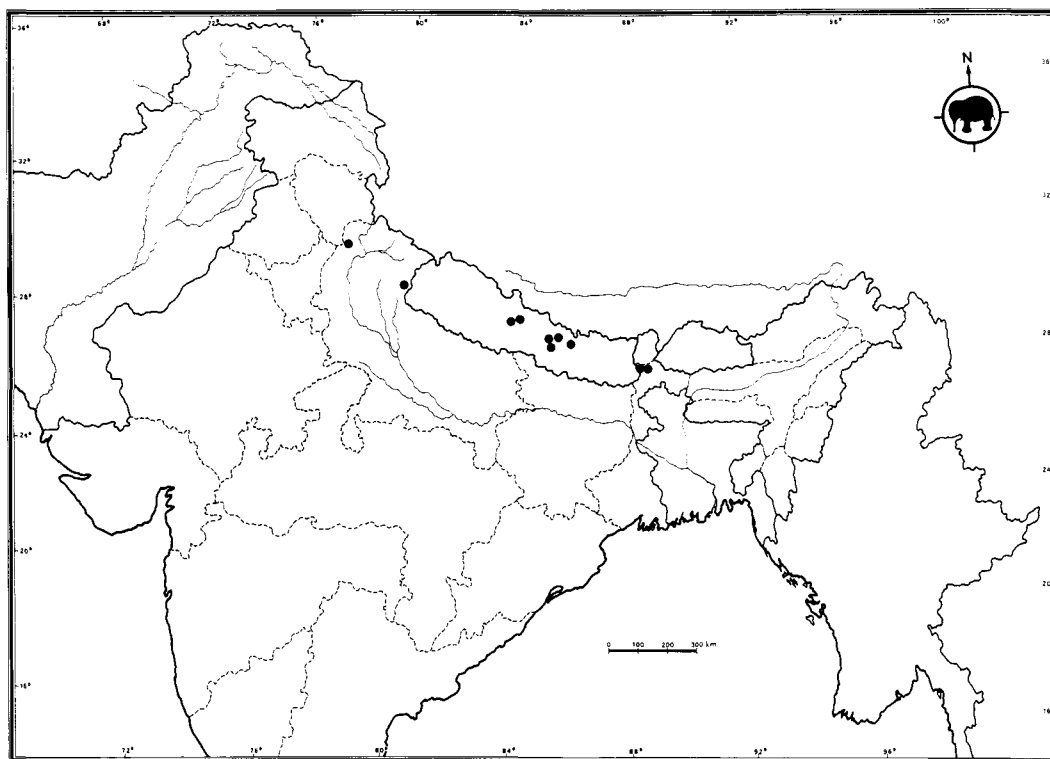
Material studied.— 74 specimens.

INDIA. *Uttar Pradesh*. Kumaon: Pindar Valley, 8000–11000', Champion (BMNH) 3; Sukhatal, 8000', V.1920, Champion (BMNH) 2; Chakrata Distr.: Deoban, 9331', 3.V.21, Cameron (BMNH) 2; Kanasar, 7030', 14-22.V.22, Cameron (ASCC, BMNH) 5; Chutli Khud, 8000', 17.V.22, Cameron (ASCC, BMNH) 3; Binal Gad, 7000–8000', 24.V.22, Cameron (BMNH) 1. *West Bengal*. Darjeeling Distr.: Tiger Hill, 8500–10000', V-VI-1931, Cameron (BMNH) 1; Rongdong Valley, V-VI-1931, Cameron (BMNH, CNCC) 7.

NEPAL. *Kathmandu Distr.* Siwapuri Dara, 2400–2450 m, 30.IV and 2.V.85, A Smetana (ASCC) 2. *Lalitpur Distr.* Phulcoki, 2600–2750 m, 13–15.X.83, Smetana & Löbl (ASCC, MHNB) 8; same, 2600 m, 29.IV.84, Smetana & Löbl (ASCC) 1. *Manang Distr.* Forest W Bagarchhap, 2200 m, 21-24.IX.83, Smetana & Löbl (ASCC, CNCC, MHNG) 7. *Parbat Distr.* Ghoropani Pass N slope, 2700 m, 6.X.83, Smetana & Löbl (ASCC, MHNB) 5; Ghoropani vic., 2700–3100 m, 5.-9.X.83, Smetana & Löbl (MHNG) 2. *Sindhupalchok Distr.* Malemchi, 2800 m, 17-18.IV.81, Löbl & Smetana (ASCC) 3; Dobate Ridge NE Barahbise, 2800 m, 2.V.81, Löbl & Smetana (ASCC) 1.

Bionomics.— Little is known about the habitat preferences of this species. Cameron (1932:286) mentions that it occurs in *Polyporus*; one specimen was collected in “dung” (see Type material of *Q. beesoni*). All specimens from Nepal were taken by sifting a wide variety of mushrooms and moss and debris around them on large fallen broadleaved trees.

Comparisons and variations.— *Quedius beesoni* can easily be distinguished from *Q. apicicornis* by the characters mentioned in the description. The variability in the colouration of the apical portion of the antennae and of the apex of abdomen was the reason why Cameron (1932) described the species under four different specific names, although he suspected that at least some of them might be only colour varieties of one species. The name *Q. beesoni* was used for specimens with both antennae and abdomen uniformly dark, *Q. mimeticus* for specimens with the antennae uniformly dark and the apex of abdomen yellow, *Q. notabilis* for specimens with antennal segments 8–10 and apex of abdomen yellow, and *Q. peraffinis* for specimens with antennal segments 8–10 yellow and the abdomen uniformly dark. There are some other slight differences between the specimens belonging to the different colour varieties (*e.g.*, those of *Q. beesoni* tend to be larger and more robust than those of *Q. mimeticus* or *Q. peraffinis* and those of *Q. notabilis* tend to have longer outer segments of the antenna). On the other hand, the males of all colour varieties have identical aedoeagi; there is, therefore, hardly any doubt that



Map 9. Distribution records for: *Quedius besoni*.

they all represent differently coloured populations of the same variable species.

4. *Quedius (Microsaurus) flavocaudatus* Cameron

Figs. 14–16; Map 10

Quedius flavocaudatus Cameron 1944:13

Description.— Black, head and pronotum slightly, abdomen markedly iridescent, elytra red, abdominal tergite 7 (fifth visible), corresponding sternite and rest of abdomen yellowish-red; labial palpi testaceous, maxillary palpi piceous, becoming paler toward apex; antennae black, last four segments pale yellowish; legs piceous-black to black with paler tarsi. Head of rounded quadrangular shape, wider than long (ratio 1.36), markedly narrowed posteriorly behind eyes, posterior angles rounded and indistinct; eyes convex but only slightly protruding from lateral contours of head, tempora about as long as length of eyes seen from above; no additional punctures between anterior frontal punctures; posterior frontal puncture situated very close to posteromedian margin of eye and separated from it by distance about equal to diameter of puncture, two (rarely three unilaterally) additional setiferous punctures between it and posterior margin of head; temporal puncture situated closer to posterior margin of eye than to posterior margin of head; surface of head with extremely fine and dense microsculpture consisting of transverse waves becoming gradually irregular to almost meshed anteriorly on clypeus and anteromediad of each eye. Last segment of maxillary palpus distinctly longer than penultimate segment, slightly attenuate basally. Antenna moderately long and only slightly thickened toward apex; segment 3 distinctly longer than segment 2, segments 4 and 5 slightly longer than wide, following segments about as long as wide, gradually becoming slightly shorter, last segment shorter than two preceding segments combined. Pronotum wider than long (ratio 1.23), broadly rounded basally and arcuately narrowed anteriorly, with lateral portions slightly explanate, disc moderately transversely convex; dorsal rows each with four rather coarse punctures; sublateral rows each with three (occasionally four unilaterally) punctures, posterior puncture situated behind level of large lateral puncture; microsculpture of pronotum similar to that of head but still finer and denser. Scutellum large, impunctate, but with small triangular area at base transversely rugose. Elytra moderately long, at base distinctly narrower than pronotum at widest point, at suture feebly shorter (ratio 0.89), at sides about as long as pronotum at midline; punctation and pubescence moderately dense and coarse, pubescence black, surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 bearing whitish apical seam of palisade setae; punctation and pubescence of abdominal tergites distinctly finer and slightly denser than that of elytra, not becoming appreciably sparser toward apex; pubescence black except rusty on pale apical segments. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus slightly more dilated than in female. Apical margin of sternite 8 with moderately deep and wide, arcuate emargination (Fig. 14), triangular area before emargination flattened and smooth. Aedoeagus (Figs. 15–17) rather small, narrow and elongate; median lobe slightly widened and then suddenly narrowed into wedge-shaped, narrow apical portion with obtuse apex; subapical portion of median lobe on opposite side to paramere markedly sclerotized and widely, arcuately emarginate at base of wedge-shaped apical portion. Paramere elongate, parallel-sided in middle portion and then slightly dilated apically; apical portion not quite reaching apex of median lobe, with deep V-shaped emargination; with two moderately long apical setae at each side of apical emargination and one pair of lateral setae on each side close to apex; underside of paramere with several small sensory peg setae at each side of apical emargination; internal sac simple, without conspicuous sclerites.

Length 12.0–13.3 mm.

Type material.— Cameron (1944:13) described the species from a single male specimen from Naini Tal, Uttar Pradesh. The holotype in the British Museum (Natural History), London, is labelled as follows: “Type” (round label with red margin)/ “6000–8000 Naini Tal U.P. Balwant Singh 4.V.1935”/ “In soil”/ “*Q. flavocaudatus* Cam. TYPE”/ “M. Cameron. Bequest. B.M. 1955–147”. The specimen was dissected and the aedoeagus and sternite 8 were mounted in Canada Balsam.

Geographical distribution.— *Quedius flavocaudatus* is distributed from northern Uttar Pradesh eastward to central Nepal (Map 10).

Material studied.— 5 specimens.

INDIA. "India" (BMNH) 1. *Uttar Pradesh*. See Type material.

NEPAL. *Lalitpur Distr.* Phulcoki, 2600 m, 20.IV.82, A. & Z. Smetana (ASCC) 1. *Nuwakot Distr.* Malemchi, 2900 m, 18.IV.81, Löbl & Smetana (ASCC) 1. N. Dhorpatan, Parkapan, 1977, P. Morvan (GDRC) 1.

Bionomics.— The specimen from near Malemchi was sifted from thick moss from lower portions of the trunk of an old oak tree; the specimen from Phulcoki was taken by sifting old mushrooms, moss and bark around them found on an old fallen oak tree.

Comparisons.— *Quedius flavocaudatus* can easily be recognized by the large size and the colouration, in combination with the presence of four punctures in each dorsal row on the pronotum.

5. *Quedius (Microsaurus) antennalis* Cameron

Figs. 17–20; Map 10

Quedius antennalis Cameron 1932:285

Description.— Piccous-black, elytra, pronotum and head dark reddish-brown piccous, abdomen slightly iridescent, posterior half of tergite 7 (fifth visible) and apex of corresponding sternite and apex of abdomen reddish-yellow; labial and maxillary palpi rufo-testaceous; antennae with three basal segments rufo-testaceous, following three segments slightly paler, however, very vaguely infusate in middle portion, last five segments very pale, whitish-yellow; legs piccous-black with paler tarsi. Head of rounded quadrangular shape, wider than long (ratio 1.34), markedly narrowed posteriorly behind eyes, posterior angles quite indistinct; eyes convex and slightly protruding from lateral contours of head, tempora slightly shorter than length of eyes seen from above (ratio 0.77); no additional punctures between anterior frontal punctures; posterior frontal puncture situated near posteromedian margin of eye and separated from it by distance distinctly larger than diameter of puncture, two additional setiferous punctures between it and posterior margin of head; temporal puncture situated closer to posterior margin of eye than to posterior margin of head; surface of head with extremely fine and dense microsculpture of transverse waves, including clypeus. Last segment of maxillary palpus distinctly longer than penultimate segment (ratio 1.5), slightly attenuate basally. Antenna long and only slightly thickened toward apex; segment 3 distinctly longer than segment 2, segments 4–6 elongate, much longer than wide, following segments gradually becoming shorter and wider; however, even segments 9 and 10 appreciably longer than wide, last segment slightly shorter than two preceding segments combined. Pronotum wider than long (ratio 1.25), broadly rounded basally and continuously, slightly arcuately narrowed anteriorly, with lateral portions slightly explanate, disc rather markedly transversely convex; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture at about level of large lateral puncture; large lateral puncture situated not far from lateral margin, separated from it by distance equal to about width of apex of second antennal segment; surface of pronotum with microsculpture similar to that on head, but still finer and hardly visible. Scutellum large, impunctate, but with extensive triangular area transversely rugose. Elytra moderately long, at base distinctly narrower than pronotum at widest point, at suture as long as, at sides feebly longer (ratio 1.11) than pronotum at midline; punctation moderately coarse, slightly asperate and dense, pubescence black, surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 bearing whitish apical seam of palisade setae; punctation of abdominal tergites fine, considerably finer than that on elytra, evenly covering surface of tergites (including middle portion of first visible tergite), pubescence black, paler on pale tip of abdomen.

Male. First four segments of front tarsus markedly dilated. Apical margin of sternite 8 with moderately wide and rather shallow, arcuate emargination (Fig. 18), triangular area before emargination flattened and smooth. Aedeagus (Figs. 17, 19, 20) of characteristic shape, large and elongate; median lobe slightly

dilated and then slightly, evenly narrowed toward subtruncate and submarginate apical margin, apical portion of median lobe on side opposite to paramere markedly excavate, gutter-like. Paramere short, parallel-sided with apical margin subtruncate and submarginate medially, its apical margin separated from apex of median lobe by distance equal to about median length of paramere; with eight unequally long setae at apical margin; no sensory peg setae on underside of paramere.

Female. Unknown.

Length 11.0 mm.

Type material.— Cameron (1932:285) described the species from a single male specimen from the Darjeeling area. The holotype in the British Museum (Natural History), London, is labelled as follows: “Type” (round label with red margin/ “Gopaldhara, B.W. Darjiling, 4720 ft. 23.X.-193 H. Stevens.”/ “H. Stevens. Brit. Mus. 1922-397.”/ “*Quedius antennalis* Cam. TYPE”. The specimen was dissected and the aedoeagus and sternite 8 were mounted in Canada Balsam.

Geographical distribution.— *Quedius antennalis* is at present known only from the type locality in the Darjeeling area (Map 10).

Material studied.— The holotype.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons.— *Quedius antennalis* is very similar to *Q. birmanus* and the latter species actually may not be specifically different. The discussion following the description of *Q. birmanus* should be consulted for more details.

Quedius antennalis also resembles *Q. beasoni*; however, it differs, in addition to the differently shaped aedoeagus, by the differently developed sublateral rows on pronotum (see the key and respective descriptions), and by the absence, in *Q. antennalis*, of the smooth area in the middle of the first visible abdominal tergite.

6. *Quedius (Microsaurus) birmanus* Cameron

Map 10

Quedius birmanus Cameron 1932:284

Description.— In all characters quite similar to *Q. antennalis* but different as follows: Form in general larger and more robust. Black, head and pronotum feebly, abdomen slightly iridescent, posterior half of abdominal tergite 7 (fifth visible), corresponding sternite and apex of abdomen reddish-yellow; labial palpi testaceous, maxillary palpi piceous, becoming paler toward apex; antennae black, last four segments yellowish; legs piceous with paler tarsi. Outer antennal segments slightly shorter. Left dorsal row on pronotum with three, right row with only two punctures (first puncture missing); left sublateral row with only one (front) puncture, right sublateral row with two punctures, posterior puncture at about level of large lateral puncture; large lateral puncture situated far from lateral margin, separated from it by distance almost twice as large as width of apex of second antennal segment. Elytra wider with punctuation deeper and coarser.

Male. Unknown.

Length 12.0 mm.

Type material.— Cameron (1932:284) described the species from a single female from Burma. The holotype in the British Museum (Natural History), London, is labelled as follows: “64517”/ “Type” (round label with red margin)/ “Doherty”/ “Birmah Ruby Mes”/ “*Quedius birmanus* Cam. TYPE”.

Geographical distribution.— *Quedius birmanus* is at present known only from the type locality in Burma (Map 10).

Material studied.— The holotype.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons.— It is possible that *Q. birmanus* does not actually specifically differ from *Q. antennalis*. The differences in general form and colouration are not significant (the holotype of *Q. antennalis* may be a slightly discoloured specimen). I consider *Q. birmanus* as a separate species mainly because of the differently situated large lateral puncture on the pronotum and the wider and more coarsely punctate elytra. The status of *Q. birmanus* cannot be definitely assessed until more specimens of both species, and particularly the males of *Q. birmanus* are available for study.

The first puncture in the right dorsal row on the pronotum is missing in the holotype; however, there is an additional round impression (not setiferous) behind the last puncture of the right row, imitating an additional puncture.

7. *Quedius (Microsaurus) martensi* Smetana

Figs. 21–23; Map 7

Quedius martensi Smetana 1975:329

Description.— Piccous-black, apical margins of abdominal tergites and apex of abdomen indistinctly paler. Palpi rufo-brunneous, antennae brownish-piceous with three basal segments darker, legs piccous-black, inner surface of front tibiae and all tarsi rufo-brunneous. Head of rounded quadrangular shape, as long as wide, almost parallel-sided behind eyes, posterior angles obtuse, indistinct; eyes very small and rather flat, tempora considerably longer than length of eyes seen from above (ratio 2.05); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated slightly closer to posteromedian margin of eye than to posterior margin of head; two additional setiferous punctures between it and posterior margin of head; temporal puncture situated about half as far from posterior margin of head as from posterior margin of eye; deflexed portion of tempora with some fine punctures posteriorly; surface of head with fine and very dense microsculpture of irregular transverse lines with scattered longitudinal connections. Antenna rather short, segment 3 slightly longer than segment 2, segments 4 and 5 slightly longer than wide, following segments about as long as wide, becoming gradually wider and shorter, outer segments slightly transverse, last segment distinctly shorter than two preceding segments combined. Pronotum wider than long (ratio 1.14), basal margin continuously rounded with lateral margins, latter distinctly narrowed anteriorly; lateral portions of pronotum explanate posteriorly; dorsal rows each with two punctures (first puncture usually present at apical margin of pronotum seems to be missing); sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; surface of pronotum with microsculpture identical to that of head, except perhaps feebly denser. Scutellum impunctate, smooth. Elytra moderately long, at base narrower than pronotum at widest point, at suture about equally long, at sides slightly longer (ratio 1.12) than pronotum at midline; punctation and pubescence superficial, rather fine and sparse; interspaces between punctures much larger than diameters of punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation and pubescence of abdominal tergites distinctly denser than that of elytra, small middle portion of first visible tergite impunctate.

Male. First four segments of front tarsus markedly dilated. Apical margin of sternite 8 with moderately wide, shallow subangular emargination (Fig. 21), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 22, 23) small, apical part of median lobe, when paramere removed, with two small subapical hooks. Paramere just about reaching apex of median lobe, markedly laterally compressed in middle part, dilated toward apex; with four rather short setae at apical margin and two slightly shorter setae at each lateral margin below apex; underside of paramere markedly excavate, with only two sensory peg setae at each lateral margin close to apex.

Length 10.0 mm (abdomen slightly extended).

Type material.— The male holotype, deposited in the Franz collection, Mödling, Austria, is labelled as follows: “Khumbu, Zusammenfluss Imja, Phunki Drangka 3150–3300 m, 1.10.70, J. Martens”/ “HOLOTYPE *Quedius martensi* A. Smetana 1975”.

Geographical distribution.— *Quedius martensi* is known only from the type locality in Khumbu Himalaya in Nepal (Map 7).

Material studied.— The holotype.

Bionomics.— No details are known about the habitat requirements of this species. It was most probably taken in a subalpine birch forest (see Franz 1971:443). The small eyes suggest some secretive way of life, possibly in nests of some mammal.

Comparisons and variations.— *Quedius martensi* is well characterized, in addition to the characters on the aedoeagus, by the colouration, the small eyes, the chaetotaxy of the head and pronotum, and by the sparse punctation of the elytra. For a comparison with *Q. dui* see the discussion there.

In the original description of this species, I described the surface of the elytra between the punctures as “covered with extremely fine and rather dense microsculpture consisting of intricate curved lines and irregularities”. However, after closer examination in diffuse light, using a translucent filter, and after thorough cleaning of the surface, the surface appears to be without any microsculpture.

Quedius martensi may have normally three punctures in each of the dorsal rows on the pronotum. The usual first puncture, situated close to apical margin, may be missing bilaterally in the holotype.

8. *Quedius (Microsaurus) dui spec. nov.*

Figs. 24–27; Map 7

Description.— Form rather stout; piceous, head black, elytra dark reddish-brown, apical margins of abdominal tergites and apex of abdomen indistinctly paler. Palpi dark brown, antennae piceous, legs piceous-brown with inner portions of middle and hind tibiae darkened, tarsi slightly paler, particularly their last segment. Head of obtusely quadrangular shape, slightly transverse (ratio length: width=0.85), parallel-sided behind eyes, posterior angles broadly arcuate; eyes small and flat, not protruding from lateral contours of head, tempora twice as long as length of eyes seen from above; no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture and temporal puncture both situated much closer to posterior margin of head than to posterior margin of eye; two small setiferous punctures between posterior frontal puncture and posterior margin of head; tempora with some very fine punctures posteriorly; surface of head with dense and rather coarse microsculpture of mostly transverse waves becoming slightly confused on clypeus. Antenna short and rather stout, segment 3 distinctly longer than segment 2, segments 4 and 5 as long as wide, segments 6–10 wider than long, gradually becoming shorter and wider, segment 10 distinctly transverse, segment 11 about as long as two preceding segments combined. Pronotum slightly wider than long (ratio 1.09), basal margin continuously rounded with lateral margins, lateral margins distinctly, slightly arcuately narrowed anteriorly; dorsal rows each with two punctures; sublateral rows each with two punctures, posterior puncture situated slightly before level of large lateral puncture; surface of pronotum with microsculpture similar to that of head, however, waves of microsculpture directed obliquely anteriorly and becoming distinctly finer toward lateral margins. Scutellum impunctate, surface with dense and very fine microsculpture of irregular transverse lines. Elytra at base narrower than pronotum at widest point, hardly widened posteriorly, at suture as long as, at sides slightly

longer (ratio 1.12) than pronotum at midline; punctation fine and dense, interspaces between punctures no more than slightly larger than diameters of punctures; pubescence dense, brownish-piceous; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation and pubescence finer and denser than that of elytra, evenly covering tergites, gradually becoming somewhat sparser toward apex of abdomen.

Male. First four segments of front tarsus markedly dilated. Sternite 8 with two strong setae on each side, apical margin with wide and fairly deep, almost arcuate emargination (Fig. 24), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 25–27) moderately large, median lobe slightly dilated and then rather suddenly narrowed into subacute apex. Paramere not quite reaching apex of median lobe, markedly constricted in middle portion, more apically slightly dilated and then narrowed toward truncate and slightly emarginate apex; four long and about equally long setae at apical margin and one shorter seta at each lateral margin below apex; sensory peg setae on underside of paramere forming isolated groups: one central near apex of paramere and one irregular group near each lateral margin way below apex of paramere.

Length 8.7 mm.

Type material.— Holotype (male): “Punjab: Kulu Div. VI.1932. H.G. Champion”/ “H.G. Champion Coll. B.M. 1953–156.”/ “*Quedius* (*Microsaurus*) *spec.nov.* Smetana det. 1984”. In the collection of the British Museum (Natural History), London.

Geographical distribution.— *Quedius dui* is at present known only from the type locality in Himachal Pradesh (Map 7).

Bionomics.— Nothing is known about the habitat requirements of this species; however, judging from its general habitus and the small and flat eyes, it may live in burrows of some animal.

Comparisons.— *Quedius dui* is quite distinctive among the Himalayan species due to the following combination of characters: body shape and colouration (see the description), eyes small and flat, half as long as tempora, posterior frontal puncture situated much closer to posterior margin of head than to posterior margin of eye; dorsal rows on pronotum each with only two punctures, scutellum without rugae on basal portion. It cannot be confused with any other Himalayan species.

Quedius martensi also has small eyes; however, it differs by the position of the posterior frontal puncture (slightly closer to posteromedian margin of the eye than to posterior margin of the head) and of the posterior puncture of the sublateral rows on the pronotum (situated slightly before level of the large lateral puncture) and by the sparse punctation of the elytra.

Etymology.— The specific epithet is the Nepali numeral dui (=two). It refers to the number of punctures in each dorsal row on the pronotum.

9. *Quedius* (*Microsaurus*) *adjacens* Cameron

Figs. 28–31; Map 7

Quedius adjacens Cameron 1926:368; 1932:287

Description.— Piceous-black to black; pronotum feebly, abdomen distinctly iridescent. Palpi piceous, antennae black, legs piceous-black with femora sometimes paler, rather piceous. Head of rounded quadrangular shape, slightly wider than long (ratio 1.18), with truncate apical margin of clypeus and almost parallel-sided lateral margins behind eyes (holotype); or distinctly wider than long (ratio 1.35), with broadly, arcuately emarginate apical margin of clypeus (emargination exposing articulation membrane between clypeus and labrum) and lateral margins behind eyes noticeably narrowed posteriorly (two additional

specimens from Cameron's collection); eyes relatively large, moderately convex; tempora about as long as to slightly shorter than length of eyes seen from above; no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated distinctly closer to posteromedian margin of eye than to posterior margin of head, one additional setiferous puncture between it and posteromedian margin of eye and two additional setiferous punctures between it and posterior margin of head (situated along posterior margin of head); temporal puncture situated about half as far from posterior margin of head as from posterior margin of eye; deflexed portion of tempora with a few fine punctures; surface of head with very fine and dense microsculpture of transverse waves becoming irregular and forming some meshes on clypeus. Antenna moderately long, segment 3 slightly longer than segment 2, segments 4–5 somewhat longer than wide, following segments gradually becoming shorter, outer segments about as long as wide, last segments shorter than the preceding segments combined. Pronotum hardly wider than long (ratio 1.07), basal margin continuously rounded with lateral margins and tending to be feebly bisinuate, lateral margins distinctly, arcuately narrowed anteriorly, posterolateral portions of pronotum slightly explanate; dorsal rows each with three punctures; sublateral rows each with three or four punctures (with only two punctures unilaterally in one specimen), last puncture situated behind level of large lateral puncture; surface of pronotum with microsculpture similar to that on head. Scutellum impunctate, surface with dense and very fine microsculpture of transverse lines. Elytra moderately long, at base feebly narrower than pronotum at widest point, at suture equally long, at sides slightly longer (ratio 1.19) than pronotum at midline; punctuation superficial, pubescence rather fine and not dense, interspaces between punctures distinctly larger than diameters of punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctuation and pubescence in general similar to that of elytra, except bases of tergites somewhat more densely punctate and pubescent.

Male. First four segments of front tarsus markedly dilated. Apical margin of sternite 8 with moderately wide and not deep, obtusely arcuate emargination (Fig. 28), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 29–31) small, elongate and slightly asymmetrical; median lobe with rounded apex and with one median and two lateral subapical denticles on face adjacent to paramere. Paramere narrow, slightly asymmetrical, not reaching apex of median lobe; with four setae at apical margin (median pair longer than lateral setae) and two similar setae at each lateral margin below apex; underside of paramere flat, with two short and often irregular rows of three to four peg setae.

Length 9.5–11.2 mm.

Type material.— There are three specimens in the British Museum (Natural History), London, under the name *Q. adjacens*; however, only the first specimen (male) can be considered as belonging to the original series. It is labelled as follows: “Type” (round label with red margin)/ “Deaban, 9331. Chakrata, U.P. Dr. Cameron. 3.5.21.”/ “Dung”/ “TYPE *Quedius adjacens* Dr. Cameron”/ “M. Cameron. Bequest. B.M. 1955–147.”. The specimen was dissected and sternite 8 and the aedoeagus were mounted in Canada Balsam; it is hereby designated as the lectotype of *Q. adjacens*; the label “LECTOTYPE. *Quedius adjacens* Cameron A. Smetana des. 1984” was attached to it.

Geographical distribution.— *Quedius adjacens* is distributed in the western portion of the Himalaya; it is at present known from Kashmir, Himachal Pradesh and Uttar Pradesh (Map 7).

Material studied.— 6 specimens.

INDIA. *Kashmir.* Gulmarg, VI-VII.1931, Cameron (BMNH) 1; Yusmarg, VI.1981, de Rougemont (GRDC) 1. *Himachal Pradesh.* Simla Hills, Narkanda, 9230', 15.IX.21, Cameron (BMNH) 1. *Uttar Pradesh.* See Type material.

Bionomics.— No details are known about the habitat preference of this species. The lectotype was collected under dry dung.

Comparisons.— The difference in the configuration of the head, particularly of the apical margin of the clypeus (see the description) between the lectotype and the two additional specimens from the Cameron collection I have seen, is remarkable. However, in all other characters, including the shape of the median lobe and the paramere of the aedeagus, the three specimens are identical and there is no doubt in my mind that they are conspecific.

10. *Quedius (Microsaurus) ochripennis* (Ménétries)

Figs. 32–34: Map 10

Staphylinus ochripennis Ménétries 1832:145

Quedius ochripennis: Cameron 1932:289⁵

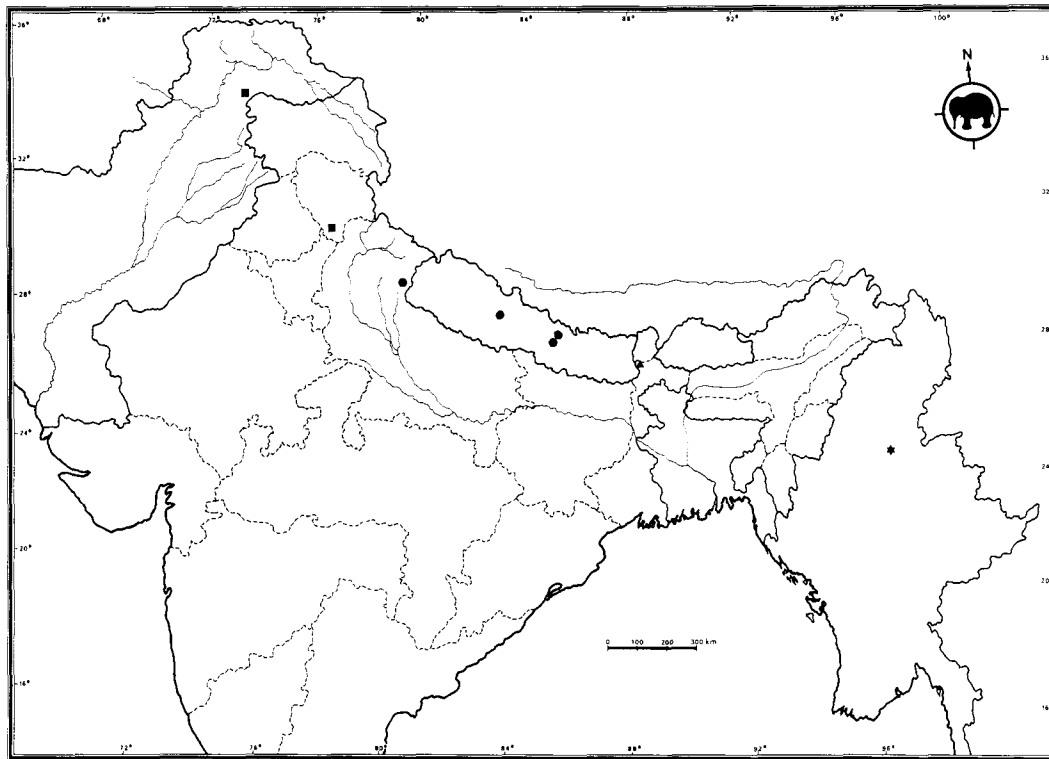
Description.— Black, elytra pale red, abdomen slightly iridescent. Palpi dark brown, antennae dark brown with three basal segments darker; legs piceous-brown with slightly paler tarsi, inner portions of middle and posterior tibiae darkened. Head of obtusely quadrangular shape, wider than long (ratio 1.21), slightly narrowed posteriorly, posterior angles broadly arcuate; eyes moderately large and convex, slightly protruding from lateral contours of head; tempora as long as length of eyes seen from above; no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated closer to posteromedian margin of eye than to posterior margin of head, one additional setiferous puncture between it and posteromedian margin of eye and two setiferous punctures between it and posterior margin of head; temporal puncture situated closer to posterior margin of head than to posterior margin of eye; tempora punctate; surface of head with dense and fine microsculpture of transverse waves with intermixed microscopic punctures. Antenna rather short, segment 3 distinctly longer than segment 2, segment 4 slightly longer than wide, segment 5 as long as wide, segments 6–10 transverse, gradually becoming shorter and wider, segment 11 about as long as two preceding segments combined. Pronotum slightly wider than long (ratio 1.11), basal margin continuously rounded with lateral margins, lateral margins slightly, arcuately narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated behind level of large lateral puncture; surface of pronotum with microsculpture similar to that on head, waves becoming gradually much finer toward lateral margins. Scutellum impunctate, with very fine and dense microsculpture of transverse waves. Elytra at base hardly narrower than pronotum at widest point and hardly widened posteriorly, at suture as long as, at sides somewhat longer (ratio 1.22) than pronotum at midline; punctuation fine and not dense, interspaces between punctures mostly distinctly larger than diameters of punctures; pubescence not dense, testaceous-brunneous; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctuation usually indistinctly finer than that of elytra, pubescence black.

Male. First four segments of front tarsus more dilated than in female. Sternites 6 and 7 with small more densely punctate and dark pubescent area in middle of basal half; apical margin of sternite 8 with shallow arcuate emargination (Fig. 32), small triangular area before emargination flattened and smooth. Aedeagus (Figs. 33, 34) rather small; median lobe dilated and then slightly narrowed toward truncate apical margin with small median emargination, face adjacent to paramere with two short longitudinal carinae. Paramere with lancet-like apical portion, apical margin subtruncate to truncate, not quite or just about reaching apex of median lobe; four apical setae and two short setae at each lateral margin below apex; underside of paramere with several irregularly placed sensory peg setae along each lateral margin.

Length 8.0–10.2 mm.

Type material.— Ménétries (1832:145) described the species from specimens collected under rocks at “Perimbäl sur les montagnes de Talyche” (Talysh Mountains on the border between Soviet Union and Iran). I did not study the

⁵Complete references and synonymy of this species can be found in several revisional papers (e.g., Smetana 1958:345; Bordoni 1974:60).



Map 10. Distribution records for: *Quedius flavocaudatus* (●); *Q. antennalis* (▲); *Q. birmanus* (★); and *Q. ochripennis* (■).

original series but there is little doubt that this species as it has been interpreted by subsequent authors is the species which Ménétries described.

Geographical distribution.— *Quedius ochripennis* is widely distributed throughout Europe (except for the northern parts), the mediterranean area (including North Africa) and farther east through Asia Minor, Iran, the Caucasus, the middle-Asiatic republics of Soviet Union, Afghanistan and Pakistan to the western portion of the Himalayan range (Map 10).

Material studied.— 1 specimen.

INDIA. *Himachal Pradesh*. Simla Hills, Narkanda, 9230', 14.IX.31, Cameron (BMNH) 1.

PAKISTAN. *Khagan Valley*. Naran, 2370–2750 m (Coiffait 1982b:234, specimen not seen).

Bionomics.— Nothing is known about the habits of the Himalayan specimens.

Comparisons.— *Quedius ochripennis* can easily be recognized among the Himalayan species, in addition to the shape of the aedoeagus, by the presence of one setiferous puncture between posterior frontal puncture and posteromedian margin of eye, in combination with the red elytra.

11. *Quedius (Microsaurus) fulgidus* (Fabricius)

Staphylinus fulgidus Fabricius 1787:220

Quedius fulgidus: Cameron 1932:288

Complete references, synonymy and detailed description can be found in several revisionary papers (e.g., Smetana 1958:349, 1971:66; Bordoni 1974:65); they will not be repeated here.

Length 7.0–11.5 mm.

Geographical distribution.— *Quedius fulgidus* is widely distributed in the Palaearctic region, particularly in Europe. Its mostly synanthropic occurrence provides an excellent opportunity for introduction; it is therefore not surprising that the species was introduced into many parts of the world, so that it is now nearly cosmopolitan in distribution.

Cameron (1932:289) records *Q. fulgidus* from “Northern India”. I have not seen any specimens of this provenance in the Cameron collection in the British Museum. I have also not seen any specimens from the Himalayan region in any of the materials studied; however, the occurrence of this species in the Himalaya is possible.

Classification and comparisons.— *Quedius fulgidus* can readily be distinguished from all other species of the subgenus *Microsaurus* from the Himalayan region by the following combination of characters: piceous-black to black, elytra red; posterior frontal puncture on head situated distinctly closer to posteromedian margin of eye than to posterior margin of head, no additional setiferous puncture between it and posteromedian margin of eye; sublateral rows on pronotum each with 3–7 often irregularly located punctures, last puncture located considerably behind level of large lateral puncture; abdominal sternites 6 and 7 each with small, more densely punctate and yellowish pubescent area in middle of basal half.

Among the species occurring in the Himalayan region, only *Q. ochripennis* resembles in general aspect *Q. fulgidus*; however, *Q. ochripennis* can readily be distinguished by the presence of an additional setiferous puncture between the posterior frontal puncture on the head and the posteromedian margin of the eye.

12. *Quedius (Microsaurus) placidus* Cameron

Figs. 35–38; Map 11

Quedius placidus Cameron 1932:282

Description.— Piccous-black, apical margins of abdominal tergites feebly to slightly paler, pronotum or elytra sometimes paler; abdomen slightly iridescent; palpi testaceo-brunneous, antennae rufo-brunneous, legs brunneous, middle and hind tibiae and middle femora darkened, tarsi paler. Head of rounded quadrangular shape, about as long as wide, posterior angles entirely rounded, indistinct; eyes small and flat, hardly protruding from lateral contours of head, tempora much longer than length of eyes seen from above (ratio 1.66); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated much closer to posteromedian margin of eye than to posterior margin of head, one or two setiferous punctures between it and posterior margin of head (close to the latter); temporal puncture situated distinctly closer to posterior margin of head than to posterior margin of eye; surface of head with extremely fine and dense microsculpture of transverse waves. Antenna moderately long and moderately thickened toward apex, segment 3 distinctly longer than segment 2, segment 4 slightly longer than wide, segment 5 as long as wide, following segments gradually becoming shorter, penultimate segment moderately transverse, last segment shorter than two preceding segments combined. Pronotum barely wider than long (ratio 1.07), broadly arcuate basally, markedly narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated slightly behind level of large lateral puncture; microsculpture of pronotum similar to that on head. Scutellum impunctate. Elytra fairly long, at base narrower than pronotum at widest point, at suture about as long as, at sides feebly longer than pronotum at midline (ratio 1.11), finely and not densely punctate, each with sutural, discal and lateral, irregular and not conspicuous longitudinal rows of coarser setiferous punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctuation of tergites about equal to that on elytra, slightly coarser and denser on basal portions, first visible tergite with middle portion impunctate; pubescence distinct, dark. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus slightly more dilated than in female. Apical margin of sternite 8 with shallow and not wide arcuate emargination (Fig. 35), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 36–38) long and rather narrow; median lobe, except for tip, entirely covered by paramere, markedly narrowed into long apical part with subacute apex; paramere very long, apically narrowed into rounded apex; four rather long setae at apical margin; sensory peg setae on underside of paramere numerous, forming two irregular longitudinal rows.

Length 7.8–8.0 mm.

Type material.— Two syntypes in the British Museum (Natural History), London, are labelled as follows: Spec. No. 1 (male): “Type” (round label with red margin)/ “SYN-TYPE” (round label with blue margin)/ “Ghum dist. Rongdong Valley V-VI-31 Dr. Cameron”/ “*Quedius placidus* Cam. TYPE”/ “M. Cameron. Bequest. B.M. 1955–147.”. Spec. No. 2 (female): same labels as Spec. No. 1, except for label “Type”.

The first (male) specimen was dissected and the sternite 8 and the aedoeagus were mounted in Canada Balsam, the genital segment was glued to plate with beetle. The specimen is hereby designated as the lectotype of *Q. placidus*; the label “Lectotype *Quedius placidus* Cameron Smetana des. 1984” has been attached to it.

Geographical distribution.— *Quedius placidus* is distributed in the eastern portion of the Himalaya, from the Darjeeling area to Bhutan (Map 11).

Material studied.— 6 specimens.

BHUTAN. Tongsa, 2150 m. 24.VI.72 (CNCC, NHMB) 3; Tangu, 22 km N Thimphu, 30.VI.72 (NHMB) 1.

INDIA. *West Bengal.* See Type material.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons.— *Quedius placidus* can easily be recognized by the small and flat eyes in combination with the chaetotaxy of the head, and the presence of irregular longitudinal rows of coarser punctures on the elytra.

For a comparison of *Q. placidus* and *Q. lesagei* see the discussion under the latter species.

13. *Quedius (Microsaurus) lesagei spec.nov.*

Figs. 39–41; Map 13

Description.— Piceous-black with pronotum usually feebly paler, anterior portion of head narrowly and indefinitely paler, sutural and apical margins of elytra narrowly paler in some specimens, basal portions of tergites, pleurites and apex of abdomen paler, rather dark rufo-brunneous; abdomen slightly iridescent; palpi testaceous, first three antennal segments rufo-testaceous, remaining segments piceous, legs rufo-testaceous, medial face of middle and especially hind tibiae darkened. Head short, rounded and little constricted behind eyes, wider than long (ratio 1.31); eyes large, moderately convex, feebly protruding from lateral contours of head; tempora considerably shorter than length of eyes seen from above (ratio 0.24); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteromedial margin of eye, separated from it by distance no larger than diameter of puncture, two punctures between it and posterior margin of head; temporal puncture separated from posterior margin of eye by distance slightly smaller than diameter of puncture; surface of head with fine and dense microsculpture of irregular transverse waves gradually changing into irregular meshes on anterior portion, and with sparse microscopic punctures. Antenna short and moderately dilated toward apex, segment 3 slightly longer than segment 2, segment 4 slightly longer than wide, segments 5–8 about as long as wide, gradually becoming slightly wider and shorter, segments 9 and 10 slightly transverse, last segment shorter than two preceding segments combined. Pronotum feebly wider than long (ratio 1.09), broadly arcuate basally, moderately narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with 1 or 2 punctures close to anterior margin; microsculpture of pronotum finer and denser than that on head. Scutellum impunctate. Elytra fairly long, at base narrower than pronotum at widest point, at suture about as long as, at sides feebly longer than pronotum at midline (ratio 1.09), moderately densely and finely punctate, each with sutural, discal and lateral, irregular and inconspicuous longitudinal rows of coarser setiferous punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation of tergites slightly finer than that of elytra, sparse, somewhat denser at tergal bases, first visible tergite with middle portion impunctate; pubescence dark. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus slightly more dilated than in female. Apical margin of sternite 8 with shallow and not wide, obtusely triangular emargination (Fig. 39), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 40, 41) rather small, narrow and elongate; median lobe vaguely constricted in middle portion, slightly asymmetrical and with arcuate apex; paramere very narrow and elongate, almost parallel-sided and with obtusely arcuate apex, by far not reaching apex of median lobe; four rather small apical setae and two longer setae at each lateral margin below apex; sensory peg setae on underside of paramere forming irregular group at apical margin, with a few larger peg setae posteriad of it.

Length 5.7–6.5 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Khandbari Dis. Arun Valley at Num main bridge 1050 m. 22.IV.1984 Smetana & Löbl”. In the

collection A. Smetana, Ottawa, Canada.

Paratypes (4): Nepal: same data as holotype (ASCC, CNCC, MHNG) 4.

Geographical distribution.— *Quedius lesagei* is known from the Arun river valley near Num in eastern Nepal (Map 13).

Bionomics.— The specimens of the original series were taken by sifting mushrooms, moss, rotting wood and bark on an old fallen tree.

Comparisons.— *Quedius lesagei* resembles *Q. placidus* in general habitus and in the presence of irregular and inconspicuous longitudinal rows of coarser setiferous punctures on the elytra; however, *Q. placidus* can easily be distinguished, in addition to the differences on the aedoeagus, by the considerably smaller eyes (see the description).

Etymology.— Patronymic; the species was named in honour of my colleague and friend, Dr. L. LeSage from the Coleoptera Unit, Biosystematics Research Centre, Ottawa.

14. *Quedius (Microsaurus) stevensi* Cameron

Figs. 42–44, 396–399; Map 11

Quedius stevensi Cameron 1932:288

Quedius analoka Smetana 1975:331 (*syn.nov.*)

Quedius queinneci Coiffait 1983a:167 (*syn.nov.*)

Description.— Piceous to almost black, elytra and/or pronotum occasionally paler, or latter with indistinctly paler margins, apical margins of abdominal tergites and apex of abdomen more or less, usually indistinctly, paler; abdomen slightly iridescent; palpi rufopiceous, antennae piceous with three basal segments usually darker, legs piceous with at least partially darkened tibiae, and paler, rufo-testaceous tarsi. Head rounded, slightly wider than long (ratio 1.16); eyes large and convex, tempora distinctly shorter than length of eyes seen from above (ratio 0.55); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteromedian margin of eye, separated from it by distance about equal to diameter of puncture, two additional punctures between it and posterior margin of head; temporal puncture situated closer to posterior margin of eye than to posterior margin of head; tempora with a few punctures; surface of head with very fine and dense microsculpture of transverse waves. Antenna moderately long, segment 3 slightly longer than segment 2, following segments longer than wide, gradually becoming shorter and slightly wider, segments 9 and 10 about as long as wide, last segment shorter than two preceding segments combined. Pronotum slightly wider than long (ratio 1.15), widely arcuate basally and rather markedly narrowed anteriorly, evenly transversely convex; dorsal rows each with three punctures; sublateral rows each with three punctures (two first ones close to apical margin), posterior puncture situated distinctly behind level of large lateral puncture; surface of pronotum with microsculpture similar to that on head but slightly finer and denser. Scutellum impunctate. Elytra fairly long, at base only slightly narrower than pronotum at widest point, at suture slightly (ratio 1.17), at sides distinctly longer (ratio 1.30) than pronotum at midline; punctation coarse and deep, interspaces between punctures about equally large as diameters of punctures; pubescence rather sparse; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctation on basal portions of tergites coarse but more or less finer than that on elytra, becoming finer toward apical margins of tergites, middle portion of first visible tergite and apical portions of all tergites almost impunctate, punctation in general becoming gradually finer toward apex of abdomen. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus distinctly more dilated than in female. Apical margin of sternite 7 feebly concave, apical margin of sternite 8 with wide and deep triangular emargination (Fig. 43), small triangular area before emargination flattened and smooth. Aedoeagus (Fig. 44) large and voluminous, apical portion of median lobe of complicated, quite characteristic shape, deeply longitudinally excavate medially,

excavation accomodating apical portion of paramere. Paramere very wide basally, of quite characteristic shape, its extremely narrow apex slightly exceeding apex of median lobe, curved dorsally; underside of paramere without sensory peg setae, but with subapical lateral crest at both lateral margins of apical part; one very small seta at each side of end of crest.

Length 6.9–8.6 mm.

Type material.— *Quedius stevensi*. The original series in the collection of the British Museum (Natural History), London, contains one female specimen (holotype) under the name of *Q. stevensi*. It is labelled as follows: “Type” (round label with red margin)/ “Sikkim: Gopaldhara, Rungbong Vall. H. Stevens.”/ “H. Stevens. Brit Mus. 1922-307”/ “*Quedius stvensi* Cam. TYPE.” Right antenna except for basal segment, and three apical segments of left hind tarsus are missing in this specimen.

Quedius analoka. The species was described from several specimens from western and central Nepal. For details about the original material see Smetana 1975:332. The holotype, allotype and two paratypes are deposited in the collection Franz, Mödling, Austria, and two paratypes (from around Ainorasha near Marpha and from Dinguari Kola Valley) in the Canadian National Collection, Ottawa (CNC No. 13964). The holotype of this species cannot be specifically distinguished from the holotype of *Q. stvensi*; the name *Q. analoka* is a junior synonym of *Q. stvensi*.

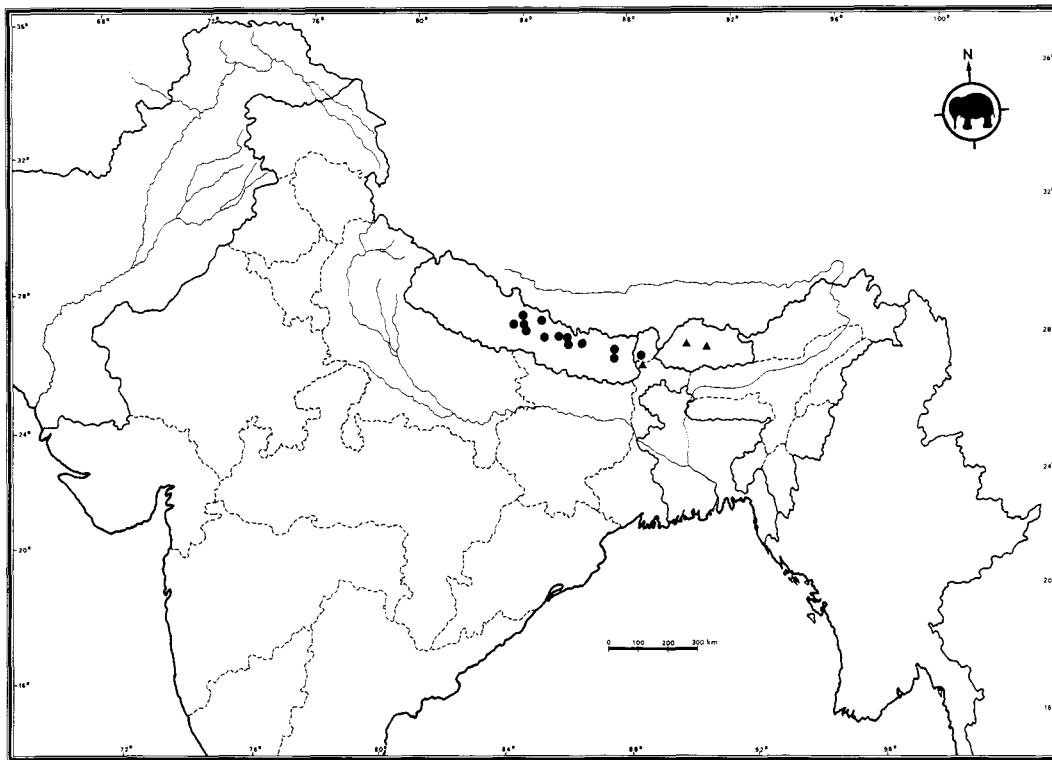
Quedius queinneci. Coiffait (l.c.) described the species from a single female specimen from Nepal. The holotype in the Coiffait collection, Muséum National d’Histoire Naturelle, Paris, France, is labelled as follows: “Nepal VII-82 Ganesh Himal Salme a Ruchet”/ “1500–3400”/ “HOLOTYPE”/ “*Quedius* (Sauridus) *queinneci* H. Coiffait 1983”. The holotype is a slightly teneral specimen that cannot be specifically distinguished from the holotype of *Q. stvensi*; the name *Q. queinneci* is a junior synonym of *Q. stvensi*. My determination label “*Quedius stvensi* Cameron Smetana det. 1984” has been attached to this specimen.

Geographical distribution.— *Quedius stvensi* is distributed from western Nepal eastward to Sikkim (map 11)

Material studied.— 67 specimens.

INDIA. *Sikkim*. See *Type material*.

NEPAL. *Manang Distr.* Marayandi, Thimang, 2550 m, 14-17.IV.80, Martens & Ausobsky (SBMF) 8; Marayandi, above Bagarchhap, 2300–2400 m, 12-14.IV.80, Martens & Ausobsky (SBMF) 2. *Parbat Distr.* between Chitre and Ghandrung, 2800–2900 m, 4-7.V.80, Martens & Ausobsky (SBMF) 1; Pass N Jiri, 2600 m, 10.IV.73, J. Martens (SBMF) 1; Pun Hill at Ghoropani Pass, 3030–3100 m, 8.X.83, Smetana & Löbl (MHNG) 2; Below Thare Pati, 9-11.IV.81, Löbl & Smetana (ASCC, MHNG) 6; near Mere Dara, 3000 m, 7.IV.81, Löbl & Smetana (ASCC) 1; Malemchi, 2800 m, 18.IV.81, Löbl & Smetana (ASCC, MHNG) 3; above Shermantang, 2900 m, 26.IV.81, Löbl & Smetana (MHNG) 1; Dobate Ridge NE Barahbise, 2800 m, 2.V.81; same, 3000 m, 7.V.81, all Löbl & Smetana (ASCC, MHNG) 4. *Kathmandu Distr.* Siwapuri Dara, 2400 m, 29. and 30.IV.85, A. Smetana (ASCC, CNCC) 9. *Khandbari Distr.* Forest above Ahale, 25.III.82, 2400 m, A. & Z. Smetana (ASCC) 1; above Tashigaon, 3500–3600 m, 6.IV.82, A. & Z. Smetana (ASCC) 3; “Bakan” W of Tashigaon, 3250 m, 4.IV.82, A. & Z. Smetana (ASCC) 1; Mure Num, 1500–1900 m, 25.V.80, W. Wittmer (MHMB) 1. *Lalitpur Distr.* Phulcoki, 2600–2650 m, 21.III.-14.V.80, Martens & Ausobsky (SBMF) 5; same, 2600–2650 m, 20.-22.IV.82, A. & Z. Smetana (ASCC, CNCC) 8; same, 2550 m, 29.IV.84, Smetana & Löbl (ASCC) 2; same, 2500 m, 28-29.IV.84, Löbl & Smetana (MHNG) 2. *Rasuwa Distr.* Langtang Khola Valley, 2.5 km E Syabru, 1730 m, 14.IV.85, A. Smetana (ASCC) 1.



Map 11. Distribution records for *Quedius placidus* (▲); and *Q. stevensi* (●).

Bionomics.— *Quedius stevensi* occurs at elevations between 1500 and 3600 m. Most specimens were taken by sifting leaf litter, moss and various debris in forests, often coniferous; by sifting dead vegetation and debris at bases of large rocks on clearings of forests; by sifting wet leaf litter and debris sprinkled by a waterfall; some specimens were taken in pitfall traps.

Comparisons and variations.— *Quedius stevensi* is a rather distinctive species. It is well characterized, in addition to the conspicuous aedoeagus (Fig. 44), by the coarse punctation of elytra in combination with the chaetotaxy of the pronotum (sublateral rows), the punctation of abdominal tergites (see description), and the deep and wide emargination of sternite 8 in the male (Fig. 43). For a comparison with *Q. ripicola* and *Q. milansaar*, see under the two respective species.

The punctation of the elytra varies to some extent and appears not quite as coarse in some specimens. The female holotype is such a specimen.

15. *Quedius (Microsaurus) ripicola* Cameron

Figs. 45–49; Map 12

Quedius ripicola Cameron 1926:269; 1932:291

Quedius sodalis Cameron 1926:267; 1932:287 (*syn.nov.*)

Description.— In all external characters quite similar to *Q. stevensi* but different as follows: pronotum narrower, about as long as wide, less narrowed anteriorly, in some specimens about equally narrowed both anteriorly and posteriorly; elytra at base almost as wide as pronotum at widest point; punctation of elytra and abdominal tergites of same type as that of *Q. stevensi* but in general finer and somewhat denser.

Male. First four segments of front tarsus dilated in similar way as in *Q. stevensi*. Apical margin of sternite 8 with shallow and moderately wide triangular emargination (Fig. 45), triangular area before emargination flattened and smooth. Aedoeagus (Figs. 46–49) narrow and elongate; median lobe narrowed toward apex, slightly asymmetrical apically and with subacute apex; apical portion forming a short rounded hook in lateral view; internal sac as in Fig. 47. Paramere narrow and elongate, narrowed anteriorly, by far not reaching apex of median lobe, with apex obtuse, subtruncate or minutely subemarginate; four minute setae at apical margin and one stronger and longer seta at each lateral margin well below apex, usually accompanied, at least unilaterally, by a minute seta; underside without sensory peg setae but with some thick minute setae.

Length 6.8–8.3 mm.

Type material.— *Quedius ripicola*. The collection of the British Museum (Natural History), London, contains 11 conspecific specimens in the original series of *Q. ripicola*. They are labelled as follows: Spec. No. 1 (♂): “Type” (round label with red margin)/ “Keyarkuli Mussoorie”/ “Dr. Cameron. 17.IV.22”/ “Type *Quedius ripicola* Dr. Cameron”/ “SYN-TYPE” (round label with blue margin). Spec. Nos. 2–4 (1♀, 2♂♂): “Chakrata Dist. Sanj Khud 6500”/ “Dr. Cameron 29.V.22”/ “M. Cameron. Bequest. B.M. 1955-147”. Spec. No. 5 (♂): “Chakrata Dist. Dodora Khud 8000”/ “Dr. Cameron 6.V.22”/ “M. Cameron. Bequest. B.M. 1955-147”. Spec. No. 6 (♂): “Mohna, 5000'. Chakrata, U.P.”/ “Dr. Cameron 2.V.21.”/ “*Quedius ripicola* Cam”. Spec. Nos. 7–9 (2♀♀, 1♂): “Bindal Gadh, Konain”/ “Dr. Cameron 5.V.21”/ “M. Cameron. Bequest. B.M. 1955-147”. Spec. No. 10 (♀): “Gahan 7000' Simla Hills.”/ “Dr. Cameron IX.1921”/ “M. Cameron. Bequest. B.M. 1955-147.” Spec.

No. 11 (♂): “Theog 7600 Simla Hills.”/ “M. Cameron. 11-IX-1921.”/ “M. Cameron. Bequest. B.M. 1955-147.”. Specimen Nos. 2–11 bear as last label the round label “SYN-TYPE” with blue margin.

All males were dissected and parts were glued to plates with beetles. The first male specimen, bearing the label “Type” (aedeagus, genital segment and sternite 8 were glued to plate with specimen, which is slightly teneral) is hereby designated as the lectotype of *Q. ripicola*; the label “Lectotype *Q. ripicola* Cam. Smetana des. 1983” has been attached to it.

Quedius sodalis. The collection of the British Museum (Natural History), London, contains one female specimen under the name *Q. sodalis*. It is labelled as follows: “Type”/ “Fagu 8000’ Simla Hills. Dr. Cameron. 6.IX.1921.”/ “TYPE”/ “*Quedius sodalis* Dr. Cameron”/ “M. Cameron. Bequest. B.M. 1955-147.”

Since Cameron (1926:368) did not specify that the species was described from a unique, the specimen is hereby designated as the lectotype of *Q. sodalis*; the label “Lectotype *Q. sodalis* Cam. Smetana des. 1983” has been attached to it. I am unable to distinguish this female from larger specimens of *Q. ripicola*. The name *Q. sodalis* should be considered a junior synonym of *Q. ripicola*; my corresponding determination label was attached to it.

Geographical distribution.— *Quedius ripicola* is distributed from Himachal Pradesh and Uttar Pradesh eastward to eastern Nepal (Map 12).

Material studied.— 71 specimens.

INDIA. *Himachal Pradesh*. Simla Hills, Theog, 7600’, 10-11.IX.21, Cameron (ASCC, BMNH) 15; Simla, VI.1981, de Rougemont (GDRC) 2. *Uttar Pradesh*. Chakrata distr. Bangar, 6000’, Cameron (BMNH) 1; Bindal Gadh, Konain, Cameron (BMNH) 2; Khedar Khud, 7500’, 7.V.22, Cameron (BMNH) 1; Korawa Khud, 9100’, 4.V.22, Cameron (BMNH) 3; Manjgaon, 6500’, 18.V.22, 5.V.22, Cameron (BMNH) 8; Sainj Khud, 6500’, 29.V.22, Cameron (BMNH, CNCC) 2. Kumaon: N. Kumaon, Gori Riv. gorge, 5000–9000’, Champion (BMNH) 2. Mussoorie: Keyarkull, 17.IV.22, Cameron (CNCC) 1. Garhwal: 20 km S Chamba, 1150 m, 20.IX.79, Löbl (MHNG) 1.

NEPAL. *Manang Distr.* Forest W Bagarchhap, 2200–2250 m, 21. and 22.IX.84, Smetana & Löbl (ASCC, CNCC, MHNG) 13. *Khandbari Distr.* Chichila nr. Ahale, 2200 m, 4.IV.84, Löbl & Smetana (MHNG) 1; Induwa Khola Valley, 2000 m, 17. and 18.IV.84, Smetana & Löbl (ASCC, CNCC, MHNG) 5; 2 km E Mansingma, 1900 m, 10.IV.84, Löbl & Smetana (MHNG) 1. Chaubas, 2600 m, 5.IV.81, Löbl & Smetana (ASCC) 1.

Bionomics.— Little is known about the habitat requirements of this species. Cameron (1932:291) gives “margins of streams” as the habitat. The specimens from near Bagarchhap in Nepal were taken by sifting wet moss, debris and vegetation from close to edges of small creeks or near small waterfalls, and from the vegetation soaked with water on huge flat rock tables in a forest. The specimen from Chaubas, Nepal, was taken by sifting wet debris and leaf litter from around a seepage in an oak-rhododendron forest, and the specimens from the Induwa Khola Valley and from near Mansingma were taken by sifting wet flood-debris from sandy banks of Induwa Khola and of a small creek.

Comparisons.— As mentioned above, *Q. ripicola* is quite similar in all external characters to *Q. stevensi*. The difference in the shape of the pronotum is mostly distinct; however, the difference in the punctuation of the elytra and that of the

abdominal tergites is less reliable and some specimens of *Q. ripicola* do not appreciably differ in this character from those of *Q. stevensi*. On the other hand, the males of both species differ considerably in the development of the apical emargination of the sternite 8 (see Figs. 43, 45), and in the shape of the aedeagus (see Figs. 44, 46).

Cameron (1932:191) records this species also from Darjeeling Distr. (Lopchu) and from Sikkim. However, I failed to find any specimens of *Q. ripicola* from these localities in the British Museum. These records very likely refer to another species, most likely to *Q. stevensi*. *Quedius ripicola* does not seem to occur east of Nepal.

16. *Quedius (Microsaurus) milansaar spec.nov.*

Figs. 50–54; Map 12

Description.— In all external characters extremely similar to *Q. ripicola* and different only in shape of aedeagus.

Male. First four segments of front tarsus dilated in similar way as in a *Q. stevensi* and *Q. ripicola*. Apical margin of sternite 8 with emargination similar to that of *Q. ripicola* (Fig. 50), triangular area before emargination flattened and smooth. Aedeagus (Figs. 51–54) similar to that of *Q. ripicola*, but larger, apical portion of median lobe forming large elongate hook in lateral view; paramere longer and narrower, apical margin minutely but distinctly emarginate; four minute apical setae, inner pair situated rather far from apical margin; two long setae at each lateral margin well below apex situated very close to each other and therefore appearing as one seta at low magnification; underside, as in *Q. ripicola*, without any sensory peg setae, but with few thick minute setae.

Length 7.5–8.3 mm.

Type material.— Holotype (male): “INDIA: H.P. Macleodganj VI:1981”/“Rougemont”. In the collection A. Smetana, Ottawa, Canada.

Paratypes (2) (males): India: Himachal Pradesh, Nagar, VI.1981, de Rougemont (GDRC, MHNG) 2.

Geographical distribution.— *Quedius milansaar* is at present known from two localities in Himachal Pradesh (Map 12).

Bionomics.— Nothing is known about the habitat requirements of this species; however, it very likely lives in a similar way as described for *Q. ripicola*.

Comparisons.— *Quedius milansaar* differs from *Q. stevensi*, in addition to the quite different aedeagus, by the same set of characters given for *Q. ripicola*. It is sympatric with *Q. ripicola* in Himachal Pradesh and can be positively distinguished from it only by the differently shaped aedeagus (see Figs. 46–49, 51–54).

Etymology.— The specific name is the Nepali adjective milansaar (=friendly).

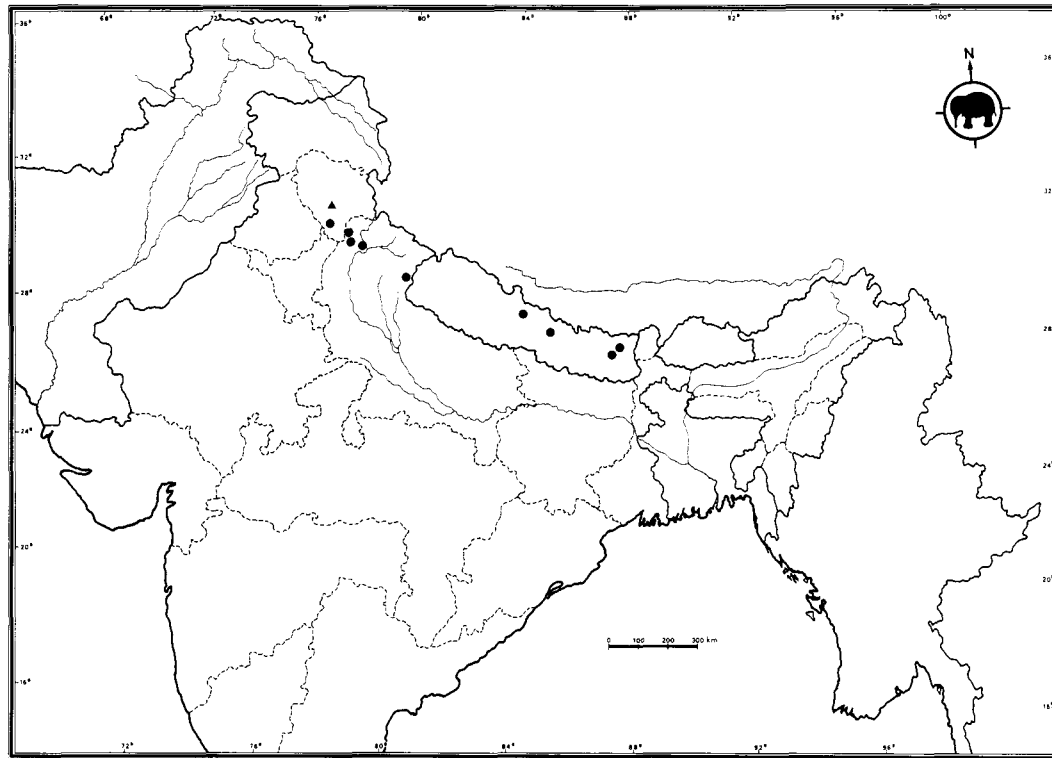
17. *Quedius (Microsaurus) franzi* Smetana

Figs. 55–59; Map 13

Quedius franzi Smetana 1975:326

Quedius trisulensis Coiffait 1982a:79 (*syn.nov.*)

Description.— Testaceous to rufo-brunneous or almost brunneopiceous, abdomen apically or almost entirely, and pronotum and head variably, in general not distinctly, darkened in paler coloured



Map 12. Distribution records for *Quedius ripicola* (●); and *Q. milansaar* (▲).

specimens, occasional specimens almost entirely testaceous; abdomen slightly iridescent; palpi, antennae and legs rufo-testaceous, middle and especially posterior tibiae darkened at inner margin. Head of rounded quadrangular shape, feebly wider than long (ratio 1.13), posterior angles rounded, indistinct; eyes rather large and convex, moderately protruding from lateral contours of head, tempora shorter than length of eyes from above (ratio 0.72); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated much closer to posteromedian margin of eye than to posterior margin of head, two or three additional setiferous punctures posteromedial and usually one anterior of it, posteromedian additional punctures form with two usual punctures near posterior margin of head an irregular group of four or five punctures; temporal puncture situated about midway between posterior margin of eye and posterior margin of head, one additional setiferous puncture between it and posterior margin of eye; tempora with several fine punctures; surface of head with very fine and dense microsculpture of irregular transverse waves with numerous longitudinal connections becoming gradually more numerous anteriorly, anterior part of clypeus therefore covered by almost meshed microsculpture. Antenna moderately long, segment 3 distinctly longer than segment 2, segment 4 distinctly longer than wide, following three segments longer than wide, gradually becoming shorter, segments 8–10 about as long as wide, last segment shorter than two preceding segments combined. Pronotum somewhat wider than long (ratio 1.14), broadly arcuate basally, arcuation flattened in middle portion; lateral margins somewhat flattened and subparallel in basal half, then distinctly narrowed anteriorly; lateral portions of pronotum feebly and narrowly explanate posterolaterally; dorsal rows each with three punctures; sublateral rows each with three rather fine punctures, posterior puncture situated distinctly behind level of large lateral puncture; usually one or two additional punctures between dorsal and sublateral rows; microsculpture of pronotum similar to that on vertex of head. Scutellum impunctate. Elytra rather short, narrower than pronotum at widest point, at suture shorter (ratio 0.76), at sides hardly shorter (ratio 0.94) than pronotum at midline; punctation rather fine and slightly asperate, moderately dense, pubescence brownish, surface between punctures with extremely fine microscopic irregularities. Wings reduced to small nonfunctional stumps reaching about half of length of elytra. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; punctation of abdominal tergites more or less finer and about equally dense to slightly sparser than that on elytra, becoming gradually somewhat sparser toward apex; pubescence as on elytra. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus much more dilated than in female. Sternite 8 with three long and strong setae on each side of apical half; apical margin with moderately wide and rather shallow, arcuate emargination (Fig. 55), triangular area before emargination flattened and smooth. Aedeagus (Figs. 56–59) small, median lobe subacute apically, with small hook visible in lateral view when paramere removed. Paramere not reaching apex of median lobe, obtuse and subemarginate apically, with four setae at apical margin and two longer bristles at each lateral margin near apex; underside of paramere with two or three sensory peg setae on each side near apex.

Length 5.8–7.1 mm.

Type material.— *Quedius franzi*. The species was described from three specimens, all bearing identical locality labels as follows: “Weg v. Gosaikunde z. Fulungmonastery”/ “Zentral-Nepal Sept.-Okt. 1971 lg. H. Franz”; the underside of the first label bears code “Pa 170”. The male holotype and female allotype are deposited in the Franz collection, Mödling, Austria; the holotype bears red label “HOLOTYPE *Quedius franzi* A. Smetana 1975”. The male paratype is deposited in the Canadian National Collection, Ottawa (CNC No. 13963).

Quedius trisulensis. Coiffait (1982a:79) described the species from a single female from basically the type locality of *Q. franzi*. The holotype is deposited in the Senckenberg Museum, Frankfurt a.M., Federal Republic of Germany. It is labelled as follows: “Trisuli-Tal Gosaikund, 3200 m 23.-26.IV.1973”/ “NEPAL-Expedition Jochen Martens”/ “TYPE”/ “Holo-typus” SMF C 15109 (underside)/ “*Quedius (Microsaurus) trisulensis* H. Coiffait 1979”.

The specimen is a perfectly typical female of *Q. franzi*, which cannot be distinguished from the allotype of *Q. franzi*; the name *Q. trisulensis* is a junior

synonym of *Q. franzi*. The holotype was accordingly labelled.

Geographical distribution.— *Quedius franzi* is known only from higher elevations (above 3000 m) in Central Nepal (map 13).

Material studied.— 38 specimens.

NEPAL. *Nuwakot Distr.* between Ghopte and Thare Pati, 23-26.IV.85, 3150–3250 m, A. Smetana (ASCC, CNCC) 14; below Thare Pati, 3300 m, 10.IV.81, Löbl & Smetana (ASCC) 2; Yangri Ridge, 4200 m, 21.IV.81, Löbl & Smetana (ASCC, MHNG) 5. *Rasuwa Distr.* north slope above Syabru, 3600–3800 m, 17-19.IV.85, A. Smetana (ASCC, BMNH) 11. Alm Duginma b. Lughla, Khumbu, 3000–4000 m, Franz (HFCC) 2.

Bionomics.— *Quedius franzi* occurs above 3000 m; the original series was collected by sifting forest floor litter in a fir forest with *Rhododendron* undergrowth; other specimens were taken by sifting debris, grass roots and moss on and around piles of rocks on a forest meadow (below Thare Pati); by sifting wet moss, fallen leaves and fir needles in a ravine (north slope above Syabru); by sifting moist to wet debris, leaf litter, *etc.*, near creeks, seepages and on large rocks in a *Rhododendron* - *Abies* forest (between Ghopte and Thare Pati); specimens from Yangri Ridge were taken (together with *Q. angnimai*) by sifting debris, fallen leaves and moss under low shrubs on a meadow (pasture) above tree line.

Comparisons and variations.— *Quedius franzi* is a rather conspicuous species; it can easily be recognized by the chaetotaxy of the head and pronotum, in combination with the shape of the pronotum, the colouration, the rather short elytra and the fifth visible abdominal tergite lacking the whitish apical seam of palisade setae. On the other hand, it is closely related and similar to *Q. goropanus* (see the discussion under the latter species for the differences between these two species).

The chaetotaxy of the posterolateral part of the head is rather unstable; some punctures can be missing, or additional punctures can be present (see the description). The holotype of *Q. trisulensis* is a specimen with additional puncture (bilaterally) anterior of posterior frontal puncture. This additional puncture occurs in almost all specimens, varies considerably in size and is rarely doubled.

18. *Quedius (Microsaurus) goropanus* Smetana

Figs. 60–64; Map 14

Quedius goropanus Smetana 1975:327

Description.— Piceous-black, pronotal margins or almost entire pronotum, elytra and very apex of abdomen more or less paler, rather piceous to piceous-brown, some specimens piceous-black with black head; abdomen slightly iridescent; palpi, antennae and legs rufo-testaceous, front tibiae slightly, middle and posterior tibiae distinctly, darkened at inner margin. Head of rounded quadrangular shape, wider than long (ratio 1.23), markedly narrowed behind eyes, posterior angles rounded, indistinct; eyes large and convex, protruding from lateral contours of head, tempora distinctly shorter than length of eyes seen from above (ratio 0.66); no additional setiferous punctures between anterior frontal punctures, however, two small round depressions (without setae) between eyes; posterior frontal puncture situated much closer to posteromedian margin of eye than to posterior margin of head, two setiferous punctures between it and posterior margin of head; temporal puncture very close to posterior margin of eye, separated from margin of eye by scarcely diameter of puncture; tempora almost lacking fine punctures; surface of head with dense and very fine microsculpture of irregular transverse waves with numerous longitudinal connections becoming gradually

more numerous laterally and anteriorly, anterior part of clypeus therefore at least partially with almost meshed microsculpture. Antenna moderately long, segment 3 longer than segment 2, segment 4 distinctly longer than wide, following three segments longer than wide, gradually becoming shorter, segments 8–10 about as long as wide, last segment shorter than two preceding segments combined. Pronotum somewhat wider than long (ratio 1.15), broadly arcuate basally, arcuation slightly flattened in middle portion; lateral margins somewhat flattened and subparallel in basal half, then distinctly narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two or three punctures, posterior puncture situated distinctly behind level of large lateral puncture; microsculpture of pronotum similar to that on vertex of head. Scutellum impunctate. Elytra short, at base narrower than pronotum at widest point, at suture shorter (ratio 0.71), at sides somewhat shorter (ratio 0.82) than pronotum at midline; punctation moderately coarse and dense, slightly asperate, pubescence piccous, surface between punctures with extremely fine microscopic irregularities. Wings reduced to small nonfunctional stumps. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; punctation of abdominal tergites more or less finer than that on elytra and about equally dense, sometimes becoming slightly sparser toward apex of abdomen. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with three long and strong setae on each side of apical half; apical margin with wide and not deep, arcuate emargination (Fig. 60), triangular area before emargination flattened and smooth. Aedoeagus (Figs. 61–64) rather small; median lobe, except for small lateral lobe on each side just below middle, entirely covered by paramere; apical portion of median lobe, when paramere removed, markedly narrowed anteriorly and with subacute apex; internal sac as in Fig. 62. Paramere large, with apical portion wide, narrowed anteriorly and with apical margin truncate to distinctly emarginate; one short apical seta at each lateroapical angle of paramere, one similar short seta at each lateral margin just below apical seta, and two setae at each lateral margin well posterior of apical seta; underside of paramere with sensory peg setae forming two irregular lateral groups situated well posterior of apex of paramere, each with 7 to 11 peg setae.

Length 6.9–7.4 mm.

Type material.— The female holotype, deposited in the Franz collection, Mödling, Austria, is labelled as follows: “Umb.Goropani w. Pokhara”/ “Zentral-Nepal Sept.-Okt. 1971 lg. H. Franz”/ “HOLOTYPE *Quedius goropanus* A. Smetana 1975”; the underside of the first label bears code “Pa 141+142”.

Geographical distribution.— *Quedius goropanus* is at present known only from the vicinity of the Ghoropani Pass in west Nepal (Map 14).

Material studied.— 5 specimens.

NEPAL. *Parbat Distr.* Ridge E Ghoropani Pass, 3150 m, 7.X.83, Smetana & Löbl (ASCC) 1; Pun Hill at Ghoropani Pass, 3050–3100 m, 8.X.83, Smetana & Löbl (CNCC, MHNG) 3.

Bionomics.— The holotype was found either under a stone or in rotting wood. The specimens from Pun Hill were taken by sifting forest floor debris at the edges of a coniferous forest; the specimen from a ridge near Ghoropani Pass was taken in a mixed *Abies*, *Rhododendron* and *Acer* forest by sifting old mushrooms on fallen trees.

Comparisons.— *Quedius goropanus* is related and similar to *Q. franzi*; however, it differs, in addition to the differences in the shape of the aedoeagus, mainly by the following characters: form more robust, size slightly larger, colouration in general darker; head larger, more transverse and markedly narrowed behind eyes, with distinctly different chaetotaxy, that is, the additional punctures on posterolateral portion of head, which are present in *Q. franzi*, are absent in *Q. goropanus*, temporal puncture in *Q. goropanus* is very close to posterior margin of the eye, whereas in *Q. franzi* this puncture is situated about midway between posterior margin of the eye and posterior margin of the head, and there is an additional puncture between it and

the posterior margin of the eye.

Quedius goropanus is also closely related and quite similar to *Q. tanderi* and *Q. kailo*; it can be positively distinguished from either species only by the differences in the shape of the aedoeagus.

For a comparison of *Q. goropanus* with *Q. angnimai* see the discussion under the latter species.

The small round depressions on the head between the eyes are present in all five known specimens of *Q. goropanus*; some of the specimens have similar additional depressions also on the vertex of the head and/or on the pronotum behind the posterior puncture of the sublateral rows.

19. *Quedius (Microsaurus) tanderi spec. nov.*

Figs. 65–68; Map 14

Description.— In all external characters, including general habitus and colouration, extremely similar to *Q. goropanus* and different mainly by quite differently shaped aedoeagus. Form in general slightly smaller and less robust, head in general smaller and less transverse, punctuation of elytra in general finer and denser.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with four long and strong setae on each side of apical half; apical margin with arcuate emargination slightly narrower and shallower than that of *Q. goropanus* (Figs. 60, 65), triangular area before emargination flattened and smooth. Aedoeagus (Figs. 66–68) rather small; median lobe, except for subacute apex, entirely covered by paramere; apical portion of median lobe, when paramere removed, short and markedly narrowed; internal sac as in Fig. 67. Paramere to great extent parallel-sided, truncate apically with apical margin slightly but distinctly emarginate in middle and with four apical setae at each side of median emargination; underside of paramere without sensory peg setae.

Length 6.9–7.4 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL (Prov. Bagmati) Jangtang Ridge NE Barahbise, 3250 m, 5.V.81 Löbl & Smetana”. In the collection A. Smetana, Ottawa.

Paratypes (6): same data as holotype, one specimen with elevation 3300 m (ASCC, CNCC, MHNG) 6.

Geographical distribution.— *Quedius tanderi* is known only from the type locality above Barahbise in central Nepal (Map 14).

Bionomics.— The specimens of the original series were taken by sifting debris, moss and low vegetation under bushes on a moist slope of a gully on the northeastern slope of the Jangtang Ridge.

Comparisons.— *Quedius tanderi* can be positively distinguished from *Q. goropanus* only by the different shape of the aedoeagus.

Two small round depressions (without setae), similar to those in *Q. goropanus*, were found on the head between the eyes in three paratypes; also, some of the paratypes have fairly large and very shallow depressions on each lateral portion of the clypeus.

Etymology.— The specific name is the Nepali noun *tanderi* (=young man) in apposition.

20. *Quedius (Microsaurus) kailo spec.nov.*

Figs. 69–72; Map 14

Description.— In all characters, including general habitus and colouration, extremely similar to *Q. goropanus* and different only by slightly different emargination of male sternite 8 and by differences on aedoeagus.

Male. Sternite 8, as in *Q. tanderi*, with four long and strong setae on each side of apical half; emargination of apical margin slightly shallower (Figs. 65, 69). Aedoeagus (Figs. 70–72) more robust and somewhat larger; narrowed apical portion of median lobe long; internal sac very similar to that of *Q. tanderi* (Fig. 71). Paramere wider, with only three apical setae at each side of apical emargination, which is very shallow.

Length 7.1–7.3 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL –Janakpur Thodung 3100 m 28/V/80 leg. E. Migliaccio”. In the collection A. Smetana, Ottawa, Canada.

Geographical distribution.— *Quedius kailo* is at present known only from the type locality in eastern Nepal (Map 14).

Bionomics.— Nothing is known about the habitat of the species.

Comparisons.— *Quedius kailo* is extremely similar to *Q. tanderi* and cannot be distinguished by any external characters. Even the differences on the male sternite 8 and on the aedoeagus are of such a character that it is possible that *Q. kailo* actually is only a geographically separated subspecies of *Q. tanderi*. This problem cannot be solved at present; more detailed knowledge of the distribution of both *Q. tanderi* and *Q. kailo* is needed.

The difference in the number of apical setae of the paramere in *Q. tanderi* (8) and *Q. kailo* (6) may not be significant.

Etymology.— The specific name is the Nepali adjective *kailo* (brown). It refers to the colour of the species.

21. *Quedius (Microsaurus) angnimai spec.nov.*

Figs. 73–77; Map 14

Description.— In all characters, including general habitus and colouration, very similar to *Q. goropanus*, but different as follows: size larger, form stouter; chaetotaxy of head similar to that of *Q. goropanus*; however, one additional setiferous puncture anteromedial and occasionally another additional setiferous puncture posteromedial of posterior frontal puncture; tempora with more numerous punctures (often almost lacking in *Q. goropanus*); chaetotaxy of pronotum similar to that of *Q. goropanus*; however, sublateral rows with only two punctures, with posterior puncture situated before level of large lateral puncture; elytra shorter, at suture substantially shorter (ratio 0.70), at sides distinctly shorter (ratio 0.84) than pronotum at midline; punctation of elytra in general slightly coarser and less dense, that of abdominal tergites in general slightly sparser.

Male. Sternite 8 (Fig. 73) with only two long and strong setae on each side of apical half, emargination of its apical margin narrower and slightly less arcuate. Aedoeagus (Figs. 74–77) distinctly larger than that of *Q. goropanus*, apical portion of median lobe narrowed, with apical margin subarcuate to broadly arcuate, internal sac as in Fig. 75. Paramere narrow and elongate, much narrower than median lobe and distinctly not reaching its apex, with apical margin usually variably emarginate, or occasionally subtruncate to subarcuate; underside of paramere, as in *Q. tanderi*, without any sensory peg setae; four setae apically on each side, two of them usually at apical margin on each side of emargination and two slightly below apex near lateral

margin, or forming a longitudinal row of four setae near apex.

Length 7.6–9.5 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL (Prov. Bagmati) below Thare Pati 3300 m, 11.IV.81 Löbl & Smetana”. In the collection A. Smetana, Ottawa, Canada.

Paratypes (47): Nuwakot Distr.: same data as holotype (ASCC, CNCC, MNHG, SMFM) 17; between Ghopte and Thare Pati, 3200 m, 23.IV.85, A. Smetana (ASCC, BMNH) 5; same, 3150 m, 24.IV.85, A. Smetana (ASCC) 2; same, 3150 m, 25.IV.85, A. Smetana (ASCC) 4; same, 3200 m, 26.IV.85, A. Smetana (ASCC, CNCC) 6; Yangri Ridge, 4350 m, 22.IV.81, Löbl & Smetana (ASCC, MNHG) 7; same, 4350 m, 22.IV.81, Löbl & Smetana (ASCC, CNCC) 2; same, 4500 m, 23.IV.81, Löbl & Smetana (MNHG) 1. Rasuwa Distr.: north slope above Syabru, 3800 m, 17.IV.85, A. Smetana (ASCC) 1; same, 3800 m, 28.IV.85, A. Smetana (ASCC) 1; same, 3600 m, 19.IV.85, A. Smetana (CNCC) 1.

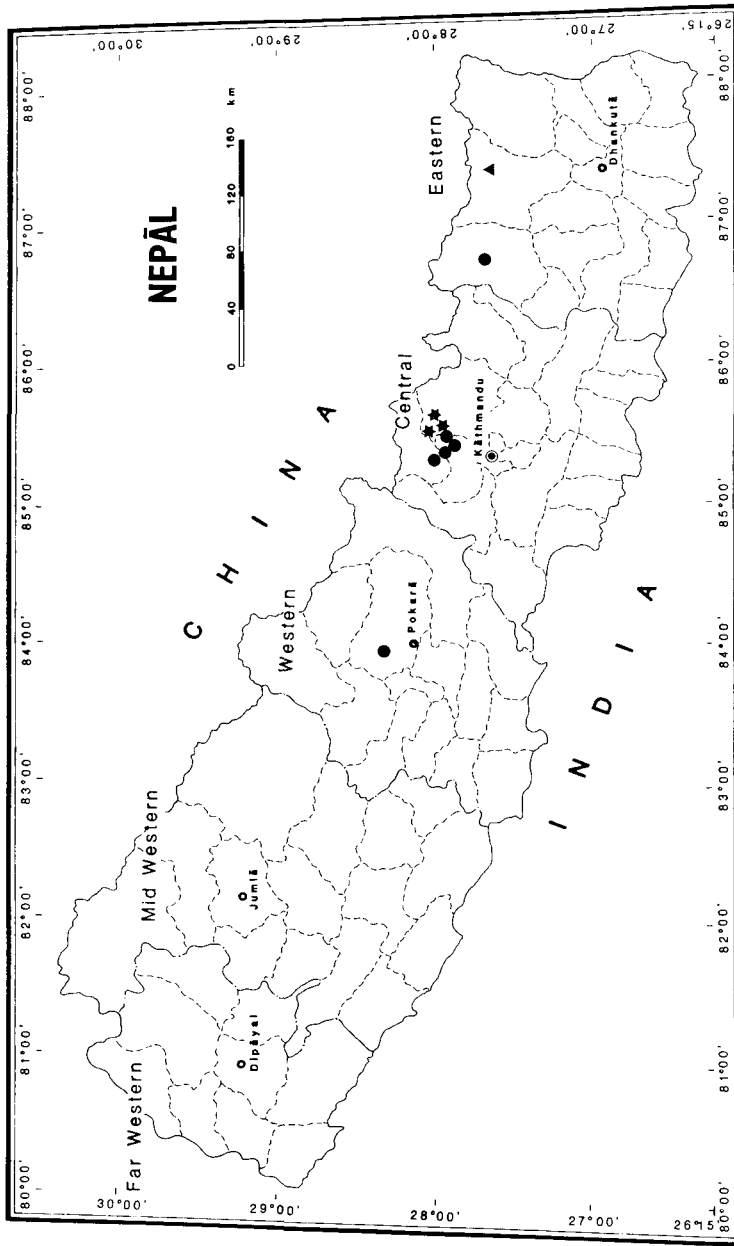
Geographical distribution.— *Quedius angnimai* is known from several localities in central Nepal (map 14).

Bionomics.— The specimens from below Thare Pati were taken by sifting thick layer of moist moss on large blocks of rock in a mixed forest (*Rhododendron*, *Abies*, *Tsuga*); most specimens were taken on only two blocks, especially on the eastern side. Specimens from Yangri Ridge were taken by sifting moss and debris under low bushes, dead vegetation and dead grass along bases of large rocks on a pasture above tree line. Specimens from near Syabru were sifted from floor litter and moss under old *Abies* trees in a sheltered ravine; those from between Ghopte and Thare Pati were sifted from wet moss, dead grass and other debris on a seepage slope and along a creek on clearings in mixed *Abies* - *Rhododendron* forest.

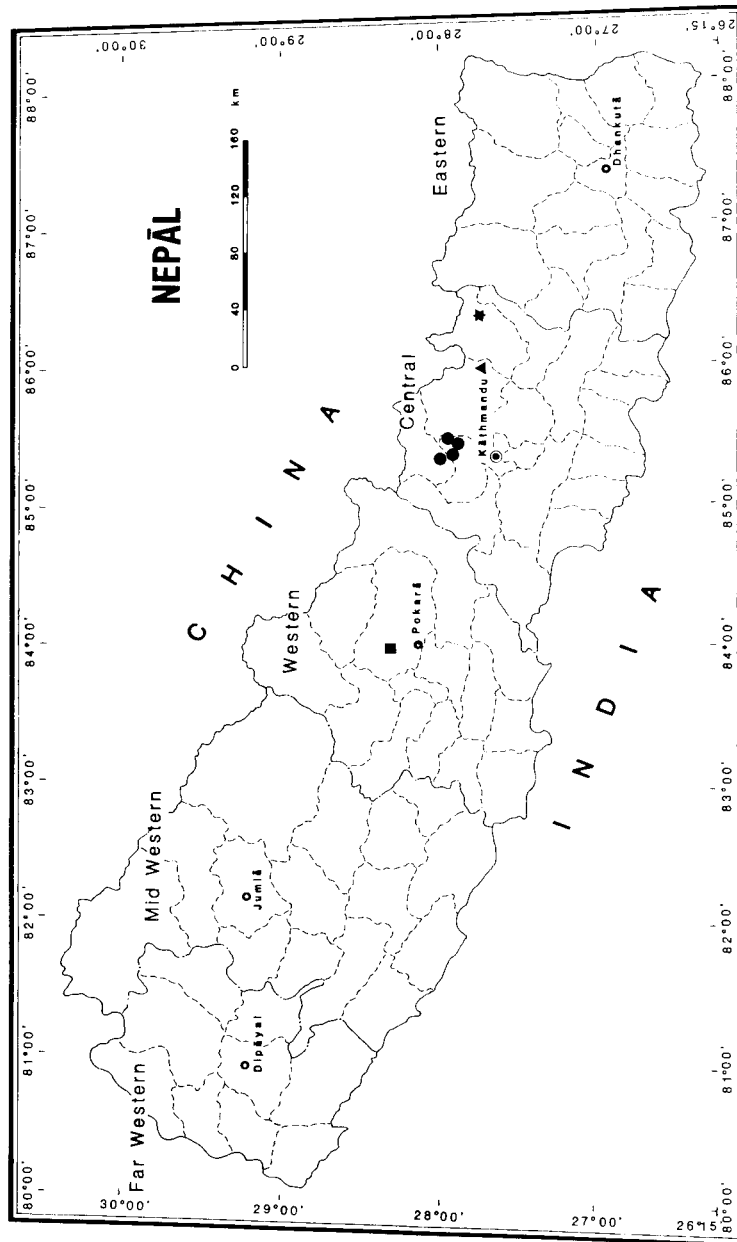
Comparisons and variations.— *Quedius angnimai* can easily be distinguished from *Q. goropanus*, in addition to the differences on the aedoeagus, by the presence of the additional puncture anteromedial of the posterior frontal puncture, and by the shorter sublateral rows of punctures on the pronotum, in combination with the other characters mentioned in the description. It also differs by the same set of characters from *Q. tanderi* and *Q. kailo*.

The chaetotaxy of the posterolateral part of the head is somewhat unstable; however, the puncture situated anteromedial of posterior frontal puncture is always present and was found doubled unilaterally in one specimen; there are often up to three additional setiferous punctures between the posterior frontal puncture and the two usual punctures near posterior margin of head; an additional puncture can also be found occasionally near the temporal puncture. In one specimen, one of the sublateral rows on pronotum has three punctures and the last puncture is situated behind the level of the large lateral puncture.

The specimens from the elevations above 4000 m on Yangri Ridge are in general somewhat smaller and less robust than the specimens from the lower elevations in the forest habitats.



Map 13. Distribution records for: *Q. franzi* (●); *Q. lesagei* (▲); and *Q. atchala* (★).



Map 14. Distribution records for: *Quedius goropanus* (■); *Q. tandleri* (▲); *Q. katio* (★); and *Q. angulimut* (●).

Etymology.— The species was named in honour of my Nepalese friend, Sherpa Ang Nima, who accompanied me on several of my treks in the Himalaya, and who substantially contributed to the success of these treks.

2. Subgenus *Distichalius* Casey

Type species.— *Staphylinus capucinus* Gravenhorst 1806, fixed by Casey (1915:398).

The subgenus is used here in the same sense as in my revision of the North American Quediini (Smetana 1971:153). However, see the discussion following *Quedius* for the ever increasing difficulties to satisfactorily characterize and delimit the conventional “classical” subgenera of *Quedius*.

Key to species of *Distichalius*

- 1 Elytra evenly punctate, bright metallic blue. Aedoeagus as in Figs. 79–81. Length 7.6–8.4 mm 22. *Q. kashmirensis* Cameron, p. 227
- 1' Elytra with three irregular longitudinal rows of coarse punctures, dark metallic olive green or dark green..... 2
- 2 (1') Head not narrowed posteriorly behind eyes; eyes very large, tempora about one-third as long as length of eyes seen from above. Elytra shorter, at suture about as long as pronotum at midline. Legs with coxae pale. Aedoeagus as in Figs. 83–86. Length 6.0–7.8 mm..... 23. *Q. chatterjeei* Cameron, p. 229
- 2' Head distinctly narrowed posteriorly behind eyes; eyes smaller, tempora about half as long as length of eyes seen from above. Elytra longer, at suture longer (ratio 1.23) than pronotum at midline. Legs with coxae piceous. Length 6.8–7.6 mm 24. *Q. deceptor* Cameron, p. 231

Kashmirensis Group

This group is characterized by the punctuation of the elytra, which evenly covers the entire elytral surface. It might be identical with the *Marginalis* Group in the Nearctic region (see Smetana 1971:156).

The group contains one species in the Himalayan region.

22. *Quedius (Distichalius) kashmirensis* Cameron Figs. 78–81; Map 15

Quedius kashmirensis Cameron 1944:13

Quaest. Ent., 1988, 24 (2)

Quedius mandra Smetana 1975:332 (syn.nov.)

Quedius deuvei Coiffait 1983a:168 (syn.nov.)

Description.— Entirely black, including appendages, elytra bright metallic blue, pronotum and abdomen distinctly iridescent. Head rounded, slightly wider than long (ratio 1.2); eyes large and moderately convex, tempora less than half as long as length of eyes seen from above (ratio 0.41); two additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated at posteromedial margin of eye and separated from it by distance no larger than diameter of puncture, two punctures between it and posterior margin of head; large temporal puncture situated close to posterior margin of eye, distance not larger than diameter of puncture; tempora with some fine punctures; surface of head with fine and dense microsculpture of transverse waves. Antenna moderately long, segment 3 longer than segment 2, segment 4 longer than wide, following segments becoming gradually shorter and wider, outer segments slightly transverse, last segment about as long as two preceding segments combined. Pronotum broadly arcuate basally, markedly narrowed in front, hardly wider than long (ratio 1.08); dorsal rows each with three punctures; sublateral rows each with two or three punctures, posterior puncture situated distinctly behind level of large lateral puncture; surface of pronotum with microsculpture similar to that on head but slightly finer and denser. Scutellum impunctate. Elytra long, at suture hardly (ratio 1.08), at sides distinctly longer (ratio 1.35) than pronotum at midline; punctation moderately coarse and not dense, interspaces between punctures mostly distinctly larger than diameters of punctures; dark and long pubescence rather scarce; surface between punctures without microsculpture. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctation of basal portions of tergites denser and slightly finer than that on elytra, becoming gradually finer and sparser toward apical margin of each tergite, punctation in general becoming gradually finer toward apex of abdomen. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus more dilated than in female. Apical margin of sternite 8 with wide and deep triangular emargination (Fig. 78), triangular area before emargination flattened and smooth. Aedocagus (Figs. 79–81) elongate; median lobe almost parallel-sided, rather suddenly narrowed apically and with two characteristically shaped apical plates. Paramere very narrow and elongate, not quite reaching apex of median lobe, with arcuate apex; four setae at apex, median pair much longer than lateral pair, a pair of setae at each lateral margin rather far below apex of paramere; sensory peg setae on underside of paramere forming irregular long group, gradually becoming denser toward apex of paramere.

Length 7.6–8.4 mm.

Type material.— *Quedius kashmirensis*. The collection of the British Museum (Natural History), London, contains one female specimen (holotype) under the name *Q. kashmirensis*. It is labelled as follows: “Type” (round label with red margin)/ “Kashmir Gulmarg VI-VII-31 Dr. Cameron”/ “*Q. kashmirensis* Cam. TYPE”/ “M. Cameron. Bequest. B.M. 1955-147”.

Quedius mandra. The species was described from one female from central Nepal (see Smetana 1975:333). The holotype is deposited in the Franz collection, Mödling, Austria; it is labelled as follows: “Umg. Goropani w Pokhara”/ “Central Nepal Sept.-Oct. 1971 Ig. H. Franz”/ “HOLOTYPE *Quedius mandra* A. Smetana 1975”. The specimen cannot be distinguished from holotype of *Q. kashmirensis*; the name *Q. mandra* is a junior synonym of *Q. kashmirensis*. My determination label “*Quedius kashmirensis* Cam. Smetana det. 1984” has been attached to it.

Quedius deuvei. Coiffait (l.c.) described the species from a single female from Nepal. The holotype in the Coiffait collection in the Muséum National d’Histoire Naturelle, Paris, France, is labelled as follows: “Nepal VII.82 Ganesh Himal Rupchet 3600 TD”/ “HOLOTYPE”/ “*Quedius (Quediops) deuvei* H. Coiffait 1983”. The specimen cannot be specifically distinguished from the holotype of *Q. kashmirensis*; the name *Q. deuvei* is a junior synonym of *Q. kashmirensis*. My determination label “*Quedius kashmirensis* Cam. Smetana det. 1984” has been

attached to this specimen.

Geographical distribution.— *Quedius kashmirensis* is widely distributed in the Himalayan range, from Kashmir to eastern Nepal (Map 15).

Material studied.— 9 specimens.

INDIA. *Kashmir*. Yusmarg, VI.81. R. de Rougemont (ASCC, GDRC) 2. *Uttar Pradesh*. Kumaon, Pindar Valley, 8000–1100', Champion (BMNH) 1; Kumaon, Ranikhet (BMNH) 1; W. Almora Divn., Sunderhanga, 8000–12000', VI.1919, Champion (BMNH) 1.

NEPAL. Nepal or Milke Himal, 3500 m, III.81 (HCCC) 1.

Bionomics.— No details are known about the habitat requirements of this species.

Comparisons.— *Quedius kashmirensis* can easily be recognized by the presence of the two additional setiferous punctures between the two anterior frontal punctures on the head, in combination with the long, bright metallic blue elytra. In general habitus, it resembles the Nearctic species *Q. montivagus* Smetana 1971 and also some species of the Capucinus Group (see Smetana 1971:161), occurring in the Pacific coastal states in North America, e.g., *Q. nevadensis* (Casey 1915) or *Q. tetricus* Smetana 1971.

Cameron (1944:13), oddly enough, assigned this species to the subgenus *Quedius*, although it does not show one single character of that subgenus.

Chatterjeei Group

This group is characterized by the unequal and irregular punctuation of the elytra, which shows a distinct tendency to be arranged in longitudinal rows.

The group contains two species in the Himalayan region.

23. *Quedius (Distichalius) chatterjeei* Cameron

Figs. 82–86; Map 15

Quedius chatterjeei Cameron 1926:370; 1932:295

Description.— Head black, pronotum and abdomen piceous to piceous-black, elytra dark metallic olive green or dark green, apical margins of abdominal tergites narrowly and paratergites variably paler; head and pronotum feebly, abdomen distinctly, iridescent; mouthparts dark brown to piceous, antennae piceous with bases of first two segments paler; legs, including coxae, pale testaceous, tibiae and tarsi dark brown to piceous. Head of rounded quadrangular shape, wider than long (ratio 1.28), not narrowed behind eyes, posterior angles rounded; eyes very large, convex, tempora about one-third as long as length of eyes seen from above (ratio 0.28); two additional setiferous punctures (one occasionally missing) between anterior frontal punctures; posterior frontal puncture and large temporal puncture both situated very close to posteromedian margin of eye, sometimes actually touching it, two additional setiferous punctures behind posterior frontal puncture at posterior margin of head; surface of head with dense and very fine microsculpture of transverse waves. Antenna moderately long, segment 3 longer than segment 2, segments 4 and 5 longer than wide, segments 6 and 7 about as long as wide, segments 8–10 as long as wide to slightly transverse. Pronotum slightly wider than long (ratio 1.14), widely arcuate basally and distinctly narrowed anteriorly; dorsal rows each with three punctures; sublateral rows with two or three punctures, posterior puncture situated behind level of large lateral puncture; surface of pronotum with microsculpture similar to that on head. Scutellum without punctures, surface with very fine microsculpture of irregular transverse waves. Elytra moderately long, at suture about as long as, at sides longer than pronotum at midline (ratio

1.26); each elytron extremely finely and rather sparsely punctate, and with three irregular longitudinal rows of coarser punctures, some coarser punctures also near posterolateral angles and at posterior margin, all bearing stiff setae, epipleuron rather densely punctate and pubescent; surface of each elytron without appreciable microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation and pubescence of tergites fine, rather dense at base of each tergite and becoming sparser toward apex of tergite, and in general becoming gradually sparser toward apex of abdomen. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus much more dilated than in female. Sternite 8 with deep and rather wide triangular emargination in middle of apical margin (Fig. 82), triangular area before emargination flattened and smooth. Aedoeagus (Figs. 83–86) quite characteristic: median lobe with two apical, ear-like, divergent lobes; paramere long and rather wide, slightly dilated, subarcuate apically and completely covering apical portion of median lobe; four setae at apical margin, inner setae close together and longer than outer setae, a pair of setae at each lateral margin below apex; sensory peg setae on underside of paramere very numerous, forming two rather wide lateral groups.

