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Stenine beetles from Nepal

(Col. Staphylinidae)

by G. M. de Rougemont

Abstract: A list is given of the Steninae collected by the author in Nepal in the year 1979. Three species of *Dianous* Leach are described as new, and four *Stenus* Latr. species recorded for the first time from that country. The author's material is compared with the results obtained by other collectors, and some facts are recorded pertaining to the biology and ecology of these insects, based on the author's observations in the field. This article is intended as a supplement to the work of PUTHZ (1976: Die bisher aus Nepal bekannten Steninen, Dtsch. ent. Z., N.F. 23: 1-29).

In 1976, Dr. V. Puthz wrote the first work on the Steninae of Nepal, compounding all the known data and giving a key of the 37 species then known from that country. In the same year, Dr. O. Scheerpeltz wrote an important paper on Nepalese Staphylinidae including the descriptions of four new species of Steninae. Since then nothing has been published on the subject, and PUTHZ (1976) remarks that until 1972 no stenines were known to him from Nepal, the only available material being a few undetermined specimens in the B.M.N.H. which he included in his paper.

The paucity of material from Nepal was due to the political isolation and the inaccessibility of most parts of the country. In recent years, however, the development of tourism and the construction of more aircraft landing-strips has enabled many expeditions and individual entomologists to prospect various parts of the country. The material studied by Puthz was collected mainly by H. Franz in September to October 1971 & 1972, the Canadian Nepal Expedition in August to September 1967, and by J. Martens in April to May 1973.

The present article deals with material collected by the author in and around the valley of Kathmandu during three short trips in January, March and October 1979. Only four afternoons were devoted to collecting Coleoptera during this time, one of which was totally unproductive, and no wholesale methods such as sifting or trapping were employed, equipment being limited to an aspirator and a few glass tubes. Considering these limitations, results were good in March and October, principally because stenines were specifically searched for. 89 ex. belonging to 11 species were collected (9 of these in a single

afternoon, in 3 localities), of which only 2 were previously known from Nepal; of the remaining 9, 3 are new to science.

The qualitative difference between this collection and those studied by Puthz can be attributed to the different methods employed. All the material collected by Franz and the B.M.N.H. Nepal Expedition comes from funnel and sifting samples, as does presumably that collected by Martens and the Canadian Nepal Expedition, for which methods are not recorded¹. The species thus collected are nearly all humicolous ones: *Parastenus* spp. are particularly well represented (25 out of 37 species), confirming the author's observations elsewhere that, at least in the case of the red spotted species, these insects are always strictly confined to humicolous habitats.

Dianous spp. are, so far as is known, never humicolous, but are found wandering in open spaces near water, on boulders or clay banks near torrents, or, in some cases², muscicolous in the short stemmed varieties of moss growing in these situations*, thus it is only by direct searching that they are found. It is therefore not surprising that only a single ex. (*D. inaequalis* Champ.) is recorded by Puthz, whereas five species, of which three are new, are recorded here for the first time. *Dianous* spp. were discovered in great numbers before the last war in the neighbouring provinces of North India, so it is to be expected that many of these, and further new species, will be found in Nepal in the future.

It was not possible to measure the altitudes of the localities listed in this paper, but they certainly all lie between 1400 and 2000 m. Personal experience has shown that at this altitude Steninae are absent or inactive during at least a short period in winter: The only species found in January 1979 was *Stenus immisi* Bernh., evidently in a state of hiber-

¹ The Canadian Nepal Expedition does however record 5 ex. belonging to 2 species in Malaise traps!

² The author's observations in Nepal and in other parts of Asia suggest that many *Dianous* species are very narrowly restricted to microhabitats, and that when several species are found in the same locality, they usually occupy slightly different bionts, some never occurring outside the spray zone of cascades, others preferring drier, but shaded situations on the same rock face, others still confined to mixed clay and gravel banks, etc.

It seems appropriate here to record another observations made in the field in different parts of Asia: The coarsely rugose sculpturation characteristic of many *Dianous* spp., combined as it often is with a green or blueish metallic reflex, forms an effective camouflage among the lichens, slime-moulds and especially the short stemmed mosses of their habitat. In those species which do not have a metallic reflex, the coarse rugose punctuation breaks light reflexions, and makes the insects very difficult to see on the rock faces on which they live; often their presence is only betrayed by their occasional and characteristically slow movements.

nation. Stenines were searched for assiduously but totally unsuccessfully in early January 1980, in some cases in the exact localities where they were found in the preceeding October. It is quite possible that semi-endogenous humicoles continue to be active at this time, although there is no evidence for this, but it is quite clear that these species (*Dianous Hypostenus*) living in more exposed situations undergo a winter diapause during the coldest season. It may be presumed that this period is longer at very high altitudes.

In many parts of tropical Asia and Africa, the author has observed a monsoon diapause, especially of humicolous spp. It would seem likely that this should occur in Nepal, at any rate in the lowlands of the Terai, but perhaps also at medium altitudes, such as Kathmandu, where the monsoon is heavy. No collecting has yet been done during the heaviest rainfall in July to test this supposition.

The holotypes of the new species described in this paper have been deposited in the Basel Natural History Museum together with representatives of all the other species mentioned in this paper. The remainder of the material has been distributed between the collections of Dr. Puthz, the B.M.N.H. and the author.

Measurements of total body lengths of insects are given in millimetres. Others, of parts of insect's anatomy, were made on a Nikon S.M.Z. 2 microscope, at highest ($\times 80$) magnification, using an eyepiece micrometer. Thus each unit of measurement equals (approximately) 0.025 mm.

Records and systematics

1. *Dianous chetri* n.sp. Figs 1 A–C.

This new species belongs to that group of *Dianous* which includes the largest known species, are very finely punctate, and have more or less evident fascia of pubescence on the elytra. It closely resembles the North Indian species *D. anandalei* Bernhauer.

Length: 7.5–9 mm.

All surface of body, and first antennal segment, a greenish or olivaceous black; a brighter, nearly bottle green under elytral fascia; all appendages black except last three segments of antennae, which are dark brown. Head, elytra and abdomen with a fine whitish pubescence, forming indistinct fasciae on the elytra. The insect is fully winged.

♂ Holotype and 1 ♀ Paratype: ca. 45 km SW of Kathmandu on Raxaul road, on the underside of a loose mossy boulder in a small cascade, in co. with *D. hammondi* n.sp., 16.III.1979; 1 ♂ and 1 ♀ Para-

types: Sundarijal cascades, Kathmandu valley (source of r. Bagmati), running on bare rock surface in the spray zone of cascade, 26.X.1979.

Head about as broad as elytra between humeral angles (56:57), very finely, and densely punctate, finely pubescent; vertex with two shallow round depressions about equal in diameter to the length of the first antennal segment. Clypeus more coarsely and more sparsely punctate, with evident microsculpture on interstices, and longer pubescence. Antennae when reflexed extend to about 1/4th of the length of elytra (δ type: ♀♀ paratypes: shorter). Antennal segments: I: 8; II: 6; III: 21; IV: 13; V: 11, VI: 10; VII: 10; VIII: 9; IX: 9; X: 8; XI: 7; penultimate segment as long as broad.

Pronotum slightly transverse (42:46), broadest at anterior 1/3rd., narrowed and rounded anteriorly, sinuate in posterior 1/3rd., with hind angles rounded; surface of disc coriaceous, with fine reticulate microsculpture, and a few scattered punctures, mostly toward base; disc limited laterally and posteriorly by four round bosses, the anterior pair set more widely apart, the posterior pair close to base; a depression on each side surrounds the inner side of the posterior boss and extends obliquely to just behind the anterior boss; all pronotal borders finely margined.

Elytra longer than broad; maximum length: 79 length of suture: 68; maximum breadth (about 2/3rds from base); 72; width of humeral angles: 57; whole surface very finely and densely punctate; interstices equal to or greater than diameters of punctures on disc, sparser near suture anteriorly, and becoming confluent on area of fascia, where colour is of a brighter, bottle green; pubescence of fascia whitish, longer, although not very distinct.

Abdomen finely and densely punctate throughout; transverse anterior depressions of tergites deep; pubescence shorter in these depressions, and on the convexities immediately posterior to them.