Length 6.0–7.8 mm.

Type material.— The original series of this species in the British Museum (Natural History), London, contains 11 specimens. They are labelled as follows: Spec. No. 1 (male): “Type” (round label with red margin)/ “SYN-TYPE” (round label with blue margin)/ “Woodstock Falls, Mussoorie. Dr. Cameron. 27.III.1921.”/ “TYPE *Quedius chatterjeei* Dr. Cameron”/ “M. Cameron. Bequest. B.M. 1955-147.”. Spec. Nos. 2–4: “Mossy Falls Mussoorie.”/ “Dr. Cameron. 20.III.1921.”/ “M. Cameron. Bequest. B.M. 1955-147.”. Spec. No. 5: “Muncpl. Gardens, Mussoorie 6000”/ “Dr. Cameron. 15.IV.22”/ “M. Cameron. Bequest. B.M. 1955-147.”. Spec. No. 6: “Keyarkuli, Mussoorie.”/ “Dr. Cameron. 17/IV.22”. “*Q. chatterjeei*”/ “M. Cameron. Bequest. B.M. 1955-147.”. Spec. No. 7: “Dhobi Ghat Mussoorie.”/ “Dr. Cameron. 14.IV.22.”/ “M. Cameron. Bequest. 1955-147.”. Spec. Nos. 8 and 9: “Bangar, 6000. Chakrata. U.P.”/ “Dr. Cameron. 1.V.21”/ “*Quedius chatterjeei* Cam.”. Spec. No. 10: “Chakrata Dist. Jadi Gad 7000”/ “Dr. Cameron, 9.V.22.”/ “M. Cameron. Bequest. 1955-147.”. Spec. No. 11: “Chakrata Dist. Sijla Gad 5000”/ “Dr. Cameron. 12.V.22.”/ “M. Cameron. Bequest. B.M. 1955-147.”. All specimens (2–11) bear as last a round label with blue margin “SYN-TYPE”.

The first specimen (male) was dissected and the sternite 8, genital segment and aedoeagus mounted on plate with beetle. The specimen is hereby designated as the lectotype of *Q. chatterjeei*; the label “Lectotype *Quedius chatterjeei* Cameron Smetana des. 1984” has been attached to it. In addition, male specimens 4 and 10 were dissected, and the aedoeagi were mounted in Canada Balsam.

Geographical distribution.— *Quedius chatterjeei* is distributed in the western Himalaya, in the Mussoorie and Chakrata Districts in Uttar Pradesh, and in Himachal Pradesh (Map 15).

Material studied.— 27 specimens.

INDIA. *Himachal Pradesh.* Simla, VI.81, R. de Rougemont (GDRC) 1; Jhatingri, Mandi, 6000', H.G. Champion (BMNH) 1; Dhelu, Mandi, 4500', H.G. Champion (BMNH) 4. *Uttar Pradesh.* Chakrata Distr.: Deoban, 1000', V.28, H.G. Champion (BMNH) 3; Jaunsar, VI.1929, H.G. Champion (BMNH) 1. Mussoorie Distr.: Mossy Falls, 22.III.32, H.G. Champion (ASCC, BMNH) 4; Dhobi Ghat, 14.IV.22, Cameron (CNCC) 1. Chaubattia, 1900–2100 m, 25.V.81, M. Brancucci (NHMB) 1.

Bionomics.— No details are known about the habitat requirements of this species. Cameron (1932:296) gives the following habitat data: “Under dead leaves at

the margins of streams”.

Comparisons.— *Quedius chatterjeei* apparently is closely related and in all external characters extremely similar to *Q. pretiosus* Sharp 1874 from Japan. The latter species differs, in addition to a few small external differences, by the differently shaped aedoeagus.

24. *Quedius (Distichalius) deceptor* Cameron

Map 15

Quedius deceptor Cameron 1944:14

Description.— In all external characters quite similar to *Q. chatterjeei* but different as follows: piceous-black, elytra dark metallic green, narrowly pale at apical margin; mouthparts, antennae and legs piceous. Head distinctly narrowed posteriorly behind eyes, eyes smaller, tempora about half as long as length of eyes seen from above (ratio 0.46). Antenna feebly longer, with outer segments as long as wide to feebly longer than wide. Pronotum slightly narrower (ratio width:length = 1.20) and more narrowed anteriorly. Elytra longer, at suture slightly (ratio 1.23), at sides distinctly (ratio 1.43) longer than pronotum at midline; fine punctures between rows of coarser punctures coarser and more numerous. Punctuation of abdomen slightly sparser.

Male. Unknown.

Length 6.8–7.6 mm.

Type material.— Cameron (l.c.) described the species from a single specimen from the Darjeeling area. The female holotype in the collection of the British Museum (Natural History), London, is labelled as follows: “Type” (round label with red margin)/ “Ghum district V-VI-31 Dr. Cameron”/ “*Q. deceptor* Cam. TYPE”/ “M. Cameron. Bequest. B.M. 1955-147”.

Geographical distribution.— *Quedius deceptor* is at present known from Uttar Pradesh (Garhwal) and from the type locality in West Bengal, in the Darjeeling area (Map 15). It is apparently widely distributed in the Himalayan area.

Material studied.— 4 specimens.

INDIA. *Uttar Pradesh.* Garhwal: between Tehri and Srinagar, 900 m, 25.X.79, I. Löbl (MHNG) 2; above Pauri, 1900 m, 28.X.79, I. Löbl (ASCC) 1. *West Bengal.* See Type material.

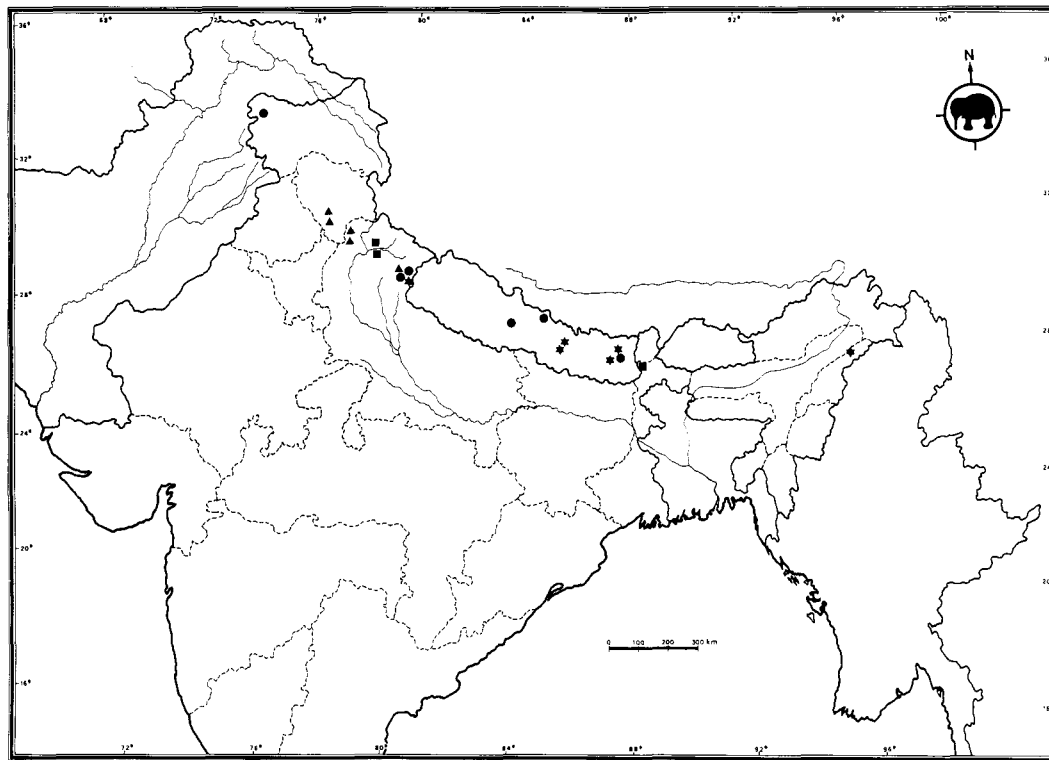
Bionomics.— The specimens from Garhwal were collected by sifting debris under bushes in a ravine and by sifting leaf litter and moss in a rather dry oak forest.

Comparisons.— *Quedius deceptor* can easily be distinguished from *Q. chatterjeei* by the characters given in the key and in the description. Although the male is not known at present, there is hardly any doubt about the specific distinctiveness of *Q. deceptor*.

3. Subgenus *Raphirus* Stephens

Type species.— *Staphylinus attenuatus* Gravenhorst 1806, fixed by Westwood (1838:16).

The subgenus is used here in the same sense as in my revision of the North American Quediini (Smetana 1971:183). However, see the discussion following *Quedius* for the ever increasing difficulties to satisfactorily characterize and delimit



Map 15. Distribution records for: *Q. kashmirensis* (●); *Q. chatterjeei* (▲); *Q. deceptor* (■); and *Q. assamensis* (★).

the conventional “classical” subgenera of *Quedius*.

Taxonomic notes.— *Quedius gardneri* is rather isolated within this subgenus, due mainly to the medially keeled abdominal tergites and to the configuration of the aedoeagus (see description). It is possible that this species will require the establishment of a separate subgenus, or even genus, when the fauna of the Quediini of the Oriental region becomes more adequately known.

Key to species of *Raphirus*

- 1 First three abdominal tergites with elevated median keel. Aedoeagus as in Figs. 233–235. Length 6.5–6.8 mm.....
.....56. *Q. gardneri* Cameron, p. 295
- 1' None of abdominal tergites with elevated median keel..... 2
- 2 (1') Head, pronotum and elytra bright metallic green or dark green, bluish green or purplish green. Head with deep and coarse punctures forming more or less distinct rugae on posterior portion, or at least with numerous coarse punctures posteromedial of each eye..... 3
- 2' Head and pronotum at most with metallic reflections, elytra occasionally dark metallic green to greenish blue or metallic blue. Head with scattered setiferous punctures..... 5
- 3 (2) Head with deep and coarse punctures forming more or less distinct rugae on posterior portion. Dorsal rows on pronotum formed by very coarse and deep, pit-like punctures. 4
- 3' Head with numerous coarse punctures posteromedial of each eye, without rugae on posterior portion. Aedoeagus as in Figs. 225–227. Length 6.8–7.5 mm..... 53. *Q. hariyo spec. nov.*, p. 291
- 4 (3) Scutellum and neck impunctate. Aedoeagus as in Figs. 229–231. Length 5.8–6.8 mm... 54. *Q. rugosus* Cameron, p. 292
- 4' Scutellum with punctures situated in coarse transverse depressions: neck with numerous punctures on middle portion. Male unknown. Length 7.0 mm.....
..... 55. *Q. intricatus* Fauvel, p. 295
- 5 (2') Two to three additional setiferous punctures on each side of head along medial margin of eye between anterior and posterior frontal punctures. Male unknown. Length 6.1–6.7 mm
.....45. *Q. taruni spec. nov.*, p. 271
- 5' No additional setiferous punctures between anterior and posterior frontal punctures 6
- 6 (5') Scutellum smooth, without punctures or any other sculpture. Aedoeagus as in Figs. 88–90. Length 5.6–6.0 mm.....
.....25. *Q. fluvialis* Cameron, p. 239

- 6' Scutellum punctate, punctures varying from fine and inconspicuous to coarse and distinct, and from just a few to numerous, or scutellum impunctate but with fine transverse rugae 7
- 7 (6') Scutellum with fine transverse rugae. Surface of head and pronotum with extremely fine, microscopic punctures. Aedoeagus as in Figs. 200–202. Length 9.4 mm..... 47. *Q. anomalus* Cameron, p. 274
- 7' Scutellum punctate. Surface of head and pronotum without microscopic punctures 8
- 8 (7') Elytra with double punctation: coarse and rather irregularly distributed punctures intermixed with distinctly finer punctures. Aedoeagus as in Figs. 196–198. Length 10.0 mm..... 46. *Q. durgaa spec.nov.*, p. 273
- 8' Elytra with simple punctation..... 9
- 9 (8') Segment 3 of antenna distinctly longer than segment 2. Size large, form robust. Length 7.9–9.6 mm 10
- 9' Segment 3 of antenna about as long as segment 2. Size small to moderate, form more or less slender. Length 3.7–6.8 mm. 14
- 10 (9) Legs bicoloured: femora pale yellowish, tibiae and tarsi darker. Pubescence of elytra and abdomen golden-yellowish, forming slightly denser patches on lateral portions of abdominal tergites. Aedoeagus as in Figs. 221–223. Length 8.5–9.0 mm..... 52. *Q. aureipilis* Cameron, p. 288
- 10' Legs more or less unicoloured, dark, femora never pale yellowish. Pubescence of elytra and abdomen dark, evenly covering abdominal tergites..... 11
- 11 (10') Elytra dark metallic green to greenish blue or metallic blue 12
- 11' Elytra piceous-black to black. Aedoeagus as in Figs. 204–206. Length 8.5–9.6 mm..... 48. *Q. assamensis* Cameron, p. 284
- 12 (11) Male sternite 8 with very deep and wide emargination, fringed by densely packed dark setae (Fig. 215). Aedoeagus very large, paramere narrow and elongate, almost parallel-sided in middle portion (Figs. 216, 217). Length 8.7–9.0 mm..... 51. *Q. kuro spec.nov.*, p. 288
- 12' Male sternite 8 with deep or moderately deep and wide emargination, without fringe of densely packed dark setae (Figs. 203, 207, 211). Aedoeagi smaller, parameres shorter and wider, never almost parallel-sided in middle portions (Figs. 204, 208, 212). 13
- 13 (12') Median lobe of aedoeagus in lateral view without a dent in apical portion (Fig. 209); paramere broadly rounded apically, shaped as in Fig. 210. Pronotum distinctly more narrowed

- anteriorly than posteriorly. Length 8.4–9.3 mm
 49. *Q. himalayicus* Bernhauer, p. 285
- 13' Median lobe of aedeagus in lateral view with distinct dent in apical portion (Fig. 213); paramere narrowly rounded apically, shaped as in Fig. 214. Pronotum about equally narrowed anteriorly and posteriorly. Length 7.9–9.0 mm.
 50. *Q. nilo spec. nov.*, p. 287
- 14 (9') Abdominal tergite 7 (fifth visible) with whitish apical seam of palisade setae (occasionally delicate and indistinct). Fully winged species; elytra moderately long, at suture no more than slightly shorter than pronotum at midline (ratio not below 0.85). Exception: *Q. satoi* - see couplet 17 15
- 14' Abdominal tergite 7 (fifth visible) without whitish apical seam of palisade setae. Brachypterous species; elytra short, at suture distinctly shorter than pronotum at midline (ratio around 0.76)..... 26
- 15 (14) Pubescence of abdominal tergites uniform, i.e. without patches of paler and/or denser hairs on lateral portions. Aedeagus and male sternite 8 as in Figs. 91–94. Length 4.9–5.6 mm.....
 26. *Q. kaalo spec. nov.*, p. 243
- 15' Pubescence of abdominal tergites not uniform, lateral portions of tergites with patches of paler and/or denser hairs. (Pubescence to be observed on clean specimens from obliquely behind in light dispersed by a translucent filter. In dirty, oily specimens the patches cannot be properly seen and the abdominal pubescence may appear uniform). 16
- 16 (15') Legs uniformly testaceous 17
- 16' At least tibiae of hind legs distinctly darkened; however, usually tibiae of middle legs and femora and tibiae of hind legs distinctly darkened..... 21
- 17 (16) Elytra short, at suture distinctly shorter than pronotum at midline (ratio about 0.7). Whitish apical seam of palisade setae on abdominal tergite 7 (fifth visible) delicate and indistinct. Brachypterous, wing stumps each about reaching apical margin of elytron. Aedeagus and male sternite 8 as in Figs. 151–155. Length 4.5–6.3 mm..... 37. *Q. satoi spec. nov.*, p. 260
- 17' Elytra moderately long, at suture about as long as pronotum at midline. Whitish apical seam of palisade setae on abdominal tergite 7 (fifth visible) wide and distinct. Macropterous, wings each much longer than elytron, folded 18
- 18 (17') Punctuation and pubescence of abdominal tergites very sparse, large middle portion of each tergite (sometimes almost entire tergite except for lateral patches) glabrous, without any

- punctuation or pubescence..... 19
- 18' Punctuation and pubescence of abdominal tergites gradually becoming sparser both toward apex of each tergite and toward apex of abdomen, in general more or less dense and each tergite, without large middle portion glabrous 20
- 19 (18) Front tarsus simple (not dilated) in both sexes. Elytra as dark as pronotum and head, like them with distinct metallic reflections. Punctuation of elytra sparse, intervals between punctures along transverse axis mostly several times larger than diameters of punctures. Aedoeagus and male sternite 8 as in Figs. 141–145. Length 4.0–4.8 mm..... 35. *Q. sundar spec.nov.*, p. 258
- 19' Front tarsus distinctly dilated in male. Elytra more or less paler than pronotum and head, like them with only slight bronze metallic reflections. Punctuation of elytra more or less dense, intervals between punctures along transverse axis mostly no more than twice as large as diameters of punctures. Aedoeagi and male sternites 8 as in Figs. 122–132. Length 4.8–6.0 mm. 32. *Q. muscicola* Cameron (pars), p. 253
- 20 (18') Median lobe of aedoeagus with lateral outlines characteristically bisinuate; apex of median lobe subacute (Figs. 134, 135). Male sternite 8 with very deep and wide apical emargination (Fig. 133). Length 4.7–5.1 mm..... 33. *Q. bhari spec.nov.*, p. 256
- 20' Median lobe of aedoeagus slightly to distinctly, simply dilated toward apex, lateral outlines therefore not bisinuate; apex of median lobe variably rounded (Figs. 124, 129). Male sternite 8 with moderately deep and wide emargination (Figs. 122, 123). Length 4.8–6.0 mm..... 32. *Q. muscicola* Cameron (pars). p. 253
- 21 (16') First three visible abdominal tergites each with three shallow, inconspicuous impressions at base; each impression, including middle one, with slightly denser punctuation and pubescence than on rest of surface. Punctuation and pubescence of elytra fine and dense, interspaces between punctures along transverse axis about as large as diameters of punctures. Scutellum with numerous punctures (at least 15). Aedoeagus and male sternite 8 as in Figs. 117–121. Length 4.0–5.2 mm 31. *Q. aureiventris* Bernhauer, p. 250
- 21' First three visible abdominal tergites without shallow, inconspicuous impressions at base with denser punctuation and pubescence. Punctuation and pubescence of elytra coarser and distinctly sparser, interspaces between punctures along transverse axis distinctly larger than diameters of punctures.

- Scutellum with less numerous punctures (no more than 12)..... 22
- 22 (21') Only tibiae of hind legs slightly darkened, middle legs uniformly testaceous. Pubescence of elytra and abdomen extensively golden-yellow. Paramere of aedoeagus reaching apex of median lobe, slightly asymmetrical, with bisinuate lateral margins (figs. 138, 140). Length 4.8–5.0 mm.
.....34. *Q. eklai spec. nov.*, p. 257
- 22' Tibiae of middle legs, tibiae and femora of hind legs and often also tibiae of front legs distinctly darkened. Pubescence of elytra and abdomen not extensively golden-yellow, although yellowish pubescence may be present. Paramere of aedoeagus not quite reaching apex of median lobe and of different shape (Figs. 97, 98, 104, 108, 113)..... 23
- 23 (22') Male sternite 8 with three strong setae on each side (Fig. 103). Apical portion of median lobe, when paramere removed, with fairly long median carina; paramere of fairly characteristic shape, with sensory peg setae on underside very numerous, forming two long and irregular lateral rows (Fig. 106). Length 3.8–4.7 mm.28. *Q. gaarho spec. nov.*, p. 246
- 23' Male sternite 8 with two strong setae on each side (Figs. 95, 96, 107, 112). Apical portion of median lobe, when paramere removed, with short median carina; parameres of different shapes and with sensory peg setae on underside less numerous (Figs. 101, 102, 111, 116)..... 24
- 24 (23') Size relatively large, form rather robust. Pubescence of elytra and abdominal tergites uniformly dark, although forming a patch of denser hairs on each lateral portion of each tergite. Aedoeagus and paramere as in Figs. 113–116. Length 6.1–7.2 mm. 30. *Q. paschim spec. nov.*, p. 249
- 24' Size small, form slender. Pubescence of elytra and abdominal tergites at least partially yellowish, particularly noticeable in patches of denser hairs on lateral portions of tergites. Aedoeagi and parameres of different shapes (Figs. 97–102, 108–111)..... 25
- 25 (24') Median lobe of aedoeagus with distinct apical tooth in lateral view (Fig. 110). Paramere elongate and narrow, with sensory peg setae on underside forming two long rows, with peg setae gradually becoming widely spaced in direction away from apex of paramere (Fig. 111). Length 3.7–4.6 mm.....
.....29. *Q. daksumensis* Coiffait, p. 247
- 25' Median lobe of aedoeagus without apical tooth in lateral view (Fig. 100). Paramere shorter and wider, with sensory peg setae on underside forming two rather short rows, with sensory peg

- setae crowded close to each other (Figs. 101, 102). Length 4.0–5.1 mm 27. *Q. vadhu* Smetana, p. 244
- 26 (14') Pubescence of abdominal tergites uniform and dark, *i.e.*, without patches of paler and/or denser hairs on lateral portions. Male sternite 8 with three strong setae on each side (Fig. 156). Aedoeagus as in Figs. 157–160. Length 4.3–5.8 mm..... 38. *Q. kanyasa* Smetana, p. 262
- 26' Pubescence of abdominal tergites not uniform and dark, lateral portions of tergites with patches of paler and denser hairs. Male sternite 8 with two or three strong setae on each side (Figs. 146, 165, 170, 175, 180, 185, 190). Aedoeagi of different shapes (Figs. 147, 166, 172, 176, 181, 186, 191)..... 27
- 27 (26') Legs uniformly testaceous. (Check also *Q. naati* and *Q. pharak*)..... 28
- 27' At least tibiae of hind legs darkened; however, usually tibiae of middle legs and femora and tibiae of posterior legs darkened. Occasionally legs almost uniformly testaceous (some specimens of *Q. naati*)..... 30
- 28 (27) Paramere of aedoeagus relatively wide anteriorly, covering apical portion of median lobe except for very apex (Fig. 176). Head with anterior portion distinctly paler in male, uniformly dark in female, usually wider with more convex eyes (ratio length: width 1.24). Length 4.0–5.5 mm. 41. *Q. tikta* Smetana, p. 266
- 28' Paramere of aedoeagus narrower anteriorly, not covering most of apical portion of median lobe (Figs. 147, 166, 172, 181, 186, 191). Head usually uniformly dark in both sexes, narrower with less convex eyes (ratio length: width = 1.15–1.20) 29
- 29 (28') Apical portion of median lobe, when paramere removed, rather short and wide, and with wide and short median carina; paramere lancet-shaped, moderately long, with sensory peg setae forming moderately long rows (Figs. 182, 184). Length 4.2–5.8 mm 42. *Q. tonglu spec.nov.*, p. 268
- 29' Apical portion of median lobe, when paramere removed, long and narrow, and with narrow and long median carina; paramere narrow and elongate, evenly and gradually narrowed, with rows of sensory peg setae long (figs. 187, 189). Length 4.2–5.8 mm 43. *Q. pharak spec.nov.*, p. 269
- 30 (27') Punctuation and pubescence of elytra rather sparse, interspaces between punctures along transverse axis mostly several times larger than diameters of punctures. Pronotum narrow, usually about as long as wide or scarcely longer than wide, not appreciably narrowed in front. Scutellum with only a few

- punctures (range 2–8, usually 3–5). Male sternite 8 with three strong setae on each side (Fig. 190). Aedoeagus as in Figs. 191–194, paramere rather short, with sensory peg setae forming short rows (Fig. 194). Size small: 3.8–4.6 mm.....
44. *Q. atchala* Smetana, p. 270
- 30' Punctuation and pubescence of elytra dense, interspaces between punctures along transverse axis no more than twice as long as diameters of punctures. Pronotum wider, usually more or less wider than long and narrowed in front. Scutellum with more numerous punctures (range 8–16, usually 9–11). Male sternite 8 with two strong setae on each side (Figs. 146, 165, 170). Aedoeagi and parameres of different shapes, rows of sensory peg setae on parameres longer (Figs. 147, 150, 166, 172, 174) 31
- 31 (30') Median lobe of aedoeagus not narrowed, apical margin broadly rounded; paramere short and wide (Figs. 147, 148). Average size larger: 5.0–6.8 mm. 36. *Q. udagra* Smetana, p. 259
- 31' Median lobe of aedoeagus narrowed, subacute apically; parameres elongate and more or less narrow (Figs. 166, 172, 169, 174). Average size smaller: 4.2–5.8 mm 32
- 32 (31') Median lobe of aedoeagus evenly, almost conically narrowed (Fig. 172). Average size larger; 4.9–5.8 mm.....
40. *Q. dewar spec.nov.*, p. 265
- 32' Median lobe of aedoeagus slightly dilated before narrowed apical portion (Fig. 167). Average size smaller: 4.2–5.4 mm.
 39. *Q. naati spec.nov.*, p. 264

Fluviatilis Group

The single species of this group is characterized by the following combination of characters: size moderately large; both head and pronotum without submicroscopic punctures and without additional setiferous punctures; eyes large but not taking almost entire sides of head; segment 3 of antenna slightly longer than segment 2; scutellum impunctate; elytra with simple punctuation; first four segments of front tarsus slightly dilated in female.

25. *Quedius (Raphirus) fluviatilis* Cameron

Figs. 87–90; Map 16

Quedius fluviatilis Cameron 1926:369; 1932:297
Quedius kashmiricus Cameron 1932:296 (*syn.nov.*)
Quedius nichinatensis Coiffait 1982a:79 (*syn.nov.*)
Quedius cachemiricus Coiffait 1982b:277 (*syn.nov.*)

Description.— Dark brown to piceous with black head, clytral suture and apical margin of elytra, and apical margins of abdominal tergites usually more or less paler, occasionally humeral and outer hind angles of elytra and/or pronotum paler, testaceous to testaceous; palpi, antennae and legs rufo-testaceous, antennae usually feebly darkened toward apex. Head rounded, feebly wider than long (ratio 1.15); eyes large and convex, tempora much shorter than length of eyes seen from above (ratio 0.39); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture very close to posteromedian margin of eye, one puncture between it and posterior margin of head; temporal puncture almost touching posterior margin of eye; tempora with some fine punctures; surface of head with dense and very fine microsculpture of transverse waves becoming somewhat confused on clypeus. Antenna moderately long, segment 3 somewhat longer than segment 2, segments 4 and 5 longer than wide, following segments gradually becoming shorter, outer segments about as long as wide to feebly wider than long. Pronotum hardly wider than long (ratio 1.04), broadly rounded basally, slightly narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; surface of pronotum with microsculpture similar to that on vertex of head. Scutellum impunctate. Elytra moderately long, at suture hardly shorter (ratio 0.95), at sides feebly longer (ratio 1.09) than pronotum at midline, at base hardly narrower than pronotum at widest point; punctation fine and rather dense, pubescence brownish, surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of abdominal tergites finer and usually slightly denser than that of elytra, gradually becoming indistinctly sparser toward abdominal apex; pubescence brownish. Front tarsus dilated in both sexes, slightly so in female.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side of apical half; apical margin with rather deep, subangulate emargination (Fig. 87), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 88–90) narrow and elongate; median lobe feebly and gradually widened at about apical third and then narrowed toward subacute apex; apical part of median lobe, when paramere removed, with small subapical hook; internal sac simple; paramere subparallel-sided, narrower than median lobe and almost reaching apex of median lobe, with four apical setae and two similar setae at each lateral margin below apex; underside of paramere with two irregular longitudinal rows of 12 to 13 sensory peg setae.

Length 5.6–6.0 mm.

Type material.— *Quedius fluviatilis*. The original series in the British Museum (Natural History), London, consists of 14 specimens. They are labelled as follows: Spec. No. 1 (male): “Type” (round label with red margin)/“SYN-TYPE” (round label with blue margin)/ “Chakrata Dist. Dodora Khud 8000”/ “Dr. Cameron. 13.V.22” / “TYPE *Quedius fluviatilis* Dr. Cameron/ M. Cameron. Bequest. B.M. 1955-147.” Spec. Nos. 2–8: “Chakrata Dist. Dadora Khud 8000” / “Dr. Cameron. 6.V.22 (or) 13.V.22.”/ “M. Cameron. Bequest. B.M. 1955-147.” Spec. Nos. 9 and 10: “Chakrata Dist. Binal Gad 7000–8000”/ “Dr. Cameron. 28.V.22.”/ “M. Cameron. Bequest. B.M. 1955-147.” Spec. No. 11: “Chakrata Dist. Bodyar 8300”/ “Dr. Cameron. 3-12.V.22.”/ “M. Cameron. bequest. B.M. 1955-147.” Spec. No. 12: “Chakrata Dist. Patra Khud 8000” / “Dr. Cameron. 15.V.22.”/ “*Quedius fluviatilis* Cam.” Spec. No. 13: “Chakrata Dist. Manjgaon 6500” / “Dr. Cameron. 18.V.22.”/ “M. Cameron. Bequest. B.M. 1955-147.” Spec. No. 14: “Deoban, 9331' Chakrata, U.P.” / “Dr. Cameron. 3.V.21”/ “M. Cameron. Bequest. B.M. 1955-147.” Specimens 2–14 each bear as last label a round label “SYN-TYPE” with blue margin.

The first specimen (male) was dissected and the sternite 8, the genital segment and the aedoeagus were mounted on plate with beetle. The specimen is hereby designated as the lectotype of *Q. fluviatilis*; the label “Lectotype *Quedius fluviatilis*

Cameron Smetana des. 1984" has been attached to it.

Quedius kashmiricus. The original series in the British Museum (Natural History), London, consists of two specimens. They are labelled as follows: Spec. No. 1 (female): "TYPE" (round label with red margin)/ "SYN-TYPE" (round label with blue margin)/ "Kashmir Gulmarg VI-VII-31 Dr. Cameron"/ "Q. kashmiricus Cam. Type" / "M. Cameron. Bequest. B.M. 1959-147." Spec. No. 2 (male): "Kashmir Gulmarg VI-VII-31 Dr. Cameron"/ "M. Cameron. Bequest. B.M. 1959-147"/ "SYN-TYPE" (round label with blue margin).

The male specimen was dissected and the sternite 8, the genital segment and the aedeagus were mounted on plate with beetle. The specimen is hereby designated as the lectotype of *Q. kashmiricus*; the label "Lectotype *Quedius kashmiricus* Cameron Smetana des. 1984" has been attached to it.

Neither of the two specimens can be distinguished from the lectotype of *Q. fluviatilis*. The name *Q. kashmiricus* is a junior synonym of *Q. fluviatilis*.

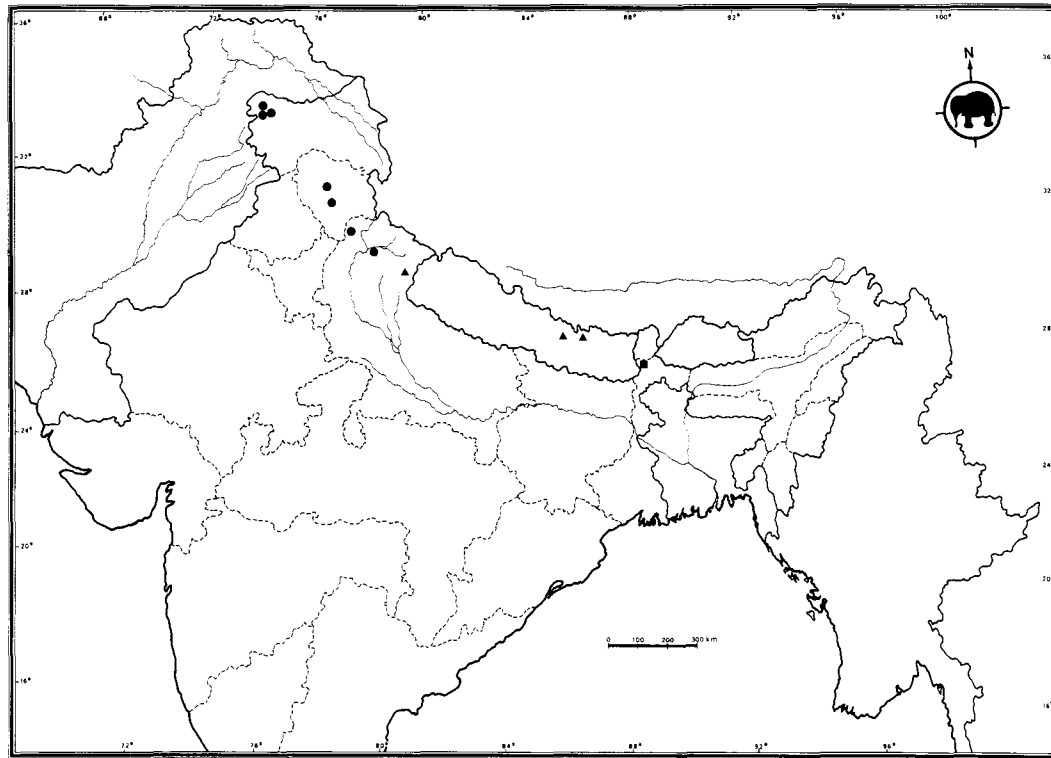
Quedius nichinaiensis. Coiffait (1982a:79) described the species from six specimens from Nichinaï Valley in Kashmir. I was able to study five specimens deposited in the Senckenberg Museum, Frankfurt a.M., Federal Republic of Germany. The male holotype is labelled as follows: "INDIA: Kashmir: Sonamarg Himalaya-Hauptkette Nichinaï-Tal, 9.VI.1976 3200–3100 m Martens & Schawaller leg.*/ "TYPE"/ "Holo-typus" SMF 15105 (underside)/ "Quedius (*Sauridus*) nichinaiensis H. Coiffait 1979". The four paratypes (2 ♂♂, 2 ♀♀) have same locality labels as the holotype (except "3100–3200") and two red labels "PARATYPE"/ "Para-typus" SMF 15105 (underside).

The holotype was damaged when shipped to me. The entire abdomen was lost and also the aedeagus was gone from the plate, except for the basal bulb trapped in the glue on the plate. I managed to recover the paramere which is now glued on the plate. Both male paratypes were dissected, the sternite 8 and the aedeagus of one male were mounted in Canada Balsam, and the aedeagus of the second male was glued to plate with beetle.

None of the five specimens can be distinguished from the lectotype of *Q. fluviatilis*. The name *Q. nichinaiensis* is a junior synonym of *Q. fluviatilis*. All specimens were accordingly labelled.

Quedius cachemiricus. Coiffait (1982b:277) described the species from a single female from Sonamarg in Kashmir. The holotype is deposited in the Naturhistorisches Museum in Basel, Switzerland, and is labelled as follows: "Sonamarg 17.7. 2600–2750 m"/ "Kashmir, 1976 W. Wittmer"/ "TYPE" (red label)/ "Quedius (*Sauridus*) cachemiricus H. Coiffait 1982".

The holotype of *Q. cachemiricus* comes from the same locality as *Q. nichinaiensis*; it cannot be distinguished in any way from the lectotype of *Q. fluviatilis*; the name is a junior synonym of *Q. fluviatilis*. My determination label "Quedius fluviatilis Cam. Smetana det. 1984" has been attached to this specimen.



Map 16. Distribution records for: *Quedius fluviatilis* (●); *Q. kaalo* (▲); and *Q. tonglu* (■).

Geographical distribution.— *Quedius fluviatilis* is distributed in the western portion of the Himalayan range, in Kashmir, Himachal Pradesh and in northern Uttar Pradesh (Map 16).

Material studied.— 54 specimens.

INDIA. *Kashmir*. Gulmarg, VI-VII-31, Cameron (BMNH) 1; Yusmarg, VI-81, de Rougemont (ASCC, GDRC) 2; Aru, X.77, H. Franz (ASCC, HFCC) 3. *Himachal Pradesh*. Mandi, Jhatingri, 6000', Champion (BMNH) 5; Dharmsala, Champion (BMNH) 1. *Uttar Pradesh*. Chakrata Distr. Mandali, 9100' (BMNH) 2; Chutli Khud, 8000', 17.V.22, Cameron (BMNH) 6; Korawa Khud, 9100', 4.V.22, Cameron (ASCC, BMNH) 7; Deoban, 9331', Cameron (BMNH) 3; Konain, 7800', Cameron (BMNH) 1. Garhwal: between Tehri and Srinagar, 900 m, 25.X.79, I. Löbl (MHNG) 1.

Bionomics.— Little is known about the habitat requirements of this species. Cameron (1932:197) gives "the borders of streams" as the habitat. The specimens from Garhwal were taken by sifting debris under bushes in a ravine.

Comparisons.— *Quedius fluviatilis* is rather variable in the colouration of the body; however, it is easily recognized by the general habitus alone. It is the only Himalayan species of *Raphirus* with impunctate scutellum resembling in the general habitus the west-palaearctic species of the *Q. nemoralis* Baudi - *Q. limbatus* Heer relationship. The only other Himalayan species of *Raphirus* with impunctate scutellum (*Q. taruni*) differs from *Q. fluviatilis* considerably by the different chaetotaxy of the head and pronotum, etc. (see under *Q. taruni* for details).

Muscicola Group

This species group is characterized by the following combination of characters: size small; both head and pronotum without microscopic punctures and without additional setiferous punctures; eyes very large, taking up almost entire sides of head; segment 3 of antenna about as long as segment 2; scutellum punctate; elytra with simple punctation; first four segments of front tarsus no more than moderately dilated in female.

The group contains 19 species in the Himalayan region.

26. *Quedius (Raphirus) kaalo spec.nov.*

Figs. 91–94; Map 16

Description.— Piceous-black to black, head, pronotum and elytra with metallic reflections, abdomen iridescent; palpi and antennae testaceous, legs testaceo-brunneous with indistinctly paler tarsi, hind femora darkened except apically, hind tibiae more or less darkened medially. Head rounded, slightly wider than long (ratio 1.20), eyes very large and convex, tempora quite short, considerably shorter than length of eyes seen from above (ratio 0.18); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture touching posteromedian margin of eye, one puncture between it and posterior margin of head; temporal puncture touching posterior margin of eye; surface of head with dense and rather coarse microsculpture of irregular transverse waves becoming slightly confused anteriorly and meshed in middle of clypeus. Antenna moderately long, segment 3 slightly longer than segment 2, segments 4 and 5 distinctly longer than wide, segments 6 and 7 slightly longer than wide, segments 8–10 about as long as wide, last segment about as long as two preceding segments combined. Pronotum about as long as wide, widely arcuate basally, evenly transversely convex, moderately narrowed anteriorly; dorsal rows each with

three punctures; sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; surface of pronotum with microsculpture similar to that on head but slightly finer. Scutellum with 11–14 punctures. Elytra moderately long, at base slightly narrower than pronotum at widest point, at suture slightly shorter (ratio 0.85), at sides about as long as pronotum at midline; punctuation dense, intervals between punctures along transverse axis mostly somewhat larger than diameters of punctures; pubescence dark; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctuation of tergites slightly finer than that on elytra and somewhat denser on front tergites but gradually becoming sparser toward apex of abdomen; pubescence dark, evenly covering surface of tergites. Front tarsus dilated in both sexes, inconspicuously so in female.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side; apical margin with moderately wide and deep, obtusely triangular emargination (Fig. 91), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 92–94) with median lobe subparallel-sided in middle portion and then narrowed into obtuse apex. Paramere not quite reaching apex of median lobe, more or less parallel-sided, apically narrowed into obtuse apex; four apical setae, both median setae longer than lateral setae; two setae at each lateral margin close to apex; sensory peg setae on underside of paramere numerous, forming two irregular, rather long longitudinal rows. Length 4.9–5.6 mm.

Type material.— Holotype (male): “NEPAL (Prov. Bagmati) Malemchi, 2800 m, 14.IV.81, Löbl & Smetana 24 A”. Allotype (female): “NEPAL (Prov. Bagmati) Dobate Ridge NE Barahbise, 2700 m, 2.V.81 Löbl & Smetana”. Both holotype and allotype in the Smetana collection, Ottawa, Canada.

Paratypes (5): NEPAL: same data as holotype (ASCC) 1 ♂; same data as allotype but date 7.V.81 (MHNG) 1 ♂. INDIA: Uttar Pradesh: Kumaon: W. Almora, H.C. Champion (BMNH)1; W. Almora Divn., X.1918, H.G. Champion (BMNH) 2.

Geographical distribution.— *Quedius kaalo* is at present known from Uttar Pradesh and from two localities in central and east-central Nepal (Map 16); it is possibly widely distributed in the western portion of the Himalaya.

Bionomics.— The specimens from Malemchi were taken by sifting moss, leaf litter and other debris under bushes along a stone wall between fields. The specimens from Dobate Ridge were taken by sifting moist to wet leaf litter and other debris in a semideciduous forest.

Comparisons.— *Quedius kaalo* is well characterized among the small species of *Raphirus* with punctate scutellum and partially darkened legs by the following combination of characters, in addition to the shape of the aedoeagus: size comparatively large, elytra moderately long, wings fully developed, abdomen with whitish apical seam of palisade setae on tergite 7, pubescence of tergites evenly distributed, not forming lateral patches of denser hairs.

Quedius kaalo resembles in general appearance the Holarctic species *Q. fulvicollis* Stephens, or the Nearctic species *Q. frigidus* Smetana.

Etymology.— The specific name is the Nepali adjective kaalo (black); it refers to the general colour of this species.

27. *Quedius (Raphirus) vadhu* Smetana

Figs. 95–102; Map 17

Quedius vadhu Smetana 1975:334

Description.—Piceous-black to black, elytra and apical portions of abdominal tergites occasionally slightly paler; head, pronotum and elytra with slight metallic lustre, abdomen slightly iridescent. Palpi and antennae testaceous, legs testaceo-brunneous, front tibiae slightly, middle and hind tibiae distinctly darkened at inner margin, posterior femora usually variably darkened. Head rounded, feebly wider than long (ratio 1.13); eyes very large and convex, tempora extremely short, considerably shorter than length of eyes seen from above (ratio 0.21); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated at posteromedian margin of eyes, one puncture between it and posterior margin of head; surface of head with fine and not dense microsculpture of irregular transverse waves becoming confused on clypeus. Antenna moderately long, segment 3 slightly narrower and about as long as segment 2, segments 4–6 longer than wide, gradually becoming shorter, outer segments about as long as wide, last segment about as long as two preceding segments combined. Pronotum about as long as wide to hardly longer than wide (ratio 1.05), very broadly arcuate basally, evenly convex and slightly, but distinctly, narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two, or rarely three punctures, posterior puncture not or rarely (when three punctures present) about reaching level of large lateral puncture; surface of pronotum with microsculpture similar to that on head but usually slightly denser. Scutellum punctate, punctures moderately numerous, usually no more than 12 in number. Elytra moderately long, at suture as long as, at sides somewhat longer (ratio 1.12) than pronotum at midline; punctuation moderately coarse and not dense, interspaces between punctures along transverse axis distinctly larger than diameters of punctures; surface between punctures without microsculpture; yellowish pubescence rather long and sparse. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctuation of tergites distinctly finer than that on elytra, denser on basal portions of tergites and in general becoming sparser toward apex of abdomen; first three tergites without shallow impressions; yellowish pubescence forming inconspicuous, not quite dense, patch of denser hairs on each lateral portion of each tergite. Front tarsus slightly dilated in both sexes, inconspicuously so in female.

Male. First four segments of front tarsus slightly more dilated than in female. Sternite 8 with two long and strong setae on each side, apical margin with moderately deep, obtusely triangular emargination (Figs. 95, 96), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 97–102) small; median lobe rather markedly and suddenly narrowed, apex subacute, apical portion, when paramere removed, with fine, arcuate transverse ridge which is sometimes narrowed into structure shaped as broad V, without apical dent in lateral view. Paramere rather short, not quite reaching apex of median lobe, subparallel-sided in middle part, apical portion narrowed, apex broadly obtuse; with four setae at apical margin, median setae longer than lateral setae, and with a pair of setae at each lateral margin near apex; sensory peg setae on underside of paramere forming two short irregular rows mediad of lateral margins with peg setae crowded close to each other.

Length 4.0–5.1 mm.

Type material.—The species was described from five specimens. The male holotype and female allotype bear the following labels: “Kali-Gandaki-Tal zw. Lete u. Tukche”/“Central-Nepal Sept.-Okt. 1971 lg. H. Franz”, the underside of the first label bears code “Pa 132+133”; the three female paratypes come from the same locality as the holotype and from near Goropani west of Pokhara. The holotype, allotype and one paratype are deposited in the Franz collection, Mödling, Austria, two paratypes are deposited in the Canadian National Collection, Ottawa (CNC No. 13968). The holotype bears red label “HOLOTYPE *Quedius vadhu* A. Smetana 1975”

Geographical distribution.—*Quedius vadhu* is known only from western and central Nepal, both from the main Himalayan range, and from the mountain Phulcoki in the Mahabharat Lekh range at the southern edge of the Kathmandu

valley (Map 17).

Material studied.— 51 specimens.

NEPAL. *Lalitpur Distr.* Phulcoki, 2600–2650 m, 21–22.III.80, Martens & Ausobsky (SBMF) 1; Phulcoki, 20–22.IV.82, 2550–2600 m, A. & Z. Smetana (ASCC, BMNH, CNCC) 12; Phulcoki, 2600 m, 14.X.83, Smetana & Löbl (ASCC, MHNG) 6; Phulcoki, 2550–2700 m, 28–29.IV.84, Smetana & Löbl (ASCC) 2. *Manang Distr.* Forest W Bagarchhap, 2200–2250 m, 21 and 22.IX.83, Smetana & Löbl (ASCC, BMNH, MHNG) 13; Latha Manang W Bagarchhap, 22. and 23.IX.83, Smetana & Löbl (ASCC, MHNG) 7. *Mustang Distr.* Thaksang, 3150–3400 m, 26.29.IV.80, Martens & Ausobsky (SBMF) 1. *Nuwakot Distr.* Malemchi, 2800 m, 16.IV.81, Löbl & Smetana (MHNG) 1. Dobate Ridge. NE Barahbise, 2800 m, 3.V.81, Löbl & Smetana (ASCC) 3.

Bionomics.— *Quedius vadhu* occurs mainly at elevations between 2500–3000 m, mostly in forest. Most specimens were collected by sifting moist leaf litter, moss and various debris, sometimes in rather wet habitats. Some specimens of the original series were also found under loose bark on *Pinus excelsa* trees.

Comparisons and variations.— *Quedius vadhu* and the two following species can rather easily be recognized by the following combination of characters: size relatively small; head, pronotum and elytra with metallic lustre; punctation of elytra not dense; abdomen with tergite 7 with distinct whitish apical seam of palisade setae, basal abdominal tergites without impressions, bearing dense punctation and pubescence at bases, hairs of lateral patches of yellowish pubescence rather sparse and inconspicuous; and tibiae distinctly darkened.

The configuration of the apical portion of median lobe adjacent to the paramere is somewhat unstable in *Q. vadhu*. In typical specimens this part bears a fine transverse ridge; however, in some populations (*e.g.*, from Phulcoki) this ridge becomes narrower and forms a structure shaped as a broad V; in the latter case, there may be a trace of a hook in lateral view. Despite this variability, the combination of the described configuration of the median lobe with the rather short paramere with the rows of sensory peg setae short and with the peg setae crowded close to each other, makes the distinguishing of the males of *Q. vadhu* from those of *Q. daksumensis* and *Q. gaarho* relatively easy. See under the two latter species for further discussion of the differences between these three similar species.

The five specimens of the original series of *Q. vadhu* were in poor condition. They all had dirty and greasy abdomens; the patches of denser pubescence on lateral portions of abdominal tergites were therefore obscured and were not mentioned in the original description. With the discovery of *Q. gaarho* at Ghoropani Pass, it is very likely that the female paratype of *Q. vadhu* from “near Goropani, W. Pokhara, 27.IX.1971” (Smetana 1975:335) in fact belongs to *Q. gaarho*.

28. *Quedius (Raphirus) gaarho spec.nov.*

Figs. 103–106: Map 21

Description.— In all characters, including general habitus and colouration, very similar to *Q. vadhu* and different by same set of small external differences as *Q. daksumensis*, and by characters on aedeagus.

Male. First four segments of front tarsus more dilated than in female. Sternite 8 (Fig. 103) with three long and strong setae on each side of apical half, emargination in middle of apical margin shallower than that

of *Q. vadhu*, but slightly deeper than in most specimens of *Q. daksumensis* (Fig. 107). Aedocagus (Figs. 104–106) rather narrow, median lobe narrow and more or less evenly narrowed toward subacute apex, apical portion, when paramere removed, with fairly long median carina appearing as distinct apical dent in lateral view; paramere relatively wide, not quite reaching apex of median lobe, with same set of setae as *Q. vadhu* and *Q. daksumensis*; sensory peg setae on underside very numerous, forming two long and irregular lateral rows, with peg setae about equally spaced throughout.

Length 3.8–4.7 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Parbat Distr. Ridge E Ghoropani Pass 3150 m 7.X.1983 Smetana & Löbl”. Both holotype and allotype deposited in the Smetana collection, Ottawa, Canada.

Paratypes (14): NEPAL: same data as holotype (ASCC, CNCC) 5; same data as holotype but elevation 3100 m (ASCC, BMNH, MHNG) 5; Parbat Distr.: Ghoropani Pass N slope, 2700 m, 6.X.1983, Smetana & Löbl (MHNG) 1; Pun Hill at Ghoropani Pass, 3050–3100 m, 8.X.1983, Smetana & Löbl (MHNG) 1; betw. Chitre and Ghandrung, Chitre-side of the Pass, 2800–2900 m, 4–7.V.80, Martens & Ausobsky (SBMF) 1. Mustang Distr.: Thaksang, 3150 m, 26–29.IV.80, Martens & Ausobsky (SBMF) 1.

Geographical distribution.— *Quedius gaarho* is known at present from the Parbat District in Nepal, particularly from the Ghoropani Pass and its vicinity (Map 21).

Bionomics.— *Quedius gaarho* was collected at elevations between 2700–3150 m, mostly in mixed *Rhododendron-Abies-Acer* or *Abies-Pinus excelsa* forest. Specimens were taken by sifting various mushrooms both on ground and on fallen trees, and by sifting moss and various debris on forest floor.

Comparisons.— *Quedius gaarho* is very similar in all external characters to both *Q. vadhu* and *Q. daksumensis*; on the other hand, it can be distinguished from both of them by the distinctly different aedocagus (see Figs. 97, 98, 104, 108, *etc.*) and by the presence of three strong setae on each side of apical half of male sternite 8 (Fig. 103).

Etymology.— The specific name is the Nepali adjective *gaarho* (difficult). It refers to the fact that the species is difficult to distinguish from the similar related species.

29. *Quedius (Raphirus) daksumensis* Coiffait

Figs. 107–111; Map 18

Quedius daksumensis Coiffait 1982b:279

Description.— In all characters, including general habitus and colouration, very similar to *Q. vadhu* and different only by a few small external differences and by characters on aedocagus. Size in general slightly smaller, head and pronotum less voluminous and narrower, antennae in general slightly shorter and elytra often paler, rather dark brownish piceous to occasionally brown.

Male. First four segments of front tarsus slightly more dilated than in female. Sternite 8 (Fig. 107) with two long and strong setae on each side, emargination in middle of apical margin shallower than that of *Q. vadhu* (Figs. 95, 96). Aedocagus (Figs. 108–111) very similar to that of *Q. vadhu* and about equally long; however, apical portion of median lobe, when paramere removed, with short carina appearing as distinct apical dent in lateral view; paramere more elongate and narrower, with same set of setae apically as in *Q.*

vadhu; however, with sensory peg setae on underside forming two long rows, with peg setae gradually becoming widely spaced in direction away from apex of paramere.

Length 3.7–4.6 mm.

Type material.— Coiffait (1982b:279) described the species from a single specimen from Daksum in Kashmir. The male holotype is deposited in the Naturhistorisches Museum in Basel, Switzerland. It is labelled as follows: “Daksum 9.-13.7.2400–2700 m”/ “Kashmir 1976 W. Wittmer”/ “TYPE” (red label)/“*Q. (Raphirus) daksumensis* H. Coiffait 1982”.

Geographical distribution.— *Quedius daksumensis* is distributed from Kashmir eastwards through central Nepal to about the Arun River Valley in eastern Nepal (Map 18).

Material studied.— 171 specimens.

INDIA. *Kashmir*. See Type material.

NEPAL. Thodung-Those, 3200 m, 3-9.IV.73, J. Martens (SBMF) 1; Ting Sang La above Barahbise, 3400 m, 13-15.IV.73, J. Martens (SBMF) 1; Dobate Ridge NE Barahbise, 2800 m, 2.V.81, Löbl & Smetana (MHNG) 1; Jangtang Ridge NE Barahbise, 3250 m, 5.V.81, Löbl & Smetana (ASCC, MHNG) 6; Merc Dara, 3200 m, 8.IV.81, Löbl & Smetana (MHNG) 1; below Thare Pati, 3300–3500 m, 10-13.IV.81, Löbl & Smetana (ASCC, BMNH, CNCC, MHNG) 118; Malemchi, 2800 m, 16.IV.81, Löbl & Smetana (ASCC) 1; above Shermantang, 2900 m, 26.IV.81, Löbl & Smetana (ASCC) 5; *Khandbari Distr.* “Bakan” W of Tashigaon, 3200–3250 m, 4-5.IV.82, A. & Z. Smetana (ASCC) 5; above Tashigaon, 3500 m, 6.IV.82, A. & Z. Smetana (ASCC) 1. *Nuwakot Distr.* betw. Ghopte and Thare Pati, 3100–3250, 23.-26.IV.85, A. Smetana (ASCC, BMNH, CNCC) 17. *Rasuwa Distr.* Lantang Khola Valley, 2.5 km E Syabru, 1730 m, 14.IV.85, A. Smetana (ASCC, MHNG) 13.

Bionomics.— *Quedius daksumensis* lives in similar habitats as *Q. vadhu*; however, it seems to prefer slightly higher elevations. The holotype was collected at an elevation between 2400–2700 m; however, all other specimens studied were taken in forest habitats close to 3000 m and up to 3500 m. Most specimens from below Thare Pati were taken by sifting moist thick moss on large rocks in a mixed forest (*Tsuga*, *Abies*, *Rhododendron*), and in a ravine with *Acer* growth, by sifting moist moss at bases of large rocks on a small clearing in a forest, and by sifting moss on large fallen trees; specimens from above Shermantang were taken by sifting thick layers of lichen mixed with moss on large rocks. The species obviously prefers moist moss as a habitat; however, occasionally specimens were also collected by sifting layers of old needles and other forest floor debris under coniferous trees.

Comparisons.— *Quedius daksumensis* is very similar to *Q. vadhu*; however, it usually can be distinguished without great difficulties by the characters mentioned in the key and in the description, particularly by the differently shaped median lobe and paramere of the aedeagus. In addition, the two species seem to prefer different habitats (see above and under *Q. vadhu*) and were never observed together in the same habitat.

Quedius daksumensis is also extremely similar to *Q. gaarho* and can be positively distinguished from it only by the differences on the median lobe and paramere of the aedeagus (see Figs. 108–11, 104–106).

Quedius daksumensis is apparently the smallest species of the genus in the Himalayan area, followed by *Q. gaarho* and *Q. atchala*.

The two specimens from “Thodung-Those” and “Ting Sang La” were published by Coiffait (1982a:33) under the name *Q. vadhu*.

30. *Quedius (Raphirus) paschim spec.nov.*

Figs. 112–116; Map 18

Description.— Piceous-black to black, head, pronotum and elytra with slight bronze metallic reflections, abdomen iridescent; both labial and maxillary palpi, and antennae testaceous; legs testaceous to brunneo-testaceous, middle tibiae slightly (often indistinctly) and hind tibiae distinctly darkened medially, hind femora darkened except for pale apex. Head rounded, slightly wider than long (ratio 1.2); relatively small, narrower than pronotum at widest point (ratio 0.81); eyes large and convex, tempora very short, considerably shorter than length of eyes seen from above (ratio 0.16); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture almost touching posteromedian margin of eye, one puncture between it and posterior margin of head, temporal puncture touching posterior margin of eye; surface of head with dense and fine microsculpture of transverse and oblique waves with numerous longitudinal junctions, gradually becoming almost meshed on middle portion on clypeus. Antenna moderately long, segments 2 and 3 about equally long, segments 4–6 longer than wide, gradually becoming distinctly shorter and wider, segments 8–10 about as long as wide, segment 11 as long as two preceding segments combined. Pronotum about as long as wide, widely rounded basally and distinctly narrowed anteriorly, evenly transversely convex; dorsal rows each with three punctures; sublateral rows with two punctures, posterior puncture situated before level of large lateral puncture, surface of pronotum with microsculpture finer and denser than that on head, composed of irregular transverse waves. Scutellum with numerous punctures (13–17). Elytra moderately long, at base slightly narrower than pronotum at widest point, at suture feebly shorter (ratio 0.90), at sides feebly longer (ratio 1.09) than pronotum at midline; punctation fine and dense, intervals between punctures along transverse axis no more than slightly larger than diameters of punctures; pubescence moderately dense, dark; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation of tergites fine and dense, in general denser than that on elytra, gradually becoming sparser toward apical margin of each tergite and in general becoming sparser toward apex of abdomen; pubescence dark, dense, forming a patch of denser hairs on lateral portions of each tergite. Front tarsus dilated in both sexes, inconspicuously so in female.

Male First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side; apical margin with moderately wide and deep, obtusely triangular emargination (Fig. 112), small triangular area before emargination flattened and smooth. Aedocagus (Figs. 113–116) moderately large, median lobe slightly narrowed with apex obtusely arcuate; paramere elongate and narrow, not quite reaching apex of median lobe; four apical setae, median pair longer than lateral setae; two setae at each lateral margin below apex; sensory peg setae on underside of paramere forming two irregular and relatively short longitudinal lateral rows.

Length 6.1–7.2 mm.

Type material.— Holotype (male) and allotype (female): “INDE Garhwal (UP) au-dessus Pauri 1900 m 28.X.79 I. Löbl”. Both holotype and allotype deposited in the Muséum d’Histoire Naturelle, Genève, Switzerland.

Paratypes (17): INDIA: same data as holotype (ASCC, BMNH, CNCC, MHNG) 10; Uttar Pradesh: Garhwal, Mussorie Range: 2 km E Dhanolti, 2250 m, 21.X.79, I. Löbl (MHNG) 1; above Joshimath, 2100 m, 27.X.79, I. Löbl (MHNG) 1. Kumaon: Chaubattia, cca 1800 m, 12–13.X.79, I. Löbl (MHNG) 1; Chaubattia nr. Ranikhet, cca 1800 m, 12–13.X.79, I. Löbl (MHNG) 3. NEPAL: Dobate Ridge NE Barahbise, 2800 m, 2.V.81, Löbl & Smetana (MHNG) 1.

Geographical distribution.— *Quedius paschim* is at present known from several localities in Uttar Pradesh and from one locality in east-central Nepal (Map 18); it

apparently belongs to those species distributed mainly in the western portion of the Himalayan range.

Bionomics.— *Quedius paschim* was collected at elevations of up to 2800 m by sifting leaf litter and moss in a rather dry oak forest; by sifting leaf litter and moss near a seepage in a mixed *Rhododendron-Abies* forest; by sifting leaf litter in a *Rhododendron* forest, and by sifting floor litter and debris among ferns in a forest.

Comparisons.— *Quedius paschim* resembles in general habitus *Q. aureiventris*; however, it differs, in addition to the characters on the aedoeagus, by the distinctly larger size and more robust form, by the uniformly dark pubescence of the elytra and abdomen, and by the absence of the shallow, inconspicuous impressions at the base of each of the first three visible abdominal tergites.

Etymology.— The specific name is the Nepali noun *paschim* (west). It refers to the distributional range of the species.

31. *Quedius (Raphirus) aureiventris* Bernhauer

Figs. 117–121; Map 19

Quedius aureiventris Bernhauer 1915:56 Cameron 1932:294

Quedius decipiens Cameron 1944:14 (*syn. nov.*)

Description.— Piceous-black to black, elytra usually more or less paler, dark brunnous to brunneo-piceous; head, pronotum and elytra with dark metallic reflections, abdomen iridescent; both labial and maxillary palpi testaceous, both occasionally indistinctly darkened toward apex; antennae testaceous; legs testaceous to brunneo-testaceous, front tibiae occasionally slightly darkened medially, middle and hind tibiae and usually also hind femora darkened. Head rounded, slightly wider than long (ratio 1.27); eyes large and convex, tempora very short, considerably shorter than length of eyes seen from above (ratio 0.22); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture almost touching posteromedian margin of eye, one puncture between it and posterior margin of head; temporal puncture touching posterior margin of eye; surface of head with dense and very fine microsculpture of transverse waves becoming irregular on clypeus. Antenna moderately long, segments 2 and 3 about equally long, segments 4–6 longer than wide, gradually becoming shorter, segment 7 slightly longer than wide, segments 8–10 about as long as wide, segments 9–10 occasionally feebly transverse, segment 11 about as long as two preceding segments combined. Pronotum about as long as wide, widely rounded basally and distinctly narrowed anteriorly, evenly transversely convex; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated slightly before level of large lateral puncture; surface of pronotum with microsculpture similar to that on head. Scutellum with numerous punctures (range 15–19). Elytra moderately long, at base slightly narrower than pronotum at widest point, at suture feebly shorter (ratio 0.88) to as long as, at sides feebly longer (ratio 1.11) than pronotum at midline; punctation dense, intervals between punctures along transverse axis mostly about as large as diameters of punctures; pubescence dense, dark hairs intermixed with yellowish to golden-yellowish ones; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation of tergites dense to very dense, finer than that on elytra, gradually becoming sparser toward apex of abdomen; pubescence dense, dark hairs intermixed with scattered yellowish hairs, in addition to lateral patches of yellowish pubescence on each tergite; first three tergites each with three shallow inconspicuous impressions at base; each impression, including middle one, with slightly denser punctation and pubescence. Front tarsus dilated in both sexes, inconspicuously so in female.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side; apical margin with moderately deep and wide, obtusely triangular emargination (Fig. 117), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 118–121) rather small, median lobe distinctly and rather suddenly narrowed into narrow and obtusely

pointed apical portion bearing distinct dent in lateral view. Paramere narrow and elongate, not quite or just about reaching apex of median lobe, obtusely arcuate apically; four apical setae, both median setae longer than lateral setae; two setae at each lateral margin below apex; sensory peg setae on underside of paramere numerous, forming two long, slightly irregular lateral rows.

Length 4.0–5.2 mm.

Type material.— *Quedius aureiventris*. Bernhauer (1915:56) described the species from specimen(s?) from “Kumaon (Binsar, 7900 Fuss ober dem Meere, 25.Mai 1912, A.D. Imms”. I was not able to locate the original material. My concept of this species is based on three specimens from the Cameron collection in the British Museum (Natural History), London. They are labelled as follows: Spec. No. 1 (male): “W. Almora Divn. Kumaon U.P. June '17 HGC” / “1084a” / red square label/ “*Quedius aureiventris*. det. Bernh. Cam.”. Spec. No. 2 (male): “W. Almora Divn. Kumaon U.P. Aug., 1917. HGC” / “*Quedius aureiventris* det. Bernh. Cam.” Spec. No. 3 (male): “U. Gumti Val.W. Almora Dn. Apr. '19 HGC” / “*Quedius aureiventris* det. Bernh. Cam.” Specimens Nos 1 and 2 were dissected and the 8th sternites, genital segments and aedeagi were mounted on plates with beetles.

Quedius decipiens. The original material in the collection of the British Museum (Natural History), London, contains one male specimen (holotype) under the name *Q. decipiens*. It is labelled as follows: “Type” (round label with red margin/ “Ghum dist. Mangpo V-31 Dr. Cameron” / “*Q. decipiens* Cam. TYPE” / “M. Cameron. Bequest. B.M. 1955-147.” The specimen was dissected, sternite 8, genital segment and aedeagus were mounted on plate with beetle. It does not specifically differ from three specimens of *Q. aureiventris* from Kumaon in Cameron collection (see above). The name *Q. decipiens* is a junior synonym of *Q. aureiventris*. My corresponding determination label was attached to the specimen.

Geographical distribution.— *Quedius aureiventris* is widely distributed throughout the Himalayan range; from northern Pakistan through Kashmir, Nepal and Darjeeling area to Bhutan (Map 19).

Material studied.— 815 specimens.

BHUTAN. Sampa-Kotoka, 1400–2600 m, 9.VI.72 (NHMB) 1.

INDIA. *Kashmir*. “Ferozpor Nala” (BMNH) 1; locality illegible (BMNH) 1. *Himachal Pradesh*. Mandi. Jhatngri, 6000', H.G. Champion (BMNH) 22. *Uttar Pradesh*. Chakrata Distr: Jaunsar, VI.1929, H.G. Champion (BMNH) 1; Manjagaon, 6500', 21.V.22, Cameron (BMNH) 1; Deoban, 3.V.21, Cameron (BMNH) 1; Jodi Gad, 7000', 9.V.22, Cameron (BMNH) 1; Patra Khud, 8000', 15.V.22, Cameron (CNCC) 1. Dodora Khud, 8000', 13.V.22, Cameron (BMNH) 3; Korawa Khud, 9100', 4.V.22, Cameron (BMNH, CNCC) 2. Mussoorie Distr.: Mossy Falls, 22.III.32, H.G. Champion (BMNH) 3; Dhobi Ghat (BMNH) 1. Kumaon: W. Almora, H.G. Champion (BMNH) 8; Nainital Div., H.G. Champion (BMNH) 1; Nainital, 1800–2000 m, 3.V.78, W. Wittmer (NHBM) 1; Chaubattia nr. Ranikhet, cca 18000 m, 12–13.X.79, I. Löbl (MHNB) 1; Bhim Tal, cca 1800 m, 9.X.79, I. Löbl (MHNG) 1; same, 1450–1550 m, 5.X.79, I. Löbl (MHNG) 1. Garhwal: Rangarh, crest, 2250 m, 9.X.79, I. Löbl (MHNG) 6; 16 km off Srinagar, 550 m, 29.X.79, I. Löbl (ASCC, MHNG) 19; between Tehri and Srinagar, 900 m, 25.X.79, I. Löbl (MHNG) 12; 22 km N Rishikesh, 450 m, 30.X.79, I. Löbl (MHNG) 4; 10 km off Chamba, 2200 m, I. Löbl (MHNG) 2; Dhanolti, 2200 m, 20.X.79, I. Löbl (MHNG) 4; 2 km E Dhanolti, 2250 m, 21.X.79, I. Löbl (MHNG) 1; above Pauri, 900 m, 28.X.79, I. Löbl (MHNG) 3. *West Bengal*. Darjeeling Distr.: Darjeeling Hills, Sandakpnu, 12000', 5.V.34, H.G. Champion (BMNH) 8; Singmark-Bharapatea Bung, 10.V.75, W. Wittmer (NHMB) 1; Ghoom-Lopchu, 2000 m, 12 and 14.X.78, Besuchet and Löbl (MHNG) 3; Ghum district, V-VI-31, Cameron (BMNH) 2.

NEPAL. *Kathmandu Distr.* Gokarna Forest nr. Kathmandu, 1400 m, 31.III, and 1.IV.81, Löbl & Smetana (ASCC) 4; same, 1300 m, 9.IV.85, A. Smetana (ASCC) 5; Siwapuri Dara, 2300–2520 m, 1 and 3.V.85, A. Smetana (ASCC) 5; above Sundarrijal, 2000 m, 4.IV.81, Löbl & Smetana (ASCC) 1; Burlang Bhanjyang, 2600 m, 5.IV.81, Löbl & Smetana (ASCC, CNCC, MHNG) 9; Chaubas, 2600 m, 5.IV.81, Löbl & Smetana (MHNG) 1; Chipling, 2300 m, 5.IV.81, Löbl & Smetana (ASCC) 1; Gul Bhanjyang, 2600 m, 6.IV.81, Löbl & Smetana (ASCC, MHNG) 3; Kutumsang, 2200–2400 m, 6.IV.81, Löbl & Smetana (ASCC, BMNH, CNCC, MHNG) 27; Malemchi, 2800 m, 14.IV.81, Löbl & Smetana (ASCC, CNCC, MHNG) 26; below Tarke Ghyang, 2600 m, 25.IV.81, Löbl & Smetana (ASCC) 2; NE Barabbise, 2500 m, 2.V.81, Löbl & Smetana (ASCC) 1; Dobate Ridge NE Barabbise, 2800 m and 3000 m, 2 and 7.V.81, Löbl & Smetana (ASCC, MHNG) 13; Siwapuri Dara, 2540 m, 1.V.85, A. Smetana (ASCC) 1. *Lalitpur Distr.* Phuleoki, 1700–2500 m, 10.V.81, 1, Löbl (MHNG) 8; same, 20–21.IV.82, 2550–2600 m, A. & Z. Smetana (ASCC, CNCC) 30; same, 14 and 16.X.83, 2600 m Smetana & Löbl (ASCC) 3; same, 28.30.IV.84, 2550–2700 m, Smetana & Löbl (ASCC, BMNH, CNCC, MHNG) 510; same, 2000 m, 11–14.VI.76, W. Wittmer & C. Baroni (NHMB) 1. *Khandhari Distr.* Forest above Ahale, 2300 m, 26.III.82, A. & Z. Smetana (ASCC) 1; same 2200 m, 4.IV.84, Smetana & Löbl (ASCC) 2; Forest NE Kuwapani, 2450 m, 13.IV.82, A. & Z. Smetana (ASCC) 2; same, 2400 m, 5.IV.84, Smetana & Löbl (ASCC) 2; Chichila-Mure, 1900 m, 24.V.80, W. Wittmer (NHMB) 3; below Sheduwa, 2550 m, 30.III.82, A. & Z. Smetana (ASCC) 2; above Sheduwa, 3000 m, 1 and 2.IV.82, A. & Z. Smetana (ASCC) 3; “Bakan” W of Tashigaon, 3200 m, 3–6.IV.82, A. & Z. Smetana (ASCC, CNCC) 11; Ridge S Mansingma, 2600 m, 8.IV.84, Smetana & Löbl (ASCC) 1; Forest S Mansingma, 2250 m, 12.IV.84, Smetana & Löbl (ASCC) 2; Induwa Khola Valley, 2050 m, 17.IV.84, Smetana & Löbl (ASCC) 3. *Mustang Distr.* Lete, 2550 m, 2.X.83, Smetana & Löbl (ASCC) 4. *Rasuwa Distr.* 1.5 km NE Bhargu, 2000 m, 12.IV.85, A. Smetana (ASCC) 2. Chapuri, 16.III.79, de Rougemont (GDRC) 1; Aharbal, VI.81, de Rougemont (GDRC) 1; Phalkuwa, 2500 m, IV.84, de Rougemont (GDRC) 1. PAKISTAN. Murree-Abbotta, 2200–2500 m, 13.VI.77, Wittmer & Brancucci (NHMB) 1; Chhangla Gall, 7000', Hazara, 12.VI.74, C. Baroni Urbani (NHMB) 1.

Bionomics.— *Quedius aureiventris* is a rather common species, occurring from low elevations of 550 m to middle elevations of over 3000 m; however, most specimens were taken at elevations between 2100–2280 m. Specimens were collected mainly in forest habitats by sifting leaf litter and other forest floor debris, by sifting moss on rocks or on standing live trees or fallen dead trees, and by sifting various decaying plant matter. The species is extremely common on the mountain Phulcoki near Kathmandu in the spring in and under decaying last years vegetation at bases of large rocks on forest clearings or in ditches along the road to the microwave tower on the top of Phulcoki. It is worth mentioning that it almost completely disappears from these habitats on Phulcoki in the fall after the monsoon (only very few specimens were found).

Comparisons and variations.— *Quedius aureiventris* can be easily recognized among the winged, small species of *Raphirus* by the type of pubescence of the elytra and abdomen, particularly by the presence of three shallow, inconspicuous impressions at the bases of the first three visible abdominal tergites with slightly denser punctation and pubescence, in combination with the distinctly, partially darkened legs (see the description for details). None of the species that resemble *Q. aureiventris* (e.g., *Q. daksumensis*, *Q. vadhu* or *Q. paschim*) has the basal impressions on the abdominal tergites.

The density of the punctation and pubescence of the abdominal tergites varies to some extent in this species.

The holotype of *Q. decipiens* has atypically coloured antennae; the right antenna is dark from segment 6 and the left antenna is dark already from segment 2, but

segments 2–5 of the latter have irregular pale spots. This colouration is either artificial or of teratological nature.

32. *Quedius (Raphirus) muscicola* Cameron

Figs. 122–132; Map 20

Quedius muscicola Cameron 1932:295

Quedius doherlyi Cameron 1932:297 (*syn.nov.*)

Quedius heterogaster Cameron 1944:14 (*syn.nov.*)

Description.— Piceous-black, elytra usually more or less paler, dark rufo-brunneous to brunnopiceous; head, pronotum and elytra with faint to slight metallic bronze reflections, abdomen iridescent; both labial and maxillary palpi, antennae and legs uniformly testaceous. Head rounded, slightly wider than long (ratio 1.25); eyes large and convex, tempora very short, considerably shorter than length of eyes seen from above (ratio 0.20); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture touching posteromedian margin of eye, one puncture between it and posterior margin of head; temporal puncture touching posterior margin of eye; surface of head with fine and dense microsculpture of transverse and oblique waves gradually changing into meshes on middle of clypeus. Antenna moderately long, segments 2 and 3 about equally long, segments 4–7 longer than wide, gradually becoming shorter, segments 8–10 about as long as wide, segment 11 as long as two preceding segments combined. Pronotum about as long as wide, widely rounded basally and distinctly narrowed anteriorly, evenly transversely convex; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated slightly before level of large lateral puncture; surface of pronotum with microsculpture of transverse waves similar to those on head. Scutellum with numerous punctures (range 9–15). Elytra moderately long, at base slightly narrower than pronotum at widest point, at suture about as long as, at sides slightly longer (ratio 1.16) than pronotum at midline; punctation fine and dense; intervals between punctures along transverse axis about as large as diameters of punctures; pubescence dense, golden yellowish; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation and pubescence of tergites in general more or less dense, gradually becoming sparser both toward apex of each tergite and toward apex of abdomen; pubescence golden yellowish, forming distinct patch of dense hairs on either lateral portion of each tergite. Front tarsus dilated in both sexes, inconspicuously so in female.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side; apical margin with moderately wide and not deep obtusely triangular emargination (Figs. 122, 123), small triangular area before emargination flattened and smooth. Aedocagus (Figs. 124–132) moderately large; median lobe with apical portion rather variable; mostly very slightly widened before rounded apical margin, or less frequently variably dilated apically; when paramere removed, with short median carina forming a fine hook in lateral view. Paramere not quite reaching, about reaching or slightly exceeding apex of median lobe, elongate and in general feebly narrowed and with subacute apex; four setae at apical margin, median two setae somewhat longer than lateral ones, two similar setae at each lateral margin below apex; sensory peg setae on underside of paramere numerous, forming two irregular, moderately long rows.

Length 4.8–6.0 mm

Type material.— *Quedius muscicola*. The collection of the British Museum (Natural History), London, contains five syntypes under the name *Q. muscicola*. They are labelled as follows: Spec. No. 1 (♀): “Type” (round label with red margin)/ “SYN-TYPE” (round label with blue margin)/ “Ghum district V-VI-31 Dr. Cameron” / “*Quedius muscicola* Cam. TYPE” / “M. Cameron. Bequest. B.M. 1955-147”. Spec. No. 2 (♀): Ghum dist. Tiger Hill 8,500–10,000 ft. Dr. Cameron” / “M. Cameron. Bequest. B.M. 1955-147” / “SYN-TYPE” (round label with blue margin). Spec. No. 3 (♀): same labels as No. 2. Spec. No. 4 (♂): “Moss” / “Ghum dist. V-VI-31 Dr. Cameron” / “M. Cameron. Bequest. B.M. 1955-147” /

“SYN-TYPE” (round label with blue margin). Spec. No. 5 (♂): same labels as Spec. No. 2 (teneral specimen).

The male specimen No. 4 was dissected, the aedocagus (paramere separated) and the genital segment were mounted on plate with beetle. The specimen is hereby designated as the lectotype of *Q. muscicola*; the label “Lectotype *Quedius muscicola* Cameron Smetana des. 1984” has been attached to it.

Quedius dohertyi. The Cameron collection in the British Museum (Natural History), London, contains one male specimen (holotype) under the name *Q. dohertyi*. It is labelled as follows: “Type” (round label with red margin)/ “64518” / “Doherty” / “Fry Coll. 1905.100” / “Birmah Ruby Mes” / “*Q. dohertyi* Cam. TYPE”.

The specimen (broken in two pieces: head & prothorax and elytra & abdomen) was remounted, the sternite 8, and the aedocagus were mounted in Canada Balsam, and the genital segment on plate with beetle.

The specimen cannot be distinguished from specimens of *Q. muscicola* with sparsely punctate abdomen. The name *Q. dohertyi* is a junior synonym of *Q. muscicola*; my corresponding determination label has been attached to the specimen.

Quedius heterogaster. The collection of the British Museum, (Natural History), London, contains two conspecific syntypes under the name *Q. heterogaster*. They are labelled as follows: Spec. No. 1 (♀): “Type” (round label with red margin) “Dr. Cameron”. 14-22.V.22” / “Chakrata Dist. Kanasar 7050”/ “*Q. heterogaster* Cam. TYPE” / “M. Cameron. Bequest. B.M. 1955-147.” Spec. No. 2 (♂): “SYN-TYPE” (round label with blue margin) “Chakrata Dist. Kanasar 7050”/ “Dr. Cameron. 14-22.V.22” / “M. Cameron. Bequest. B.M. 1955-147.”

The second (male) specimen was dissected, the aedocagus (paramere separated) and the genital segment were mounted on plate with beetle. The specimen is hereby designated as the lectotype of *Q. heterogaster*; the label “Lectotype *Quedius heterogaster* Cameron Smetana des. 1984” has been attached to it.

Neither specimen can be distinguished from the lectotype of *Q. muscicola*. The name *Q. heterogaster* is a junior synonym of *Q. muscicola*. My corresponding determination labels were attached to both specimens.

Geographical distribution.— *Quedius muscicola* is widely distributed throughout the Himalayan range from northern Himachal Pradesh and Uttar Pradesh through Nepal eastwards through West Bengal (Darjeeling area) to Burma (Map 20).

Material studied.— 108 specimens.

BURMA. See the Type material of *Q. dohertyi*.

INDIA. *Himachal Pradesh*. Kulu, Parbatti V., 6000–8000'. H.G. Champion (BMNH) 3. *Uttar Pradesh*. Chakrata Distr. Korawa Khud. 9100', 4.V.22, Cameron (BMNH) 3; Patra Khud, 8000', 15.V.22, Cameron (BMNH) 2. *Kumaon*: W. Almora, H.G. Champion (BMNH) 3; W. Almora Divn., VI.1917, H.G. Champion (BMNH) 1. *Garhwal*: 10 km E Chamba, 2200 m, 2. and 20.X.79, I. Löbl (MHNG) 2; between Tehri and Srinagar, 900 m, 25.X.79, I. Löbl (MHNG) 1; 10 km E Dhanolti, 2450 m, 21.X.79, I. Löbl (MHNG) 1; above Pawri, 1900 m, 28.X.79, I. Löbl (ASCC, MHNG) 6; 6 km E Dhanolti, 2300 m, 21.X.79, I. Löbl (MHNG) 1; Dhanolti, 2200 m, 20.X.79 (MHNG) 3; 2 km E Dhanolti, 2250 m, 21.X.79, I. Löbl (MHNG) 2;

4 km S Bhatwari, 1400 m, 21.X.79 (MHNG) 1. *West Bengal*. Darjeeling Distr. Ghoom-Lopchu, 200 m, 14.X.78, Besuchet & Löbl (MHNG) 2; 13 km N Ghoom, 1500 m, 15.X.78, Besuchet & Löbl (ASCC, MHNG) 7; Ghoom, 1500 m, 15.X.78, Besuchet & Löbl (MHNG) 1; Algarah, 1800 m, 9.X.78, Besuchet & Löbl (MHNG) 1; Singmari-Bharapatea Bung, 10.V.75, W. Wittmer (NHMB) 1; Darjeeling (BMNH) 1; Ghum Distr., V-VI-31, Cameron (BMNH) 4; Ghum Distr., Tiger Hill, 8500-10000', V-VI-31, Cameron (BMNH, CNCC) 4; Lepong, 1600-1800 m, 8.V.75, W. Wittmer (NHMB) 1.

NEPAL. *Kaski Distr.* above Dhampus, 2100 m, 8-10.V.80, Martens & Ausobsky (SBMF) 4. *Khandbari Distr.* Forest above Ahale, 2300 m, 26.III.82, A. & Z. Smetana (ASCC) 2; Chichila S., Ahale, 2200 m, 4 and 24.IV.84, Löbl & Smetana (MHNG) 2; Chichila-Mure, 1900 m, 24.V.80, W. Wittmer (NHMB) 2; Forest NE Kuwapani, 2450-2500 m, 28.III., 13.IV. and 14.IV.82, A & Z Smetana (ASCC) 3; same, 2350-2400 m, 5.IV.84, Smetana & Löbl (ASCC, CNCC, MHNG) 7; same, 2250 m, 6.IV.84, Smetana & Löbl (ASCC) 1; same, 2400-2450 m, 29.IV.84, Smetana & Löbl (ASCC) 2; 2 km E Mansingma, 1900 m, 19.IV.84, Löbl & Smetana (ASCC, MHNG) 4; Pass NE Mangmaya, 2300 m, 6.IV.84, Löbl & Smetana (ASCC, MHNG) 2; Ridge NE Mangmaya, 2800 m, 7.IV.84, Smetana & Löbl (ASCC) 1; Ridge S Mansingma, 2800 m, 7.IV.84, Smetana & Löbl (ASCC) 1; Forest S Mansingma, 2300 m, 12.IV.84, Smetana & Löbl (ASCC) 1; Induwa Khola Valley, 200-2050 m, 16.IV.84, Smetana & Löbl (ASCC) 2. *Lalitpur Distr.* Phulcoki, 2600 m, 12.VI.76, Wittmer & Baroni (NHMB) 1; same, 1700 m, 10.V.81, Löbl (MHNG) 1; same, 2550 m, 21.IV.81, A. & Z. Smetana (ASCC) 1; same, 2500-2550 m, 28-29.IV.84, Löbl & Smetana (ASCC, MHNG) 7; 2 km S Godavari, 1700 m, 12.IX.83, Smetana & Löbl (ASCC) 1. *Rasuwa Distr.* 1.5 km NE Bhargu, 2000 m, 12.IV.85, A. Smetana (ASCC) 1. Gul Bhanjyang, 2600 m, 6.IV.81, Löbl & Smetana (ASCC) 1; Dobate Ridge NE Barahbise, 2700-2800 m, 3 and 7.V.81, Löbl & Smetana (ASCC, MHNG) 2.

Bionomics.— *Quedius muscicola* typically occurs at lower elevations, from about 900 m to 2800 m. Specimens were collected in forest habitats near creeks or dry creek beds (in dry season), near seepages or other similar habitats by sifting moist to wet moss on large rocks and fallen trees, less frequently also by sifting wet forest floor debris, leaf litter *etc.* Some specimens were also taken by sifting flood debris along small creeks (after rainstorms) and by sifting debris under large ferns around a seepage.

Comparisons and variations.— *Quedius muscicola* can fairly easily be recognized among the fully winged small species of *Raphirus* by the rather pale colouration (the elytra are usually paler than the rest of the body and all appendages are uniformly testaceous), by the fairly long elytra with mostly dense punctation and golden yellowish pubescence, and by the golden yellowish pubescence of the abdomen forming distinct lateral patches of denser hairs.

Quedius muscicola is a rather variable species, particularly in the density of the punctation and pubescence of the abdominal tergites, and in the shape of the aedeagus (see Figs. 124-132); however, there is no correlation between various shapes of the aedeagus and the density of the abdominal punctation. Specimens from the western portion of the Himalaya (Himachal Pradesh, Uttar Pradesh and eastwards to about central Nepal) have the abdominal tergites densely punctate and pubescent and also the elytra are rather finely and densely punctate. East of central Nepal specimens with more or less sparsely punctate and pubescent abdominal tergites start to appear and may be dominant in some populations; in some specimens the tergites appear almost impunctate and glabrous except for small lateral patches of dense punctures and hairs (such specimens occur, *e.g.*, in the Induwa Khola valley in eastern Nepal or in Darjeeling area in West Bengal, and the holotype of *Q. dohertyi* from Burma also belongs to this form) and also the

punctuation of the elytra tends to be more or less coarser and sparser. Such specimens were never found west of eastern Nepal. If a densely punctate and pubescent specimen from the western portion of the distributional range is compared with an eastern specimen with an almost glabrous abdomen, it seems to be impossible that they could be conspecific. However, there is a continuous intergradation between these two extremes and there are no consistent differences in the shape of the aedoeagus (see above). I am therefore reasonably confident that we deal here with only one species. Nevertheless, should the specimens with almost glabrous abdominal tergites prove to be specifically different in the future, the name *Q. dohertyi* should be used for them.

Quedius satoi resembles *Q. muscicola*; however, the former species differs, in addition to the distinctly different shape of the aedoeagus (see Figs. 124–132, 152–155), by the wider head, by the shorter elytra, by the wings reduced to nonfunctional stumps (see under *Q. satoi*) and by the very delicate, sometimes hardly visible whitish apical seam of palisade setae on the fifth visible tergite. Both species often occur together in eastern Nepal.

For comparison with *Q. bhari* see under that species.

33. *Quedius (Raphirus) bhari spec.nov.*

Figs. 133–136; Map 21

Description.— In all characters, including general habitus, colouration and pubescence very similar to *Q. muscicola* and differing mainly by characteristic shape of aedoeagus and different emargination of male sternite 8. Punctuation of abdominal tergites moderately dense and almost evenly distributed; however, in a few specimens sparse and leaving some medioapical areas of tergites almost impunctate.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 (Fig. 133) with two long and strong setae on each side; emargination of apical margin much deeper and wider than that of *Q. muscicola* (Figs. 122, 123). Aedoeagus (Figs. 134–136) quite characteristic; median lobe with two dilatations, one larger in about middle and one smaller below apex, lateral outlines of median lobe therefore characteristically bisinuate; apex of median lobe subacute. Paramere not reaching apex of median lobe, with subacute apex; four setae at apex, all four almost equally long and strong, two similar setae at each lateral margin just below apex; sensory peg setae on underside of paramere numerous, forming two rather long, slightly irregular rows.

Length 4.7–5.1 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL, Khandbari District” / “For. above Ahale 2400 m 25.III.82 A. & Z. Smetana”. Both holotype and allotype in the Smetana collection, Ottawa, Canada.

Paratypes (9): same data as holotype but 2300 m and date 26.III.82 (CNCC) 1; Khandbari Distr. Kuwapani, 2100 m, 28.III.82, A. & Z. Smetana (ASCC) 1; Induwa Kholā Valley, 2000 or 2050 m, 16.IV.84, Smetana & Löbl (ASCC, BMNH) 4; Val. Induwa Kola, 2000 m, 16. and 18.IV.84, Löbl & Smetana (MHNG) 3.

Geographical distribution.— *Quedius bhari* is known from two localities in the foothills of the main Himalayan range in eastern Nepal (Map 21).

Bionomics.— The specimens of the original series were taken by sifting wet moss on rocks (Forest above Ahale), by sifting soaking wet moss around a small

forest spring, or by sifting moss permanently sprinkled by water from a small waterfall (Induwa Khola Valley).

Comparisons.— Specimens of *Q. bhari* are in general somewhat smaller than the average specimens of *Q. muscicola*, with shorter antennae, more parallel-sided pronotum, and shorter and more densely punctate elytra; however, the shape of the aedoeagus is necessary for positive determination.

Etymology.— The specific name is the Nepali adjective *bhari* (full); it refers to the double dilatation of the median lobe of the aedoeagus.

34. *Quedius (Raphirus) eklai spec. nov.*

Figs. 137–140; Map 21

Description.— In all characters very similar to *Q. muscicola* but different as follows: average size slightly smaller; colouration similar but median face of hind tibiae darkened; head and pronotum slightly narrower, latter less distinctly narrowed anteriorly than in most specimens of *Q. muscicola*; elytra somewhat shorter, at suture feebly shorter (ratio 0.86), at sides about as long as pronotum at midline, pubescence of elytra and abdomen extensively golden yellow.

Male. First four segments of front tarsus not appreciably more dilated than in female. Sternite 8 (Fig. 137) with two long and strong setae on each side, emargination of apical margin about same as that of *Q. muscicola* (Figs. 122, 123). Aedoeagus (Figs. 138–140) fairly small. Median lobe vaguely constricted in middle portion, with subacute apex; apical portion, when paramere removed, with fine and short median carina forming a fine hook in lateral view. Paramere reaching apex of median lobe, slightly asymmetrical, with bisinuate lateral margins; four short apical setae and two equally short setae at each lateral margin not far below apex of paramere; sensory peg setae on underside of paramere forming two slightly irregular and rather short lateral rows.

Length 4.8–5.0 mm.

Type material.— Holotype (male) and allotype (female): Nepal: “172 Parbat Dist., zwischen Chitre und Ghandrung, Chitre-Seite des Passes, Tsuga-Rhodod. 2800–2900 m Martens & Ausobsky leg. 4/7 Mai 80”. In the Senckenberg Museum, Frankfurt a.M., West Germany (holotype) and in the Smetana collection, Ottawa, Canada (allotype).

Geographical distribution.— *Quedius eklai* is at present known only from the type locality in western Nepal (Map 21).

Bionomics.— Both specimens were taken by sifting in a moist *Tsuga-Rhododendron* forest but no real details are known.

Comparisons.— *Quedius eklai* can be distinguished from *Q. muscicola*, and also from *Q. bhari*, in addition to the differences in the shape of the aedoeagus, by the characters given in the key and in the description. There is a slight chance that the somewhat asymmetrical shape of the paramere is of a teratological nature; however, I had a similar feeling about the shape of the median lobe when I saw the first male of *Q. bhari*, until I later found an additional series of males with identically shaped median lobe. The short, equally long apical setae on the paramere also seem to be characteristic of *Q. eklai*. For these reasons, I decided to consider the two specimens as a separate species; however, more males are needed to confirm its status.

Etymology.— The specific name is the Nepali word eklai (alone).

35. *Quedius (Raphirus) sundar spec. nov*

Figs. 141–145; Map 17

Description.— Black, head, pronotum and elytra with dark metallic reflections, abdomen iridescent; palpi, antennae and legs entirely pale testaceous. Head rounded, feebly wider than long (ratio 1.16); eyes very large and convex, temples very short, considerably shorter than length of eyes seen from above (ratio 0.20); no additional punctures between anterior frontal punctures; posterior frontal puncture touching posteromedian margin of eye, one puncture between it and posterior margin of head, temporal puncture touching posterior margin of eye; surface of head with dense and very fine microsculpture or irregular transverse waves becoming almost meshed on clypeus. Antenna moderately long, segments 2 and 3 about equally long, segments 4–6 longer than wide, gradually becoming shorter and slightly wider, segments 7–9 about as long as wide, segment 10 feebly transverse, last segment about as long as two preceding segments combined. Pronotum about as long as wide, widely arcuate basally, evenly transversely convex, feebly to slightly narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; surface of pronotum with microsculpture similar to that on head but finer. Scutellum with 3 to 7 punctures. Elytra moderately long, at base about as wide as pronotum at widest point, at suture about as long as, at sides slightly longer than pronotum at midline (ratio 1.25); punctuation moderately coarse, sparse intervals between punctures along transverse axis mostly several times larger than diameters of punctures; pubescence sparse, short and yellowish; surface between punctures without microsculpture but with some microscopic irregularities. Wings fully developed. Abdomen with tergite 7 (fifth visible) with very distinct whitish apical seam of palisade setae; punctuation of tergites extremely fine and very sparse, large middle portion of each tergite across its entire width glabrous, without any punctuation or pubescence; pubescence in general very sparse, golden-yellow, forming lateral patches of denser and longer hairs on each tergite. Front tarsus not dilated in either sex.

Male. Sternite 8 (Fig. 141) with two long and strong setae on each side, apical margin with rather wide and deep obtusely triangular emargination; pubescence of sternite in general sparse. Aedocagus (Figs. 142–145) rather small; median lobe with apical margin obtusely arcuate, apical portion in lateral view with minute dent. Paramere relatively wide, just about reaching apex of median lobe, apex narrowly arcuate; four setae at apical margin, median setae longer than lateral ones; two unequally long setae at each lateral margin just below apex; sensory peg setae on underside of paramere not numerous, forming two somewhat irregular longitudinal rows, each with 7–8 tubercles.

Length 4.0–4.8 mm.

Type material.— Holotype (male): “NEPAL, Khandbari District” / “For. NE Kuwapani 2500 m 18.III.82 A. & Z. Smetana”. Allotype (female): same data as holotype but 2450 m and date 13.IV.82. Both holotype and allotype in the Smetana collection, Ottawa, Canada.

Paratypes (9): same data as holotype (ASCC) 1; same data as allotype (CNCC) 1; same data as holotype, but 2500 or 2550 m and date 14.IV.82 (ASCC, CNCC) 3; For. above Ahale, 2300 m, 26.III.82, A. & Z. Smetana (ASCC, BMNH) 2; Khandbari Distr.: Induwa Kholā Valley, 2050 m, 24.IV.84, Löbl & Smetana (MHNG) 1; Chichila s/Ahale, 2200 m, 24.IV.84, Löbl & Smetana (MHNG) 1.

Geographical distribution.— *Quedius sundar* is known from a few localities in the foothills of the main Himalayan range in eastern Nepal (Map 17).

Bionomics.— The specimens of the original series were typically found by sifting moist to wet moss on rocks near creeks or forest seepages.

Comparisons and variations.— *Quedius sundar* is very easy to recognize mainly by the sparse and moderately coarse punctuation of the elytra and the extremely fine

and very sparse punctation of the abdominal tergites, leaving large middle portion of each tergite glabrous (see the description for details), in combination with the dark metallic reflections of dorsal surface of the body, the entirely pale testaceous appendages, and the sparse golden-yellow pubescence of abdominal tergites forming patch of dense hairs on either lateral portion of each tergite.

Specimens of *Q. muscicola* with extremely sparse punctation of the abdominal tergites may superficially resemble *Q. sundar*; however, they differ, in addition to the differently shaped aedoeagus (see Figs. 124–132, 142–145) and to the larger size, by the characters given in the key: see couplet 19.

The pubescence of elytra is very indistinct in some specimens.

Etymology.— The specific name is the Nepali adjective *sundar* (beautiful); it refers to the general appearance of this species.

36. *Quedius (Raphirus) udagra* Smetana

Figs. 146–150; Map 21

Quedius udagra Smetana 1975:235

Description.— Piceous to piceous-black with black head, apical margins of abdominal tergites sometimes paler, occasionally also elytra and pronotum slightly paler. Abdomen feebly iridescent; palpi, antennae and legs testaceous, posterior tibiae distinctly, middle tibiae indistinctly to slightly darkened at inner margin. Head rounded, slightly wider than long (ratio 1.16); eyes very large and convex, temples extremely short, considerably shorter than length of eyes seen from above (ratio 0.15); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated at posteromedian margin of eye, one puncture between it and posterior margin of head; surface of head with fine and dense microsculpture of transverse waves becoming irregular toward clypeus and forming here and there irregular meshes. Antenna moderately long, segment 3 slightly narrower and about as long as segment 2, segments 4 and 5 distinctly longer than wide, following segments gradually becoming shorter, outer segments indistinctly to slightly longer than wide, last segment almost as long as two preceding segments combined. Pronotum about as long as wide to feebly wider than long (ratio 1.09), widely arcuate basally, evenly convex and moderately narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two or three punctures, posterior puncture not or about reaching (if three punctures present) level of large lateral puncture; surface of pronotum with microsculpture of transverse waves usually slightly denser and finer than those on head. Scutellum with 8–16 (usually 9–11) punctures. Elytra short, at suture distinctly (ratio 0.76), at sides slightly shorter (ratio 0.86) than pronotum at midline; punctation fine and dense, intervals between punctures along transverse axis usually no more than twice as large as diameters of punctures, pubescence pale brownish; surface between punctures without microsculpture. Wings reduced to very small nonfunctional stumps reaching about two thirds of length of elytra. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; punctation of tergites usually feebly finer than that on elytra, slightly denser on basal portions of tergites and in general becoming gradually sparser toward apex of abdomen; same applies to light brownish pubescence, forming inconspicuous but distinct patch of denser and slightly paler hairs on either lateral portion of each tergite. Front tarsus dilated in both sexes, inconspicuously so in female.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side; apical margin with moderately deep, obtusely triangular emargination (Fig. 146), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 147–150) rather wide, median lobe slightly narrowed toward apex and then feebly dilated and broadly rounded apically; apical part, when paramere removed, with fine median carina forming a fine hook in lateral view. Paramere not reaching apex of median lobe, spatulate; with four setae at apical margin, both median setae longer than lateral setae, and with a pair of unequally long setae at each lateral margin near apex; sensory peg setae on underside of paramere numerous, forming two very irregular longitudinal rows.

Length 5.0–6.8 mm.

Type material.— The species was described from four specimens from Phulcoki near Kathmandu; the male holotype and female allotype bear the locality label: “Phulchoki b. Kathmandu, Nepal, lg. Franz” (with code “Pa 151” on the underside) and the label “HOLOTYPE (or ALLOTYPE) *Quedius udagra* A. Smetana 1975”. The two paratypes bear same locality label as holotype, except code “Pa 15”. The holotype and allotype are deposited in the Franz collection, Mödling, Austria; the paratypes are deposited in the Canadian National Collection, Ottawa (CNC No. 13965).

Geographical distribution.— *Quedius udagra* is known only from the mountain Phulcoki in the Mahabharat Range at the southern edge of the Kathmandu valley (Map 21).

Material studied.— 105 specimens.

NEPAL. *Lalitpur Distr.* Phulcoki, 2500 m, 10.V.81, I. Löbl (MHNG) 3; 2550–2650 m, 20–22.IV.82, A. & Z. Smetana (ASCC, CNCC) 21; 2550–2650 m, 13.–16.X.83, Smetana and Löbl (ASCC, BMNH, CNCC) 41; 2400–2550 m, 28–30.IV.84, Löbl and Smetana (ASCC, BMNH, CNCC, MHNG) 40.

Bionomics.— *Quedius udagra* occurs near the top of the mountain. The specimens of the original series were collected at about 2700 m by sifting fallen leaves on large limestone rocks. Additional specimens were collected slightly lower, mainly by sifting old dead vegetation, various debris and fallen leaves at bases of large rocks on clearings in the forest. Some specimens were also taken by sifting small piles of decaying vegetation along the road to the microwave tower.

Comparisons.— *Quedius udagra* can easily be distinguished from the other small brachypterous species of *Raphirus* with patches of denser pubescence on abdominal tergites and with darkened posterior tibiae by its rather large size and robust form, in combination with the characteristic shape of the median lobe and paramere of the aedoeagus (Figs. 147, 148, 150). The aedoeagus of *Q. udagra*, particularly the apical portion of the median lobe, resembles that of *Q. satoi*; however, the latter species differs, in addition to some small differences on the aedoeagus (Figs. 147–150, 152–155), mainly by the presence of a delicate whitish apical seam on the fifth visible abdominal tergite, by the uniformly testaceous legs and by the distinctly more sparsely punctate abdominal tergites.