Legs slender; posterior tarsi about 2/3rds the length of tibia (78:50); length of metatarsal segments: I: 20; II: 4; III: 3.5; IV: 4.5; V: 17; fourth tarsal segments excavate dorsally, the onychium inserted close to the base of fourth segment, but the latter not bilobed.

Male: Sternites III to VII with a sharply defined median glabrous and impunctate area, excepting a few scattered much larger, setigerous punctures on sternites III to VII increasing in density, and dense on sternites VI and VII; sternite VII concavely depressed posteriorly, slightly emarginate; sternite VIII with a broad triangular excavation extending to about 1/10th (31:28); sternite IX (Fig. I, B) shallowly

excavate, with three crenulae on either side of the median line, the large, external crenulae lobe-like, but less prominent than in *D. anandalei* Bernh.³; terminal brushes long (tergite: 30; brushes: 50), typically curved inwards at apex in natural position; tergite X broadly rounded posteriorly, with a slight median concave depression, a few scattered setigerous punctures, and densely setose hind margin. Aedeagus (Fig. I, A) with median lobe shorter than parameres, apically rounded.

Female: Valvifer Fig. I, C.

Dianous chetri n.sp. runs in CAMERON's key (1930, p.405) to *D. anandalei* Bernh., of which it should probably be considered the sister-species. It can only be distinguished from that rather variable species with certainty by the male sexual characters: the aedeagus is not sharply pointed apically as in *D. anandalei*, but narrowly rounded, and the eighth sternite is more shallowly emarginate; in *D. anandalei* the emargination extends to over 1/8th of the length of the segment⁴.

2. *Dianous championi* Cam.

Dianous championi CAMERON, 1920, E.M.M., LVI: 145.

Dianous championi CAMERON, 1930, Faun. Brit. Ind., Col. Staph. I: 433.

Dianous sikkimi CAMERON, 1943, Proc. R. Ent. Soc. Lond. (B), 12: 4.

6 ♂♂, 10 ♀♀: Sundarijal Cascades, Kathmandu valley, on boulders in spray zone of cascade, and at roots of plants in wet gravel beside torrent, 26. X. 1979.

This is the first record from Nepal of this species, which is probably widely distributed in the country, as it was described from Kumaon, on Nepals' Western frontier, and is also known from Lebong in Bengal (Cameron) to the East.

The series recorded above shows considerable variation in the relative proportions of the elytra, a fact that should be taken into account in the descriptions and determination of other *Dianous* species which may be subject to similar variations.

3. *Dianous hammondi* n.sp. Figs 1D–F.

This new *Dianous* belongs to the group of large species in which the

³ Type compared with *D. anandalei* ex. bearing the following labels: I: INDIA U.P. W. Almora Div. Jaghana 5000 ft. June 1933 H.G. Champion. II: H.G. Champion Coll. B.M. 1953–1956. III: *D. anandalei* Bernh. det. 1979, G. de Rougemont.

⁴ Neither this, nor the shape of the eighth sternite, are figured correctly by CAMERON (1930).

coarse punctuation forms patterns of radiating or vorticose rugae on the elytra. It most closely resembles *D. cameroni* Champion.

Uniformly shining dark green, the abdomen sometimes darker, or black with a greenish reflex; legs black, palpi fuscous to black; antennae black, more or less lightened apically, sometimes with three terminal segments a clearly demarcated dark brown; pubescence pale golden on frons, to silvery on abdomen.

Length: 5–6 mm Macropterous.

♂ Holotype, 4 ♂♂ and 1 ♀ Paratypes: ca. 45 km. SW of Kathmandu on the road to Raxaul, among loose boulders and wet moss in a small cascade, with *D. chetri* n.sp., 16.III.1979.

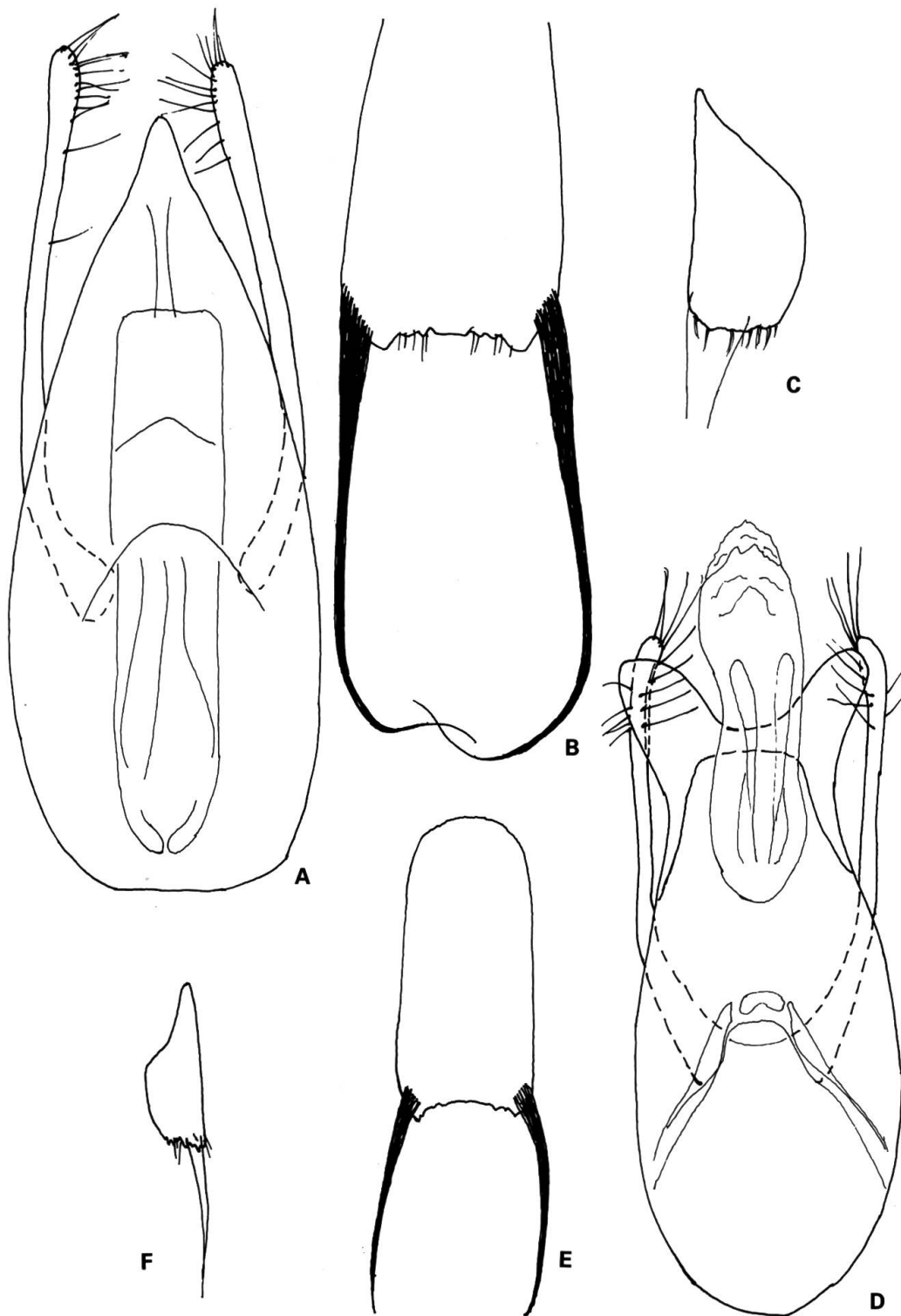
Head broader than elytra between humeral angles (45:39), deeply bisulcate, medially convex; coarsely and densely punctate, the punctures varying from once to over twice the diameter of an eye facet, the interstices equal to the diameter of punctures on vertex, much narrower elsewhere. Antennae very long, extending, when reflexed, to half the length of the elytra; antennal segments: I:7; II:4.5; III:19; IV:9.5; V:10; VI:10; VII:10.5; VIII:8.5; IX:7; X:6.5; XI:8.