37. *Quedius (Raphirus) satoi spec.nov.*

Figs. 151–155; Map 22

Description.— In all external characters similar to *Q. udagra* but different as follows: size in general slightly smaller and form less robust; colouration in general paler, elytra and often also pronotum (usually less than elytra) brownish to brownish-red; abdomen with apical margins of tergites usually distinctly paler, abdomen often extensively pale, reddish-brown to almost testaceo-rufous, particularly anteriorly; anterior portion of head in males more or less paler than in females; palpi, antennae and legs uniformly testaceous. Antenna with segments 4 and 5 usually slightly shorter. Punctuation of elytra in general sparser and coarser. Wings reduced to nonfunctional stumps reaching to about apical margin of elytron. Punctuation of abdominal tergites much sparser, middle portions of tergites to variable extent with only scattered punctures or almost impunctate; pubescence paler, yellowish to golden-yellowish; tergite 7 (fifth

visible) with very delicate, sometimes hardly visible whitish apical seam of palisade setae.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 (Figs. 151) with two long and strong setae on each side; emargination of apical margin usually somewhat deeper and sharper than that of *Q. udagra* (Fig. 146). Aedoeagus (Figs. 152–155) quite similar to that of *Q. udagra* but slightly less robust with apex of median lobe less widely rounded; paramere somewhat narrower, rows of sensory peg setae on underside in general more regular and each with peg setae less numerous.

Length 4.5–6.3 mm

Type material.— Holotype (male) allotype (female): “NEPAL, Khandbari District” / “For. NE Kuwapani 2450 m 13.IV.82 A. & Z. Smetana”. Both holotype and allotype in the Smetana collection, Ottawa, Canada.

Paratypes (161): Nepal: Nuwakot Distr.: Gul Bhanjang, 2600 m, 6.IV.81, Löbl & Smetana (ASCC, MHNG) 8; above Shermantang, 2900 m, 26.IV.81, Löbl & Smetana (ASCC, MHNG) 10. Khandbari Distr.: same data as holotype (ASCC, CNCC) 13; same data but 2500 m and date 28.III.82 (ASCC, BMNH, CNCC) 18; same data but date 11.IV.82 (ASCC) 6; same data but 2500 m and date 14.IV.82 (ASCC, BMNH, CNCC) 21; same data but 2400 m and date 5.IV.84, Smetana & Löbl (ASCC, BMNH) 6; same data but 2400 m and date 24.IV.84, Smetana & Löbl (ASCC, CNCC) 8; Foret N-E Kuwapani, 2350 m, 5.IV.84, Löbl & Smetana (MHNG) 7; same but 2250 m and date 24.IV.84 (MHNG) 5; above Sheduwa, 3000 m, 31.III.-1.IV.82, A. & Z. Smetana (ASCC, BMNH, CNCC) 13; same, but date 2.IV.82 (ASCC) 2; above Tashigaon, 3100 m, 7. or 8.IV.82, A. & Z. Smetana (ASCC) 2; Pass NE Mangmaya, 2300 m, 6.IV.84, Smetana & Löbl (ASCC) 5; Col N-E Mangmaya, 2300 m, 6.IV.84, Löbl & Smetana (MHNG) 3; Ridge S Mansingma, 2800 m, 7.IV.84, Smetana & Löbl (ASCC) 1; Forest S Mansingma, 2300 m, 12. or 13.IV.84, Smetana & Löbl (ASCC, BMNH) 7; Induwa Khol Valley, 2000 m, 14. or 16.IV.84, Smetana & Löbl (ASCC, CNCC) 6; same but 2800 m and date 15.IV.84 (ASCC) 1; Val. Induwa Kola, 2100 m, 17.IV.84, Löbl & Smetana (MHNG) 4. Forest S Mansingma, 2200 m, 11.IV.84, Smetana & Löbl (ASCC, CNCC) 8; Forêt S Mansingma, 2200 m, 11.IV.84, Löbl & Smetana (MHNG) 7.

Geographical distribution.— *Quedius satoi* is distributed from central to eastern Nepal (Map 22).

Bionomics.— *Quedius satoi* is a rather common species, particularly in eastern Nepal, typically occurring at lower elevations between 2000–3000 m in the evergreen or semideciduous broadleaved forest. Specimens were taken by sifting various forest-floor litter, such as fallen leaves, dead decaying vegetation and other debris, also by sifting moist moss along bases of large rocks or on large rocks or fallen trees. Some specimens were also taken by sifting of debris under *Rhododendron* bushes, or in forest clearings by sifting of moss and debris under large ferns.

Comparisons and variations.— The density of punctation of the abdominal tergites varies distinctly in this species; however, in most specimens the middle portions of tergites are only sparingly punctate; specimens with middle portions of tergites impunctate or to the contrary more than sparingly punctate are rare.

The similarity of the aedoeagus of *Q. satoi* with that of *Q. udagra* (see Figs. 152–155, 147–150) is remarkable, nevertheless there is no doubt that two separate species are involved. In addition to the morphological differences (see above), both species differ in their distributional ranges. *Quedius udagra* is apparently endemic to the higher elevations of the mountain Phulcoki in the Mahabharat Range at the southern edge of the Kathmandu Valley; *Q. satoi*, on the other hand, is widely distributed in the foothills of the main Himalayan range in central and eastern Nepal.

Quedius satoi resembles also *Q. tikta*, particularly due to the sexually dimorphic colouration of the head (paler anteriorly in the males); however, *Q. tikta* can easily be distinguished, in addition to the differently shaped aedoeagus (see Figs. 152–155, 176–179), by the in general somewhat smaller size, by the distinctly more densely punctate and pubescent elytra and the abdominal tergites, and by the absence of the whitish apical seam of palisade setae on fifth visible tergite. Also, *Q. tikta* occurs at higher elevations, from about 2800 m to nearly 5000 m (see under *Q. tikta* for details); the two species were never found living together in the same habitat.

Quedius satoi also resembles *Q. muscicola*. For a comparison, see the discussion under the latter species.

38. *Quedius (Raphirus) kanyasa* Smetana

Figs. 156–164; Map 22

Quedius kanyasa Smetana 1975:338

Quedius lama Coiffait 1982b:278 (*syn.nov.*)

Quedius dhaulagirensis Coiffait 1982a:80 (*syn.nov.*)

Description.— Dark reddish-brown with darker abdomen, apex and apical margins of tergites more or less paler and with head black to almost uniformly piceous-black. Abdomen feebly iridescent; palpi and antennae testaceous, legs testaceous to rufo-testaceous, middle and posterior tibiae distinctly darkened at inner margin, occasionally also posterior femora feebly darker. Head rounded, slightly wider than long (ratio 1.20); eyes very large and convex, temples extremely short, considerably shorter than length of eyes seen from above (ratio 0.16); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated at posteromedian margin of eye, one puncture between it and posterior margin of head; surface of head with fine and dense microsculpture of transverse waves becoming irregular toward clypeus and forming here and there irregular meshes. Antenna slender and moderately long, segment 3 slightly narrower and about as long as segment 2, segments 4 and 5 distinctly longer than wide, following segments gradually becoming shorter, outer segments about as long as wide, last segment about as long as two preceding segments combined. Pronotum about as long as wide, widely arcuate basally, evenly convex and only moderately narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture not reaching level of large lateral puncture; surface of pronotum with microsculpture of transverse waves slightly denser and finer than those on head. Scutellum with 7–11 punctures. Elytra short, at suture distinctly (ratio 0.70), at sides somewhat (ratio 0.90) shorter than pronotum at midline; punctation fine and dense, pubescence brownish; surface between punctures without microsculpture. Wings reduced to very small nonfunctional stumps reaching about two thirds of length of elytron. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; punctation of tergites slightly finer than that of elytra, slightly denser on basal portions of tergites and in general becoming sparser toward apex of abdomen; same applies to brownish pubescence which does not form patches of paler and denser hairs on lateral portions of tergites. Front tarsus dilated in both sexes, inconspicuously so in female.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with three long and strong setae on each side; apical margin with rather deep, obtusely triangular emargination (Figs.

156, 161), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 157–160, 162–164) with median lobe rather strongly narrowed into subacute apex; apical part, when paramere removed, with distinct median carina forming a small hook in lateral view. Paramere narrow and elongate, not quite reaching apex of median lobe, subparallel-sided in middle part, apex variably arcuate to broadly rounded; with four setae at apical margin, both median setae longer than lateral setae, and with a pair of unequally long setae at each lateral margin near apex; sensory peg setae on underside of paramere forming two irregular and variable longitudinal rows.

Length 4.3–5.8 mm.

Type material.— *Quedius kanyasa*. The species was described from three specimens; the male holotype bears the following labels: “Dzunda Khola-Tal b. Talphi 3000–3500 m” / “Gebiet von Jumla Westnepal, lg. H. Franz” / “HOLOTYPE *Quedius kanyasa* A. Smetana 1975”; the underside of first label bears code “Pa 193”. The female allotype bears the labels: “b. Maharigaon 3000–3500 m” / “Gebiet von Jumla Westnepal, lg. H. Franz” / “ALLOTYPE *Quedius kanyasa* A. Smetana 1975”; the underside of first label bears code “Pa 211–212”. The female paratype bears same locality labels as the allotype, except code “202–212”. The holotype and allotype are deposited in the Franz collection, Mödling, Austria, the paratype is deposited in the Canadian National Collection, Ottawa (CNC No. 13966).

Quedius lama. Coiffait (1982b:278) described the species from three specimens from Nepal. I was able to study the male holotype and one female paratype deposited in the Naturhistorisches Museum, Basel, Switzerland. They are labelled as follows: Holotype: “Padmara-Khari Lagna Bumro 3400–2750 m” / “Nepal, 1977 28.V. W. Wittmer” / “TYPE” (red label) / “Q. (*Raphirus*) lama Coiffait 1982”. Paratype: first two labels as in holotype + third label “PARATYPE” (red). Both holotype and paratype are indistinguishable from the male holotype of *Q. kanyasa*; my determination label “*Quedius kanyasa* Smet. Smetana det. 1983” was attached to both specimens. I have not seen the male paratype from Lake Rara, deposited in the collection Coiffait, Muséum d’Histoire Naturelle, Paris, France.

Quedius dhaulagirensis Coiffait (1982a:80) described the species from a single specimen. The male holotype, deposited in the Senckenberg Museum, Frankfurt a.M., Federal Republic of Germany, is labelled as follows: “südl. Dhaulagiri Dhorpatan 3000–3200 m 7.25.V.1973” / “NEPAL-Expedition Jochen Martens” “TYPE” / “Holo-Type” / “SMF C 15103” (both red labels) / “*Quedius (Raphirus) dhaulagirensis* H. Coiffait 1979”. The specimen agrees externally completely with the holotype of *Q. kanyasa*. The aedoeagus is larger and slightly different in a few details (see Figs. 162–164), but the internal sacs are basically identical (though in different positions in the two holotypes). Sternite 8 in *Q. dhaulagirensis* is damaged in the apical portion (Figs. 161), but there is no reason, why the emargination could not be as deep as in *Q. kanyasa*.

I do not see any reason why *Q. dhaulagirensis* should be retained as a separate taxon. The name *Q. dhaulagirensis* is a junior synonym of *Q. kanyasa*; my determination label “*Quedius kanyasa* Smet. Smetana det. 1983” was attached to this specimen.

Geographical distribution.— *Quedius kanyasa* is known from western Nepal, eastward to Ghoropani Pass area (Map 22).

Material studied.— 49 specimens.

NEPAL. Lake Rara, 2920 m, 2.VI.77, Wittmer (NHMB) 2; Gebiet des Rarasees H. Franz (HFCC) 4; Padmara-Khari Lagna-Bumro, 2750–3400 m, 28.V.77, Wittmer (NHMB) 1. *Parbat Distr.* Ghoropani Pass, 2850 m, 9.X.83, Smetana and Löbl (ASCC) 2; Pun Hill at Ghoropani Pass, 3050–3100 m, 8.X.83, Smetana and Löbl (ASCC, BMNH, CNCC, MHNG) 34.

Bionomics.— The holotype of *Q. kanyasa* was collected in the Dzunda Khola valley in an alder forest with intermixed spruce by sifting forest floor detritus and moss near the river banks; both allotype and paratype of *Q. kanyasa* were found in a gorge forest near Sinemoro by sifting forest floor detritus. The specimens from Pun Hill were taken on a pasture by sifting moss and debris under low bushes; the specimens from Ghoropani Pass were taken by sifting rotting weeds and other debris at the edges of primitive fields.

Comparisons.— *Quedius kanyasa* can easily be distinguished among the brachypterous species of *Raphirus* with darkened tibiae, in addition to the characters on the aedoeagus, by the uniform punctation of the abdominal tergites and by the presence of three strong setae on each side of the male sternite 8 (Fig. 156); however, quite rarely, the pubescence on the abdominal tergites may have the tendency to form quite indistinct patches of vaguely denser hairs laterally.

The presence of three long and strong setae on each side of the male sternite 8 is a rare character among the small species of *Raphirus*; in addition to *Q. kanyasa*, it at present is known to occur only in *Q. gaarho* and *Q. atchala*; in the latter species, the most median pair of setae is distinctly shorter than the two more lateral pairs (see Figs. 103, 190). The male holotype of *Q. dhaulagirensis* bears three pairs of strong setae on the sternite 8; they match those of *Q. kanyasa*.

39. *Quedius (Raphirus) naati spec.nov.*

Figs. 165–171; Map 22

Description.— In all characters very similar to *Q. kanyasa*, but different as follows: colouration less variable than that of *Q. kanyasa*, dark reddish-brown specimens with darker abdomen and black head do not occur in *Q. naati*; most specimens are piceous to piceous-black with usually darker head and with elytra and apical margins of abdominal tergites occasionally paler; middle tibiae usually uniformly pale and posterior tibiae only slightly darkened, rarely almost uniformly pale. Pubescence of abdominal tergites forming inconspicuous patch of paler and slightly denser pubescence on either lateral portion of each tergite. Size in general slightly smaller and form more slender.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side; apical margin with moderately deep, obtusely triangular emargination (Fig. 165), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 166–169) similar to that of *Q. kanyasa*, but narrower and slightly smaller, paramere almost touching lateral margins of median lobe at one point; median lobe slightly dilated before narrowed apical portion and, when paramere removed, with fine median carina forming a small hook in lateral view. Paramere narrow and elongate, not quite reaching apex of median lobe, arcuate apically; with four setae at apical margin, median setae longer than lateral setae; sensory peg setae on underside of paramere forming two long and fairly regular longitudinal rows.

Length 4.2–5.4 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL (prov. Bagmati) Jangtang Ridge NE Barahbise, 3250 m 5.V.81 Löbl & Smetana”. In the Smetana collection, Ottawa, Canada.

Paratypes (22): same data as holotype (ASCC, CNCC, MNHG, SMFM) 22.

Geographical distribution.— *Quedius naati* is at present known only from one locality in central Nepal (Map 22).

Bionomics.— All specimens of the original series were taken by sifting of moist moss, debris and low vegetation under bushes in a small valley with a brook.

Comparisons.— *Quedius naati* can rather easily be distinguished from *Q. kanyasa* by the characters given in the key and in the description. The aedoeagus of *Q. naati* is very similar to that of *Q. kanyasa*; however, it again differs in a few details on the median lobe and on the paramere as well (see the description and Figs. 157–160, 166–169). Also, both species are apparently allopatric: *Q. kanyasa* seems to be restricted to western Nepal, whereas *Q. naati* is known at present from east-central Nepal.

Quedius naati also resembles *Q. dewar*; however, it differs, in addition to the characters on the aedoeagus, by the smaller size and less robust form and by the slimmer legs with first four segments of male front tarsus less dilated.

Etymology.— The specific name is the Nepali noun *naati* (grandson) in apposition.

40. *Quedius (Raphirus) dewar spec. nov.*

Figs. 170–174; Map 17

Description.— In all external characters very similar to *Q. kanyasa*, but different as follows: form slightly stouter with wider head and pronotum, colouration less variable than that of *Q. kanyasa*, all specimens piceous-black, elytra with distinct metallic reflections and abdomen more iridescent. Elytra slightly shorter, especially at suture, and in general more dilated posteriorly. Pubescence of abdominal tergites paler and forming inconspicuous patch of paler and slightly denser pubescence on either lateral portion of each tergite.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side; apical margin with moderately deep, obtusely triangular emargination (Fig. 170). Aedoeagus (Figs. 172–174) elongate, median lobe evenly, almost conically narrowed, with subacute apex and, when paramere removed, with fine median carina forming a small hook in lateral view. Paramere narrow and elongate, not quite reaching apex of median lobe, arcuate apically; with two setae at apical margin, and with a pair of unequally long setae at each lateral margin near apex; sensory peg setae on underside of paramere forming two long irregular rows.

Length 4.9–5.8 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL (Prov. Bagmati) Mere Dara 3200 m, 8.IV.81 Löbl & Smetana”. In the Smetana collection, Ottawa, Canada.

Paratypes (5): same data as holotype (MHNG) 1; same data as holotype but 3100–3300 m and date 7.IV.81 (CNCC) 1; Malemchi, 2800 m, 16.IV.81, Löbl & Smetana (ASCC) 1; Dhorpatan, 3000 m, 20.V.73, J. Martens (SMFM) 1;

Kathmandu Distr., Siwapuri Dara, 2520 m, 1.V.85, A. Smetana (ASCC) 1.

Geographical distribution.— *Quedius dewar* is at present known from western and central Nepal (Map 17).

Bionomics.— The specimens from Mere Dara were taken on northern slopes in *Rhododendron* growths by sifting wet fallen leaves, debris and moss. The specimen from Malemchi was taken by sifting soaking wet debris, fallen leaves and moss among large rocks permanently sprinkled by water from a waterfall in a shady ravine.

Comparisons.— *Quedius dewar* can easily be distinguished from *Q. kanyasa* by the characters given in the key and in the description. It differs from *Q. naati*, in addition to the differences in the shape of the aedeagus, by the larger size and more robust form, by the stronger legs with four first segments of the male front tarsus much more dilated than those of *Q. naati*. The shape of the median lobe of the aedeagus of *Q. dewar* is quite characteristic (Figs. 172, 173).

Etymology.— The specific name is the Nepali noun dewar (husband's younger brother) in apposition.

41. *Quedius (Raphirus) tikta* Smetana

Figs. 175–179, 388–395, 421; Map 23

Quedius tikta Smetana 1975:339

Description.— Pale brown to piceous, with darker head; males paler: pale brown with pronotum usually more or less appreciably darkened in middle and with piceous head with anterior portion reddish-brown to brown; females darker: more or less piceous with elytra sometimes feebly paler, pronotum uniformly piceous and head uniformly piceous-black. Abdomen iridescent; palpi, antennae and legs uniformly testaceous to testaceobrunneous. Head rounded, noticeably wider than long (ratio 1.24); eyes very large and convex, temples extremely short, considerably shorter than length of eyes seen from above (ratio 0.13); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated at posteromedian margin of eye, one puncture between it and posterior margin of head (Fig. 421); surface of head with dense and very fine microsculpture of irregular transverse waves with scattered longitudinal connections becoming gradually more numerous anteriorly, front part of head and especially clypeus therefore covered with meshed microsculpture. Antenna slender, segment 3 slightly narrower and about equally long as segment 2 (Fig. 388), segments 4 and 5 very distinctly longer than wide, segments 6–8 longer than wide, gradually becoming shorter and wider, segments 9–10 slightly to feebly longer than wide, last segment about as long as two preceding segments combined. Pronotum about as long as wide, widely arcuate basally, evenly convex and only slightly narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two or three punctures, posterior puncture not or about reaching (when three punctures present) level of large lateral puncture; surface of pronotum with microsculpture of transverse waves distinctly denser and somewhat finer than that on head. Scutellum punctate on apical half (Fig. 390), number of punctures variable. Elytra short, at suture distinctly (ratio 0.76), at sides somewhat (ratio 0.88) shorter than pronotum at midline; punctation dense and fine, pubescence brownish; surface between punctures without microsculpture. Wings reduced to very small narrow nonfunctional stumps reaching about two thirds of length of elytron. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae (Fig. 391); punctation of tergites about same as that on elytra, slightly denser and finer on bases of tergites and in general becoming sparser toward apex of abdomen; same applies to brownish pubescence, forming distinct patch of denser yellowish hairs on either lateral portion of each tergite. Front tarsus dilated in both sexes, inconspicuously so in female.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with two long and strong setae on each side; apical margin with moderately deep, obtusely triangular emargination (Fig.

175), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 176–179) narrow and elongate, median lobe strongly narrowed, subacute to acute apically; apical part, when paramere removed, with fine longitudinal median carina forming a small hook in lateral view. Paramere elongate, relatively wide and covering apical portion of median lobe except for very apex, obtusely rounded to subemarginate apically, with four very small setae at apical margin, median setae longer and stronger than lateral setae, and a pair of similar setae close to apex; minute setae, present on lateral margins in most species of *Raphirus*, are relatively long and numerous, especially on anterior portions of lateral margins; sensory peg setae on underside of paramere forming two relatively short longitudinal rows along midline of paramere.

Length 4.0–5.5 mm.

Type material.— The species was described from three specimens, all bearing identical locality labels: “Zw. Tare-Pati u. Gosaikund” / “Zentral-Nepal Sept. -Okt. 1971 lg. H. Franz”, the underside of the first label bears code “Pa 163”. The male holotype and allotype are deposited in the Franz Collection, Mödling, Austria; the holotype bears red label “HOLOTYPE *Quedius tikta* A. Smetana 1975”. The female paratype is deposited in the Canadian National Collection, Ottawa (CNC No. 13967).

Geographical distribution.— *Quedius tikta* is known at present only from the main Himalayan range in Central Nepal (Map 23).

Material studied.— 304 specimens.

NEPAL. *Kathmandu Distr.* Siwapuri Dara, 2450 m, 30.IV.85, A. Smetana (ASCC) 1. *Nuwakot Distr.* near Mere Dara, 3000 m, 7.IV.81, Löbl and Smetana (ASCC) 1; Mere Dara, 3200 m, 8.IV.81, Löbl and Smetana (ASCC, BMNH, CNCC, MHNG) 25; below Thare Pati, 3300–3500 m, 9–12.IV.81, Löbl and Smetana (ASCC, BMNH, CNCC, MHNG) 90; between Ghopte and Thare Pati, 3100–3250, 23.26.IV.85, A. Smetana (ASCC, BMNH, CNCC, MHNG) 51; Malemchi, 2800 m, 16.IV.81, Löbl and Smetana (ASCC) 1; Yangri ridge, 4150–4800 m, 21–24.IV.81, Löbl and Smetana (ASCC, BMNH, CNCC, MHNG) 102; Thodung, 3200 m, 3–9.IV.73, J. Martens (SBMF) 1. *Rastawa Distr.* north slope above Syabru, 3600–3800 m, 17.19.IV.86, A. Smetana (ASCC, BMNH, CNCC) 28.

Bionomics.— *Quedius tikta* seems to be the most abundant brachypterous species in central Nepal. It occurs from forest habitats at about 2800 m all the way to the alpine zone close to 5000 m. Most specimens were collected by sifting moist moss (on large rocks or at their bases, or on fallen trees), leaf litter and forest floor debris in forest habitats, or higher up by sifting leaf litter, other debris and moss under bushes, and by sifting thick layers of moss, lichens and other low vegetation in the alpine zone.

Comparisons.— *Quedius tikta* can easily be recognized among the flightless small *Raphirus* species, in addition to the characters on the aedoeagus, by the distinct sexual dimorphism in the colouration of the body, particularly by the bicoloured head in the male (see the description). This phenomenon is quite conspicuous, but not unique; it occurs also in *Q. durgaa* and in some specimens of *Q. tonglu*.

The three specimens of the original series had dirty and greasy abdomens; the patches of denser paler pubescence on lateral portions of tergites were therefore obscured and were not mentioned in the original description.

42. *Quedius (Raphirus) tonglu spec.nov.*

Figs. 180–184; Map 16

Description.— In all characters, including general habitus, colouration and pubescence very similar to *Q. tikta*, but different as follows: colouration (both sexes) same as in paler males of *Q. tikta*, abdomen particularly pale in most specimens, but head in males without appreciably paler anterior portion. Head in general smaller and narrower (ratio width: length=1.15) and with less convex eyes. Pronotum in general somewhat narrower and elytra indistinctly shorter. Punctuation and pubescence of abdominal tergites about equal to that of average specimens of *Q. tikta*.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 (Fig. 180) not appreciably different from that of *Q. tikta*. Aedoeagus (Figs. 181–184) rather small; apical portion of median lobe, when paramere removed, rather short and wide and with wide, short median carina. Paramere not reaching apex of median lobe nor lateral margins of median lobe, moderately long and lancet-shaped; four setae at apical margin, middle two setae much longer than two lateral setae, two short setae at each lateral margin below apex; sensory peg setae on underside of paramere forming moderately long, irregular lateral rows.

Length 4.2–5.8 mm.

Type material.— Holotype (male) and allotype (female): “INDIA W. Bengal Darjeeling distr. Tonglu 2700 m 16.X.78 Besuchet-Löbl”. Both holotype and allotype in the Muséum d’histoire naturelle, Genève, Switzerland.

Paratypes (119): same data as holotype (ASCC, BMNH, MHNG) 19; same data, but elevation 3100 m (ASCC, CNCC, MHNG) 62; Darjeeling distr., Tiger Hill, 2200–2300 m, 13.X.78, Besuchet-Löbl (ASCC, BMNH, CNCC, MHNG) 30; same data but elevation 2500–2600 m and date 18.X.78 (MHNG) 8.

Geographical distribution.— *Quedius tonglu* is at present known from Tonglu and Tiger Hill in the Darjeeling area in West Bengal (Map 16).

Bionomics.— *Quedius tonglu* was collected at elevations from 2200 to 3100 m; at Tonglu on the northern slope by sifting forest floor litter and fallen leaves under old trees and higher up (3100 m) under bushes. At Tiger Hill, the species was taken by sifting forest floor litter and moss on a southern slope.

Comparisons.— *Quedius tonglu* can be distinguished from *Q. tikta* by the characters given in the key and in the description. In some specimens (both sexes) the head is barely noticeably paler around each antennal insertion and in rare male specimens the pale colouration is distinct and developed in the same way as in the males of *Q. tikta*.

Quedius tonglu also resembles *Q. pharak*; however, the latter species differs, in addition to the characters on the aedoeagus, by the slightly more robust form, by the wider pronotum, by the more sparsely punctate elytra and by the darker coloured abdomen with punctuation and pubescence of tergites usually sparser and with lateral patches of pale hairs less distinct.

Etymology.— The specific name is the geographic name Tonglu (type locality) in apposition.

43. *Quedius (Raphirus) pharak spec.nov.*

Figs. 185–189; Map 23

Description.— In all characters, including habitus, colouration and pubescence very similar to *Q. tikta*, but different as follows: colouration same as in females of *Q. tikta*, i.e. head uniformly dark in both sexes; abdomen in most specimens piceous-black with apical margins of tergites paler. Microsculpture on head and pronotum slightly coarser; head in general less transverse with less convex eyes; pronotum in general wider and stouter. Punctuation and pubescence of clytra and abdominal tergites sparser, lateral patches of pale hairs less distinct. Size in general slightly larger.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8, including apical emargination, same as that of *Q. tikta* (see Figs. 175, 185). Aedocagus (Figs. 186–189) very similar to that of *Q. tikta*; however, median lobe, when paramere removed, with stronger and longer median carina forming a stronger hook in lateral view. Paramere narrower, reaching to about lateral margins of apical portion of median lobe, rows of sensory peg setae on its underside long.

Length 4.2–5.8 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL, Khandbari District” / “above Tashigaon 3500 m 6.IV.1982 A. & Z. Smetana”. In the Smetana Collection, Ottawa, Canada.

Paratypes (11): same data as holotype (ASCC, CNCC) 2; same data, but elevation 3550 m (CNCC) 1; same data but elevation 3600 m (ASCC) 2; Khandbari Distr., “Bakan” W of Tashigaon, 3200 m, 5.IV.82, A. & Z. Smetana (ASCC) 2; Dobate Ridge NE Barahbise, 3000 m, 7.V.81, Löbl & Smetana (ASCC, MHNG) 4.

Geographical distribution.— *Quedius pharak* is at present known from two areas in east-central and eastern Nepal (Map 23).

Bionomics.— *Quedius pharak* was collected at elevations from 3000 to 3500 m in forest habitats. All specimens from near Barahbise were taken by sifting moist moss on large rocks in an old deciduous forest with dominant old oak trees. The specimens from above Tashigaon were collected by sifting deep layers of moist needles (moldy at some spots) and other debris under a huge *Abies* tree; by sifting deep layers of rotting and moldy leaves under *Rhododendron* bushes; by sifting wet leaves and other debris under a small forest waterfall, and by treading wet grass in a depression (clearing) in a forest.

Comparisons.— *Quedius pharak* is very similar to *Q. tikta*; however, it can rather easily be distinguished from it by the characters given in the key and in the description. The species were never found together. *Quedius tikta* seems to be more western and does not reach eastward even the Barahbise area; *Q. pharak*, on the other hand, seems to be an eastern species, distributed from Barahbise area eastwards to the Arun River valley and perhaps even further east.

For comparison with *Q. tonglu*, see the discussion there.

Two specimens of the original series have the hind tibiae feebly darkened medially.

Etymology.— The specific name is the Nepali adjective pharak (different).

44. *Quedius (Raphirus) atchala* Smetana

Figs. 190–194; Map 13

Quedius atchala Smetana 1975:341

Description.— Piceous-black to black, head and pronotum with feebly, elytra with distinct metallic reflections, abdomen slightly iridescent; palpi, antennae and legs testaceous, middle and posterior tibiae distinctly darkened at inner margin. Head rounded, slightly wider than long (ratio 1.15), eyes very large and convex, temples extremely short, considerably shorter than length of eyes seen from above (ratio 0.15); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated at posteromedian margin of eye, one puncture between it and posterior margin of head; surface of head with fine and moderately dense microsculpture of irregular transverse waves becoming confused anteriorly, especially on clypeus. Antenna rather short, segment 3 narrower but about equally long as segment 2, segments 4 and 5 slightly longer than wide, following segments gradually becoming shorter and wider, segments 9 and 10 about as long as wide, last segment feebly shorter than two preceding segments combined. Pronotum narrow, about as long as wide to scarcely longer than wide, widely arcuate basally, evenly convex, hardly narrowed anteriorly, with lateral margins often almost parallel-sided in posterior half; dorsal rows each with three punctures; sublateral rows each with two or three punctures, last puncture not or about reaching level of large lateral puncture (if three punctures present); surface of pronotum with microsculpture similar to that on head but slightly coarser. Scutellum with only a few punctures (2–8, usually 3–5). Elytra short, at suture distinctly (ratio 0.75), at sides slightly (ratio 0.90) shorter than pronotum at midline; punctation rather sparse, intervals between punctures along transverse axis mostly several times larger than diameters of punctures; pubescence pale brownish, surface between punctures without microsculpture but with some extremely fine microscopic irregularities. Wings reduced to small nonfunctional stumps reaching about two thirds of length of elytron. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; punctation of tergites slightly finer than that on elytra, slightly denser on basal portions of tergites and gradually becoming slightly sparser toward apex of abdomen; same applies to light golden-brownish pubescence, forming inconspicuous but distinct patch of denser and slightly paler hairs on either lateral portion of each tergite. Front tarsus dilated in both sexes, inconspicuously so in female.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with three long and strong setae on each side; most median pair of setae distinctly shorter than two more lateral pairs; apical margin with rather shallow and wide, obtusely triangular to almost arcuate emargination (Fig. 190), small triangular area before emargination flattened and smooth. Aedocagus (Figs. 191–194) with median lobe subparallel-sided to vaguely constricted in middle portion, with subacute apex; apical portion, when paramere removed, with fine median carina forming a fine tooth in lateral view. Paramere not quite reaching apex of median lobe, almost parallel-sided to feebly narrowed, arcuate apically; with four setae at apical margin, both median setae longer than lateral setae, and with two or three unequally long setae at each lateral margin near apex; sensory peg setae on underside of paramere numerous, forming two irregular longitudinal rows.

Length 3.8–4.6 mm.

Type material.— The species was described from a single specimen from the Gosaikund Lakes area in Central Nepal (see Smetana 1975:341). The holotype is deposited in the Franz collection, Mödling, Austria.

Geographical distribution.— *Quedius atchala* is known from a few localities in Central Nepal (Map 13).

Material studied.— 68 specimens.

NEPAL. *Nuwakot Distr.* below Thare Pati, 3500 m, 12.IV.81, Löbl and Smetana (ASCC, CNCC) 14; Yangri Ridge, Yangri, 4150 m, 21 and 24.IV.81, Löbl and Smetana (ASCC, BMNH, MHNG) 14; between Ghopte and Thare Pati, 3250 m, 23.IV.85, A. Smetana (ASCC) 1. *Rasuwa Distr.* north slope above Syabru, 3600–3800 m, 17–19.IV.85, A. Smetana (ASCC, CNCC, MCZC) 34; Gosaikund, Larabina Pass, 4000–4100 m, 20.IV.85, A. Smetana (ASCC) 1; Langtang Khola Valley, 2.5 km E Syabru, 1730 m, 14.IV.85, A. Smetana (ASCC) 2.

Bionomics.— *Quedius atchala* occurs at elevations above 3000 m, from the upper forest zone to the alpine zone. Specimens were sifted from moist moss at bases of rocks under *Acer* sp. trees, from forest floor litter and moss under old *Abies* trees in a sheltered ravine, from wet moss, dead grass and other debris on a seepage slope in a mixed *Abies-Rhododendron* forest, and in the alpine zone from moss, lichens and debris under low vegetation. The specimens taken near Syabru at relatively low elevation come from soaking wet moss in a small waterfall.

Comparisons.— *Quedius atchala* can easily be distinguished from the other small brachypterous species of *Raphirus* with patches of denser pubescence on abdominal tergites and with darkened posterior tibiae by its small size in combination with the narrow and rather parallel-sided pronotum and the rather sparse punctation of elytra.

One of the specimens studied has no punctures on scutellum.

Taruni Group

The single species belonging to this group is characterized by the following combination of characters: size small; head with additional punctures on each side along median margin of eye between anterior and posterior frontal punctures, and with two punctures between posterior frontal puncture and posterior margin of head; eyes large but not taking almost entire sides of head; segment 3 of antenna as long as segment 2; pronotum with each of dorsal rows with four punctures and with additional, characteristically located punctures (see the description of *Q. taruni* for details); scutellum impunctate; elytra with simple punctation.

45. *Quedius (Raphirus) taruni* spec.nov.

Map 24

Description.— Piceous black, elytra brownish-piceous with indistinctly paler humeri and with apical margin paler, abdomen feebly iridescent; palpi piceous, antennae brownish testaceous with two basal segments darker, legs piceous with darkened tibiae and paler tarsi. Head round, slightly wider than long (ratio 1.14); eyes large and convex, tempora much shorter than length of eyes seen from above (ratio 0.28); no additional punctures between anterior frontal punctures; however, with two or three additional setiferous punctures on each side along medial margin of eye between anterior and posterior frontal punctures; posterior frontal puncture situated close to posteromedian margin of eye, separated from it by distance no larger than diameter of puncture, two punctures between it and posterior margin of head; temporal puncture almost touching posterior margin of eye, one additional puncture at posterior margin between it and posterior frontal puncture; surface of head with moderately dense microsculpture of extremely fine, often rudimentary transverse waves. Antenna short, segment 2 shorter than segment 1, segment 3 about equally long but somewhat thinner than segment 2, segments 4 and 5 longer than wide, segment 5 somewhat shorter than segment 4, segment 6 as long as wide, segments 7–10 wider than long, gradually becoming wider, last segment about as long as two preceding segments combined. Pronotum rather narrow, about as long as wide, broadly rounded basally, lateral margins somewhat arcuate and indistinctly narrowed anteriorly; dorsal rows each with four punctures; one of punctures at posterior margin of pronotum situated somewhat away from posterior margin, forming with four punctures of dorsal row a row of five punctures extended from anterior to posterior margin of pronotum; sublateral rows each with three or four punctures, posterior puncture

situated behind level of large lateral puncture, one additional puncture between dorsal and sublateral row on each side; surface of pronotum with microsculpture similar to that on head. Scutellum large, impunctate, with extremely fine microsculpture of rudimentary transverse waves. Elytra long, at base indistinctly narrower than pronotum and slightly widened posteriorly; at suture slightly longer (ratio 1.11), at sides distinctly longer (ratio 1.29) than pronotum at midline; punctation fine, superficial and sparse, interspaces between punctures considerably larger than diameters of punctures, pubescence fine and short, dark; surface between punctures without microsculpture but with numerous microscopic irregularities. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of tergites finer and somewhat denser than that of elytra, slightly denser on basal portion of each tergite and in general becoming gradually sparser toward apex of abdomen; pubescence fine, dark. First four segments of front tarsus slightly dilated.

Male. Unknown.

Length 5.0–6.1 mm.

Type material.— Holotype (female): “NEPAL Rasuwa Dis. north slope above Syabru 3800 m 18.IV.85 A. Smetana”. In the Smetana collection, Ottawa, Canada.

Paratypes (20): Nepal: same data as holotype but date 17.IV.85 (ASCC, BMNH) 3. Rasuwa Dis.: Gosaikund, Larabina Pass, 4000–4100 m, 20.IV.85, A. Smetana (ASCC) 1; Gosaikund Lakes, 4200–4300 m, 20.IV.85, A. Smetana (ASCC, CNCC, MHNG) 8; same, 4450 m, 21.IV.85, A. Smetana (ASCC) 2. “Himalaya-Expedition Prof. Dr. H. Janetschek 1961 nach Nepal” / “loc. 213 III” (IZUI, NHMW) 6. (See the discussion for details on the material collected by Dr. Janetschek).

Geographical distribution.— *Quedius taruni* is known from several localities in central Nepal (Map 24).

Bionomics.— The specimens collected by myself were taken by sifting fallen leaves and other debris under various low bushes in subalpine zone (north slope above Syabru) and by sifting moss, lichens and debris under low vegetation in the alpine zone (Larabina Pass and Gosaikund Lakes). The specimens collected by Janetschek were taken from “Moos-und Flechtenheiden mit Zwerg-rhododendron” (Scheerpeltz 1976a:43 - see the discussion).

Comparisons.— *Quedius taruni* is a conspicuous species due to the presence of the additional punctures on the head between the anterior and posterior frontal punctures and due to the chaetotaxy of the pronotum, particularly by the presence of four punctures in each of the dorsal rows. It is the only *Quedius* species known to me to have this combination of the chaetotaxy on the head and pronotum; it shares the character of the additional punctures between the anterior and posterior frontal punctures on the head with the species of the genera *Indoquedius* and *Bolitogyrus*, with some species of the genus *Heterothops* and with some Nearctic species of the subgenus *Raphirus* (*Q. prostans* Horn 1878 and *Q. seriatus* Horn 1878).

The locality “213 III” on the specimens collected by Janetschek reads as follows: “Raldurje, SE above base camp Yaral bei Tangpoche, cca 4400 m, 9.V.1961”.

Although all 21 known specimens of this species are females, which is quite unusual in the genus *Quedius*, I do not believe that this species is parthenogenetic. I expect that extensive collecting in suitable habitats, perhaps at a different time of the year (all available specimens were collected in spring), will produce males.

This is the species published by Scheerpeltz (1976a:43) under the name of *Quedius ripicola*.

Etymology.— The specific name is the Nepali noun taruni (young woman). It refers to the fact that I only had female specimens for study.

Durgaa Group

The single species of this group is characterized by the following combination of characters: size large; both head and pronotum without microscopic punctures and without additional setiferous punctures, eyes very large, taking almost entire sides of head; antennal segment 3 longer than segment 2; scutellum punctate; elytra with double punctation (see the description of *Q. durgaa* for details) but without longitudinal rows of larger punctures.

46. *Quedius (Raphirus) durgaa spec. nov.*

Figs. 195–198; Map 18

Description.— Piceous-black with indefinitely paler pronotum, head gradually becoming rufo-testaceous anteriorly, labrum rufo-testaceous, apical margins of abdominal tergites indefinitely paler; abdomen slightly iridescent; mouthparts testaceous; antennae testaceous, gradually becoming paler toward apex; legs brunneotestaceous with piceous femora. Head rounded, wider than long (ratio 1.21); eyes large and convex, tempora considerably shorter than length of eyes seen from above (ratio 0.25); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated very close to posteromedian margin of eye, separated from it by distance about equal to diameter of puncture, one puncture between it and posterior margin of head; temporal puncture almost touching posterior margin of eye; tempora impunctate; surface of head with extremely fine microsculpture of irregular, rudimentary waves. Antenna moderately long, hardly incrassate toward apex, segment 3 somewhat longer than segment 2, following segments longer than wide, gradually becoming shorter, last segment slightly shorter than two preceding segments combined. Pronotum slightly wider than long (ratio 1.15), broadly rounded basally, distinctly narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated at about level of large lateral puncture, one distinct impression in continuation of each sublateral row, situated well behind level of large lateral puncture; large lateral puncture situated rather far from lateral pronotal margin, separated from it by distance equal to about three diameters of puncture; surface of pronotum with microsculpture of dense and extremely fine, rudimentary waves. Scutellum with a few indistinct punctures. Elytra rather short, at base narrower than pronotum at widest point, at suture, slightly shorter (ratio 0.85), at sides as long as pronotum at midline; punctation coarse and rather irregularly distributed, consisting of intermixed coarse and fine punctures; pubescence absent, surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of abdominal tergites finer than coarse elytral punctures, slightly denser at base of each tergite and gradually becoming slightly sparser toward apex of abdomen, pubescence piceous, short; surface between punctures without appreciable microsculpture.

Male. First four segments of front tarsus strongly dilated. Sternite 8 with moderately wide and deep triangular emargination (Fig. 195), triangular area before emargination flattened and smooth. Aedoeagus (Figs. 196, 198) large, median lobe strongly narrowed into rather long and narrow apical portion. Internal sac with four characteristic elongate structures, two middle ones with long apical spines. Paramere long and wide, covering entire median lobe except for very tip, gradually narrowed into arcuate apex; six unequally long setae at apical margin and two very long and strong setae slightly below them; underside of paramere with two long, irregular, lateral rows of sensory peg setae gradually becoming larger away from apex of paramere.

Length 10.0 mm.

Type material.— Holotype (male): “India W. Bengal Darjeeling dist. 13 km. N. Ghoom 1500. 15.X.78 Besuchet Löbl. In the Muséum d’Histoire Naturelle de Genève, Genève, Switzerland.

Geographical distribution.— *Quedius durgaa* is at present known only from the type locality in the Darjeeling district (Map 18).

Bionomics.— The holotype was taken by sifting moss and fallen leaves under bushes.

Comparisons.— *Quedius durgaa* is a distinctive species, well characterized, in addition to the shape of the aedoeagus, by the double punctation of the elytra, in combination with the large size, and the colouration of the head.

Etymology.— The specific name is the name of one of the Hindu Goddesses.

Anomalus Group

The single species of this group is characterized by the following combination of characters: size large; head and pronotum with microscopic punctures but without additional setiferous punctures; eyes very large, taking almost entire sides of head; antennal segment 3 somewhat longer than segment 2; scutellum impunctate but with fine transverse rugae; elytra each with three longitudinal rows of larger punctures.

47. *Quedius (Raphirus) anomalus* Cameron

Figs. 199–202; Map 20

Quedius anomalus Cameron 1926:370; 1932:295

Description.— Black, with palpi, antennae toward apex and legs piceous. Head rather small, rounded, slightly wider than long (ratio 1.21), posterior angles rounded; eyes very large and moderately convex, tempora much shorter than length of eyes seen from above (ratio 0.25); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated very close to posteromedian margin of eye, separated from it by distance smaller than diameter of puncture, one additional setiferous puncture between it and posterior margin of head; surface of head with fairly dense punctation of extremely fine, microscopic punctures becoming gradually sparser toward vertex, and with extremely fine microsculpture of rudimentary transverse waves. Antenna moderately long, segment 3 longer than segment 2, following segments all longer than wide, gradually becoming shorter, penultimate segment slightly longer than wide, last segment shorter than two preceding segments combined. Pronotum rather wide, slightly wider than long (ratio 1.13), widely arcuate basally and strongly narrowed anteriorly; dorsal rows each with three punctures, sublateral rows with two punctures, both situated close to anterior margin of pronotum, much in front of level of large lateral puncture; surface of pronotum with microscopic punctures and microsculpture similar to those on head; however, microscopic punctures somewhat finer and sparser and microsculpture still finer and less apparent than on head. Scutellum large, impunctate, but with some very fine transverse rugae, simulating punctation. Elytra long, at base somewhat narrower than pronotum at widest point; at suture as long as, at sides longer than pronotum at midline (ratio 1.16); punctation fairly deep, moderately coarse and dense, each elytron with three longitudinal rows of larger punctures, one along suture, one rather irregular lateral row and a discal row between them reduced to two punctures on posterior half of elytron; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation on first abdominal tergites about equal to that on elytra, coarser and denser on basal portion, gradually becoming much finer toward apex of abdomen, fifth visible tergite quite finely punctate; pubescence dark.

Male. First four segments of front tarsus strongly dilated. Sternite 8 with wide and deep, obtusely triangular emargination in middle of apical margin (Fig. 199), small triangular area before emargination flattened and smooth. Aedocagus (Figs. 200–202) very large; median lobe entirely covered by paramere, strongly narrowed into rather acute apical part; paramere large, long and wide, rather strongly narrowed, apical margin obtusely arcuate; three setae at each lateral margin just below apex; sensory peg setae on underside of paramere moderately numerous, forming two irregular longitudinal rows.

Length 9.4 mm (abdomen slightly extended).

Type material.— The collection of the British Museum (Natural History), London, contains one male specimen under the name *Q. anomalus*. It is labelled as follows: “Type” (round label with red margin)/ “Dhobi Ghat, Mussoorie. Dr. Cameron. 14.IV.22” / “TYPE *Quedius anomalus* Dr. Cameron” / “M. Cameron. Bequest. B.M. 1955-147”.

The specimen was dissected and the 8th sternite, genital segment and aedoeagus were mounted in Canada Balsam. The specimen is hereby designated as the lectotype of *Q. anomalus*; the label “Lectotype *Quedius anomalus* Cameron Smetana des. 1984” has been attached to it.

Geographical distribution.— *Quedius anomalus* is at present known only from the type locality in Uttar Pradesh (Map 20).

Material studied.— The lectotype.

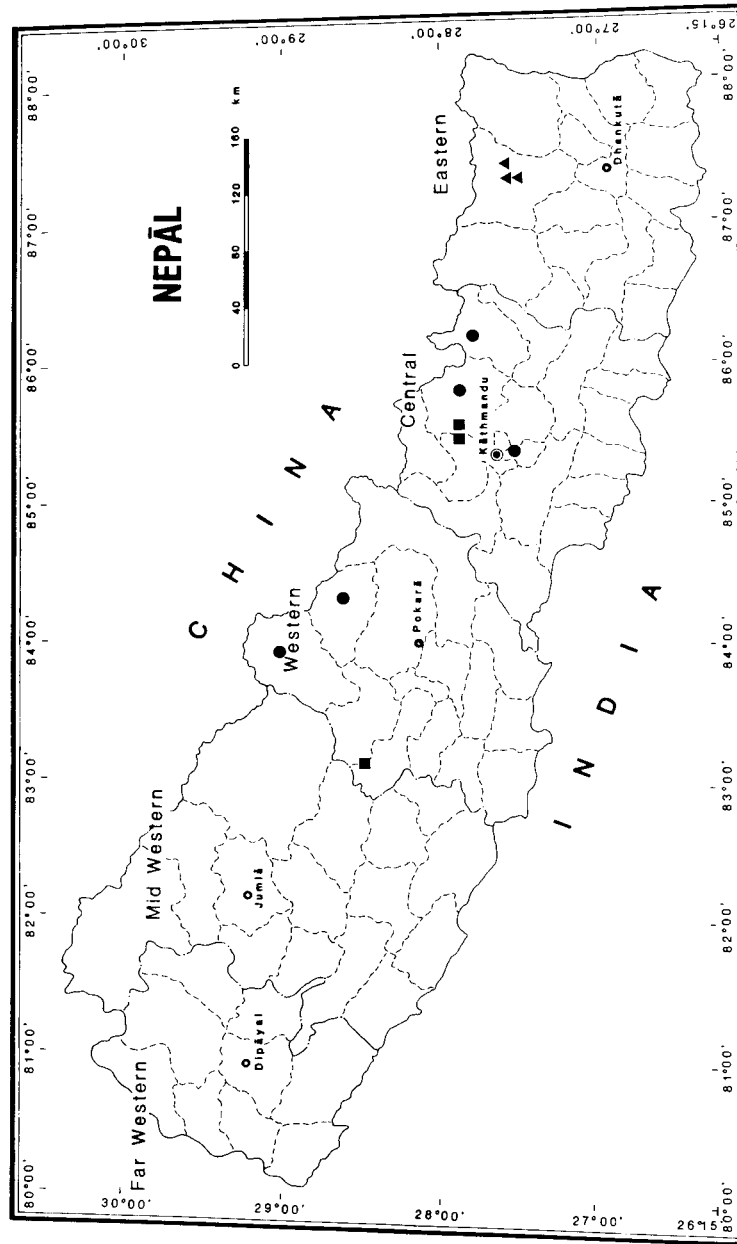
Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons.— *Quedius anomalus* is a distinctive species; it can readily be recognized by the following combination of characters: head with very large but only moderately convex eyes, surface of head and pronotum with microscopic punctures; pronotum strongly narrowed in front; scutellum impunctate but with some very fine transverse rugae; elytra long, with longitudinal rows of coarser punctures in addition to usual punctation; abdominal punctation moderately coarse on front tergites but becoming much finer toward apex. *Quedius anomalus* cannot be confused with any other species occurring in the Himalayan area.

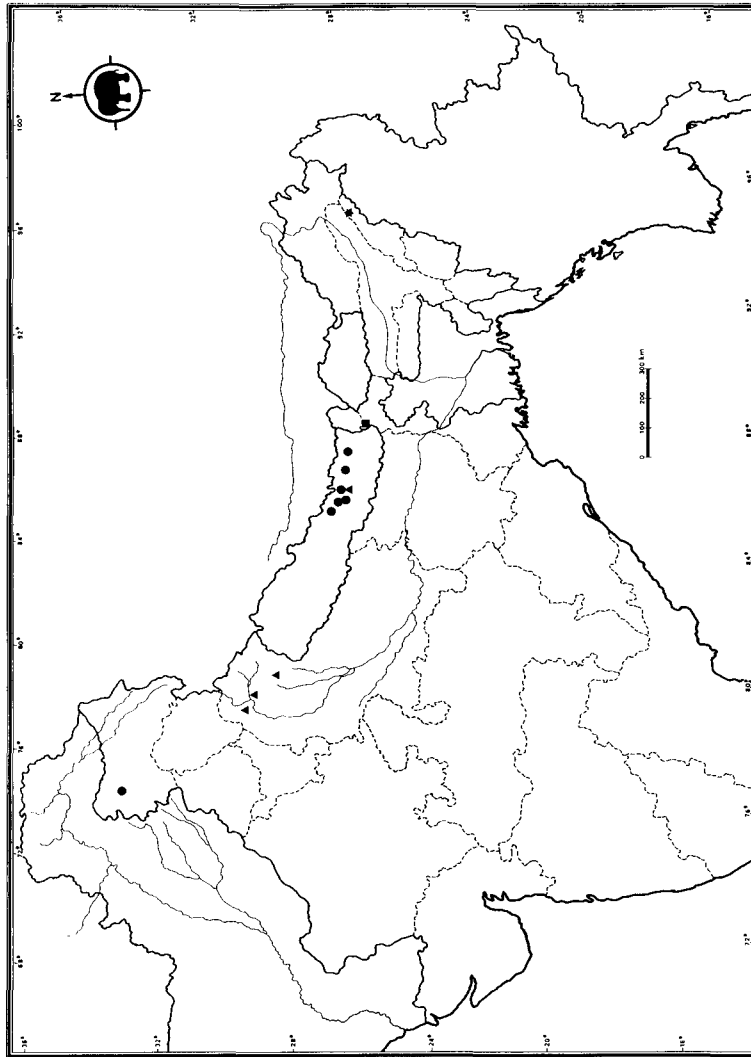
Himalayicus Group

This species group is characterized by the following combination of characters: size large; both head and pronotum without microscopic punctures and without additional setiferous punctures; eyes very large, taking almost entire sides of head; antennal segment 3 distinctly longer than segment 2; scutellum punctate; elytra with simple punctation; first four segments of front tarsus strongly dilated in both sexes.

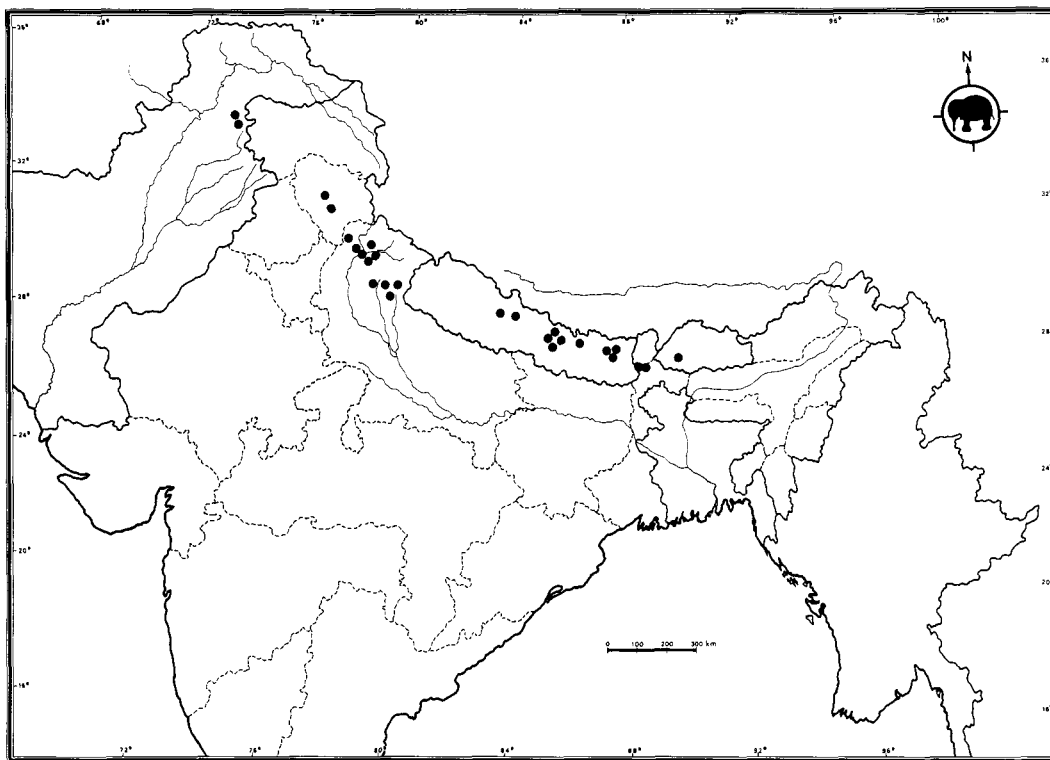
The group contains five species in the Himalayan region; they all resemble in general habitus the species of the subgenus *Quedius* (not represented by any species in the Himalaya). However, they differ immediately by the bilobed labrum and by the very large and convex eyes taking most of the lateral portions of the head.



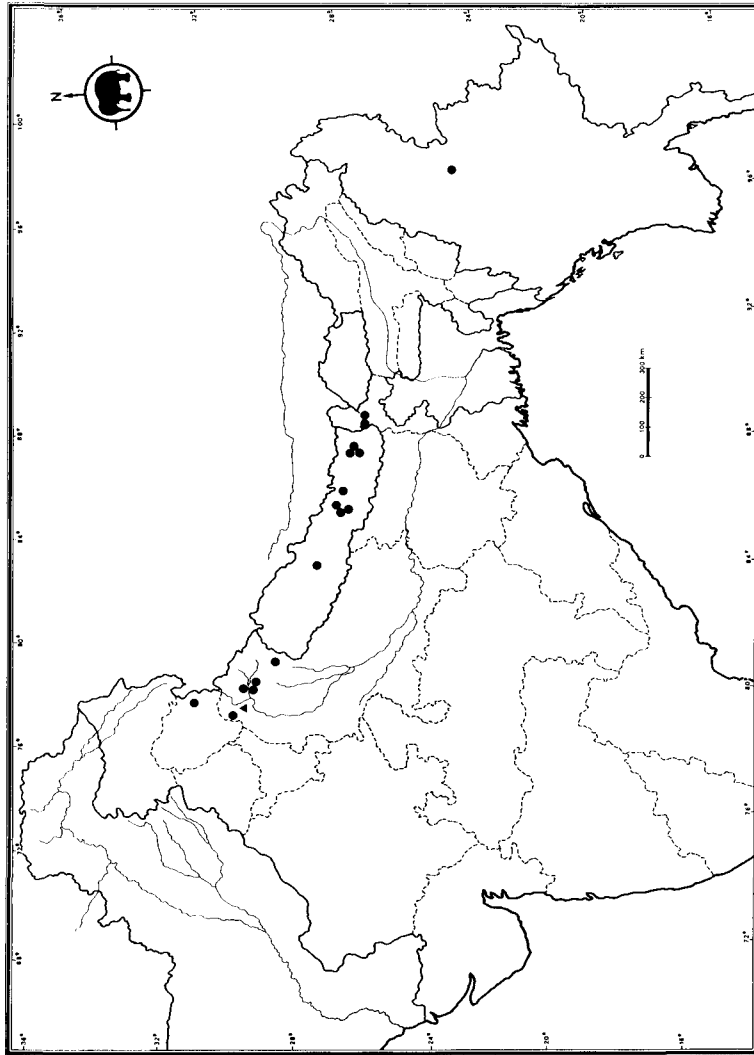
Map 17. Distribution records for: *Quedius vadhui* (●); *Q. sundar* (▲); and *Q. dewar* (■).



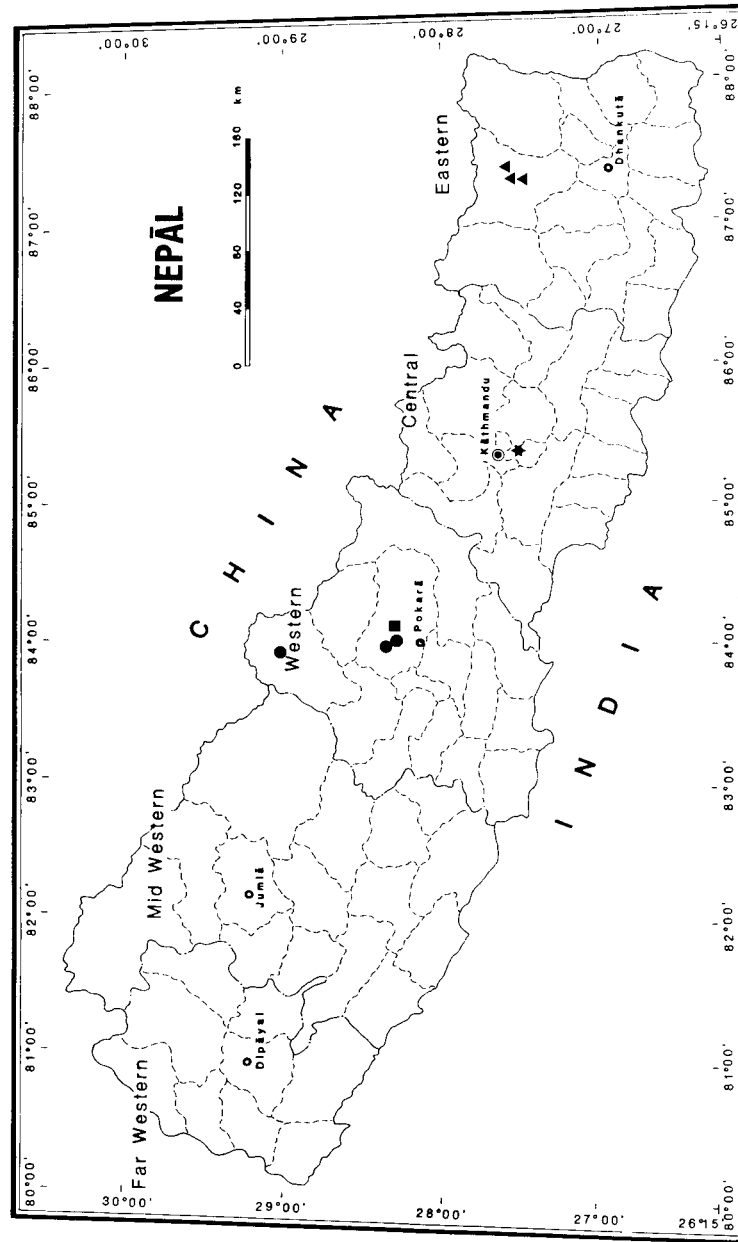
Map 18. Distribution records for: *Q. daksumensis* (●); *Q. paschim* (▲); *Q. durgaa* (■); and *Q. aureipilis* (★).



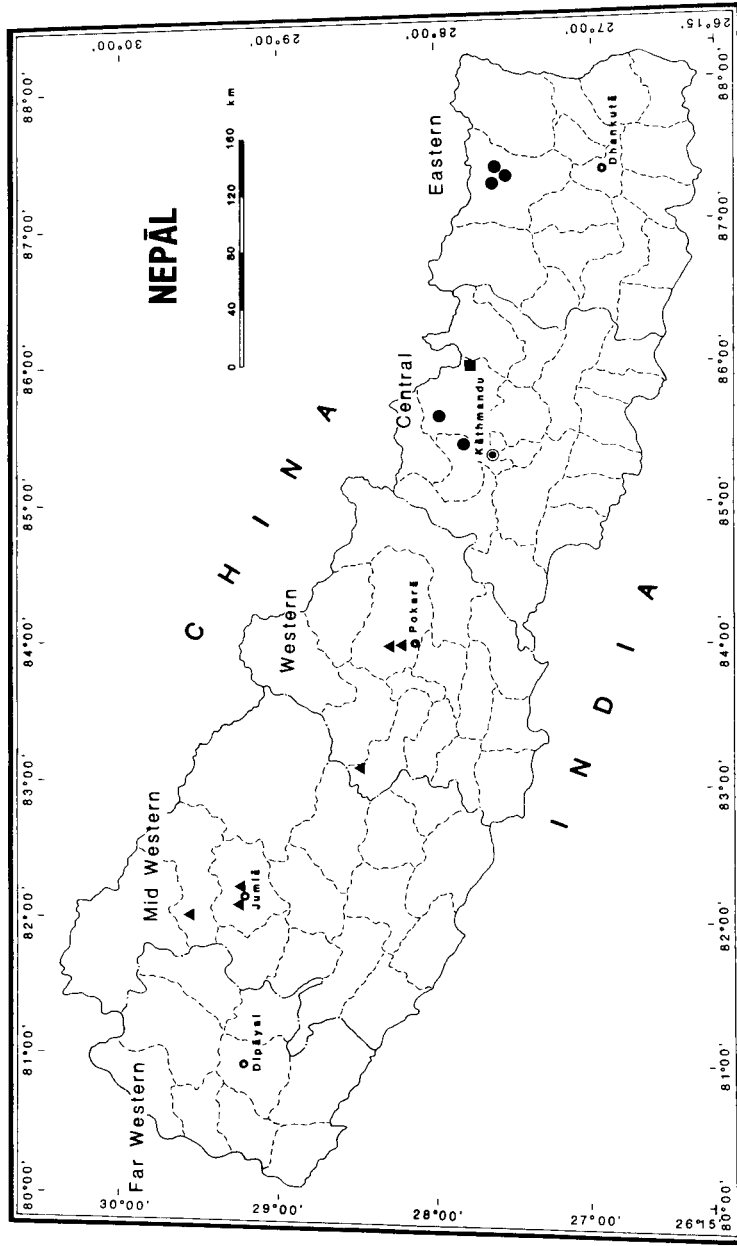
Map 19. Distribution records for: *Quedius aureiventris*.



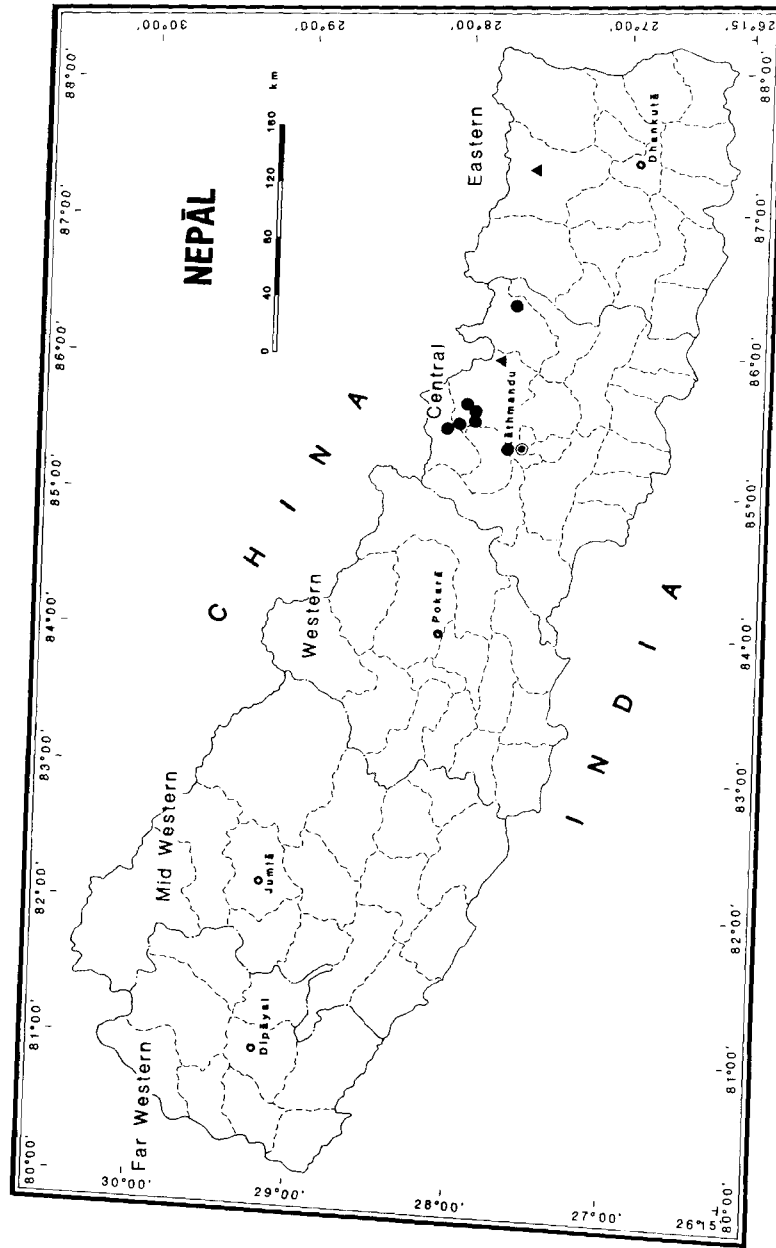
Map 20. Distribution records for *Quedius muscicola* (●); and *Q. anomatus* (▲).



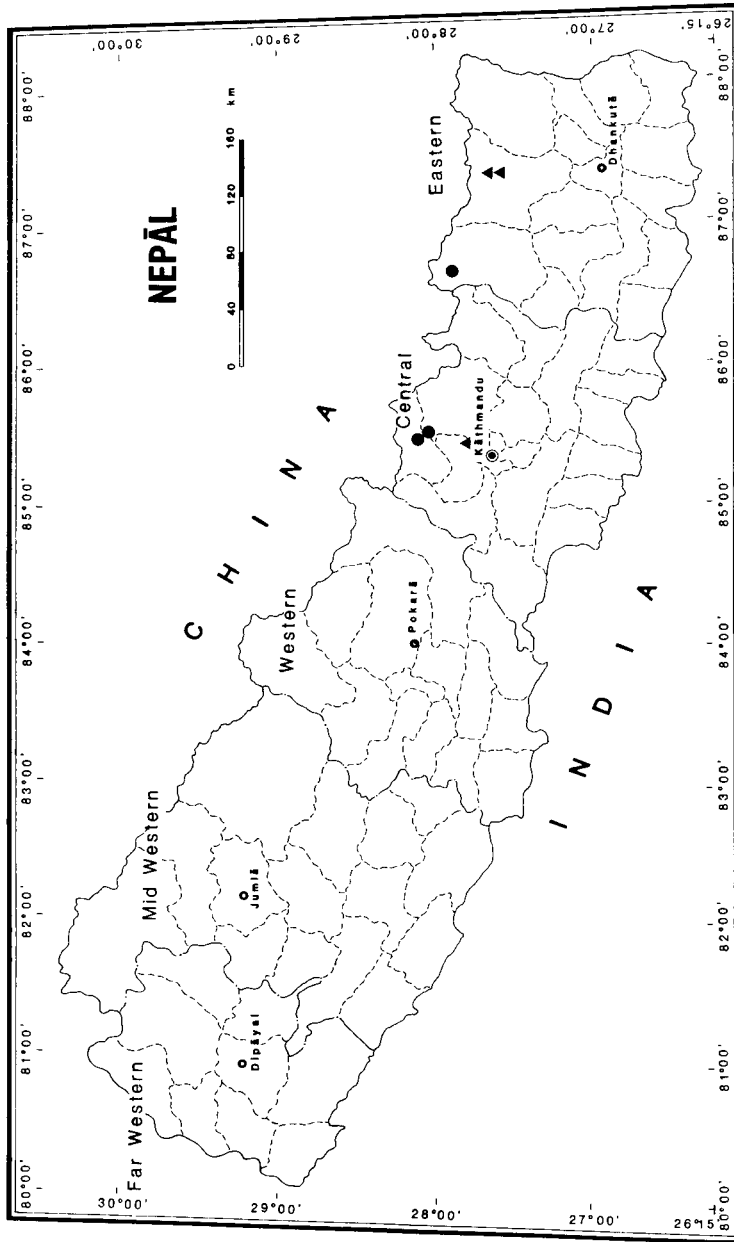
Map 21. Distribution records for: *Quedius gaarho* (●); *Q. bhari* (▲); *Q. eklat* (■); and *Q. udagra* (★).



Map 22. Distribution records for: *Quediini satoi* (●); *Q. kanyasa* (▲); and *Q. naati* (■).



Map 23. Distribution records for: *Quedius tikta* (●); and *Q. pharak* (▲).



Map 24. Distribution records for: *Quediini taruni* (●); and *Q. hariyo* (▲).

48. *Quedius (Raphirus) assamensis* Cameron

Figs. 203–206; Map 15

Quedius assamensis Cameron 1932:293

Description.— Piceous-black to black, abdomen slightly iridescent, apical margins of tergites and apex of abdomen occasionally indistinctly paler; both labial and maxillary palpi brunneotestaceous, antennae piceous with first two segments and most of third segment brunneotestaceous, first segment occasionally partially darkened; legs brunneous with paler tarsi, coxae, femora (front femora usually indistinctly) except for apices, and medial portions of tibiae darkened to almost black. Head rounded, wider than long (ratio 1.33); eyes large and convex, tempora considerably shorter than length of eyes seen from above (ratio 0.21); no additional punctures between anterior frontal punctures; posterior frontal puncture situated very close to posteromedian margin of eye, separated from it by distance no larger than diameter of puncture, one additional setiferous puncture between it and posterior margin of head; temporal puncture separated from posterior margin of eye by distance equal to diameter of puncture; surface with fine and dense microsculpture of irregular transverse waves with numerous longitudinal junctions and therefore almost meshed here and there and gradually becoming more or less meshed on central portion of clypeus. Antenna rather short, segment 3 longer than segment 2, following segments longer than wide, gradually becoming shorter and slightly wider, segments 9 and 10 feebly longer than wide to almost as long as wide, last segment shorter than two preceding segments combined. Pronotum feebly wider than long (ratio 1.09), widely rounded basally and distinctly narrowed anteriorly, evenly transversely convex; dorsal rows each with three fine punctures; sublateral rows with two punctures, posterior puncture situated distinctly before level of large lateral puncture, sometimes sublateral rows with third puncture (unilaterally or bilaterally) situated at about level of large lateral puncture; surface of pronotum with very fine and dense microsculpture of transverse waves, in general finer and denser than that on head. Scutellum punctate. Elytra rather short, at base slightly narrower than pronotum at widest point, at suture slightly shorter (ratio 0.83), at sides about as long as pronotum at midline; punctuation dense and moderately coarse, interspaces between punctures about equal to diameters of punctures; pubescence black. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctuation finer and denser than that of elytra, becoming slightly sparser toward apical margin of each tergite and in general becoming less dense toward apex of abdomen; pubescence black, dense. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus distinctly more dilated than in female. Apical margin of sternite 6 inconspicuously concave in middle of apical margin; apical margin of sternite 7 broadly and shallowly, arcuately emarginate apically, slightly flattened and smooth before emargination; apical margin of sternite 8 with wide, moderately deep obtusely triangular emargination, emargination with cluster of darker setae at each lateral corner (Fig. 203), without smooth area before emargination. Aedoeagus (Figs. 204–206) very large and voluminous; median lobe wide, suddenly narrowed into obtusely rounded apical portion, with two lateral sclerites; paramere very large and wide, covering most of median lobe, evenly arcuately narrowed, with apex arcuate; four apical setae, inner pair much larger than lateral pair, two long and strong setae at each lateral margin way below apex of paramere; underside of paramere with rather long, irregular row of sensory peg setae along each lateral margin.

Length 8.5–9.6 mm.

Type material.— The collection of the British Museum (Natural History), London, contains five specimens under the name *Q. assamensis*; but probably only the first male represents the original material. It is labelled as follows: “Type” (round label with red margin)/ “S.S. Chatterjee 12.III.1924” / “Naga Hills 4000' Assam” / “*Q. assamensis* Cam. TYPE” / “M. Cameron. Bequest. B.M. 1955-147”. The specimen was dissected and the aedoeagus (the paramere was separated) was mounted in Canada Balsam. The specimen is hereby designated as the lectotype of *Q. assamensis*; the label “Lectotype *Quedius assamensis* Cameron A. Smetana des. 1984” has been attached to it.

The remaining four specimens belong to *Q. aureipilis* (see there for details); they were accordingly labelled.

Geographical distribution.— *Quedius assamensis* is distributed mainly in the eastern portion of the Himalayas, from central Nepal to Nagaland, however, its distributional range extends westwards to Kumaon, Uttar Pradesh (Map 15).

Material studied.— 26 specimens.

INDIA. *Nagaland.* See Type material. *Uttar Pradesh.* Kumaon, Haldwani Distr., H.G. Champion (BMNH) 5.

NEPAL. *Kathmandu Distr.* Gokarna Forest, 1400 m, 31.III and 1.IV.81, Löbl & Smetana (ASCC) 3. *Khandbari Distr.* Khandbari, 1700 m, 23.III.82, A. & Z. Smetana (ASCC) 1; Pangma, 1700 m, 4.IV.84, Smetana & Löbl (ASCC, CNCC) 4; Pangma-Ahale, 1600–2000 m, 4.IV.84, Löbl & Smetana (MHNG) 2; Arun Valley at Num main bridge, 1050 m, 20–21.IV.84, Smetana & Löbl (ASCC, MHNG) 7. *Sindhupalchok Distr.* 4 km S Tarang Marang, 900 m, 28.IV.81, Löbl & Smetana (ASCC, MHNG) 2. Dumahan, IV.1984, de Rougemont (GDRC) 1.

Bionomics.— *Quedius assamensis* occurs at lower elevations under 2000 m. The specimens from Nepal were collected by sifting leaf litter and various debris in moist to wet habitats, such as seepages *etc.* both in forests and in open disturbed habitats. The specimens from Arun valley were taken, together with *Q. nilo*, by sifting thin layer of soaking wet leaves and other debris on a sandy bank of a creek.

Comparisons.— *Quedius assamensis* is in all external characters also similar to *Q. chinensis* Bernhauer 1915 (I do not know the male of the latter species). *Quedius chinensis* differs mainly by the microsculpture on both the head and pronotum; it is almost entirely meshed on the head and tends to form irregular meshes on the pronotum (based on one “cotype” from Bernhauer’s collection).

49. *Quedius (Raphirus) himalayicus* Bernhauer Figs. 207–210; Map 25

Quedius himalayicus Bernhauer 1915:55; Cameron 1932:293

Description.— Black, elytra dark metallic green to greenish-blue, abdomen slightly iridescent; appendages piceous-black to black, all tarsi reddish-brown. Head rounded, wider than long (ratio 0.73); eyes large and convex, tempora considerably shorter than length of eyes seen from above (ratio 0.31); no additional punctures between anterior frontal punctures; posterior frontal puncture situated very close to posteromedian margin of eye, separated from it by distance smaller than diameter of puncture, one additional setiferous puncture between it and posterior margin of head; temporal puncture almost touching posterior margin of eye; surface of head with very fine, dense microsculpture of irregular transverse waves with numerous longitudinal junctions and therefore forming rudimentary meshes here and there and becoming more or less meshed on central portion of clypeus. Antenna rather short and only slightly thickened toward apex, segment 3 longer than segment 2, following four segments longer than wide, gradually becoming shorter and wider, outer segments feebly longer than wide to equally long as wide, last segment slightly shorter than preceding two segments combined. Pronotum feebly wider than long (ratio 1.15), widely rounded basally and distinctly narrowed anteriorly, evenly transversely convex; dorsal rows each with three fine punctures; sublateral rows each with two punctures, posterior puncture situated slightly behind level of large lateral puncture, posterior puncture missing bilaterally in several specimens; surface of pronotum with extremely fine, dense microsculpture of transverse waves, in general more superficial and finer than that on head. Scutellum punctate. Elytra moderately long, at base only slightly narrower than pronotum at widest point, at suture about equally long, at sides feebly longer than pronotum at midline (ratio 1.10); punctuation moderately coarse, dense, interspaces between punctures about equal to diameters of punctures; pubescence black. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of

palisade setae; punctuation finer and somewhat denser than that on elytra, becoming sparser toward apical margin of each tergite and in general becoming less dense toward apex of abdomen; pubescence black, dense. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus more dilated than in female. Apical margin of sternite 7 slightly arcuately emarginate apically, slightly flattened and smooth before emargination; apical margin of sternite 8 with moderately deep and wide, arcuate emargination (Fig. 207), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 208–210) large and voluminous, median lobe suddenly narrowed into a short, obtuse apical portion entirely covered by apical portion of paramere. Paramere moderately long, broadly constricted in middle portion, more or less broadly rounded apically; four apical setae, inner pair much longer than lateral pair; two unequally long setae at each lateral margin way below apex of paramere; underside of paramere with two rather long and slightly irregular lateral rows of sensory peg setae.

Length 8.4–9.3 mm.

Type material.— The female holotype (see Bernhauer 1915:55) in the Bernhauer collection in the Field Museum of Natural History, Chicago, Illinois, is labelled as follows: “Bhowali Kumaon” / “17.6.1912” / “For Zool Coll” / “56” / “himalayicus Bernh. Typus unic.” / “Chicago NH Mus. M. Bernhauer Collection”. The specimen is in fair shape: the left antenna is missing, only two basal segments remain from the right antenna and left hind tarsus is missing.

Geographical distribution.— *Quedius himalayicus* is widely distributed throughout the Himalayan range, from Uttar Pradesh eastward to Darjeeling area and Nagaland (Map 25).

Material studied.— 87 specimens.

INDIA. *Nagaland.* Naga Hills, Laimatak (BMNH) 1. *Himachal Pradesh.* Murree Hills, VI.1888, Thobba (BMNH) 1; Naggur, Kuly, 5000', Champion (BMNH) 1; Jibhi, Seraj, 6000', V.1926, Champion (BMNH) 2; Jhatingri, Mandi, 6000', Champion (BMNH) 1; Simla, VI.81, R. de Rougemont (GDRC) 1; Macleodganj, VI.81, R. de Rougemont (GDRC) 1. *Uttar Pradesh.* Chakrata Dsitr: Korawa Khud, 9100', 4.V.22, Cameron (BMNH) 1; Jadi Gad, 7000', 9.V.22, Cameron (BMNH) 1; Manjgaon, 6500', 18.V.22, Cameron (BMNH) 1. Mussoorie Distr.: Dhobi Ghat, 14.IV.22, Cameron (BMNH) 4; Mossy Falls, 20.24. and 27.III.21, 22.III.32, Cameron (BMNH, USNM) 11. Kumaon: W. Almora, Champion (BMNH) 22; W. Almora Divn., VI. and VIII.1917, III.1918, Champion (BMNH) 7; Ranikhet, Champion (BMNH) 1. Garhwal: between Tehri and Srinagar, 900 m, 25.X.79, I. Löbl (MHNG) 1; 22 km N Rishikesh, 450 m, 30.X.79, I. Löbl (MHNG) 1. *West Bengal.* Rungbong Vall., Gopaldhara, H. Stevens (BMNH) 22; Darjeeling Distr., Gopaldhara, 3440–4720', 10 and 15.XI.19, H. Stevens (BMNH) 3; Namsoo, XI.1920, H. Stevens (BMNH) 1.

NEPAL. *Nuwakot Distr.* above Shermanthang, 2900 m, 26.IV.81, Löbl & Smetana (ASCC) 1; 4 km S Tarang Marang, 900 m, 28.IV.81, Löbl & Smetana (ASCC) 1.

Bionomics.— Little is known about the habitat requirements of *Q. himalayicus*. The specimens from Nepal were taken among debris on moist bottom of a dried out pond (above Shermanthang) and by sifting soaking wet leaf litter and other debris at base of a small waterfall (near Tarang Marang).

Comparisons.— *Quedius himalayicus*, and the two following species, can easily be recognized by the following combination of characters: fairly large size, body black with metallic green to greenish-blue or metallic blue elytra, head with very large and convex eyes (see the description), scutellum punctate, elytra and abdomen densely punctate. On the other hand, it is not easy to distinguish these three species and males are necessary for a positive identification (see under *Q. nilo* and *Q. kuro* for details).

Quedius himalayicus also resembles *Q. assamensis*; however, the latter species differs, in addition to the characters on the aedoeagus, by the non-metallic black elytra. Another similar species, *Q. aureipilis*, differs from *Q. himalayicus* conspicuously by the pale yellowish femora and by golden-yellowish pubescence of the elytra and abdomen.

50. *Quedius (Raphirus) nilo spec.nov.*

Figs. 211–214; Map 25

Description.— In all external characters very similar to *Q. himalayicus* but different as follows: elytra almost always metallic blue, only rarely withy greenish tint; head in general slightly more transverse with slightly larger and more convex eyes (ratio length of tempora: length of eyes seen from above = 0.23); antenna slightly longer, with outer segments usually somewhat longer than wide; pronotum in general narrower (ratio width: length = 1.07) and in most specimens about equally narrowed anteriorly and posteriorly; punctation of elytra and abdomen in general slightly coarser and less dense.

Male. First four segments of front tarsus more dilated than in female. Sternites 7 and 8 with emarginations similar to *Q. himalayicus*, that of sternite 8 deeper (for sternite 8 see Fig. 211). Aedoeagus (Figs. 212–214) similar to that of *Q. himalayicus*; however, apical portion of median lobe less abruptly narrowed and in general wider, apical portion with distinct dent in apical portion. Paramere much wider with apical portion more elongately narrowed and narrowly rounded apically, apical setae closer together, setae at lateral margins shorter, rows of sensory peg setae on underside of paramere start farther from apex of paramere and are more irregular.

Length 7.9–9.9 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Khandbari Dis. Arun Valley at Num main bridge 1050 m 20.IV.1984 Smetana & Löbl. In the Smetana collection, Ottawa, Canada.

Paratypes (20): same data as holotype, date 20. or 21.IV.84 (ASCC, BMNH, CNCC, MNHG) 20.

Geographical distribution.— *Quedius nilo* is at present known only from the type locality in eastern Nepal (Map 25).

Bionomics.— The specimens from the Arun Valley in Nepal were taken, together with *Q. assamensis*, by sifting thin layer of soaking-wet leaves and other debris on a sandy bank of a creek.

Comparisons and variations.— Although very similar in all external characters to *Q. himalayicus*, *Q. nilo* can be distinguished without much difficulty by the characters mentioned in the description, particularly by the different shape of the pronotum.

For a comparison with *Q. kuroi* see the discussion under the latter species.

Etymology.— The specific name is the Nepali adjective nilo (blue); it refers to the colouration of the elytra of this species.

51. *Quedius (Raphirus) kairo spec.nov.*

Figs. 215–217; Map 25

Description.— In all external characters very similar to *Q. himalayicus* but different as follows: head with slightly more convex eyes, tempora slightly longer (ratio length of tempora: length of eyes seen from above = 0.29), surface of head and pronotum with finer microsculpture, slightly iridescent, especially that of pronotum; antenna longer with outer segments longer than wide; elytra in general longer, bright metallic blue.

Male. First four segments of front tarsus more dilated than in female. Apical margin of sternite 7 with moderately wide and deep arcuate emargination and slightly flattened in front of emargination; apical margin of sternite 8 with wide and very deep, obtusely triangular emargination fringed by densely packed dark setae (Fig. 215). Aedoeagus (Figs. 216, 217) very large; median lobe abruptly narrowed into rather short and narrow apical portion entirely covered by paramere. Paramere narrow and elongate, almost parallel-sided in middle portion, with narrowly arcuate apex; four apical setae, median pair much longer and stronger than lateral pair, lateral pair distinctly shifted below apex of paramere; two unequally long setae at each lateral margin way below apex of paramere; underside of paramere with two long rows of sensory peg setae, diverging posteriorly.

Length 8.7–9.0 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Khandbari Distr. Induwa Khola Valley 2000 m 17.IV.84 Smetana & Löbl. In the Smetana collection, Ottawa, Canada.

Geographical distribution.— *Quedius kairo* is at present known only from the type locality in eastern Nepal (Map 25).

Bionomics.— The two specimens of the original series were taken by sifting thin layer of moist leaf litter and other debris on sandy or gravelly banks of the Induwa Khola river.

Comparisons.— *Quedius kairo* is in all characters similar to *Q. nilo*, but differs from it, in addition to the characters on the aedoeagus, by the less transverse head with slightly longer tempora, by the still longer antenna, the shape of the pronotum (same as in *Q. himalayicus*), the more densely punctate elytra and, in the male sex, by the secondary sexual characters on the abdominal sternites, particularly by the wide and very deep emargination of sternite 8, fringed by densely packed dark setae. The last character is quite characteristic for this species.

Etymology.— The specific name is the Nepali noun *kairo* (fog) in apposition. It was applied in the memory of the turbulent, stormy, foggy and wet weather that made our collecting in the Induwa Khola Valley so challenging and frustrating at times, but after all quite rewarding and successful.

52. *Quedius (Raphirus) aureipilis* Cameron

Figs. 218–223; Map 18

Quedius aureipilis Cameron 1932:294

Description.— In all characters similar to *Q. himalayicus* but different as follows: piceous-black, maxillary palpi brunnescous, antennae piceous with each first segment brunnescous, femora pale yellowish, tibiae piceous to piceous-black, tarsi brunnescous; abdomen iridescent; pubescence of elytra and abdomen golden-yellowish, forming slightly denser patches on lateral portions of abdominal tergites. Head slightly smaller with somewhat shorter tempora (ratio length of tempora: length of eyes seen from above = 0.17):

pronotum distinctly narrower and about equally narrowed anteriorly and posteriorly, elytra narrower, flatter and more parallel-sided, usually slightly more densely punctate.

Male: First four segments of front tarsus more dilated than in female. Apical margin of sternite 7 feebly, indistinctly concave in middle; apical margin of sternite 8 with moderately wide and deep, obtusely triangular emargination (Fig. 218), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 221–223) with median lobe narrowed into moderately long, obtusely triangular apical portion, entirely covered by paramere; apical portion of median lobe with small dent in lateral view. Paramere rather long, almost parallel-sided in middle portion, narrowed into subacute apex; four apical setae, two middle ones distinctly longer than lateral ones; two unequally long setae at each lateral margin below apex; underside of paramere with two irregular, lateral rows of sensory peg setae.

Length 8.5–9.0 mm.

Type material.— The collection of the British Museum (Natural History), London, contains three specimens under the name *Q. aureipilis*. They are labelled as follows: Spec. No. 1 (female): “Type” (round label with red margin)/ “Naga Hills Laimatak Assam (12)” / “*Q. aureipilis* Cam. TYPE”. Spec. No. 2 (female): “Naga Hills Laimatak Assam (12)” / “M. Cameron. Bequest B.M. 1955-147” / “SYN-TYPE” (round label with blue margin). Spec. No. 3 (male): same labels as Spec. No. 2. The male specimen No. 3 was dissected and the aedoeagus was mounted in Canada Balsam. The male specimen is hereby designated as the lectotype of *Q. aureipilis*; the label “LECTOTYPE *Quedius aureipilis* Cameron Smetana des. 1984” has been attached to it.

Geographical distribution.— *Quedius aureipilis* is at present known only from the Naga Hills in Nagaland (Map 18).

Material studied.— 9 specimens.

INDIA. *Nagaland*. Naga Hills, Laimatak (ASCC, BMNH, CNCC) 6.

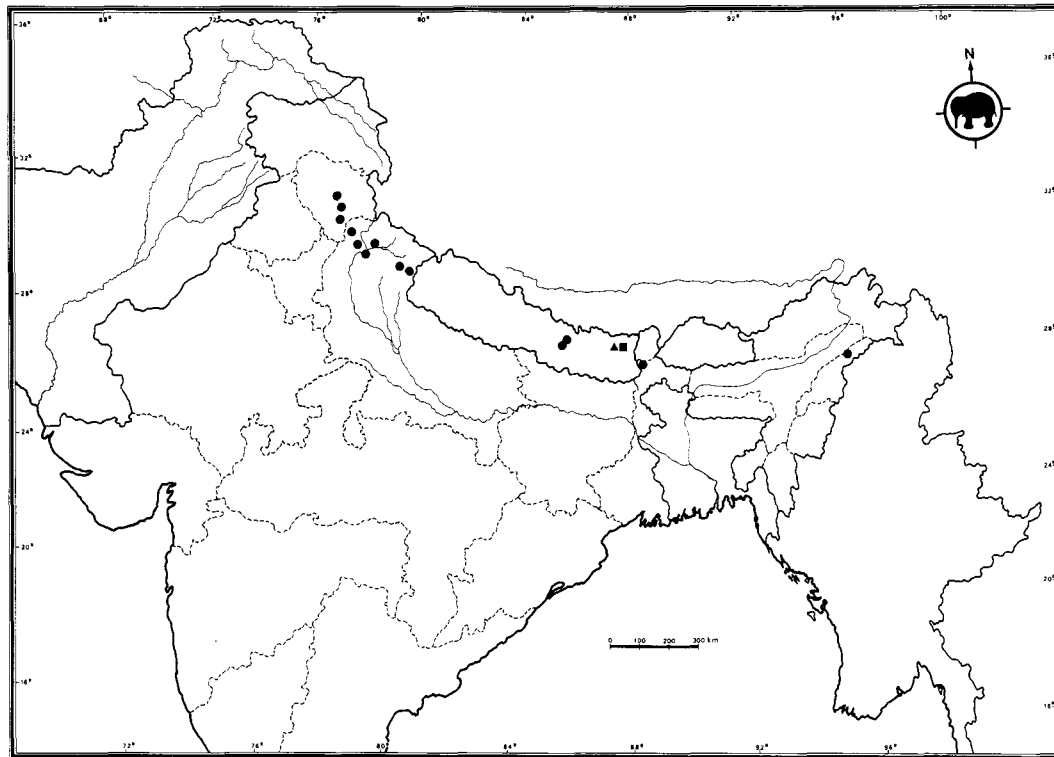
Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons.— *Quedius aureipilis* differs readily from all remaining species of the *Himalayicus* Group by the pale yellowish femora and by the golden-yellowish pubescence of the elytra and abdomen.

Intricatus Group

This species group is characterized by the following combination of characters: small to medium sized species; head, pronotum and elytra bright metallic; head and pronotum with numerous punctures that often are very coarse and deep and may form rugae on head; segment 3 of antenna longer than segment 2; scutellum impunctate or punctate; elytra with simple punctation or with very coarse punctation forming rugae; first four segments of front tarsus strongly dilated in both sexes.

The group contains at present three species in the Himalayan region and another species (*Q. multipunctatus* Sharp 1889) in Japan.



Map 25. Distribution records for: *Q. himalayicus* (●); *Q. nilo* (▲); and *Q. kuro* (■).

53. *Quedius (Raphirus) hariyo spec. nov.*

Figs. 224–227; Map 24

Description.— Head, pronotum and elytra bright metallic green, abdomen black, slightly iridescent; both labial and maxillary palpi and antennae entirely testaceous, first segment of latter occasionally slightly darkened; legs testaceous with darker tibiae, outer face of front tibiae and inner face of both middle and posterior tibiae black and often also apices of middle and posterior femora darkened. Head rounded, slightly wider than long (ratio 1.25); eyes large and convex, tempora considerably shorter than length of eyes seen from above (ratio 0.23); two fine setiferous punctures between anterior frontal punctures; posterior frontal puncture situated very close to posteromedian margin of eye and separated from it by distance no larger than diameter of puncture; temporal puncture almost touching posterior margin of eye; group of fairly coarse punctures anterior, medial and posterior of posterior frontal puncture; surface of head with scattered, extremely fine punctures appearing somewhat denser and coarser on posterior portion of head, and with fine and dense microsculpture of irregular transverse waves with tendency to form here and there incomplete rudimentary meshes. Antenna moderately long, segment 3 longer than segment 2, segments 4–7 longer than wide, gradually becoming shorter, segments 8–10 about as long as wide, last segment slightly shorter than two preceding segments combined. Pronotum about as long as wide, widely arcuate basally and distinctly narrowed anteriorly; dorsal rows long and irregular, each consisting of 7–9 punctures; sublateral rows very long and irregular, each with 6–8 punctures, posterior puncture situated considerably behind level of large lateral puncture; minute, sharply engraved longitudinal impression close to each lateral margin in about middle; surface of pronotum with scattered extremely fine punctures on middle portion and with fine and dense microsculpture of transverse waves. Scutellum impunctate, with rudimentary microsculpture. Elytra rather long, at suture feebly (ratio 1.13) at sides slightly (ratio 1.22) longer than pronotum at midline; punctation dense and moderately coarse, interspaces between punctures about equal to slightly larger than diameters of punctures; pubescence yellowish; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing very distinct whitish apical seam of palisade setae; punctation of tergites extremely fine, rather sparse on front tergites and gradually becoming even sparser toward apex of abdomen; pubescence dark on middle portions but becoming golden-yellowish toward lateral portions of tergites. Front tarsus strongly dilated in both sexes.

Male. First four segments of front tarsus more dilated than in female. Sternite 8 with three strong and long setae on each side in apical half; apical margin with moderately deep and wide, obtusely triangular emargination (Fig. 224), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 225–227) large and elongate, median lobe in general slightly narrowed toward apex, slightly swollen around middle and more or less broadly arcuate apically; internal sac as in Fig. 226. Paramere long and strong, not quite reaching apex of median lobe, slightly narrowed toward arcuate apex; four apical setae, two middle ones much longer and stronger than lateral ones, two long and strong setae at each lateral margin below apex; sensory peg setae on underside of paramere numerous, forming two irregular and rather wide groups, each with 22–24 peg setae.

Length 6.8–7.5 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL, Khandbari District” / “above Sheduwa 3000 m 2.IV.82 A. & Z. Smetana”. In the collection A. Smetana, Ottawa, Canada.

Paratypes (5): Nepal: same data as holotype (ASCC) 1; same data as holotype but date 31.III.-1.IV.84 (CNCC) 1; Khandbari Distr., For. NE Kuwapani, 2450 m, 13.IV.82, A. & Z. Smetana (BMNH) 1; Prov. Bagmati, Gul Bhanjyang 2600 m, 6.IV.81, Löbl & Smetana (MHNG, ASCC) 2.

Geographical distribution.— *Quedius hariyo* is known from a few localities in central and eastern Nepal (Map 24).

Bionomics.— All specimens of the original series were taken in broad-leaved semideciduous forests in elevations between 2450–3000 m by sifting moist moss on fallen trees.

Comparisons.— *Quedius hariyo* is a very conspicuous species due to the bright metallic green colour of the forebody in combination with the chaetotaxy of the head and pronotum. The colouration of the body and the development of the aedoeagus, including the armature of the internal sac, suggests close relationship of *Q. hariyo* to *Q. rugosus*; however, the latter species differs immediately by the very rough sculpture of the forebody. Also, the habitat requirements of the two species differ (see under *Q. rugosus*).

Quedius hariyo is in all external characters very similar to *Q. multipunctatus* from Japan; however, the Japanese species differs as follows: palpi, antennae and legs uniformly rufo-testaceous, extremely fine punctures on head much less numerous, elytra longer and punctuation of abdominal tergites denser.

Etymology.— The specific name is the Nepali adjective hariyo (green). It refers to the colouration of the species.

54. *Quedius (Raphirus) rugosus* Cameron

Figs. 228–231; Map 26

Quedius rugosus Cameron 1921:273; 1932:298

Quedius mussooriensis Cameron 1932:299 (*syn.nov.*)

Description.— Head, pronotum and elytra brilliant metallic green, dark green, bluish green or purplish-green, abdomen black, slightly iridescent; both labial and maxillary palpi testaceous, or partially darkened or almost entirely piceous; antennae testaceous, or first segment piceous with metallic reflections, or antennae brunneopiceous with first 2–3 segments darker and with metallic reflections; legs piceous to piceous-black, tibiae with metallic reflections, femora (except for darker apices) and coxae pale testaceous. Head rounded, slightly wider than long (ratio 1.21); eyes very large and convex; tempora considerably shorter than length of eyes seen from above (ratio 0.20); surface of head covered with deep and coarse punctures forming more or less distinct rugae on posterior portion of head and gradually becoming finer and well isolated toward clypeus, clypeus to variable extent impunctate, small impunctate area present also on vertex; punctuation in general obscuring usual setiferous punctures that can only be traced by presence of long setae; surface between punctures with very fine microsculpture of rudimentary transverse waves and/or incomplete meshes. Antenna moderately long, segment 3 longer than segment 2, segments 4–6 longer than wide, gradually becoming shorter, outer segments feebly longer than wide to indistinctly transverse, last segment shorter than two preceding segments combined. Pronotum about as long as wide, fairly strongly margined laterally and basally; widely arcuate basally, either equally arcuately narrowed both anteriorly and posteriorly, or more distinctly narrowed anteriorly; dorsal rows very long and more or less irregular, convex toward midline, each formed by 7–10 very coarse, pit-like punctures; lateral portions each with a group of very coarse punctures similar to those in dorsal rows and with variable number of coarse and fine punctures, same fine punctures usually also present anteriorly between dorsal rows, posterior area between dorsal rows usually without any punctures; surface of pronotum with microsculpture similar to that on head. Scutellum impunctate, with extremely fine rudimentary microsculpture. Elytra moderately long, at base about as wide as pronotum at widest point, at suture about as long as pronotum at midline, at sides somewhat longer (ratio 1.25); punctuation very coarse and deep, confluent, to variable extent forming transverse and/or oblique rugae, deflexed lateral portion of each elytron with more or less fine, simple punctuation; pubescence golden-yellow, occasionally intermixed with dark hairs and with a group of whitish hairs on lateral portion of each elytron; surface between rugae without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing very distinct whitish apical seam of palisade setae; punctuation of tergites extremely fine, dense on basal portions and gradually becoming sparser toward apical margin of each tergite; surface with extremely fine, dense microsculpture of incomplete transverse waves; pubescence dark on middle portion but becoming golden-yellow on lateral portions of each tergite, golden-yellow hairs usually also present on apical margin of tergites 1–4. Front tarsus strongly dilated in both sexes.

Male. First four segments of front tarsus more dilated than in female. Sternite 8 with two strong and long setae on each side in apical half, apical margin with moderately wide and deep, almost arcuate emargination (Fig. 228), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 229–231) large and elongate, median lobe subparallel-sided to slightly narrowed toward broadly arcuate apex; internal sac as in Fig. 230. Paramere strong, narrowed toward apex, not quite reaching to slightly exceeding apex of median lobe, obtuse apically; four apical setae, two middle ones much longer and stronger than lateral ones, two fairly long and strong setae at each lateral margin below apex; sensory peg setae on underside of paramere numerous, forming two irregular, medially only vaguely separated, longitudinal groups, each with 14–23 peg setae.

Length 5.8–6.8 mm.

Type material.— *Quedius rugosus*. The collection of the British Museum (Natural History), London, contains 7 specimens under the name *Q. rugosus*; however, only first three belong to the original series. They are labelled as follows: Spec. No. 1: “Type H.T.” (round label with red margin)/ “SYN-TYPE” (round label with blue margin)/ “Lebong 5000 ft. IX.1908 H.M.L.” / “*Quedius rugosus* Cam. TYPE” / “M. Cameron. Bequest. B.M. 1955-147.” Spec. No. 2: “Sikkim N. India 1920.258” / “Lebong 5000 ft. IX.1908 H.M.L. (this label is on pin with text down)/ “*Quedius rugosus* Cam.”. Spec. No. 3: “W. Almora, Kumaon. India. H.G.C.” / “SYN-TYPE”.