Pronotum as long as broad (33), the maximum breadth situated about 1/3rd from anterior margin; disc with a median furrow extending from 1/6th from anterior margin to 1/3rd from posterior margin; base with two shallow depressions; punctuation very coarse (diameter of punctures equal to diameter of base of third antennal segment) and close, forming rugae directed obliquely forward in basal depressions, and irregular on sides; punctuation of disc not rugose, the interstices about equal to the diameter of punctures.

Elytra narrow, elongate; maximum width of elytra: 49; maximum length: 53; distance between humeral angles: 39; length of suture: 46; surface fairly even; anterior half coarsely and irregularly punctate, becoming coarsely rugose in posterior half, where rugae centre around a vorticose rosette situated 1/6th from the posterior margin; punctuation of sides fine and dense.

Abdomen densely and very finely punctate and pubescent throughout, the pubescence longer on lateral portions of tergites; tergites III to VI with deep transverse impressions.

Legs slender, posterior tarsi long; metatibia: 58; metatarsi: 46; metatarsal segments: I:18; II:7; III:5; IV:4; V:14; fourth metatarsal not bilobed, but somewhat thickened, and excavate dorsally, so that onychium is inserted close to the base of fourth segment; fourth mesotarsal segment clearly bilobed.



Figs 1: A–C: *Dianous chetri* n.sp. A, Aedeagus, ventral view. B, 9th sternite. C, ♀ valvifer. D–F: *Dianous hammondi* n.sp. D, Aedeagus ventral view. E, ♂ 9th sternite. F, ♀ valvifer.

Male: Sternites III to V with a smooth median area with only a few scattered, larger punctures, this setose punctuation becoming quite dense on sternites VI and VII, which each have a median posterior depression; sternite VIII with a broad semi-elliptical excision extending to a little over 1/5th of its length (25:6); sternite IX (Fig. 1, E) regularly rounded with a small but distinct apicolateral tooth; terminal brushes moderately long, and straight. Aedeagus (Fig. 1, D) with median lobe produced apically into two rounded lobes.

Female: Valvifer (Fig. 1, F) without distinct apicolateral tooth!

The members of this group of *Dianous* species may be divided according to the two very distinct types of aedeagus to be found among them. One type is characterised by a simple median lobe, apically produced into a more or less acute point, as in *D. cameroni* Champ., *D. viridipennis* Cam. and *D. aereus* Champ. In the other type, the median lobe ends apically in two divergent, broadly rounded lobes, as in this new species, *D. tortuosus* Champ., *D. subtortuosus* Champ. and *D. subvorticatus* Champ. These two types of aedeagus are not correlated with other supraspecific characters such as the structure of the fourth tarsal segments or the degree of coarseness of the punctuation. A revision of all the species of this group, with descriptions of the aedeagi would be necessary to understand their phylogenetic relationship, but as such a task is beyond the scope of this paper, only the species closest to *D. hammondi* n.sp. have been examined.

D. hammondi n.sp. closely resembles *D. cameroni* Champ., with which it shares, together with *D. tortuosus* Champ., a coarser and somewhat sparser punctuation and rugae than is to be found in the other species of the group. From both of these it may be distinguished by its colour and narrower elytra. From *D. cameroni* Champ. it differs furthermore by the simple fourth metatarsal segment (although the fourth mesotarsal segment is bilobed in both species), by the presence of an apicolateral tooth on the ninth sternite, and by the aedeagus, which is of the bilobed type (simple in *D. cameroni*). It differs from *D. tortuosus*, from which it is presumably closer phylogenetically, by its slenderer build and broader head, bilobed fourth mesotarsal segments, and the aedeagus, which though of the same, bilobed, type, shows a different outline of both the median lobe and parameres.

In CAMERON's key (1930, p.406), *D. hammondi* n.sp. runs to *D. subtortuosus* Champ., from which it differs by its coarser and sparser punctuation and rugae, narrower elytra, simple fourth metatarsal segments (however in *D. subtortuosus* these are markedly less strongly

bilobed than the mesotarsal segments), and the aedeagus, which is of the same type, but with a different outline of the median lobe. Both species are the same colour and possess an apicolateral tooth on the ninth sternite.

I have pleasure in dedicating this new species to Mr. P. Hammond in recognition of his own work on staphylinid beetles.

4. *Dianous*⁵ *reformatore* n. sp. Figs 2 A–C.

This new species belongs to that group of (small) *Dianous* species which have a concave vertex of the head, without lateral sulcae or impressions. It is closest to *D. nigrovirens* Fv. and *D. iridicolor* (Scheerpeltz), another species described from Nepal.

Shining, dark metallic green, sometimes with a coppery reflex on forebody, coarsely and rugosely punctate, distinctly pubescent, particularly on sides of elytra and abdomen; palpi fulvous with third segment broadly infuscate; antennae reddish brown, club somewhat lighter on darkest specimens; basal halves of femora fulvous, the infuscation of distal halves incomplete, sometimes extending to entire tibia, sometimes only to their bases (type).

Length: 4.2–4.7 mm.

♂ Holotype, 1 ♂ and 5 ♀♀ paratypes: Tistung. ca. 55 km SW of Kathmandu, under stones in mixed earth and gravel bank of stream, 16.III.1979.

Head about equal to the greatest breadth of elytra (34) (elytra variable); vertex concave with evident median furrow, coarsely punctate, the diameter of punctures equal to or surpassing the diameter of third antennal segment, the punctuation dense, beginning to form parallel longitudinal rugae; all interstices or rugae much narrower than the diameter of punctures, though these are not confluent: Antennae when reflexed reach the posterior margin of pronotum; antennal segments: I:5; II:4; III:9.5; IV:5; V:5; VI:5; VII:5; VIII:4.5; IX:4.5; X:4; XI:4.

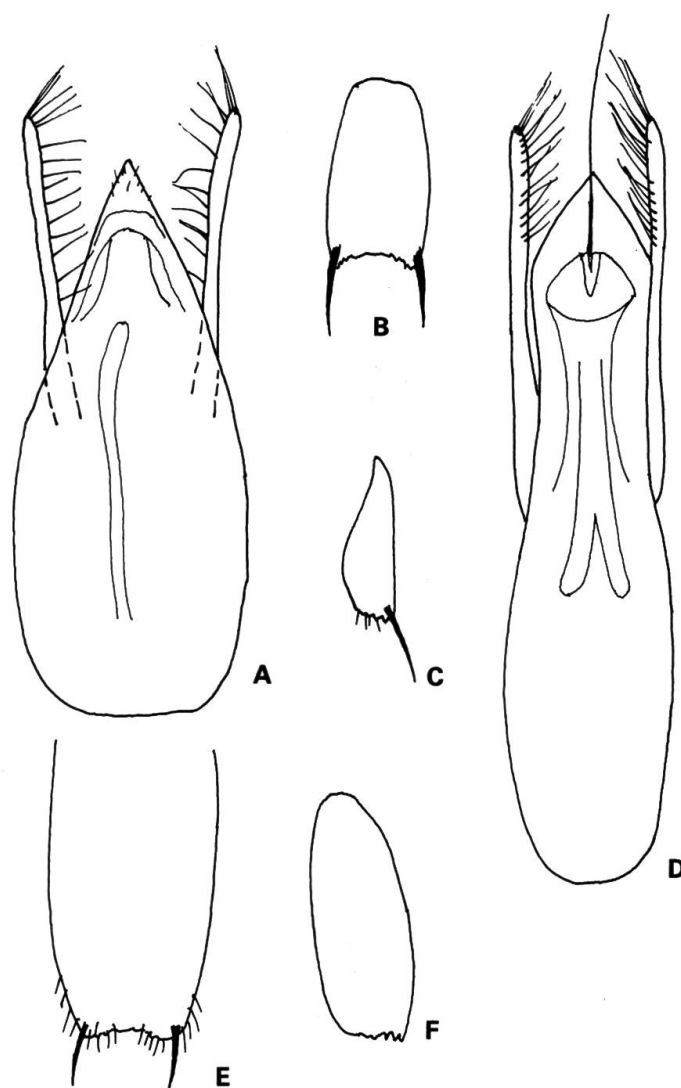
Pronotum scarcely longer than broad (26.5:25), its maximum

⁵ Dr. Puthz has informed me in personal communications that the *Stenus* species of the *S. nigrovirens* group in reality belong to the genus *Dianous* Leach (Puthz, in litt.). This has been overlooked so far because the insects' general appearance, with large eyes, practically no temples, and only moderately long brushes of hair on the 9th sternite (the only characters mentioned in most keys to the two genera) make them resemble *Stenus* S.str. The essential difference lies in the structure of the mouthparts, *Dianous* spp. not possessing a eulabium as do *Stenus* spp. This new species therefore belongs to the genus *Dianous*.

breadth slightly before the middle; sides rounded anteriorly, somewhat sinuate posteriorly; whole surface coarsely and rugosely punctate, the transverse rugae forming cells enclosing an average of two punctures each.