The first specimen (male) was dissected and the tergite and sternite 8, the genital segment and aedoeagus were mounted on plate with beetle. The specimen is in fair shape (someone tried to dissect it): left antenna missing except for basal segment, right antenna broken off after second segment (rest glued on plate), right posterior tarsus missing except for first segment, abdomen separated and in two pieces and 8th sternite badly damaged. The specimen (the other two are in worse condition) is hereby designated as the lectotype of *Q. rugosus*; the label “Lectotype *Quedius rugosus* Cameron Smetana des. 1984” has been attached to it.

Only fragments of the second specimen remain: the elytra with both pairs of middle and posterior legs (tarsus of left middle leg missing) on a minuten pin. There is a plate under the elytra, bearing the head and thorax of a small brownish quediine unknown to me, with small eyes and only one fine puncture in dorsal rows of the pronotum.

The third specimen (male) from W. Almora is missing the head and prothorax, including all appendages (except for right front leg). Someone dissected it: the 8th sternite and genital segment are rather badly damaged and glued on plate, and the aedoeagus with the paramere separated are glued on plate.

Quedius mussooriensis. The collection of the British Museum (Natural History), London, contains two female specimens under the name *Q. mussooriensis*. They are labelled as follows: Spec. No. 1: “Type” (round label with red margin)/ “SYN-TYPE” (round label with blue margin)/ “Arni Gad, Mussoorie” / “Dr. Cameron. 13.IV.22” / “*Q. mussooriensis* Cam. TYPE” / “Cameron. Bequest. B.M. 1955-147.” Spec. No. 2: “Arni Gad, Mussoorie.” / “Dr. Cameron. 28.V.21” / “M. Cameron. Bequest. B.M. 1955-147.” / “SYN-TYPE” (round label with blue margin).

The first specimen is hereby designated as the lectotype of *Q. mussooriensis*; the label "Lectotype *Quedius mussooriensis* Cameron Smetana des. 1984" has been attached to it. It cannot be specifically distinguished from the lectotype of *Q. rugosus*. The name *Q. mussooriensis* is a junior synonym of *Q. rugosus*; my corresponding determination label was attached to the specimen.

Geographical distribution.— *Quedius rugosus* is widely distributed throughout the Himalaya: from Himachal Pradesh through Nepal and the Darjeeling area to northern Burma (Map 26).

Material studied.— 25 specimens.

BURMA. Mishmi Hills, Chhagion, 5350', 25.II.35, M. Steele (BMNH) 1.

INDIA. *Nagaland*. Naga Hills, 9000' (BMNH) 1. *Uttar Pradesh*. Kumaon: W. Almora, Champion (BMNH) 3; W. Almora Dvn., May 1919, Champion (ASCC, BMNH) 5; Haldwani Dist., Champion (BMNH) 2; Gori Riv. Gorge, 9000', Champion (BMNH) 1. *West Bengal*. Ghum Distr., Rongdong Valley, V-VI.31, Cameron (BMNH, CNCC) 2; Ghum Distr., Mangpo, V. 1931, Cameron (BMNH) 1.

NEPAL. *Chapuri*. 16.III.79, de Rougemont (ASCC, GDRC) 2; Nagarkot, X.80, de Rougemont (GDRC) 1; *Khandbari distr.* 2 km E Mansingma, 1900 m, 19.IV.84, Löbl & Smetana (MHNG) 2.

Bionomics.— The habits of *Q. rugosus*, and possibly of additional not yet described species of this group from southeastern Asia, can be summarized as follows (de Rougemont in litt.): the species are very hygrophilous, found exclusively near running water, either in the spray zones of cascades or in wet moss under waterfalls or near the waterline of boulders. They are very active insects, taking immediately to the wing when their habitat is disturbed, or running very quickly for a short distance before taking off. In Thailand, several specimens of a possibly undescribed species were observed hovering around a boulder in mid-stream, alighting and running over its surface before taking to the wing and repeating the process.

The coarse sculpture and green or bluish metallic reflection of the forebody are analogous to that of many species of *Dianous* which inhabit the same biotope, and undoubtedly serve to conceal the beetles amid the glistening droplets of water from spray on moss and lichens in that habitat.

The species must compete to a certain extent with *Dianous* species for prey, but it is possible that their greater mobility enables them to capture certain species which evade the slower *Dianous*.

Comparisons.— Originally, I considered *Q. mussooriensis*, which tended to be more brightly metallic green with antennae uniformly testaceous and with the sculpture in general less coarse, as a distinct species. However, as the number of specimens studied increased, it became apparent that it is impossible to specifically distinguish *Q. mussooriensis* from *Q. rugosus*. The colouration of antennae, the tint of the metallic surface and the coarseness, location and number of the punctures on the head and pronotum and of the rugae on the elytra varies to great extent without being correlated in any way with each other. Also, the aedeogai are essentially identical (including the development of the internal sac) and the number of the peg setae on the underside of paramere varies in such a way, that any correlation with some of the external characters is impossible. For these reasons I decided to

recognize only one species, *Q. rugosus*.

55. *Quedius (Raphirus) intricatus* Fauvel

Map 26

Quedius intricatus Fauvel 1895:274; Cameron 1932:298

Description.— Very similar to *Q. rugosus* but different as follows: antennae always uniformly testaceous. Head with coarse, dense and deep punctation forming rugosities except for small smooth area on vertex. Neck with numerous punctures on middle portion. Pronotum without appreciable rows of punctures, entire surface of pronotum covered with coarse rugulose punctation except for two small smooth areas on each side of midline at about middle. Scutellum with punctures situated in coarse transverse depressions.

Male. Unknown.

Length 7.0 mm.

Type material.— The Fauvel collection in the Institut Royal des Sciences Naturelles de Belgique, Bruxelles, contains one female specimen under the name *Q. intricatus*. It is labelled as follows: “Carin Ghecu 1300–1400 m L. Fea II-III.88” / “intricatus Fvl.” / “Syntype” / “R.I. Sc. N.B. 17479 *Quedius* Coll. et det. A. Fauvel.” The specimen is hereby designated as the lectotype of *Q. intricatus*; the label “Lectotype *Quedius intricatus* Fauvel Smetana des. 1983” has been attached to it.

Geographical distribution.— *Quedius intricatus* is at present known only from the type locality in Burma (Map 26).

Material studied.— The Lectotype.

BURMA. See Type material.

Bionomics.— Nothing is known about the habitat requirements of this species; however, it almost certainly lives in a similar way to *Q. rugosus*.

Comparisons.— *Quedius intricatus* is a poorly known species due to lack of specimens available for study. However, it can easily be distinguished from the related species, *Q. rugosus*, by the characters given above, particularly by the punctate neck and by the sculpture of the scutellum.

Gardneri Group

The single species of this group, *Q. gardneri*, is unique because of the configuration of the abdominal tergites 3–6, each bearing a longitudinal median keel, and by the paramere of the aedoeagus divided in two fairly long branches (Fig. 233).

See the discussion following the description of *Raphirus* for a discussion of *Q. gardneri*.

56. *Quedius (Raphirus) gardneri* Cameron

Figs. 232–235; Map 26

Quedius gardneri Cameron 1932:292

Quedius coeruleus Coiffait 1977:241 (*syn.nov.*)

Description.— Piceous-black, elytra greenish-blue, abdomen feebly iridescent; maxillary and labial palpi, antennae and legs piceous. Head narrow, about as long as wide, distinctly narrower than pronotum at widest point (ratio 0.68), strongly narrowed posteriorly behind eyes, posterior angles absent; eyes rather large and moderately convex, tempora distinctly shorter than length of eyes seen from above (ratio 0.55); no additional punctures between anterior frontal punctures; posterior frontal puncture situated close to posteromedian margin of eye and separated from it by distance about equal to diameter of puncture, two additional setiferous punctures between it and posterior margin of head; surface of head with very dense and extremely fine microsculpture of transverse waves. Antenna slender, moderately long, segment 3 narrower and slightly longer than segment 2, segment 4 distinctly, segment 5 somewhat longer than wide, following segments gradually becoming shorter, outer segments about as long as wide. Pronotum narrow, as long as wide, widely arcuate basally and strongly narrowed anteriorly; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated at or slightly behind level of large lateral puncture; surface of pronotum with microsculpture similar to that on head. Scutellum large, without punctures, surface with rather dense and very fine microsculpture of irregular transverse waves. Elytra long, at suture feebly (ratio 1.07), at sides distinctly longer (ratio 1.31) than pronotum at midline; punctation fine and not dense, interspaces between punctures much larger than diameters of punctures; pubescence yellowish; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; first three tergites distinctly impressed at base, impressions divided by obtusely elevated median keel that becomes vague on third tergite; basal impressions of first three tergites with rather dense and coarse punctation, remainder of tergal surface with only scattered very fine punctures, median portions impunctate, impunctate area most extensive on first two tergites; tergite five finely and not densely punctate, punctation coarser and denser at base; pubescence piceous, with yellowish hairs here and there. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus distinctly more dilated than in female. Sternite 8 with wide and deep, acutely triangular emargination in middle apical margin (Fig. 232), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 233–235) moderately large; median lobe elongate, constricted in middle portion, apical portion with obtuse apex, face adjacent to paramere with two strongly sclerotized, acutely pointed lamellae curved medially; paramere robust, divided in two fairly long branches separated at base by obtusely angulate arc; apices of branches not reaching apex of median lobe; underside without any sensory peg setae but with two pairs of minute setae.

Length 6.5–6.8 mm.

Type material.— *Quedius gardneri*. The collection of the British Museum (Natural History). London, contains one female specimen under the name of *Q. gardneri*. It is labelled as follows: “Type” (round label with red margin)/ “Lepchajagat, 7000’ Darjeeling, Bengal, J.C.M. Gardner, 13.IX.1929.” / “495” / “*Quedius gardneri* Cam. TYPE” / “M. Cameron Bequest. B.M. 1955-147.” The specimen is in perfect shape. It is hereby designated as the lectotype of *Q. gardneri*; the label “Lectotype *Quedius gardneri* Cameron A. Smetana des. 1984” has been attached to it.

Quedius coeruleus. Coiffait (1977:241) described the species from two males from Bhutan. I was able to study the holotype deposited in the Naturhistorisches Museum in Basel, Switzerland; it is labelled as follows: “Nobding 41 km O Wangdi Ph. 2800 m” / “Nat. Hist. Museum Basel-Bhutan Expedition 1972” / “HOLOTYPE” / “*Quedius* (*Sauridus*) *coeruleus* H. Coiffait 1976”.

The specimen was dissected and the aedoeagus and the tergite and sternite 8 were mounted in Canada Balsam. Except for the different sex, the holotype is in all details identical with the lectotype of *Q. gardneri*. The name *Q. coeruleus* is a junior synonym of *Q. gardneri*; my corresponding determination label was attached to the specimen.

The paratype of *Q. coeruleus* from Dorjula (see Coiffait, l.c.) is deposited in the collection Coiffait, Muséum National d'Histoire Naturelle, Paris, France (not seen).

Geographical distribution.— *Quedius gardneri* is distributed in the eastern Himalaya; it is at present known from one locality in the Darjeeling area and from two localities in Bhutan (Map 26).

Material studied.— 3 specimens.

BHUTAN. Holotype of *Q. coeruleus* (see Type material); Dorjula, 3100 m. 6.VI.72 (HCCC) 1 (see Coiffait 1977:241).

INDIA. *West Bengal*. Lectotype of *Q. gardneri* (see Type material).

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons.— *Quedius gardneri* is a distinctive species, due to the conspicuous sculpture of the basal abdominal tergites (see description), in combination with the narrow head which is strongly narrowed posteriorly behind the eyes, the narrow pronotum which is strongly narrowed anteriorly and the greenish-blue elytra with yellowish pubescence. The aedeagus is quite characteristic, due to the paramere with two apical branches.

The species cannot be confused with any other species of *Quedius* from the Himalayan area.

See under *Raphirus* for some additional information.

57. *Quedius* (subgenus ?) *lineipennis* Cameron

Figs. 236–242; Map 26

Quedius lineipennis Cameron 1932:290

Description.— Piceous-black, head, pronotum and abdomen slightly iridescent, elytra, meso- and metasternum, first two abdominal tergites, base of third tergite, apical portion of fifth tergite and corresponding sternites, and rest of tip of abdomen reddish; labial and maxillary palpi dark testaceous; first four antennal segments piceous with paler apical portions, remaining segments testaceous; legs rufo-testaceous. Head strongly transverse (ratio width: length = 1.52), strongly narrowed posteriorly behind eyes, posterior angles completely rounded; eyes rather large, convex, moderately protruding from lateral contours of head, tempora distinctly shorter than length of eyes seen from above (ratio 0.69); no additional punctures between anterior frontal punctures, posterior frontal puncture almost touching posteromedian margin of eye, two minute punctures on each side near inner margin of eye between anterior and posterior frontal puncture; two rather fine punctures posteromedial of posterior frontal puncture near posterior margin of head; temporal puncture situated slightly closer to posterior margin of head than to posterior margin of eye, one additional setiferous puncture between it and posterior margin of eye; clypeus with extremely fine punctures; surface of head polished, without appreciable microsculpture, however, with sparsely distributed microscopic punctures. Last segment of maxillary palpus distinctly longer than penultimate segment, slightly attenuate basally. Antenna moderately long, segment 3 slightly longer than segment 2, segment 4 slightly longer than wide, segments 5 and 6 as long as wide, outer segments slightly transverse, last segment about as long as two preceding segments combined. Pronotum wider than long (ratio 1.18), only slightly transversely convex, widest at about apical third, strongly narrowed both anteriorly and posteriorly, lateral margins slightly sinuate posteriorly, basal margin subtruncate medially; dorsal and sublateral rows absent; lateral puncture almost touching lateral margin of pronotum; surface of pronotum similar to that of head. Scutellum punctate, punctures unequally spaced. Elytra moderately long, at base only slightly narrower than pronotum at widest point, at suture about as long as, at sides somewhat longer than pronotum at midline (ratio 1.21); each elytron with sutural and discal longitudinal row of punctures, sutural row situated in feebly impressed groove, discal row irregular, epipleuron coarsely punctate, pubescent and with numerous long setae; surface of elytra without appreciable microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible)

bearing whitish apical seam of palisade setae; punctation of abdominal tergites fine and moderately dense, gradually becoming slightly finer toward apex of abdomen, somewhat denser on basal portion of tergites; middle portions of first two tergites impunctate except basally; pubescence black. Front tarsus dilated in both sexes.

Male. First four segments of front tarsus much more dilated than in female. Apical margin of sternite 8 with moderately wide and shallow, arcuate emargination, small triangular area before emargination flattened and smooth, apical margin of sternite laterad of central emargination with long and strong setae (Fig. 236). Both tergite 10 and sternite 9 of genital segment emarginate apically (Figs. 237–238). Aedoeagus (Figs. 239–242) small, median lobe asymmetrical apically, in lateral view with small tooth far below apex; paramere small, wide basally, evenly narrowed, apical portion narrowly incised, with four very long apical setae and two somewhat shorter lateral setae on each side below apex; underside of paramere with two longitudinal rows of sensory peg setae, each row with ten peg setae, gradually becoming larger and paired toward base of paramere. Internal sac as in Fig. 240.

Length 10.0 mm.

Type material.— *Quedius lineipennis* was described from specimens from Burma (Cameron 1932:290). I was able to study two specimens deposited in the collection of the British Museum (Natural History), London. They are labelled as follows: Spec. No. 1 (male): “Type” (round label with red margin)/ “Doherty” (label upside down)/ “Birmah Ruby Mes” / “Fry Coll. 1905.100.” (label upside down)/ “*Quedius lineipennis* Cam. TYPE.” Spec. No. 2 (female): “64412” “Doherty” / “Birmah Ruby M” / “Fry Coll. 1905-100.” / “SYN-TYPE” (round label with blue margin). The male specimen was dissected, and the aedoeagus, sternite and genital segment mounted in Canada Balsam. The specimen is hereby designated as lectotype of *Q. lineipennis*; the label “Lectotype *Quedius lineipennis* Cameron Smetana des. 1983” has been attached to it.

Geographical distribution.— *Quedius lineipennis* is at present known only from the type locality in Burma (Map 26).

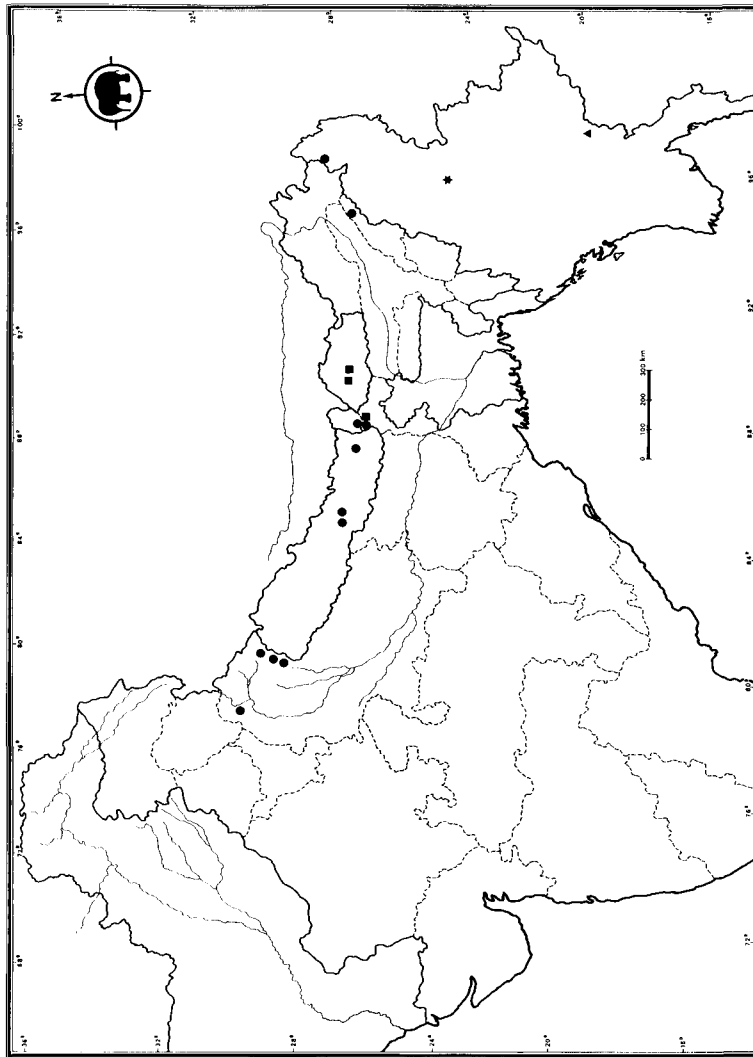
Material studied.— See Type material.

Bionomics.— Nothing is known about the habitat requirements of this species. I suspect that it lives under the bark of dead trees.

Comparisons.— *Quedius lineipennis* is quite easily distinguished by many characters, in particular by the transverse head, its chaetotaxy and the presence of extremely fine punctures on the clypeus, by the shape and chaetotaxy of the pronotum (dorsal and sublateral rows of punctures missing, lateral puncture almost touching lateral margin of pronotum), by the type of punctation of the elytra and the elytral epipleura, and by both the tergite and sternite of male genital segment emarginate apically. It has a rather isolated position within the genus and may require an erection of a separate taxon for it (see also the discussion following the description of *Quedius*).

The surface of the head and pronotum is not completely devoid of microsculpture. Microsculpture of exceedingly fine irregular waves is present, but is difficult to observe.

The setae at the apical margin of male sternite 8 (Fig. 236) were inferred from the large sockets present; the acutal setae on apical portion of the sternite are almost completely missing in the lectotype.



Map 26. Distribution records for: *Q. rugosus* (●); *Q. intricatus* (▲); *Q. gardneri* (■); and *Q. lineipennis* (★).

2. Genus *Indoquedius* Cameron, *stat.nov.*

Quedius subg. *Indoquedius* Cameron 1932:281, 300

Type species.— *Quedius oculatus* Fauvel 1895, designated by Blackwelder 1952:199, by subsequent designation.

Descriptive notes.— The genus *Indoquedius* shares many characters with *Quedius* but it differs in several respects. The head always bears two or three setiferous punctures between the anterior and posterior frontal punctures, situated directly at the median margin of the eye (Fig. 400). Eyes are very large and convex, considerably longer than the tempora. The dorsal surface of head is without microsculpture and is therefore highly polished. On the antenna, the large setae on antennal segments, particularly on those past segment 3, are relatively long and strong (Fig. 401). The penultimate segments of both the maxillary and labial palpus bear numerous strong setae, particularly the penultimate segment of the labial palpus on its ventromedial face. The pronotum is no more than slightly narrowed anteriorly. The dorsal rows of pronotum are each composed of 2 punctures. The dorsal surface of pronotum lacks microsculpture, or, rarely, the microsculpture is present only in the narrow lateral groove. Scutellum is variably punctate. Elytra are variably, simply punctate. Wings are fully developed. First four segments of front tarsus are strongly dilated in both sexes, at least sometimes more so in the males. The seventh (fifth visible) abdominal tergite bears always a whitish apical seam of palisade setae. Male genital segment with tergite 10 and sternite 9 emarginate apically. The aedoeagus, including the parameres, is similarly developed as in the genus *Quedius*; the parameres are fused in one solid sclerite, sometimes divided anteriorly in two branches; the microsetae are absent (Figs. 246, 250, 254, 257, 262, 266, 269). The female genital segment as in Figs. 402 and 403, tergite 10 emarginate apically.

The genus *Indoquedius* is primarily a tropical genus represented by numerous species in the Oriental region. Some of the species reach the warm temperate zone of the Palaearctic region. These species are *e.g.*, *I. juno* Sharp 1878 (comb.nov.) and *I. praeditus* Sharp 1889 (comb.nov.). Eight species of *Indoquedius* are at present known from the Himalayan region.

Ranging and relationships.— This genus was so far considered as a subgenus of *Quedius*. However, the characters discussed above leave little doubt that *Indoquedius* in fact is a separate genus, to some extent intermediate between *Quedius* and *Bolitogyrus*.

Key to species of *Indoquedius*

- 1 Lateral pronotal groove smooth and shiny, without any microsculpture. Anterior angles of pronotum impunctate; dorsal surface of head and pronotum without micropunctuation 2
- 1' Lateral pronotal groove with dense, almost granulose

- microsculpture, opaque. Anterior angles of pronotum finely punctate; dorsal surface of head and pronotum with micropunctuation. Length 10.0 mm.....
- 8. *I. aberrans* Cameron, p. 311
- 2 (1) Large lateral puncture of pronotum situated close to lateral pronotal groove, but distinctly not touching it. Paramere of aedoeagus split into two branches apically (Figs. 244, 248) 3
- 2' Large lateral puncture of pronotum situated very close to lateral pronotal groove, distinctly touching it. Paramere of aedoeagus entire (Figs. 252, 256, 260, 264)..... 4
- 3 (2) Elytra bright metallic blue or greenish-blue. Median lobe of aedoeagus slightly, arcuately widened and then rather abruptly narrowed into apex proper (Figs. 244, 245). Length 7.2–9.0 mm 1. *I. sikkimensis* Cameron, p. 302
- 3' Elytra deep black. Median lobe of aedoeagus evenly, conically narrowed anteriorly (Figs. 248, 249). Length 8.0–9.8 mm.....
- 2. *I. baliyo spec.nov.*, p. 304
- 4 (2') Pronotum and head concolourous, piceous to black..... 5
- 4' Pronotum and head not concolourous: pronotum red and head piceous to black. Length 6.0–7.0 mm.....
- 6. *I. filicornis* (Eppelsheim) (pars), p. 309
- 5 (4) Scutellum, except for narrow impunctate strip along all three margins, with coarse and dense punctuation, intervals between punctures mostly about as large as diameters of punctures. Punctuation of elytra rather dense and coarse, intervals between punctures, at least on area near apex of scutellum, no more than slightly larger than diameters of punctures..... 6
- 5' Scutellum with more or less sparse and fine punctuation, rather wide areas along base and margins impunctate, scutellum sometimes with only a few punctures. Punctuation of elytra rather sparse and less coarse, intervals between punctures distinctly to considerably larger than diameters of punctures 7
- 6 (5) Antennae and legs uniformly rufo-testaceous. Aedoeagus as in Figs. 252–254. Length 7.8–8.7 mm.....
- 3. *I. bipunctatus* Eppelsheim, p. 305
- 6' Antennae dark, with last 2 or 2 1/2 segments yellowish. Meso- and metatibiae darkened, meso- and metafemora slightly darkened. (Male unknown). Length 8.6–8.8 mm 4. *I. oculus* Fauvel, p. 306
- 7 (5') Paramere of aedoeagus wide and rather short, widely rounded at apex and with short attenuate middle portion (Fig. 256). Length 7.5–8.8 mm..... 5. *I. daai spec.nov.*, p. 307

- 7' Paramere of aedoeagus narrow and elongate, narrowly rounded at apex, with long attenuate middle portion or almost parallel-sided (Figs. 260, 264)..... 8
- 8 (7') Aedoeagus large, paramere usually slightly exceeding apex of median lobe, with long attenuate middle portion (Fig. 260). Length 6.8–8.8 mm....6. *I. filicornis* (Eppelsheim) (pars), p. 309
- 8' Aedoeagus distinctly smaller, paramere not quite reaching apex of median lobe, almost parallel-sided (Fig. 264). Length 7.8–8.1 mm..... 7. *I. saathi spec.nov.*, p. 310

Sikkimensis Group

This species group is characterized by the following combination of characters: lateral pronotal groove smooth and shiny, without any microsculpture; anterior angles of pronotum impunctate; dorsal surface of head and pronotum without micropunctations; large lateral puncture of pronotum not touching lateral pronotal groove; paramere of aedaeagus split in two branches apically (Figs. 244, 248).

The group includes two species in the Himalayan region.

1. *Indoquedius sikkimensis* (Cameron) *comb.nov.*

Figs. 243–246; Map 27

Quedius sikkimensis Cameron 1932:294

Quedius akaita Smetana 1977:246 (*syn.nov.*)

Algon cyanipennis Coiffait 1982b:273 (*syn.nov.*)

Description.— Black, elytra dark metallic greenish-blue to dark blue, abdomen iridescent: last segments of both maxillary and labial palpi testaceo-brunneous, antennae gradually becoming paler toward apex, all tarsi more or less paler, rather brunneo-piceous. Head rounded, somewhat wider than long (ratio 1.17); eyes very large and convex, tempora about three times shorter than length of eyes seen from above (ratio 0.35); two or three punctures along inner margin of eye between anterior and posterior frontal puncture; posterior frontal puncture situated close to posteromedian margin of eye, separated from it by distance no larger than diameter of puncture; one additional setiferous puncture between it and posterior margin of head; area behind posterior frontal puncture with numerous fine punctures; surface of head without any microsculpture. Antenna moderately long, hardly thickened toward apex, first three segments with fairly long dark setae; all segments longer than wide, gradually becoming shorter, penultimate segment about twice as long as wide at base, last segment asymmetrically acuminate, somewhat shorter than two preceding segments combined. Pronotum rather short, feebly wider than long (ratio 1.13), broadly rounded basally and slightly narrowed anteriorly, rather strongly transversely convex; lateral groove smooth and shiny, without microsculpture; dorsal rows each with two punctures (occasionally with three punctures unilaterally); sublateral rows each with two fine punctures, posterior puncture situated before or occasionally at level of large lateral puncture; large lateral puncture situated close to lateral pronotal groove, but distinctly not touching it; anterior angles of pronotum impunctate; surface of pronotum without any microsculpture. Scutellum large, punctate. Elytra moderately long, at base almost as wide as pronotum at widest point, at suture about as long as, at sides feebly longer (ratio 1.13) than pronotum at midline; punctation and pubescence moderately coarse and dense, surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation and pubescence of abdominal tergites finer and denser than that of elytra, gradually becoming slightly sparser toward apex. First four segments of front tarsus equally dilated in both sexes.

Male. Apical margin of sternite 8 with rather shallow and wide, arcuate emargination (Fig. 243), small triangular area before emargination flattened and smooth. Aedeagus (Figs. 244–246) moderately large; median lobe slightly, arcuately widened toward apex and then rather abruptly narrowed into apex proper. Paramere distinctly not reaching apex of median lobe, rather wide basally but narrowed toward apex, divided in two long branches, each branch with two minute setae apically; underside of each branch in apical portion with numerous sensory peg setae forming an elongate group; internal sac simple, with central sclerite covered densely with scale-like structures.

Length 7.2–9.0 mm.

Type material.—*Indoquedius sikkimensis*. The original material in the collection of the British Museum (Natural History), London, contains two male specimens under the name *Quedius sikkimensis*. They are labelled as follows: Spec. No. 1 “Type” (round label with red margin)/ “Sikkim:Lachung. 9–10,000 ft. III-IV.1920.H. Stevens.” / “H. Stevens. Brit. Mus. 1922-307.” / “Q. sikkimensis Cam. TYPE”. Spec. No. 2 “Paratype” (round label with yellow margin)/ “Sikkim:Lachung. 9–10,000 ft. III-IV.1920. H. Stevens.” / “Q. sikkimensis Cam. COTYPE” / “M. Cameron. Bequest. B.M. 1955-147”. The specimens are conspecific. The first male bearing the label “Type” was dissected and the sternite of pygidium and the aedeagus were mounted in Canada Balsam; this specimen is hereby designated as the lectotype of *I. sikkimensis*; the label “LECTOTYPE *Quedius sikkimensis* Cameron A. Smetana des. 1984” has been attached to it.

Indoquedius akalita. The male holotype, deposited in the Naturhistorisches Museum in Basel, Switzerland, is labelled as follows: “Thimphu 16.4-27.4.2400m” / “Nat. Hist. Museum Basel-Bhutan Expedition 1972” / “HOLOTYPE *Quedius akalita* A. Smetana 1975”. The specimen cannot be specifically distinguished from the holotype of *I. sikkimensis*. The name *I. akalita* is a junior synonym of *I. sikkimensis*. My corresponding determination label has been attached to this specimen.

Indoquedius cyanipennis. Coiffait (l.c.) described the species from four specimens from Bhutan. I was able to study two specimens deposited in the Naturhistorisches Museum in Basel, Switzerland. The male holotype is labelled as follows: “Batbalithan 10.XII. (Bumthan) 2600 m” / “Bhutan-W. Roder & L. Caminada 77” / “TYPE” (red label)/ “Algon cyanipennis H. Coiffait 1982”. The male paratype bears two labels identical with the two first labels of the holotype, and a label “PARATYPE”. Neither of the specimens can be distinguished from the lectotype of *Indoquedius sikkimensis* and the name *A. cyanipennis* is a junior synonym of *I. sikkimensis*; my determination label “*Indoquedius sikkimensis* Cam. Smetana det. 1983” has been attached to each specimen.

Geographical distribution.—*Indoquedius sikkimensis* is known from Arunachal Pradesh, Bhutan and Sikkim (Map 27).

Material studied.— 105 specimens.

BHUTAN. Thimphu, X. 1980, Rougemont (GDRC, ASCC) 3.

INDIA. *Arunachal Pradesh*. Mishmi Hills, Delai Valley, ChaChe, 22.XI.36, M. Steele (BMNH) 1. *Sikkim*. Lachung, 9000-10,000', III.IV.1920, H. Stevens (ASCC, BMNH, CNCC) 93; same, 8500-9500', 28.II-6.III.1920, H. Stevens (BMNH) 3.

Bionomics.— No details are known about the habitat requirements of this species.

Recognition.— *Indoquedius sikkimensis* can easily be recognized by the colouration. It is the only species of the genus in the Himalayan area with metallic greenish-blue or blue elytra.

Cameron (1932:294), oddly enough, failed to recognize this species as an *Indoquedius*, assigned it to the subgenus *Raphirus* and compared it to *Q. himalayicus*.

2. *Indoquedius baliyo* spec.nov.

Figs. 247–250: Map 27

Description.— Similar to *I. sikkimensis* but different as follows: form in general larger and more robust; entirely (including elytra) deep black; antennal segments 4–11 testaceous. Head slightly more transverse (ratio width: length = 1.19). Pronotum more voluminous, wider and usually more distinctly narrowed anteriorly. Scutellum larger, more densely and coarsely punctate. Elytra more coarsely and densely punctate. Abdomen similar to that of *I. sikkimensis*, punctuation of tergites much finer than that of elytra.

Male. First four segments of front tarsus hardly more dilated than those of female. Apical margin of sternite 8 with very shallow, inconspicuous arcuate emargination (Fig. 247), small triangular area before emargination flattened and smooth. Aedocagus (Figs. 248–250) similar to that of *I. sikkimensis* but larger; median lobe evenly, conically narrowed toward apex, paramere distinctly not reaching apex of median lobe, strongly conically narrowed and divided into two very long, closely approximate branches, each branch with two fine short setae apically; underside of each branch with many sensory peg setae forming a long group; internal sac similar to that of *I. sikkimensis*, quite characteristic if evaginated.

Length 8.0–9.8 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL (Prov. Bagmati) Malemchi, 2800 m. 27.IV.81 Löbl & Smetana”. In the collection A. Smetana, Ottawa, Canada.

Paratypes (16): NEPAL: same data as holotype (CNCC) 4; Prov. Bagmati, Gul Bhanjyang, 2600 m, 6.IV.81; Löbl & Smetana (CNCC, MHNG) 3; Prov. Bagmati, Dobate Ridge NE Barahbise, 2700 m, 7.V.81, Löbl & Smetana; same, 2800 m, 2.V.81, Löbl & Smetana (CNCC, MHNG) 3; “Umg. Shermathang Helambu, Z. Nepal lg. H. Franz 1980 (HFCC) 1”; Bhalukop, 2800 m, IV.84, P. Morvan (ASCC, GDRC) 2. Rasuwa Distr., Induwa Khola Valley, Forest Camp, 1950 m, 13.IV.85, A. Smetana (ASCC) 1. INDIA: West Bengal: Darjeeling Dist., Rimbick-Ramam, 1950–2450 m, 19.V.75, W. Wittmer (NHMB) 1; Darjiling, 7000', 10.VIII.09, C. Paiva (FMNH) 1.

Geographical distribution.— *Indoquedius baliyo* is distributed from western Nepal to the Darjeeling area in West Bengal (Map 27).

Bionomics.— The specimens from Gul Bhanjyang were taken by sifting leaf litter at bases of large oak trees, those from near Malemchi were taken by sifting sap-soaked leaf litter around a freshly storm felled large oak tree; those from Dobate Ridge were taken by sifting moist and moldy layers of leaf litter in a semideciduous broadleaved forest.

Comparisons.— *Indoquedius baliyo* can easily be distinguished from *I. sikkimensis* by the colouration alone. For comparison with *I. aberrans* see the latter species.

Etymology.— The specific name is the Nepali adjective baliyo (strong); it refers to the large and rather robust form of the species.

Bipunctatus Group

This species group is characterized by the following combination of characters: lateral pronotal groove smooth and shiny, without any microsculpture; anterior angles of pronotum impunctate; dorsal surface of head and pronotum without micropunctation; large lateral puncture of pronotum touching lateral pronotal groove; paramere of aedoeagus entire (Figs. 252, 256, 260, 264).

The group includes five species in the Himalayan area.

3. *Indoquedius bipunctatus* (Eppelsheim) comb. nov.

Figs. 251–254; Map 27

Quedius bipunctatus Eppelsheim 1895b:391; Cameron 1932:301

Description.— Picous-black to black, abdomen iridescent; palpi, antennae and legs uniformly rufo-testaceous. Head rounded, wider than long (ratio 1.22); eyes very large and convex, tempora three times shorter than length of eyes seen from above (ratio 0.33); two punctures along inner margin of eye between anterior and posterior frontal puncture; posterior frontal puncture situated quite close to posteromedian margin of eye, usually almost touching it; one additional setiferous puncture between it and posterior margin of head; surface of head without any microsculpture. Antenna moderately long, hardly thickened toward apex, first three segments with long dark setae; all segments longer than wide, gradually becoming shorter, penultimate segment at least twice as long as at base wide, last segment asymmetrically acuminate, elongate, slightly shorter than two preceding segments combined. Pronotum short, feebly wider than long (ratio 1.10), broadly rounded basally and only feebly narrowed anteriorly, rather strongly transversely convex; lateral groove fine, smooth and shiny, without microsculpture; dorsal rows each with two punctures; sublateral rows each with no more than two punctures, posterior puncture, if present, at about level of large lateral puncture; large lateral puncture situated very close to lateral groove, distinctly touching it; anterior angles of pronotum impunctate; surface of pronotum without any microsculpture. Scutellum, except for narrow impunctate strip along all three margins, with coarse and dense punctation, intervals between punctures mostly about as large as diameters of punctures. Elytra rather short, at base almost as wide as pronotum at widest point, at suture slightly shorter (ratio 0.89), at sides about as long as pronotum at midline; punctation and pubescence rather dense and coarse, intervals between punctures, at least on area near apex of scutellum, no more than slightly larger than diameters of punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation and pubescence of tergites much finer than that of elytra, slightly denser on bases of tergites and in general gradually becoming slightly sparser toward apex of abdomen. Front tarsus equally dilated in both sexes.

Male. Apical margin of sternite 8 with rather shallow, wide arcuate emargination (Fig. 251), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 252–254) moderately large; median lobe strongly narrowed into obtuse apex. Paramere is slightly exceeding apex of median lobe, rather wide basally but strongly narrowed to form narrow and very elongate, subparallel-sided apical portion, bearing four fine apical setae and one stronger setae at each lateral margin below apex; underside with numerous sensory peg setae forming irregular elongate group. Internal sac with central sclerite covered with scale-like structures and bearing a pair of spur-like structures in each apico-lateral corner.

Length 7.8–8.7 mm.

Type material.— Eppelsheim (l.c.) described the species from two specimens. I was able to study one male specimen deposited in the Eppelsheim collection in the Naturhistorisches Museum in Wien, Austria. It is labelled as follows: pink square label/ “Parasnath Gebg.” / “bipunctatus Epp. India orient. leg. Waagen.” / “Je ne l’ai pas” / “c. Eppelsh. Steind. d.” / “Typus” (red label). The specimen was dissected, the aedaeagus and 8th sternite mounted in Canada Balsam, 8th tergite and genital segment were glued to the plate with beetle. Left antenna, except for two basal segments, left hind tarsus and middle right tibia and tarsus are missing and the right elytron has a big triangular hole. The specimen is hereby designated as the lectotype of *I. bipunctatus*; the label “Lectotype *Quedius bipunctatus* Eppelsheim Smetana des. 1983” has been attached to it.

Geographical distribution.— *Indoquedius bipunctatus* is distributed in the western portion of the Himalayan range, in Himachal Pradesh and in northern Uttar Pradesh; also known from Parashath Hills in Bihar (Map 27).

Material studied.— 8 specimens.

INDIA. No further data (FMNH) 1. (See the discussion). *Himachal Pradesh*. Shatingri, Mandi, 6000'. H.G. Champion (BMNH) 1. *Uttar Pradesh*. Kumaon, Haldwani Distr., H.G. Champion (ASCC, BMNH) 5.

Bionomics.— No details are known about the habitat requirements of this species.

Comparisons.— There is one female specimen of this species in the Bernhauer collection in the Field Museum of Natural History, Chicago, Illinois, labelled as follows: “India orient. leg. Waagen” / “bipunctatus Epp.” / “Cotypus ex Coll. Waagen ded. Bang Haas” / “grandiceps Kr. vgl. m. Typus in Coll. Kraatz” / “praeditus Shp. vgl. m. Typ. Lond. dieser m. etwas dunk. Fühl. u. Beinen” / “Chicago NH Mus. M. Bernhauer Collection”. This specimen is most likely the second specimen of the original series.

Indoquedius praeditus is another species of this group, occurring in Japan; it differs, in addition to the differently shaped aedoeagus, by the black antennae with gradually paler tip, and by black legs with slightly paler tarsi. As a matter of fact, *I. bipunctatus* resembles much more another Japanese species, *I. juno* with which it shares the same colouration. However, the latter differs, among other characters, by the differently shaped aedoeagus with the paramere divided into two long branches.

4. *Indoquedius oculatus* (Fauvel) *comb.nov.*

Map 27

Quedius oculatus Fauvel 1895:274; Cameron 1932:300

Description.— In all external characters extremely similar to *I. bipunctatus*; different only by slightly differently coloured appendages and in general slightly narrower and almost parallel-sided pronotum. Antennae dark, with last 2 or 2 1/2 segments yellowish. Middle and hind tibiae darkened, middle and hind femora slightly darkened.

Male. Unknown.

Length 8.6–8.8 mm.

Type material.— The Fauvel collection in the Institut Royal des Sciences Naturelles, Bruxelles, Belgique, contains four female specimens under the name *Q. oculus*. They are labelled as follows: Spec. No. 1: “Carin Asciiiii Ghecu 1400–1500 m. L. Fea. III-IV.88” / “oculatus Fvl.” / “Syntype” / “R.I.Sc. N.B. 17.479 Quediini Coll. et det. A. Fauvel”. Spec. No. 2: “Carin Asciiiii Ghecu 1400–1500 m. L. Fea. III-IV.88” / “Syntype” / “Coll. et det. A. Fauvel Quediini oculatus Fauv. R.I.Sc. N.B. 17.479”. Spec. No. 3: “Carin Asciiiii Ghecu 1400–1500 m. L. Fea. III-IV.88” / “Carin Ghecu 900–1100 m. Fea” / “Syntype” / “Coll. et det. A. Fauvel Quediini oculatus Fauv. R.I.Sc. N.B. 17.479”. Spec. No. 4: “Tonkin” / “Syntype” / “Coll. et det. A. Fauvel Quediini oculatus Fauv. R.I.Sc. N.B.17.479”.

All specimens are not conspecific. Specimen No. 2 seems to be identical with the holotype of *I. filicornis*. Specimen No. 3 is identical with specimen No. 1 and specimen No. 4 seems to belong to yet another species.

The first specimen is hereby designated as the lectotype of *I. oculus*; the label “Lectotype Quediini oculatus Fauv. Smetana des. 1983” has been attached to it.

Geographical distribution.— *Indoquediini oculatus* is known at present only from Burma (Map 27).

Material studied.— 2 specimens.
BURMA. See Type material.

Bionomics.— Nothing is known about the habits of this species.

Recognition.— *Indoquediini oculatus* can be distinguished from *I. bipunctatus* at present only by the few differences in the colouration of the appendages given in the key and the description. The status of this species cannot be properly assessed until the males and their aedaeagi are available for study.

Cameron (1932:300) described the emargination of the male sternite 8 of this species as “apex broadly but not deeply emarginate, with triangular smooth impression in front of it”. This is apparently a translation of Fauvel’s (l.c.) description “segmento 7° ventrali apice late parum profunde emarginato, post incisuram triangulariter impresso, laevi”.

I have no information about the whereabouts of the male specimen of Fauvel’s original series. The specimen must come from “Carin Cheba” (see Fauvel 1895:274).

5. *Indoquediini daai spec.nov.*

Figs. 255–258; Map 28

Description.— Dark brownish-piceous to piceous black, apical margins of abdominal tergites usually paler; palpi, antennae and legs rufo-testaceous, antennae gradually becoming paler toward apex. Head rounded, wider than long (ratio 1.27); eyes very large and convex, tempora three times shorter than length of eyes seen from above (ratio 0.31); two punctures (occasionally three unilaterally) along inner margin of eye between anterior and posterior frontal puncture; posterior frontal puncture situated quite close to posteromedian margin of eye, usually touching it; one additional setiferous puncture between it and posterior margin of head; surface of head without any microsculpture. Antenna moderately long, hardly

thickened toward apex, first three segments with long setae; all segments longer than wide, gradually becoming shorter, penultimate segment about twice as long as wide at base, last segment asymmetrically acuminate, elongate, slightly shorter than two preceding segments combined. Pronotum short, feebly wider than long (1.13), broadly rounded basally and slightly narrowed anteriorly, rather strongly transversely convex; lateral groove very fine, smooth and shiny, without microsculpture; dorsal rows each with two punctures; sublateral rows each with no more than two very fine punctures (usually with just one puncture at anterior margin of pronotum), posterior puncture, if present, at about level of large lateral puncture; large lateral puncture situated quite close to lateral groove, distinctly touching it; anterior angles of pronotum impunctate; surface of pronotum without any microsculpture. Scutellum with punctation sparser and less dense than that of *I. bipunctatus*, wide areas along all three margins impunctate. Elytra rather short, at base about as wide as pronotum at widest point, at suture feebly shorter (ratio 0.93), at sides about as long as pronotum at midline; punctation and pubescence rather sparse and only moderately coarse, intervals between punctures distinctly larger than diameters of punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation and pubescence of tergites much finer than that of elytra, slightly denser on bases of tergites and in general gradually becoming slightly sparser toward apex of abdomen, occasionally tergites almost impunctate in about apical fourth. Front tarsus equally dilated in both sexes.

Male. Apical margin of sternite 8 with very shallow and moderately wide, arcuate emargination (Fig. 255), small triangular area before emargination flattened and smooth. Aedoeagus (Figs. 256–258) moderately large; median lobe relatively wide, apical portion almost parallel-sided and apex broadly arcuate. Paramere wide and rather short, about reaching apex of median lobe, widely rounded at apex and with short attenuate middle portion; four rather fine apical setae and two slightly finer setae at each lateral margin just below apex; underside with numerous sensory peg setae situated as in Fig. 257. Internal sac with central sclerite covered with sharp spine-like structures.

Length 7.5–8.8 mm.

Type material.— Holotype (male) and allotype (female): “INDE Kumaon (UP) Bhim Tal env. 1500 m 1. I. Löbl 4.X.79”. In the Muséum d’Histoire Naturelle de Genève, Genève, Switzerland.

Paratypes (8): INDIA: Uttar Pradesh: same data as holotype (ASCC) 1; Chakrata, Mohna, 5000', 2.V.21, M. Cameron (BMNH) 1; Mussoorie, Arni Gad, 28.V.21, M. Cameron (BMNH, CNCC) 4. Himachal Pradesh: Simla Hills, Matiana, 7900', IX.1921, M. Cameron (BMNH) 1; Dhelu, Mandi, 4500', H.G. Champion (BMNH) 1.

Geographical distribution.— *Indoquedius daai* is distributed in the western portion of the Himalayan range, in Himachal Pradesh and in Uttar Pradesh (Map 28).

Bionomics.— Little is known about the habitat requirements of this species. The three specimens from Bhim Tal were taken on an eastern slope at the edge of a small forest by sifting fallen leaves and debris among grasses.

Comparisons.— *Indoquedius daai* is in all external characters very similar to *I. bipunctatus*; however, it can be distinguished by the characters used in the key, and by the distinctly differently shaped aedoeagus. Both species occur in the western portion of the Himalayan range and seem to be largely sympatric.

Indoquedius daai is also very similar to *I. filicornis*; see the description, and comparison and variation under the latter for the distinguishing characters. Unlike *I. filicornis*, *I. daai* seems to be rather constant in colouration.

Etymology.— The specific name is the Nepali noun daai (older brother) in apposition; it refers to the close similarity and relationship of this species to both *I.*

bipunctatus and *I. filicornis*.

6. *Indoquedius filicornis* (Eppelsheim) *comb.nov.*

Figs. 259–262, 400–403; Map 28

Quedius filicornis Eppelsheim 1895a:55; Cameron 1932:301

Quedius conicus Champion 1922:33; Cameron 1932:301

Description.— In all external characters very similar to *I. daai* but different as follows: colouration similar, however, middle and hind femora often more or less darkened and rarely apical half to 2/3 of segment 5 and apex of abdomen yellowish-red; or pronotum entirely pale red. Scutellum in general less punctate, often with only a few punctures. Elytra in general slightly narrower, with punctation slightly sparser and more superficial. Abdomen with apical portions of tergites more extensively and more often impunctate.

Male. Emargination of sternite 8 similar to that of *I. daai* (Figs. 259). Aedoeagus (Figs. 258, 261) slightly more elongate than that of *I. daai*; median lobe with apex more arcuately rounded. Paramere usually slightly exceeding apex of median lobe, longer and narrower than that of *I. daai*, narrowly rounded at apex and with long attenuate middle portion; four rather fine apical setae and one (occasionally two) slightly finer seta at each lateral margin below apex; underside with less numerous sensory peg setae near apex extended backward along both lateral margins (Figs. 260–262). Internal sac similar to that of *I. daai*.

Length 6.0–8.8 mm.

Type material.— *Indoquedius filicornis*. The Eppelsheim collection in the Naturhistorisches Museum, Wien, Austria, contains one female specimen (holotype - see Eppelsheim 1895:55) under the name *Q. filicornis*. It is labelled as follows: pink square label/ “Himalaja Sikkim”/ “88”/ “filicornis Epp.” / “c. Eppelsh. Steind.d.”/ “Typus” (white label)/ “Typus” (red label). The specimen was received with head and thorax broken off and glued back; only four basal segments of each antenna are present.

Indoquedius conicus. The collection of the British Museum (Natural History), London, contains one male specimen (holotype) under the name *Q. conicus*. It is labelled as follows: “♂” / “Type H.T.” (round label with red margin)/ “Ranikhet, Kumaon, H.G.C.”/ “Brit. Mus. 1922–71” / “Quedius (Raphirus) conicus Champ.” (printed label)/ “Quedius (Raphirus) conicus Champ.” (handwritten label)/ “E.M.M. 1922– det. G.C.C.”. The specimen cannot be specifically distinguished from the holotype of *I. filicornis*; the name *I. conicus* is a junior synonym of *I. filicornis*.

Geographical distribution.— *Indoquedius filicornis* is widely distributed, from Uttar Pradesh in the west through Nepal to Sikkim (Map 28).

Material studied.— 54 specimens.

INDIA. *Sikkim*. See Type material. *Uttar Pradesh*. Kumaon: Chaubattia nr. Ranikhet, about 1800 m, 12-13.X.79, I. Löbl (CNCC, MHNG, ASCC) 7; same 1950 m, 14.X.79, I. Löbl (MHNG) 2; Rangarh, about 2000 m, 9.X.79, I. Löbl (ASCC, CNCC, MHNG) 11; Rangarh, crest, 2250 m, 9.X.79, I. Löbl (MHNG) 2. Garhwal: au-dessus Joshimath, 2100 m, 27.X.79, I. Löbl (MHNG) 1.

NEPAL. *Nuwakot Distr.* Malemchi, 2800 m, 14.IV.81, Löbl & Smetana (ASCC, CNCC, MHNG) 9; Malemchi Khola below Malemchi, 2100 m, 15.IV.81, Löbl & Smetana (ASCC) 1. *Khandbari Distr.* Forest above Ahale, 2400 m, 25.III.82, A. & Z. Smetana (ASCC) 1; Pass NE Mangmaya, 2300 m, 6.IV.84, Smetana & Löbl (ASCC) 1; Forest S Mansingma, 2200 m, 11.IV.84, Smetana & Löbl (ASCC) 2; Induwa Khola Valley, 2000 m, 16.IV.84, Smetana & Löbl (ASCC, CNCC, MHNG) 4; same, 2100 m, 17.IV.84.; same 2150 m, 18.IV.84.; all Smetana & Löbl (ASCC, CNCC, MHNG) 5. *Manang Distr.* Marsyandi below Bagarchhap, 2100 m, 12.IV.80, Martens & Ausobsky (SBMF) 1. *Mustang Distr.* nr. Lethe, 2460–2600 m,

30.IV-1.V.80, Martens & Ausobsky (CNCC, SBMF) 3; same, 2550 m, 2.X.83, Smetana & Löbl (ASCC) 1. *Rasuwa Distr.* 1.5 km NE Bhargu, 12.V.85, A. Smetana (ASCC) 1.

Bionomics.— Specimens of *I. filicornis* were collected at elevations between 1800 and 2600 m, mostly by sifting old vegetation, debris and fallen leaves along old stone walls around fields, along edges and in clearings in forests by sifting fallen leaves, occasionally also in floor litter in *Pinus excelsa* forests.

Comparisons and variations.— *Indoquedius filicornis* is in all external characters quite similar to *I. daai*; the distinguishing characters given in the description are subject to some variability and may not be always reliable. However, both species are easily distinguished by the differences in the shape of the aedoeagus which are quite constant.

Almost all specimens with darkened femora came from the western portion of the distributional range (Uttar Pradesh); the specimens with yellowish-red tip of abdomen came from central Nepal and have all uniformly rufo-testaceous legs. The specimens with pale red pronotum are at present known only from Induwa Khola valley in eastern Nepal; they were more abundant there than specimens with the body entirely black.

7. *Indoquedius saathi* spec. nov.

Figs. 263–266; Map 28

Description.— In all external characters extremely similar to specimens of *I. filicornis* with entirely black body and entirely rufo-testaceous legs, and different mainly by differently shaped aedoeagus. Elytra slightly shorter than in average specimens of *I. filicornis*, at suture distinctly (ratio 0.81), at sides feebly (ratio 0.92) shorter than pronotum at midline.

Male. Apical margin of sternite 8 with shallow arcuate emargination similar to that of *I. filicornis* (Fig. 263). Aedoeagus (Figs. 264–266) similar to that of *I. filicornis* but distinctly smaller; paramere smaller and narrower, not quite reaching apex of median lobe, with middle portion almost parallel-sided; four rather fine apical setae and two unequally long setae at each lateral margin slightly below apex (in one specimen one additional, minute seta present unilaterally); underside with about 15 sensory peg setae forming a rather solid apical group, not extended backward along lateral margins. Internal sac similar to that of *I. daai* and *I. filicornis* (Figs. 258, 261).

Length 7.8–8.1 mm.

Type material.— Holotype (male) and paratype (male): “INDIA Meghalaya Khasi Hills 25 or 30.X.78 Shillong, 1850–1950 m Besuchet & Löbl”. Holotype (date 25.X.78) in the Muséum d’Histoire Naturelle de Genève, Genève, Switzerland; paratype in my collection (ASCC).

Geographical distribution.— *Indoquedius saathi* is at present known only from the type locality in Khasi Hills in the state of Meghalaya of India (Map 28).

Bionomics.— The two specimens of the original series were taken on Shillong Peak by sifting forest floor litter.

Comparisons.— *Indoquedius saathi* can be distinguished positively from *I. filicornis* only by the differently shaped aedoeagus. It probably is endemic to the Khasi Hills, separated from the main Himalayan range.

Etymology.— The specific name is the Nepali noun *saathi* (friend). It refers to the close similarity and relationship of this species to *I. filicornis*.

Aberrans Group

This species group is characterized by the following combination of characters: lateral pronotal groove with dense, almost granulate microsculpture, opaque; anterior angles of pronotum finely punctate; dorsal surface of head and pronotum with micropunctuation; paramere of aedeagus entire (Fig. 268).

The group includes one species in the Himalayan region.

8. *Inoquedius aberrans* (Cameron) *comb.nov.*

Figs. 267–269; Map 28

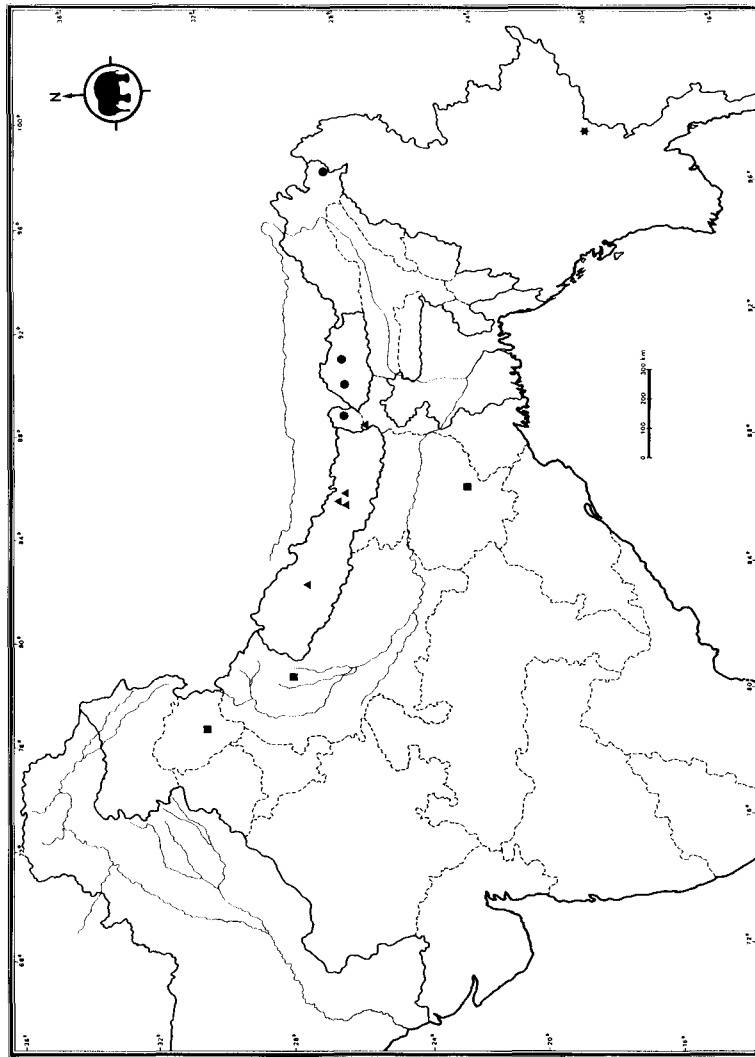
Quedius aberrans Cameron 1932:299

Description.— Head and pronotum dark brunneo-piceous, clytra reddish-yellow, abdomen brown, slightly iridescent; both maxillary and labial palpi brownish-piceous, with last segments paler, antennae piceous, gradually becoming yellowish toward apex, legs testaceo-brunneous with slightly darkened femora (see comparisons). Head rounded, slightly wider than long (ratio 1.11); eyes very large and convex, tempora almost three times shorter than length of eyes seen from above (ratio 0.39); two punctures along inner margin of eye between anterior and posterior frontal puncture; posterior frontal puncture situated close to posteromedian margin of eye, separated from it by distance no larger than diameter of puncture; one additional setiferous puncture between it and posterior margin of head; area behind posterior frontal puncture with numerous fine punctures; surface of head without any microsculpture, but with scattered microscopic punctures. Antenna fairly long, hardly thickened toward apex, first three segments with rather long dark setae; all segments much longer than wide, gradually becoming shorter, penultimate segment almost three times as long as at base wide, last segment asymmetrically acuminate, only slightly longer than penultimate segment. Pronotum relatively narrow, as long as wide (seemingly longer than wide), broadly rounded basally and parallel-sided, moderately transversely convex; lateral groove with dense, almost granulate microsculpture, opaque; dorsal rows each with two punctures; sublateral rows each with two punctures, posterior puncture situated slightly before level of large lateral puncture; large lateral puncture situated very close to lateral pronotal groove, distinctly touching it; surface of pronotum without any microsculpture, but with scattered microscopic punctures becoming coarser on anterior angles, anterior angles therefore finely punctate. Scutellum very large, entire surface densely punctate and pubescent. Elytra at suture feebly longer (ratio 1.05), at sides somewhat longer (ratio 1.23) than pronotum at midline; punctuation and pubescence dense, interspaces between punctures no more than slightly larger than diameters of punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctuation and pubescence of abdominal tergites dense but distinctly finer than that on elytra, gradually becoming finer and sparser toward apex of abdomen.

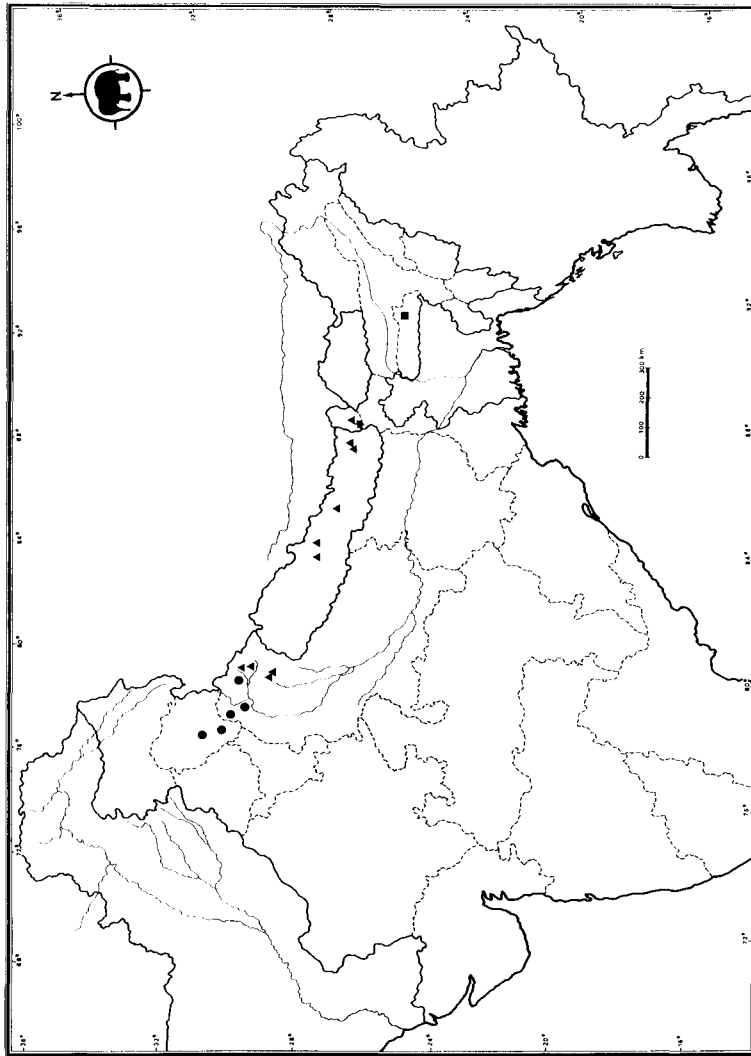
Male. First four segments of front tarsus strongly dilated. Apical margin of sternite 8 with wide and not deep, arcuate emargination (Fig. 267), triangular area before emargination flattened and smooth. Aedeagus (Figs. 268, 269) large and elongate; median lobe slightly attenuate in middle portion, narrowed into long, obtusely acute apex. Paramere very narrow and elongate, not reaching apex of median lobe, narrowly spatulate apically; with four small apical setae and a pair of slightly stronger setae at each lateral margin below apex; underside with only two sensory peg setae below apex.

Length 10.0 mm.

Type material.— The collection of the British Museum (Natural History), London, contains one male specimen (holotype) under the name *Q. aberrans*. It is labelled as follows: “Type” (round label with red margin)/ “Sikkim: Gopaldhara,



Map 27. Distribution records for: *Indoleptus sikkimensis* (●); *I. balfyo* (▲); *I. bipunctatus* (■); and *I. oculatus* (★).



Map 28. Distribution records for: *Indoquecius laai* (●); *I. filicornis* (▲); *I. saathi* (■); and *I. aberrans* (★).

Rungbong Vall. H. Stevens." / "H. Stevens. Brit. Mus. 1922-307." / "Quedius aberrans Cam. TYPE".

The specimen was dissected, the sternite 8 and the aedoeagus were mounted in Canada Balsam, and the genital segment on plate with beetle.

Geographical distribution.— *Indoquedius aberrans* is at present known only from the type locality in Sikkim (Map 28).

Material studied.— Holotype.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons and variations.— *Indoquedius aberrans* can easily be distinguished from both *I. sikkimensis* and *I. baliyoí*, in addition to the distinctive aedoeagus, mainly by the relatively narrow pronotum with lateral groove microsculptured and therefore opaque, by the anterior angles finely punctate and by the longer and densely punctate elytra.

The holotype of this species is a teneral specimen; the colouration described above is therefore certainly atypical. I am reasonably sure that *I. aberrans* is in fact black with black antennae becoming gradually yellowish toward apex, and with piceous-black legs with paler tarsi and possibly also tibiae.

3. Genus *Bolitogyrus* Chevrolat

Bolitogyrus Chevrolat 1842:641; Blackwelder 1952:115

Cyrtothorax Kraatz 1858:336; Fauvel, 1878:163; Cameron 1932:277; Scheerpeltz 1974:175–192.

Type species of *Bolitogyrus*: *Bolitogyrus cribripennis* Chevrolat 1842 (= *B. buphthalmus* (Erichson 1840)), designated by Chevrolat (l.c.), by monotypy.

Type species of *Cyrtothorax*: *Quedius buphthalmus* Erichson 1840, designated by Lucas 1920:222, by subsequent designation.

Descriptive notes.— The genus *Bolitogyrus* shares many characters with *Quedius* but it differs in several respects. The head always bears two or three setiferous punctures between anterior and posterior frontal punctures situated directly at median margin of eye. The eyes are always very large and convex, considerably longer than the tempora. The frons behind the antennal insertions bears a V-shaped impression. The dorsal surface of the head lacks microsculpture and is therefore highly polished. On the antenna the first five segments lack the fine and dense pubescence and the large antennal setae, particularly those past segment 3, are relatively long and strong. The pronotum is no more than slightly narrowed anteriorly and the dorsal rows of pronotum are each reduced to just one puncture situated close to the anterior margin of pronotum. Posterolateral and basal margins of pronotum are strongly and abruptly explanate. The dorsal surface of pronotum lacks microsculpture and is highly polished. Scutellum is punctate. Elytra are more or less coarsely and usually to a variable extent irregularly punctate. Wings are fully developed. The first four segments of the front tarsus are strongly dilated, more so in the males. The middle tibia is not spinose on its lateral face. The seventh (fifth

visible) abdominal tergite bears always a whitish apical seam of palisade setae. The female tergite 8 (sixth visible) bears usually a deep and narrow median notch. The male genital segment has tergite 10 rounded apically (Fig. 271) and sternite 9 emarginate or subemarginate apically (Fig. 272). The aedoeagus, including the parameres, is similarly developed as in the genus *Quedius*; the parameres are fused in one solid sclerite (Fig. 274).

The genus *Bolitogyrus* is a tropical genus represented by numerous species in the tropics of both the Old and New Worlds.

One species of *Bolitogyrus* is at present known from the Himalayan region (see taxonomic notes following *B. vulneratus*).

Comparisons and variations.— Some species of the genus *Indoquedius* (particularly those from the Sikkimensis-Group) resemble in general habitus the species of the genus *Bolitogyrus*, but they differ by a number of characters (see the key and the respective descriptions).

Blackwelder (1952:115) considered the name *Cyrtothorax* as a junior synonym of *Bolitogyrus* and the latter name was subsequently used for this genus by Hammond (1984:205). The name *Bolitogyrus* was first published (as a *nomen nudum*, since the only included species "*B. cribripennis* Chevrolat" was not valid) by Dejean (1837:76) in his catalogue. Later on Chevrolat (1842:641) stated under *Bolitogyrus* that the species *B. cribripennis* he named (no description was ever published) was sent to Erichson, who declared it identical with his "*Quedius bupthalmus*" (= *Cyrtothorax bupthalmus* (Erichson 1840)). Based on the above statement of Chevrolat, Blackwelder (l.c.) attributed the genus *Bolitogyrus* to Chevrolat, argued that the above Chevrolat's statement validated the name *Bolitogyrus* and consequently put the junior name *Cyrtothorax* in synonymy with *Bolitogyrus*. This concept was later followed by Hammond (1984:205).

The genus *Bolitogyrus* badly needs a modern revision, based on secondary sexual characters of the species and the shapes of their aedoeagi. The key to all known species of *Bolitogyrus* presented by Scheerpeltz (1974:176–183) is based extensively on the colouration of the body; yet the colour may distinctly vary within one species, as even my limited material seems to indicate (see also the taxonomic notes following *B. vulneratus*).

1. *Bolitogyrus vulneratus* (Fauvel) (*comb.nov.*)

Figs. 270–274; Map 29

Cyrtothorax vulneratus Fauvel 1878:165; Cameron 1932:277

Description.— Piceous-black, abdomen slightly iridescent, narrowly explanate margins of pronotum rufo-testaceous, each elytron with obliquely transverse, rufo-testaceous spot slightly constricted toward lateral elytral margin and connected via deflexed portion of elytron with similarly coloured, small humeral spot; medioapical angle of elytron rufo-testaceous, apical margin narrowly, lateroapical angle of elytron more broadly testaceous; apical margins of abdominal pleurites indistinctly paler; both maxillary and labial palpi testaceous; antennae piceous, first segment pale testaceous with apex slightly darkened, segments 2–5 testaceous, apices of segments 2 and 3 slightly darkened; legs testaceous, hind and middle coxae and

posterior base of front coxae piceous. Head wider than long (ratio 1.45) with very large and convex, bulging eyes; tempora slightly more than 6 times shorter than length of eyes seen from above; dorsal surface with sparsely and somewhat irregularly dispersed fine punctures, without microsculpture. Antenna short, segment 1 shorter than two following segments combined, segments 2 and 3 subequal in length, segment 2 slightly stronger than 3, segments 4 and 5 somewhat longer than wide, segment 5 slightly shorter and wider than 4, segments 6–10 gradually becoming shorter and wider, segments 9 and 10 slightly transverse, last segment about as long as 2 preceding segments combined. Pronotum indistinctly wider than head (ratio 1.06) and feebly wider than long (ratio 1.13), broadly rounded basally and indistinctly narrowed anteriorly, strongly transversely convex; surface without microsculpture. Scutellum with several coarse punctures. Elytra short, at suture as long as, at sides slightly longer than pronotum at midline; punctation deep and very coarse and irregular, leaving median and lateral portion of pale transverse anterior spot and pale posterior markings on each elytron impunctate; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; bases of tergites 1–4 densely and fairly coarsely punctate, discs impunctate, tergite 5 sparsely punctate, punctures elongate; surface of tergites with excessively fine and dense microsculpture of transverse lines.

Male. Apical margin of sternite 7 distinctly, arcuately emarginate, apical margin of sternite 8 with shallow and inconspicuous arcuate emargination (Fig. 270). Aedoeagus (Figs. 273, 274) narrow and elongate; median lobe suddenly narrowed into minute apical portion, with apical portion slightly excavate on surface adjacent to paramere; paramere elongate, fusiform, narrower than median lobe and slightly exceeding apex of median lobe, with 6 long apical setae; sensory peg setae on underside of paramere numerous, forming two rows quite close to lateral margins.

Length 6.7–8.5 mm.

Type material.— Fauvel (1878:165) described the species from one single specimen. The holotype in the Fauvel collection in the Institut Royal des Sciences Naturelles de Belgique, Bruxelles, Belgique, is labelled as follows: “Cochinchine” / “Tonkin” (rest illegible) / “vulneratus Fvl.” / “TYPE” (red square label) / “R.I.Sc. N.B. 17.479 Cyrtothorax Coll. et det. A. Fauvel”. The specimen is a female (not a male as stated by Fauvel, l.c.) in fair condition; only three basal segments remain from the left antenna. The remaining 5 specimens under the name *B. vulneratus* do not belong to the original series (see also taxonomic notes following *B. vulneratus*).

Geographical distribution.— *Bolitogyrus vulneratus* is distributed in eastern portion of the Himalaya, from eastern Nepal through Darjeeling area; also in Khasi Hills in Meghalaya (Map 29), and in Vietnam.

Material studied.— 5 specimens.

INDIA. *Meghalaya*. Khasi Hills, Mawsynram-Balat, 1000 m, 27.X.78, Besuchet-Löbl (MHNG) 1. *West Bengal*. Darjeeling Distr., Sevoke, 200 m, 7.X.78, Besuchet-Löbl (MHNG) 1.

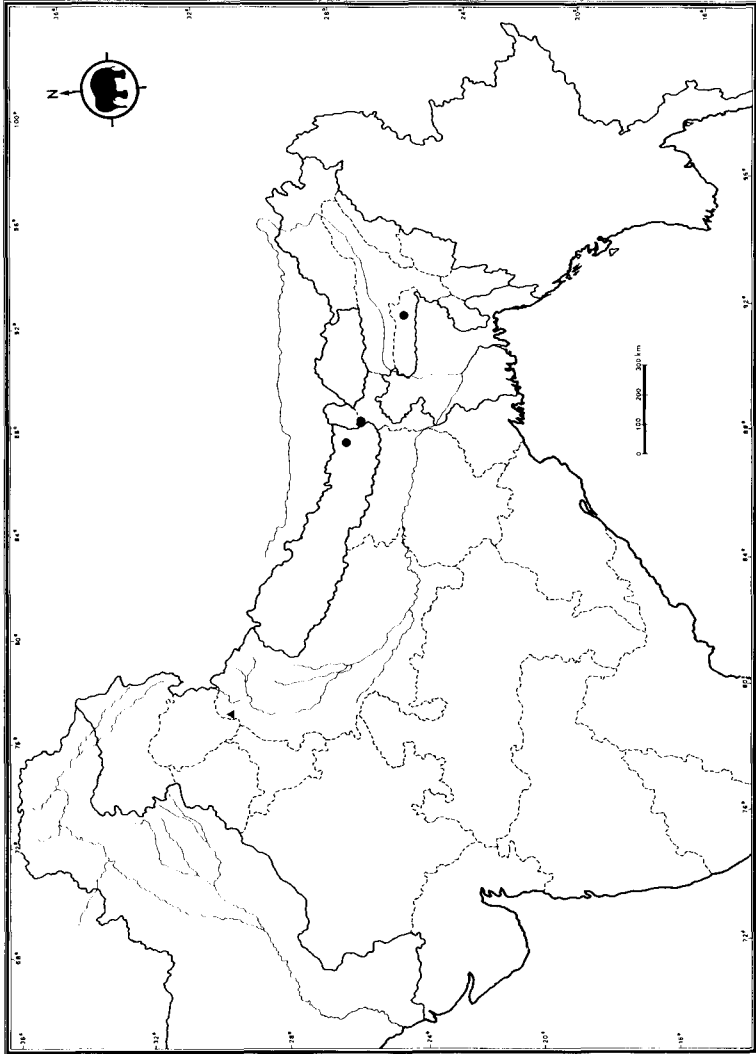
NEPAL. *Khandbari Distr.* Val. Arun ss/Num, 1050 m, 22.IV.84, Löbl-Smetana (MHNG) 1; Arun Valley at Num main bridge, 1050 m, 2.IV.84, Smetana & Löbl (ASCC) 1.

VIETNAM. See Type material.

Bionomics.— The specimens from the Arun Valley were collected by sifting various mushrooms, moss and debris around them on larger fallen trees. Those from Khasi Hills and Darjeeling distr. were taken by sifting fallen leaves in forest ravines.

Taxonomic notes.— *Bolitogyrus vulneratus* is quite distinctive among the Himalayan Quediini by its general habitus and by the distinctive colour pattern of the very coarsely and deeply punctate elytra.

Bolitogyrus vulneratus is apparently a complex of species. But since only very limited material is available for study and more material is essential, I have decided not to deal with this problem at present. The female holotype (see under Type



Map 29. Distribution records for: *Bolitogynus vilheratus* (●), and *Ctenandropus nigriceps* (▲).

material) has a notch in the middle of the apical margin of the abdominal tergite 8; the female from the Arun river valley near Num in Nepal (MHNG) does not have this notch. The additional five specimens under the name *B. vulneratus* in the Fauvel collection (see Type material) come from Burma: "Carin Cheba 900–1100 m. L.Fea V.XII-88" (3♂♂, 1♀) and "Tennaserim. Kawkareet Fea. Maggio 1887" (1♂). They belong to at least two different species. They show intraspecific variability in colouration; the association of any of these specimens with the female holotype is very difficult.

The Fauvel collection contains another specimen (female) bearing the label "Khasia Hills VII." (apparently Khasi Hills in Meghalaya). It is similarly coloured as the holotype of *B. vulneratus*, but it is at least twice as big and represents obviously yet another species.

4. Genus *Heterothops* Stephens

Heterothops Stephens 1829:23; Cameron 1932:265⁶

Type species.— *Staphylinus binotatus* Gravenhorst 1802, designated by Westwood 1838:16, by subsequent designation.

I am not presenting here a conventional formal description of this genus; it can be found in some recent papers, *e.g.*, Smetana 1971:14–15.

Male. The aedoeagus of all species lacks parameres (Figs. 277, 291, 302). Genital segment with tergite 10 and sternite 9 rounded apically, styli of tergite 9 relatively strong, each with numerous very long apical setae (Fig. 297).

Female genital segment as in Figs. 404–407, tergite 10 obtusely rounded or subtruncate apically.

The genus is distributed worldwide. Nine species are known to occur in the Himalayan region.

Taxonomic notes.— All species from the studied area bear two setiferous punctures between the anterior and posterior frontal punctures; the position of the posterior one seems to be a good distinguishing character for the species groups. It is in correlation with the size of the eyes.

Coiffait (1978:7) erected for this genus a separate subtribe *Heterothopsi*, based on the absence of the parameres on the aedoeagus in all species. He also included the genus *Atanygnathus* in this subtribe, because the aedoeagus of all species also lacks parameres. Not only is the absence of parameres insufficient ground for establishing a subtribe in this case, but also the two genera *Heterothops* and *Atanygnathus* are not even remotely related. The loss of the parameres occurred independently. For more details see Smetana (1984) and the discussion following the tribe *Atanygnathini* in this paper.

⁶Only references pertaining to the area treated in this revision are given. A complete synonymy with all references up to 1970 can be found in Smetana 1971:14.

The species *Heterothops flavicollis* Motschulsky 1858, described from “Indes orientales” and treated by Cameron (1932:266), belongs in fact to the genus *Gabronthus* Tottenham (1955) (comb.nov.) and is identical with *Gabronthus pulchellus* (Kraatz 1859) which becomes a junior synonym of it (*syn.nov.*) (Hammond, pers. comm. August 1984).

Key to species of *Heterothops*

- 1 Eyes large to very large, at least as long as tempora seen from above. Posterior setiferous puncture between anterior and posterior frontal punctures situated anterior of level of posterior margin of eye or rarely posterior of it by about 1 1/2 diameter of puncture 2
- 1' Eyes small, distinctly shorter than tempora seen from above (ratio 0.64). Posterior setiferous puncture between anterior and posterior frontal punctures situated far posterior of level of posterior margin of eye, distance equal to about one third length of eye. Length 4.4 mm 8. *H. saano spec.nov.*, p. 329
- 2 (1) Eyes very large, at least twice as long as tempora seen from above 3
- 2' Eyes large, less than twice as long as tempora, rarely about as long as tempora seen from above 5
- 3 (2) Eyes more than twice as long as tempora seen from above (ratio 2.62-2.87). Aedoeagus very elongate and narrow (Figs. 277, 278, 282) 4
- 3' Eyes twice as long as tempora seen from above (ratio 2.0). Aedoeagus less elongate and wider (Fig. 285), sclerites of internal sac as in Figs. 286, 287. Length 3.1-4.9 mm 3. *H. pusillus* Coiffait, p. 323
- 4 (3) Apical portion of median lobe evenly narrowed toward apex (Figs. 277, 278), sclerites of internal sac as in Figs. 279, 280. Eyes slightly larger (ratio length of eyes: length of tempora = 2.87). Microsculpture on head and pronotum slightly coarser and less dense. In general slightly smaller species. Length 4.1-4.9 mm 1. *H. oculatus* Fauvel, p. 320
- 4' Apical portion of median lobe rather suddenly attenuate toward apex (Fig. 282), sclerites of internal sac as in Fig. 283. Eyes slightly smaller (ratio length of eyes: length of tempora = 2.62). Microsculpture on head and pronotum slightly finer and denser. In general slightly larger species. Length 4.5-5.0 mm 2. *H. indicus* Cameron, p. 322
- 5 (2') Head and pronotum with distinct microsculpture 6
- 5' Head and pronotum without appreciable microsculpture.

- Aedoeagus and internal sac as in Figs. 302, 303. Length 3.9 mm 9. *H. saphaa spec.nov.*, p. 330
- 6 (5) Elytra not appreciably paler at apical margin. Punctuation of elytra and abdominal tergites very fine and very dense. Aedoeagi and sclerites of internal sacs as in Figs. 289–292..... 7
- 6' Elytra narrowly paler at apical margin. Punctuation of elytra and abdominal tergites very fine but less dense. Aedoeagi and sclerites of internal sacs different 8
- 7 (6) Median lobe of aedoeagus strongly and rather suddenly attenuate anteriorly (Fig. 289); sclerites of internal sac as in Fig. 290. Microsculpture on head and pronotum fine. Length 4.3–4.6 mm 4. *H. hindustanus* Cameron, p. 325
- 7' Median lobe of aedoeagus moderately and gradually narrowed anteriorly (Fig. 291); sclerites of internal sac as in Fig. 292. Microsculpture on head and pronotum coarse. Length 4.4 mm 5. *H. khairo spec.nov.*, p. 326
- 8 (6') Internal sac of aedoeagus, when evaginated, with a pair of highly sclerotized sclerites along lateral margins of median lobe (Figs. 299, 300). Length 4.0–5.1 mm 7. *H. franzi* Coiffait, p. 328
- 8' Internal sac of aedoeagus, when evaginated, without a pair of highly sclerotized sclerites along lateral margins of median lobe (Figs. 294, 295). Length 4.2–5.0 mm 6. *H. persimilis* Cameron, p. 326

Oculatus Group

This species group is characterized by the following combination of characters: eyes very large, at least twice as long as tempora seen from above; head and pronotum with distinct microsculpture; posterior puncture between anterior and posterior frontal punctures situated anterior of level of posterior margin of eye; aedoeagus elongate and narrow (Figs. 277, 278, 282, 285).

The group contains three species in the Himalayan region.

1. *Heterothops oculatus* Fauvel

Figs. 275–280; Map 32

Heterothops oculata Fauvel 1895:275; Cameron 1932:267 (ex parte)

Description.— Black, elytra and abdomen sometimes becoming indistinctly paler toward apex; labial and maxillary palpi and antennae piceous-brown to piceous, basal two or three antennal segments slightly pale; legs dark brown to piceous-brown with paler tarsi and medial face of hind tibiae more or less darkened. Head rounded, feebly wider than long (ratio 1.10); eyes large and convex, almost three times as long as tempora (ratio 2.87); posterior setiferous puncture between anterior and posterior frontal punctures

situated well before level of posterior margin of eye; one puncture mediad of posterior frontal puncture, temporal puncture situated very close to posterior margin of eye, separated from it by distance no larger than diameter of puncture; surface with moderately fine and dense microsculpture of transverse waves becoming coarser anteriorly. Antenna moderately long, segments 2 and 3 subequal in length, segment 2 slightly stronger than segment 3, segments 4–6 longer than wide, gradually becoming shorter and wider, segments 7–10 about as long as wide, segment 11 as long as two preceding segments combined. Pronotum feebly wider than long (ratio 1.14), widely rounded basally and distinctly narrowed anteriorly, evenly transversely convex; large lateral puncture separated from lateral pronotal groove by distance about equal to diameter of puncture; surface of pronotum with microsculpture similar to that on head, but indistinctly finer and denser. Scutellum punctate. Elytra at base about as wide as pronotum at widest point, slightly widened posteriorly, at suture as long as, at sides slightly longer than pronotum at midline (ratio 1.20); punctuation fine and rather sparse, interspaces between punctures along longitudinal axis 2–3 times larger than diameters of punctures; pubescence picuous-black. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctuation slightly finer than that on elytra, fairly dense on bases of tergites, gradually becoming sparser toward apical margin of each tergite; pubescence black.

Male. First four segments of front tarsus slightly dilated; apical margin of sternite 8 with small, obtusely triangular to obtusely arcuate emargination (Figs. 275, 276). Aedoeagus (Figs. 277, 278) very elongate and narrow; median lobe evenly narrowed toward apex; sclerites of internal sac as in Figs. 279, 280.

Length 4.1–4.9 mm.

Type material.— The Fauvel collection in the Institut Royal des Sciences Naturelles de Belgique, Bruxelles, contains three specimens under the name *H. oculata*. They are labelled as follows: Spec. No. 1: “Tenasserim M. Mooleyit 1800–1900 m. Fea. Marzo 1887” / “oculatus Fvl.” / “Syntype” / “R.I.Sc.N.B. 17.479 Heterothops Coll. et det. A. Fauvel”. Spec. No. 2 and 3: exactly same first label as Spec. No. 1 / “Syntype” / “Coll. et det. A. Fauvel Heterothops oculatus Fauv. R.I.Sc.N.B. 17.479”.

The first two specimens are females, the third specimen is a male; it was dissected, and the aedoeagus and sternite 8 were mounted in Canada Balsam. The male specimen is hereby designated as the lectotype of *H. oculatus*; the label “Lectotype Heterothops oculatus Fauvel Smetana des. 1983” has been attached to it.

Geographical distribution.— *Heterothops oculatus* is at present known from central Nepal (Kathmandu Valley and Phulcoki) (Map 32), and from Tenasserim in Burma.

Material studied.— 9 specimens.

BURMA. See Type material.

NEPAL. *Kathmandu Distr.* Gokarna Forest, 1400 m, 31.III.81, Löbl & Smetana (ASCC, MHNG) 4; same, 20.X.83. Smetana & Löbl (MHNG) 1. *Lalitpur Distr.* Phulcoki, 2550 m, 21.IV.82, A. & Z. Smetana (ASCC) 1.

Bionomics.— The specimens from the Gokarna Forest were taken by sifting leaf litter around bases of large trees. The specimen from Phulcoki was taken by sifting old dead vegetation, various debris and fallen leaves at bases of large rocks on a clearing in a forest.

Comparisons.— *Heterothops oculatus* has the largest eyes of all *Heterothops* species known to occur in the Himalayan area. Only *H. indicus* comes close in this respect; however, both species can usually be distinguished without difficulties by external characters only (see the description of *H. indicus*); the aedoeagi and the sclerites of the internal sacs are also distinctly different. In addition, both species are

(at least at present) allopatric, with *H. indicus* occurring only in western part of the Himalaya (see Map 30). Cameron (1932:267) failed to distinguish *H. indicus* from *H. oculatus* and considered it as a junior synonym of the latter species; consequently his records (l.c.) from Dehra Dun, Mussoorie, Chakrata and Simla Hills refer to *H. indicus* and not to *H. oculatus*.

There are some differences between the emargination of the sternite 8, the shape of the median lobe and the development of the sclerites of the internal sac between the lectotype and one male from the Gokarna Forest (see Figs. 277–280). However, the differences do not seem to warrant taxonomic separation, at least not at present when only a limited material is available for study.

2. *Heterothops indicus* Cameron *stat.nov.*

Figs. 281–283; Map 30

Heterothops indica Cameron 1926:365

Heterothops oculata: Cameron 1932:267 (ex parte)

Description.— In all characters very similar to *H. oculatus*, but different as follows: average size slightly larger; colouration paler: piceous, elytra narrowly paler, almost testaceous at posterior margin, apical margins of abdominal tergites and apex of abdomen more or less paler, rufo-brunneous; both labial and maxillary palpi testaceous, antennae piceous with three basal segments testaceous, legs uniformly pale testaceous, except hind tibiae slightly darkened medially in some specimens. Head somewhat smaller and indistinctly narrower, almost as long as wide; eyes slightly smaller, less than three times as long as tempora (ratio 2.62); posterior setiferous puncture between anterior and posterior frontal punctures situated just before level of posterior margin of eye; surface with microsculpture finer and denser than that of *H. oculatus*. Antenna somewhat shorter. Surface of pronotum with microsculpture slightly finer and denser. Punctuation of elytra and abdominal tergites usually somewhat finer, pubescence paler, rather dark brown.

Male. First four segments of front tarsus dilated in a similar way as in *H. oculatus*; emargination in middle of apical margin of sternite 9 (Fig. 281) similar to that of *H. oculatus*. Aedoeagus (Figs. 282, 283) similar to that of *H. oculatus*; however, apical portion of median lobe rather suddenly attenuate toward apex; sclerites of internal sac as in Fig. 283.

Length 4.5–5.0 mm.

Type material.— The collection of the British Museum (Natural History), London, contains seven specimens under the name *H. indica*. They are labelled as follows: Spec. No. 1 (male): “SYN-TYPE” (round label with blue margin)/ “Type” (round label with red margin)/ “Mossy Falls. Mussoorie.” / “Dr. Cameron. 27.III.1921” / “Type *Heterothops indica* Dr. Cameron” / “M. Cameron. Bequest.B.M. 1955-147”. Spec. No. 2 (male): “SYN-TYPE” (round label with blue margin)/ “Co-type” (round label with yellow margin)/ “*Heterothops indica* Cam.” / “Arni Gad. Mussoorie. Dr. Cameron.16.10.1921”. Spec. No. 3–5 (all females): “SYN-TYPE” (round label with blue margin)/ “Arni Gad. Mussoorie.” / “Dr. Cameron.12.IV.21.” / “M. Cameron. Bequest.B.M. 1955-147”. Spec. No. 6 (female): “SYN-TYPE” (round label with blue margin)/ “Chakrata Dist. Korawa Khud 9100” / “Dr. Cameron.4.V.22.” / “M. Cameron. Bequest.B.M. 1955-147”. Spec. No. 7 (female): “Fagu 8000’ Simla Hills.” / “SYN-TYPE” (round label with blue margin)/ “Dr. Cameron.IX.1921.” / “*Heterothops indica* Cam.” / “H.G. Champion Coll. B.M.1953-156”.

Both male specimens were dissected and aedoeagi and sternite 8 of the first specimen were mounted in Canada Balsam. The first male specimen is hereby designated as the lectotype of *H. indicus*; the label "Lectotype *Heterothops indica* Cameron Smetana des. 1983" has been attached to it.

Geographical distribution.— *Heterothops indicus* is distributed in the western part of the Himalaya (Himachal Pradesh and Uttar Pradesh) (Map 30).

Material studied.— 34 specimens.

INDIA. *Himachal Pradesh*. Simla, E.C. Ansorge (BMNH) 1. *Uttar Pradesh*. Chakrata Distr.: Korawa Khud, 9100', 4.V.22, Cameron (BMNH) 3; Jadi Gad, 7000', 9.V.22, Cameron (BMNH) 2. *Mussoorie Distr.* Keyarkuli, 17.IV.22, Cameron (ASCC, BMNH) 9; Aglar River, 16.IV.22, Cameron (BMNH) 1; Mussoorie, 1700 m, 19.X.79, I. Löbl (MHNG) 1. Kumaon: W. Almora, H.G. Champion (BMNH) 2. Garhwal: 22 km N Rishikesh, 450 m, 30.X.79, I. Löbl (ASCC, MHNG) 5; 16 km de Srinagar, 550 m, 29.X.79, I. Löbl (MHNG) 1; below Bhatwari, 1500 m, 24.X.79, I. Löbl (MHNG) 1; 2 km E. Dhanolti, 2250 m, 21.X.79, I. Löbl (MHNG) 1.

Bionomics.— The specimens from Mussoorie and Garhwal were collected by sifting wet debris among reeds at a river, in debris on a river bank, by sifting fallen leaves and debris in a forest ravine and by sifting fallen leaves and moss near a seepage in a mixed *Rhododendron-Abies* forest.

Recognition.— *Heterothops indicus* can be distinguished fairly easily from *H. oculus* by the characters given in the key and in the description. Both species differ also in their distributional ranges (see the comparisons under *H. oculus* for details).

Cameron (1932:267) failed to distinguish *H. indicus* from *H. oculus*; he listed the name as a junior synonym of the latter species (see also under *H. oculus*).

3. *Heterothops pusillus* Coiffait

Figs. 284–287; Map 31

Heterothops pusilla Coiffait 1982a:83

Description.— In all external characters similar to both *H. oculus* and *H. indicus*, but different as follows: piceous to piceous-black, clytra sometimes slightly paler at posterior margin, apical margins of abdominal tergites and apex of abdomen often somewhat paler; both labial and maxillary palpi brownish to brownish-piceous, antennae piceous with two basal segments usually at least partially paler, legs brunneo-testaceous with posterior tibiae slightly darkened medially. Head about same as that of *H. indicus*, but eyes smaller, twice as long as tempora (ratio 2.0). Microsculpture on head and pronotum same as that of *H. indicus*. Punctuation and pubescence of elytra and abdominal tergites not appreciably different from that of *H. indicus*.

Male. First four segments of front tarsus dilated in a similar way as in both compared species; emargination in middle of apical margin of sternite 8 (Fig. 284) distinctly deeper than those of *H. oculus* and *H. indicus*. Aedoeagus (Figs. 285–287) less elongate and wider; median lobe almost parallel-sided in middle portion, with apical portion rather suddenly attenuate toward subacute apex; sclerites of internal sac as in Figs. 286, 287.

Length 3.1–4.9 mm.

Type material.— The male holotype in the Franz collection, Mödling, Austria, is labelled as follows: "Umg. Pina 29.9-1.10.72" / "Gebiet des Rarasees Westnepal, lg. H. Franz" / "TYPE" / "*Heterothops pusilla* H. Coiffait det. 1979". The specimen was dissected, the aedoeagus and the 8th sternite were mounted in Canada Balsam.

Geographical distribution.— *Heterothops pusillus* is widely distributed in the Himalaya, from Himachal Pradesh and Uttar Pradesh through Nepal to Darjeeling area in West Bengal (Map 31).

Material studied.— 41 specimens.

INDIA. *Himachal Pradesh*. Katrain near Kulu, H. Franz (HFCC) 1. *Uttar Pradesh*. Kumaon: Rangarh, 2400 m, 10.X.79, 1. Löbl (MHNG) 1; Rangarh, crête, 2250 m, 9.X.79, 1. Löbl (MHNG) 1; Chaubattia nr. Ranikhet, about 1800 m, 12-13.X.79, 1. Löbl (MHNG) 1. *West Bengal*. Darjeeling Distr.: Algarah-Labha, 1900 m, 11.X.78, Besuchet-Löbl (MHNG) 1; 13 km N Ghoom, 1500 m, 15.X.78, Besuchet-Löbl (MHNG) 1; Ghoom-Lopchu, 2000 m, 12 or 14.X.78, Besuchet-Löbl (MHNG) 4.

NEPAL. Chaubas, 2600 m, 4 and 5.IV.81, Löbl & Smetana (ASCC, MHNG) 6; Malemchi, 2800 m, 14 and 17.IV.81, Löbl & Smetana (ASCC, CNCC) 5; Dobate Ridge NE Barahbise, 2700 m, 2. and 7.V.81, Löbl & Smetana (ASCC) 4. *Khandhari Distr.* Kuwapani, 2100 m, 28.III.82, A. & Z. Smetana (ASCC) 1; Forest above Ahale, 2400 m, 25.III.82, A. & Z. Smetana (ASCC) 2; Forest NE Kuwapani, 2500 m, 12. or 14.IV.82, A. & Z. Smetana (ASCC) 2; Induwa Kholā Valley, 2100 m, 17. or 18.IV.84, Löbl & Smetana (ASCC, MHNG) 4. *Manang Distr.* Forest W Bagarchhap, 2200 m, 2250 m, 2400 m, 21.22. and 23.IX.83, Smetana & Löbl (ASCC, MHNG) 4; Latha Manang W Bagarchhap, 2400 m, 23.IX.83, Smetana & Löbl (MHNG) 1. *Parbat Distr.* Ghoropani Pass, N slope, 2800 m, 5.X.83, Smetana & Löbl (ASCC) 1. Weg von Pokhara z. Goropani, H. Franz (HFCC) 1.

Bionomics.— *Heterothops pusillus* seems to occur mainly in forested habitats at elevations between 1500 m and 2800 m. Most specimens were taken by sifting leaf litter, various debris and moss on the floor of semideciduous broad leaved forests, sometimes in rather wet habitats, such as seepages, etc.

Comparisons.— The size of the eyes and the emargination of the male sternite 8 are the best external characters for distinguishing *H. pusillus* from both *H. oculatus* and *H. indicus* (see the key and the respective descriptions). *Heterothops pusillus* also resembles *H. franzi*; see the comparisons under the latter species for distinguishing characters of these two species.

There is a chance that two species are in fact combined here under this name. The specimens from the Darjeeling district seem to have a slightly different aedoeagus; however, since the available aedoeagi are not preserved well enough, I did not treat the Darjeeling specimens as taxonomically different.

Hindustanus Group

This species group is characterized by the following combination of characters: eyes large, but less than twice as long as tempora seen from above (ratio 1.40–1.66); head and pronotum with distinct microsculpture; posterior puncture between anterior and posterior frontal punctures situated at level of posterior margin of eye; punctation of elytra and abdominal tergites very fine and very dense; elytra not paler at apical margin.

The group contains two species in the Himalayan region.

4. *Heterothops hindustanus* Cameron

Figs. 288–290; Map 31

Heterothops hindustana Cameron 1932:267

Description.— Piceous-black, elytra brunneo-piceous, apical margins of abdominal tergites and apex of abdomen indistinctly paler; both labial and maxillary palpi brunneous, antennae piceous with three basal segments feebly paler, legs brunneotestaceous, middle and hind tibiae slightly darkened medially. Head rounded, vaguely wider than long (ratio 1.07); eyes large and convex, longer than tempora (ratio 1.4); posterior setiferous puncture between anterior and posterior frontal punctures situated at level of posterior margin of eye; one puncture mediad of posterior frontal puncture; temporal puncture separated from posterior margin of eye by distance slightly longer than two diameters of puncture; surface with fine and superficial, moderately dense microsculpture of transverse and oblique waves. Antenna moderately long, segments 2 and 3 subequal in length, segment 2 slightly stronger than segment 3, segments 4 and 5 longer than wide, segment 6 slightly longer than wide, segments 7–10 about as long as wide, gradually becoming slightly wider, last segment as long as two preceding segments combined. Pronotum feebly wider than long (ratio 1.10), widely rounded basally and distinctly narrowed anteriorly, evenly transversely convex; large lateral puncture touching lateral pronotal groove; surface of pronotum with microsculpture similar to that on head. Scutellum rather elongate, densely punctate. Elytra at base about as wide as pronotum at widest point, slightly widened posteriorly and relatively long, at suture slightly longer (ratio 1.16), at sides distinctly longer (ratio 1.34) than pronotum at midline; punctation very fine and very dense, punctures often almost touching each other along transverse axis; pubescence dark, brownish-piceous. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctation about equally fine and dense as that on elytra, gradually becoming sparser toward apical margin of each tergite; pubescence dark, brownish-piceous.

Male. First four segments of front tarsus slightly dilated; apical margin of sternite 8 with small, obtusely triangular emargination (Fig. 288). Aedoeagus (Figs. 289, 290) with median lobe parallel-sided in middle part and then strongly and rather suddenly attenuate toward apex, sclerites of internal sac as in Fig. 290.

Length 4.3–4.6 mm.

Type material.— The collection of the British Museum (Natural History), London, contains one female specimen under the name *H. hindustanus*. It is labelled as follows: “SYN-TYPE” (round label with blue margin)/ “TYPE” (round label with red margin)/ “Dr. Cameron 4.V.22.” / “M. Cameron, Bequest.B.M. 1955-147” / “Chakrata Dist. Korawa Khud 9100” / “*H. hindustanus* Cam. TYPE”. The specimen is hereby designated as the lectotype of *H. hindustanus*; the label “Lectotype *Heterothops hindustanus* Cameron Smetana des. 1983” has been attached to it.

Geographical distribution.— *Heterothops hindustanus* is at present known only from Uttar Pradesh and western Nepal (Map 31).

Material studied.— 2 specimens.

INDIA. Uttar Pradesh. See Type material.

NEPAL. Nördl Dhaulagiri, Gompa/Tarakot, 3300–3400 m, 2-6.VI.73, J. Martens (SBMF) 1.

Bionomics.— Nothing is known about the habitat requirements of this species.

Recognition.— *Heterothops hindustanus* is well characterized among the species with microsculptured head and pronotum and with the eyes less than twice as long as tempora, by the rather long, unicoloured and very finely and densely punctate elytra, by the temporal puncture on the head situated rather far from posterior margin of the eye (see the description) and by the characters on the aedoeagus and internal sac (Figs. 289, 290).

The aedoeagus and sternite 8 were drawn from the male specimen from Nepal, which was compared with female lectotype.

5. *Heterothops khairo spec.nov.*

Figs. 291, 292; Map 31

Description.— In all external characters very similar to *H. hindustanus* but different as follows: head with eyes slightly longer, ratio of length of eyes: length of tempora = 1.66; microsculpture on head and pronotum coarse, however, that of pronotum slightly less coarse than that on head.

Male. First four segments of front tarsus slightly less dilated than those of *H. hindustanus*; sternite 8 with apical emargination similar to that of *H. hindustanus*. Aedoeagus (Figs. 291, 292) with median lobe distinctly narrower, moderately and gradually narrowed toward apex, sclerites of internal sac as in Fig. 292.

Length 4.4 mm.

Type material.— Holotype (male): INDIA: “Dehra Dun Dr. M. Cameron 4/3 1921.” / “M. Cameron. Bequest.B.M. 1955-147”. In the British Museum (Natural History), London.

Geographical distribution.— *Heterothops khairo* is at present known only from the type locality in Uttar Pradesh (Map 31).

Bionomics.— The holotype was taken in a termite nest.

Comparisons.— *Heterothops khairo* differs from the two following species *H. persimilis* and *H. franzi* with similar ratio of length of eyes to the length of tempora, by the larger and wider head, by the larger pronotum, by the distinctly coarser microsculpture on the head and pronotum, by the longer and distinctly more densely punctate elytra, etc.

Etymology.— The specific name is the Nepali adjective khairo (brown); it refers to the general colour of the species.

Persimilis Group

This species group is characterized by the following combination of characters: eyes large, but less than twice as long as or rarely about as long as tempora seen from above; head and pronotum with distinct microsculpture; posterior puncture between anterior and posterior frontal punctures situated at level of posterior margin of eye or posterior of it by about 1 1/2 diameter of puncture; punctation of elytra and abdominal tergites very fine but moderately dense; elytra narrowly paler at apical margin.

The group contains two species in the Himalayan region.

6. *Heterothops persimilis* Cameron

Figs. 293–295, 404–407; Map 32

Heterothops persimilis Cameron 1932:267

Description.— Brunneo-piceous, piceous to piceous-black, elytra paler, rather dark brunneous and paler at apical margin, apical margins of abdominal tergites and apex of abdomen paler, usually

rufo-brunneous; both labial and maxillary palpi brunneous, antennae testaceo-brunneous to dark brown, legs testaceo-brunneous, hind tibiae slightly darkened medially. Head rounded, vaguely wider than long (ratio 1.08); eyes large and convex, longer than tempora (ratio 1.53); posterior setiferous puncture between anterior and posterior frontal punctures situated at level of posterior margin of eye; temporal puncture separated from posterior margin of eye by distance slightly larger than diameter of puncture; one puncture mediad of posterior frontal puncture; surface with fine and dense microsculpture of transverse and oblique waves. Antenna moderately long, segments 2 and 3 subequal in length, segment 2 slightly stronger than segment 3, segments 4 and 5 slightly longer than wide, segment 6 hardly longer than wide, segments 7–10 about as long as wide to slightly transverse, last segment slightly shorter than two preceding segments combined. Pronotum feebly wider than long (ratio 1.11), widely rounded basally and moderately narrowed anteriorly, evenly transversely convex; large lateral puncture separated from lateral pronotal groove by distance about equal to diameter of puncture; surface of pronotum with microsculpture similar to that on head, but slightly finer. Scutellum punctate. Elytra moderately long, at base about as wide as pronotum at widest point, slightly widened posteriorly, at suture about as long as, at sides longer (ratio 1.26) than pronotum at midline; punctuation fine but not very dense, interspaces between punctures along longitudinal axis 2–3 times larger than diameters of punctures; pubescence dark brown. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctuation somewhat finer than that on elytra, dense on bases of tergites but becoming much sparser toward apical margin of each tergite; pubescence brownish piceous.

Male. First four segments of front tarsus slightly dilated; apical margin of sternite 8 with small, obtusely triangular emargination (Fig. 293). Aedoeagus (Figs. 294, 295) with median lobe almost parallel-sided in middle portion, with apical portion rather suddenly narrowed toward subacute apex; sclerites of internal sac as in Fig. 295, no pair of highly sclerotized sclerites along lateral margins of median lobe when internal sac evaginated.

Length 4.2–5.0 mm.

Type material.— The original series in the British Museum (Natural History), London, contains two male specimens under the name *H. persimilis*. They are labelled as follows: Spec. No. 1: “SYN-TYPE” (round label with blue margin)/ “Type” (round label with red margin)/ “Kotgarh 7000’ Simla Hills” / “Dr. Cameron IX.1922” / “H. persimilis Cam. TYPE” / “M. Cameron. Bequest. B.M. 1955-147”. Spec. No. 2: “SYN-TYPE” (round label with blue margin)/ “Kotgarh 7000’ Simla Hills” / “Dr. Cameron IX.1922” / “M. Cameron. Bequest. B.M. 1955-147” / “persimilis” (handwritten label). Both specimens were dissected, and aedoeagi and 8th sternites were mounted in Canada Balsam. Specimen No. 1 is hereby designated as the lectotype of *H. persimilis*; the label “Lectotype Heterothops persimilis Cameron Smetana des. 1983” has been attached to it.

Geographical distribution.— *Heterothops persimilis* is distributed from Himachal Pradesh and Uttar Pradesh to eastern Nepal (Map 32).

Material studied.— 19 specimens.

INDIA. *Himachal Pradesh.* Simla Hills, Narkanda, 9239’, 15.IX.21, Cameron (BMNH) 1. *Uttar Pradesh.* Chakrata Distr.: Bodyar, 8200’, 8-12.V.22, Cameron (BMNH) 1; Khedar Khud, 7500’, 11.V.22, Cameron (BMNH) 1. Mussoorie: Dhobi Ghat, 14.IV.22, Cameron (BMNH) 1. Kumaon: W. Almora, H.G. Champion (BMNH) 2.

NEPAL. *Khandhari Distr.* Forest NE Kuwapani, 2450 m, 13.IV.82, A. & Z. Smetana (ASCC) 1; same, 2250 m, 24.IV.84, Löbl & Smetana (MNHG) 1. *Lalitpur Distr.* Phulcoki, 20. and 21.IV.82, 2550 or 2600 m, A. & Z. Smetana (ASCC) 3; same, 28., 29. and 30.IV.84, 2500–2550 m, Smetana & Löbl (ASCC, MHNG) 6.

Bionomics.— In Nepal, specimens of this species were taken by sifting leaf litter and other debris on forest floor on moist places, particularly in the oak forest on Phulcoki, also by sifting moist moss on large rocks (Forest NE Kuwapani) or by

sifting dead vegetation, moss and debris at bases of large rock blocks in forest clearings (Phulcoki).

Comparisons.— *Heterothops persimilis* resembles in general habitus and colouration *H. indicus*. Both species are sympatric in Himachal Pradesh and Uttar Pradesh, but *H. persimilis* differs, in addition to the differences on the aedoeagus, by the smaller eyes and by the different position of the posterior setiferous puncture between the anterior and posterior frontal punctures (see the respective descriptions).

7. *Heterothops franzi* Coiffait

Figs. 296–300; Map 30

Heterothops franzi Coiffait 1982a:82

Description.— In all characters extremely similar to *H. persimilis* but different as follows: in general darker, piceous to piceous-black, abdominal tergites uniformly dark or with only feebly paler apical margins; antennae piceous with basal 1 to 3 segments only vaguely paler, legs pale brunnous to brunnous, hind tibiae distinctly darkened medially. Head narrower, about as long as wide, eyes smaller, ratio of length of eyes to length of tempora = 1.25, in some specimens tempora almost as long as length of eyes seen from above; posterior setiferous puncture between anterior and posterior frontal punctures situated at about level of posterior margin of eye or posterior of it by about 1 1/2 diameter of puncture.

Male. First four segments of front tarsus dilated in similar way as in *H. persimilis*, apical margin of sternite 8 (Fig. 296) with emargination similar to that of *H. persimilis*. Aedoeagus (Figs. 298–300) very similar to that of *H. persimilis* but with attenuate apical portion longer; sclerites of internal sac as in Figs. 299, 300, with a pair of highly sclerotized sclerites along lateral margins of median lobe when internal sac evaginated.

Length 4.0–5.1 mm.

Type material.— The male holotype in the Franz collection, Mödling, Austria, is labelled as follows: “Umg. Pina 29.9.-1.10.72” / “Gebiet des Rarasees Westnepal, lg.H. Franz” / “TYPE” / “*Heterothops franzi* H. Coiffait det. 1979”. The specimen was dissected and the aedoeagus and sternite 8 were mounted in Canada Balsam.

I have not seen the female paratype deposited in the Coiffait collection (Muséum National d’Histoire Naturelle, Paris).

Geographical distribution.— *Heterothops franzi* is distributed in western part of the Himalaya, from Uttar Pradesh to about central Nepal (Map 30).

Material studied.— 12 specimens.

INDIA. *Uttar Pradesh*. Garhwal, 10 km E Dhanolti, 2450 m, 21.X.79, I. Löbl (MHNG) 2.

NEPAL. Gurjakhani, 83°14'E, 28°37'N, 8500', 4-7.VII.54, K.H. Hyatt (BMNH) 1; Chaubas, 2500 m, 4.IV.81, Löbl & Smetana (ASCC) 1; Malemchi, 2800 m, 17.IV.81, Löbl & Smetana (ASCC) 1. *Lalitpur Distr.* Phulcoki, 2600–2650 m, 21-22.III.80, Martens & Ausobsky (SBMF) 2; same, 2600 m, 20. and 22.IV.82, A. & Z. Smetana (ASCC, MHNG) 3; same, 2550 m, 29.IV.84, Smetana & Löbl (ASCC) 1.

Bionomics.— Specimens of *H. franzi* were taken by sifting forest floor litter, leaf litter and other debris in depressions of forest floor, around bases of large trees, etc. Some were also taken by sifting wet fermenting wood cuttings.

Comparisons.— *Heterothops franzi* is rather difficult to distinguish from *H. persimilis*; the best external distinguishing character seems to be the smaller size of the eyes in *H. franzi* (see the respective descriptions). Both species occur together in

some localities (Phulcoki).

Saano Group

The single species of this group shares most characters of the *Persimilis* Group but differs as follows: eyes small, distinctly shorter than tempora seen from above; posterior puncture between anterior and posterior frontal punctures situated far posterior of level of posterior margin of eye.

The species group may prove to be superfluous when the species of *Heterothops* from the studied area will become better known.

8. *Heterothops saano* spec.nov.

Map 30

Description.— Piceous, pronotum dark brown, elytra brown with suture and apical margin testaceous, apical margins of abdominal tergites and apex of abdomen distinctly paler, testaceo-rufous; both labial and maxillary palpi testaceous, antennae testaceo-brunneous with first three segments testaceous, legs testaceous with bases of femora indistinctly darkened. Head relatively narrow, as long as wide, almost parallel-sided; eyes small and hardly convex, not protruding from lateral contours of head, distinctly shorter than tempora seen from above (ratio 0.64); posterior setiferous puncture between anterior and posterior frontal punctures situated far posterior of level of posterior margin of eye, distance equal to about one third of length of eye; one puncture mediad of posterior frontal puncture; temporal puncture situated closer to posterior margin of head than to posterior margin of eye; surface of head with dense and very fine microsculpture of transverse and oblique waves. Antenna rather short, segments 2 and 3 subequal in length but segment 2 somewhat stronger, segment 4 slightly longer than wide, segment 5 about as long as wide, segments 6–10 gradually becoming shorter, segments 8–10 transverse, segment 11 about as long as two preceding segments combined. Pronotum wider than long (ratio 1.16), widely rounded basally, distinctly narrowed anteriorly, evenly transversely convex; large lateral puncture separated from lateral pronotal groove by distance about equal to diameter of puncture; surface of pronotum with microsculpture similar to that on head. Scutellum sparingly punctate. Elytra moderately long, at base slightly narrower than pronotum at widest point, slightly widened posteriorly, at suture as long as, at sides slightly longer (ratio 1.18) than pronotum at midline; punctation moderately dense, interspaces between punctures along longitudinal axis about twice as large as diameters of punctures; pubescence dark brown. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctation of tergites somewhat finer than that on elytra, dense on tergal bases and becoming slightly sparser toward apical margins; pubescence dark brown.

Male. Unknown.

Length 4.4 mm.

Type material.— Holotype (female): INDIA: "Kashmir Aru lg. H. Franz, Okt. 1977". In the Franz collection, Mödling, Austria.

Geographical distribution.— *Heterothops saano* is known only from the type locality in Kashmir (Map 30).

Bionomics.— No details are known about the habitat requirements of this species.

Recognition.— *Heterothops saano* is unique among the Himalayan species due to the small size of the eyes and the position of both the posterior setiferous puncture between anterior and posterior frontal punctures (situated far posterior of the posterior margin of eye) and the temporal puncture (situated very far from the

posterior margin of eye - see the description).

Etymology.— The specific name is the Nepali adjective saano (small). It refers to the small size of the eyes.

Saphaa Group

The single species of this species group is characterized by the lack of any microsculpture on head and pronotum.

9. *Heterothops saphaa* spec. nov.

Figs. 301–303; Map 32

Description.— Black, clytra piceous-black with feebly paler apical margin, apical margins of abdominal tergites and apex of abdomen vaguely paler; both labial and maxillary palpi brunneopiceous, antennae piceous, first three segments vaguely paler, legs brunneous with paler tarsi, middle and posterior tibiae darkened medially. Head relatively narrow, as long as wide, rounded; eyes moderately large, larger than tempora seen from above (ratio 1.62); posterior setiferous puncture between anterior and posterior frontal punctures situated just anterior of posterior margin of eye, one puncture mediad of posterior frontal puncture; temporal puncture separated from posterior margin of eye by distance slightly larger than diameter of puncture; surface of head without any microsculpture. Antenna rather short, segments 2 and 3 subequal in length but segment 2 somewhat stronger, segment 4 slightly longer than wide, segments 5 and 6 as long as wide, segments 7–10 indistinctly wider than long, last segment as long as two preceding segments combined. Pronotum as long as wide, widely arcuate basally and only moderately narrowed anteriorly, evenly transversely convex; large lateral puncture almost touching pronotal lateral groove; surface of pronotum without any microsculpture. Scutellum densely punctate. Elytra long, at base as wide as pronotum at widest point, slightly widened posteriorly, at suture slightly (ratio 1.20), at sides distinctly longer (ratio 1.40) than pronotum at midline; punctuation fine and not dense; interspaces between punctures along both transverse and longitudinal axes about twice as large as diameters of punctures; pubescence brown. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctuation of tergites finer than on elytra, dense on tergal bases but becoming distinctly sparser toward apical margins of tergites and toward apex of abdomen in general; pubescence piceous.

Male. First four segments of front tarsus dilated; apical margin of sternite 8 with small, obtusely triangular emargination (Fig. 301). Aedeagus (Figs. 302, 303) fairly short; median lobe parallel-sided in middle portion, gradually and evenly narrowed toward relatively acute apex; sclerites of internal sac as in Fig. 303.

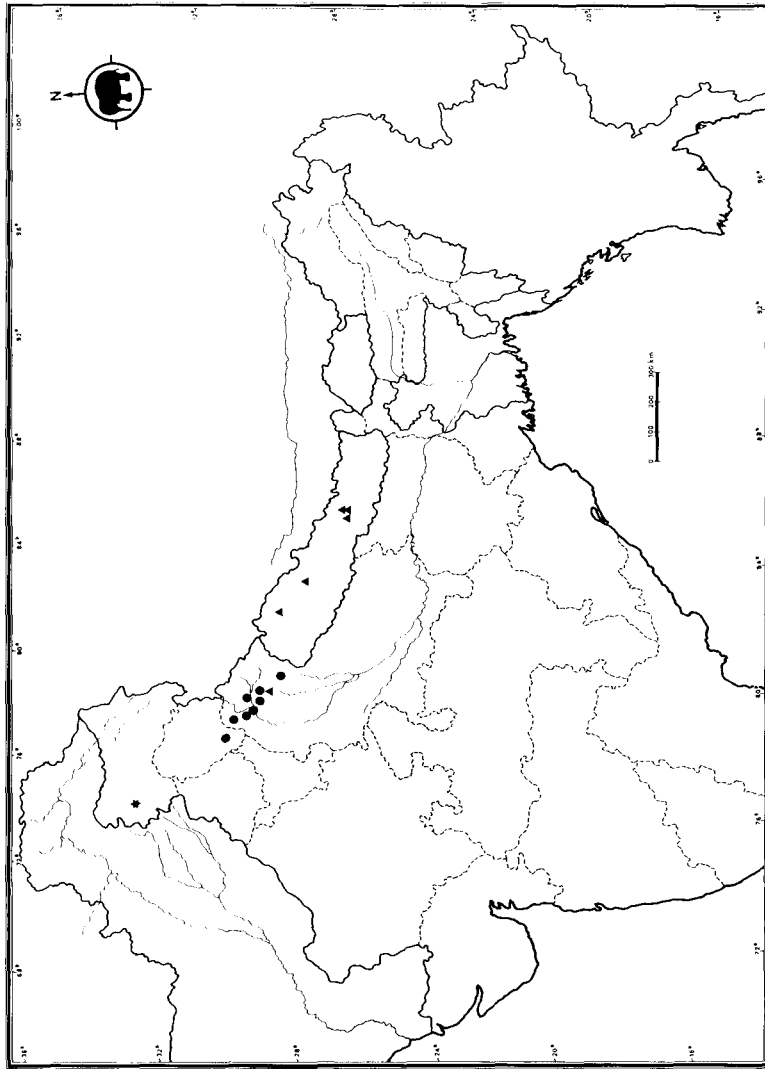
Length 3.9 mm.

Type material.— Holotype (male): Nepal: “148 Manang Dist. Marayandi 3800–4100 m oberhalb Manang Richtung Thorung, Gebüsh Martens & Ausobsky 19 Apr. 80”. In the Senckenberg Museum, Frankfurt am M., Federal Republic of Germany.

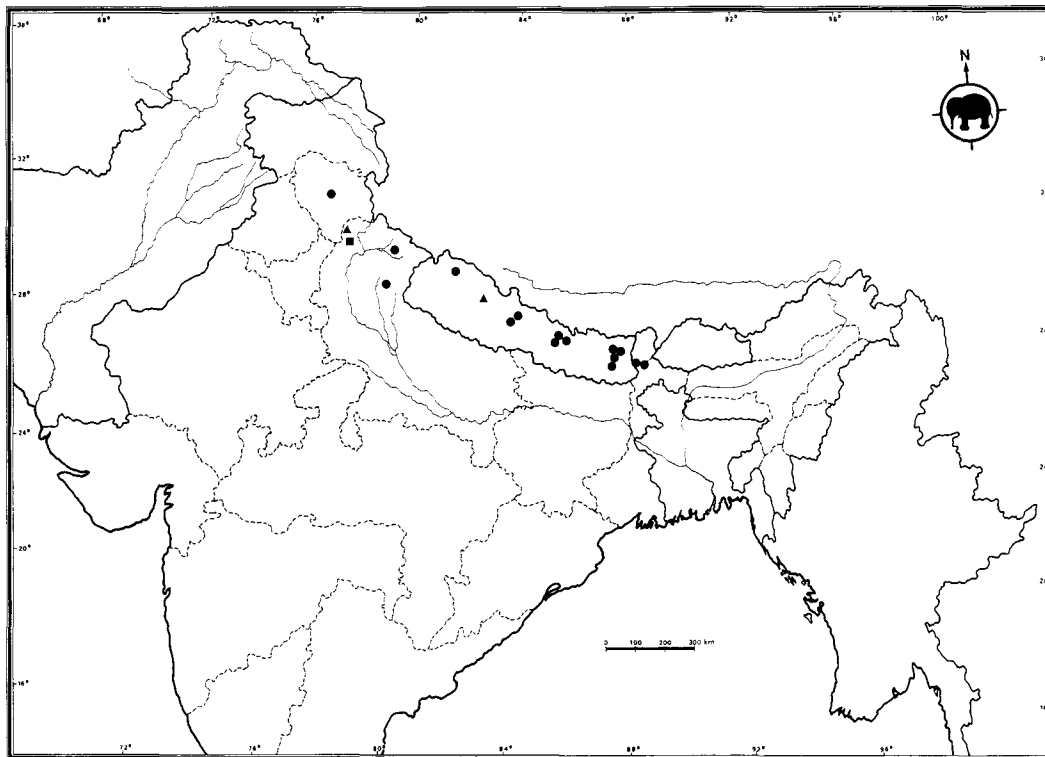
Geographical distribution.— *Heterothops saphaa* is known only from the type locality near Manang (Map 32).

Bionomics.— The holotype was taken from under a rock in rather dry, open growths of *Juniperus*, *Berberis* and *Rosa* (Martens, in litt.).

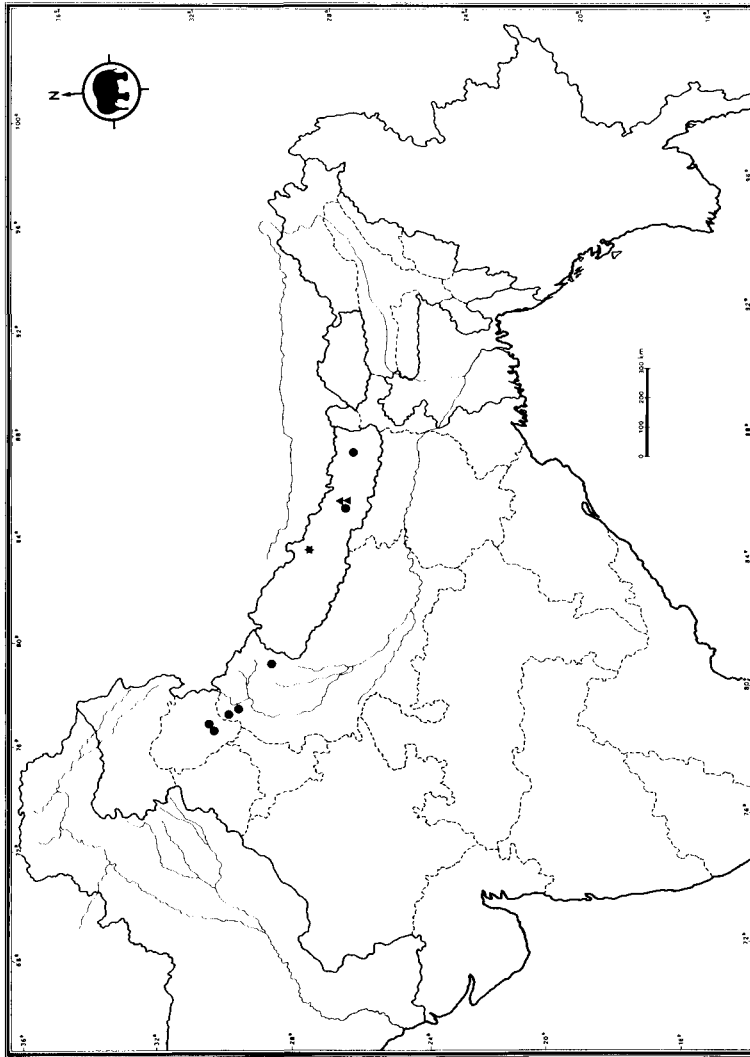
Recognition.— *Heterothops saphaa* is unique among the Himalayan species due to the absence of microsculpture dorsally on the head and pronotum, in combination with the rather long elytra.



Map 30. Distribution records for: *Heterothops indicus* (●); *H. franzi* (▲); and *H. saano* (★).



Map 31. Distribution records for: *Heterothops pusillus* (●); *H. hindustanus* (▲); and *H. khairo* (■).



Map 32. Distribution records for: *Heterothops persimilis* (●); *H. oculatus* (▲); and *H. saphaea* (★).

Etymology.— The specific name is the Nepali adjective *saphaa* (clean). It refers to the shiny surface of the head and pronotum due to the lack of microsculpture.

5. Genus *Ctenandropus* Cameron

Ctenandropus Cameron 1926:348; 1932:268

Type species.— *Ctenandropus nigriceps* Cameron 1926, designated by Cameron (1926:348) by original designation and monotypy.

Cameron (1926:348 and 1932:268) gave a detailed description of this genus and I therefore present here only some additions to his description.

Descriptive notes.— Body rather flat. Head without infraorbital ridge. Male genital segment with both tergite 10 and sternite 9 weakly sclerotized, sternite 9 obtusely rounded apically; tergite 10 with membranous, rounded apical lobe; styli of tergite 9 strong and wide, each with numerous, very long setae (Fig. 306); aedoeagus without paramere (Fig. 307).

At present, only one species, *C. nigriceps*, is included in *Ctenandropus*; it is widely distributed in the Oriental region and reaches its northern distributional limits in the Siwalik Range. However, according to A.F. Newton, Jr. (personal communication), there is at least one additional species in this genus, *C. magniceps* (Bernhauer 1920) (comb.nov.), distributed in Australia, Philippines, Sumatra and Fiji, and originally described by Bernhauer in the genus *Heterothops*.

The genus *Ctenandropus* seems to belong to the group of the south temperate Quediini. The ventral comb of the first segment of the middle tarsus is of the same type found in a number of Australian species of *Quedius* (*sensu lato*), as mentioned by Lea (1925:240) (A.F. Newton, Jr., personal communication). The extension of this group into mainland Asia is quite surprising.

1. *Ctenandropus nigriceps* Cameron

Figs. 304–307; Map 29

Ctenandropus nigriceps Cameron 1926:348; 1932:268

Description.— Head piceous-black to black, pronotum, elytra and abdomen testaceous, abdominal segments 4–6 or 5 and 6 slightly darkened, elytra occasionally indistinctly darkened; mouthparts, antennae and legs testaceous. Head of obtusely rectangular shape, parallel-sided and without narrowed neck, indistinctly wider than long (ratio 1.09); eyes small, tempora about 1.5 times longer than diameter of eyes seen from above; no additional punctures between anterior frontal punctures, posterior frontal puncture close to line of neck, separated from it by distance slightly larger than diameter of puncture; one puncture posteromedially of posterior frontal puncture; temporal puncture separated from posterior margin of eye by distance of about 2 1/2 times diameter of puncture; surface of head with dense and extremely fine microsculpture of irregular transverse waves. Antenna with segment 3 somewhat narrower and indistinctly shorter than segment 2, segments 4 and 5 slightly longer than wide, segment 6 and 7 about as long as wide, outer segments slightly transverse, last segment almost as long as two preceding segments combined. Pronotum fairly flat, about as long as wide, broadly rounded basally, almost parallel-sided except narrowed in posterior third; dorsal rows each with 2 punctures; no sublateral rows of punctures; large lateral puncture separated from lateral margin by distance about equal to diameter of puncture; microsculpture of pronotum still somewhat finer and denser than that on head. Scutellum finely punctate. Elytra moderately long, at

suture about as long as, at sides somewhat longer than pronotum at midline (ratio 1.14); surface finely and densely punctate and pubescent; surface between punctures with extremely fine, irregular microsculpture. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctuation and pubescence similar to that on elytra, gradually becoming sparser toward apex of abdomen; surface between punctures with extremely fine and dense microsculpture of transverse lines.

Male. First segment of middle tarsus with comb of dense, stiff and black setae ventrally. Apical margin of sternite 8 with deep and rather wide obtusely rounded emargination (Fig. 305). Apical margin of tergite 8 with shallow emargination (Fig. 304). Aedeagus (Fig. 307) small and narrow, with apical portion strongly narrowed into quite sharp apex.

Length 2.5–2.8 mm.

Type material.— The collection of the British Museum (Natural History), London, contains seven specimens belonging to the original material of *C. nigriceps*. They are labelled as follows: Spec. No. 1 (male): “Type H.T.” (round label with red margin)/ “SYN-TYPE” (round label with blue margin)/ “Under Bark” / “Asarori Siwaliks. Dr. Cameron.29.X.1922.” / “TYPE *Ctenandropus nigriceps* Dr. Cameron” / “M. Cameron. Bequest.B.M.1955-147”. Spec. Nos. 2–5 (all females): “Asarori Siwaliks.” / “Dr. Cameron.29.X.1922.” / “M. Cameron. Bequest.B.M.1955-147.” / “SYN-TYPE” (round label with blue margin). Spec. No. 6 (male): “Timli, Siwaliks.” / “Dr. Cameron.27.XI.21.” / “M. Cameron. Bequest.B.M.1955-147.” / “SYN-TYPE” (round label with blue margin). Spec. No. 7 (female): “Under Bark” / “Port Blair, Andaman Islds. Dr. Cameron” / “M. Cameron. Bequest.B.M.1955-147.” / “SYN-TYPE” (round label with blue margin).

The first male is hereby designated as the lectotype of *C. nigriceps*. The label “Lectotype *Ctenandropus nigriceps* Cameron Smetana des. 1984” has been attached to it.

Geographical distribution.— *Ctenandropus nigriceps* is widely distributed in the Oriental region, particularly in the Malay Peninsula, Sumatra and the Philippine Islands. I have also seen specimens from Marianas Islands (Tinian Isl., Saipal Isl., Guam Isl.), Caroline Islands (Ponape Isl., Moy Mog Isl.) and from Fiji (Taveuni). From the Himalayan region known only from the Siwalik Range in Uttar Pradesh (Map 29).

Material studied.— 20 specimens.

INDIA. *Uttar Pradesh.* See Type material.

Bionomics.— *Ctenandropus nigriceps* lives under the bark of trees and is apparently slow in its motions (Cameron 1932:269).

Recognition.— *Ctenandropus nigriceps* is quite conspicuous due to its general habitus, particularly the rather flat body, and the wide head that is not constricted posteriorly. It cannot be confused with any other quediine occurring in the Himalayan region.

6. Genus *Paratolmerus* Cameron

Paratolmerus Cameron 1932:169

Type species.— *Paratolmerus pilosiventris* Cameron 1932, designated by Cameron (1932:169), by monotypy.

The formal description of the genus was given by Cameron (l.c.). I therefore present here only some additional characters not mentioned by Cameron (l.c.).

First segment of antenna with fine and dense pubescence. Mandibles large, sickle-shaped as those of *Anchocerus* but symmetrical, each with two large and rather sharp teeth on medial margin. Gula very short, gular sutures fused. Infraorbital ridge fine but complete. Basal portion of head in front of neck not abruptly and strongly depressed. Prothoracic hypomera considerably less inflexed than in *Acylophorus*, except basally, and therefore distinctly visible in lateral view. Prosternum relatively large, with short and sharp intercoxal process slightly curved ventrally. All tibiae without spines on lateral face, except middle tibia with one or two fine and short spines there. Dorsal side of last four segments of middle and hind tarsus smooth and without setae except for long bristles at distal margin of each segment. Front claws distinctly longer than middle and posterior claws. Penultimate segment of middle and hind tarsus with a pair of very long apical setae exceeding apex of last tarsal segment. Empodial setae of middle and hind tarsus short, hardly visible between claws and considerably shorter than claws. No male secondary sexual characters on abdominal sternites or tergites. Male genital segment with tergite 10 and sternite 9 rounded apically, styli of tergite 9 strong and wide, each with relatively fine apical spine (Fig. 308).

Paratolmerus is a monobasic genus from Sikkim and eastern Nepal.

Taxonomic notes.— Cameron (1932:169) assigned the genus *Paratolmerus* to the tribe Staphylinini, subtribe Staphylini and compared it to the genus *Tolmerinus* Bernhauer 1923. However, the presence of an infraorbital ridge on the head, the configuration of the antennae, the mandibles and the prosternal area, and all the characters on the legs and on the abdomen, including the male genital segment confirm the assignment of *Paratolmerus* in the tribe Quediini and in the “*Acylophorus*- lineage”.

1. *Paratolmerus pilosiventris* Cameron

Figs. 308–311; Map 33

Paratolmerus pilosiventris Cameron 1932:169

Description.— Dark reddish-piceous to piceous, pronotum slightly paler, rather dark reddish-brown; mouthparts testaceous; antennae and legs reddish-brown, tarsi indistinctly paler toward apex. Head orbicular, feebly longer than wide (ratio 1.08); eyes small and flat, tempora about twice as long as length of eyes seen from above (ratio 2.08); entire surface of head covered with fine and very dense punctation, except for elongate-oval area on vertex; each puncture bearing fine seta; impunctate area on vertex without any microsculpture. Antenna long, geniculate; first segment extremely long, slightly longer than four following segments combined; segments 2 and 3 very long, subequal in length, each almost twice as long as segment four, segments 5–8 longer than segment four, more than twice as long as at apex wide, segment 8 about 1.5 times as long as at apex wide, segment 10 yet somewhat shorter, last segment about as long as segment 10. Pronotum feebly longer than wide (ratio 1.10), rather strongly rounded anteriorly, slightly narrowed posteriorly, with lateral margins feebly concave behind middle and with basal margin shallowly emarginate in middle portion; surface without any microsculpture. Scutellum large, densely and fairly coarsely punctate and pubescent. Elytra moderately long, at base about as wide as pronotum at widest point, slightly dilated

posteriorly, at suture about as long as, at sides somewhat longer (ratio 1.17) than pronotum at midline; punctation moderately coarse, very dense and slightly asperate, pubescence stiff, long and very dense. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of abdominal tergites very fine, very dense on basal portion of first visible tergite but becoming distinctly sparser toward apical margin of the tergite and toward apex of abdomen in general, fifth visible tergite therefore only sparsely punctate; apical margins of all tergites with long and stiff, closely set setae; pubescence long and semi-erect, particularly conspicuous on paratergites.

Male. Aedoeagus (Figs. 309–311) small; apical margin of median lobe obtusely angulate; paramere relatively large and wide, divided into two fairly narrow branches widely separated from each other; sensory peg setae forming a very close group on ventromedian portion of each branch; internal sac simple and inconspicuous (Figs. 309–311).

Length 7.0–8.0 mm.

Type material.— The Cameron collection in the British Museum (Natural History), London, contains one female specimen under the name *Paratolmerus pilosiventris*. It is labelled as follows: “Type” (round label with red margins)/ “Sikkim: Gopaldhara Rungbong Vall. H. Stevens” / “H. Stevens. Brit. Mus. 1922-307.” / “Paratolmerus pilosiventris Cam. TYPE”. Left front tibia and tarsus are missing. The genital segment was dissected and glued to plate with beetle. The specimen is hereby designated as the lectotype of *P. pilosiventris*; the label “Lectotype Paratolmerus pilosiventris Cameron Smetana des. 1985” has been attached to it.

Geographical distribution.— *Paratolmerus pilosiventris* is known from the eastern portion of the Himalaya, from eastern Nepal and Sikkim (Map 33).

Material studied.— 3 specimens.

INDIA. Sikkim. See the Type material.

NEPAL. Khandhari Distr. Below Sheduwa, 2100–2550 m, 9.IV.82, A. & Z. Smetand (ASCC) 2.

Bionomics.— The specimens from below Sheduwa were taken in a small creek on a steep slope from very wet debris composed mainly of rotting twigs.

Recognition.— *Paratolmerus pilosiventris* is quite conspicuous due to its general habitus, resembling the genus *Acylophorus*, the long and strongly geniculate antennae, and the conspicuously pubescent abdomen.

7. Genus *Acylophorus* Nordman⁷

Acylophorus Nordmann 1837:127; Cameron 1932:302.

Type species.— *Acylophorus ahrensii* Nordmann 1837 (= *Staphylinus glaberrimus* Herbst 1784), designated by Blackwelder 1943:466, by subsequent designation.

I am not presenting here a conventional formal description of this genus; it can be found in Cameron (1932:302) and in some recent papers, e.g., Smetana 1971:246. I only mention some additional characters not given in previous descriptions, or important for distinguishing the genera of the area studied.

⁷Only references pertaining to the area treated in this revision are given. A complete synonymy with all references up to 1970 can be found in Smetana 1971:246.

Descriptive notes.— First segment of antenna with fine and dense pubescence (Fig. 409). Mandible moderate in size, each wide basally and then strongly narrowed into curved and narrow, usually needle-sharp apical portion, before narrow apical portion with bicuspid or tricuspid tooth on medial margin. Maxillary palpus with last segment either about as wide as penultimate segment and more or less gradually and symmetrically acuminate apically, or penultimate segment swollen, wider than penultimate segment and variably, asymmetrically acuminate apically. Basal portion of head in front of neck abruptly and strongly depressed. Dorsal side of head and pronotum impunctate, except for large setiferous punctures. Prothoracic hypomera strongly inflexed and therefore not visible in lateral view. All tibiae with spines on lateral face, spines most numerous and distinct on middle tibia. Dorsal side of last four segments of middle and posterior tarsus smooth and without setae except for long bristles at distal margin of each segment (Fig. 412). Front claws distinctly longer than middle and hind claws (Figs. 413, 414). Penultimate segment of middle and hind tarsus without a pair of very long apical setae (Fig. 413). Empodial setae of middle and hind tarsus long, distinctly protruding between claws and at least as long as claws, but usually longer (Figs. 412, 413). No male secondary sexual characters on abdominal sternites or tergites. Male genital segment with tergite 10 and sternite 9 rounded apically, styli of tergite 9 long and strong, each with strong apical spine (Fig. 324).

Female genital segment as in Fig. 416, tergite 10 acuminate apically and with long apical setae.

Acylophorus is a large, predominantly tropical genus, represented by many species in all zoogeographical regions. Fourteen species are at present known from the Himalayan region; one species (*A. bipunctatus*), included here for practical reasons, occurs in southern India (see under *A. bipunctatus*).

Classification of species.— *Acylophorus* requires a thorough revision. The characters on the aedeagus, including the internal sac, are essential for the recognition of the species; unfortunately, these structures are described and illustrated only for a small portion of the known species. The genus was split into several subgenera (Bierig 1938; Smetana 1971); however, the status of these subgenera, which were established for limited faunas, may have to be reevaluated once the study of the genus is undertaken on a world-wide basis.

For similar reasons I refrained from establishing definite species-groups in this treatment. Although there seem to be assemblages of species linked together by some characters, I found it very difficult to meaningfully characterize them as species-groups. This only can be done based on larger faunas, in this case at least on the entire Oriental fauna.

Acylophorus puncticeps is quite isolated by the character of the densely punctate head, a character shared with the only species of the genus *Paratolmerus*. *Acylophorus bipunctatus* is unique by the narrow elongate head with the anterior frontal punctures situated medially and posteriad of hind margins of eyes. The

remaining species can be divided into two large groups based on the shape of the last segment of the maxillary palpus. In one group this segment is not enlarged (about as wide as penultimate segment) and more or less gradually and symmetrically acuminate apically. *Acylophorus beesoni*, *A. chillo*, *A. daai*, *A. siyo*, *A. furcatus* and *A. khairo* belong here; the aedoeagi of all these species are characterized by the presence of a strongly sclerotized paramere with numerous peg setae on the underside; however, a similar type of aedoeagus appears also in *A. puncticeps*, which also has the same type of the last segment of the maxillary palpus. In the second group of species, which includes *A. ruficollis*, *A. balchi*, *A. microcephalus*, *A. raato*, *A. charaa* and *A. tibialis*, the last segment of the maxillary palpus is swollen, wider than penultimate segment and variably, asymmetrically acuminate apically. In four species of this group the aedoeagus has a weakly sclerotized paramere with long and narrow branches without any peg setae on the underside; however, the aedoeagus of *A. tibialis* has a strongly sclerotized paramere with very numerous peg setae on underside.

Acylophorus nepalicus Coiffait (1981:328), described from a single female from Nepal "Kluihakani, Halambu, Népal central"), is a species of the genus *Erichsonius* Fauvel 1874 (comb.nov.), most likely identical with *E. basalis* Motschulsky 1858 (type seen).

I do not treat here *Acylophorus microcerus* Fauvel 1895, described from Burma (Bhamo) and included by Cameron (1932). I was unable to locate the original material of the species and found it impossible to interpret the species using only the description. It should be considerably smaller than any other species of the genus of the Himalayan region.

Key to species of *Acylophorus*

- | | | |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| 1 | Pronotum bright red, contrasting in colour with dark head.
Aedoeagus as in Figs. 328–330. Length 6.8–7.5 mm..... | 7. <i>A. ruficollis</i> Motschulsky, p. 349 |
| 1' | Pronotum not bright red, of about same colour as head.
Aedoeagi different | 2 |
| 2 (1') | Eyes small, in dorsal view considerably shorter than tempora;
anterior frontal punctures located medially and slightly
posteriad of hind margins of eyes. Length 8.0 mm | 14. <i>A. bipunctatus</i> Cameron, p. 358 |
| 2' | Eyes moderately large to large, in dorsal view at least as long as
tempora; anterior frontal punctures located between medial
margins of eyes well in front of hind margins of eyes | 3 |
| 3 (2') | Last segment of maxillary palpus swollen, wider than
penultimate segment and variably, asymmetrically acuminate
apically..... | 4 |

- 3' Last segment of maxillary palpus not swollen, about as wide as penultimate segment and more or less gradually and symmetrically acuminate apically 9
- 4 (3) Head wide and rounded, slightly wider than long (ratio 1.10); anterior frontal puncture situated away from medial margin of eye, separated from it by distance almost twice as large as diameter of puncture. Aedoeagus as in Figs. 342, 343. Length 7.0 mm 13. *A. tibialis* Cameron, p. 357
- 4' Head narrower, feebly longer than wide or as long as wide, narrowed anteriorly; anterior frontal puncture situated close to medial margin of eye, separated from it by distance no larger than diameter of puncture 5
- 5 (4') Distinctly bicoloured; head, pronotum and elytra rufo-testaceous, abdomen dark piceous with apical margins of tergites and apex paler. Aedoeagus and internal sac as in Figs. 334, 335. Length 5.0–6.0 mm 9. *A. raato spec. nov.*, p. 351
- 5' Not bicoloured, forebody not rufo-testaceous and not contrasting in colour with abdomen. Aedoeagi and internal sacs different (Figs. 331–333, 336–341) 6
- 6 (5') Large lateral puncture on pronotum situated close to lateral pronotal groove, but not touching it. Aedoeagus with median lobe hook-like apically (lateral view, Fig. 333). Length 6.1–6.9 mm 8. *A. balchhi spec. nov.*, p. 350
- 6' Large lateral puncture on pronotum touching lateral pronotal groove. Aedoeagus with median lobe straight apically, not hook-like 7
- 7 (6') Legs uniformly rufo-brunneous. Aedoeagus with apical portion of median lobe narrow, internal sac inconspicuous (Fig. 337, 341).. 8
- 7' Legs brunneotestaceous with outer faces of middle and hind femora distinctly darkened. Aedoeagus with apical portion of median lobe wide, apex broadly arcuate; internal sac conspicuous (Fig. 338, 339). Length 6.5–7.5 mm 11. *A. charaa spec. nov.*, p. 356
- 8 (7) Median lobe of aedoeagus gradually and evenly narrowed toward narrowly obtuse apex (Fig. 336); internal sac as in Fig. 337. Length 5.9–6.8 mm 10. *A. microcephalus* Cameron, p. 352
- 8' Median lobe of aedoeagus rather abruptly narrowed toward truncate, minutely emarginate apex (Fig. 340); internal sac as in Fig. 341. Length 6.2 mm 12. *A. flavipes* Motschulsky, p. 356
- 9 (3') Head densely and finely punctate, except for small impunctate median area anteriorly. Aedoeagus as in Figs. 344–346. Length

- 7.6–8.0 mm 15. *A. puncticeps* Fauvel, p. 359
- 9' Head, except for punctate tempora, with only a few large setiferous punctures (Fig. 408) 10
- 10 (9') Antenna with segments 2–7 elongate, much longer than wide, segment 4 subequal in length to segment 5; segment 8 appreciably longer than wide. Paramere of aedoeagus divided in two branches apically (Fig. 312, 314, 316) 11
- 10' Antenna with segments 2–7 less elongate, distinctly longer than wide, segment 4 shorter and usually also smaller than segment 5; segment 8 no more than feebly longer than wide. Paramere of aedoeagus solid (Figs. 319, 323, 327). Size smaller: 5.2–6.7 mm 13
- 11 (10) Branches of paramere long and divergent, apical portion of median lobe wide, broadly arcuate or obtusely truncate apically (Figs. 313, 315) 12
- 11' Branches of paramere short and not appreciably divergent, apical portion of median lobe narrow, obtusely acuminate apically (Figs. 316, 317). Length 8.4 mm
..... 3. *A. khairo spec. nov.*, p. 344
- 12 (11) Branches of paramere about half as long as length of entire paramere; apex of median lobe broadly arcuate (Fig. 313). Length 8.6–9.4 mm 1. *A. beelsoni* Cameron, p. 341
- 12' Branches of paramere slightly more than 1/3 as long as length of entire paramere; apex of median lobe obtusely truncate (Fig. 315). Length 7.9 mm 2. *A. chillo spec. nov.*, p. 343
- 13 (10') Paramere of aedoeagus narrowed into very long, narrow, acute apical portion (Fig. 319). Length 5.5–6.7 mm
..... 4. *A. siyo spec. nov.*, p. 344
- 13' Paramere of aedoeagus moderately narrowed anteriorly, apex more or less obtuse (Figs. 323, 327) 14
- 14 (13') Aedoeagus large, apical half of paramere lancet-shaped; scale-like structures of internal sac coarse and very distinct (Figs. 325–327). Length 5.2–6.3 mm
..... 6. *A. daai spec. nov.*, p. 348
- 14' Aedoeagus smaller, apical half of paramere fusiform; scale-like structures of internal sac fine and inconspicuous (Figs. 320–323). Length 5.3–6.4 mm
..... 5. *A. furcatus* Motschulsky, p. 345

1. *Acylophorus beelsoni* Cameron

Figs. 312, 313; Map 33

Acylophorus beelsoni Cameron 1926:371; 1932:304.

Acylophorus ventralis Coiffait 1983a:168 (*syn.nov.*).

Description.— Piceous-black, apical margins of abdominal tergites and 6th visible segment reddish-brunneous; abdomen distinctly iridescent; mouthparts testaceous; antennae testaceous, apical portion of segment 1 and segments 2 and 3 piceous, segments 4 and 5 slightly darker than remaining segments; legs rufo-brunneous with paler tarsi. Head feebly longer than wide (ratio 1.10); eyes moderately large, tempora about as long as length of eyes seen from above; anterior frontal puncture situated at about level of posterior third of length of eye and separated from medial margin of eye by distance slightly larger than diameter of puncture; one puncture posteromedial of posterior frontal puncture; tempora finely punctate and pubescent; surface of head without any microsculpture. Last segment of maxillary palpus not swollen, about as wide as penultimate segment and more or less gradually and symmetrically narrowed anteriorly. Antenna long, first segment slightly longer than five following segments combined, segments 2–7 elongate, much longer than wide but gradually becoming shorter, segment 4 subequal in length to segment 5, segment 8 appreciably longer than wide, segment 9 feebly longer than wide, segment 10 as long as wide, segment 11 short, shorter than preceding segment. Pronotum slightly wider than long (ratio 1.15), broadly rounded basally, strongly arcuately narrowed anteriorly; large lateral puncture separated from lateral pronotal groove by distance about equal to diameter of puncture; surface without microsculpture. Scutellum densely punctate. Elytra at base slightly narrower than pronotum at widest point, slightly dilated posteriorly, at suture shorter (ratio 0.85), at sides as long as pronotum at midline; punctation dense and moderately coarse, slightly asperate, interspaces between punctures along transverse axis smaller than diameters of punctures, punctation becoming finer and denser near elytral base. Pubescence stiff, dense. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of abdominal tergites dense at tergal bases with punctures more or less elongate, gradually becoming finer, sparser and simple toward apical margins of tergites; pubescence long and stiff.

Male. Aedoeagus (Figs. 312, 313) small; apical portion of median lobe with apex broadly arcuate; paramere elongate, divided in two long, divergent branches, each with numerous sensory peg setae along median margin; internal sac without sclerotized structures.

Length 8.6–9.4 mm.

Type material.— *A. beesoni*. The original series in the British Museum (Natural History), London, contains two specimens under the name *A. beesoni*. They are labelled as follows: Spec. No. 1 (female): “Type” (round label with red margin)/ “SYN-TYPE” (round label with blue margin)/ “Kaligad, Dehra Dun Dr. Cameron. 26.VI.21.” / “TYPE *Acylophorus beesoni* Cam.” / “M. Cameron. Bequest. B.M. 1955-147.”. Spec. No. 2 (male): “SYN-TYPE” (round label with blue margin)/ “Kaligad, Dehra Dun. 10.VII.21.” / “M. Cameron. Bequest. 1955-147.”

The second (male) specimen was dissected and the genital segment and aedoeagus were mounted on plate with beetle. The specimen is hereby designated as the lectotype of *A. beesoni*; the label “Lectotype *Acylophorus beesoni* Cameron Smetana des. 1984” has been attached to it.

Acylophorus ventralis. Coiffait (1983:168) described the species from a single specimen from Nepal. The holotype in the collection Coiffait, Muséum National d’Histoire Naturelle, Paris, France, is labelled as follows: “Nepal VIII.82 Val. de Kathmandu Bandha T.D.” / “HOLOTYPE” / “*Acylophorus ventralis* Coiffait det. 19.” The specimen is a male (not a female as stated in the original description); it was dissected and the aedoeagus and genital segment were mounted on plate with beetle. The specimen cannot be specifically distinguished from the lectotype of *A. beesoni*; the name *A. ventralis* is a junior synonym of *A. beesoni*. My determination label “*Acylophorus beesoni* Cam. Smetana det. 1984” has been attached to the specimen.

Geographical distribution.— *Acylophorus beesoni* is distributed in the western portion of the Himalayan range, from Uttar Pradesh eastward to central Nepal (Map 33).

Material studied.— 6 specimens.

INDIA. *Uttar Pradesh.* See Type material of *A. beesoni*.

NEPAL. *Kathmandu Distr.* Gokarna Forest 1300 m, 10.IX.83, Smetana and Löbl (CNCC, MHNG) 3.

Bionomics.— The specimens from Gokarna Forest were taken among soaking wet fallen leaves on a forest seepage.

Comparisons.— *Acylophorus beesoni* is characterized by the large size, in combination with the long antenna (see description), the not swollen last segment of the maxillary palpus, and the shape of the aedoeagus (Figs. 312, 313). It shares the first three characters with the two following species; however, each of the two following species can be easily distinguished by the different aedoeagus (Figs. 314, 316).

2. *Acylophorus chillo spec. nov.*

Figs. 314, 315; Map 33

Description.— In all characters very similar to *A. beesoni*, but different as follows: size smaller and form less robust, colouration slightly paler: head rufo-brunneous, pronotum rufopiceous, first antennal segment uniformly testaceous, segments 2–5 not appreciably darkened. Head slightly narrower with somewhat smaller eyes, tempora slightly longer than length of eyes seen from above (ratio 1.21). Antenna with middle segments not quite as elongate as in *A. beesoni*. Pronotum slightly narrower and more narrowed anteriorly.

Male. Aedoeagus very similar to that of *A. beesoni* but somewhat smaller and narrower; apical portion of median lobe not dilated anteriorly and with apex obtusely truncate; paramere narrower with branches shorter, slightly more than 1/3 as long as length of entire paramere; internal sac without sclerotized structures (Figs. 314, 315).

Length 7.9 mm.

Type material.— Holotype (male): “INDIA Assam Manas 200 m 22.X.78 Besuchet-Löbl”. In the Muséum d’Histoire Naturelle de Genève, Genève, Switzerland.

Geographical distribution.— *Acylophorus chillo* is known only from the type locality in Assam (Map 33).

Bionomics.— The holotype was taken by sifting leaf litter and floor debris in a forest.

Comparisons.— *Acylophorus chillo* is also similar to *A. khairo*, but differs from it by the shorter antenna and by the quite different aedoeagus (Figs. 314, 316).

Etymology.— The specific name is the Nepali adjective *chillo* (smooth). It refers to the smoothness of the dorsal surface of the head and pronotum.

3. *Acylophorus khairo spec. nov.*

Figs. 316, 317; Map 33

Description.— In all characters very similar to *A. beesoni*, but different as follows: form less robust, colouration slightly paler, same as in *A. chillo*. Head slightly narrower with somewhat smaller eyes, tempora slightly longer than length of eyes seen from above (ratio 1.27). Pronotum slightly narrower and more narrowed anteriorly.

Male. Aedoeagus (Figs. 316, 317) with median lobe narrow, gradually narrowed anteriorly, apical portion narrow with apex obtusely acuminate; paramere relatively wide, with branches short and wide, narrowly separated medially and not appreciably divergent; sensory peg setae on underside of each branch numerous, forming elongate group; internal sac without sclerotized structures.

Length 8.4 mm.

Holotype (male): “INDIA Meghalaya Garo Hills 2.XI.78 Songsak 400 m Besuchet-Löbl”. In the Muséum d’Histoire Naturelle de Genève, Genève, Switzerland.

Geographical distribution.— *Acylophorus khairo* is known only from the type locality in Garo Hills in Meghalaya (Map 33).

Bionomics.— The holotype was taken in a forest by sifting forest floor debris, particularly under bamboo growths.

Comparisons.— *Acylophorus khairo* shares most of the external characters with *A. chillo*, but differs from it by the longer antenna (same as described for *A. beesoni*) and by the quite different aedoeagus (Figs. 314, 316).

Etymology.— The specific name is the Nepali adjective *khairo* (brown). It refers to the colour of this species.

4. *Acylophorus siyo spec. nov.*

Figs. 318, 319; Map 34

Description.— Piceous-black, pronotum occasionally slightly paler, humeral angles and apical margin of elytra, and apical margins of abdominal tergites often feebly paler; abdomen distinctly iridescent; mouthparts pale testaceous; antennae brunneo-piceous, base of first segment and last segment vaguely paler; front legs testaceous with paler coxae, middle and hind legs brunneo-piceous to piceous with paler tarsi. Head feebly wider than long (ratio 1.11), distinctly dilated posteriorly behind eyes and then strongly narrowed toward neck; eyes moderately large, tempora feebly longer than length of eyes seen from above (ratio 1.11); anterior frontal puncture situated at about level of posterior third of length of eye and separated from medial margin of eye by distance equal to diameter of puncture; one puncture posteromedial of posterior frontal puncture; tempora finely punctate and pubescent; surface of head without microsculpture. Last segment of maxillary palpus not swollen, as wide as penultimate segment, strongly attenuate apically. Antenna moderately long, first segment as long as four following segments combined, second segment as long as segments 3 and 4 combined, segment 4 slightly smaller and shorter than segment 5, segments 6 and 7 slightly longer than wide, segment 8 about as long as wide, segments 9 and 10 slightly transverse, last segment short, shorter than two preceding segments combined. Pronotum wider than long (ratio 1.20), moderately narrowed anteriorly; base broadly rounded, but flattened in middle portion; large lateral puncture separated from lateral pronotal groove by distance about equal to diameter of puncture; surface without microsculpture. Scutellum densely punctate. Elytra at base slightly narrower than pronotum at widest point, slightly dilated posteriorly, at suture about as long as pronotum at midline, at sides slightly longer than pronotum at midline (ratio 1.15); punctation fine and dense, slightly asperate, interspaces between punctures along transverse axis about equal to diameters of punctures; punctation becoming denser and finer toward elytral base; pubescence dense. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct

whitish apical seam of palisade setae; punctation of abdominal tergites fine and dense at tergal bases with punctures feebly elongate, gradually becoming finer and sparser toward apical margins of tergites; pubescence long, dense and stiff.

Male. Aedoeagus (Figs. 318, 319) rather small; middle portion of median lobe slightly dilated, apex broadly rounded, entirely covered by paramere; paramere elongate, narrowed into very long and narrow, acute apical portion; sensory peg setae on underside of paramere very numerous, forming a large group on middle portion of paramere; internal sac without sclerotized structures.

Length 5.5–6.7 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Khandbari Distr. 2 km E Mansingma 1900 m 19.IV.84 Smetana & Löbl. In the Smetana Collection, Ottawa, Canada.

Paratypes (8): Nepal: Kosi, 2 km E Mansingma, 1900 m, 19.IV.84, Löbl-Smetana (CNCC, MHNG) 7; Khandbari Distr., Induwa Khola Valley, 2050 m, 17.IV.84, Smetana & Löbl (ASCC) 1.

Geographical distribution.— *Acylophorus siyo* is known from two localities in eastern Nepal just east of Arun river (Map 34).

Bionomics.— The specimens were collected at a small creek by sifting wet moss and debris along its edges and by sifting small flood-debris piles accumulated during two recent storms. One specimen was also found on a wet talus slope in a semideciduous broad-leaved forest by sifting wet debris and humus among rocks on a seepage area.

Comparisons.— *Acylophorus siyo* resembles externally *A. kailo* and *A. daai*; however, it differs from both of them, in addition to the distinctive aedoeagus, by the darker colouration of body, by the darker antennae and middle and hind legs, and by the more densely punctate elytra and abdominal tergites.

Etymology.— The specific name is the Nepali noun *siyo* (needle). It refers to the shape of the paramere of the aedoeagus of this species.

5. *Acylophorus furcatus* Motschulsky

Figs. 320–323, 408–415; Map 34

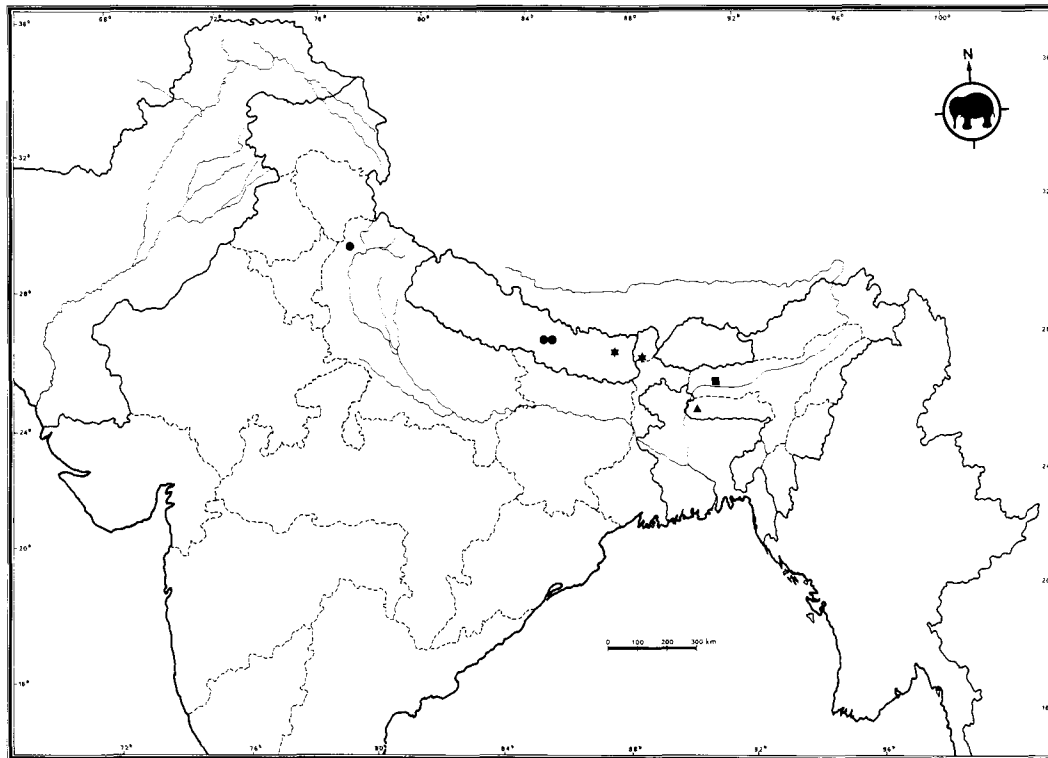
Acylophorus furcatus Motschulsky 1858a:657.

Description.— In all external characters very similar to *A. siyo* but different as follows: colouration paler; rufo-brunnous, elytra rarely feebly darkened, all appendages uniformly testaceous; abdomen strongly iridescent. Head with eyes longer, tempora slightly shorter than length of eyes seen from above (ratio 0.77) (Fig. 408). Pronotum more distinctly narrowed anteriorly, large lateral puncture situated somewhat farther from lateral pronotal groove, separated from it by distance equal to about two diameters of the puncture (Fig. 415). Punctuation of both elytra and abdominal tergites sparser.

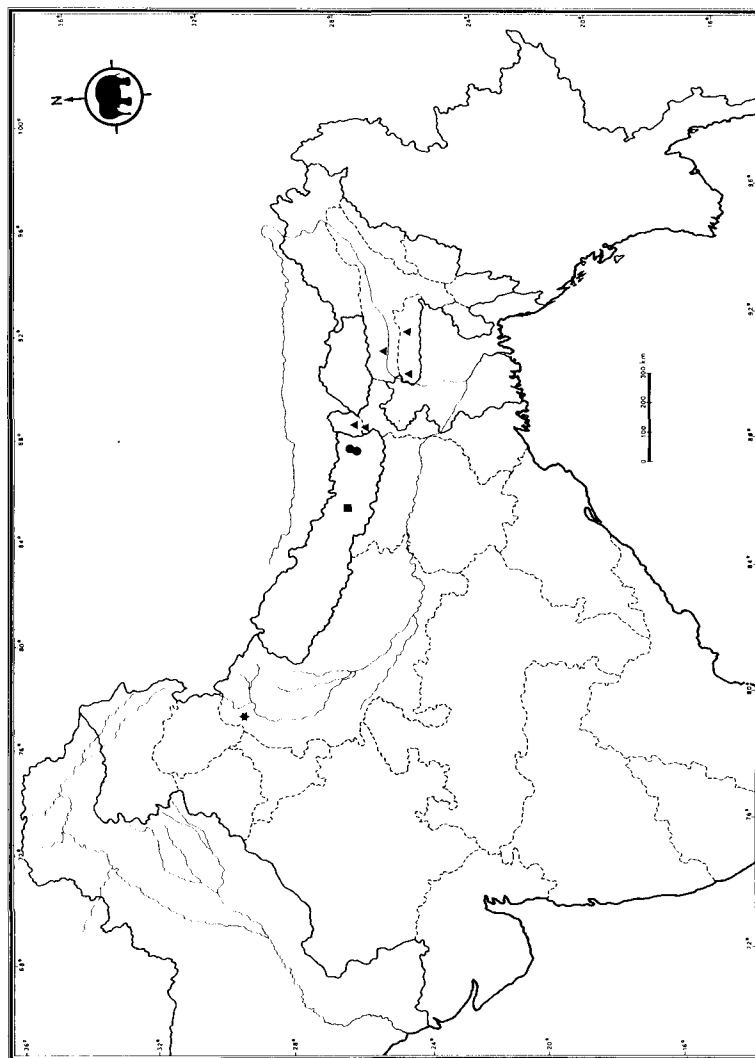
Male. Aedoeagus (Figs. 320–323) fairly small, elongate; apex of median lobe truncate; paramere elongate and rather narrow, considerably exceeding apex of median lobe, its apical half fusiform, sensory peg setae on underside of paramere numerous, scattered over apical portion; internal sac with fine and inconspicuous scale-like structures.

Length 5.3–6.4 mm.

Type material.— The Motschulsky collection at the Zoological Museum, Moscow Lomonosov State University, contains one female specimen under the name *A. furcatus*. It is labelled as follows: round yellow disc/ “Ind. or.” /



Map 33. Distribution records for: *Paratolmerus pilosiventris* (★); *Acylophorus beesoni* (●); *A. chillo* (■); and *A. khairo* (▲).



Map 34. Distribution records for: *Acylophorus siyo* (●); *A. furcatus* (▲); *A. charax* (■); and *Anchocentrus birmanus* (◆).

“*Acylophorus furcatus* Motch. Ind. or.”. The specimen was cleaned and remounted on a larger plate (original plate attached to pin); the genital segment is mounted separately on plate. The specimen is in relatively good condition: left hind tibia and tarsus, and middle and hind right tibiae and tarsi are missing. The specimen is hereby designated as the lectotype of *A. furcatus*; the label “Lectotype *Acylophorus furcatus* Motschulsky, A. Smetana des. 1986” has been attached to it.

Geographical distribution.— *Acylophorus furcatus* is distributed over eastern portion of the Himalaya, in West Bengal (Darjeeling area) and Sikkim; also in Assam and Meghalaya (Garó and Khasi Hills) (Map 34).

Material studied.— 14 specimens.

INDIA. *Assam*. Manas, 200 m, 22.X.78, Besuchet-Löbl (ASCC, MHNG) 4. *Meghalaya*. Garó Hills: Songsak, 400 m, 2.XI.78, Besuchet-Löbl (MHNG) 1; Garó Hills: Rongrengiri, 400 m, 3.X.78, Besuchet-Löbl (MHNG) 1; Khasi Hills: Dawki, 500–800 m, 29.X.78, Besuchet-Löbl (MHNG) 2. *Sikkim*. Singhik, 4480', 5.III.52, T. Clay (BMNH) 1. *West Bengal*. Darjeeling distr.: Sukna, 200 m, 7.X.78, Besuchet-Löbl (ASCC, MHNG) 2; Sevoke, 200 m, 7.X.78, Besuchet-Löbl (ASCC, MHNG) 2; Teesta-Rangpo 350 m, 12.X.78, Besuchet-Löbl (MHNG) 1.

Bionomics.— *Acylophorus furcatus* apparently prefers lower elevations, up to 1360 m. Specimens were collected in an evergreen forest from “moss, leaves, liverworts” (at Singhik, Sikkim), on a marshy land by sifting dead “Elephant grass” and by sifting forest floor litter, moss and fallen leaves.

Comparisons.— *Acylophorus furcatus* can easily be distinguished from *A. siyo* by the characters given in the key and in the description. It also closely resembles *A. daai*, even in the shape of the aedeagus. See under the latter for notes about the distinguishing characters, and Figs. 320, 325.

6. *Acylophorus daai* spec.nov.

Figs. 324–327; Map 35

Description.— In all external characters very similar to *A. siyo* but different as follows: colouration paler, same as in *A. furcatus*, except apical portion of first antennal segment and antennal segments 2–5 slightly darkened. Head narrower, feebly longer than wide (ratio 1.12), only slightly dilated posteriorly behind eyes, tempora evenly, arcuately narrowed toward neck; eyes moderately large, tempora about as long as length of eyes seen from above. Pronotum narrower, only slightly wider than long (ratio 1.14), more distinctly narrowed anteriorly. Punctuation of both elytra and abdominal tergites sparser, about same as that of *A. furcatus*.

Male. Aedeagus (Figs. 325–327) quite similar to that of *A. furcatus* but longer; apical half of paramere lancet-shaped, sensory peg setae on underside of paramere distributed in a similar way to those of *A. furcatus*; scale-like structures of internal sac coarse and very distinct.

Length 5.2–6.3 mm.

Type material.— Holotype (male): “NEPAL Khandbari District” / “below Sheduha 2100–2500 m 9.IV.1982 A. & Z. Smetana”. Allotype (female): “NEPAL (Prov. Bagmati) Dobate Ridge NE Barahbise, 2800 m, 2.V.81 Löbl & Smetana.” In the collection of A. Smetana, Ottawa.

Paratypes (11): INDIA: Uttar Pradesh: Garhwal, Mussoorie, 1700 m, 19.X.79, I. Löbl (MHNG) 1; Garhwal, 4 km S Bhatwari, 1400 m, 23.X.79, I. Löbl (MHNG) 1. NEPAL:: Khandbari Distr. Induwa Khola Valley, 2000 m, 14.IV.84, Löbl-Smetana

(MHNG) 1; Arun Khola Valley at Num main bridge, 1050 m, 21.IV.84, Smetana & Löbl (ASCC) 1; Val. Arun ss/Num, 1050 m, 20.IV.84, Löbl-Smetana (MHNG) 1. Lalitpur Distr.: Godawari, 23.V.76, W. Wittmer and C. Baroni-Urbani (NHMB) 1. Parbat Distr.: Umg. Goropani w. Pokhara, Sept.-Okt, 1971, H. Franz (HGCC) 1. Sindhupalchok Distr.: Dobate Ridge NE Barahbise, 2800 m, 2.V.81, Löbl & Smetana (ASCC, MHNG) 3; Barahbise, Ting-Sang-La, H. Franz (HFCC) 1.

Geographical distribution.— *Acylophorus daai* is widely distributed; from Uttar Pradesh through central Nepal to the Arun river valley in eastern Nepal (Map 35).

Bionomics.— Specimens were collected by sifting moist to wet leaf litter in a depression in a semideciduous broad-leaved forest, in wet detritus at edges of a small, fast running creek, by sifting thin layer of soaking wet leaves and other debris in a sandy bank of a creek, by sifting moist leaf litter in a forest ravine and by sifting of moss and ferns at the edge of a degraded forest.

Comparisons.— *Acylophorus daai* shares most of the external characters with *A. furcatus*; however, it can be distinguished, in addition to the differences on the aedoeagus (Figs. 320, 325), by the different shape of the head, the slightly shorter eyes, and the slightly darkened antennal segments 2–5.

Etymology.— The specific name is the Nepali noun *daai* (older brother). It refers to the similarity of this species to *A. furcatus*.

7. *Acylophorus ruficollis* Motschulsky

Figs. 328–330; Map 35

Acylophorus ruficollis Motschulsky 1858a:657; Cameron 1932:303.

Acylophorus ruficollis Kraatz 1859:65 (*syn. nov.*).

Description.— Black, apical margins of first four visible abdominal tergites narrowly, apical portion of tergite 5 and base of tergite 6 paler, rufo-brunneous to rufo-testaceous; pronotum bright red, abdomen strongly iridescent; mouthparts and legs testaceous to rufo-testaceous; antennae piceous, gradually becoming paler toward apex, basal portion of first segment testaceous. Head relatively narrow, about as long as wide, behind eyes gradually arcuately narrowed toward neck; eyes large, tempora distinctly shorter than length of eyes seen from above (ratio 0.65); anterior frontal puncture situated at about level of middle of length of eye and separated from medial margin of eye by distance about equal to diameter of puncture; no puncture posteromedial of posterior frontal puncture; tempora extensively, finely and densely punctate and pubescent; surface of head without any microsculpture. Last segment of maxillary palpus slightly swollen, wider than penultimate segment and asymmetrically acuminate apically. Antenna long, first segment as long as five following segments combined, segment 2 elongate, longer than segment 3, segment 4 shorter and slightly smaller than segment 5, segments 6–8 longer than wide, gradually becoming shorter and wider toward apex, segment 9 as long as wide, segment 10 slightly transverse, last segment short, shorter than two preceding segments combined. Pronotum only moderately transversely convex and relatively narrow, only slightly wider than long (ratio 1.10), distinctly narrowed anteriorly; base broadly rounded but flattened in middle portion; large lateral puncture separated from lateral pronotal groove by distance somewhat larger than diameter of puncture; surface of pronotum without microsculpture. Scutellum densely punctate. Elytra at base slightly narrower than pronotum at widest point, slightly dilated posteriorly, at suture about as long as, at sides longer than pronotum at midline (ratio 1.17); punctation dense and moderately coarse, asperate, interspaces between punctures along transverse axis smaller than diameters of punctures; pubescence dense and stiff. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of abdominal tergites finer than that on elytra, dense at tergal bases with punctures slightly elongate, gradually becoming sparser and more or less finer toward apical margins of tergites;

pubescence long and stiff.

Male. Aedoeagus (Figs. 328–330) short, stout and wide; median lobe narrowed anteriorly with apex obtusely arcuate; paramere short, solid, slightly dilated anteriorly, apical margin deeply, obtusely triangularly emarginate, with three pairs of fine apical setae; sensory peg setae on underside of paramere very numerous, distributed as in Fig. 330; paramere either covering entire apical portion of median lobe, or apex of median lobe exposed in emargination of apical margin of paramere; internal sac without large sclerotized structures, developed as in Fig. 329.

Length 6.8–7.5 mm.

Type material.— The Motschulsky collection at the Zoological Museum, Moscow Lomonosov State University, Moscow, contains two conspecific female specimens glued on one plate under the name *A. ruficollis*. They are labelled as follows: round yellow disc with a part cut off and illegible symbols/ “Ancylophorus ruficollis Motch. Ind. or.” The specimens were cleaned and remounted on a larger plate in exactly the same position as they were glued on the original plate (original plate attached to pin). The specimens are in relatively good condition: the front specimen is missing the left elytron, the medioapical portion of the right elytron and right hind tarsus; the posterior specimen is missing left hind leg. The posterior specimen is hereby designated as the lectotype of *A. ruficollis*; the label “Lectotype (posterior specimen) *Acylophorus ruficollis* Motschulsky, A. Smetana des. 1986” has been attached to it.

Geographical distribution.— *Acylophorus ruficollis* is widely distributed, from Sri Lanka northwards through Indian subcontinent to Nepal and Assam (Map 35). Also known from the Malay Peninsula and from Ishigakijima Isl., Okinawa, Japan (Shibata 1984:139).

Material studied.— 4 specimens.

INDIA. Assam. Gauhati, 200 m, 24.X.78, Besuchet-Löbl (MHNG) 1.

NEPAL. Kathmandu Distr. Kathmandu, H. Franz (HFCC) 1.

Bionomics.— No details are known about the habitat requirements of this species. It seems to occur at low elevations, up to about 1400 m (Kathmandu).

Recognition.— *Acylophorus ruficollis* can easily be recognized by the colouration alone (see the description).

Kraatz (1859:65) actually described *A. ruficollis* as a new species, using by chance the same name as Motschulsky one year earlier.

8. *Acylophorus balchhi* spec. nov.

Figs. 331–333; Map 35

Description.— Piceous-black, apical portions of visible tergites 5 and 6 of abdomen in some specimens slightly paler; abdomen strongly iridescent; mouthparts testaceous; antennae piceous, indistinctly paler at apex, first segment testaceous; legs rufo-testaceous with somewhat paler tarsi. Head rather small, about as long as wide, behind eyes strongly narrowed toward neck; eyes large, tempora about as long as length of eyes seen from above; anterior frontal puncture situated at about level of middle of length of eye and very close to medial margin of eye, almost touching it; one puncture posteromedial of posterior frontal puncture; tempora finely and densely punctate and pubescent; surface of head without any microsculpture. Last segment of maxillary palpus swollen, wider than penultimate segment and asymmetrically acuminate apically. Antenna rather short, first segment almost as long as seven following segments combined, segment

2 only moderately elongate, somewhat longer than segment 3, segments 4–7 longer than wide, gradually becoming shorter and wider, segment 4 slightly shorter and smaller than segment 5, segments 8–10 as long as wide to slightly wider than long, last segment short, shorter than two preceding segments combined. Pronotum wider than long (ratio 1.25), broadly rounded basally, strongly narrowed anteriorly; large lateral puncture situated close to pronotal lateral groove, separated from it by distance slightly less to about equal to diameter of puncture; surface of pronotum without microsculpture. Scutellum punctate, except smooth basally. Elytra at base about as wide as pronotum at widest point, slightly dilated posteriorly, at suture about as long as, at sides slightly longer than pronotum at midline (ratio 1.16); punctation moderately coarse and dense, asperate, interspaces between punctures along transverse axis slightly larger than diameters of punctures; pubescence moderately dense, stiff. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish seam of palisade setae; punctation of abdominal tergites finer than that of elytra, moderately dense at tergal bases, gradually becoming sparse and finer toward apical margins of tergites; pubescence moderately dense, stiff.

Male. Aedeagus (Figs. 331–333) narrow and elongate; median lobe suddenly narrowed into short, acute and hook-like curved apical portion; paramere weakly sclerotized, divided in two long, narrow and acute branches, broadly arcuately separated from each other basally; no sensory peg setae on underside of paramere; internal sac with numerous scale-like structures (Fig. 332).

Length 6.1–6.9 mm.

Type material.— Holotype (male) and allotype (female): “INDIA Meghalaya Khasi Hills 1000 m Mawsynram-Balat 27.X.78 Besuchet-Löbl. In the Muséum d’Histoire Naturelle de Genève, Switzerland.

Paratypes (2): same data as holotype (ASCC, MHNG) 2.

Geographical distribution.— *Acylophorus balchhi* is at present known only from Khasi Hills in Meghalaya (Map 35).

Bionomics.— The specimens were collected by sifting leaf litter and other debris in a forest ravine.

Comparisons.— *Acylophorus balchhi* can be best distinguished from the similar species (mainly *A. furcatus*, *A. raato*, *A. charaa*) by the following combination of characters: last segment of maxillary palpus swollen, large lateral puncture on pronotum not touching lateral pronotal groove, aedeagus of characteristic shape (see the description and Fig. 331).

Etymology.— The specific name is the Nepali noun *balchhi* (hook). It refers to the shape of apex of median lobe of aedeagus of this species.

9. *Acylophorus raato* spec. nov.

Figs. 334, 335, 416; Map 36

Description.— In all external characters similar to *A. balchhi* but different as follows: size smaller and form slightly less stout; colouration paler: bicoloured, head, pronotum and elytra rufo-testaceous, abdomen dark piceous with apical margins of tergites and apex paler, antennae almost uniformly brownish-testaceous, occasionally vaguely darkened in middle portion. Head slightly smaller and narrower. Pronotum somewhat more narrowed anteriorly, large lateral puncture situated close to lateral pronotal groove, separated from it by distance somewhat smaller than diameter of puncture, in a few specimens almost touching it.

Male. Aedeagus (Figs. 334, 335) rather small, elongate; apex of median lobe subtruncate to truncate apically; paramere short and slightly sclerotized, divided in two long and narrow, subacute branches, broadly arcuately separated from each other basally; no sensory peg setae on underside of paramere; internal sac densely covered with spine-like structures, without larger sclerotized sclerites (Fig. 335).

Length 5.0–6.0 mm.

Type material.— Holotype (male): “NEPAL, Khandbari District” / “Arun River at Num 1500–1600 m 10.IV.1982 A. & Z. Smetana”. Allotype (female): “NEPAL, Khandbari Dis. Arun Valley at Num main bridge 1050 m 21.IV.1984 Smetana & Löbl”. In the collection A. Smetana, Ottawa, Canada.

Paratypes (18): INDIA: Meghalaya: Khasi Hills, Weloi, 1700 m, 27.X.78, Besuchet-Löbl (MHNG) 1. West Bengal: Darjeeling Distr., Mahanadi, 1200 m, 6. or 19.X.78, Besuchet-Löbl (ASCC, MHNG) 7. NEPAL: Khandbari Distr.: same data as holotype (ASCC) 2; same data as allotype (ASCC, CNCC) 5; Val. Arun ss/Num, 1050 m, 21.IV.84, Löbl-Smetana (MHNG) 3.

Geographical distribution.— *Acylophorus raato* is distributed in the eastern portion of the Himalaya, in eastern Nepal and in the Darjeeling area; also in Khasi Hills in Meghalaya (Map 36).

Bionomics.— Specimens were collected in the Arun River valley by sifting moist to wet layers of fallen leaves in depressions of the forest floor, and by sifting thin layer of soaking wet leaves and other debris on a sandy bank of a creek. The specimens from the Darjeeling district were taken by sifting forest floor litter in a degraded forest, those from Khasi Hills by sifting forest floor litter.

Recognition.— *Acylophorus raato* can easily be distinguished by its bicoloured body with the head, pronotum and elytra rufo-testaceous, and the abdomen dark piceous (see the description for details), in combination with the swollen last segment of maxillary palpus, and the shape of the aedoeagus (Fig. 334).

Etymology.— The specific name is the Nepali adjective raato (red). It refers to the colour of this species.

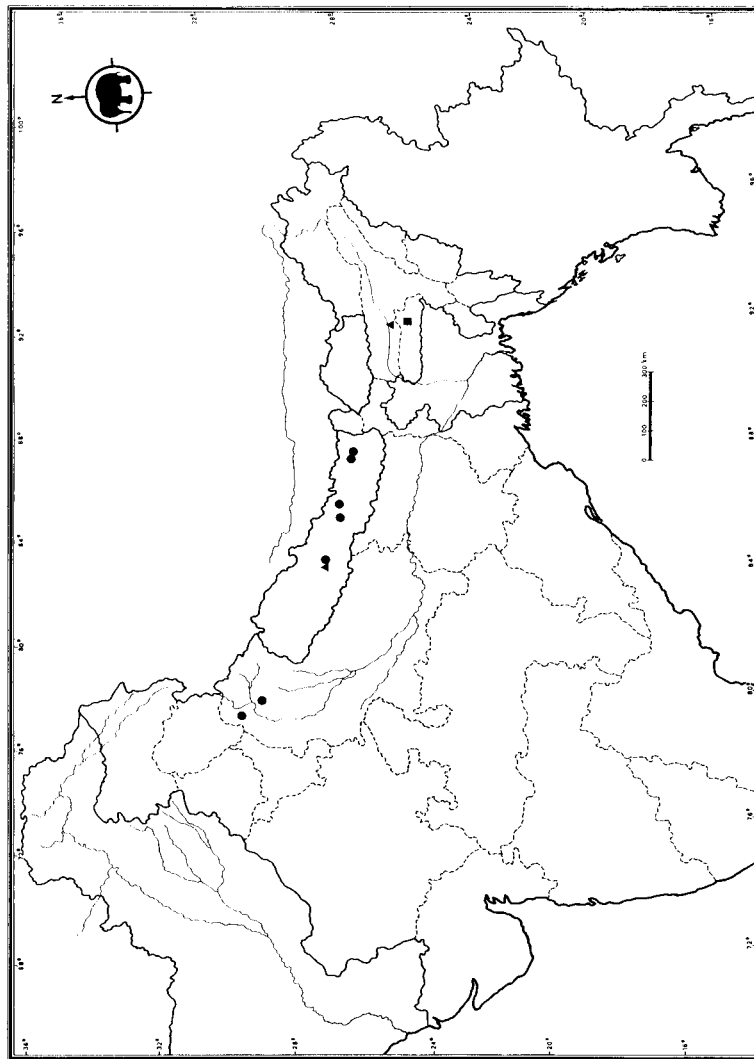
10. *Acylophorus microcephalus* Cameron

Figs. 336, 337; Map 37

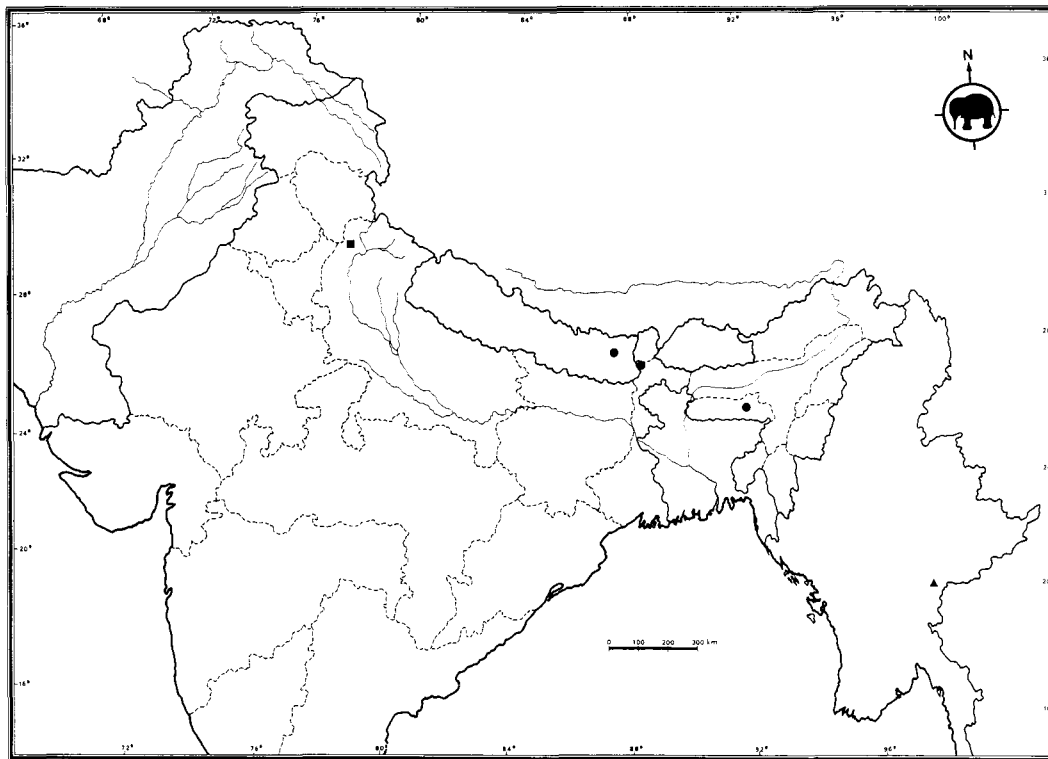
Acylophorus microcephalus Cameron 1932:305.

Acylophorus furcatus: Cameron 1932:304 (nec Motschulsky 1858).

Description.— Dark rufopiceous to piceous, pronotum and/or elytra sometimes slightly paler, apical margins of abdominal tergites and apical portion of sixth visible tergite in some specimens somewhat paler, rather rufo-brunneous; abdomen strongly iridescent; mouthparts pale testaceous; antennae testaceo-brunneous, becoming slightly paler toward apex, basal portion of first segment indefinitely paler; legs uniformly rufo-brunneous. Head relatively small and narrow, feebly longer than wide (ratio 1.12), behind eyes gradually arcuately narrowed toward neck; eyes moderately large, tempora slightly longer than length of eyes seen from above (ratio 1.12); anterior frontal puncture situated at about level of middle of length of eye and separated from medial margin of eye by distance slightly smaller than diameter of puncture; one puncture posteromedial of posterior frontal puncture; tempora finely and densely punctate and pubescent; surface of head without any microsculpture. Last segment of maxillary palpus swollen, much wider than penultimate segment and slightly asymmetrically acuminate apically. Antenna rather short, first segment as long as six following segments combined, segment 2 only moderately elongate, somewhat longer than segment 3, segments 4–7 longer than wide, gradually becoming shorter and wider, segment 8 as long as wide, segments 9 and 10 slightly transverse, last segment short, shorter than two preceding segments combined. Pronotum broad and voluminous, wider than long (ratio 1.22), moderately, arcuately narrowed anteriorly; base broadly rounded but flattened in middle portion; large lateral puncture touching pronotal



Map 35. Distribution records for *Acylphorus daai* (●); *A. rufficollis* (▲); and *A. batchii* (■).



Map 36. Distribution records for: *Acylophorus raato* (●); *A. puncticeps* (▲); and *Anchocerus monicola* (■).

lateral groove; surface without microsculpture. Scutellum densely punctate. Elytra at base narrower than pronotum at widest point, slightly widened posteriorly and rather short, at suture shorter (ratio 0.84), at sides as long as pronotum at midline; punctation dense and moderately coarse, asperate, interspaces between punctures along transverse axis about equal to diameters of punctures; punctation gradually becoming finer and denser toward elytral base; pubescence dense and stiff. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of abdominal tergites more or less finer than that on elytra, dense at tergal bases with punctures elongate, becoming much sparser toward apical margins of tergites and toward apex of abdomen in general; pubescence long and stiff.

Male. Aedoeagus (Figs. 336, 337) very long and narrow; median lobe with apical portion narrow and with apex narrowly obtuse; paramere weakly sclerotized, divided in two long and narrow, almost hair-like branches, broadly arcuately separated from each other basally; no sensory peg setae on underside of paramere; internal sac inconspicuous, without large sclerotized structures (Fig. 337).

Length 5.9–6.8 mm.

Type material.— The original series in the British Museum (Natural History), London, contains six specimens under the name *A. microcephalus*. They are labelled: Spec. No. 1 (male): “Type (round label with red margin)” “SYN-TYPE” (round label with blue margin) “Arni Gad. Mussoorie.2”/ “Dr. Cameron, 12.VI.21.”/ “*A. microcephalus* Cam. TYPE”/ “M. Cameron. Bequest. B.M. 1955-147.” Spec. Nos. 2–6: “Arni Gad. Mussoorie.” / “Dr. Cameron, 12.VI.21 [28.V.21, 16.X.21]” / “M. Cameron. Bequest. B.M. 1955-147.”

The male specimen No. 1 was dissected and the genital segment and aedoeagus were mounted on plate with beetle. The specimen is hereby designated as the lectotype of *A. microcephalus*; the label “Lectotype *Acylophorus microcephalus* Cameron, Smetana des. 1984” has been attached to it.

Geographical distribution.— *Acylophorus microcephalus* is distributed mainly in the western portion of the Himalayan range, in Uttar Pradesh; however, one record is also known from the Darjeeling area in the eastern part of the Himalayan range (Map 37).

Material studied.— 137 specimens.

INDIA. *Uttar Pradesh.* Kaligad, Dehra Dun, 10.VII.21, Cameron (BMNH) 2. Mussoorie Distr.: Dhobi Ghat, 14.IV.22, Cameron (BMNH) 1. Kumaon: Haldwani distr., H.G. Champion (ASCC, CNCC, BMNH) 125; Haldwani distr., banks of Deoba Nadi, 27.V.23, H.G. Champion (BMNH) 1; Garhwal: 20 km S Chamba, 1150 m, 20.X.79, I. Löbl (MNHG) 1. *West Bengal.* Darjeeling Distr., Rangpo, 400 m, 10.X.78, Besuchet and Löbl (MNHG) 1.

Bionomics.— Little is known about the habitat requirements of this species. The specimens from Garhwal were taken in a ravine with a spring by sifting accumulated twigs, pieces of wood and grasses on gravel, those from Darjeeling district by sifting debris along the edges of a creek.

Comparisons.— *Acylophorus microcephalus* differs from all medium sized and more or less dark coloured species of the genus, except for *A. charaa*, by the position of the large lateral puncture on pronotum which touches the pronotal lateral groove; the aedoeagus is also characteristic (Fig. 336).

Rare specimens of *A. raato* with the large lateral puncture on pronotum almost touching lateral pronotal groove can be distinguished from those of *A. microcephalus* by the different colouration (see the description) and by the different aedoeagus (Figs. 334, 336).

11. *Acylophorus charaa* spec. nov.

Figs. 338, 339; Map 34

Description.— In all external characters similar to *A. microcephalus*, but different as follows: size larger; colouration darker: uniformly black, mouthparts brunneotestaceous, last segment of maxillary palpus more or less paler; antennae piceous, first segment becoming paler toward base, last segment indistinctly paler; legs brunneotestaceous with outer faces of middle and hind femora distinctly darkened. Head with frons between eyes slightly elevated. Antenna stronger. Pronotum narrower, less voluminous and only feebly wider than long (ratio 1.1), more strongly narrowed anteriorly. Punctuation of elytra in general denser and becoming more distinctly denser toward base. Scutellum more densely punctate. Punctuation of abdominal tergites denser, particularly on bases of tergites.

Male. Aedoeagus (Figs. 338, 339) with median lobe slightly dilated toward broadly arcuate apex; paramere weakly sclerotised, divided in two long and narrow, acuminate branches, arcuately separated from each other basally; no sensory peg setae on underside of paramere; internal sac conspicuous, with apical portion resembling head of an eared owl (Fig. 339).

Length 6.5–7.5 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Lalitpur Distr. 2 km S Godavari 1700 m 12.IX.83 Smetana & Löbl”. In the collection A. Smetana, Ottawa, Canada.

Paratypes (9): same data as holotype (ASCC, BMNH, CNCC, MHNG) 9.

Geographical distribution.— *Acylophorus charaa* is at present known only from the type locality at the foot of the mountain Phulcoki near Kathmandu (Map 34).

Bionomics.— All specimens of the original series were taken by sifting a pile of fresh fermenting wood shavings in a forest clearing.

Comparisons.— *Acylophorus charaa* is well characterized, in addition to the characteristic aedoeagus, by the uniformly black body and the colouration of the appendages (see the description), the swollen last segment of maxillary palpus and the position of the large lateral puncture on the pronotum, which is touching the lateral pronotal groove. On the other hand, it is quite similar to *A. flavipes* and can be positively distinguished from it only by the shape of the aedoeagus (Fig. 338, 340).

Etymology.— The specific name is the Nepali noun charaa (bird). It refers to the shape of the apical portion of the internal sac of the aedoeagus which resembles the head of an eared owl.

12. *Acylophorus flavipes* Motschulsky

Figs. 340, 341

Acylophorus flavipes Motschulsky 1858a:657; Cameron 1932:304.

Description.— In all external characters extremely similar to *A. charaa* and different only by uniformly rufo-brunneous legs and by characters on aedoeagus. Aedoeagus (Figs. 340, 341) narrow and elongate; middle portion of median lobe parallel-sided, rather abruptly narrowed toward truncate, minutely emarginate apex; internal sac inconspicuous. (Fig. 341).

Length 6.2 mm.

Type material.— The Motschulsky collection at the Zoological Museum, Moscow Lomonosov State University, Moscow, contains one male specimen under

the name *A. flavipes*. It is labelled as follows: "Ind.or."/ "Ancylophorus flavipes Motch. Ind.or.". The specimen was cleaned and remounted on larger plate (original plate attached to pin); it was dissected, the aedoeagus was mounted on a separate transparent plate in Canada Balsam, and the genital segment was glued to plate with beetle. The specimen is in relatively good condition: segments 4–11 of left antenna, segments 1 and 2 of right antenna and left front tibia and tarsus are missing. The specimen is hereby designated as the lectotype of *A. flavipes*; the label "Lectotype *Acylophorus flavipes* Motschulsky, A. Smetana des. 1986" has been attached to it.

Geographical distribution.— *Acylophorus flavipes* was described from "East India". Its distributional range is not known at present.

Material studied.— See Type material.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons.— *Acylophorus flavipes* can be positively distinguished from *A. charaa* only by the differently shaped aedoeagus (Figs. 338, 340).

Acylophorus flavipes may not occur in the Himalayan area; however, since it shows relationships with species from the area, it was included in this revision.

13. *Acylophorus tibialis* Cameron

Figs. 342, 343; Map 37

Acylophorus tibialis Cameron 1932:305.

Description.— Piceous-black, apical margins of abdominal tergites and 6th visible segment vaguely paler; abdomen distinctly iridescent; mouthparts testaceous; antennae piceous, becoming vaguely paler toward apex; coxae and tibiae of all legs piceous, all femora and tarsi testaceous. Head wide and rounded, indistinctly wider than long (ratio 1.08); eyes moderately large, tempora indistinctly shorter than length of eyes seen from above (ratio 0.88); anterior frontal puncture situated at about middle of length of eye and away from medial margin of eye, separated from it by distance almost twice as large as diameter of puncture; one puncture posteromedial of posterior frontal puncture; tempora finely and densely punctate and pubescent; surface of head without any microsculpture. Last segment of maxillary palpus swollen, wider than penultimate segment and asymmetrically acuminate apically. Antenna rather short, first segment about as long as five following segments combined, segment 2 not very elongate, only slightly longer than segment 3, segments 4–7 longer than wide, gradually becoming shorter and wider, segment 4 somewhat smaller and shorter than segment 5, segment 8 as long as wide, segments 9 and 10 slightly wider than long, last segment short, shorter than two preceding segments combined. Pronotum wider than long (ratio 1.20), slightly arcuately narrowed anteriorly; base broadly rounded but flattened in middle portion; large lateral puncture separated from lateral pronotal groove by distance about equal to diameter of puncture, several fine punctures around it; surface without microsculpture. Scutellum densely punctate. Elytra at base about equally wide as pronotum at widest point, slightly dilated posteriorly and relatively long, at suture about as long as, at sides longer than pronotum at midline (ratio 1.26); punctation dense and moderately coarse, slightly asperate, interspaces between punctures along transverse axis about equal to diameters of punctures; punctation gradually becoming denser and finer toward elytral base; pubescence dense, stiff. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of abdominal tergites distinctly finer than that on elytra, moderately dense at tergal bases, gradually becoming much sparser toward apical margins of tergites and toward apex of abdomen in general; pubescence long and stiff.

Male. Aedoeagus (Figs. 342, 343) rather short and wide; median lobe short, arcuate apically; paramere short and wide, covering most of median lobe, slightly narrowed and arcuate apically, with fine setae at each lateral margin below apex and additional shorter setae below them; sensory peg setae on underside of paramere very numerous, covering most of apical half of paramere; internal sac simple, without large

sclerotised structures.

Length 7.0 mm.

Type material.— The original series in the British Museum (Natural History), London, contains one male specimen under the name *A. tibialis*. It is labelled as follows: “64520”/ “Type”(round label with red margin)/“Birmah Ruby Mes” / “*Acylophorus tibialis* Cam. TYPE”. The specimen was dissected, the genital segment mounted on plate with beetle and the aedoeagus mounted in Canada Balsam.

The specimen is hereby designated as the lectotype of *A. tibialis*; the label “Lectotype *Acylophorus tibialis* Cameron A. Smetana des. 1984” has been attached to it.

Geographical distribution.— *Acylophorus tibialis* is at present known only from the type locality in Burma (Map 37).

Material studied.— The holotype.

Bionomics.— Nothing is known about the habitat requirements of this species.

Recognition.— *Acylophorus tibialis* can easily be recognized by the wide and rounded head, in combination with the swollen last segment of maxillary palpus, and the relatively long elytra.

14. *Acylophorus bipunctatus* Cameron

Acylophorus bipunctatus Cameron 1920: 219.

Anchocerus bipunctatus; Cameron 1932: 308.

Description.— Brunneo-piceous, apical margins of abdominal tergites and 6th visible segment rufo-brunneous; abdomen iridescent; mouthparts and antennae rufo-testaceous, antennal segments 3–6 slightly darkened, last four segments paler, pale yellowish; legs rufo-brunneous with paler tarsi. Head narrow, longer than wide (ratio 1.18); eyes small, tempora about twice as long as length of eyes seen from above; anterior frontal punctures situated medially and slightly posteriad of hind margins of eyes; one puncture posteromedial of posterior frontal puncture; temporal puncture situated distinctly closer to posterior margin of head than to posterior margin of eye, tempora with several fine punctures; surface of head without any microsculpture. Last segment of maxillary palpus as wide as penultimate segment and gradually narrowed anteriorly. Antenna moderately long, first segment slightly longer than three following segments combined, second segment slightly shorter than segments 3 and 4 combined, segment 3 distinctly longer than wide, segments 4–7 longer than wide, gradually becoming shorter, segment 8 slightly longer than wide, segments 9 and 10 as long as wide, last segment short, much shorter than two preceding segments combined. Pronotum feebly wider than long (ratio 1.09), broadly rounded basally and strongly narrowed anteriorly; large lateral puncture situated away from lateral groove of pronotum, separated from it by distance equal to about three diameters of puncture; surface without microsculpture. Scutellum densely punctate, except smooth basally. Elytra at base about as wide as pronotum at widest point, slightly dilated posteriorly, at suture shorter (ratio 0.85), at sides as long as pronotum at midline; punctation fine and moderately dense, slightly asperate, interspaces between punctures along transverse axis somewhat larger than diameters of punctures; punctation becoming slightly denser near elytral base; pubescence moderately dense. Wings fully developed. Abdomen with tergite 7 (fifth visible) with distinct whitish apical seam of palisade setae; punctation of abdominal tergites dense at tergal bases with punctures elongate, gradually becoming sparser and simple toward apical margins of tergites; pubescence long and stiff.

Male. Unknown.

Length 8.0 mm (abdomen extended).

Type material.— Cameron (1920:219) described the species from a single specimen from Nilgiri Hills. The female holotype, deposited in the British Museum (Natural History), London, is labelled as follows: “Type H.T. (round label with red margin)/ “368”/ “H.L. Andrews Nilgiri Hills”/ “A. bipunctatus Cam.”/ “M. Cameron. Bequest. 1955-147.”

Geographical distribution.— *Acylophorus bipunctatus* is known only from the type locality in Nilgiri Hills in southern India. The species does not occur in the Himalayan region; it was included only for practical reasons (to treat all the species of *Acylophorus* included in Cameron (1932)).

Material studied.— The holotype.

Bionomics.— Nothing is known about the habitat requirements of this species.

Recognition.— *Acylophorus bipunctatus* can easily be recognized by the narrow head with the anterior frontal punctures situated medially and slightly posteriad of hind margins of eyes. It cannot be confused with any species of *Acylophorus* known to occur in the Himalaya.

The species was originally described by Cameron (1920:219) as an *Acylophorus*; however, Cameron (1932:308) assigned it later to the genus *Anchocerus*, without giving any reasons for this new combination. I believe that the chaetotaxy of the pronotum (large lateral puncture not doubled as in all species of *Anchocerus*) and the shape of the labrum warrant the reassignment of this species to *Acylophorus*.

Cameron (1920, 1932) gives the length of this species as “9 mm.”. However, the holotype, even with the abdomen extended, is only 8.0 mm long.

15. *Acylophorus puncticeps* Fauvel

Figs. 344–346; Map 36

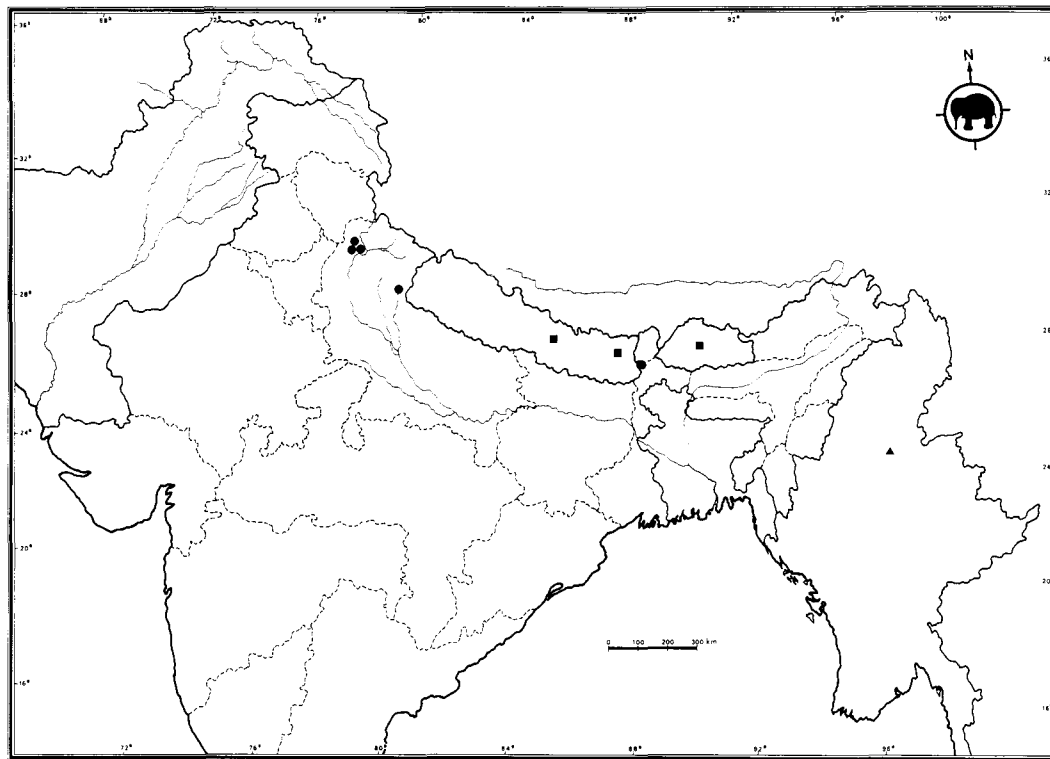
Acylophorus puncticeps Fauvel 1895:275; Cameron 1932:303.