Elytra narrow, slightly elongate; maximum length: 37; maximum breadth: 34, length of suture: 31; distance between humeral angles: 28. Surface coarsely and rugosely punctate, comparable with pronotum, the rugae forming incomplete, more or less confused rosettes on the posterior half; disc, and especially sides, distinctly pubescent.

Abdomen convex, gradually narrowed toward apex, the lateral



Figs 2: A–C: *Dianous reformatore* n. sp. A, Aedeagus, ventral view. B, ♂ 9th sternite. C, ♀ valvifer. D–F: *Stenus signifer* Fauvel. D, Aedeagus, ventral view. E, ♂ 9th sternite. F, ♀ valvifer.

margins becoming very weak on 6th and 7th segments; all tergites finely and densely punctate and pubescent, about 6 rows of punctures on 4th tergite; paratergites narrow and sparsely punctate; 7th tergite with a narrow membranous apical border; tergite X with large scattered setigerous punctures on whole surface, the apex rounded and depressed medially.

Legs moderately long; metatarsi ca. 5/6ths the length of tibia (36:31); tarsal segments: I:13; II:5.5; III:4; IV:3; V:6; fourth segment emarginate at apex.

Male; Sternite VII more densely pubescent posteriorly; Sternite VIII with a broad, shallow, triangular excavation; Tergite IX characteristic (Fig. 2, B); Aedeagus (Fig. 2, A) with median lobe broad, regularly narrowed toward apex, and considerably shorter than parameres.

Female: Valvifer (Fig. 2, C) without a distinct apicolateral tooth, finely denticulate.

In CAMERON's key (1930, p. 322) this new species falls between *S. nigrovirens* Fv. and *S. bracteatus* Champ. It most closely resembles the former species, differing from it by its more slender build, colour of abdomen (black in *S. nigrovirens*), somewhat coarser punctuation of tergites, lighter antennae, and male sexual characters. *S. bracteatus* is smaller, more brightly coloured and more finely punctured, and has characteristically short terminal segments of the antennae.

D. reformator n. sp.⁶ is most closely related to *D. iridicolor* (Scheerpeltz), also described from central Nepal. *D. reformator* can be distinguished by its slightly smaller size, proportionately more slender build, with narrower head and elytra, narrower and more deeply depressed vertex of head, less prominent, shorter (more confused), rugae on elytra and colouration: less shiny upper surface, without a blue reflex on the dark green background, and paler legs, the infuscation less sharply defined. The outline of the median lobe of the aedeagus is broader.

5. *Stenus* (s.str. & *Nestus*) *melanarius annamita* Fv.

Stenus annamita FAUVEL, 1895, Rev. Ent., XIV: 207.

Stenus annamita CAMERON, 1930, Faun. Brit. Ind., Col. Staph. I: 341.

Stenus melanarius annamita PUTHZ, 1969, Bull. Instr. r. Sci. nat. Belg., 45 (9), 2f.

Stenus melanarius annamita PUTHZ, 1971, Bull. Ent. Soc. Suisse, 43: 212.

Stenus melanarius annamita PUTHZ, 1976, Dtsch. Ent. Z., N.F. 23: 4.

⁶ A single ♀ paratype from the series of *D. reformator* n. sp. differs slightly from the others by its marginally more robust build and a coppery reflex superimposed on parts of the dark green background, nevertheless comparison with the types has satisfied me that this ex. lies within the range of variability of the new species, and outside that of *D. iridicolor*.

1 ♂, 1 ♀: Tistung, ca. 55 km SW of Kathmandu on road to Raxaul, on gravel river bed, 16.III.1979.