Description.— Piceous-black with black head, apical margins of abdominal tergites and 6th visible segment paler, rufo-brunneous; abdomen iridescent; mouthparts testaceous, last two segments of antennae rufo-testaceous; legs rufo-brunneous with paler tarsi. Head wide, about as long as wide; eyes large, tempora slightly shorter than length of eyes seen from above; surface of head densely and finely punctate, except for small impunctate median area anteriorly. Last segment of maxillary palpus about as wide as penultimate segment and symmetrically narrowed anteriorly. Pronotum slightly wider than long, broadly rounded basally and strongly arcuately narrowed anteriorly; surface without microsculpture. Scutellum finely and densely punctate. Elytra at base slightly narrower than pronotum at widest point and slightly widened posteriorly; punctuation coarse and rather dense, interspaces between punctures along transverse axis smaller than diameters of punctures, punctuation becoming distinctly finer and denser near clytral base. Abdomen with tergite 7 (fifth visible) with whitish apical seam of palisade setae, punctuation of abdominal tergites dense and rather fine, gradually becoming sparser medioapically, apical portions almost smooth, impunctate.

Male. Aedeagus (Figs. 344–346) moderately large; median lobe slightly dilated toward broadly arcuate apical margin; paramere with two long, slightly divergent branches, each with flattened medio-apical area densely covered with sensory peg setae, and with one apical seta; internal sac as in Fig. 345.

Length 7.6–8.0 mm.

Type material.— Fauvel (1895:275) described the species from specimen(s?) from Burma: “Carin Ghecu, alt. 1300–1400 meters, Feb.-Mar. (L.Fea).” I was not able to study the original material which is not deposited in the collection Fauvel,



Map 37. Distribution records for: *Acylophorus microcephalus* (●); *A. tibialis* (▲); and *Anchocerus punctatissimus* (■).

Bruxelles, Belgique. My concept of the species is based on two specimens from the collection Fauvel I studied. They are labelled as follows: Spec. No. 1 (female): "Irawaddi Birmanie" / "Coll. et det. A. Fauvel *Acylophorus puncticeps* Fauv. R.I. Sc. N.B. 17.479." Spec. No. 2 (male): "Birmanie Helfer" / "puncticeps Fvl." / "R.I.Sc.N.B. 17.479 *Acylophorus* Coll. et det. A. Fauvel."

The male specimen was dissected, the aedoeagus was mounted in Canada Balsam, and the genital segment glued to plate with beetle.

Geographical distribution.— *Acylophorus puncticeps* is known from two localities (one of them not located) in Burma (Map 36).

Material studied.— 2 specimens.

BURMA. See Type material.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparison.— *Acylophorus puncticeps* is unique in having the head densely and finely punctate. In this respect, it resembles *Paratolmerus pilosiventris*; however, the latter differs abundantly in other characters.

Although my concept of *A. puncticeps* is not based on the study of the original material, it is very likely that the described specimens really represent the species Fauvel described.

8. Genus *Anchocerus* Fauvel

Anchocerus Fauvel 1905:141; Cameron 1932:306

Type species.— *Anchocerus birmanus* Fauvel 1905, designated by Fauvel (1905:141), by original designation and monotypy.

In addition to the characters given by Fauvel (l.c.) and Cameron (l.c.), I note the following features.

Descriptive notes.— First segment of antenna lacking fine and dense pubescence. Mandibles large, sickle-shaped and with asymmetrically developed teeth on medial margin; right mandible with large and rounded, plate-like tooth in basal third and with another, much smaller and narrower, subacute tooth just in front of it; left mandible only with rounded plate-like basal tooth. Gula very short, gular sutures fused. Infraorbital ridge complete but becoming very fine and inconspicuous anteriorly. Basal portion of head in front of neck abruptly and strongly depressed, as in *Acylophorus*. Dorsal surface of head and pronotum with double punctation (fine punctures intermixed with coarser ones) in some species. Prothoracic hypomera strongly inflexed, not visible in lateral view. Prosternum with central, fairly sharp spine-like protuberance. Front and middle tibia with numerous and strong spines on lateral face, hind tibia without spines on lateral face. Dorsal side of all tarsal segments pubescent. Front claws only indistinctly longer and larger than middle and hind claws. Penultimate segment of middle and hind tarsus without a pair of very long apical setae. Empodial setae of middle and hind tarsus short, hardly visible between claws and considerably shorter than claws. No male secondary sexual

characters on abdominal sternites or tergites. Male genital segment with tergite 10 and sternite 9 rounded apically, styli of tergite 9 long, strong and wide, each with three strong apical spiniform setae (Fig. 351).

Anhocerus is an Oriental genus with eight species known at present. Four species are known to occur in the Himalayan region.

Comparisons.— *Anhocerus* can be distinguished from *Acylophorus*, in addition to the characters in the key, by the in general larger and more parallel-sided form, and by the distinct, double punctation of the dorsal side of the head and pronotum in some species.

Key to species of *Anhocerus*

- 1 Head wide, wider than long, tempora each with narrow, finely punctate and pubescent area posteriorly. Surface of head and pronotum very finely but distinctly punctate. Paramere of aedoeagus with two thin, hair-like branches (Figs. 349, 352, male of one species not known)..... 2
- 1' Head narrow, about as long as wide, tempora without narrow, finely punctate and pubescent area posteriorly. Surface of head and pronotum almost impunctate. Paramere of aedoeagus solid, without hair-like branches (Fig. 347). Length 7.2 mm.....
..... 1. *A. monticola* Cameron, p. 363
- 2 (1) Surface of head and pronotum with very fine, simple and fairly sparse punctation. Aedoeagus with median lobe moderately long and moderately narrowed anteriorly (Figs. 349, 350). Length 9.5–11.2mm.....2. *A. birmanus* Fauvel, p. 364
- 2' Surface of head and pronotum with extremely fine, dense punctures intermixed with sparser and coarser punctures. Aedoeagus (known only for one species) with median lobe long and strongly narrowed anteriorly (Figs. 352, 353)..... 3
- 3 (2') No setiferous puncture near posterior margin of eye. Elytra longer, at sides about as long as pronotum at midline; punctation of elytra dense, intervals between punctures about as large as diameters of punctures. Average size larger. Length 8.5–9.5 mm 3. *A. punctatissimus* Smetana, p. 365
- 3' Fine setiferous puncture near posterior margin of eye. Elytra shorter, at sides shorter than pronotum at midline (ratio 0.80); punctation of elytra very dense, intervals between punctures along transverse axis smaller than diameters of punctures. Average size smaller. Aedoeagus as in Figs. 352, 353. Length 7.5–8.5 mm4. *A. nepalicus spec.nov.*, p. 366

1. *Anchocerus monticola* Cameron

Figs. 347, 348; Map 36

Anchocerus monticola Cameron 1926:371; 1932:307

Description.— Piceous-black, pronotum, elytra and apical margins of abdominal tergites indistinctly paler, apex of abdomen appreciably paler; both maxillary and labial palpi testaceous, antennae and legs rufo-testaceous, tarsi slightly paler. Head relatively narrow, about as wide as long, almost parallel-sided behind eyes and then strongly narrowed toward neck; eyes small and only slightly convex, tempora considerably longer than length of eyes seen from above (ratio 2.1), with narrow, finely punctate and pubescent area posteriorly in front of neck; anterior frontal punctures situated close to each other on median portion of frons, distance between them distinctly smaller than distance separating each puncture from median margin of eye; posterior frontal puncture situated close to posterior margin of head, one puncture posteromedial of it; minute setiferous puncture at posterior margin of eye; temporal puncture situated much closer to posterior margin of head than to posterior margin of eye; surface of head without microsculpture and with only very few scattered, extremely fine punctures. Antenna with segment 1 slightly dilated anteriorly, segment 2 about 1/3 longer than segment 3, segment 4 slightly shorter than segment 3, segments 5–8 longer than wide, gradually becoming shorter and wider, segments 9 and 10 about as long as wide, last segment very short, transverse. Pronotum slightly wider than long (ratio 1.19), broadly rounded basally and very inconspicuously narrowed anteriorly; dorsal rows each with only one puncture situated just before middle of pronotum; sublateral rows missing; large lateral puncture doubled; surface of pronotum without microsculpture and with only very few scattered, extremely fine punctures. Scutellum punctate on apical portion, without microsculpture. Elytra at base only slightly narrower than pronotum and rather short, at suture about as long as and at sides feebly longer (ratio 1.09) than pronotum at midline; punctation rather dense, intervals between punctures about as large as diameters of punctures; pubescence fine, dark; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing fine whitish apical seam of palisade setae; punctation dense, coarse and rather asperate on basal portions of tergites, gradually becoming sparser, finer and hardly asperate toward apical margin of each tergite, tergite 6 only sparsely and finely punctate; pubescence dense, dark and long; surface without microsculpture.

Male. Aedoeagus (Figs. 347, 348) with median lobe elongate and narrow, gradually narrowed and subacuate apically; paramere in form of solid, slightly transverse plate with anterior margin subemarginate in middle; internal sac, when evaginated, with two strongly sclerotised apical spines (Fig. 348).

Length 7.2 mm.

Type material.— The original series in the British Museum (Natural History), London, contains four specimens under the name *A. monticola*. They are labelled as follows: Spec. No. 1 (male): "Type" (round label with red margin)/ "SYN-TYPE" (round label with blue margin)/ "Kaligad, Dehra Dun" / "Dr. Cameron. 19.VI.21." / "Anchocerus monticola Cam." / "M. Cameron. Bequest B.M. 1955-147." Spec. Nos. 2–4 (Nos. 2 and 4 females, No. 3 male): "Kaligad, Dehra Dun" / "Dr. Cameron. 26.VI.21." / "M. Cameron. Bequest B.M. 1955-147." / "SYN-TYPE" (round label with blue margin).

The first specimen was dissected and the aedoeagus mounted in Canada Balsam. The specimen is hereby designated as the lectotype of *A. monticola*; the label "Lectotype *Anchocerus monticola* Cameron Smetana des. 1984" has been attached to it. The remaining three specimens are not conspecific with the lectotype and belong to *A. birmanus*.

Geographical distribution.— *Anchocerus monticola* is at present known only from the type locality in Uttar Pradesh (Map 36).

Material studied.— The lectotype .

Bionomics.— Nothing is known about the habitat requirements of this species.

Recognition.— *Anchocerus monticola* can easily be recognized by the relatively narrow head without narrow, finely punctate and pubescent area on each side in front of neck, and by paramere of the aedoeagus lacking any branches.

2. *Anchocerus birmanus* Fauvel

Figs. 349, 350; Map 34

Anchocerus birmanus Fauvel 1905:141; Cameron 1932:306; Smetana 1977a:249.

Description.— Dark reddish-piceous to piceous, pronotum and elytra often paler, apical margins of abdominal tergites and apex of abdomen slightly paler; both maxillary and labial palpi testaceous, antennae darker testaceous, legs testaceous-rufous with paler tarsi. Head rounded, wider than long (ratio 1.24), slightly widened behind eyes and then strongly narrowed toward neck, widest at about posterior fourth; eyes small and flat, tempora considerably longer than length of eyes seen from above (ratio 2.33), each with narrow, finely punctate and pubescent area posteriorly in front of neck; anterior frontal punctures situated close to each other on median portion of frons, distance between them distinctly smaller than distance separating each puncture from median margin of eye; posterior frontal puncture situated close to posterior margin of head, one puncture posteromedial of it; temporal puncture situated in densely punctate and pubescent area in front of neck; setiferous puncture at posterior margin of eye missing; surface of head without microsculpture, with very fine and not dense punctation gradually becoming denser laterally. Antenna with segment 2 almost twice as long as segment 3, segment 4 slightly shorter than segment 3, segments 5–8 longer than wide, gradually becoming shorter and wider, segments 9 and 10 about as long as wide, last segment short, much shorter than two preceding segments combined. Pronotum wider than long (ratio 1.18), broadly rounded basally and slightly narrowed anteriorly; dorsal rows each with only one puncture situated just before middle of pronotum; sublateral rows each reduced to just one fine puncture distant from anterior margin and situated rather laterally (often missing, even bilaterally); larger lateral puncture doubled; surface without microsculpture, punctation similar to that on head but even finer and sparser. Scutellum punctate on apical portion, without microsculpture. Elytra at base narrower than pronotum and rather short, at suture shorter (ratio 0.81), at sides about as long as pronotum at midline; punctation rather dense and moderately coarse, intervals between punctures about as large as diameters of punctures; pubescence fine, dark; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing fine whitish apical seam of palisade setae; punctation dense, rather coarse and more or less asperate on basal portions of tergites, gradually becoming distinctly sparser, finer and hardly asperate toward apical margin of each tergite, sixth visible tergite only sparsely and finely punctate; pubescence dense, dark and long; surface slightly iridescent, with extremely fine and dense microsculpture of incomplete transverse waves.

Male. Aedoeagus (Figs. 349, 350) with median lobe slightly asymmetrical, moderately long and obtuse apically; paramere with two hair-like branches; internal sac as in Fig. 350.

Length 9.5–11.2 mm.

Type material.— The original series of *A. birmanus* was studied by Smetana (1977:249) who also designated the female lectotype. See Smetana (l.c.) for details.

Geographical distribution.— *Anchocerus birmanus* is at present known from Burma (not mapped) and from northern Uttar Pradesh in India (Map 34).

Material studied.— 8 specimens.

BURMA. *Tenasserim*. (Lectotype - see Smetana 1977:249).

INDIA. *Uttar Pradesh*. Dehra Dun, Kaligadh, 26.VI.21, Cameron (ASCC, BMNH) 3; Dehra Dun, Nun Nadi, 17.VII.21, Cameron (BMNH) 1.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons and taxonomic notes.— *Anhocerus birmanus* differs from the two similar Himalayan species, *A. punctatissimus* and *A. nepalicus*, by the simple, fine punctation of the head and pronotum lacking intermixed coarser punctures, and by the shape of the aedoeagus (male of *A. punctatissimus* not known).

The large gap between the localities in Burma and in India may be due to the inadequate collecting in the interlying areas. It is also possible that the two populations actually represent two very similar separate species. Males of the Burmese population are needed for the clarification of this question.

The three specimens from Kaligad (see above) belong to the original series of *A. monticola*; they differ significantly from the lectotype of *A. monticola* (see "Type material" under *A. monticola*).

Cameron (1932:307) described the 6th visible sternite of the male as "very finely crenulate". I am not able to detect any crenulation of the apical margin of this sternite in the single male available (from Kaligad); the sternite is identically developed in both sexes.

3. *Anhocerus punctatissimus* Smetana

Map 37

Anhocerus punctatissimus Smetana 1977a:248.

Description.— Very similar to *A. birmanus* but different as follows: average size smaller; slightly darker, piceous to piceous-black, elytral humeri, apical margins of abdominal tergites and apex of abdomen somewhat paler, rather piceo-rufous to rufo-brunneous. Surface of head densely covered with extremely fine and superficial punctation with intermixed coarser punctures becoming gradually more frequent toward lateral portions of head. Surface of pronotum with dual punctation similar to that on head; however, both fine and coarser punctures somewhat finer, and coarser punctures more difficult to see, especially laterally.

Male. Unknown.

Length 8.6–9.2 mm.

Type material.— The species was described from one female specimen (holotype) from Bhutan, labelled as follows: "Changra 18 km S. Tongsa, 1900 m, 22/6"/ "Nat.-Hist. Museum Basel-Bhutan Expedition 1972" / "HOLOTYPE *Anhocerus punctatissimus* A. Smetana 1975". The holotype is deposited in the Naturhistorisches Museum in Basel, Switzerland.

Geographical distribution.— *Anhocerus punctatissimus* is at present known from Bhutan and from eastern and central Nepal (Map 37).

Material studied.— 5 specimens.

BHUTAN. See Type material.

NEPAL. *Kathmandu Distr.* Gokarna Forest nr. Kathmandu, 1300 m, 10.IX.83, Smetana and Löbl (ASCC) 1. *Khandbari Distr.* Arun Valley at Num main bridge, 1050 m, 21.IV.84, Smetana and Löbl (ASCC) 3.

Bionomics.— All specimens from Nepal were taken at relatively low elevations (below 1500 m). The specimen from Gokarna Forest was taken by sifting very wet fallen leaves and other debris on a forest seepage area. The specimens from the Arun valley were taken together with *Q. nilo*, by sifting a thin layer of soaking wet leaves and other debris on a sandy bank of a creek.

Comparisons.— *Anchocerus punctatissimus* differs from *A. birmanus* mainly by the different punctuation of the head and pronotum. Males are needed to differentiate it further from *A. birmanus*.

For a comparison with *A. nepalicus*, see the comparisons under the latter species.

4. *Anchocerus nepalicus* spec. nov.

Figs. 351–353; Map 38

Description.— Very similar to *A. birmanus* but different as follows: size smaller; antenna shorter, middle segments less elongate, segments 9 and 10 distinctly transverse, last segment very short, transverse. Surface of head and pronotum with dual punctuation similar to that of *A. punctatissimus*, but punctuation denser and identically developed on both head and pronotum. Head with fine setiferous puncture near posterior margin of eye, at least unilaterally. Pronotum distinctly narrowed anteriorly, almost subtruncate basally and therefore of almost rhomboid shape. Elytra distinctly shorter, at suture much shorter (ratio 0.66), at sides somewhat shorter (ratio 0.83) than pronotum at midline; punctuation and pubescence very dense, intervals between punctures along transverse axis smaller than diameters of punctures. Brachypterous, wings in form of short, apically slightly folded, nonfunctional stumps. Punctuation and pubescence of abdominal tergites in general somewhat denser; whitish apical seam of palisade setae on tergite 7 (fifth visible) very delicate.

Male. Aedoeagus (Figs. 352, 353) with median lobe long, fairly symmetrical, strongly narrowed and with apex slightly curved; paramere with two hair-like branches; internal sac as in Fig. 353.

Length 7.5–8.5 mm.

Type material.— Holotype (male): “NEPAL Khandbari District” / “For. above Ahale 2300 m 26.III.82 A. & Z. Smetana”. Allotype (female): “NEPAL Khandbari District” / “For. NE Kuwapani 2450 m 13.IV.82 A. & Z. Smetana”. In the Smetana collection, Ottawa, Canada.

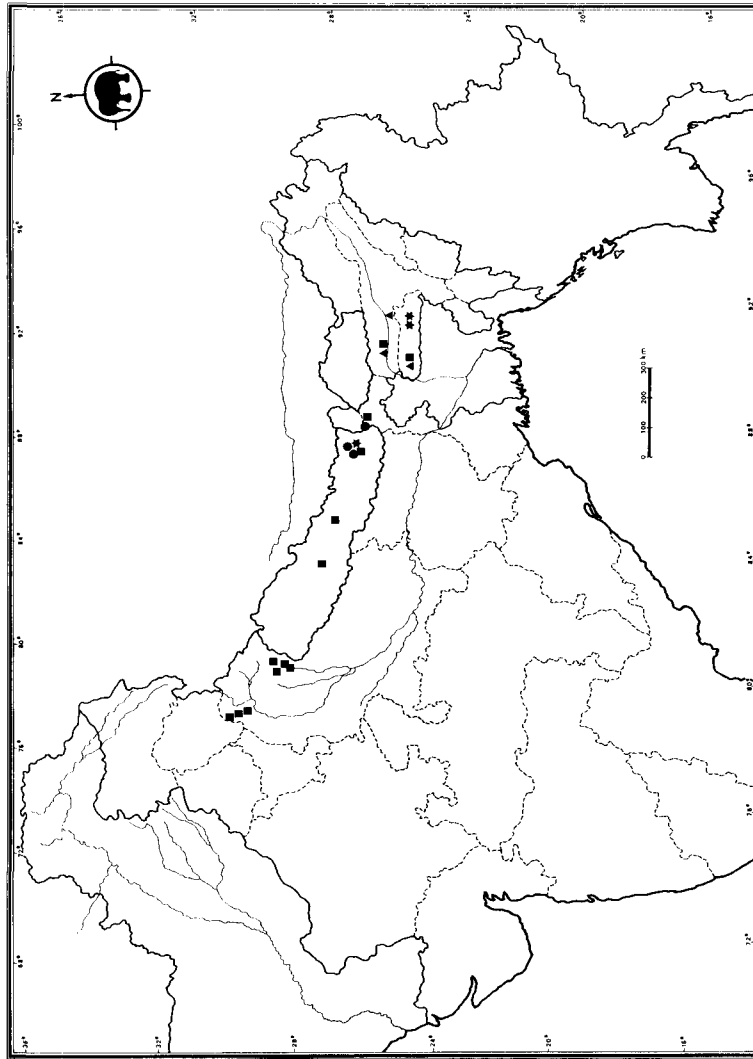
Paratypes (3): NEPAL: Khandbari Distr., Forest S Mansingma, 2250 m, 12.IV.84, Smetana & Löbl (ASCC) 1; Kosi: Forêt S. Mansingma, 2300 m, 13.IV.84, Löbl-Smetana (MHNG) 1. INDIA: West Bengal: Darjeeling Distr., Ghoom-Lopchu, 2000 m, 14.X.78, Besuchet & Löbl (MHNG) 1.

Geographical distribution.— *Anchocerus nepalicus* is at present known from a few localities in eastern Nepal and in the Darjeeling district in West Bengal (Map 38).

Bionomics.— The specimens from Nepal were collected by sifting wet moss on rocks or fallen trees in shady and moist forest habitats.

Comparison.— *Anchocerus nepalicus* can easily be distinguished from both *A. birmanus* and *A. punctatissimus* by the presence (at least unilaterally) of a fine setiferous puncture near posterior margin of the eye, by the different shape of the pronotum (see above), by the shorter and more densely punctate and pubescent elytra, and by the reduced, nonfunctional wings. It also differs from *A. punctatissimus* by the punctuation of the pronotum which is identical with that on the head (finer than that on the head with coarser punctures more difficult to see in *A. punctatissimus*).

Etymology.— The specific name is an adjective derived from the name of the country in which most specimens of the original series were collected.



Map 38. Distribution records for: *Anchocerus nepalicus* (●); *Atanygnathus pictus* (▲); *A. sasurae* (■); and *A. bindu* (◆).

2. Tribe Atanygnathini

Tanygnathini Reitter 1909:105; Szujewski 1980:152.
Tanygnathini Kuhnt 1913:247; Casey 1915:424; Portevin 1929:333.
Atanygnathini Lohse 1964:220.

The tribe is characterized by the following: tarsal formula 5,4,4; head under eyes with mandibular ridge (for definition see Smetana 1977b:180) which begins, because of strong elongation of head, on posterior genal region (not at level of insertion of mandible) and gradually disappears behind eyes; mouthparts very elongate, stipes of maxilla and palpiger partially fused, palpiger with long setae on lateral margin and along fusion line between stipes and palpiger (see Fig. 2 in Smetana 1984:280); sternite 9 of male genital segment obsolete (Fig. 357); aedoeagus without paramere; female genital segment as in Figs. 417–420, tergite 10 subacute and with long and strong apical setae. General habitus resembling tachyporine genus *Tachyporus* Gravenhorsted 1802.

The aedoeagus rests in the abdomen with the ventral side (where the proximal opening is) facing ventrally.

The tribe contains only the predominantly tropical genus *Atanygnathus*. The genus, and the tribe along with it, was alternately put either in the subfamily Tachyporinae or Staphylininae (in the latter case either as a separate tribe, or, as most modern authors did, within the tribe Quediini). The main reason for the inclusion in the Quediini was apparently the presence of a ridge on the head below the eye, which was believed to be the infraorbital ridge of the Quediini. However, this ridge in fact is not homologous with the infraorbital ridge of the Quediini; I suggested the name “mandibular ridge” for it (see Smetana 1977b:180 and 1984:279 for details). Since *Atanygnathus* does not show any other characters of the tribe Quediini, I recently suggested (Smetana 1984:281) that a separate tribe within the subfamily Staphylininae should be kept for it, at least until its phylogenetic relationships are clearly demonstrated, using also the characters of the larva which is unfortunately still undescribed.

1. Genus *Atanygnathus* Jakobson⁸

Tanygnathus Erichson 1839:417 (nec Wagler 1832).
Atanygnathus Jakobson 1909:520 (*nom. nov.*); Cameron 1921:355, 379; 1932:308.
Tanygnathinus Reitter 1909:105 (*nom. nov.*).

Type species.— *Tanygnathus terminalis* Erichson 1839, designated by Jakobson (1909:520).

I am not presenting here a conventional formal description of this genus; it can be found in Cameron (1932:308) and in some recent papers, *e.g.*, Smetana 1971:269.

⁸Only references pertaining to the area treated in this revision are given. A complete account of references up to 1970 can be found in Smetana 1971:269.

Some additional characters, not mentioned in previous descriptions can be found above under the tribe Atanygnathini.

The genus *Atanygnathus* is distributed worldwide, particularly in tropical and warm temperate areas. Eight species are at present known from the Himalayan region.

Taxonomic notes.— *Atanygnathus* is a fair size genus in need of thorough modern revision. The Himalayan species of *Atanygnathus* are very similar to each other and are, with the exception of *A. pictus* and *A. sasuraa*, rather dark coloured. The shape of the aedoeagus and particularly the arrangement of the sclerites of the internal sac are quite important for the positive determination of the species. The aedoeagi of most species are in general of similar shape, with apical portion of median lobe wide and with apex obtuse, arcuate or rounded (Figs. 361, 364); *A. bindu* is unique in this respect with its median lobe of aedoeagus strongly narrowed anteriorly into a needle-sharp apex (Fig. 370). Males of all Himalayan species lack the brush of thick black bristles at lower median margin of front femora present in all Nearctic species, but have the first three segments of front tarsus provided with long and dense pale hairs ventromedially.

Cameron (1932:309) recorded the Palaearctic species *A. terminalis* Erichson 1839 with the varieties *v. ruficollis* and *v. fuscus* as occurring in India. But both varieties proved to be separate species and the specimens coloured in a similar way as the typical *A. terminalis* from Europe also proved to be specifically different, belonging to *A. sasuraa*. To the best of my knowledge *A. terminalis* does not occur in the Himalayan region and most likely not on the Indian subcontinent.

Key to species of *Atanygnathus*

- 1 Pronotum relatively narrow, with ratio length/width above 0.8. Aedoeagus and sclerites of internal sac in situ as in Figs. 354, 355. Length 3.9–4.1 mm..... 1. *A. pictus* Motschulsky, p. 370
- 1' Pronotum wider, with ratio of length/width no more than 0.78. Aedoeagi and sclerites of internal sacs in situ different 2
- 2 (1') Median lobe of aedoeagus with apical portion more or less wide and with apex obtuse, broadly arcuate or rounded (Figs. 358, 361, 364, 367, 374, 377) 3
- 2' Median lobe of aedoeagus strongly narrowed into an extremely narrow, needle-sharp apical portion (Fig 370). Length 4.0–5.0 mm 6. *A. bindu spec.nov.*, p. 376
- 3 (2) Internal sac of aedoeagus in situ without a strongly sclerotised, tweezer-like structure proximally (Fig. 359). Length 3.3–4.7 mm 2. *A. sasuraa spec.nov.*, p. 372
- 3' Internal sac of aedoeagus in situ with a strongly sclerotised, tweezer-like structure proximally (Figs. 362, 365, 368, 375, 378) 4

- 4 (3') Internal sac of aedoeagus in situ with distal sclerites simple, composed of only one pair of narrow, slightly lyre-shaped structures; apical portion of median lobe short (Figs. 362, 365)..... 5
- 4' Internal sac of aedoeagus in situ with distal sclerites complex; apical portion of median lobe long (Figs. 368, 375, 378)..... 6
- 5 (4) Proximal tweezer-like structure of internal sac of aedoeagus short, with branches widely separated basally; apical portion of median lobe fairly narrow, with apex obtusely arcuate (Figs. 364, 365). Length 3.9 mm 4. *A. piceus* (Motschulsky), p. 374
- 5' Proximal tweezer-like structure of internal sac of aedoeagus long, with branches narrowly separated basally; apical portion of median lobe wide, with apex broadly rounded (Figs. 361, 362). Length 4.2–4.4 mm 3. *A. brevicollis* Fauvel, p. 373
- 6 (4') Internal sac of aedoeagus in situ with a pair of acute, triangular sclerites in distal group of sclerites (Fig. 378). Length 3.7–3.9 mm 8. *A. purba spec.nov.*, p. 379
- 6' Internal sac of aedoeagus in situ without acute, triangular sclerites in distal group of sclerites (Figs. 368, 375) 7
- 7 (6') Median lobe of aedoeagus slightly dilated anteriorly, apex broadly rounded (Fig. 374); sclerites of internal sac of aedoeagus as in Fig. 375. Length 3.1–4.0 mm 7. *A. chiso spec.nov.*, p. 377
- 7' Median lobe of aedoeagus parallel-sided with apex obtusely arcuate (Fig. 367); sclerites of internal sac of aedoeagus as in Fig. 368. Length 4.3–5.1 mm 5. *A. paani spec.nov.*, p. 375

1. *Atanygnathus pictus* (Motschulsky)

Figs. 354, 355; Map 38

Tanygnathus pictus Motschulsky 1858b:213.

Tanygnathus ruficollis Kraatz 1859:64 (*syn. nov.*)

Atanygnathus terminalis var. *ruficollis*: Cameron 1932:310.

Description.— Head brownish-piceous; pronotum pale testaceous, vaguely darkened anteriorly; elytra brownish-piceous, posterolateral angles extensively and posterior margin narrowly pale testaceous; abdomen testaceous, basal portions of first three tergites brownish-piceous; mouthparts and legs uniformly yellowish, antennae brownish, gradually becoming pale yellowish both toward base and apex. Head slightly wider than long (ratio 1.16), surface with excessively fine, rudimentary microsculpture appreciable on anterior portion and gradually obliterating toward posterior margin. Antenna with segments 2 and 3 equal in length, segment 2 somewhat stronger than segment 3, segments 4–8 distinctly longer than wide and gradually becoming shorter and wider, segments 9 and 10 slightly longer than wide, segment 11 as long as 2 preceding segments combined. Pronotum relatively narrow, with ratio length/width 0.84, widely rounded basally and strongly narrowed anteriorly, evenly transversely convex; surface with excessively fine, rudimentary microsculpture. Scutellum finely and densely punctate. Elytra moderately long, slightly widened posteriorly and at base slightly narrower than pronotum at widest point, at suture about as long as, at sides slightly longer than pronotum at midline (ratio 1.14); punctuation very fine and dense, interspaces between punctures along transverse axis about equal to diameters of punctures; pubescence brownish. Wings

fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctation extremely fine and dense on basal portions of tergites, gradually becoming sparser toward apical margin of each tergite and in general toward apex of abdomen; pubescence brownish.

Male. First three segments of front tarsus with long and dense pale hairs ventromedially; apical margin of sternite 8 with moderately wide and shallow, slightly angulate emargination. Aedocagus (Figs. 354, 355) rather small and of characteristic shape, strongly narrowed from about middle; median lobe broadly arcuate apically; sclerites of internal sac in situ as in Fig. 355, without large and strongly sclerotised structures distally.

Female. Apical margin of sternite 8 broadly rounded.

Length 3.9–4.1 mm.

Type material.— *Atanygnathus pictus*. The Motschulsky collection at the Zoological Museum, Lomonosov State University, Moscow, contains one female specimen under the name *T. pictus*. It is labelled as follows: round yellow disc with a part cut off / "type" / "Tanygnathus pictus Motch. ruficollis Kraatz Ind. or". The specimen is in fair condition; both antennae except for basal segments and both middle legs are missing. The left front leg and the genital segment are glued separately on plate with beetle. The specimen is hereby designated as the lectotype of *A. pictus*; the label "Lectotype Tanygnathus pictus Motschulsky, A Smetana des. 1986" has been attached to it.

Atanygnathus ruficollis. The collection Kraatz in DEI, Eberswalde, German Democratic Republic, contains 26 specimens under the name *T. ruficollis*, but only four belong to the original series. They are labelled as follows: Spec. No. 1 (♀): "138" / "Ceylon" / "Syntypus" / "Tanygnat. ruficollis Kr." / "Coll. Kraatz" / "Col. DEI Eberswalde". The remaining three specimens (2♂♂, 1♀) bear the following identical labels: "Ceylon" / "Syntypus" / "Coll. Kraatz" / "Col. DEI Eberswalde". Spec. No. 4 is missing the label "Coll. Kraatz". The two males (Spec. Nos. 2 and 4) were dissected, both tergite and sternite 8 and the genital segment were glued to plates with beetles, and the aedoeagi were mounted in Canada Balsam. Specimen No. 4 is hereby designated as the lectotype of *A. ruficollis*; the label "Lectotype Tanygnathus ruficollis Kraatz A. Smetana des. 1985" has been attached to it.

The remaining 22 specimens come from Kambodja, Lagos, Sumatra (Padang) and "Aegypt. Sudan" (Bahr el Ghazal). They were not closely studied; they most likely belong to different species.

One of the specimens from Assam in MHNG was compared with the lectotype and accordingly labelled.

Geographical distribution.— *Atanygnathus pictus* is at present known from Sri Lanka (no other data) and from northeastern India (Map 38).

Material studied.— 8 specimens.

INDIA. *Assam*. Manas, 200 m, 23.X.78, Besuchet-Löbl (MHNG) 1; Gauhati, 200 m, 24.X.78, Besuchet-Löbl (ASCC, MHNG) 2. *Meghalaya*. Garo Hills, Rongrengiri, 400 m, 3.XI.78, Besuchet-Löbl (MHNG) 1.

SRI LANKA. See Type material of *A. ruficollis*.

Bionomics.— The specimens from Assam were taken by sifting fallen leaves and other forest floor debris; and by sifting deep layer of leaves accumulated at base of a steep slope; those from Garo Hills by sifting forest floor debris, particularly under

bamboo growths.

Recognition and variation.— *Atanygnathus pictus* can best be recognized, in addition to the distinctive shape of the aedoeagus, by the relatively narrow pronotum and by the extremely fine and dense punctation on the basal portions of the first three abdominal tergites.

All specimens seen were either slightly teneral or faded (original series). The actual colouration of the species may therefore be darker than indicated in the description.

2. *Atanygnathus sasuraa spec. nov.*

Figs. 356–359, 417–420; Map 38

Description.— In all characters very similar to *A. pictus*, but different as follows: colour very variable; head piceous to piceous black; pronotum rufo-testaceous, occasionally with indistinct cloud of slightly darker colour in about apical third, or uniformly dark brownish to piceous-brown; elytra piceous with apical portions to various extent paler, rufotestaceous, sometimes piceous with only apical margin narrowly paler; abdomen piceous to piceous-black, apical portions of tergites and apex of abdomen rufo-testaceous, paler apical portions of tergites gradually becoming wider toward apex of abdomen; mouthparts yellowish, antennae yellowish with middle segments (usually 2–8) variably darkened; legs pale testaceous. Pronotum somewhat wider, with ratio length/width 0.78. Punctation of elytra somewhat coarser and less dense; punctation of bases of abdominal tergites slightly less dense.

Male. First three segments of front tarsus as in *A. ruficollis*; apical margin of sternite 8 with wide and moderately deep, obtusely angulate emargination (Fig. 356). Aedoeagus (Figs. 358, 359) larger, median lobe evenly and gradually narrowed anteriorly, apex arcuate; sclerites of internal sac in situ as in Fig. 359, without a strongly sclerotised tweezer-like structure proximally.

Female. Apical margin of sternite 8 subtruncate.

Length 3.3–4.7 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL (Prov. Bagmati) Tarang Marang 1000 m, 27.IV.81 Löbl & Smetana”. Both holotype and allotype in the collection A. Smetana, Ottawa, Canada.

Paratypes (73): INDIA: Assam: Manas, 200 m, 23.X.78, Besuchet-Löbl (ASCC, MHNG) 10. Meghalaya: Garo Hills, Songsak, 400 m, 2.XI.78, Besuchet-Löbl (MHNG) 1. Uttar Pradesh: Kumaon: Haldwani Distr., H.G. H.G. Champion (ASCC, CNCC, BMNH) 22; Haldwani Distr., Nandhaur R., H.G. Champion (BMNH) 1; Haldwani Distr., banks of Deoba Nadi, 27.V.23, H.G. Champion (BMNH) 2; Ranikhet, H.G. Champion (BMNH) 2; Sarju Valley, 4000', H.G. Champion (BMNH) 1; W. Almora, H.G. Champion (BMNH) 1; W. Almora Dvn., IV.1917, G.H. Champion (BMNH) 1; C. Almor Dvn., I. 1920, H.G. Champion (BMNH) 1; Garjia, 10 km off Ramagar, 450 m, 15.X.79, I. Löbl (MHNG) 2. Mussoorie Distr.: Kolhu Khet Gad, 1.XI.21, Cameron (BMNH) 1; Keyarkull, 12.XI.21, Cameron (BMNH) 1; Dehra Dun Distr.: Lachiwala, 21.II.32, H.G. Champion (ASCC, BMNH) 7; Dehra, Narkaunda, 2000', 23.X.17, H.G. Champion (BMNH) 8; Dehra Dun, Raipur, 30.X.27, H.G. Champion (BMNH) 1; Dehra Dun, Phadowala, Suewa R., 1.IV.28, H.G. Champion (BMNH) 2; Dehra Dun, R. Song, 2.IV.22, Cameron (BMNH) 2. Siwaliks, Kheri Ran, 30.X.21 Cameron (BMNH) 1; Siwaliks, Mohan

Rau, 17.X.21, Cameron (BMNH) 1. West Bengal: Darjeeling Distr., Sukna, 200 m, 7.X.78, Besuchet-Löbl (MHNG) 1. NEPAL: "Wald unterhalb Fulung", Franz (HFCC) 1. Khandbari Distr.: Pangma, 1700 m, 4.IV.84, Smetana & Löbl (ASCC) 3.

Geographical distribution.— *Atanygnathus sasuraa* is widely distributed throughout the Himalayan region, from Uttar Pradesh through Nepal to Assam and Meghalaya (Map 38).

Bionomics.— *Atanygnathus sasuraa* seems to occur mainly at lower elevations (below 2000 m). Specimens were collected by sifting wet fallen leaves and various debris around seepages, among grass on wet meadows along irrigation canals and by sifting forest floor debris, particularly under bamboo growths.

Recognition and variations.— *Atanygnathus sasuraa* varies considerably in colour (see the description). Specimens with pale pronotum, particularly those with indefinite darker anterior spot, resemble specimens of *A. pictus* particularly closely, but they can be distinguished by the characters given in the description, especially by the differences on the aedoeagus. Darker coloured specimens resemble those of the following six species and in most cases the aedoeagus is needed for a positive identification.

Etymology.— The specific name is the Nepali noun *sasuraa* (father in law). It refers to the similarity of this species with *A. pictus*.

3. *Atanygnathus brevicollis* (Fauvel)

Figs. 360–362; Map 39

Tanygnathus brevicollis Fauvel 1895:276.

Description.— Head piceous; pronotum brownish to brownish-piceous; elytra piceous with suture and apical margin slightly and narrowly paler; abdomen piceous, slightly iridescent, apical portions of tergites and apex of abdomen paler, rufo-brunneous; mouthparts pale testaceous; antennae with first segment testaceous, following segments brunneous, gradually becoming paler toward antennal apex, so that last 2–3 segments are pale testaceous; legs rufo-testaceous. Head slightly wider than long (ratio 1.20), surface with fine and dense microsculpture of transverse meshes. Antenna with segments 2 and 3 equal in length, segment 2 somewhat stronger than segment 3, following segments much longer than wide; gradually becoming shorter and wider, segment 10 distinctly longer than width at apex, last segment slightly shorter than two preceding segments combined. Pronotum wide, with ratio length/width 0.71, widely rounded basally and moderately narrowed anteriorly, evenly transversely convex; surface with extremely fine microsculpture of mostly incomplete transverse and/or oblique meshes. Scutellum finely punctate. Elytra moderately long, slightly widened posteriorly, at suture feebly (ratio 1.06), at sides slightly longer than pronotum at midline (ratio 1.22); punctuation very fine and very dense, interspaces between punctures along transverse axis about equal to diameters of punctures; pubescence decumbent, brownish. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade setae; punctuation very fine and dense on basal portions of tergites, gradually becoming distinctly sparser toward apical margin of each tergite and in general toward apex of abdomen; pubescence brownish.

Male. First three segments of front tarsus with long and dense pale hairs ventromedially; apical margin of sternite 8 with moderately wide and rather shallow, obtusely angulate emargination (Fig. 360). Aedoeagus (Figs. 361, 362) relatively wide; apical portion of median lobe short and wide, with apex broadly rounded (Fig. 361); internal sac in situ with distal sclerites simple, composed only of one pair of narrow, slightly lyre-shaped structures, and with proximal tweezer-like structure long and with branches narrowly separated basally (Fig. 362).

Female. Apical margin of sternite 8 broadly arcuate.
Length 4.2–4.4 mm.

Type material.— The Fauvel collection in the Institute Royal des Sciences naturelles de Belgique, Bruxelles, contains three specimens under the name *A. brevicollis*. They are labelled as follows: Spec. No. 1 (female): “Carin Ghecu 1300–1400 m. L. Fea II-III.88”/ “brevicollis Fvl.”/ “R.I.Sc.N.B. 17.479 *Atanygnathus* Coll. et det. A. Fauvel”/ “Syntype” Spec. No. 2 (female) and Spec. No. 3 (male): “Carin Asciui Ghecu 1400–1500 m. L. Fea.” “III-IV.88”/ “Coll. et det. A. Fauvel *Atanygnathus brevicollis* Fauv. R.I. Sc. N.B. 17.479”/ “Syntype”.

The male specimen was dissected and the sternite 8 and the aedoeagus were mounted in Canada Balsam. The specimen is hereby designated as the lectotype of *A. brevicollis*; the label “Lectotype *Atanygnathus brevicollis* Fauv. Smetana des. 1983” has been attached to it.

Geographical distribution.— *Atanygnathus brevicollis* is at present known only from the type locality in Burma (Map 39).

Material studied.— 3 specimens.
BURMA. See Type material.

Bionomics.— Nothing is known about the habitat requirements of this species.

Comparisons and taxonomic notes.— *Atanygnathus brevicollis* is in all external characters extremely similar to the two following species; the shape of the aedoeagus and the sclerites of the internal sac are necessary for positive identification.

Cameron (1932:311) records *A. brevicollis* from Assam (Naga Hills, in Nagaland) and Uttar Pradesh (Mussoorie Distr. and from the Siwaliks). However, his records apply in fact to different species, apparently to *A. paani* and/or to dark specimens of *A. sasuraa*.

4. *Atanygnathus piceus* (Motschulsky)

Figs. 363–365

Tanygnathus piceus Motschulsky 1858b:213

Tanygnathus fuscus Kraatz 1859:65 (*syn. nov.*)

Atanygnathus fuscus; Cameron 1932:310

Description.— In all characters extremely similar to *A. brevicollis* and different mainly in some characters on aedoeagus. Size smaller; pronotum slightly narrower, with ratio length/width 0.73.

Male. First three segments of front tarsus dilated in similar way to those of *A. brevicollis*; sternite 8 with apical emargination much deeper (Fig. 363). Aedoeagus very similar to that of *A. brevicollis* but smaller; apical portion of median lobe fairly narrow, with apex obtusely arcuate (Fig. 364); internal sac in situ with distal sclerites similar to those of *A. brevicollis*, but proximal tweezer-like structure short and with branches widely separated basally (Fig. 365).

Female. Apical margin of sternite 8 broadly arcuate.
Length 3.9 mm.

Type material.— *Atanygnathus piceus*. The Motschulsky collection at the Zoological Museum, Lomonosov State University, Moscow, contains three conspecific specimens (2♂♂ and 1♀) glued on one plate under the name *T. piceus*.

They are labelled as follows: round yellow disc with a part cut off/“type”/ “Tanygnathus piceus Motch. fuscus Kraatz Ind. or.” The specimens were cleaned and remounted on a larger plate in exactly the same position as they were glued on the original plate (original plate attached to pin). Both males were dissected; the aedoeagus and tergite and sternite 8 of the first male were mounted in Canada Balsam on a separate transparent plate, which was attached to pin; the aedoeagus and the genital segment of the second male were glued to plate with beetles. The specimens are in poor condition. The first male (with the aedoeagus and segment 8 mounted in Canada Balsam) is hereby designated as the lectotype of *A. piceus*; the label “Lectotype (first male) Tanygnathus piceus Motschulsky A. Smetana des. 1986” has been attached to it; the specimen is missing right antenna, five apical segments of left antenna and the tarsus of left middle leg (right front leg and the genital segment are glued separately on plate with beetles).

Atanygnathus fuscus. The collection Kraatz in DEI, Eberswalde, German Democratic Republic, contains one male specimen under the name *T. fuscus*. It is labelled as follows: “43”/ “Ost-Indien”/ “Holotype”/ “Tanygnath. fuscus Kr.”/ “Coll. DEI Eberswalde” / “A. fuscus Kr.”. The specimen was dissected; the genital segment and the tergite and sternite 8 were glued to plate with beetle, and the aedoeagus was mounted in Canada Balsam. The specimen is hereby designated as the lectotype of *A. fuscus*; the label “Lectotype Tanygnathus fuscus Kraatz A. Smetana des. 1986” has been attached to it.

The specimen is in poor shape: right maxillary palpus, four outer segments of the left and all but 2 basal segments of right antenna and all legs except for left hind leg are missing. The specimen cannot be distinguished from the lectotype of *A. piceus*; the name is a junior synonym of *A. piceus*.

Geographical distribution.— *Atanygnathus piceus* was described from “East India”. Its distributional range is not known at present.

Material studied.— See Type material.

Bionomics.— Nothing is known about the habitat requirements of this species.

Notes.— *Atanygnathus piceus* may not occur in the Himalayan area; however, since it shows relationships to several species from the area, it was included in this revision.

5. *Atanygnathus paani spec. nov.*

Figs. 366–368; Map 39

Atanygnathus brevicollis; Cameron 1932:311 (ex parte)

Description.— In all characters extremely similar to *A. brevicollis* and different only in characters on aedoeagus and slightly different emargination of male sternite 8.

Male. First three segments of front tarsus as in *A. brevicollis*, apical margin of sternite 8 with wider and deeper emargination (Fig. 366). Aedoeagus (Figs. 367, 368) longer than that of *A. brevicollis*; median lobe parallel-sided and elongate, with apex obtusely arcuate; internal sac in situ with distal sclerites more complex, developed as in Fig. 368, proximal tweezer-like structure with branches widely separated basally.

Length 4.3–5.1 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Lamjung Distr. Besisahar 900 m 17.IX.83 Smetana & Löbl”. In the collection A. Smetana, Ottawa, Canada.

Paratypes (23): INDIA: Meghalaya: Khasi Hills, Mawsynram-Balat, 1000 m, 27.X.78, Besuchet-Löbl (MHNG, ASCC) 4. Assam: Manas, 200 m., 23.X.78, Besuchet-Löbl (MHNG) 2. Uttar Pradesh: Haldwani Distr., Kumaon, H.G. Champion (ASCC, CNCC, BMNH) 14; Mussoorie Distr., Arni Ghad, 28.V.21, Dr. Cameron (BMNH, FMNH) 2; Garhwal, 20 km S Chamba, 1150 m, 20.IX.79, I. Löbl (MHNG) 1.

Geographical distribution.— *Atanygnathus paani* is widely distributed throughout the Himalaya, from Uttar Pradesh through Nepal to Assam and Meghalaya (Map 39).

Bionomics.— *Atanygnathus paani* seems to occur at lower elevations, up to about 1200 m. Specimens were taken in Nepal (holotype and allotype) in soaking wet vegetation and moss around a small waterfall; other specimens were taken by sifting leaf litter and other debris in a forest ravine, and in a ravine with a spring by sifting accumulated twigs, pieces of wood and grasses on gravel.

Recognition.— *Atanygnathus paani* can be positively identified only by the characters of the aedeagus and internal sac.

Etymology.— The specific name is the Nepali noun paani (water). It refers to the habitat of the specimens taken in Nepal (see under “Bionomics”).

6. *Atanygnathus bindu spec. nov.*

Figs. 369–372; Map 38

Description.— In all characters extremely similar to *A. brevicollis* and different in drastically different aedeagus and different emargination of male sternite 8.

Male. First three segments of front tarsus as in *A. brevicollis*; apical margin of sternite 8 with wide and very deep obtusely triangular emargination (Fig. 369). Aedeagus (Figs. 370–372) of unique shape, elongate and very narrow; median lobe strongly narrowed into extremely narrow, needle-sharp apical portion; internal sac in situ (Fig. 371) composed of two very narrow and elongate, slightly sclerotised structures bearing dense setae and one distal, heavily sclerotised semicircular structure; however, in most specimens internal sac is evaginated (Fig. 372).

Length 4.0–5.0 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Khandbari Dis. Arun Valley at Num main bridge 1050 m, 20.IV.1984 Smetana & Löbl. In the collection A. Smetana, Ottawa, Canada.

Paratypes (34): INDIA: Meghalaya. Khasi Hills, between Mawsynram and Balat, 1000 m, 27.X.78, Besuchet-Löbl (MHNG) 2; Khasi Hills, Cherapunjee, 1200 m, 26.X.78, Besuchet-Löbl (MHNG) 3; Khasi Hills, Dawki, 500–800 m, 29.X.78, Besuchet-Löbl (BMNH, MHNG) 3. NEPAL: Khandbari Distr.: same data as in holotype, date 20, 21 or 22.IV.84 (ASCC, CNCC) 6; Kosi, Val. Arun ss/Num, 1050 or 1100 m, 20. or 21.IV.84, Löbl-Smetana (BMNH, CNCC, MHNG) 19.

Geographical distribution.— *Atanygnathus bindu* is at present known from eastern Nepal and from Khasi Hills in Meghalaya (Map 38).

Bionomics.— Specimens of *A. bindu* were taken in Nepal together with *Quedius assamensis*, *Q. nilo* and *A. chiso* by sifting thin layer of soaking wet leaves and other debris on a sandy bank of a creek. Specimens from Meghalaya were taken by sifting leaf litter and other debris in a forest ravine and by sifting of fallen leaves in a fairly dry forest.

Comparisons.— *Atanygnathus bindu* can be positively identified only by the unique shape of the aedoeagus (Figs. 370–372); the wide and deep emargination of the apex of male sternite 8 is also diagnostic (Fig. 369). *Atanygnathus bindu* occurs in Khasi Hills together with *A. paani* in the same habitat and in eastern Nepal with *A. chiso* (see under the respective species). Specimens from these areas have to be very carefully screened; the females not associated with the males cannot be positively determined.

Etymology.— The specific name is the Nepali noun bindu (point). It refers to the shape of the aedoeagus.

7. *Atanygnathus chiso* spec. nov.

Figs. 373–375; Map 39

Description.— Piceous-black with apical margins of abdominal tergites and apex of abdomen somewhat paler; or head piceous, pronotum piceous-brown and elytra piceous with feebly paler suture and apical margins; mouthparts pale testaceous; antennae dark brownish, gradually becoming paler both toward base and apex, latter pale testaceous; legs rufo-testaceous with paler tarsi. Head slightly wider than long (ratio 1.17); surface with fine and extremely dense microsculpture of mostly slightly transverse meshes. Antenna with segments 2 and 3 equal in length, segment 2 somewhat stronger than segment 3, following segments much longer than wide, gradually becoming shorter and wider, segment 10 somewhat longer than at apex wide, last segment slightly shorter than two preceding segments combined. Pronotum wide, with ratio width: length 0.73, widely rounded basally and moderately narrowed anteriorly, evenly transversely convex; surface with microsculpture similar to that on head. Scutellum densely and very finely punctate. Elytra rather short, slightly widened posteriorly, at suture shorter (ratio 0.82), at sides as long as pronotum at midline; punctation fine and very dense, interspaces between punctures along transverse axis mostly somewhat smaller than diameters of punctures; pubescence decumbent, dark brownish. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing whitish apical seam of palisade setae; punctation very dense and fine on basal portions of tergites, gradually becoming distinctly sparser toward apical margin of each tergite and in general toward apex of abdomen; pubescence dark brownish.

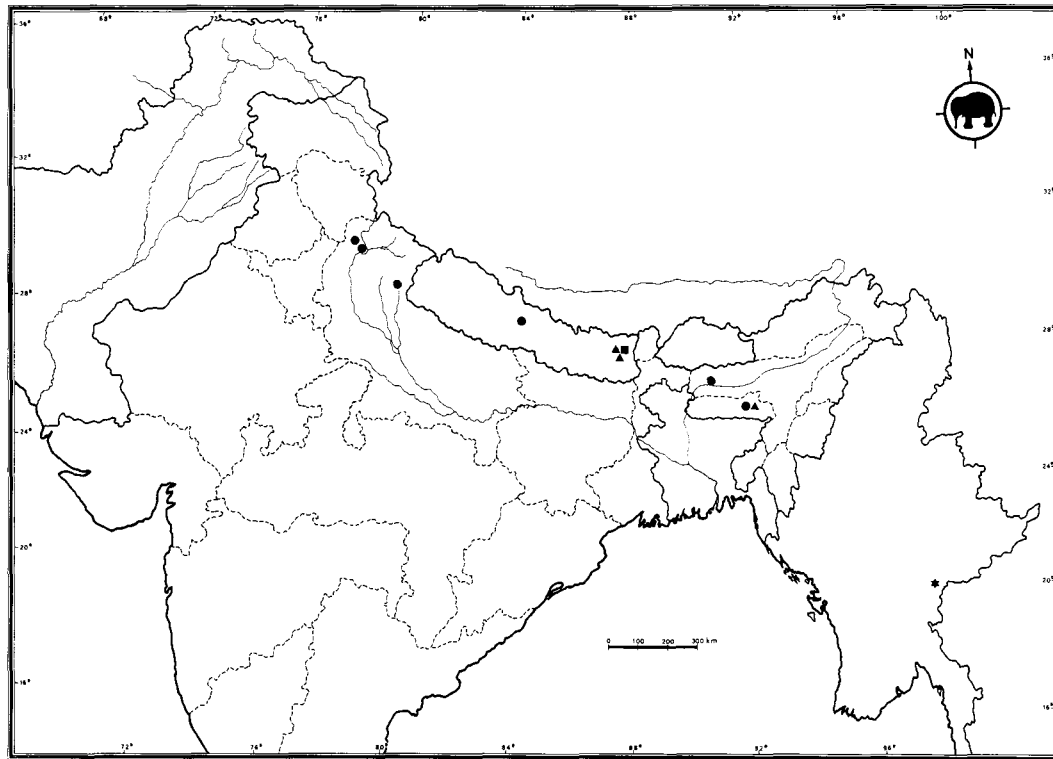
Male. First three segments of front tarsus with long and dense pale hairs ventromedially; apical margin of sternite 8 with wide but not deep, obtusely triangular emargination (Fig. 373). Aedoeagus (Figs. 373–375) moderately large; median lobe slightly dilated toward broadly arcuate apex; internal sac in situ with strongly sclerotized, tweezer-like structure proximally and with distal sclerites complex, developed as in Fig. 375.

Female. Apical margin of 8th sternite obtusely arcuate.

Length 3.1–4.0 mm.

Type material.— Holotype (male) and allotype (female): “NEPAL Khandbari Dis. Arun Valley at Num main bridge 1050 m 21.IV.84 Smetana & Löbl.” In the collection A. Smetana, Ottawa, Canada.

Paratypes (11): INDIA: Meghalaya, Khasi Hills, Mewsynram-Balat, 1000 m, 27.X.78, Besuchet-Löbl (MHNG) 3. NEPAL: Khandbari Distr.: same data as



Map 39. Distribution records for: *Atanygnathus brevicollis* (★); *A. paani* (●); *A. chiso* (▲); and *A. purba* (■).

holotype, date 20. or 21.IV.84, Löbl & Smetana (MHNG) 5; Arun River at Num, 1500–1600 m, 10.IV.82, A. & Z. Smetana (ASCC) 1; Khandbari, 1700 m, 23.III.82, A. & Z. Smetana (ASCC) 1; Kuwapani, 2100 m, 28.III.82, A. & Z. Smetana (ASCC) 1.

Geographical distribution.— *Atanygnathus chiso* is at present known from eastern Nepal and from Meghalaya (Map 39).

Bionomics.— Specimens of *A. chiso* were taken in the Arun river valley, together with *Quedius assamensis*, *Q. nilo* and *Atanygnathus bindu*, by sifting thin layer of soaking wet leaves and other debris on a sandy bank of a creek; one specimen also above the river by sifting wet layers of leaf litter in the forest. Other specimens were taken by sifting various debris in a seepage among bushes in a disturbed habitat; or under stones in wet habitats near irrigated fields.

Comparisons.— *Atanygnathus chiso* resembles in all external characters the four preceding species and differs from them only insignificantly by the generally somewhat smaller size and shorter elytra. The characters on the aedoeagus and the internal sac are essential for the positive identification of this species. *Atanygnathus chiso* occurs in the same habitats with *A. bindu* in Nepal and with *A. bindu* and *A. paani* in Khasi Hills (see under the respective species). Specimens from these areas have to be very carefully screened; females not associated with males are impossible to distinguish from those of *A. bindu* and *A. paani*.

Etymology.— The specific name is the Nepali adjective *chiso* (cold). It refers to the habitat of the specimens taken in Nepal at Arun river (see under “Bionomics”).

8. *Atanygnathus purba spec. nov.*

Figs 376–378; Map 39

Description.— In all characters extremely similar to *A. chiso* but different as follows: average size smaller; colouration similar, but elytra with suture and apical margins always narrowly paler, abdomen rufo-brunneous, bases of some tergites vaguely and indistinctly darkened in some specimens.

Male. First three segments of front tarsus with longer and denser pale ventromedian hairs less developed and in general inconspicuous; apical margin of sternite 8 emarginate in similar way to that of *A. chiso* (Fig. 376). Aedoeagus (Figs. 377, 378) similar to that of *A. chiso*, but median lobe narrower, slightly narrowed towards obtuse apex; internal sac similar to that of *A. chiso*, but distal group of sclerites different, particularly by presence of a pair of acute, triangular sclerites (Fig. 378).

Female: Unknown.

Length 3.7–3.9 mm.

Type material.— Holotype (male): “E. NEPAL: KOSI Val. Arun ss/Num 1050 m, 21.IV.84 Löbl-Smetana”. In the Muséum d’Histoire Naturelle, Genève, Switzerland.

Paratypes (3): same data as holotype (ASCC, MHNG) 3.

Geographical distribution.— *Atanygnathus purba* is known only from the Arun river valley in eastern Nepal (Map 39).

Bionomics.— Specimens of *Atanygnathus purba* were taken by sifting wet debris along a creek.

Comparisons.— *Atanygnathus purba* can be distinguished from *A. chiso* by the smaller size and the colouration, as described in the description; however, the characters on the aedoeagus are diagnostic.

Etymology.— The specific name is the Nepali noun *purba* (east).

CONCLUSIONS

The Himalaya

To aid in understanding the biogeography of the Himalayan *Quediini* and *Atanygnathini*, the most important features of the Himalaya are briefly discussed. More detailed information on the Himalaya can be found in several publications, Burrard and Hayden (1907), Mani (1968) and Franz (1979).

The Himalaya is an enormous mass of Tertiary fold-mountains stretching northwesterly from near the northeastern corner of India in the east to Pakistan in the west (approximately between the longitudes 72° and 97°E, and the latitudes 27° and 36°N. The Tertiary orogeny of the Himalaya, its high mean elevation and enormous massiveness, the essentially east-west alignment of the mountain ranges, and the Pleistocene glaciations are the main factors that have influenced the present distributional patterns of the plants and animals of the region.

The main ecological/geographical divisions of the Himalaya are: 1) East or Assam Himalaya (about 720 km long, from the southern bend of the Brahmaputra river west to the Tista river in West Bengal), 2) Central or Nepal Himalaya (about 800 km long, from the Tista river west to the Kali river between Nepal and Uttar Pradesh), 3) West or Kumaon Himalaya (about 320 km long, from the Kali river west to the Sutlej river in Himachal Pradesh), and 4) Northwest or Punjab-Kashmir Himalaya (about 560 km long, from the Sutlej river northwest to the southwestern bend of the Indus river in Pakistan). While the first three divisions are to some extent artificial, the separation of the Northwest Himalaya at the Sutlej river is natural. The Sutlej river belongs to an ancient drainage pattern, established much before the uplift of the Himalaya proper. The parts of the Himalaya west of the river Sutlej are of more recent origin than the eastern part (see Mani 1968, 1986 for more detail).

East Himalaya is relatively close to the Indian Ocean and plays an important role in shaping the typical Indian monsoon climate. It is, in general, moist and therefore relatively densely forested. The amount of moisture gradually diminishes toward the continental and arid Northwest Himalaya. The general ecological conditions are therefore drastically different at the eastern and western ends of the Himalaya.

While the Himalayan ranges east of the Sutlej river extend essentially in east-west direction and lie between 27° and 29°N, those west of the river Sutlej show an abrupt shift northward and lie between 30° and 36°N, and extend therefore over a much wider area. There is an abrupt fall in the mean elevation of all ranges west of the Sutlej river and unlike in the Himalaya east of the Sutlej river, there are no rivers cutting through the main Himalayan range.

The tree line sinks from a mean elevation of about 3600 m in the east to almost 3000 m in the west. The permanent snowline in the east is at about 4500 m, but rises to 5200 m in the arid northwest.

The east-west alignment of the ranges in most of the Himalaya results in significant ecological differences between the southern and northern slopes of the same range. Local climatic conditions may vary tremendously. For example, the "rainshadow effect" is significant in some areas, *e.g.*, in the valley of the Kali Gandaki river in Nepal. The valley becomes increasingly arid north of the huge massifs of Dhaulagiri in the west and Annapurna in the east, because these massifs retain most of the monsoon rains. On the other hand, some areas on the south slope receive enormous amounts of rain, *e.g.*, the valley of the river Induwa in eastern Nepal.

Distributions of the species

The study of the distributional ranges of the Himalayan Quediini and Atanygnathini and their affinities show that they in general originated either 1) east of the Himalaya, or 2) west of the Himalaya.

1. Species of eastern origin.

A. The bulk of the Himalayan species can be derived from the ancestors that originated in the Tertiary fold-mountains in the areas east and southeast of the Himalaya, in what is today China, Thailand, Malaya and Greater Sundas. While some originated apparently in distant centres, the Greater Sundas, Malaya and Thailand (*e.g.*, *Ctenandropus nigriceps*), others apparently had their origin in closer centres, in Yunnan, Burma and Assam (*e.g.*, some species groups of the subgenus *Raphirus* of *Quedius*, or the species of *Acylophorus* close to *A. beesoni*). All species of this origin are basically forest species occurring in low elevations, up to about 2600 m and are mainly distributed over East and Central Himalaya, and only sporadically reach West Himalaya (*e.g.*, *Quedius apicicornis*, *Q. stevensi*, *Bolitogyrus vulneratus*, *Indoquedius sikkimensis*, *Atanygnathus paani*). Only one of these species (*Quedius aureiventris*) managed to spread westward as far as Pakistan and is today distributed across the Himalaya, from Pakistan to Bhutan. A few other species (*Quedius milansaar*, *Indoquedius daai*, *Anchocerus monticola*) occur only in West Himalaya.

The distributional ranges of most species of this first group are restricted to the Himalaya (*e.g.*, *Quedius beesoni*, *Q. ripicola*, *Indoquedius filicornis*); however, those of some other species extend southeast from the Himalaya and reach the Burma-Thailand border near the river Salween (Kayah State) (*e.g.*, *Quedius rugosus*) or reach even further south to Tenasserim in southern Burma (*Heterothops oculatus*, *Anchocerus birmanus*). It is worth mentioning that some of the species restricted to the Himalaya also occur in the isolated hills in Meghalaya (Garo and Khasi Hills) and in Nagaland (Naga Hills). On the other hand, there are some species occurring in Khasi Hills (*Indoquedius saathi* and *Acylophorus balchhi*), in

Garo Hills (*Acylophorus khairo*, *Atanygnathus pictus*), and in Naga Hills (*Quedius aureipilis*) that are at present not known from the Himalaya proper. These latter species may or may not be endemic to these hills; I suspect that most of them actually do occur in the Himalaya proper and that their seeming endemism is due to inadequate collecting.

B. A large group of species of the genus *Quedius* can apparently be derived from ancestors that originated in the more northern centres, in Yunnan and Sichuan. This is an important group of species, dominant in the subgenus *Raphirus* and also represented in the subgenera *Microsaurus* and *Distichalius*. All species of this origin are endemic to the Himalaya; they occur mainly in East and Central Himalaya and only very few occur west of Central Himalaya. In the subgenus *Distichalius*, *Q. kashmirensis* reaches Kashmir in Northwest Himalaya; two species of the subgenus *Raphirus* have this distribution pattern: *Q. daksumensis*, extending again all the way to Kashmir, and *Q. kaalo*, occurring in West Himalaya in the Almora area (Uttar Pradesh). Some of the species of the subgenus *Raphirus* show distinct relationships to species described from high mountains in Sichuan (e.g., *Q. maculiventris* Bernhauer 1934, *Q. optabilis* Bernhauer 1934, *Q. reitterianus* Bernhauer 1934). I am convinced that there is in fact a much closer relationship between these areas, but unfortunately our knowledge of the fauna of the Quediini of the mountains in Sichuan is only fragmentary. *Quedius kashmirensis* (and as a matter of fact also the two remaining species of *Distichalius*), on the other hand, is related to a fairly large group of species distributed in China, Japan, and through Kamchatka and across the Bering Strait on the Pacific Coast of North America (this is the "Capucinus Group" in North America, particularly the species *Q. nevadensis* (Casey 1915) through *Q. bakeri* Hatch 1957 in Smetana 1971:V).

Ecologically, most of the species occur in the middle and upper forest zone, from about 2600 m to almost tree line (e.g., *Q. goropanus*, *Q. vadhu*, *Q. gaarho*, *Q. kanyasa*), but some of them also ascend into habitats above tree line (e.g., *Q. angnimai*, *Q. franzi*; only one species (*Q. taruni*) is basically alpine, occurring in alpine tundra up to about 4400 m, but occasionally descending just below tree line. Only one species of this group (*Q. vadhu*) occurs also on the mountain Phulcoki, the highest peak of the Mahabharat Lekh at the southern edge of the Kathmandu Valley in Nepal. On the other hand, one of the species (*Q. udagra*) occurs only near the top of Phulcoki and is almost certainly endemic to this mountain.

In summary, the species of Quediini and Atanygnathini of eastern origin clearly dominate in the Himalaya, constituting some 93% of the fauna.

While only one genus (*Paratolmerus*) in the tribe Quediini seems to be endemic to the Himalaya (another endemic genus may be erected in the future for *Quedius gardneri*, associated here tentatively with the subgenus *Raphirus*), an impressive portion of the species is endemic to the Himalaya. The figures are as follows: *Quedius*: 41 of 52 (78.8%), *Indoquedius*: 5 of 8 (62.5%); *Heterothops*: 7 of 9 (77.8%); *Acylophorus*: 5 of 8 (62.5%) and *Anchocerus*: 3 of 4 (75%). The situation

is reversed in the tribe Atanygnathini: only 1 of 5 species of *Atanygnathus* (20%) is endemic to the Himalaya. Even considering the fact that these figures may not exactly reflect the actual situation, due to inadequate collecting in many areas, they are nevertheless convincing. Considering the known number of species involved, the rate of endemism is highest in the subgenus *Raphirus* of the genus *Quedius*: 24 species of 30 (80%), followed closely by the subgenus *Microsaurus*: 14 species of 19 (73.7%). It is also worth emphasizing that most of the endemic species of *Raphirus* and *Microsaurus* occur mainly in the middle and upper forest zone, with only 1 species being alpine (see above). Species diversity distinctly diminishes toward the west, which is clearly correlated with increasing aridity (see above).

2. Species of western origin.

The species that can be derived from the ancestors that originated in the areas west of the Himalaya (mountainous areas of Middle Asia that are today considered as belonging to the Turkmenian subregion of the Palaearctic Region), are very few and they all belong to the genus *Quedius*, except for one species of the genus *Heterothops*. Since these species dispersed from the west, they had to appear in the Himalaya later than those species from the eastern centres, certainly after the Northwest Himalaya had been sufficiently uplifted and the Tethys Sea had been almost obliterated (see Mani 1986). *Quedius martensi*, *Q. dui*, *Q. adjacens*, *Q. ochripennis*, *Q. fluviatilis* and *Heterothops saano* belong to this category. *Quedius ochripennis* is widely distributed in the areas west of the Himalaya and reaches Europe, but the remaining species are endemic to the Himalaya. They occur in Northwest Himalaya and in the western portion of the West Himalaya; only one species (*Q. martensi*) reaches Central Himalaya in the Khumbu area in Nepal.

The species of this group form only an insignificant portion of the fauna of the Quediini and Atanygnathini of the Himalaya (about 7%) and they belong to only two genera.

3. The following table gives the known numbers of species of the nine genera in different countries and states of India covered in this revision to allow quick orientation. However, two factors should be considered. 1) The Nepal Himalaya is at present by far the best collected area. Therefore, the very high number of species listed for Nepal is probably out of proportion to those listed for the other areas; for example, the five species listed for Bhutan undoubtedly represent only a fraction of the species actually occurring there. 2) Only species included in Cameron (1932) are listed for Burma (see the Introduction).

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Table 1. Geographical distribution of the genera and species of the subfamily Quediinae in the Indian Subcontinent.

STATE	SPECIES										
	<i>Quedius</i>										
	<i>M</i>	<i>D</i>	<i>R</i>	<i>I</i>	<i>B</i>	<i>H</i>	<i>C</i>	<i>P</i>	<i>A</i>	<i>A</i>	<i>A</i>
	<i>i</i>	<i>i</i>	<i>a</i>	<i>n</i>	<i>o</i>	<i>e</i>	<i>t</i>	<i>a</i>	<i>c</i>	<i>n</i>	<i>t</i>
	<i>c</i>	<i>s</i>	<i>p</i>	<i>d</i>	<i>l</i>	<i>t</i>	<i>e</i>	<i>r</i>	<i>y</i>	<i>c</i>	<i>a</i>
	<i>r</i>	<i>t</i>	<i>h</i>	<i>o</i>	<i>i</i>	<i>e</i>	<i>n</i>	<i>a</i>	<i>l</i>	<i>h</i>	<i>n</i>
	<i>o</i>	<i>i</i>	<i>i</i>	<i>q</i>	<i>t</i>	<i>r</i>	<i>a</i>	<i>t</i>	<i>o</i>	<i>o</i>	<i>y</i>
	<i>s</i>	<i>c</i>	<i>r</i>	<i>u</i>	<i>o</i>	<i>o</i>	<i>n</i>	<i>o</i>	<i>p</i>	<i>c</i>	<i>g</i>
	<i>a</i>	<i>h</i>	<i>u</i>	<i>e</i>	<i>g</i>	<i>t</i>	<i>d</i>	<i>l</i>	<i>h</i>	<i>e</i>	<i>n</i>
	<i>u</i>	<i>a</i>	<i>s</i>	<i>d</i>	<i>y</i>	<i>h</i>	<i>r</i>	<i>m</i>	<i>o</i>	<i>r</i>	<i>a</i>
	<i>r</i>	<i>l</i>		<i>i</i>	<i>r</i>	<i>o</i>	<i>o</i>	<i>e</i>	<i>r</i>	<i>u</i>	<i>t</i>
	<i>u</i>	<i>i</i>		<i>u</i>	<i>u</i>	<i>p</i>	<i>p</i>	<i>r</i>	<i>u</i>	<i>s</i>	<i>h</i>
	<i>s</i>	<i>u</i>		<i>s</i>	<i>s</i>	<i>s</i>	<i>u</i>	<i>u</i>	<i>s</i>		<i>u</i>
		<i>s</i>					<i>s</i>	<i>s</i>			<i>s</i>
											<i>l</i>
Pakistan	1	–	1	–	–	–	–	–	–	–	2
Kashmir	1	1	3	–	–	1	–	–	–	–	6
Himachal Pradesh	5	1	4	2	–	2	–	–	–	–	14
Uttar Pradesh	5	3	9	3	–	6	1	–	3	2	34
Nepal											
west	7	–	6	2	–	4	–	–	–	–	2
central	8	1	19	2	–	4	–	–	4	1	62
east	6	1	12	1	1	3	–	1	3	2	3
West Bengal	5	1	7	1	1	1	–	–	3	1	21
Sikkim	2	–	–	3	–	–	–	1	1	–	7
Bhutan	1	–	2	1	–	–	–	–	–	1	5
Assam	–	–	4	1	–	–	–	–	3	–	11
Meghalaya	–	–	–	1	1	–	–	–	4	–	11
Burma	2	–	4	1	–	1	–	–	2	1	12

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My wife Zdena accompanied me on one of the Nepal expeditions; she helped with the collecting and braved the strenuous trekking and the primitive living conditions. My friend Ivan Löbl provided exciting company and support on three of the five Nepal expeditions. The Nepalese guides, particularly Ang Nima Sherpa, who led three expeditions, Dorjee Sherpa Makalu and Sardar Tejbahadur Magar (known as "TBS"), who each led one expedition, provided not only indispensable guidance during the treks, but also took care of all the countless chores that eventually led to the success of these expeditions. And last, but not least, the contribution of the cooks, kitchen boys and numerous porters has to be gratefully acknowledged. They took care of all our needs, so that we could spend most of our time collecting. We had to admire the way they handled with ease and laughter difficult and some dangerous situations, particularly at higher elevations, that would upset most of us Westerners.

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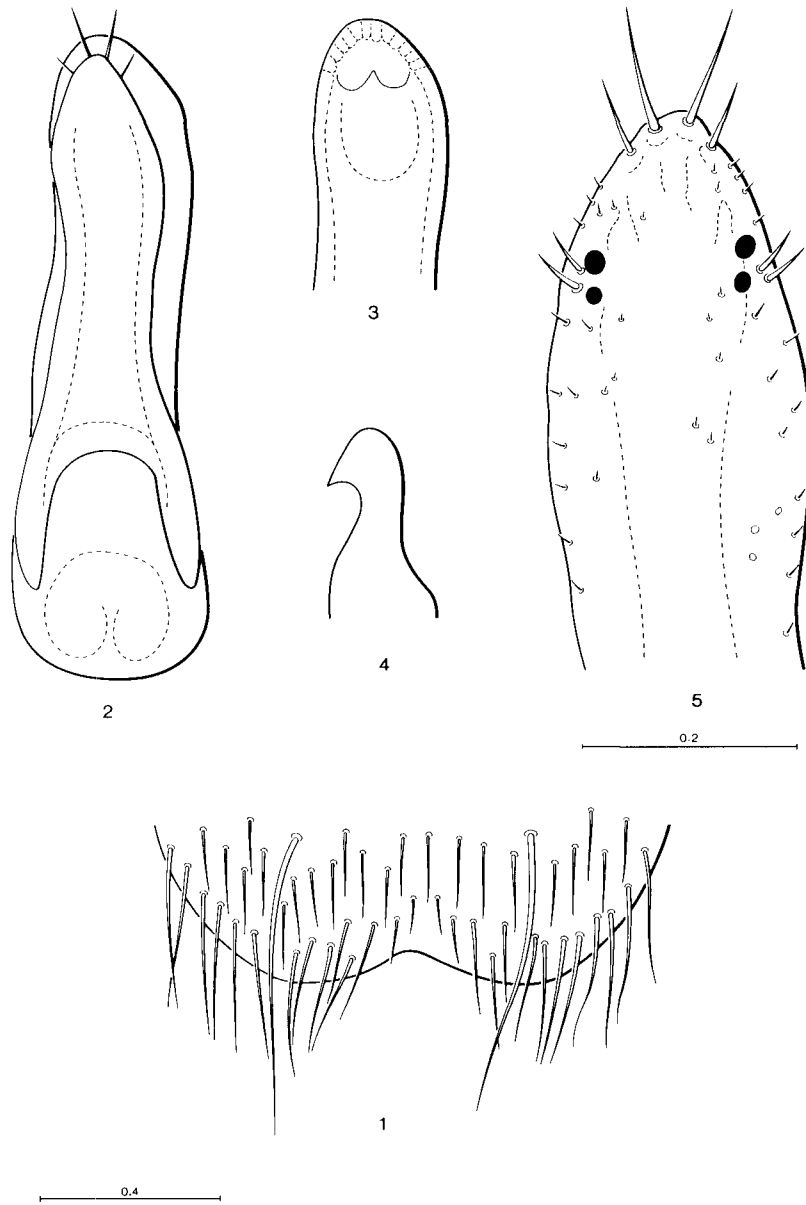
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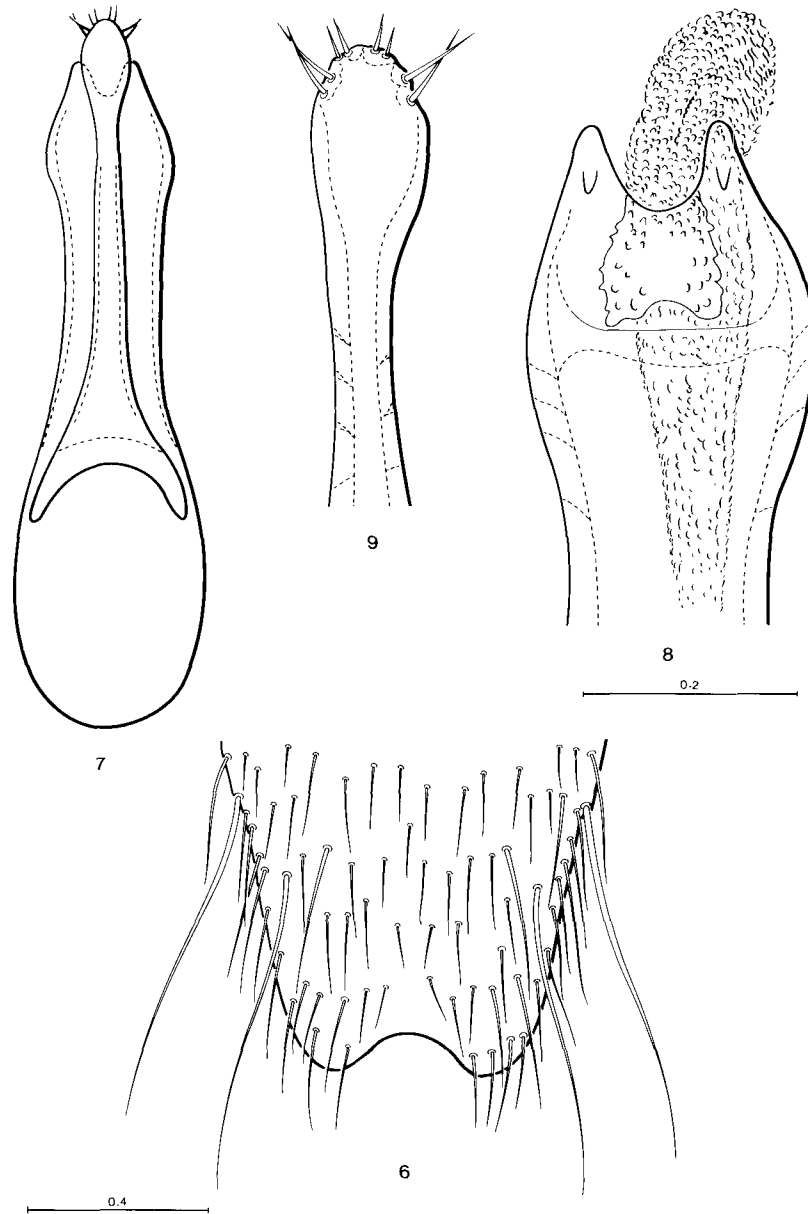
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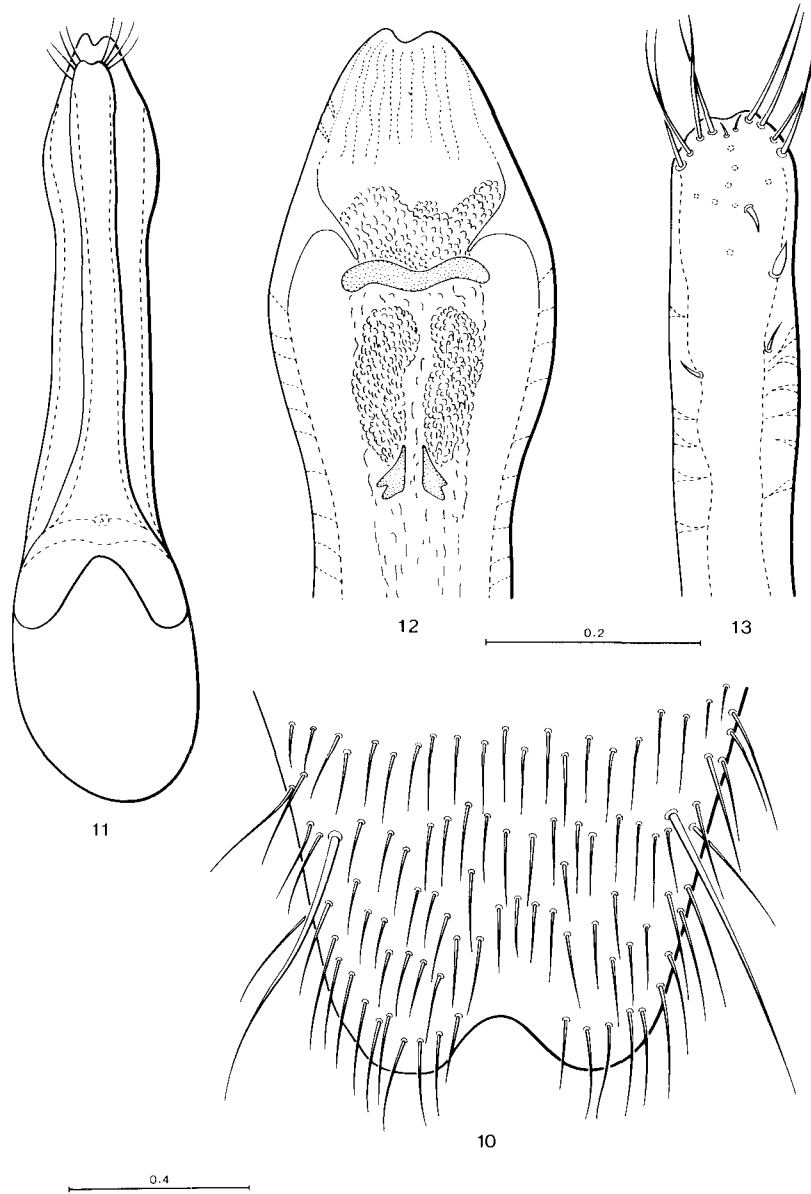
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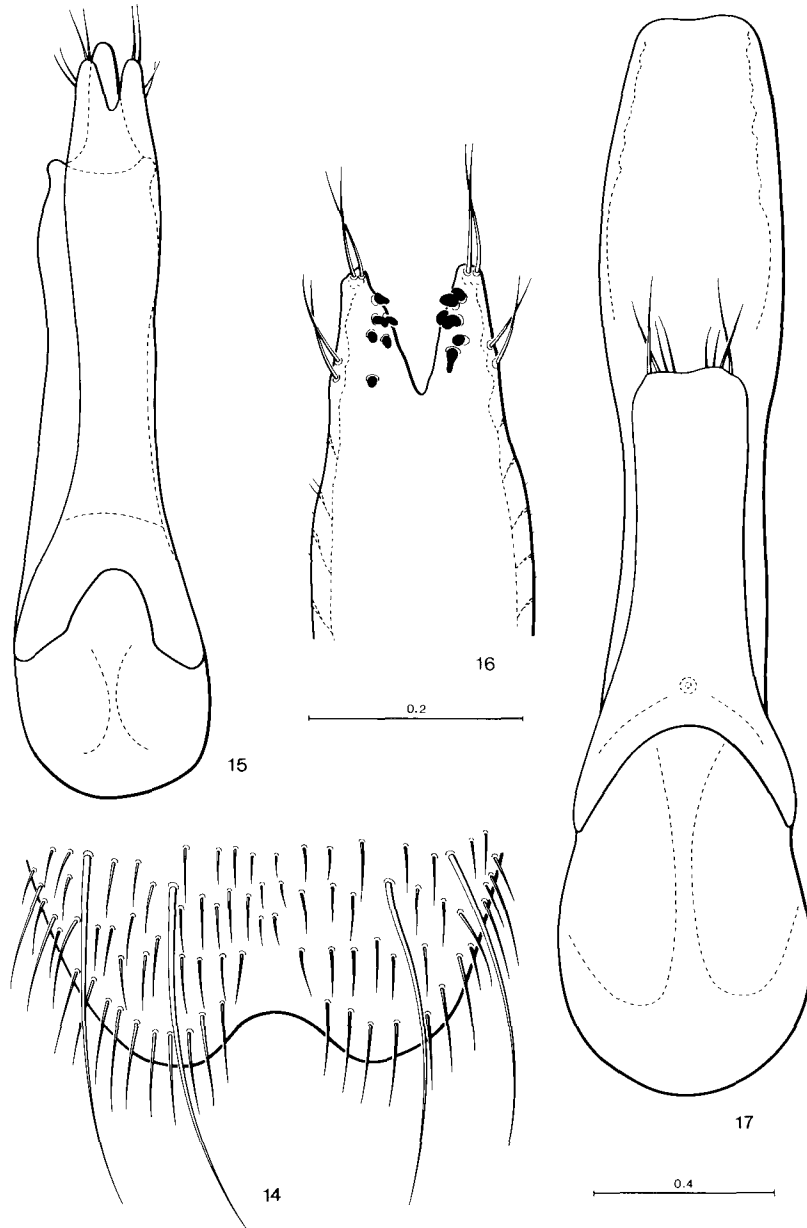
Figs. 1–5. *Quedius inquietus*: 1, apical portion of male sternite 8; 2, aedeagus, ventral view; 3, apical portion of median lobe, ventral view; 4, apical portion of median lobe, lateral view; 5, apical portion of paramere, underside with sensory peg setae. Scale in mm.



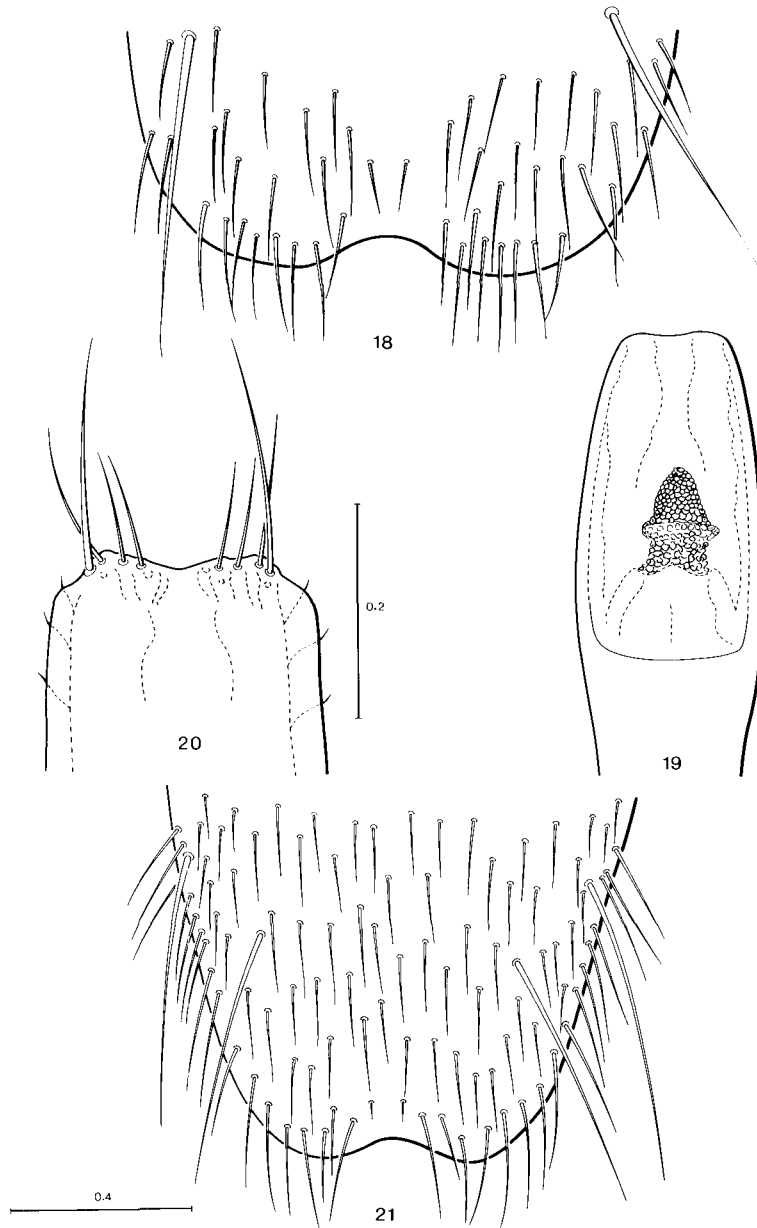
Figs. 6-9. *Quedius apicicornis*: 6, apical portion of male sternite; 7, aedeagus, ventral view; 8, apical portion of median lobe, with internal sac; 9, apical portion of paramere, underside. Scale in mm.



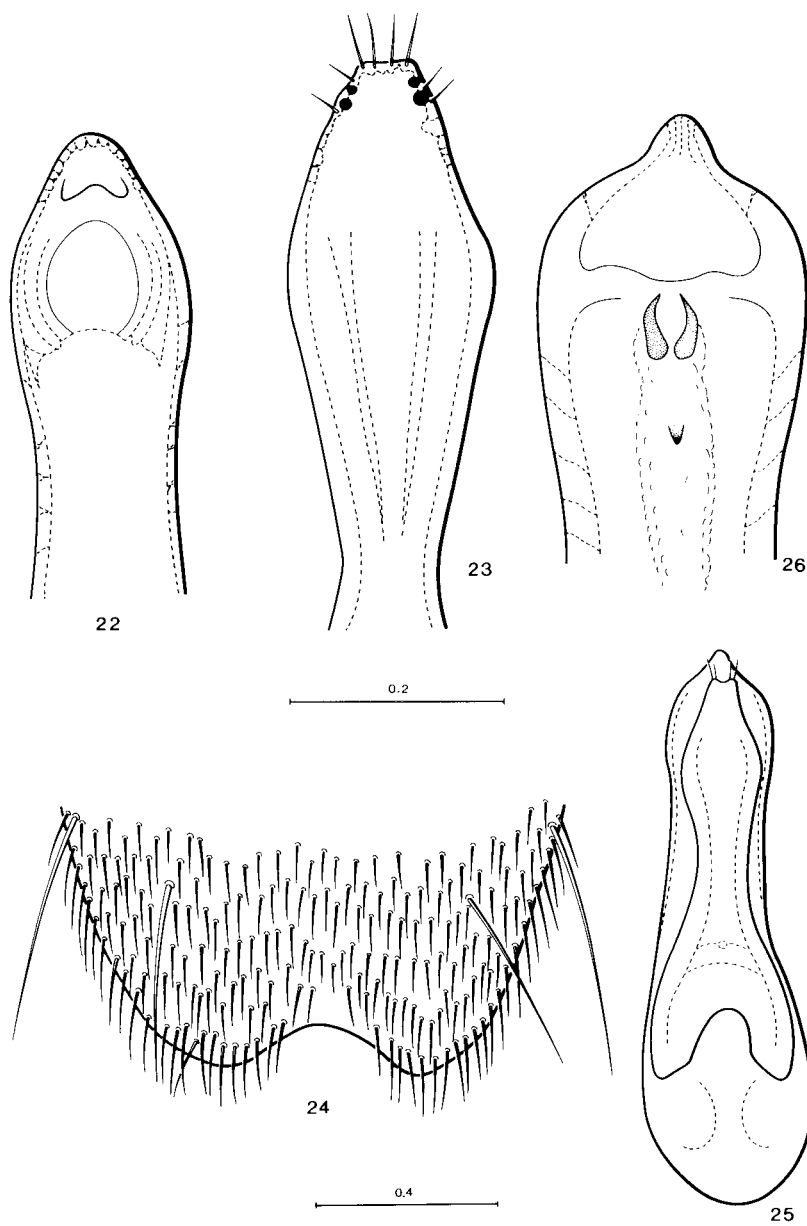
Figs. 10–13. *Quedius beesoni*: 10, apical portion of male sternite 8; 11, aedeagus, ventral view; 12, apical portion of median lobe, with internal sac; 13, apical portion of paramere, underside. Scale in mm.



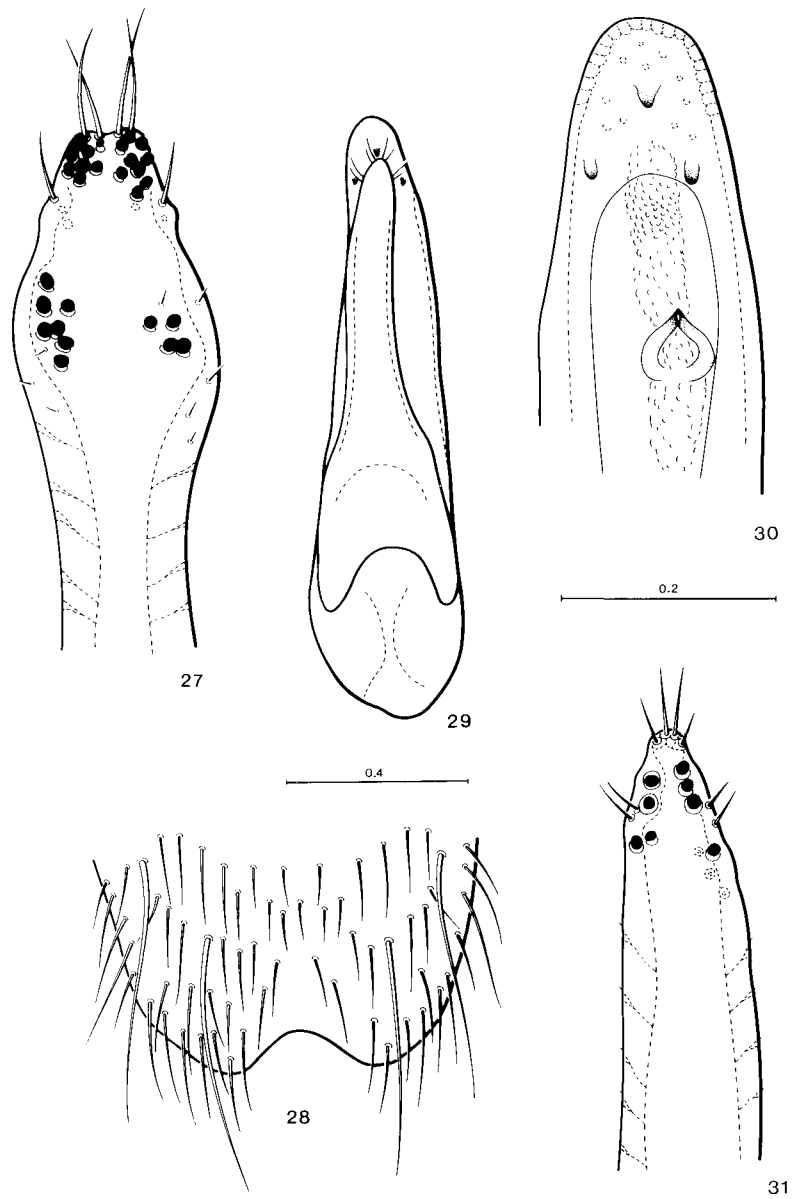
Figs. 14–17. 14–16, *Quedius flavocaudatus*: 14, apical portion of male sternite 8; 15, aedeagus, ventral view; 16, apical portion of paramere, underside with sensory peg setae. 17, *Q. antennalis*: aedeagus, ventral view. Scale in mm.



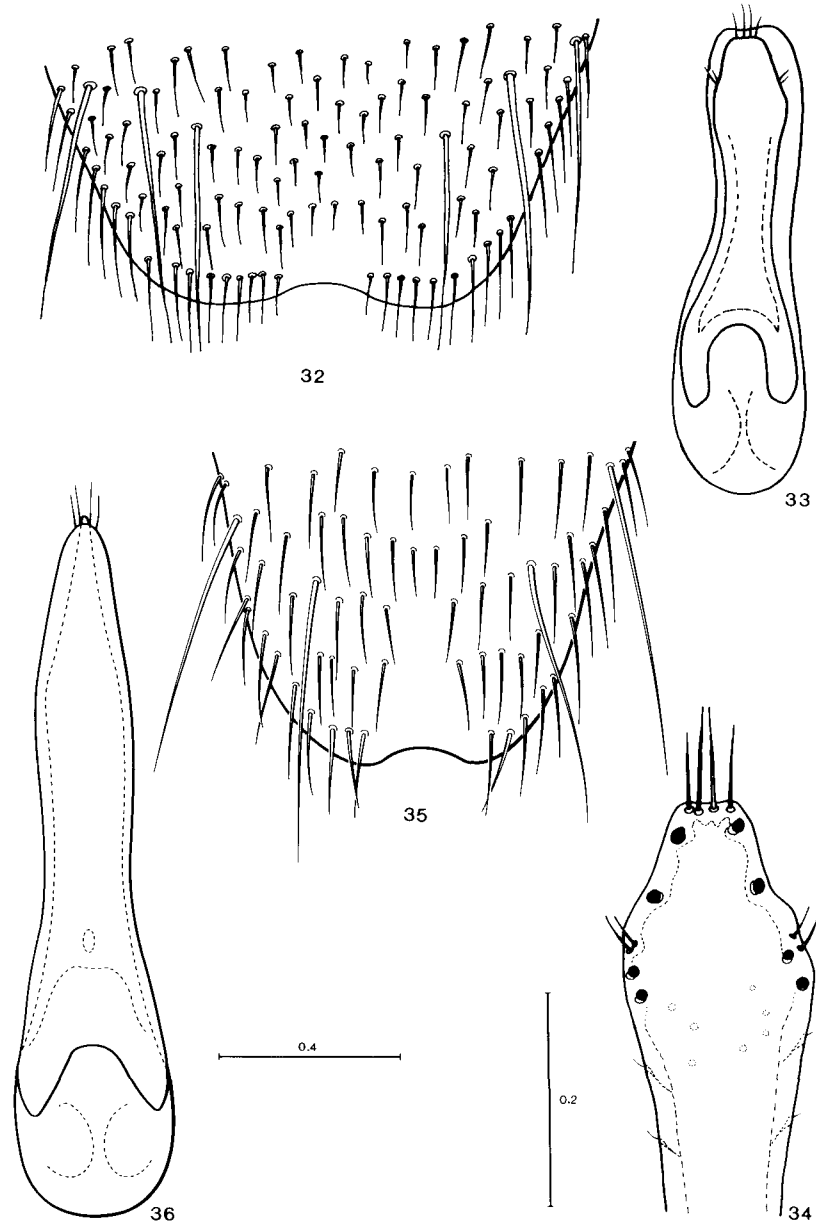
Figs. 18–21. 18–20, *Quedius antennalis*: 18, apical portion of male sternite 8; 19, apical portion of median lobe, with internal sac; 20, apical portion of paramere, underside. 21, *Q. martensi*: apical portion of male sternite 8. Scale in mm.



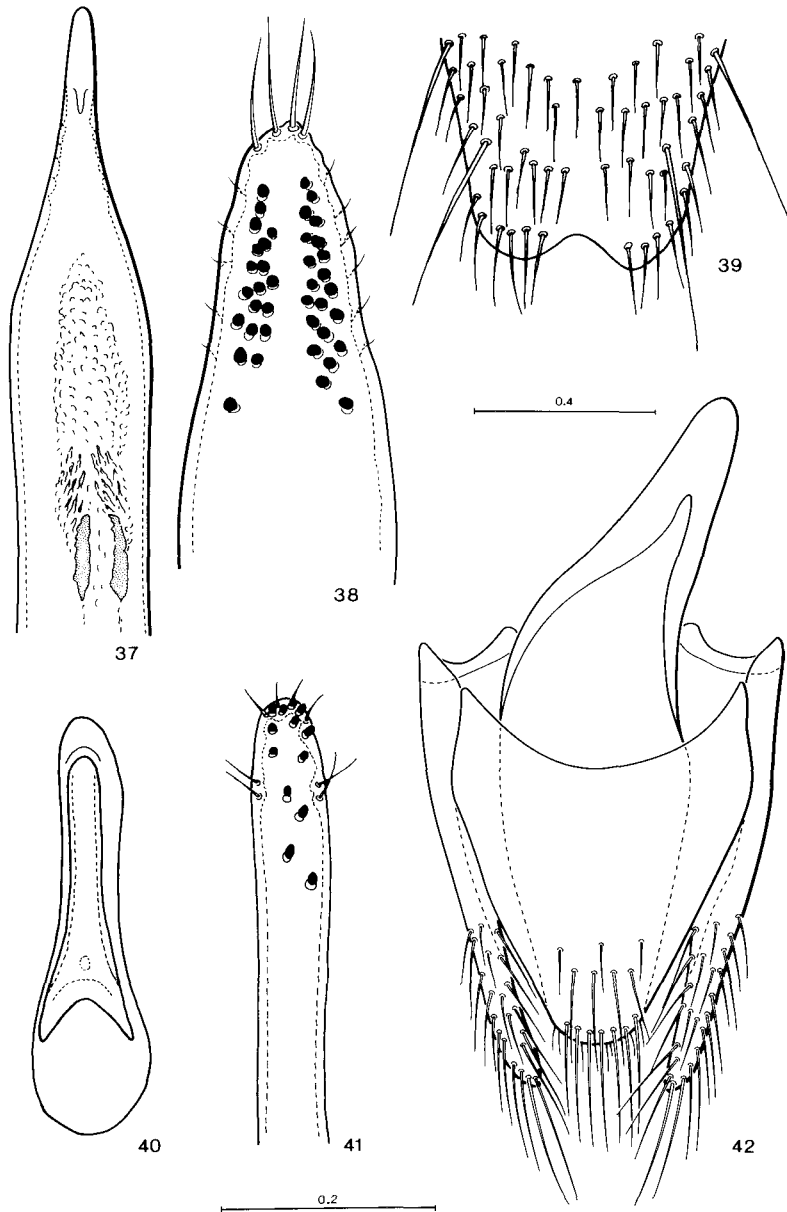
Figs. 22–26. 22–23, *Quedius martensi*: 22, apical portion of median lobe, ventral view; 23, apical portion of paramere, underside with sensory peg setae. 24–26, *Q. dui*: 24, apical portion of male sternite 8; 25, aedeagus, ventral view; 26, apical portion of median lobe with internal sac. Scale in mm.



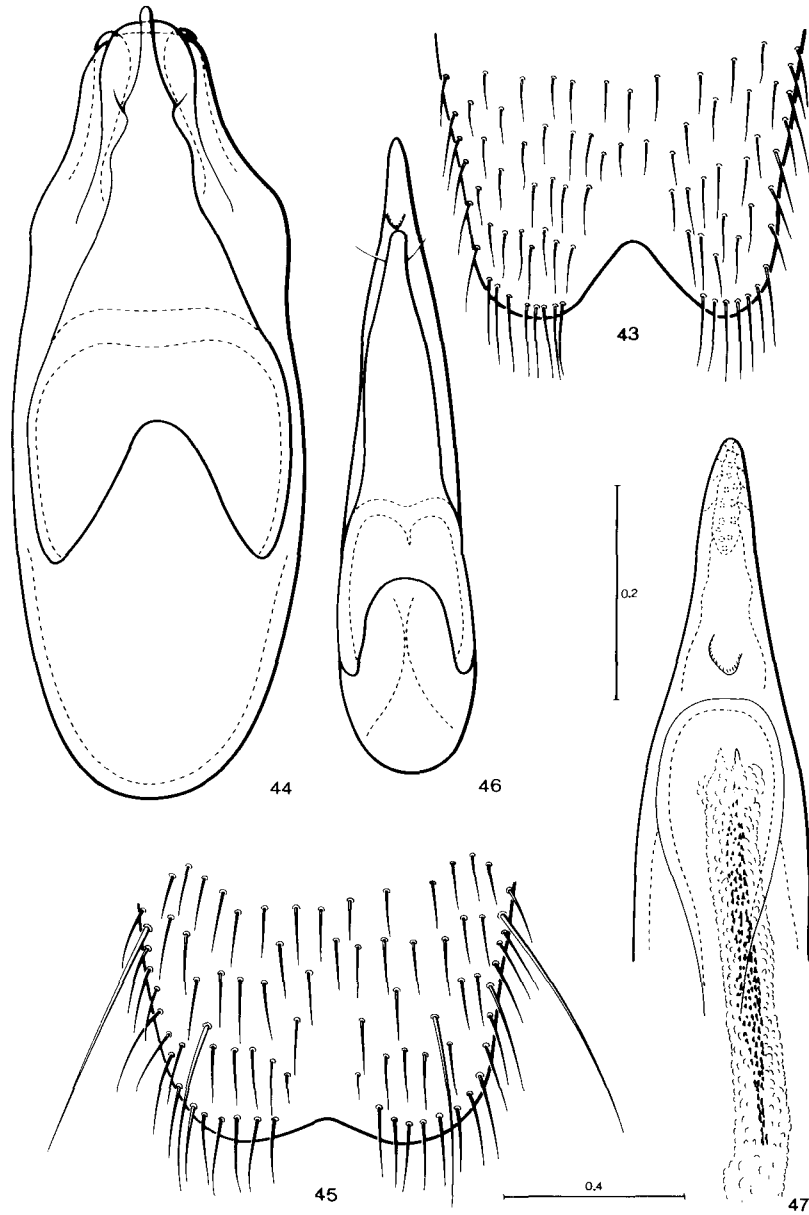
Figs. 27–31. 27, *Quedius dui*: apical portion of paramere underside with sensory peg setae. 28–31, *Q. adjacens*: 28, apical portion of male sternite 8; 29, aedeagus, ventral view; 30, apical portion of median lobe with internal sac; 31, apical portion of paramere, underside with sensory peg setae. Scale in mm.



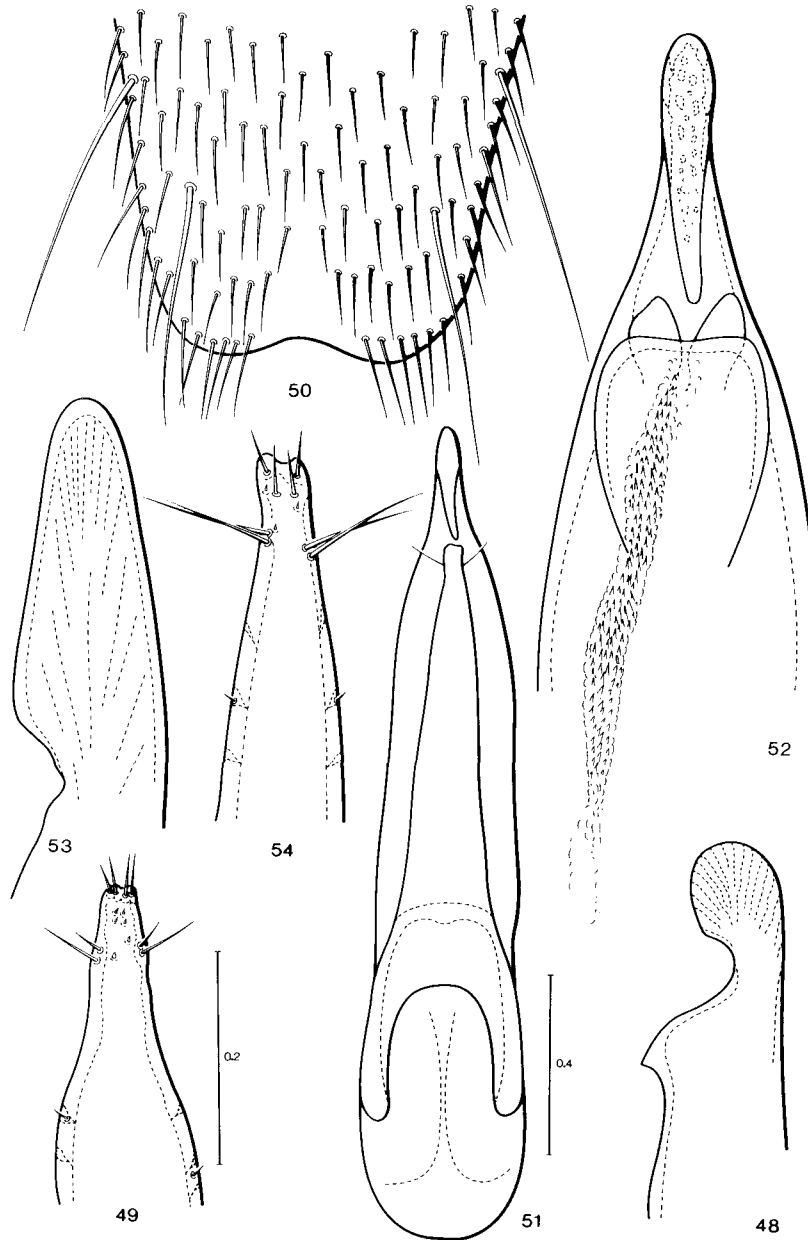
Figs. 32–36. 32–34, *Quedius ochripennis*: 32, apical portion of male sternite 8; 33, aedeagus, ventral view; 34, apical portion of paramere, underside with sensory peg setae. 35, 36, *Q. placidus*: 35, apical portion of male sternite 8; 36, aedeagus, ventral view. Scale in mm.



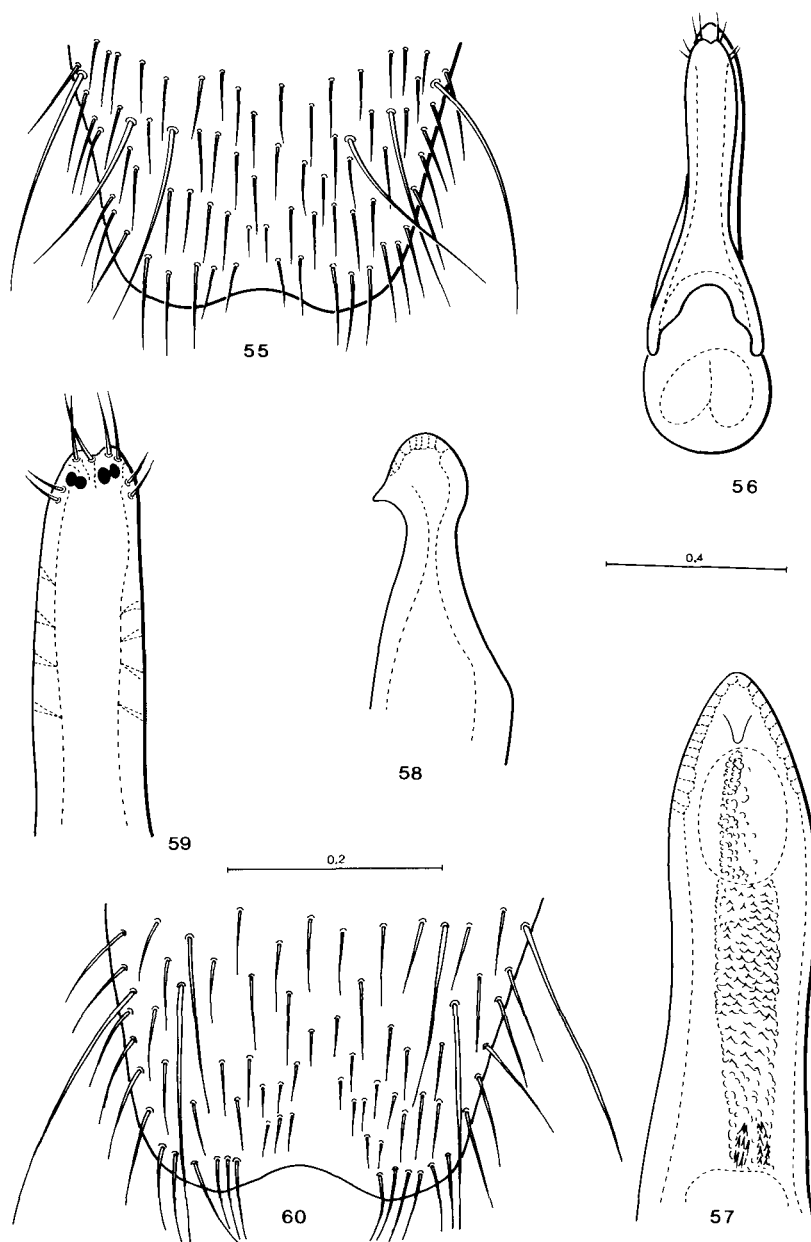
Figs. 37–42. 37, 38, *Quedius placidus*: 37, apical portion of median lobe with internal sac; 38, apical portion of paramere, underside with sensory peg setae. 39–41, *Q. lesagei*: 39, apical portion of male sternite 8; 40, aedeagus, ventral view; 41, apical portion of paramere underside with sensory peg setae. 42, *Q. stevensi*: male genital segment, dorsal view. Scale in mm.



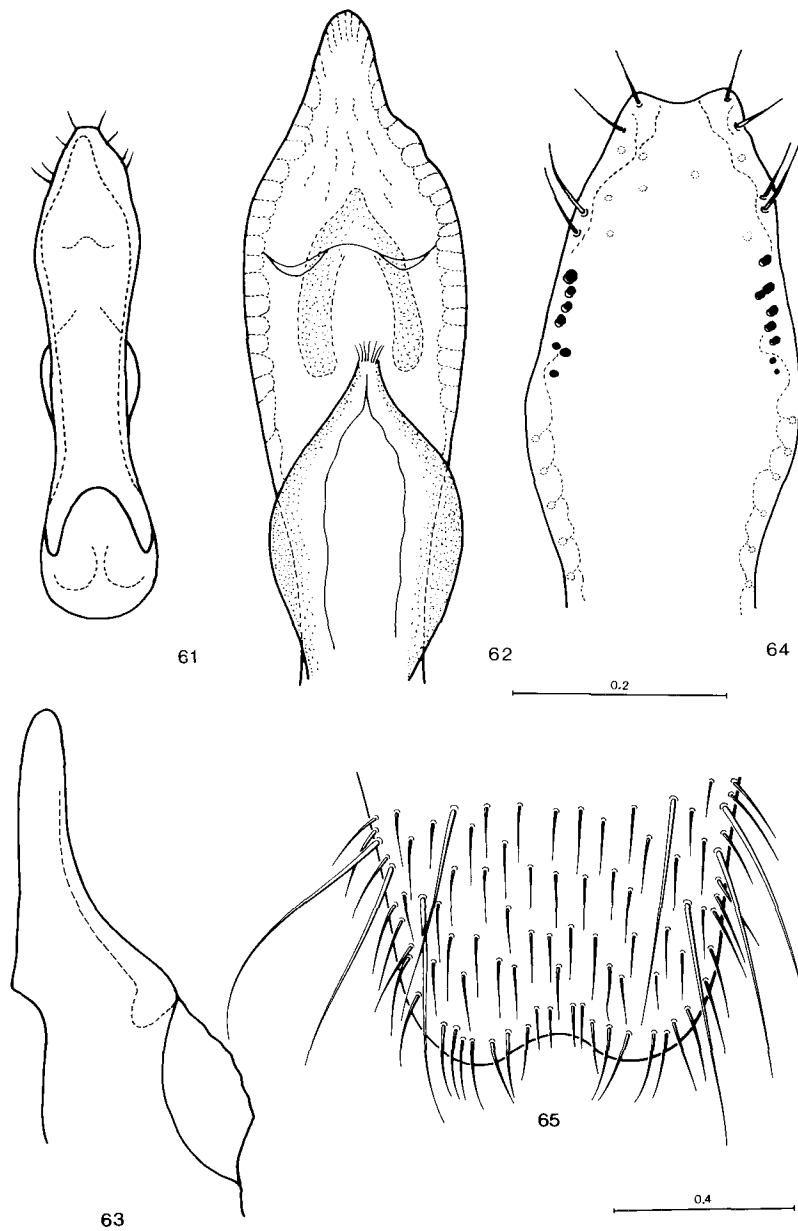
Figs. 43–47. 43, 44, *Quedius stevensi*: 43, apical portion of male sternite 8; 44, aedeagus, ventral view. 45–47, *Q. ripicola*: 45, apical portion of male sternite 8; 46, aedeagus, ventral view; 47, apical portion of median lobe with internal sac. Scale in mm.



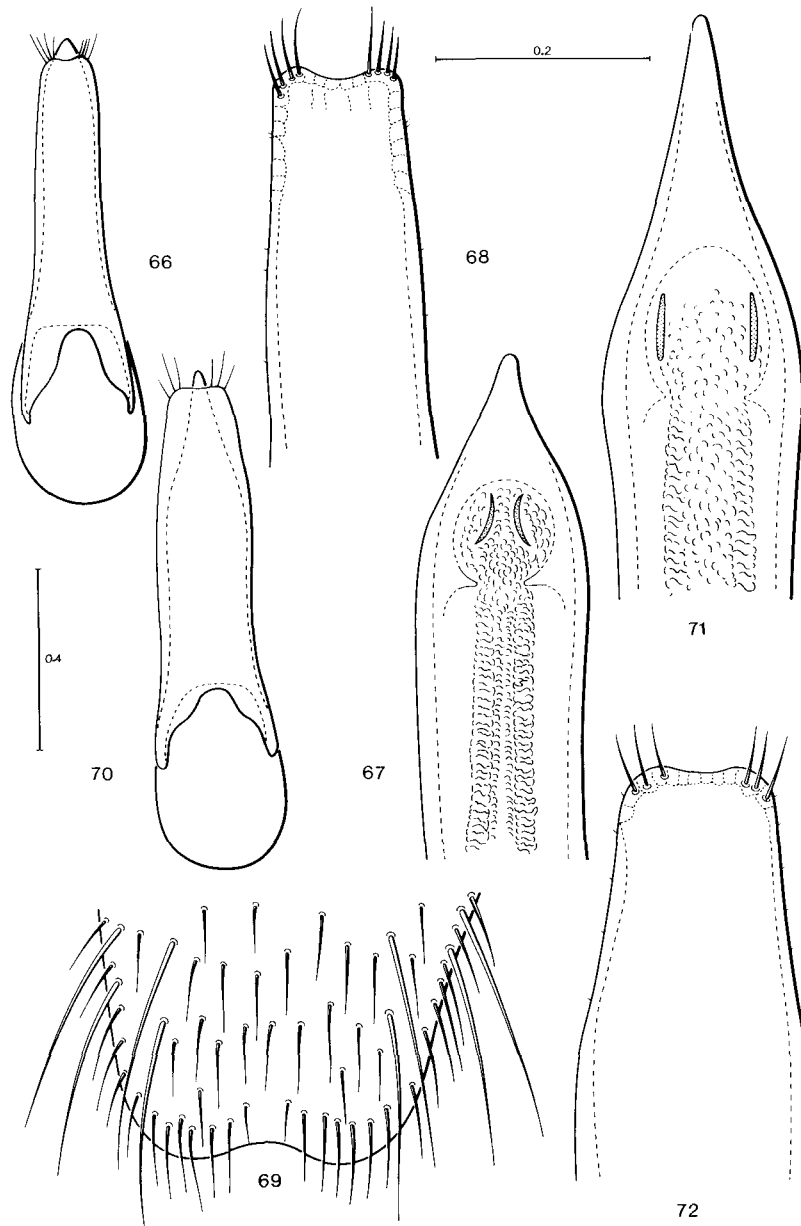
Figs. 48–54. 48, 49, *Quedius ripicola*: 48, apical portion of median lobe, lateral view; 49, apical portion of paramere, underside. 50–54, *Q. milansaar*: 50, apical portion of male sternite 8; 51, aedeagus, ventral view; 52, apical portion of median lobe, with internal sac; 53, apical portion of median lobe, lateral view; 54, apical portion of paramere, underside. Scale in mm.



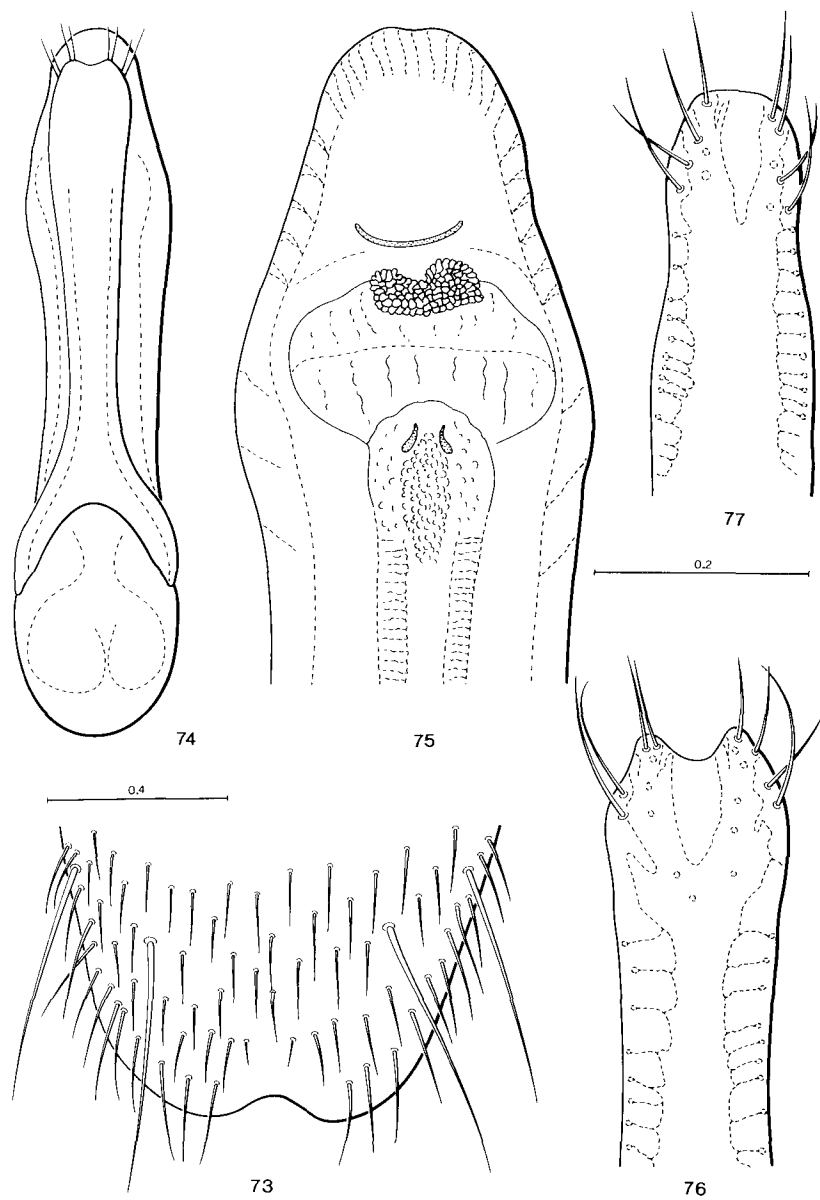
Figs. 55–60. 55–59, *Quedius franzi*: 55, apical portion of male sternite 8; 56, aedeagus, ventral view; 57, apical portion of median lobe with internal sac; 58, apical portion of median lobe, lateral view; 59, apical portion of paramere, underside with sensory peg setae. 60, *Q. goropanus*: apical portion of male sternite 8. Scale in mm.



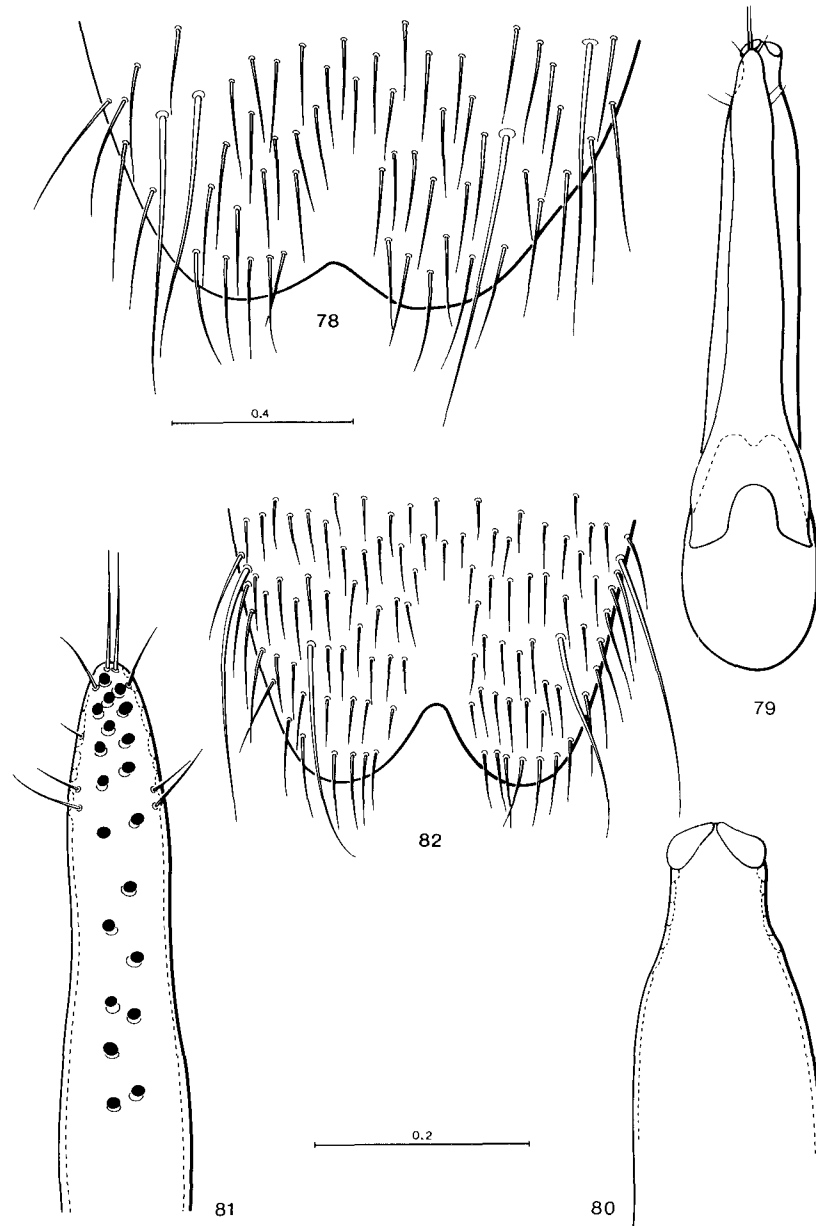
Figs. 61–65. 61–64, *Quedius goropanus*: 61, aedeagus, ventral view; 62, apical portion of median lobe with internal sac; 63, apical portion of median lobe, lateral view; 64, apical portion of paramere, underside with sensory peg setae. 65, *Q. tanderi*: apical portion of male sternite 8. Scale in mm.



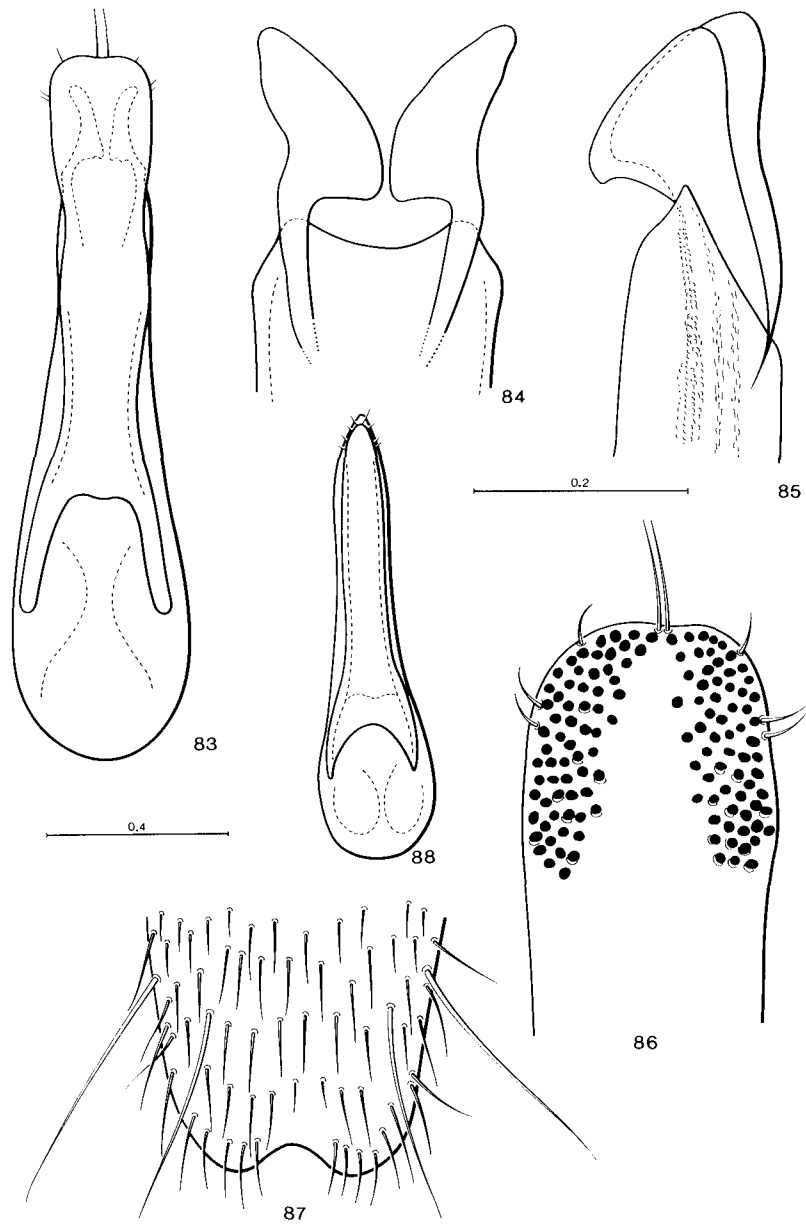
Figs. 66–72. 66–68, *Quedius tanderi*: 66, aedeagus, ventral view; 67, apical portion of median lobe with internal sac; 68, apical portion of paramere, underside. 69–72, *Q. kailo*. 69, apical portion of male sternite 8; 70, aedeagus, ventral view; 71, apical portion of median lobe with internal sac; 72, apical portion of paramere, underside. Scale in mm.



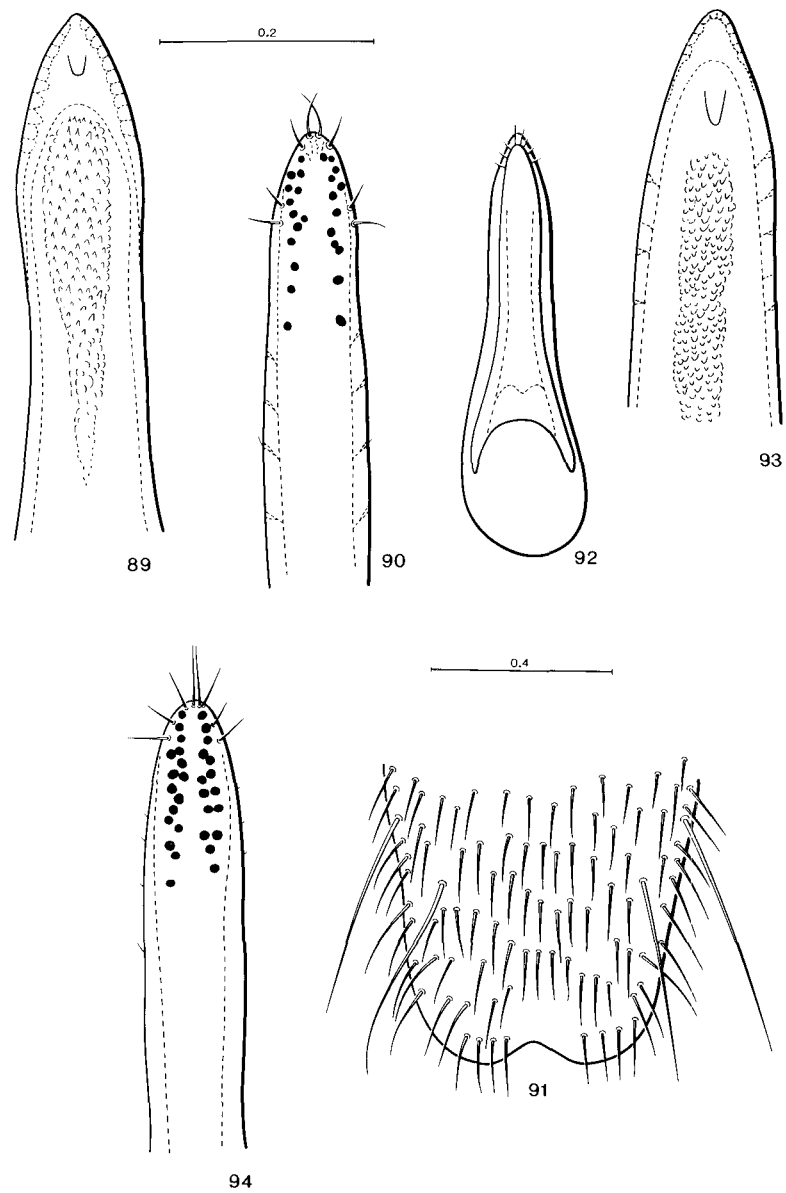
Figs. 73–77. *Quedius angnimai*: 73, apical portion of male sternite 8; 74, aedeagus, ventral view; 75, apical portion of median lobe with internal sac; 76, 77, apical portions of parameres, undersides. Scale in mm.



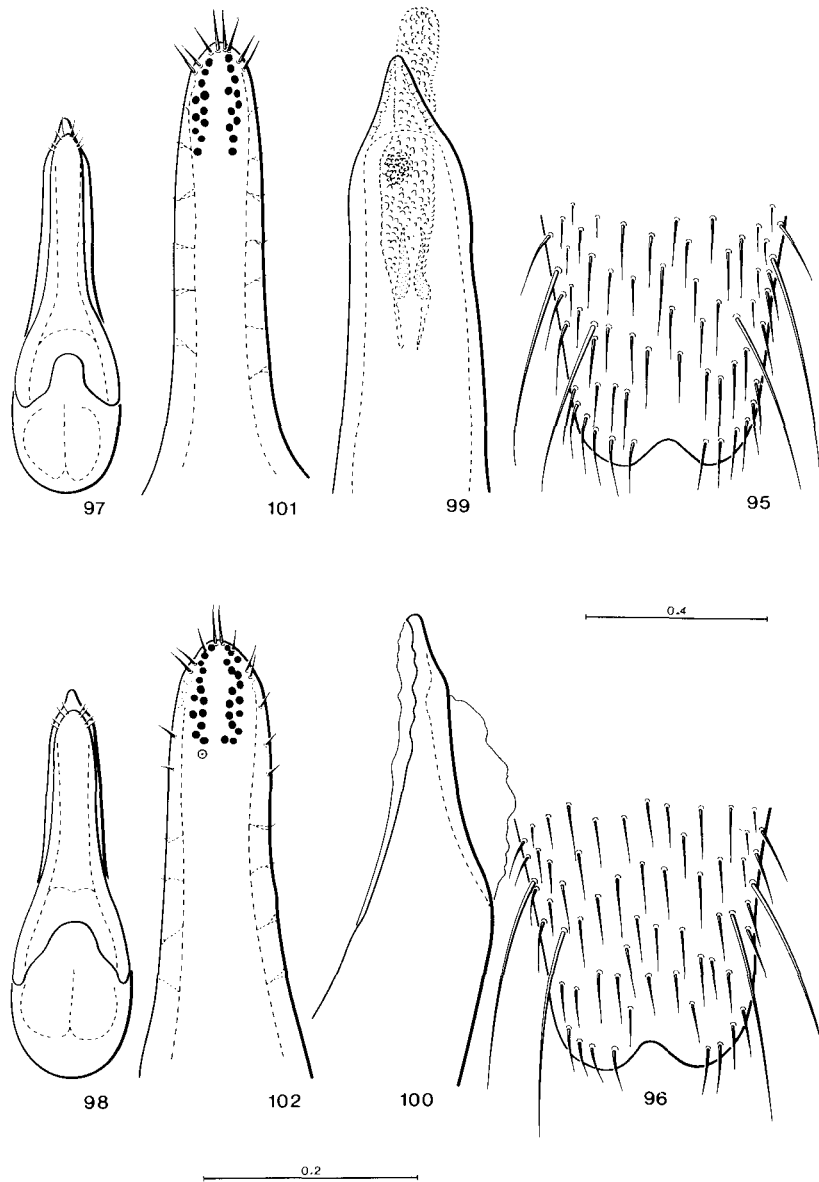
Figs. 78–82. 78–81, *Quedius kashmirensis*: 78, apical portion of male sternite 8; 79, aedeagus, ventral view; 80, apical portion of median lobe, ventral view; 81, apical portion of paramere, underside with sensory peg setae. 82, *Q. chatterjeei*: apical portion of male sternite 8. Scale in mm.



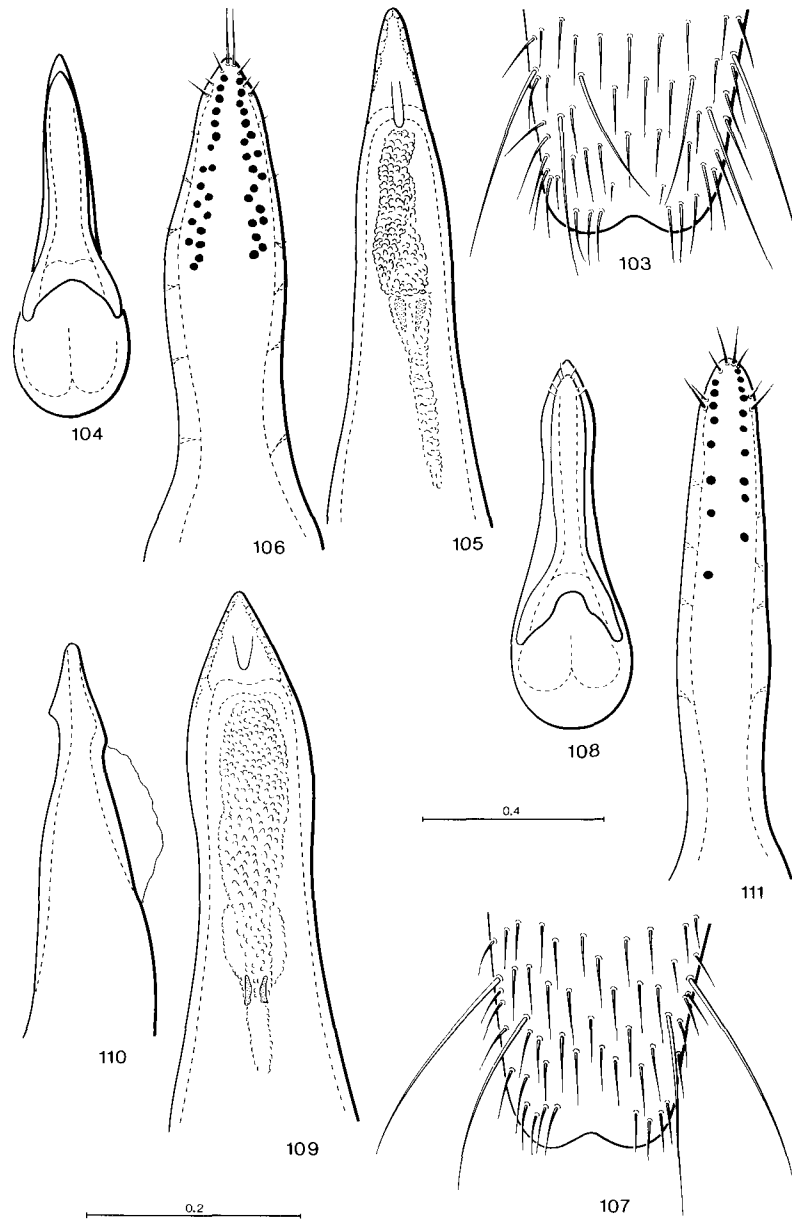
Figs. 83–88. 83–86, *Quedius chatterjeei*: 83, aedeagus, ventral view; 84, apex of median lobe, ventral view; 85, apex of median lobe, lateral view; 86, apical portion of paramere, underside with sensory peg setae. 87, 88, *Q. fluviatilis*: 87, apical portion of male sternite 8; 88, aedeagus, ventral view. Scale in mm.



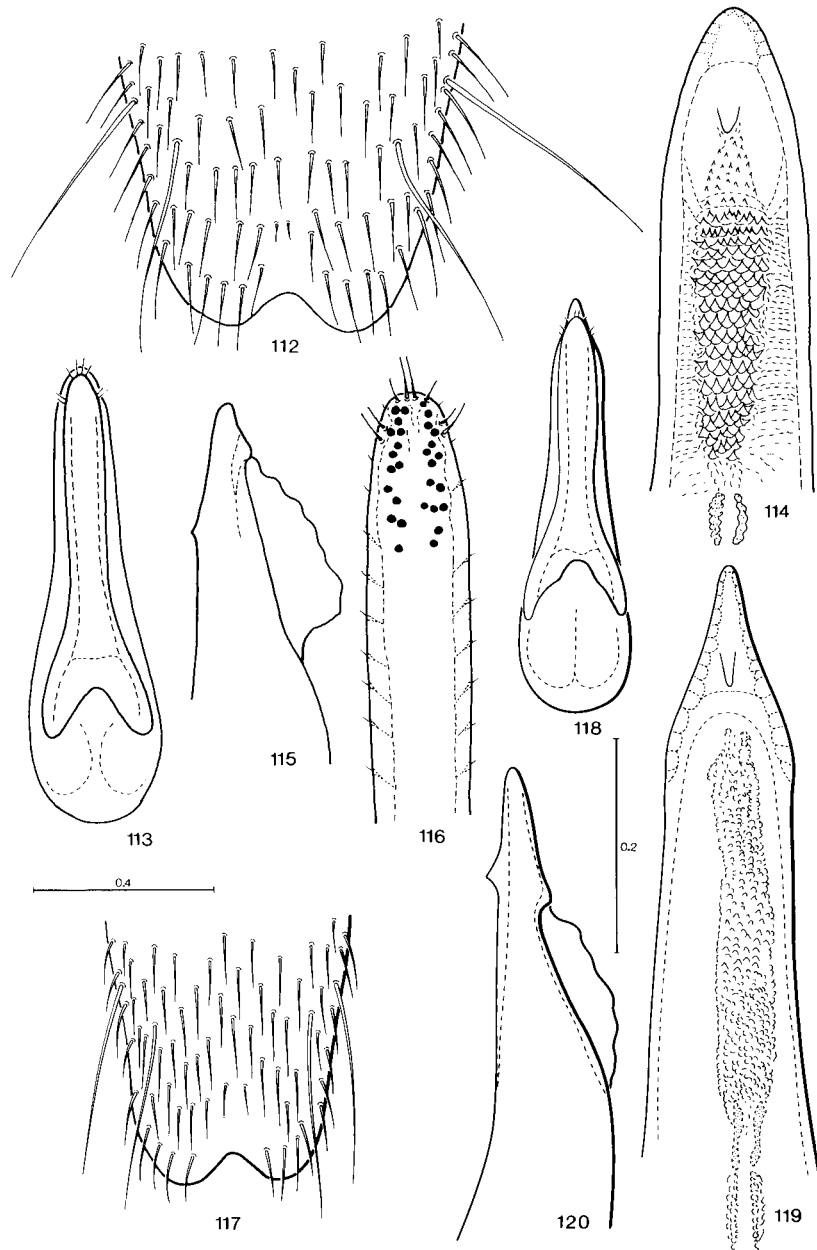
Figs. 89–94. 89, 90, *Quedius fluviatilis*: 89, apical portion of median lobe with internal sac; 90, apical portion of paramere, underside with sensory peg setae. 91–94, *Q. kaalo*: 91, apical portion of male sternite 8; 92, aedeagus, ventral view; 93, apical portion of median lobe with internal sac; 94, apical portion of paramere, underside with sensory peg setae. Scale in mm.



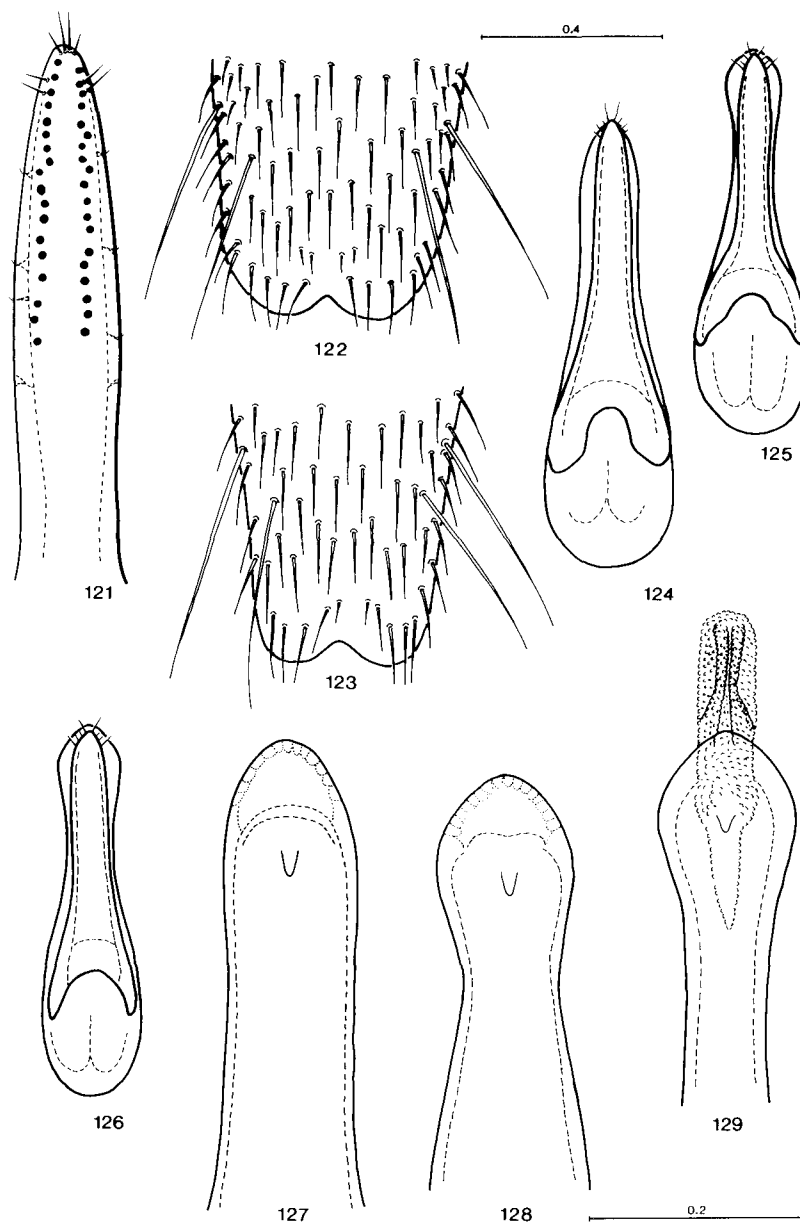
Figs. 95–102. *Quedius vadhu*: 95, 96, apical portions of male sternites 8; 97, 98, aedeagi, ventral view; 99, apical portion of median lobe with internal sac; 100, apical portion of median lobe, lateral view; 101, 102, apical portions of parameres, undersides with sensory peg setae. Scale in mm.



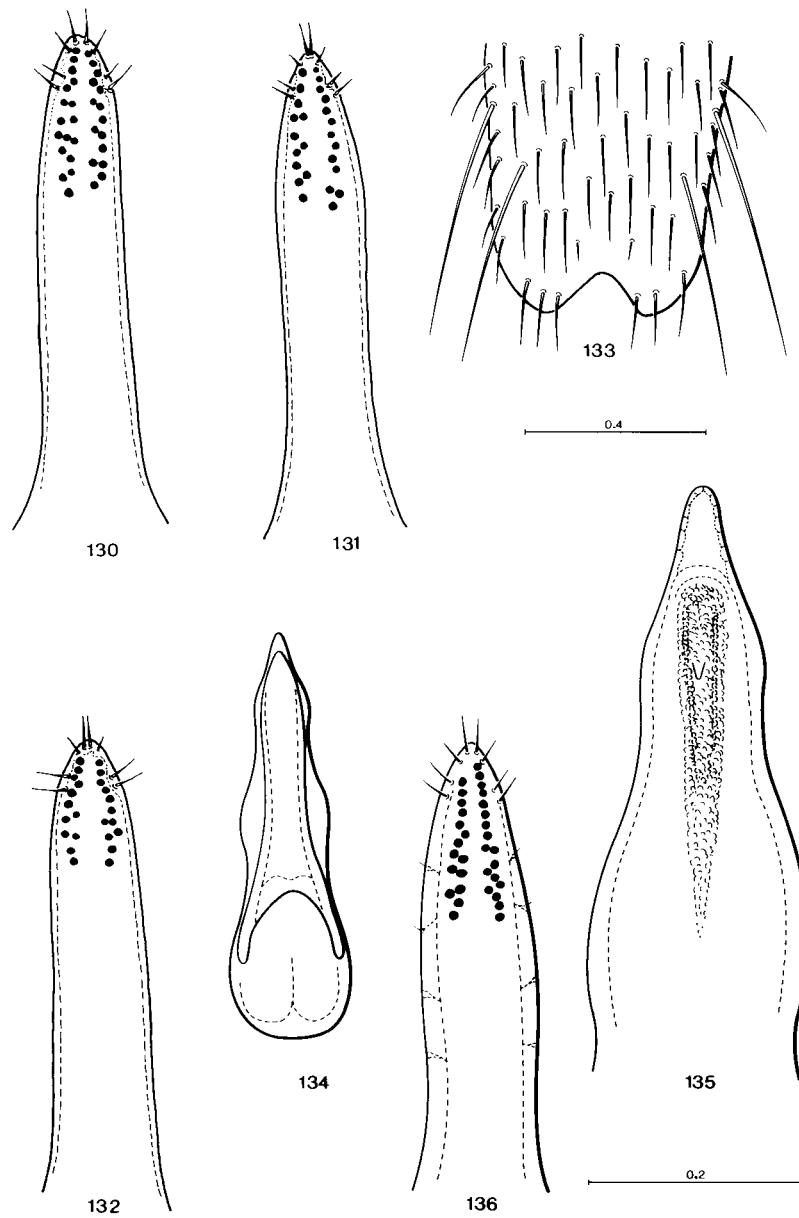
Figs. 103–111. 103–106, *Quedius gaerhøi*: 103, apical portion of male sternite 8; 104, aedoeagus, ventral view; 105, apical portion of median lobe with internal sac; 106, apical portion of paramere, underside with sensory peg setae. 107–111, *Q. daksumensis*: 107, apical portion of male sternite 8; 108, aedoeagus, ventral view; 109, apical portion of median lobe with internal sac; 110, apical portion of median lobe, lateral view; 111, apical portion of paramere, underside with sensory peg setae. Scale in mm.



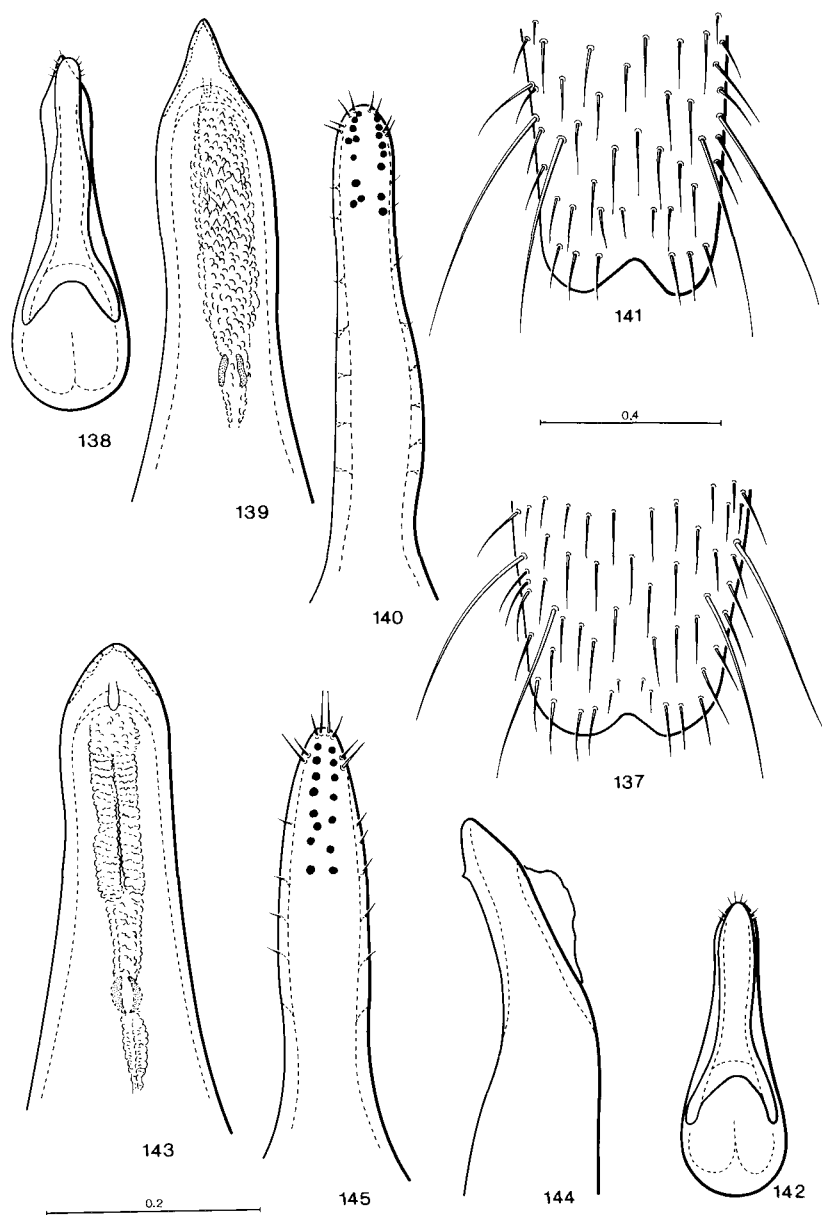
Figs. 112–120. 112–116. *Quedius paschim*: 112, apical portion of male sternite 8; 113, aedoeagus, ventral view; 114, apical portion of median lobe with internal sac; 115, apical portion of median lobe, lateral view; 116, apical portion of paramere, underside with sensory peg setae. 117–120, *Q. aureiventris*. 117, apical portion of male sternite 8; 118, aedoeagus, ventral view; 119, apical portion of median lobe with internal sac; 120, apical portion of median lobe, lateral view. Scale in mm.



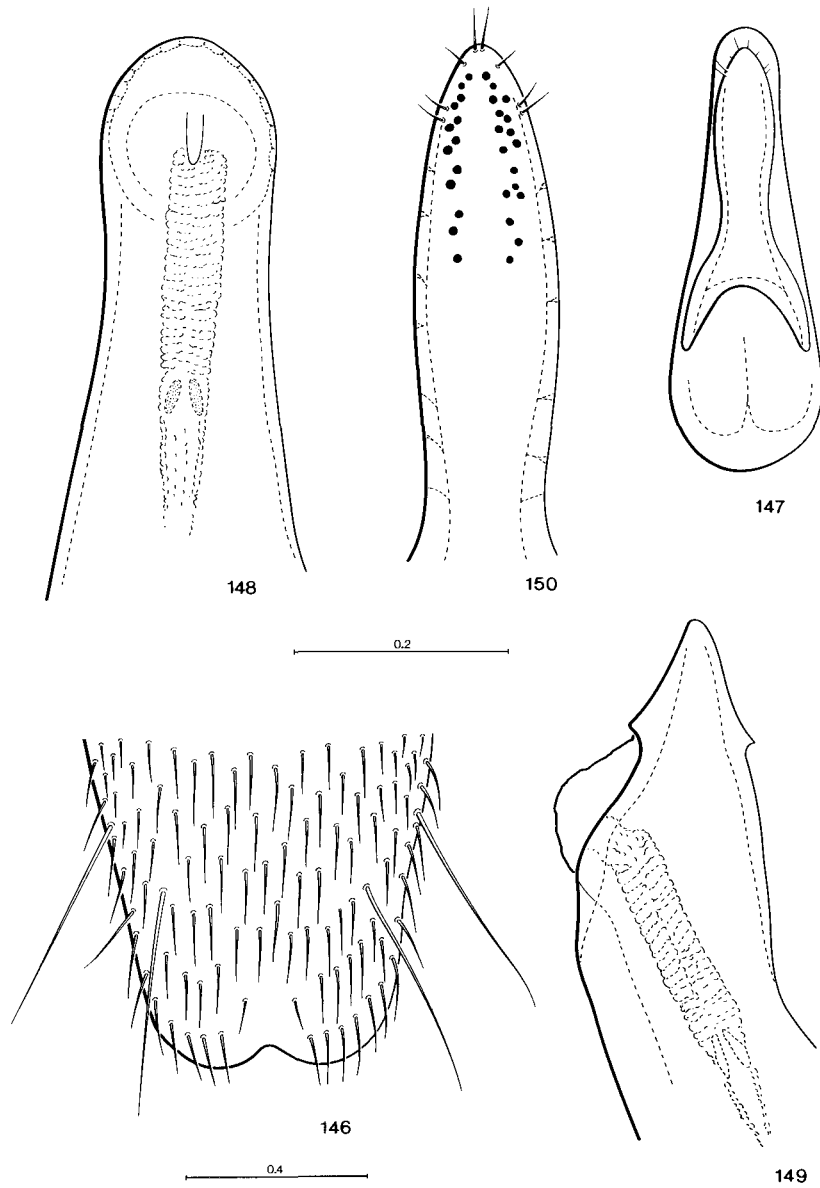
Figs. 121–129. 121, *Quedius aureiventris*: apical portion of paramere, underside with sensory peg setae. 122–129, *Q. muscicola*: 122, 123, apical portions of male sternite 8; 124–126, aedeagi, ventral views; 127–129, apical portions of median lobes, ventral view, 129 with evaginated internal sac. Scale in mm.



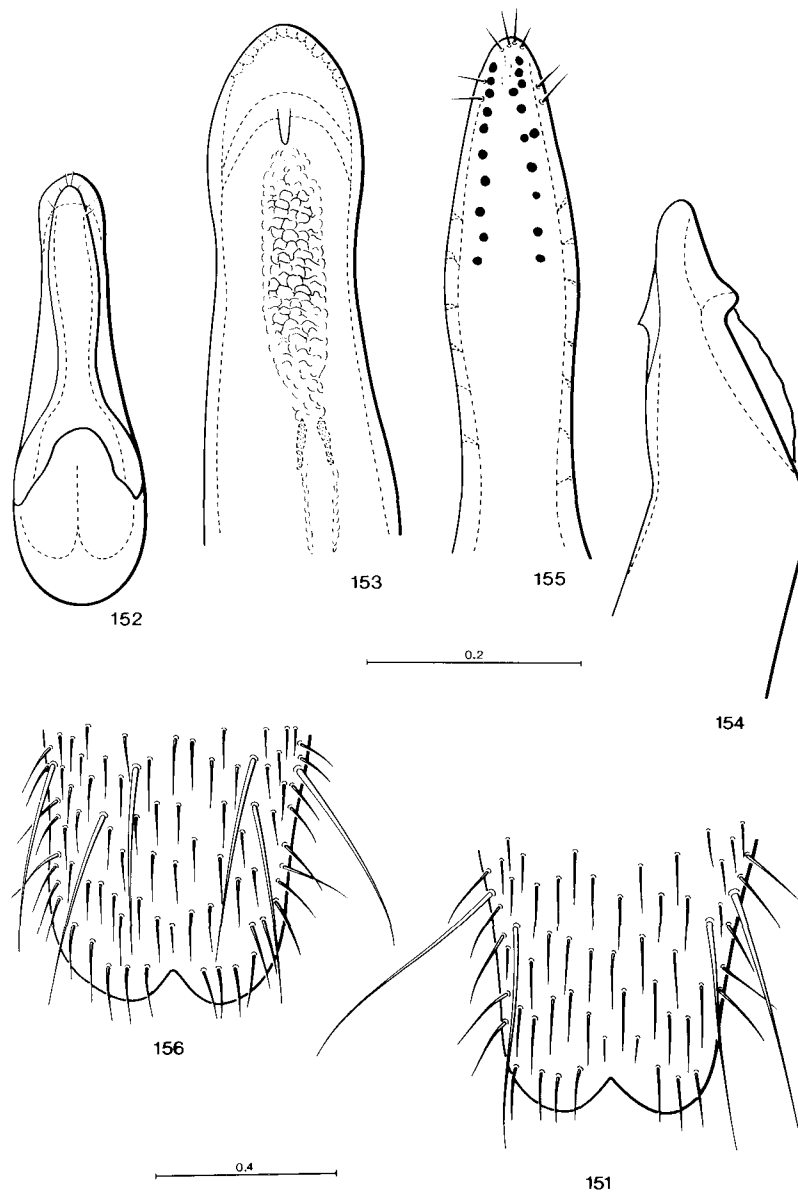
Figs. 130–136. 130–132, *Quedius muscicola*: apical portions of parameres, undersides with sensory peg setae. 133–136, *Q. bhari*: 133, apical portion of male sternite 8; 134, aedeagus, ventral view; 135, apical portion of median lobe with internal sac; 136, apical portion of paramere, underside with sensory peg setae. Scale in mm.



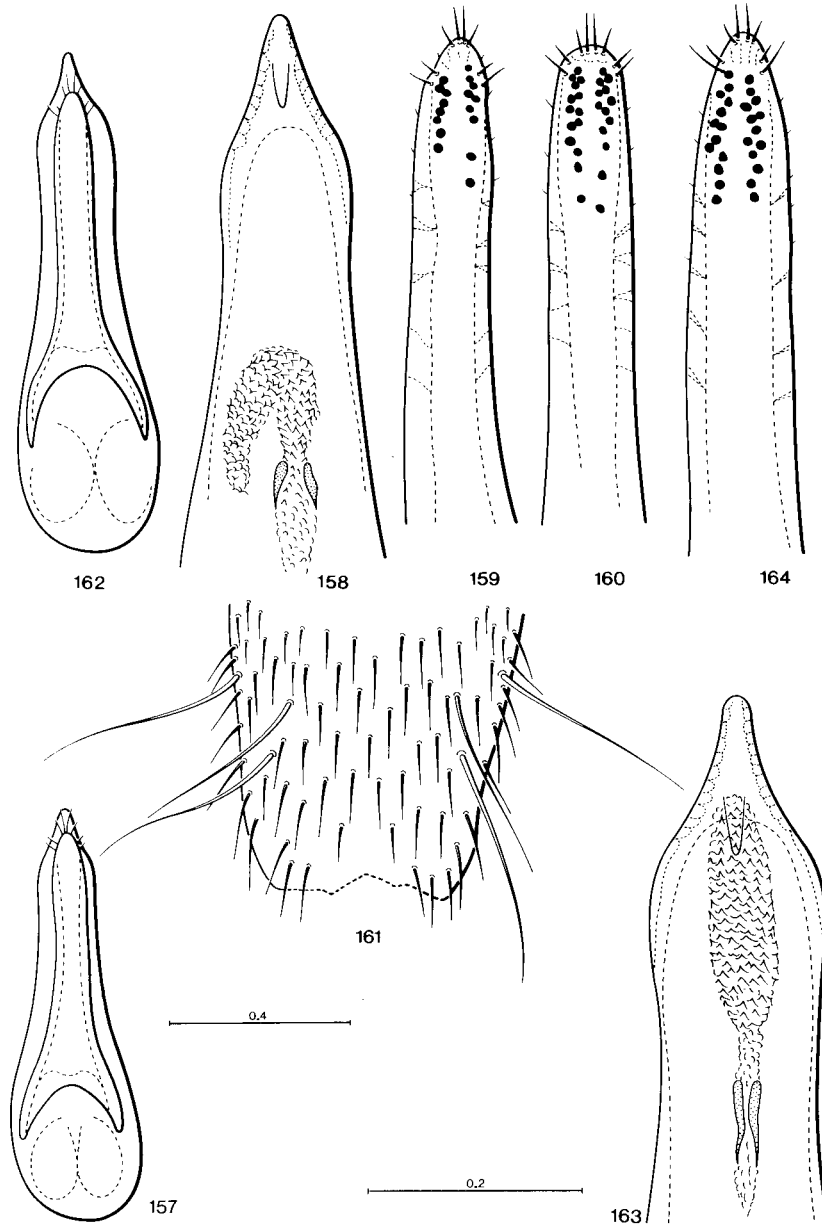
Figs. 137–145. 137–140, *Quedius eklair*: 137, apical portion of male sternite 8; 138, aedoeagus, ventral view; 139, apical portion of median lobe with internal sac; 140, apical portion of paramere, underside with sensory peg setae. 141–145, *Q. sundar*: 141, apical portion of male sternite 8; 142, aedoeagus, ventral view; 143, apical portion of median lobe with internal sac; 144, apical portion of median lobe, lateral view; 145, apical portion of paramere, underside with sensory peg setae. Scale in mm.



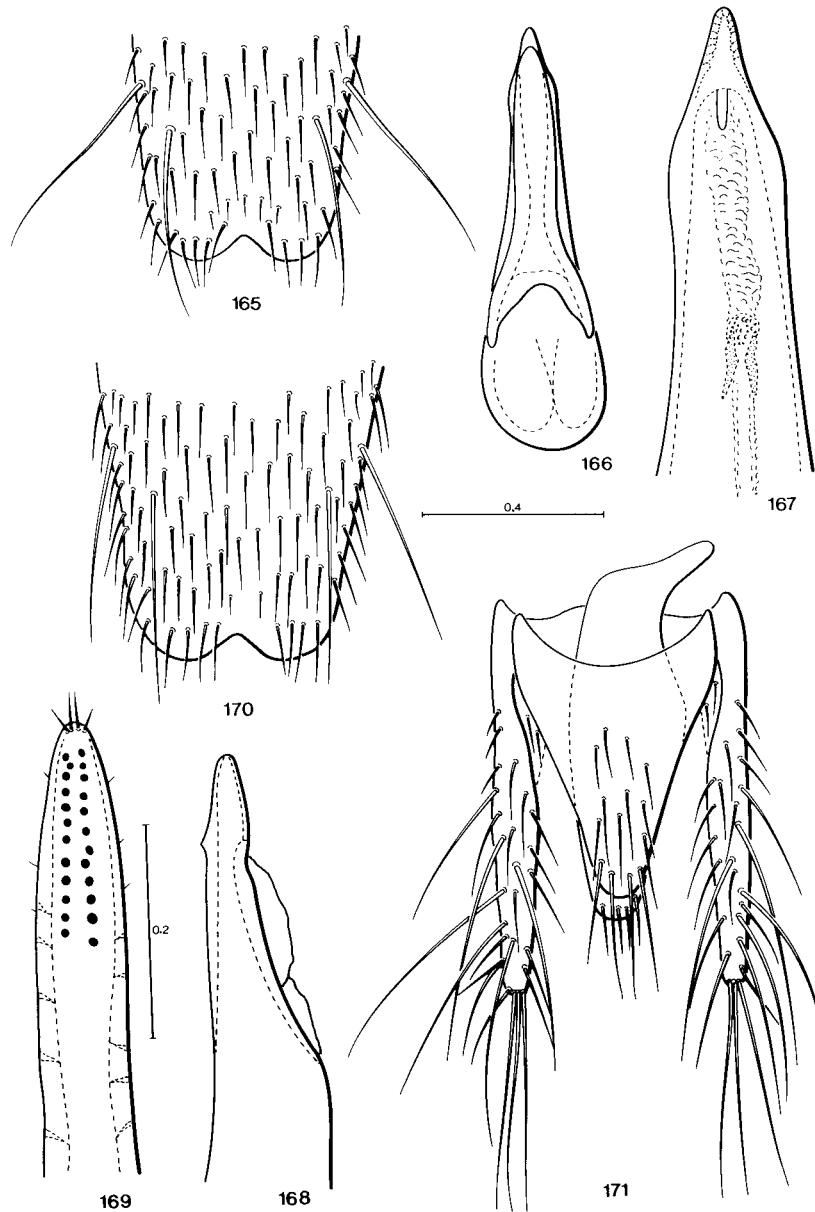
Figs. 146–150. *Quedius udagra*: 146, apical portion of male sternite 8; 147, aedoeagus, ventral view; 148, apical portion of median lobe with internal sac; 149, apical portion of median lobe, lateral view; 150, apical portion of paramere, underside with sensory peg setae. Scale in mm.



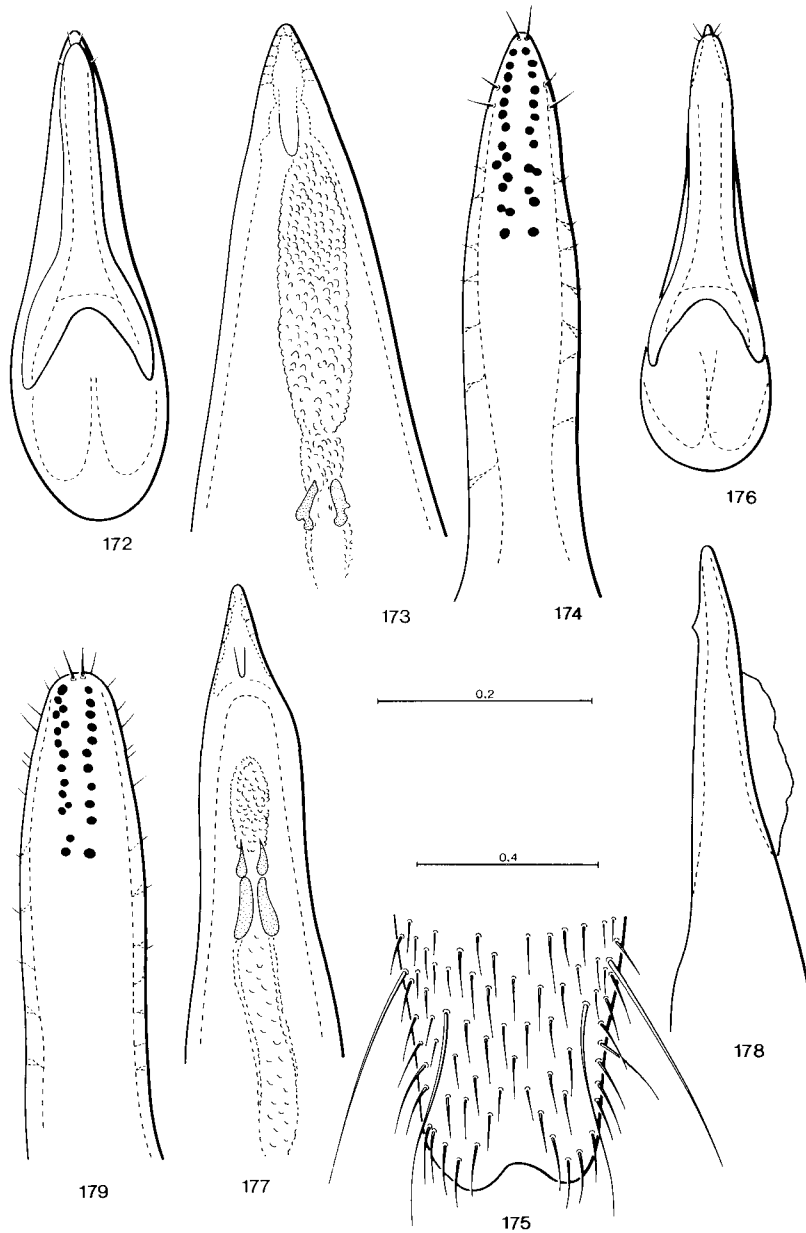
Figs. 151–156. 151–155, *Quedius satoi*: 151, apical portion of male sternite 8; 152, aedoeagus, ventral view; 153, apical portion of median lobe with internal sac; 154, apical portion of median lobe, lateral view; 155, apical portion of paramere, underside with sensory peg setae. 156, *Q. kanyasa*: apical portion of male sternite 8. Scale in mm.



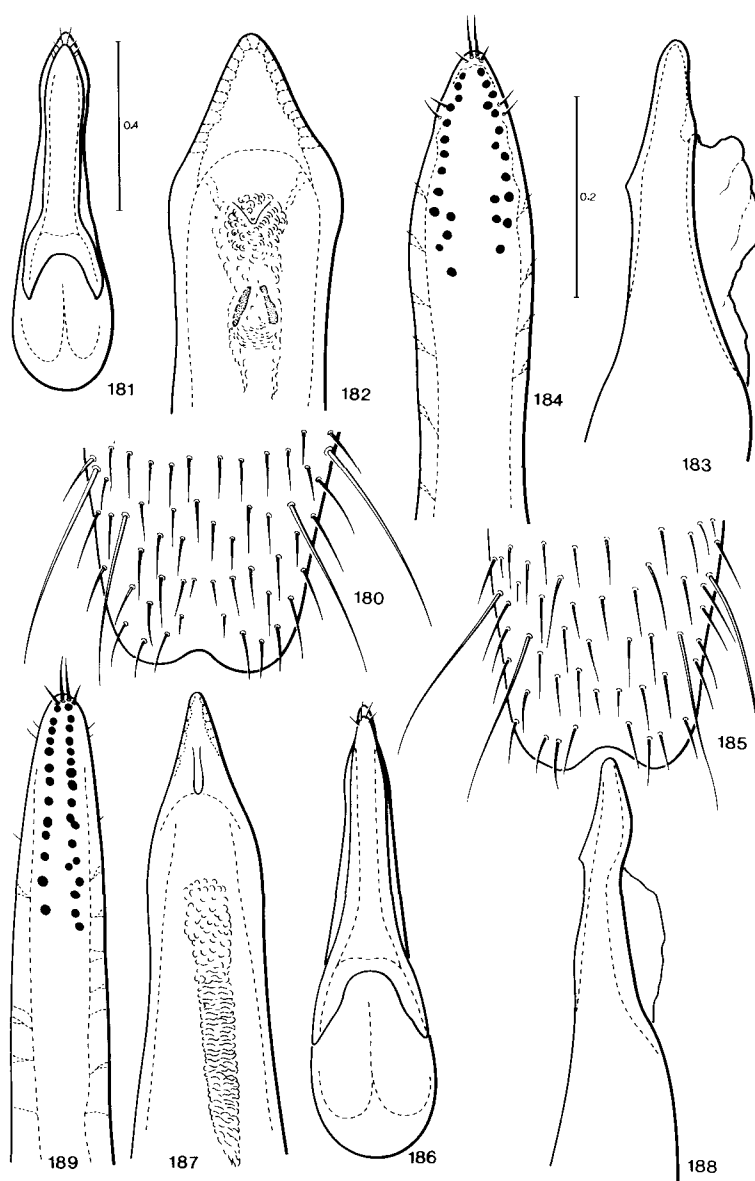
Figs. 157–164. 157–160, *Quedius kanyasa*: 157, aedoeagus, ventral view; 158, apical portion of median lobe with internal sac; 159, 160, apical portions of parameres, undersides with sensory peg setae. 161–164, *Q. kanyasa* (holotype of *Q. dhaulagirensis*): 161, apical portion of male sternite 8; 162, aedoeagus, ventral view; 163, apical portion of median lobe with internal sac; 164, apical portion of paramere, underside with sensory peg setae. Scale in mm.



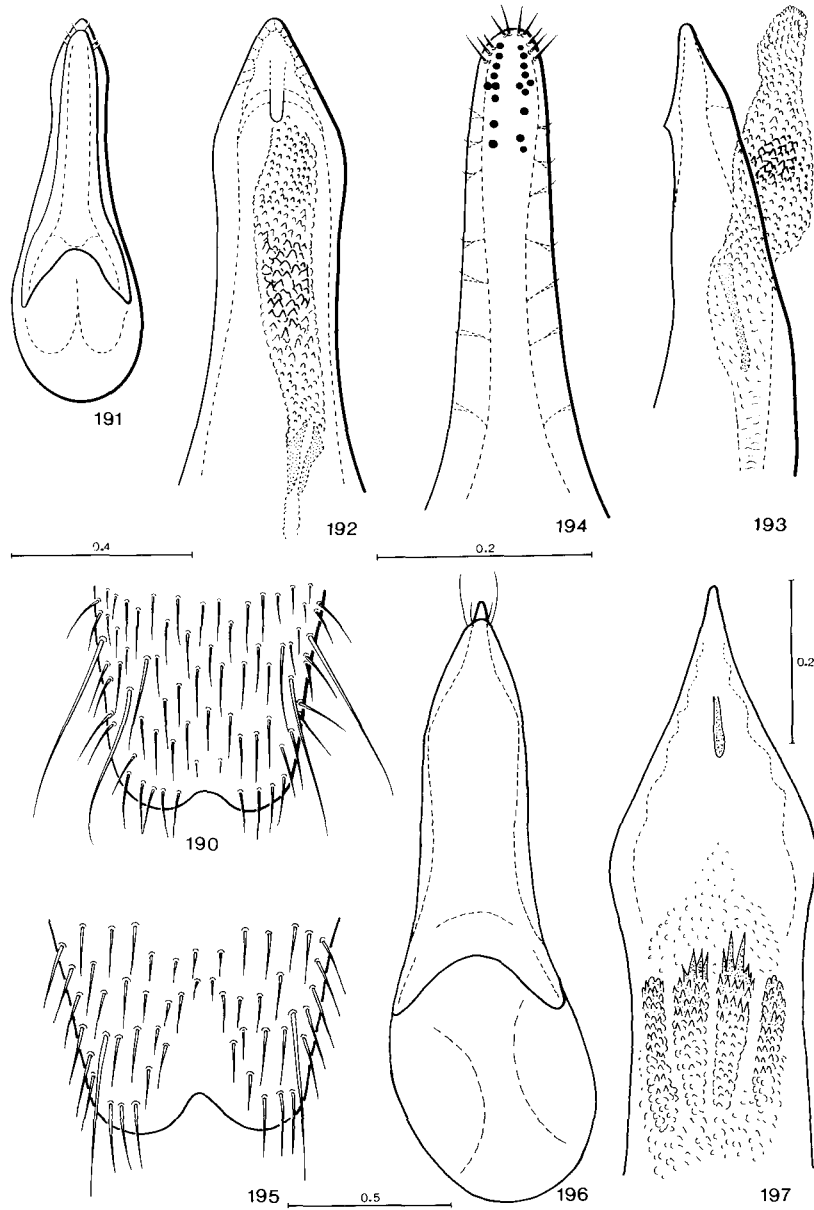
Figs. 165–171. 165–169, *Quedius naati*: 165, apical portion of male sternite 8; 166, aedeagus, ventral view; 167, apical portion of median lobe with internal sac; 168, apical portion of median lobe, lateral view; 169, apical portion of paramere underside with sensory peg setae. 170, 171, *Q. dewar*: 170, apical portion of male sternite 8; 171, male genital segment, dorsal view. Scale in mm.



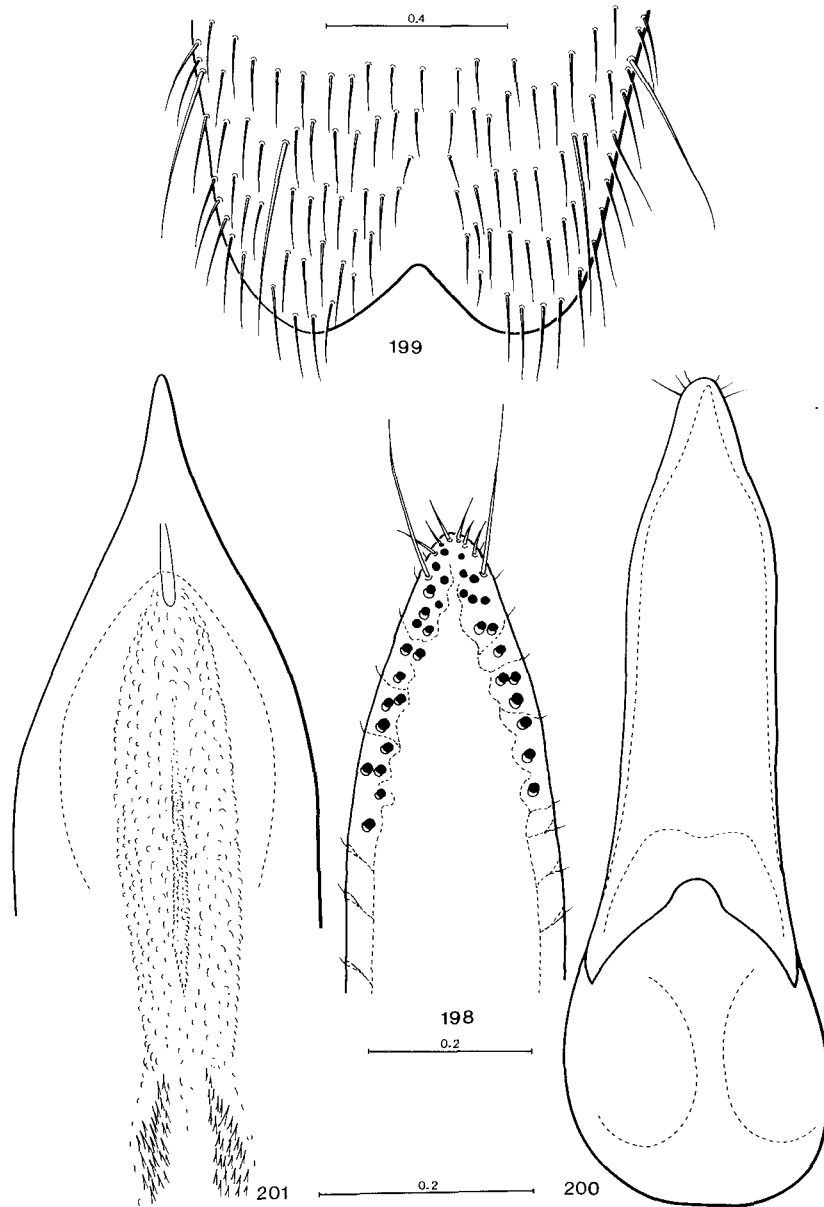
Figs. 172–179. 172–174, *Quedius dewar*: 172, aedoeagus, ventral view; 173, apical portion of median lobe with internal sac; 174, apical portion of paramere, underside with sensory peg setae. 175–179, *Q. tikta*: 175, apical portion of male sternite 8; 176, aedoeagus, ventral view; 177, apical portion of median lobe with internal sac; 178, apical portion of median lobe, lateral view; 179, apical portion of paramere, underside with sensory peg setae. Scale in mm.



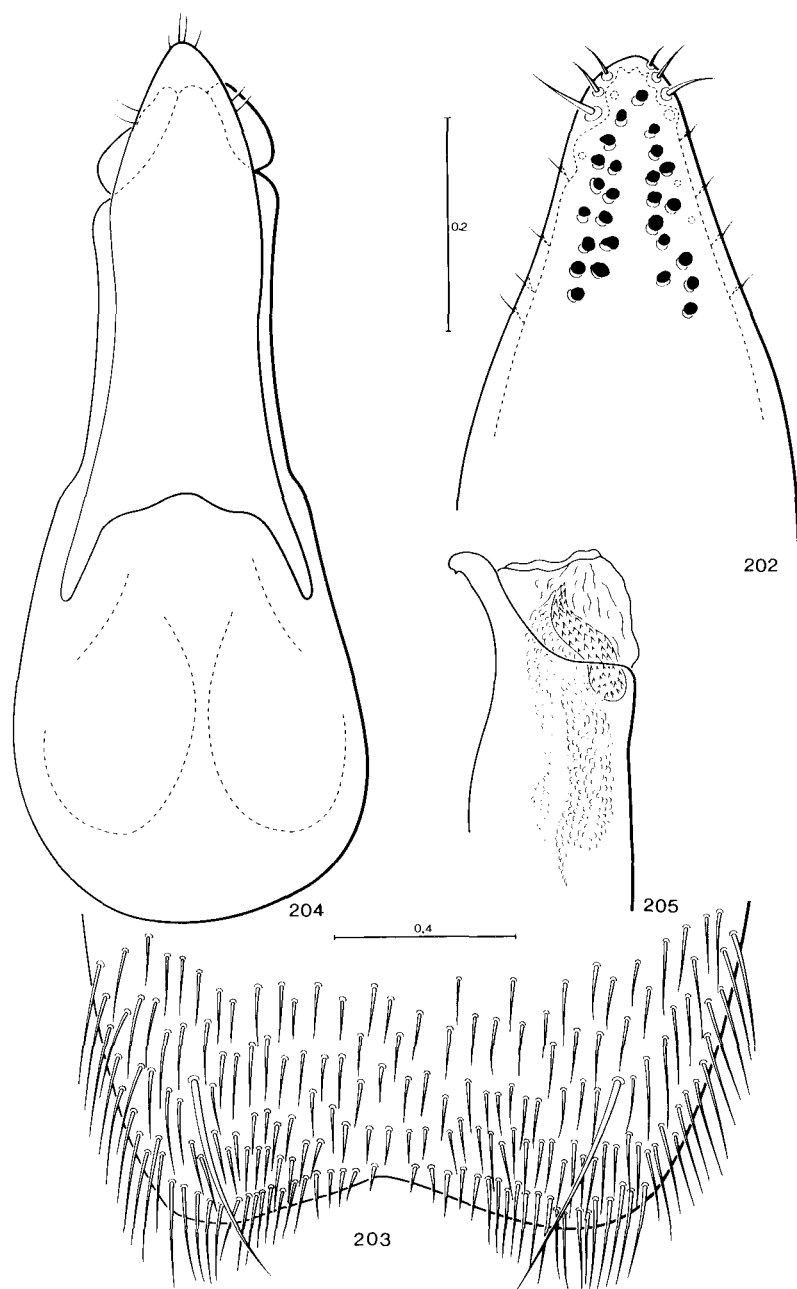
Figs. 180–189. 180–184, *Quedius tonglu*: 180, apical portion of male sternite 8; 181, aedeagus, ventral view; 182, apical portion of median lobe with internal sac; 183, apical portion of median lobe, lateral view; 184, apical portion of paramere, underside with sensory peg setae. 185–189, *Q. pharak*: 185, apical portion of male sternite 8; 186, aedeagus, ventral view; 187, apical portion of median lobe with internal sac; 188, apical portion of median lobe, lateral view; 189, apical portion of paramere, underside with sensory peg setae. Scale in mm.



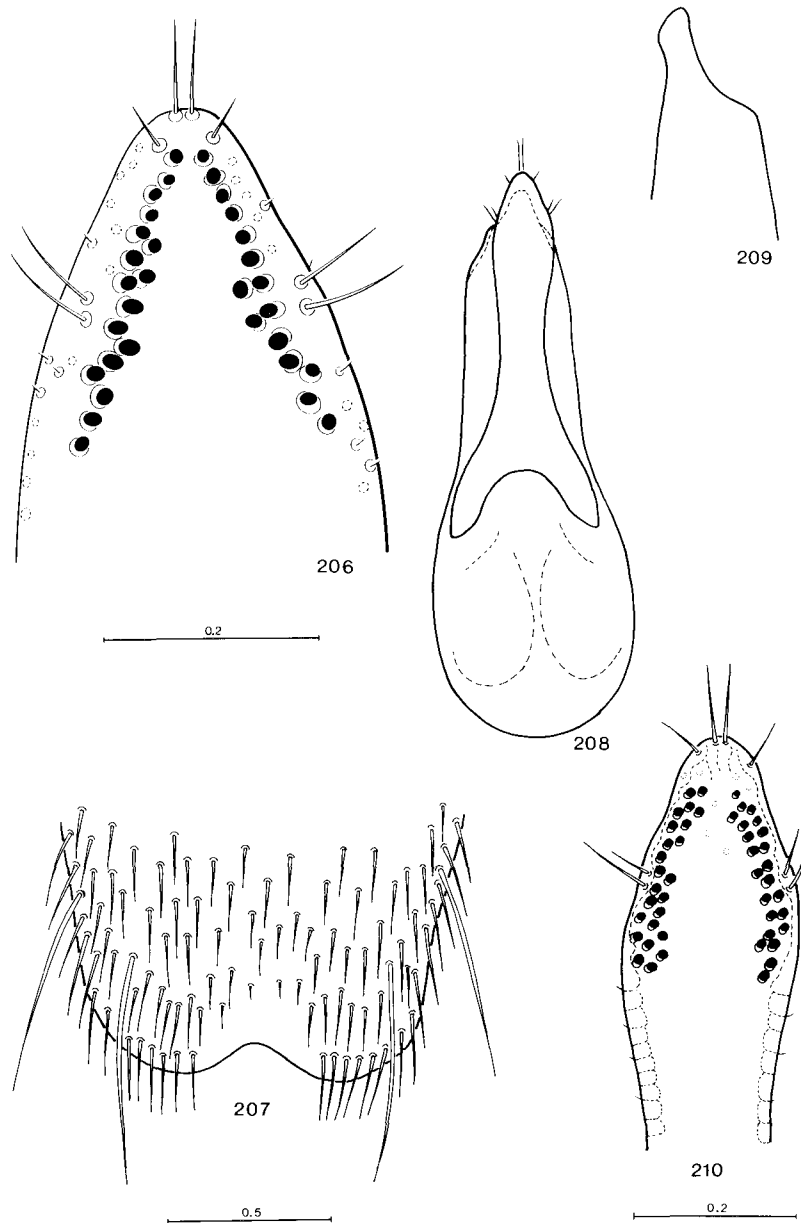
Figs. 190–197. 190–194, *Quedius atchala*: 190, apical portion of male sternite 8; 191, aedeagus, ventral view; 192, apical portion of median lobe with internal sac; 193, apical portion of median lobe, lateral view, with internal sac; 194, apical portion of paramere, underside with sensory peg setae. 195–197, *Q. durgaa*: 195, apical portion of male sternite 8; 196, aedeagus, ventral view; 197, apical portion of median lobe with internal sac. Scale in mm.



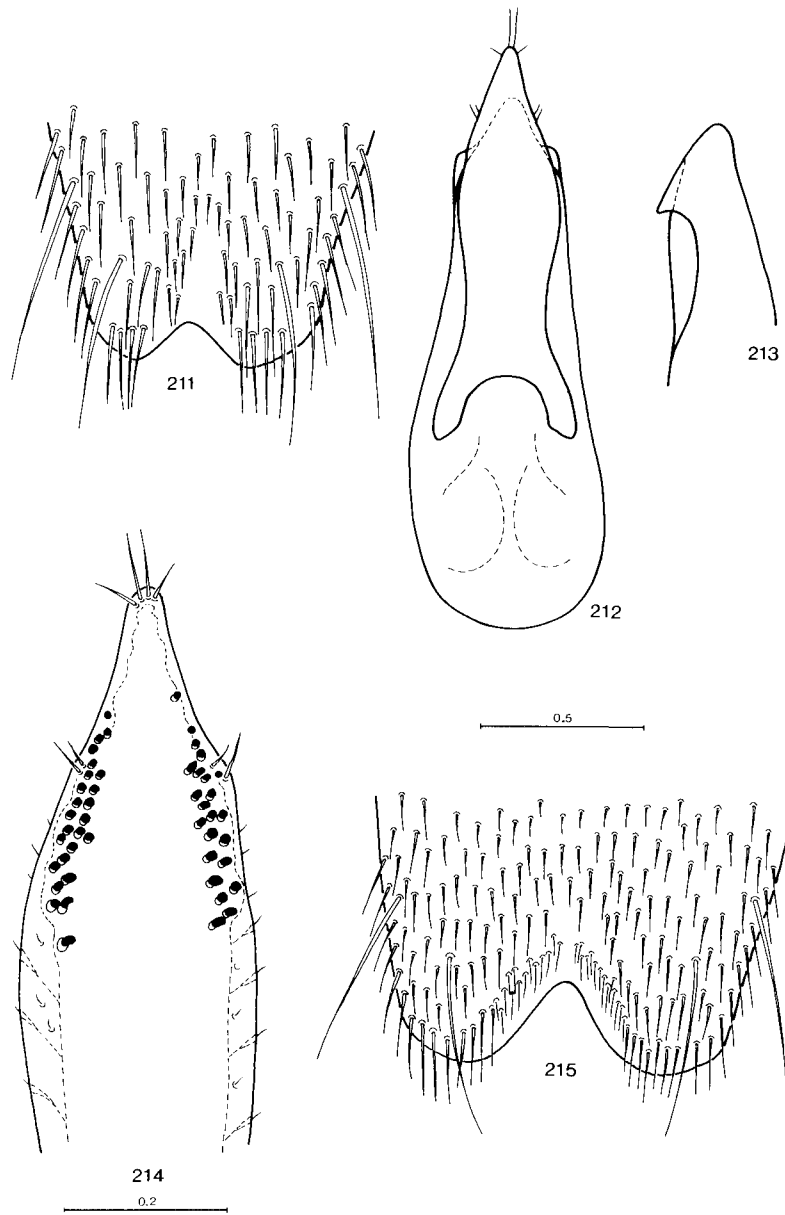
Figs. 198–201. 198, *Quedius durgaa*: apical portion of paramere, underside with sensory peg setae. 199–201, *Q. anomalus*: 199, apical portion of male sternite 8; 200, aedeagus, ventral view; 201, apical portion of median lobe with internal sac. Scale in mm.



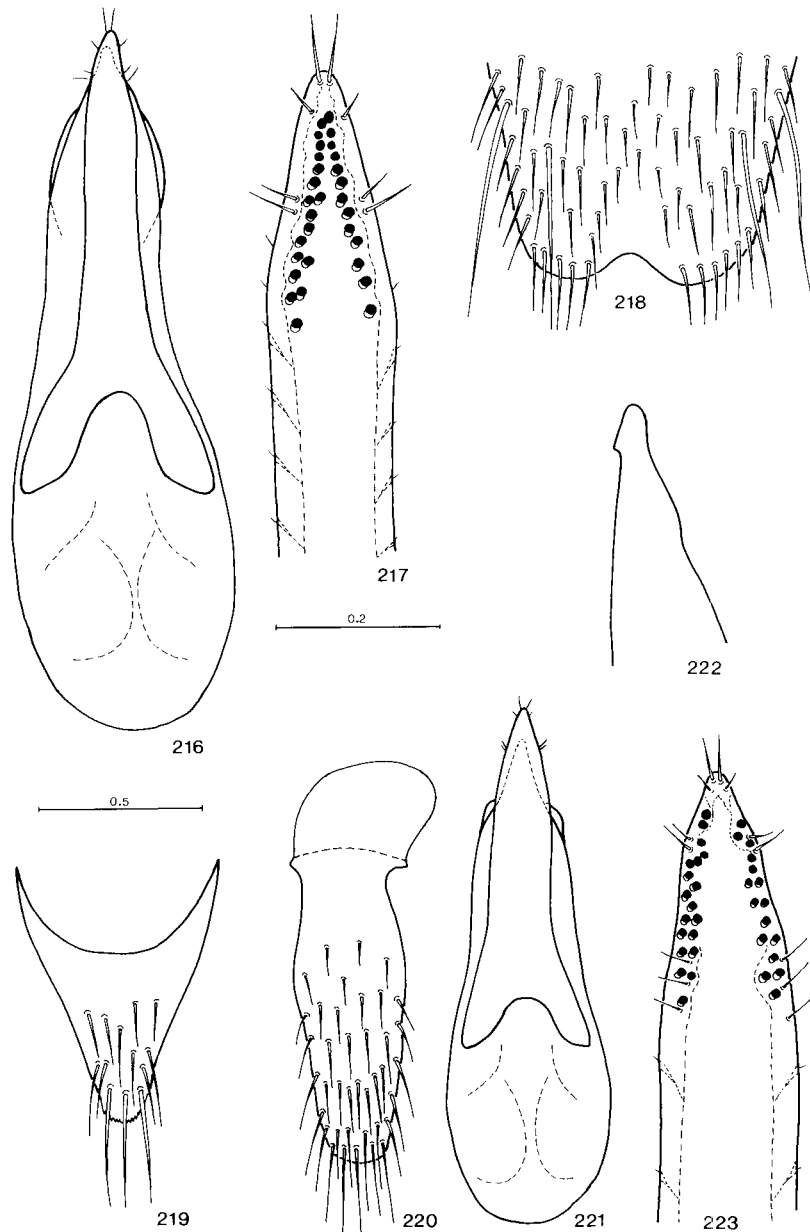
Figs. 202–205. 202, *Quedius anomalus*: apical portion of paramere, underside with sensory peg setae. 203–205, *Q. assamensis*: 203, apical portion of male sternite 8; 204, aedeagus, ventral view; 205, apical portion of aedeagus with internal sac, lateral view. Scale in mm.



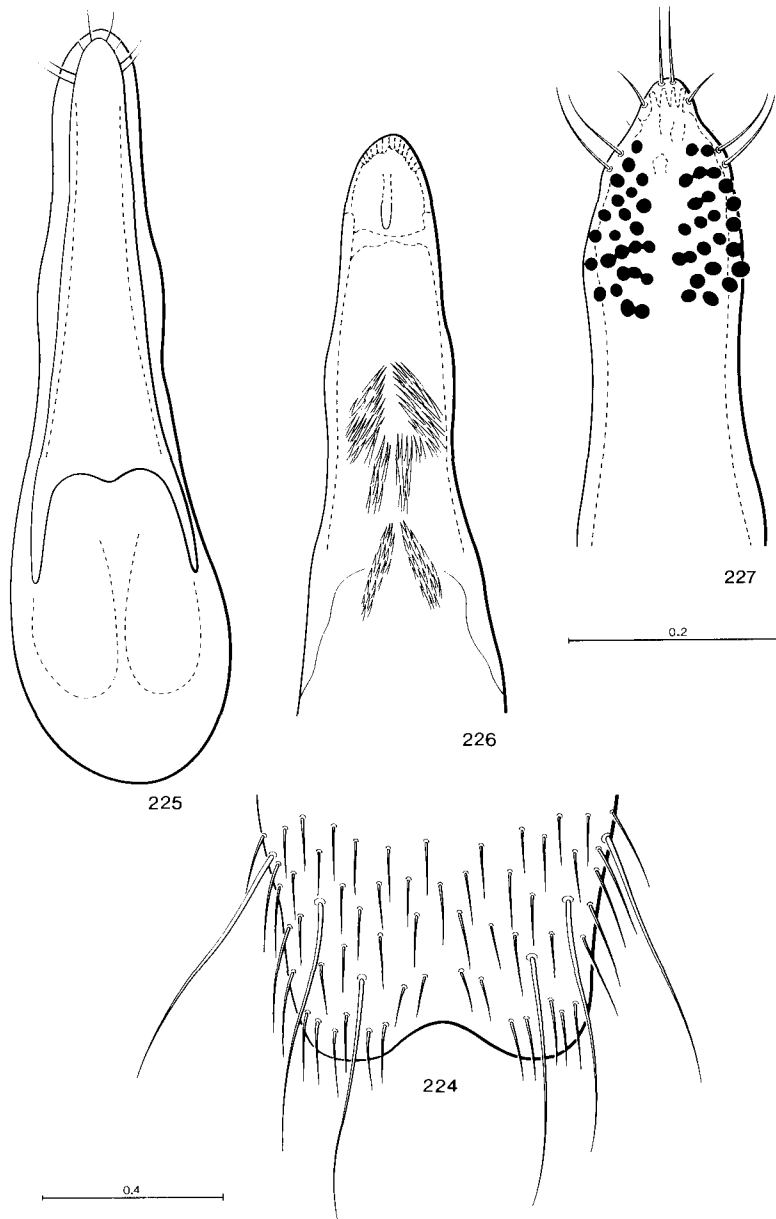
Figs. 206–210. 206, *Quedius assamensis*: apical portion of paramere, underside with sensory peg setae. 207–210, *Q. himalayicus*: 207, apical portion of male sternite 8; 208, aedeagus, ventral view; 209, apical portion of median lobe, lateral view; 210, apical portion of paramere, underside with sensory peg setae. Scale in mm.



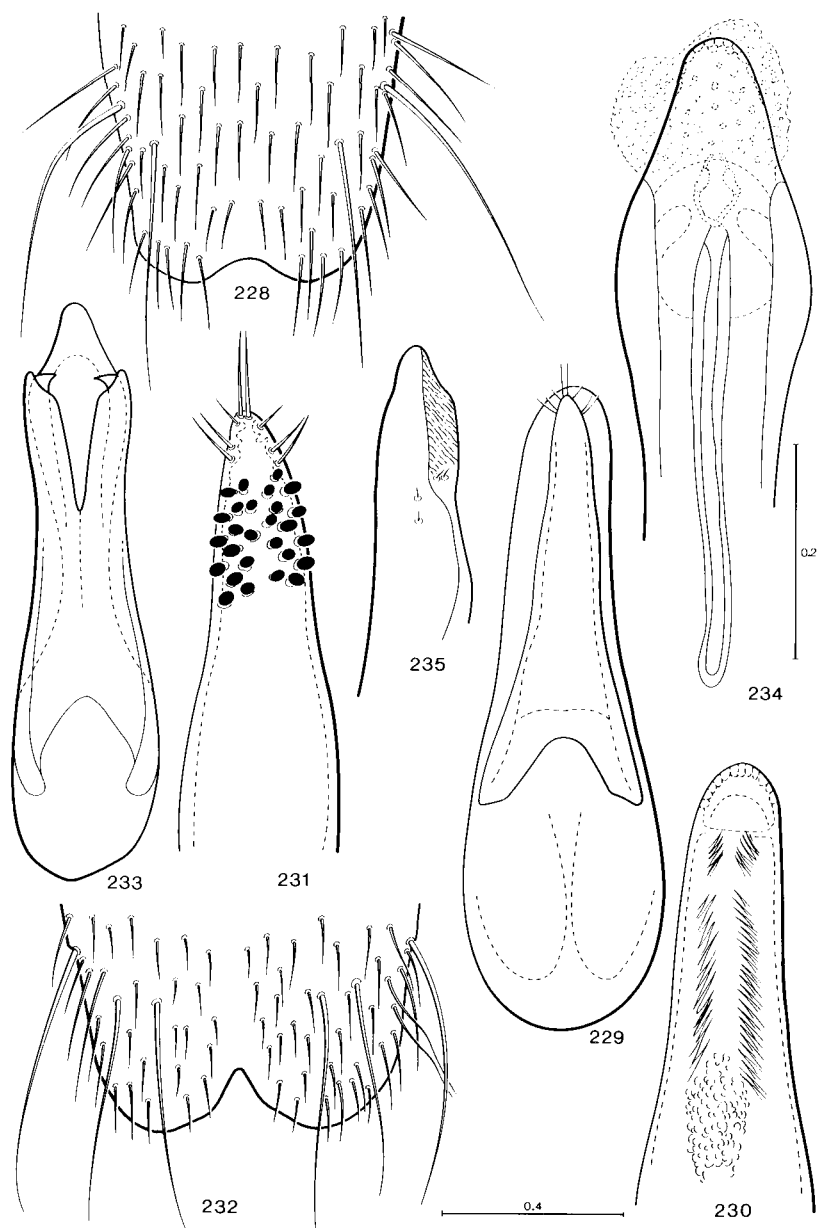
Figs. 211–215. 211–214, *Quedius nilo*: 211, apical portion of male sternite 8; 212, aedoeagus, ventral view; 213, apical portion of median lobe, lateral view; 214, apical portion of paramere, underside with sensory peg setae. 215, *Q. kiuro*: apical portion of male sternite 8. Scale in mm.



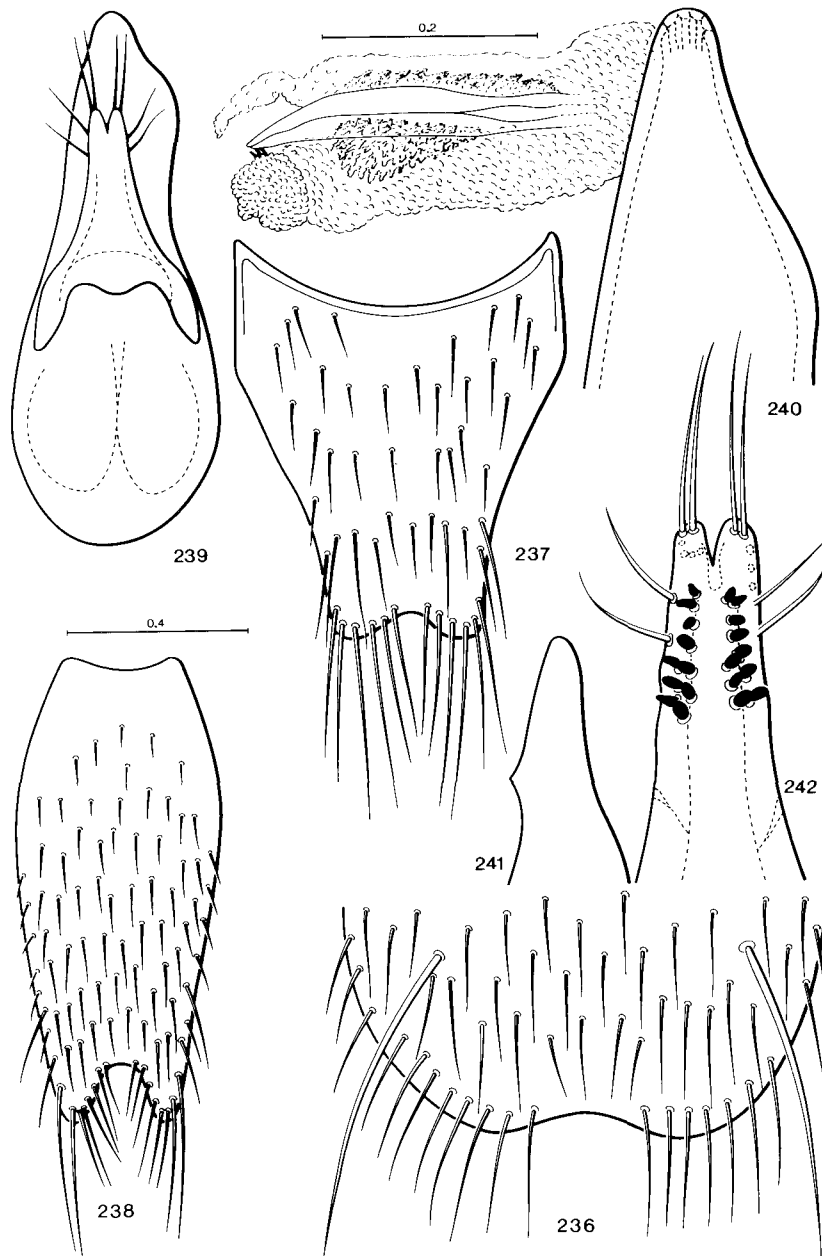
Figs. 216–223. 216, 217, *Quedius kuiri*: 216, aedeagus, ventral view; 217, apical portion of paramere, underside with sensory peg setae. 218–223, *Q. aureipilis*: 218, apical portion of male sternite 8; 219, tergite 10 of male genital segment; 220, sternite 9 of male genital segment; 221, aedeagus, ventral view; 222, apical portion of median lobe, lateral view; 223, apical portion of paramere, underside with sensory peg setae. Scale in mm.



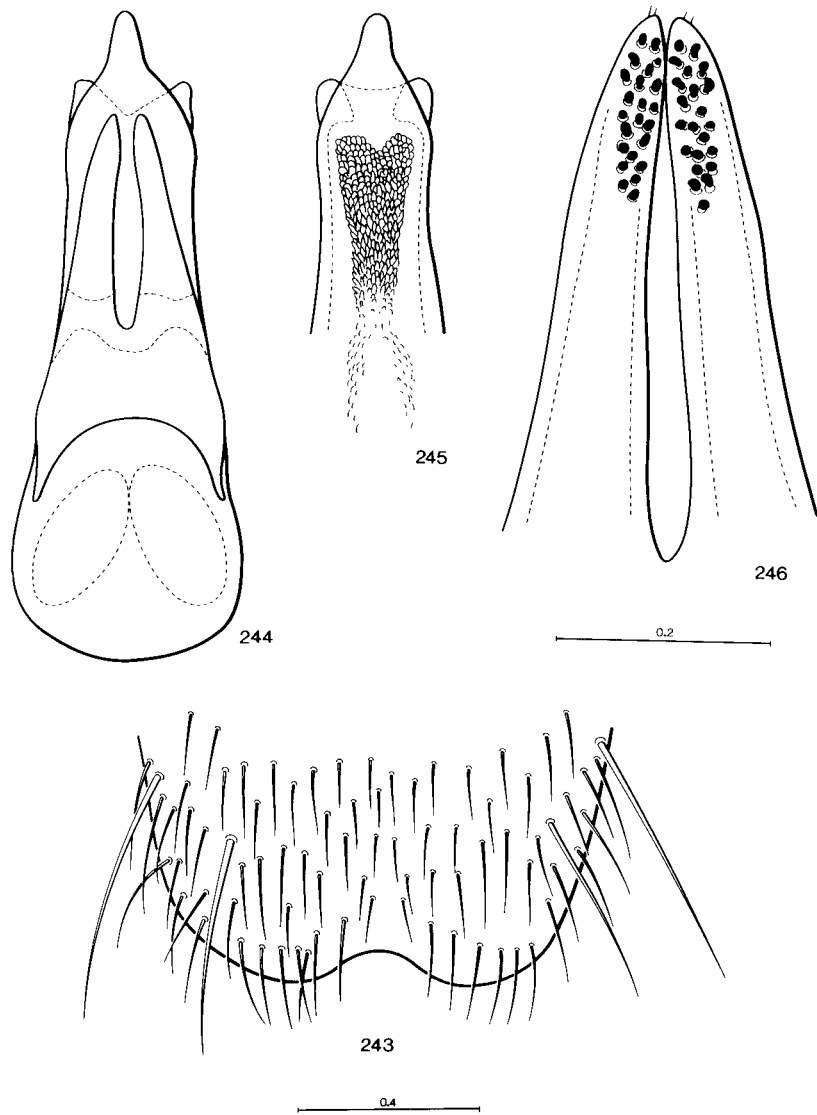
Figs. 224–227. *Quedius haryio*: 224, apical portion of male sternite 8; 225, aedeagus, ventral view; 226, apical portion of median lobe with internal sac; 227, apical portion of paramere, underside with sensory peg setae. Scale in mm.



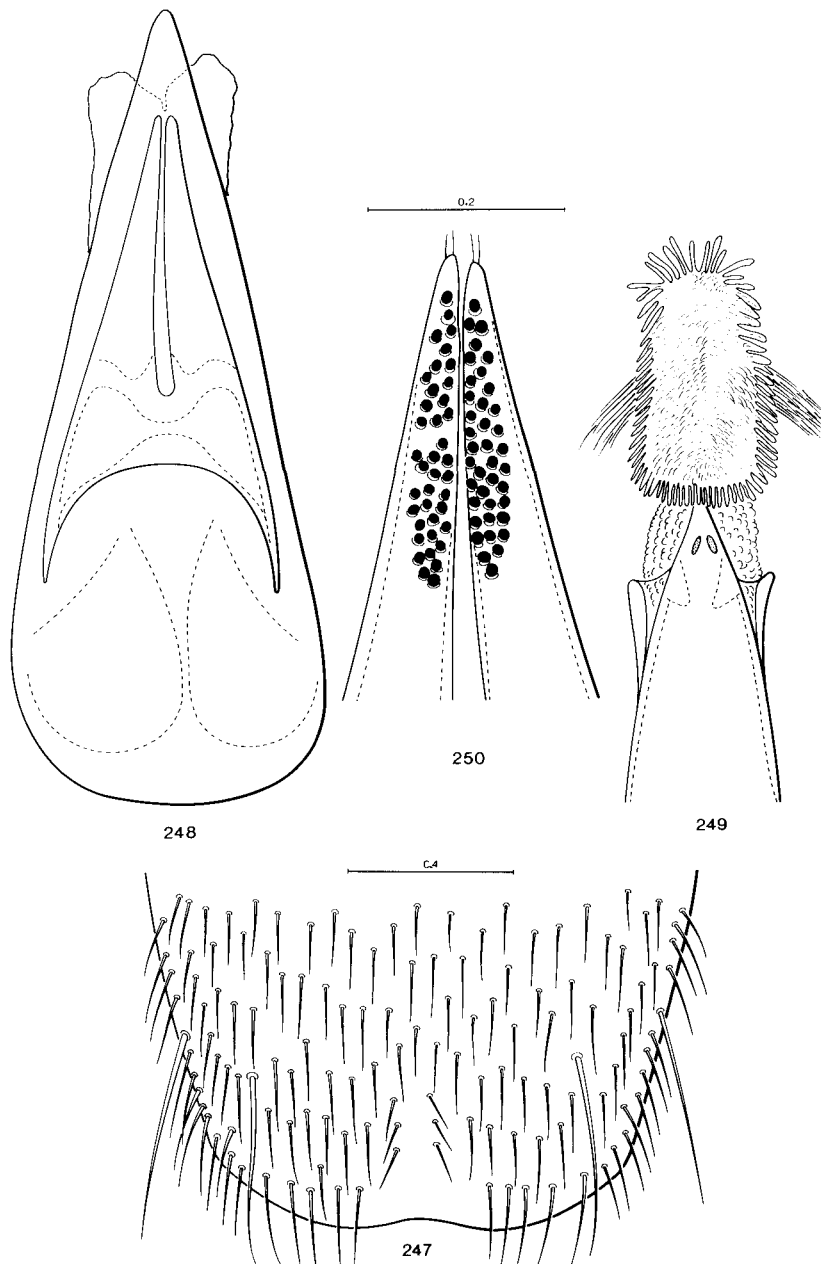
Figs. 228–235. 228–231, *Quedius rugosus*: 228, apical portion of male sternite 8. 229, aedeagus, ventral view; 230, apical portion of median lobe with internal sac; 231, apical portion of paramere, underside with sensory peg setae. 232–235, *Q. gardneri*: 232, apical portion of male sternite 8; 233, aedeagus, ventral view; 234, apical portion of median lobe with internal sac; 235, apical portion of one branch of paramere. Scale in mm.



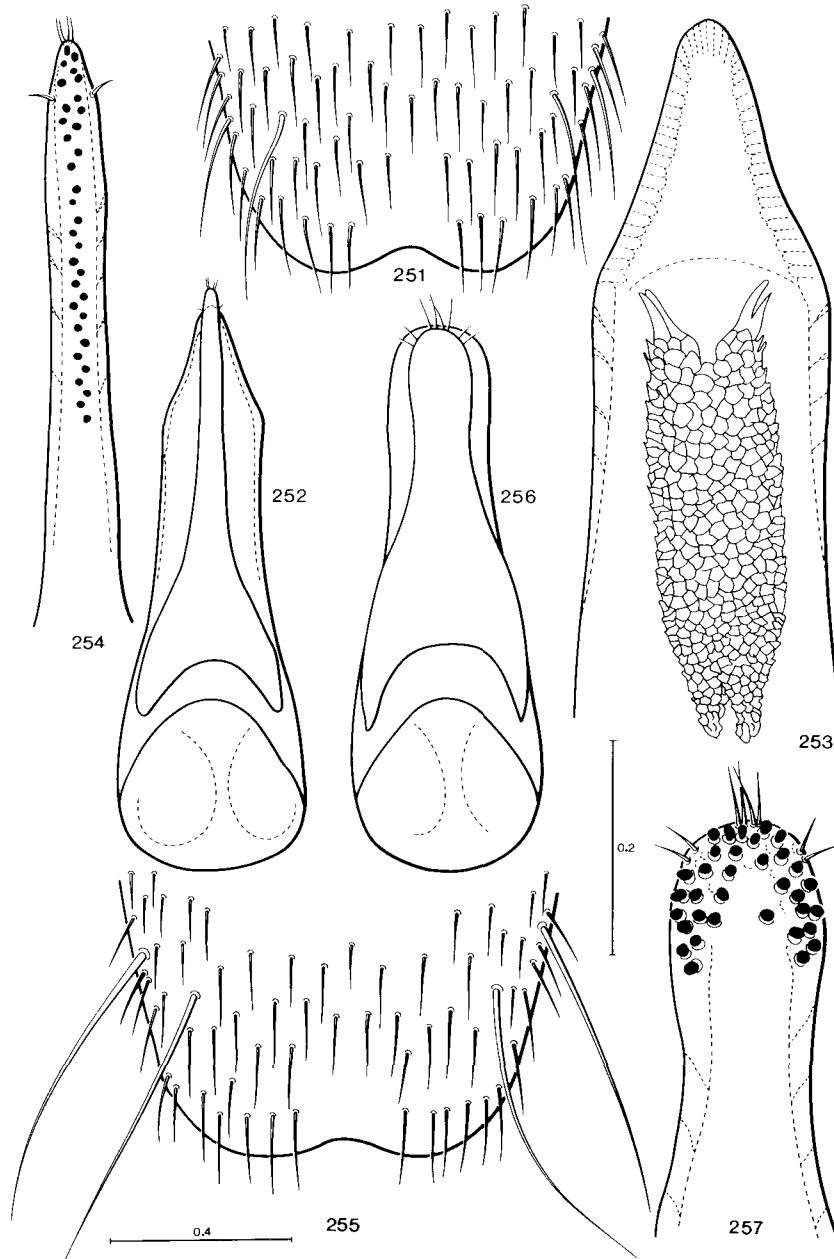
Figs. 236–242. *Quedius lineipennis*: 236, apical portion of male sternite 8; 237, tergite 10 of male genital segment; 238, sternite 9 of male genital segment; 239, aedoeagus, ventral view; 240, apical portion of median lobe, with evaginated internal sac; 241, apex of median lobe, lateral view; 242, apical portion of paramere, underside with sensory peg setae. Scale in mm.



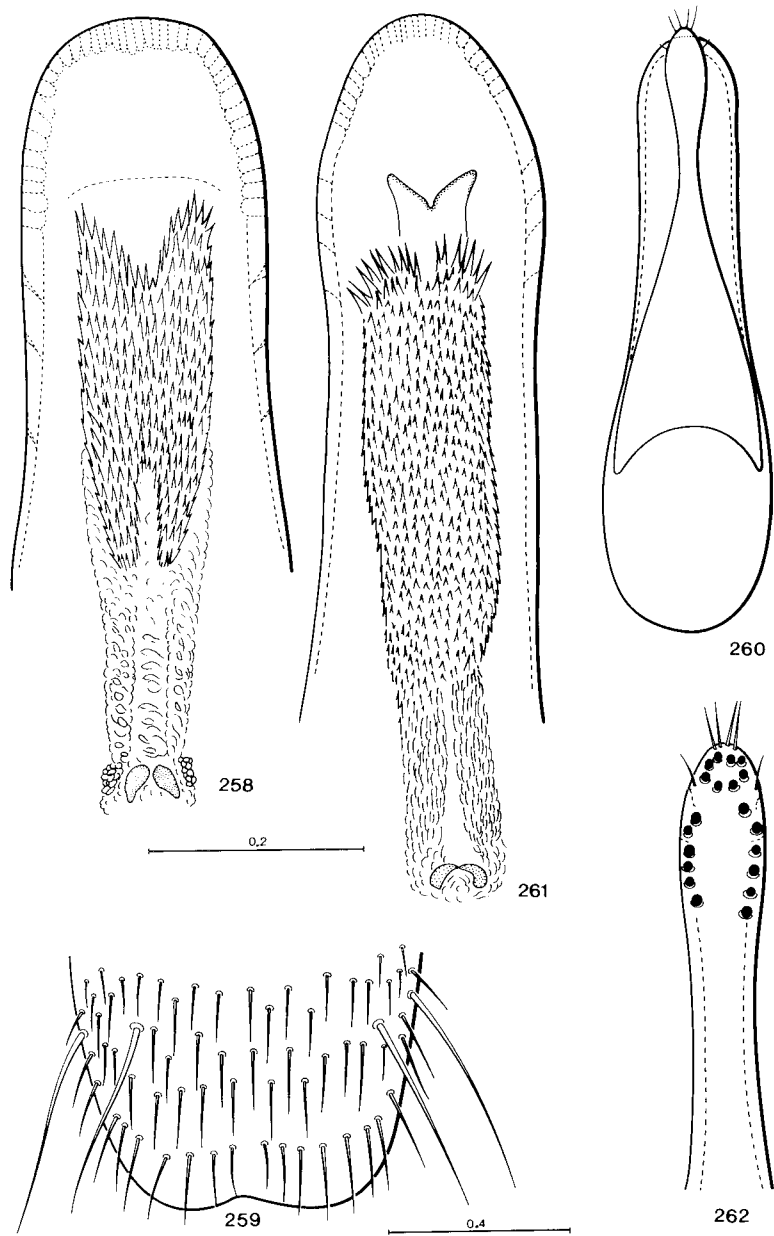
Figs. 243–246. *Indoquedius sikkimensis*: 243, apical portion of male sternite 8; 244, aedeagus, ventral view; 245, apical portion of median lobe with internal sac; 246, apical portion of paramere, underside with sensory peg setae. Scale in mm.



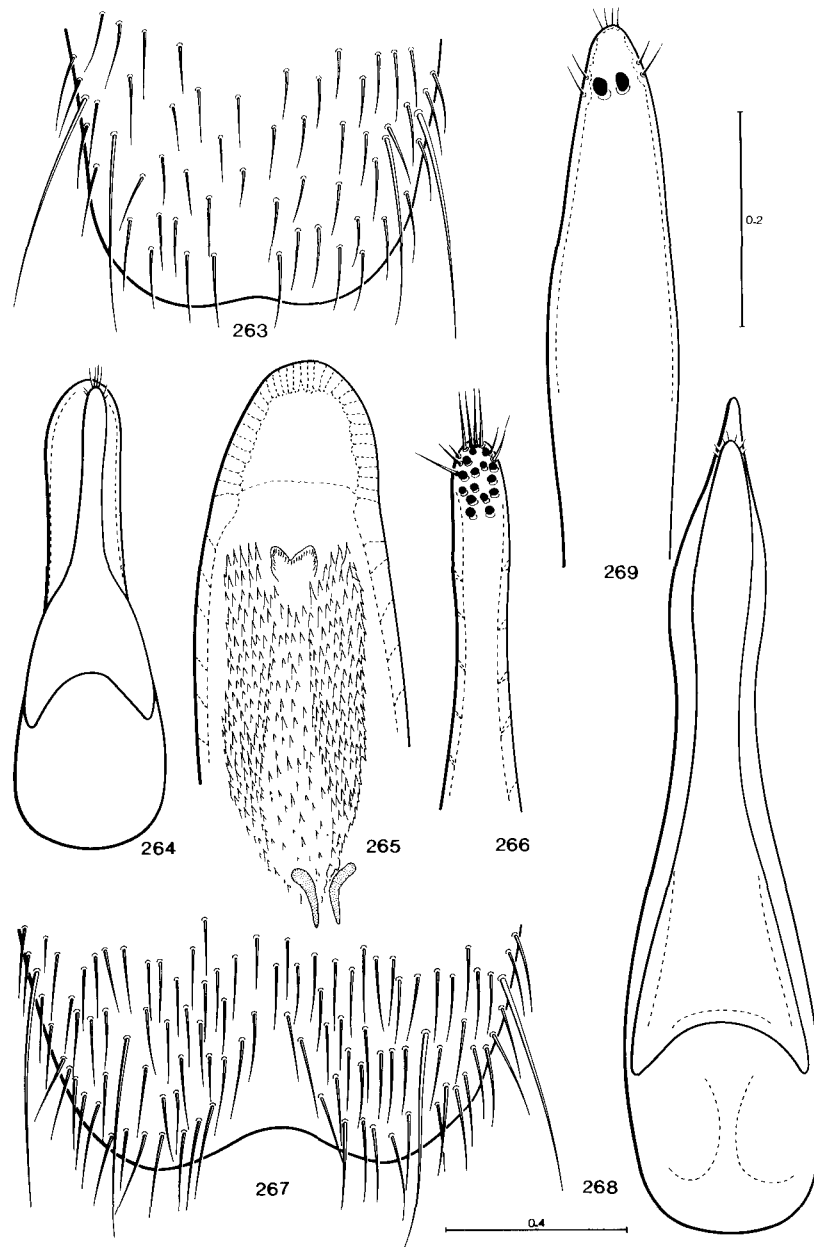
Figs. 247–250. *Indoquedius baliyo*: 247, apical portion of male sternite 8; 248, aedeagus, ventral view; 249, apical portion of median lobe, with evaginated internal sac; 250, apical portion of paramere, underside with sensory peg setae. Scale in mm.



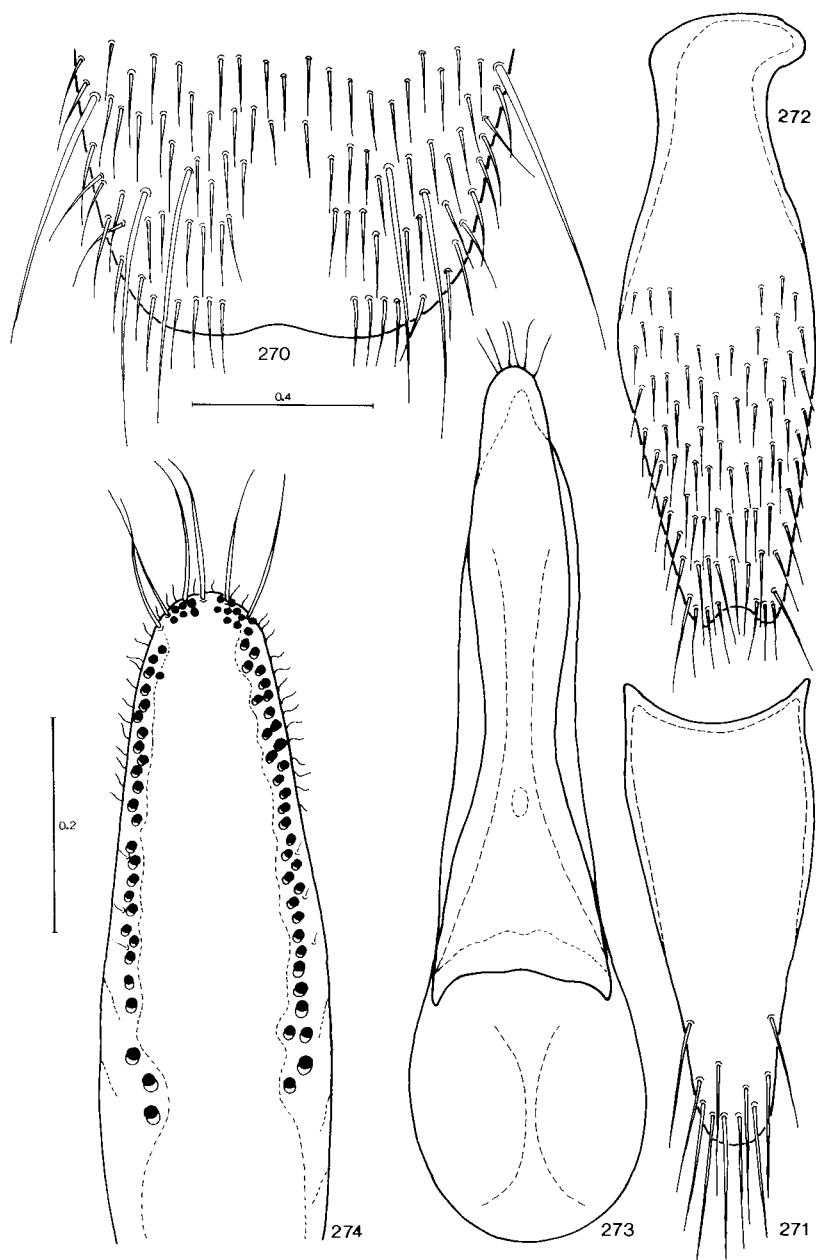
Figs. 251–257. 251–254, *Indoquedius bipunctatus*: 251, apical portion of male sternite 8; 252, aedeagus, ventral view; 253, apical portion of median lobe with internal sac; 254, apical portion of paramere, underside with sensory peg setae. 255–257, *I. daai*: 255, apical portion of male sternite 8; 256, aedeagus, ventral view; 257, apical portion of paramere, underside with sensory peg setae. Scale in mm.



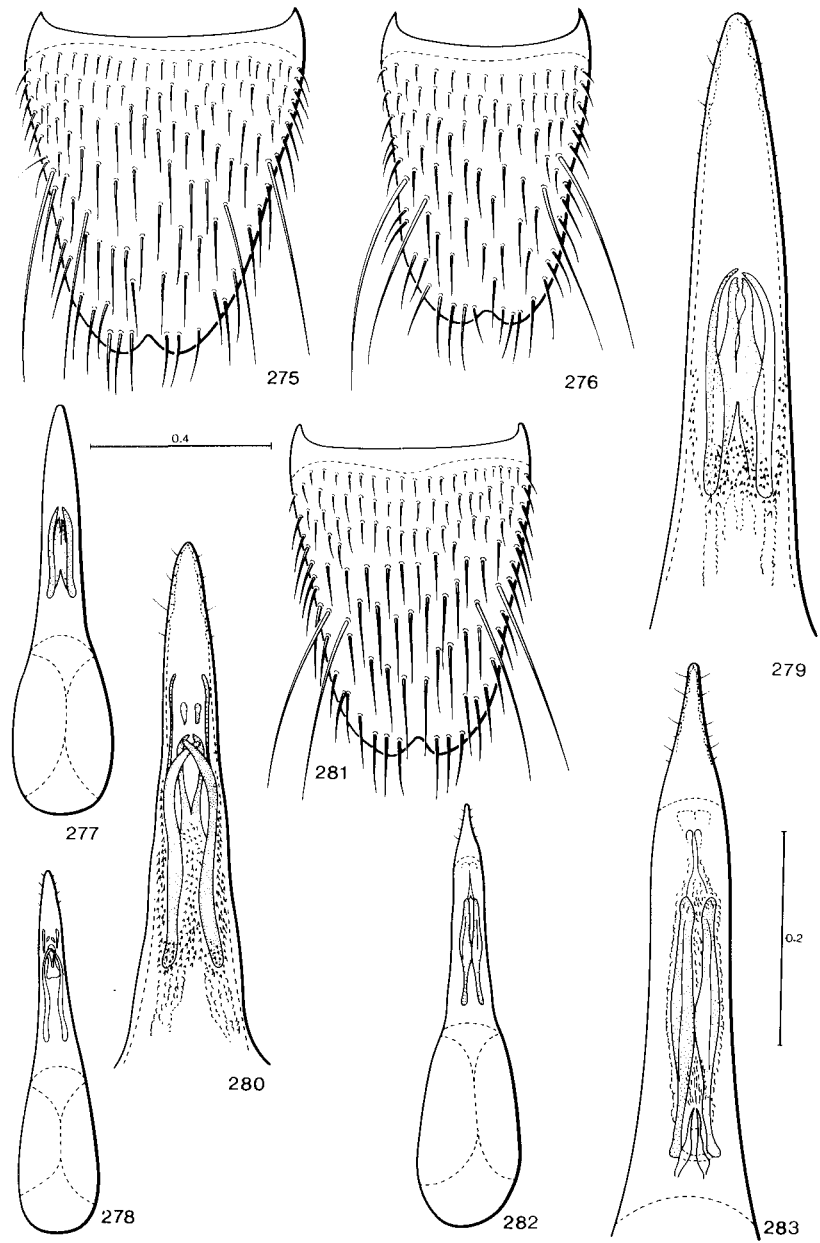
Figs. 258–262. 258, *Indoquedius daai*: apical portion of median lobe with internal sac. 259–262, *I. filicornis*: 259, apical portion of male sternite 8; 260, aedeagus, ventral view; 261, apical portion of median lobe with internal sac; 262, apical portion of paramere, underside with sensory peg setae. Scale in mm.



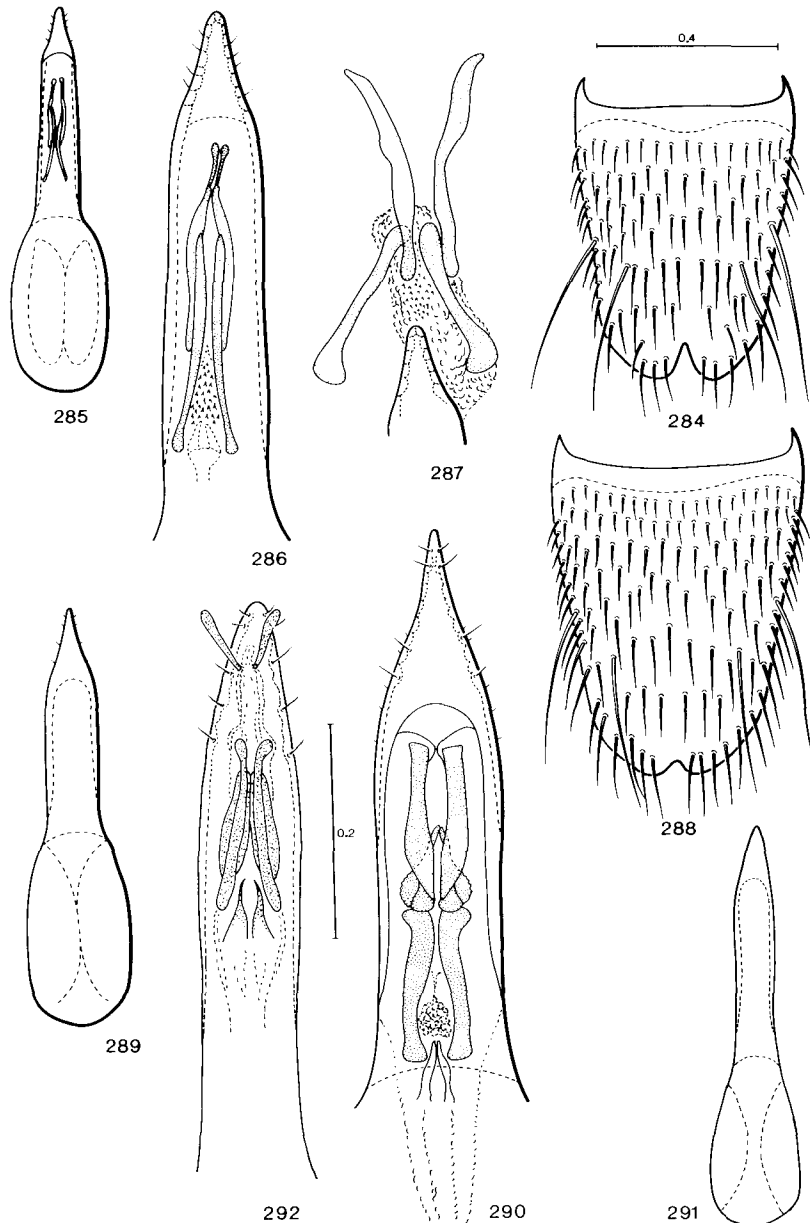
Figs. 263–269. 263–266, *Indoquedius saathi*: 263, apical portion of male sternite 8; 264, aedeagus, ventral view; 265, apical portion of median lobe with internal sac; 266, apical portion of paramere underside with sensory peg setae. 267–269, *I. aberrans*: 267, apical portion of male sternite 8; 268, aedeagus, ventral view; 269, apical portion of paramere, underside with sensory peg setae. Scale in mm.



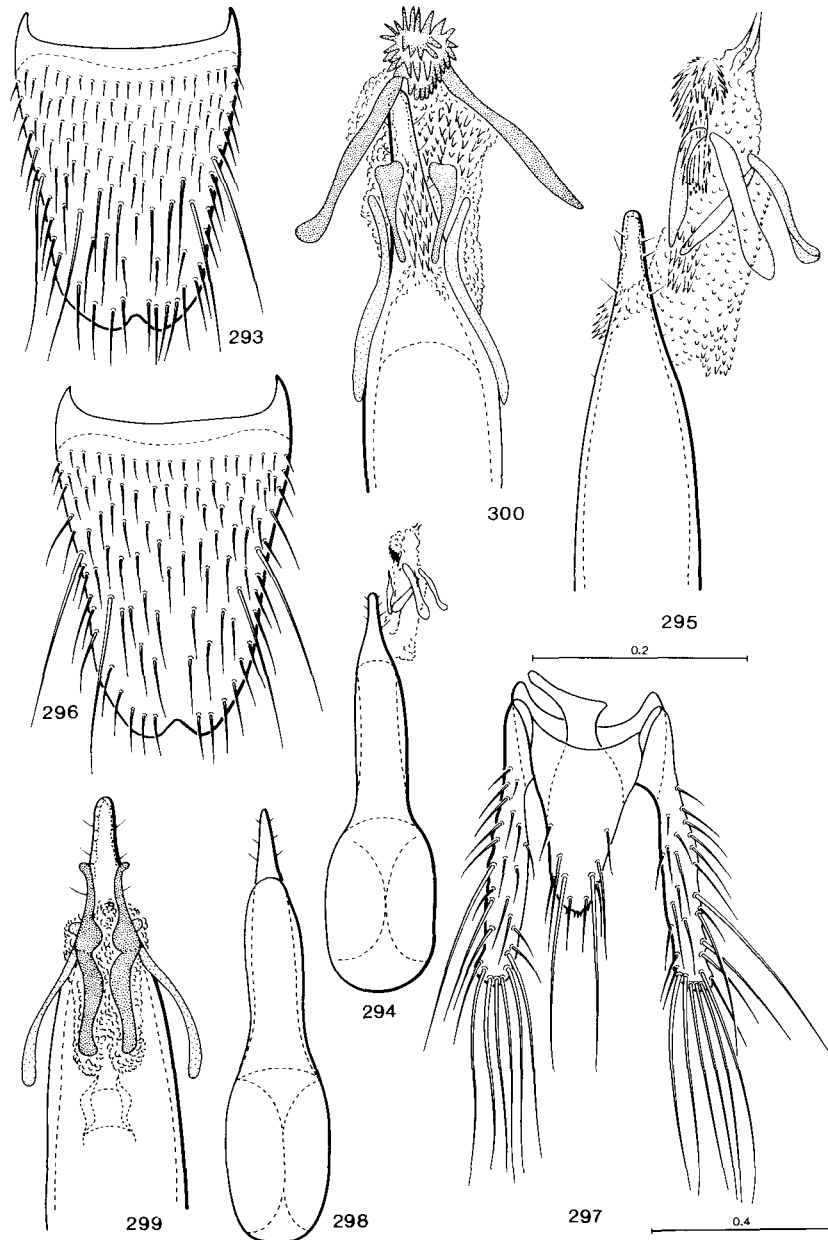
Figs. 270–274. *Bolitogyrus vulneratus*: 270, apical portion of male sternite 8; 271, tergite 10 of male genital segment; 272, sternite 9 of male genital segment; 273, aedeagus, ventral view; 274, apical portion of paramere, underside with sensory peg setae. Scale in mm.



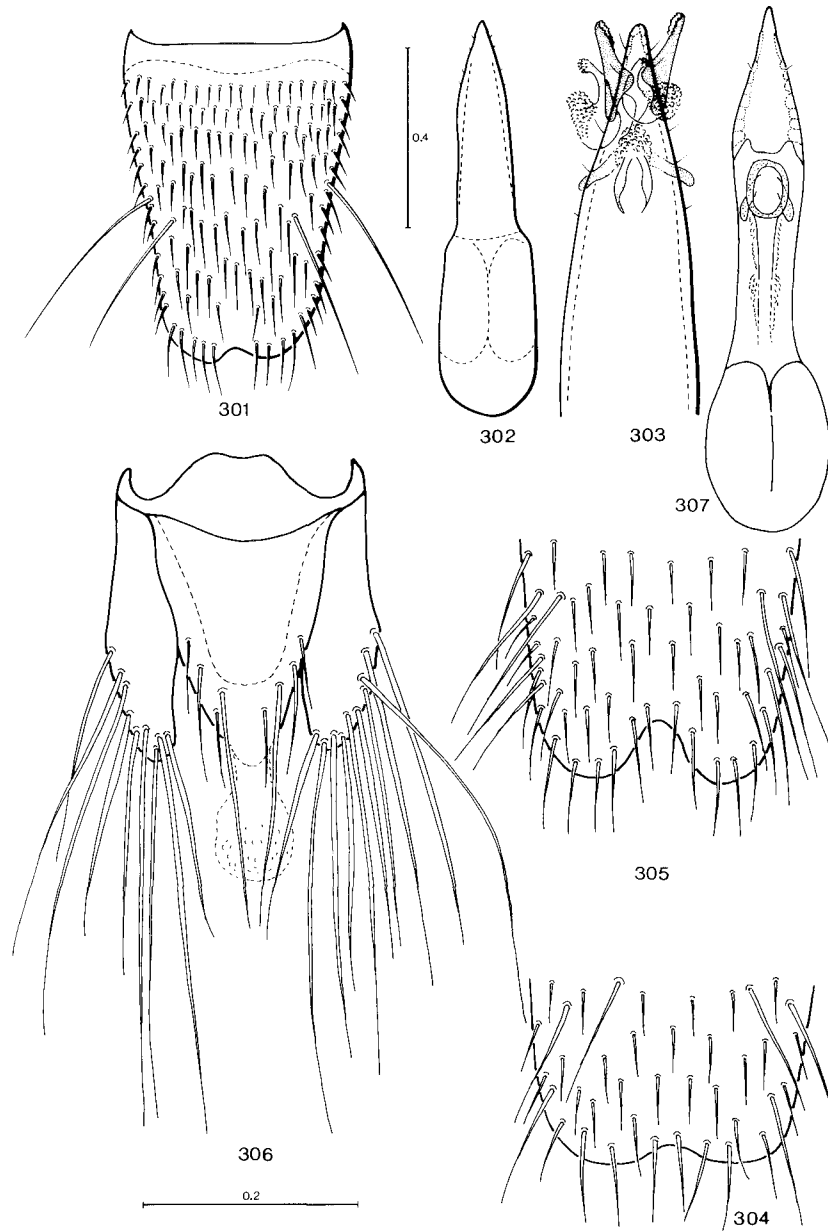
Figs. 275–283. 275–280, *Heterothops oculatus*: 275, 276, male sternite 8; 277, 278, aedeagus, ventral view; 279, 280, apical portion of median lobe with internal sac. 281–283, *H. indicus*: 281, male sternite 8; 282, aedeagus, ventral view; 283, apical portion of median lobe with internal sac. Scale in mm.



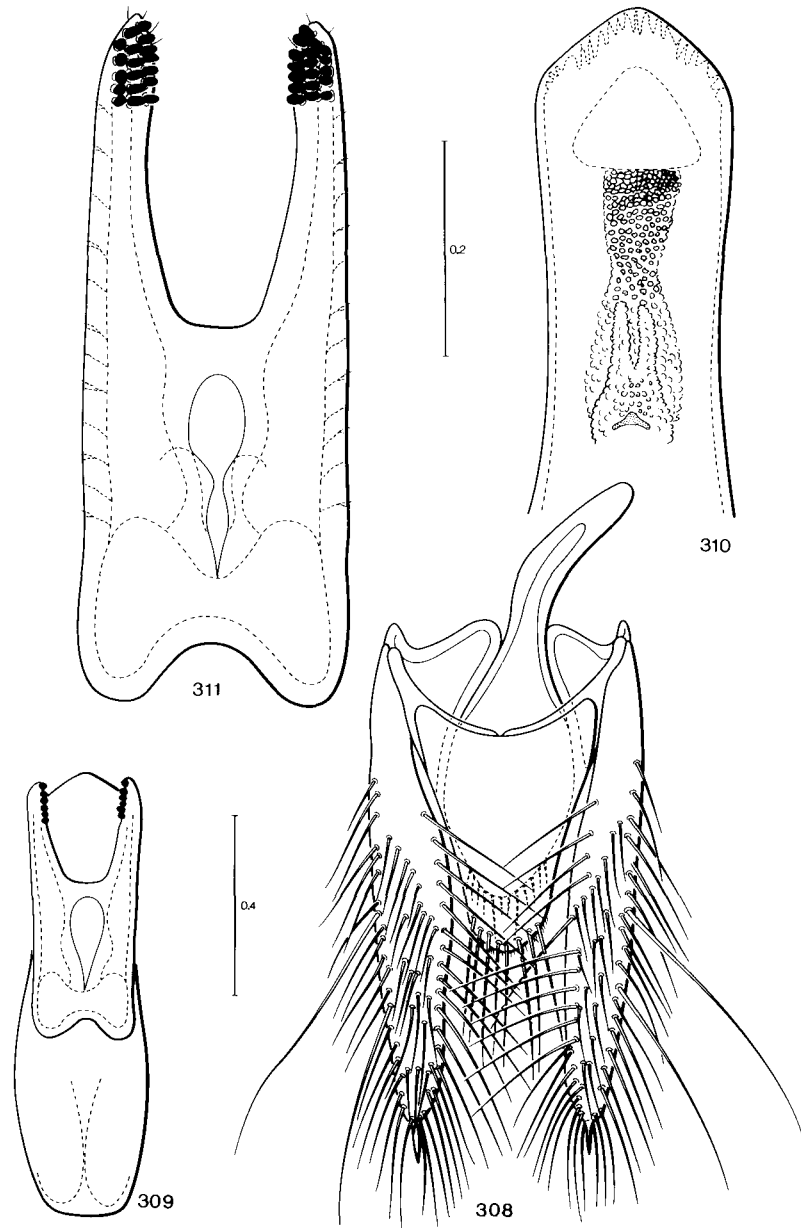
Figs. 284–292. 284–287, *Heterothops pusillus*: 284, male sternite 8; 285, aedoeagus, ventral view; 286, apical portion of median lobe with internal sac; 287, apex of median lobe, with evaginated internal sac. 288–290, *H. hindustanus*: 288, male sternite 8; 289, aedoeagus, ventral view; 290, apical portion of median lobe with internal sac. 291, 292, *H. khairo*: 291, aedoeagus, ventral view; 292, apical portion of median lobe with internal sac. Scale in mm.



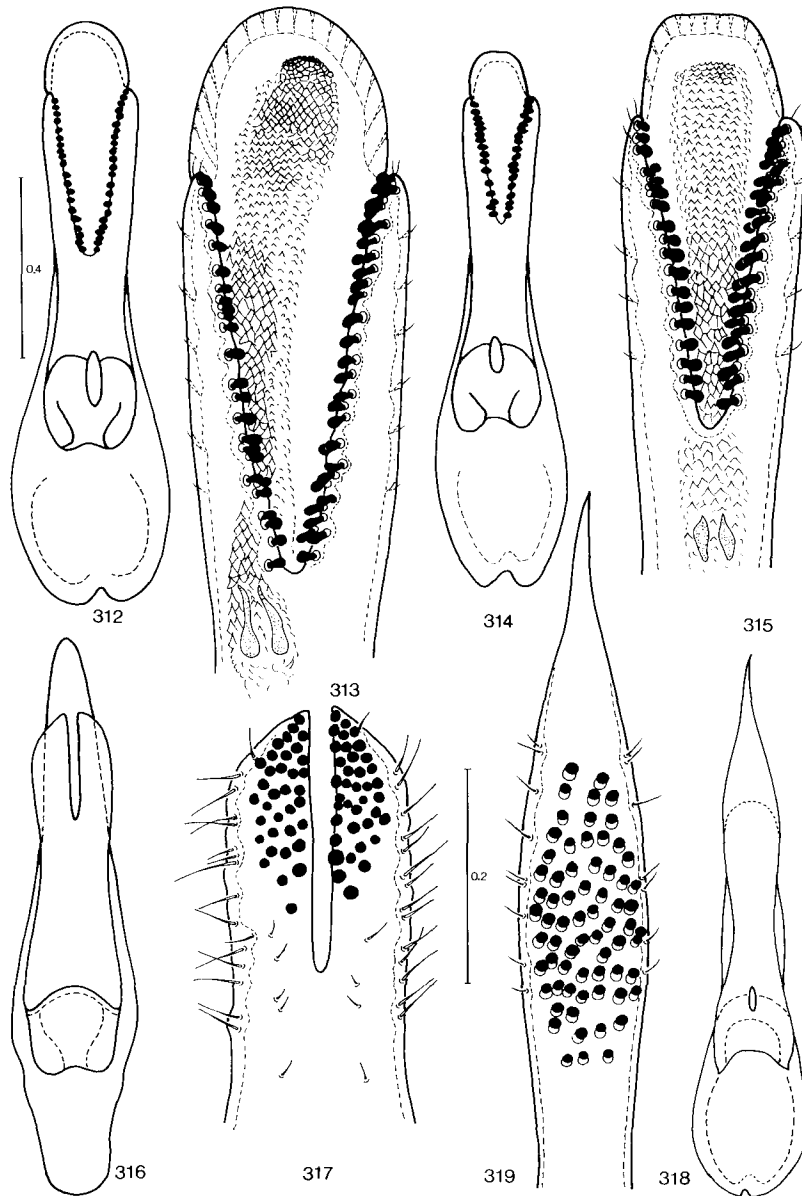
Figs. 293–300. 293–295, *Heterothops persimilis*: 293, male sternite 8; 294, aedeagus with evaginated internal sac; 295, apical portion of median lobe, with evaginated internal sac. 296–300, *H. franzi*: 296, male sternite 8; 297, male genital segment, dorsal view; 298, aedeagus, ventral view; 299, 300, apex of median lobe with partially and fully evaginated internal sac. Scale in mm.



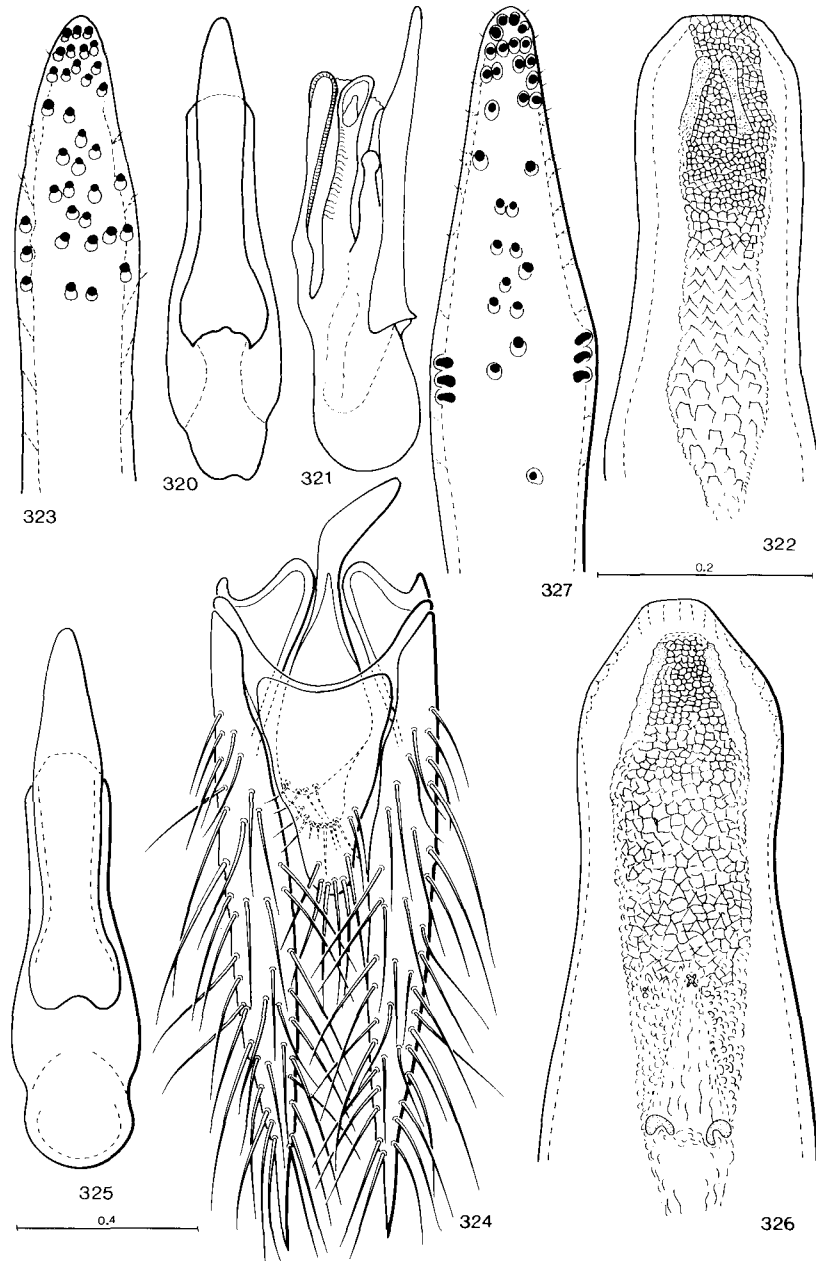
Figs. 301–307. 301–303, *Heterothops saphaa*: 301, male sternite 8; 302, aedoeagus, ventral view; 303, apical portion of median lobe, with partially evaginated internal sac. 304–307, *Ctenandropus nigriceps*: 304, male tergite 8; 305, male sternite 8; 306, male genital segment, dorsal view; 307, aedoeagus with internal sac. Scale in mm.



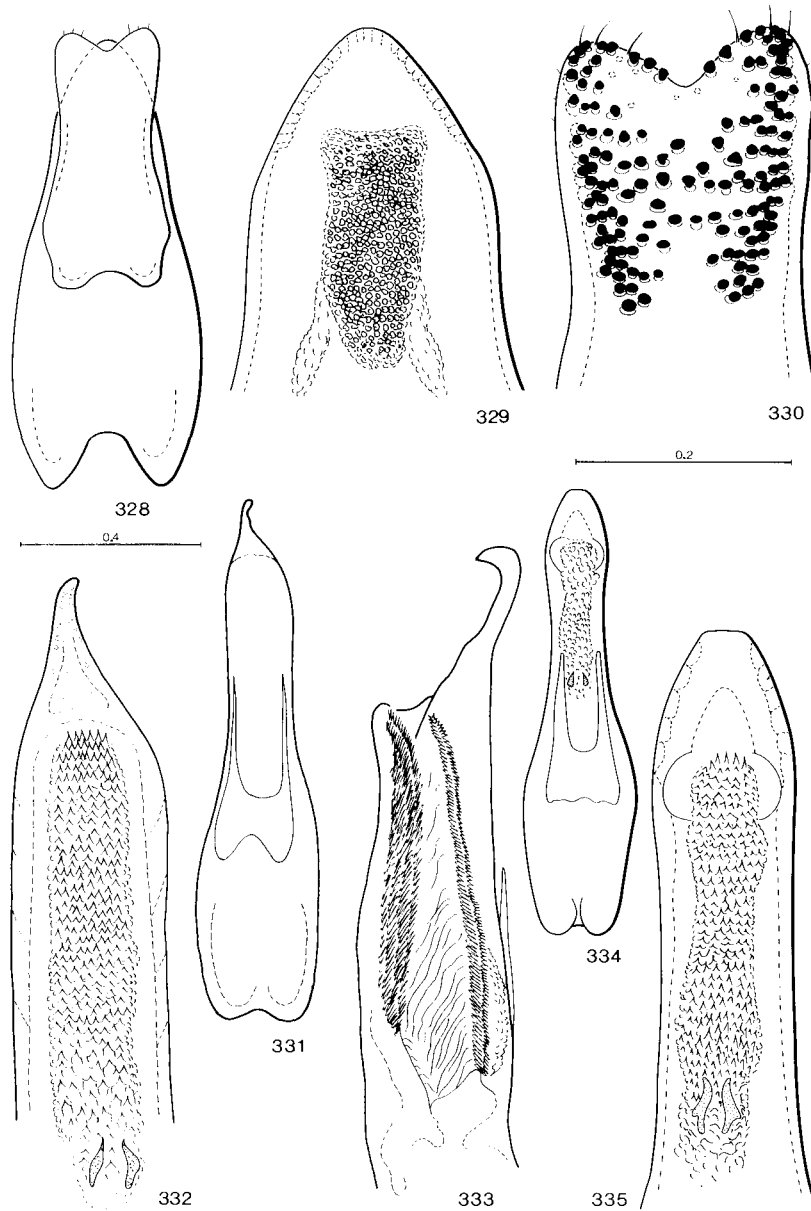
Figs. 308–311. *Paratolmerus pilosiventris*: 308, male genital segment, dorsal view; 309, aedeagus, ventral view; 310, apical portion of median lobe with internal sac; 311, paramere, underside with sensory peg setae. Scale in mm.



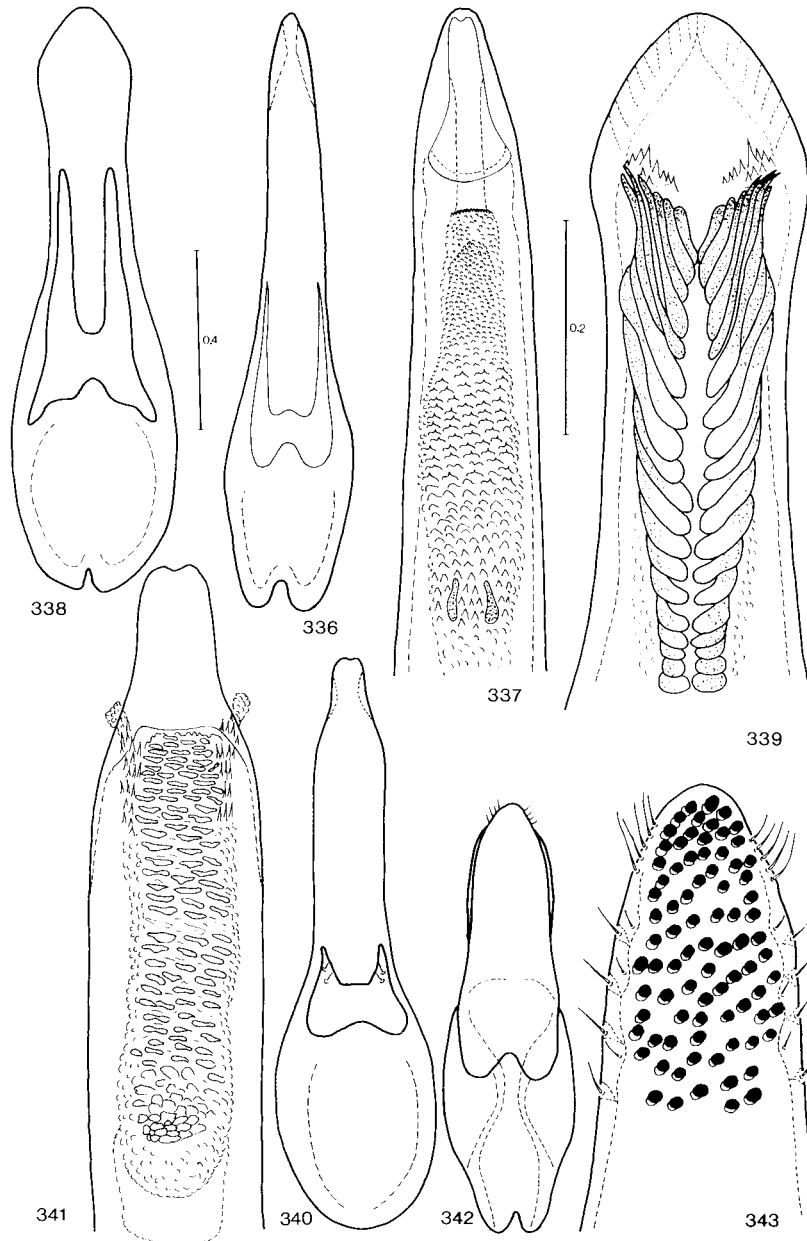
Figs. 312–319. 312, 313, *Acylophorus beesoni*: 312, aedeagus, ventral view; 313, apical portion of aedeagus, with internal sac, and apical portion of paramere with sensory peg setae. 314, 315, *A. chillo*: 314, aedeagus, ventral view; 315, apical portion of aedeagus, with internal sac, and apical portion of paramere with sensory peg setae. 316, 317, *A. khairo*: 316, aedeagus, ventral view; 317, apical portion of paramere, underside with sensory peg setae. 318, 319, *A. siyo*: 318, aedeagus, ventral view; 319, apical portion of paramere, underside with sensory peg setae. Scale in mm.



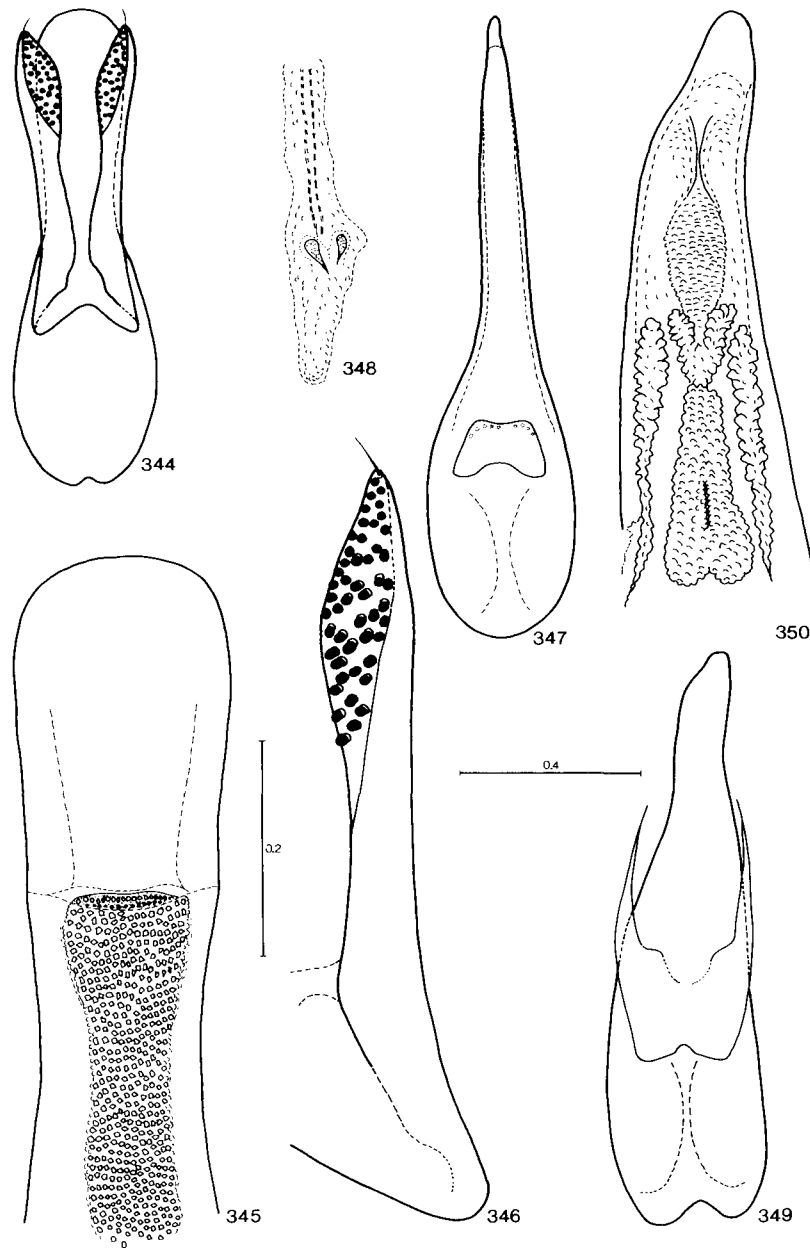
Figs. 320–327. 320–323, *Acylophorus furcatus*: 320, aedoeagus, ventral view; 321, aedoeagus, lateral view; 322, apical portion of median lobe with internal sac; 323, apical portion of paramere, underside with sensory peg setae. 324–327, *A. daai*: 324, male genital segment, dorsal view; 325, aedoeagus, ventral view; 326, apical portion of median lobe with internal sac; 327, apical portion of paramere, underside with sensory peg setae. Scale in mm.



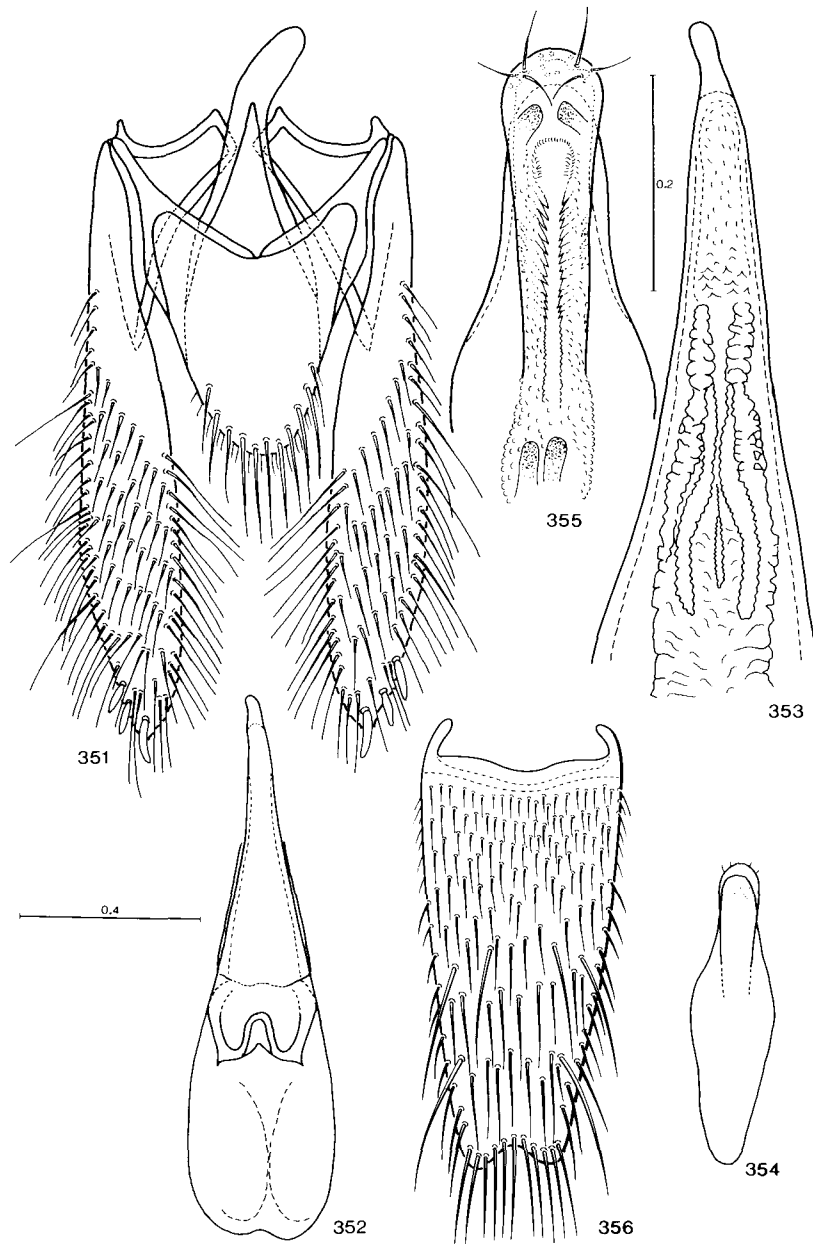
Figs. 328–335. 328–330, *Acylophorus ruficollis*: 328, aedeagus, ventral view; 329, apical portion of median lobe with internal sac; 330, apical portion of paramere, underside with sensory peg setae. 331–333, *A. balchii*: 331, aedeagus, ventral view; 332, apical portion of median lobe with internal sac, ventral view; 333, same, lateral view. 334, 335, *A. raato*: 334, aedeagus, ventral view; 335, apical portion of median lobe with internal sac. Scale in mm.



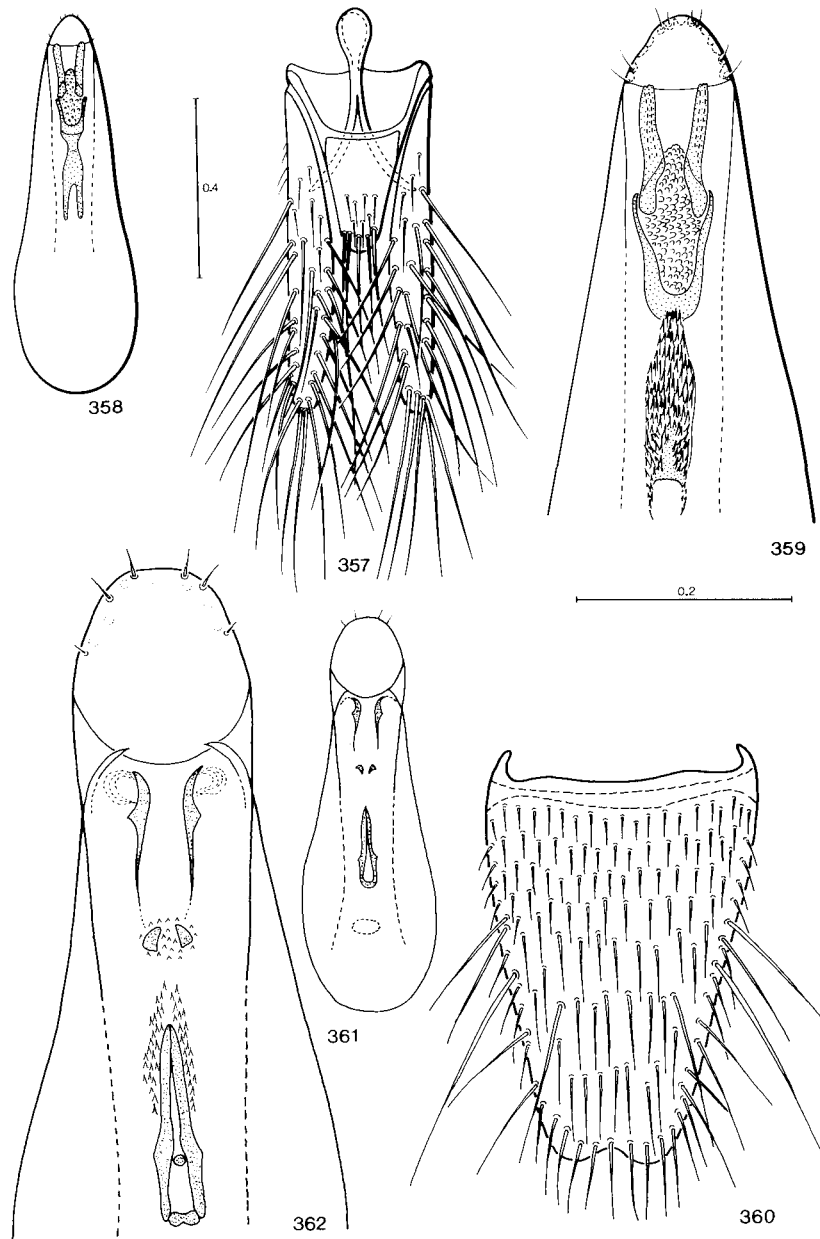
Figs. 336–343. 336, 337, *Acylophorus microcephalus*: 336, aedeagus, ventral view; 337, apical portion of median lobe with internal sac. 338, 339, *A. charaa*: 338, aedeagus ventral view; 339, apical portion of median lobe with internal sac. 340, 341, *A. flavipes*: 340, aedeagus, ventral view; 341, apical portion of median lobe with internal sac. 342, 343, *A. tibialis*: 342, aedeagus, ventral view; 343, apical portion of paramere, underside with sensory peg setae. Scale in mm.



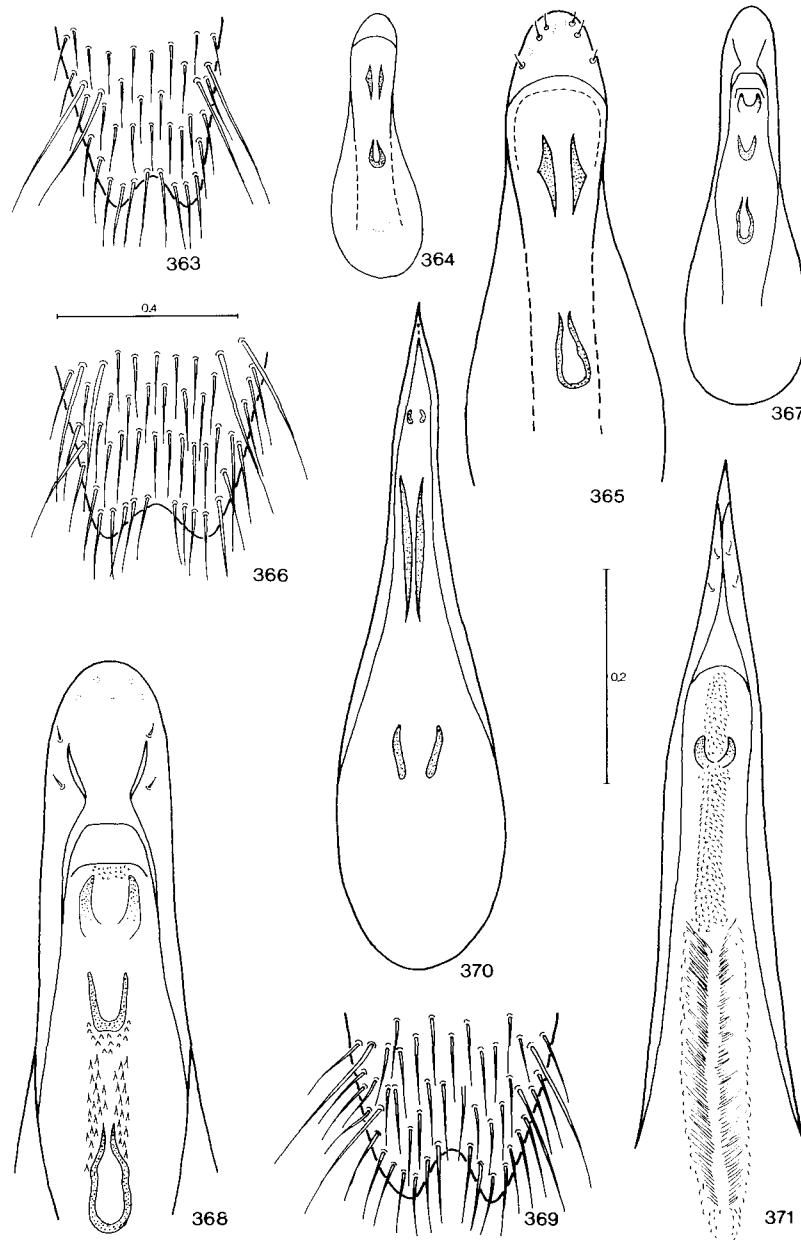
Figs. 344–350. 344–346, *Acylophorus puncticeps*: 344, aedeagus, ventral view; 345, apical portion of median lobe with internal sac; 346, right (in Fig. 344) branch of paramere with sensory peg setae. 347, 348, *Anchocerus monticola*: 347, aedeagus, ventral view; 348, internal sac, evaginated. 349, 350, *A. birmanus*: 349, aedeagus, ventral view; 350, apical portion of median lobe with internal sac. Scale in mm.



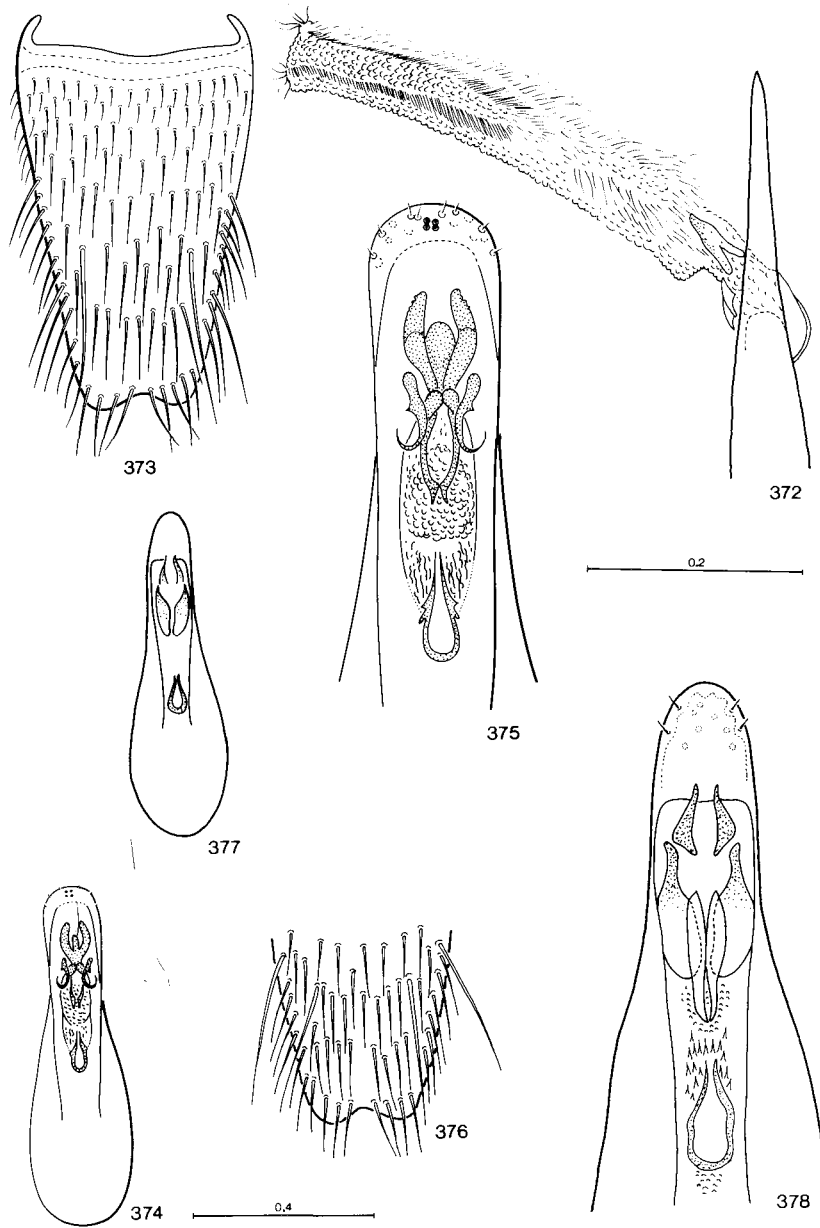
Figs. 351–356. 351–353, *Anchocerus nepalicus*: 351, male genital segment, dorsal view; 352, aedeagus, ventral view; 353, apical portion of median lobe with internal sac. 354, 355, *Atanygnathus pictus*: 354, aedeagus; 355, apical portion of aedeagus with internal sac. 356, *A. sasuraa*: male sternite 8. Scale in mm.



Figs. 357–362. 357–359, *Atanygnathus sasuraa*: 357, male genital segment, dorsal view; 358, aedeagus, ventral view; 359, apical portion of aedeagus with internal sac. 360–362, *A. brevicollis*: 360, male sternite 8; 361, aedeagus, ventral view; 362, apical portion of aedeagus with internal sac. Scale in mm.

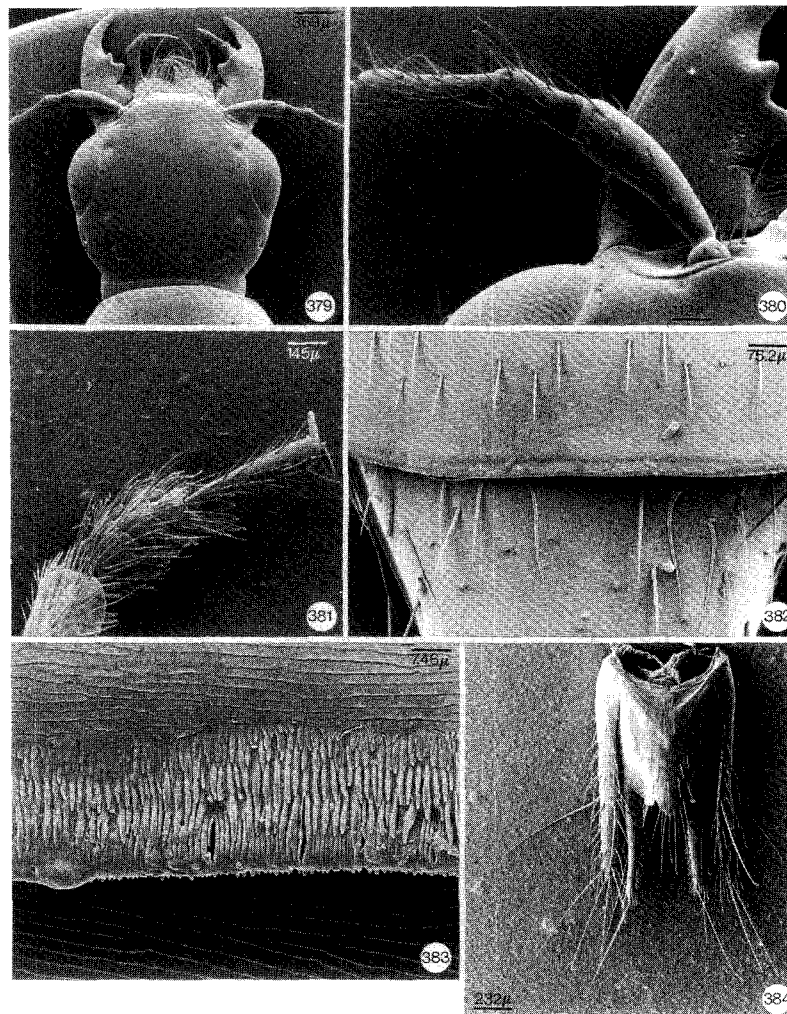


Figs. 363–371. 363–365, *Atanygnathus piceus*: 363, male sternite 8; 364, aedeagus, ventral view; 365, apical portion of aedeagus with internal sac. 366–368, *A. paani*: 366, male sternite 8; 367, aedeagus, ventral view; 368, apical portion of aedeagus with internal sac. 369–371, *A. bindu*: 369, male sternite 8; 370, aedeagus, ventral view; 371, apical portion of aedeagus with internal sac. Scale in mm.

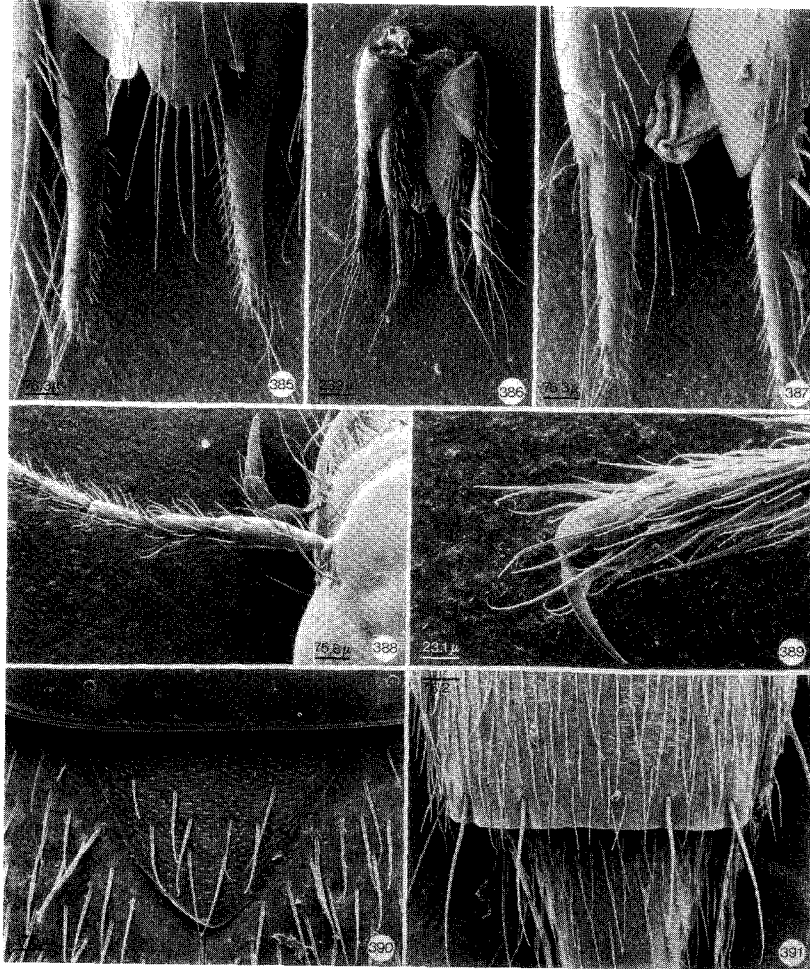


Figs. 372–378. 372, *Atanygnathus bindu*: apex of aedeagus with evaginated internal sac. 373–375, *A. chiso*: 373, male sternite 8, 374, aedeagus, ventral view; 375, apical portion of aedeagus with internal sac. 376–378, *A. purba*: 376, male sternite 8; 377, aedeagus, ventral view; 378, apical portion of aedeagus with internal sac. Scale in mm.

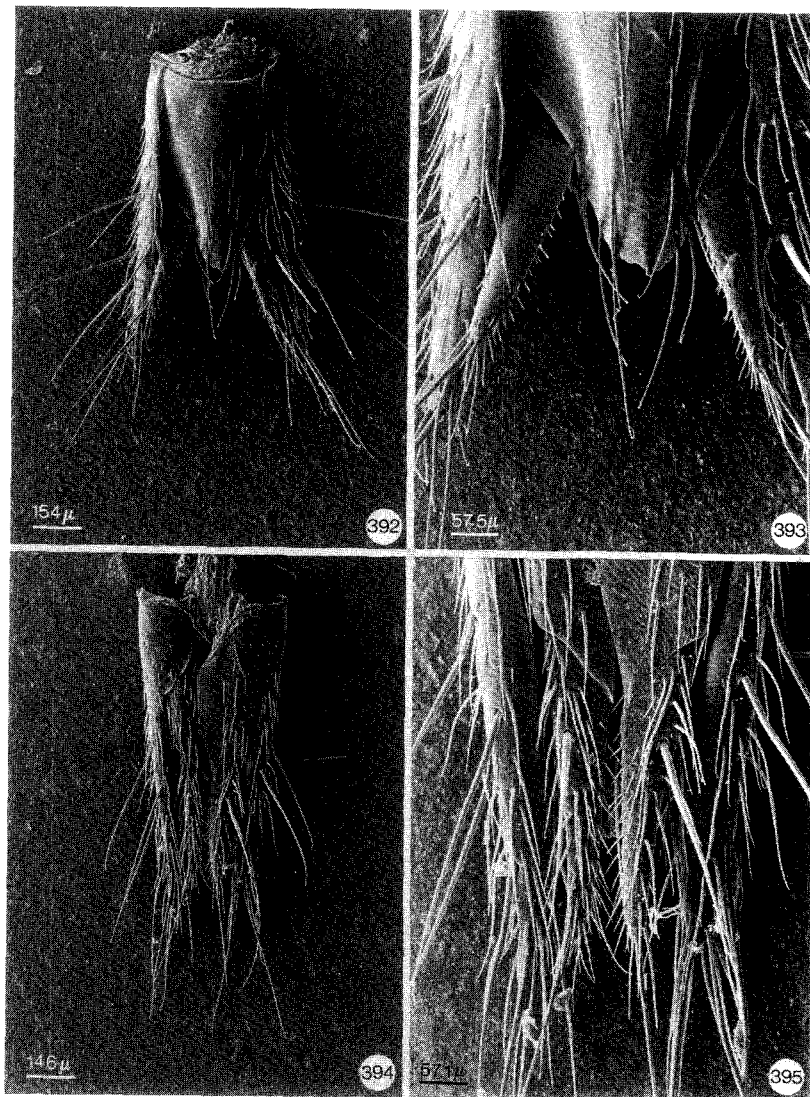
Figs. 379–384. *Qeudius apicicornis*: 379, head dorsally; 380, base of left antenna; 381, male front tarsus; 382, apical margin of tergite 7 with palisade setae; 383, same, detail; 384, female genital segment dorsally.



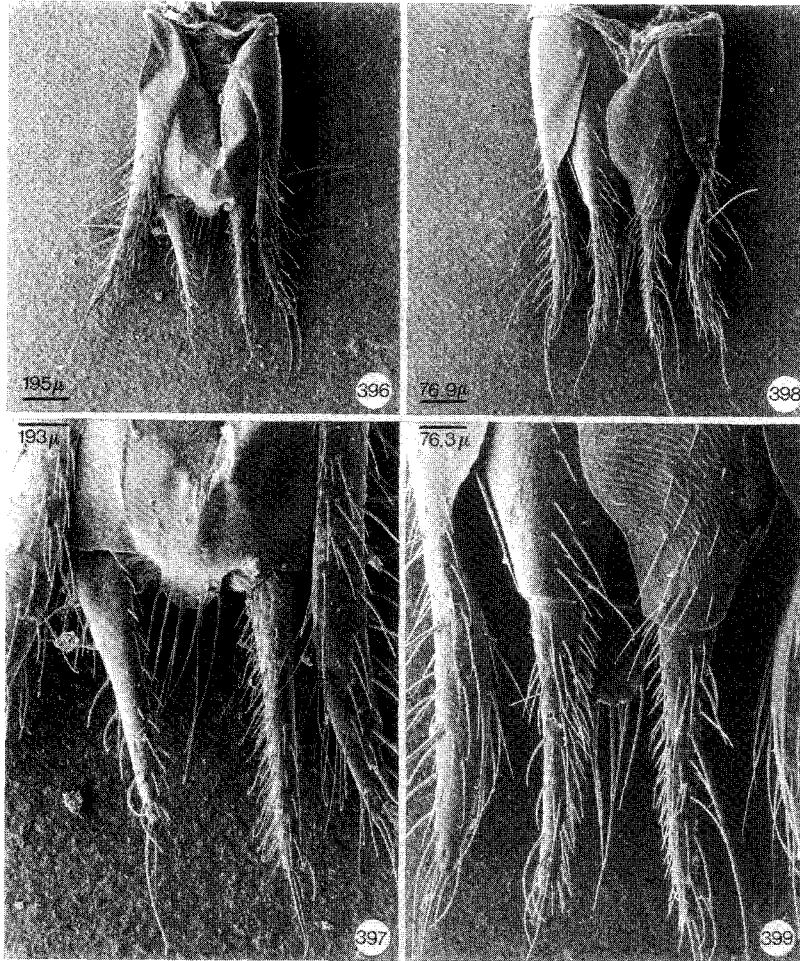
Figs. 379–384. *Qeudius apicicornis*: 379, head dorsally; 380, base of left antenna; 381, male front tarsus; 382, apical margin of tergite 7 with palisade setae; 383, same, detail; 384, female genital segment dorsally.



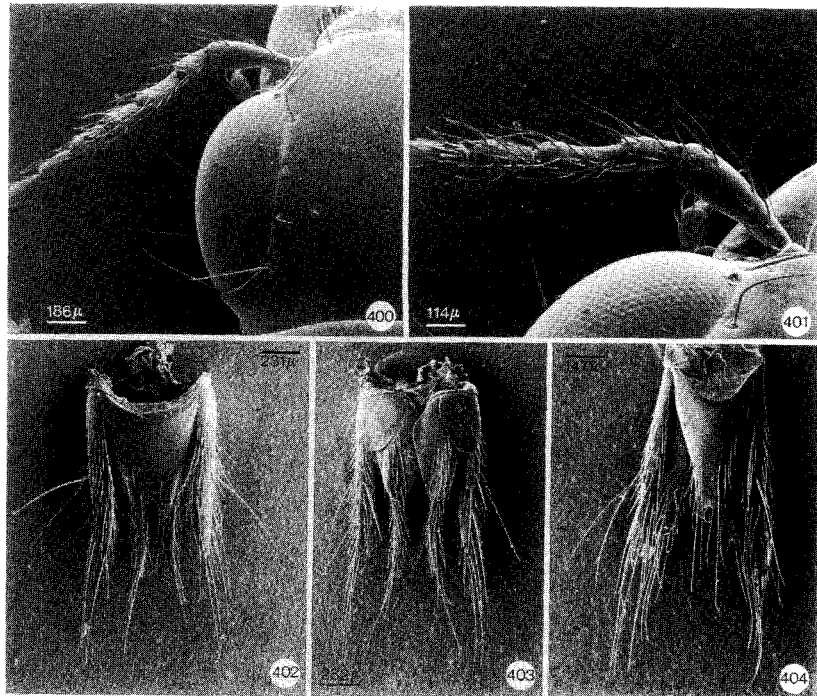
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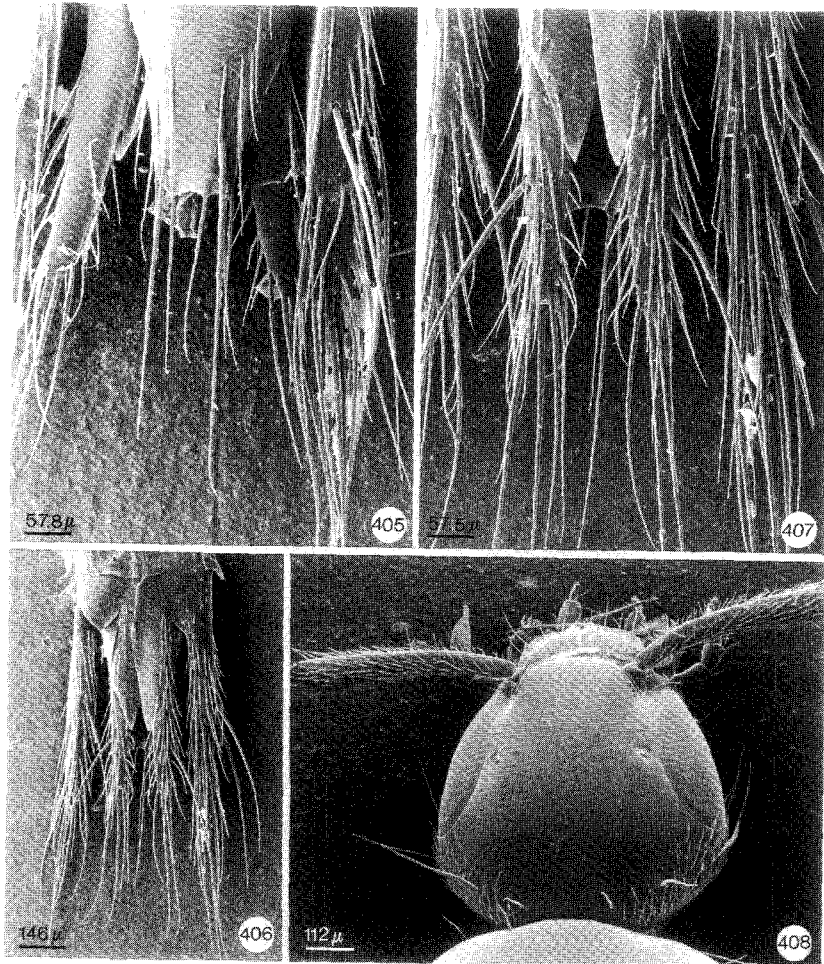
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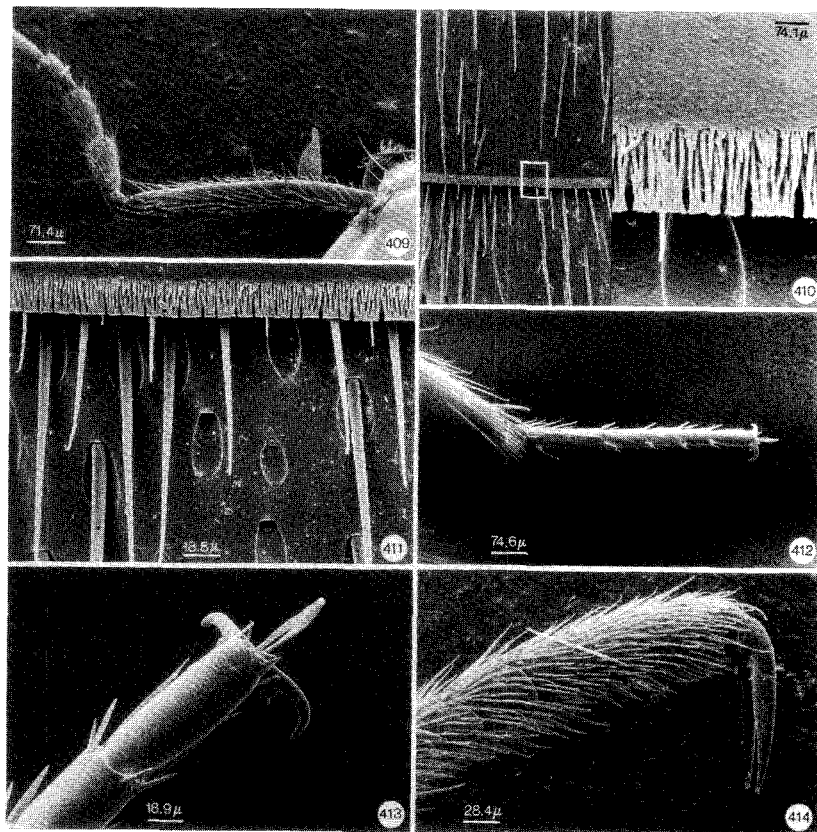


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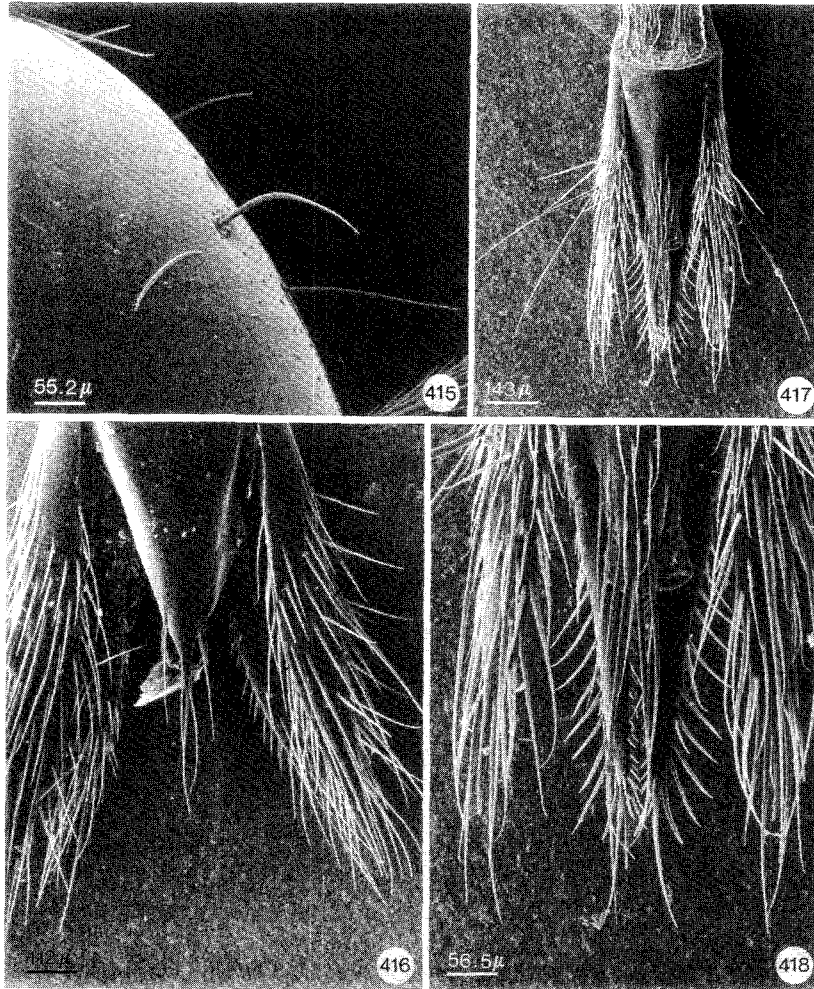


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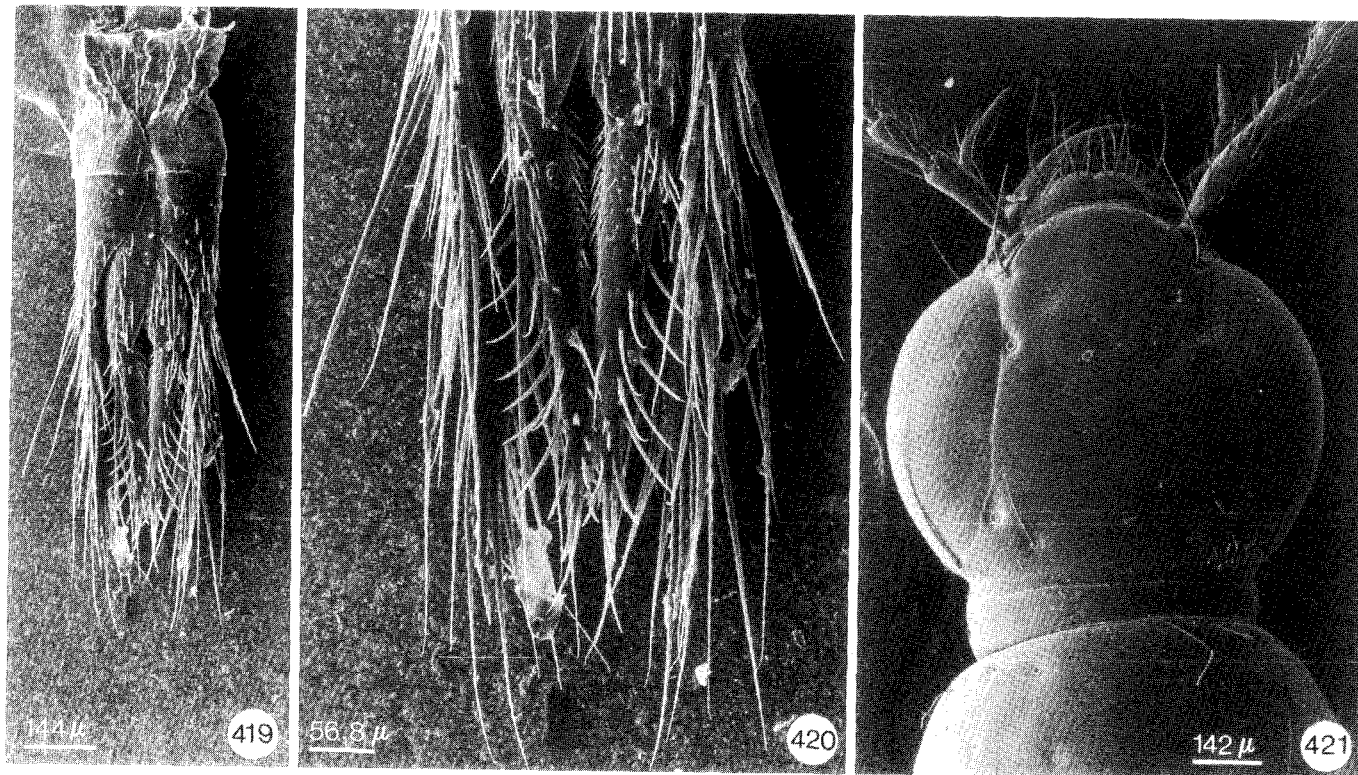
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