This oriental subspecies of the palearctic *S. (Nestus) melanarius* is very widely distributed at different altitudes in the Indian subcontinent and in S.E. Asia as far as the Philippine Islands. It has already been recorded from Nepal (Kathmandu airport: Puthz).

6. *Stenus (Hypostenus) ocreatus* Puthz

Stenus ocreatus PUTHZ, 1970, Bull. Inst. r. Sci. nat. Belg.: 46, 18, 11.

Stenus ocreatus PUTHZ, 1975, Ent. Bas., I: 189.

2 ♂♂: Nagduna, ca. 25 km SW of Kathmandu, in vegetable refuse in the bed of a very small stream on heavily eroded mountainside, 16.III.1979.

This species was described from old material in the Fauvel collection (Cameron leg.) from N. India: Arni Gad and Mussoorie. It has since been recorded by the same author from Bhutan, so its presence in Nepal was to be expected.

In PUTHZ' key to the *Stenus* of Nepal (1976), *S. ocreatus* should not strictly speaking run to couplet 4 (9th sternite or valvifer with a long and distinct, acute and prominent tooth apicolaterally), for the apicolateral tooth, though distinct and prominent, is broad and blunt, but it can not be included in the opposite couplet 7, which includes species without an apicolateral tooth on the 9th sternite. From the two "toothed" species in couplet 4, *S. ocreatus* is therefore distinguished primarily by the shape of the apicolateral tooth on the 9th sternite; From *S. bivulneratus* Mots. by the absence of red elytral spots, from *S. basicornis* Kraatz by its greater size (6.2–7 mm : 3.7–5 mm), and coarse and dense punctuation.

7. *Stenus (Hypostenus) wasmanni* Fv.

Stenus wasmanni FAUVEL, 1895, Rev. Ent., XIV: 214.

Stenus wasmanni CAMERON, 1930, Faun. Brit. Ind.; Col. Staph.I; 376.

Stenus wasmanni PUTHZ, 1969, Bull. Inst. r. Sci. nat. Belg., 45 (9); 31 ff.

Stenus wasmanni PUTHZ, 1975, Ent. Bas., I; 189.

1 ♂: Chapuri, ca. 45 km SW of Kathmandu on road to Raxaul, under a stone on clay and gravel bank of a stream 16.III.1979.

This species has a "Greater Himalayan" distribution, resembling that of many oriental stenines, extending from the Punjab through the U.P., Bhutan and Assam to Burma (type), so although this is a first record from Nepal, its presence here is not unexpected.

In PUTHZ' key (1976) it runs to 11 (*S. ceylonicus securifer* Puthz), from which, despite its averagely greater size and slightly finer punctuation, it may only be distinguished with certitude by the shape of the apex of the aedeagal median lobe (figured by PUTHZ, 1969).

8. *Stenus* (*Hypostenus*) *ceylonicus securifer* Puthz

Stenus ceylonicus securifer PUTHZ, 1969, Bull. Inst. r. Sci. nat. Belg., 45 (9): 19f.

Stenus ceylonicus securifer PUTHZ, 1976, Dtsch. Ent. Z., N.F. 23: 4.

2 ♀♀: Tistung, ca. 55 km SW of Kathmandu, under stones on gravel and soil bank of stream, 16.III.1979.

This species is known from Northern India and has already been recorded from Nepal (1 ♂ near Birganj Lothar – Puthz).

9. *Stenus* (*Hypostenus*) *signifer* Fv. Figs 2 D–F.

Stenus signifer FAUVEL, 1895, Rev. d'Ent.; XIV: 213.

Stenus signifer CAMERON, 1930, Faun. Brit. Ind., Col. Staph., I: 359.

Stenus signifer PUTHZ, Bull. Inst. r. Sci. nat. Belg., 45 (9): 28.

12 ♂♂, 11 ♀♀: Tistung, ca. 55 km SW of Kathmandu, in a dense colony under a stone embedded in mixed gravel and soil bank by a stream⁷; 1 ♂: Chapuri, ca. 45 km SW of Kathmandu, under a stone on river bank, 16.III.1979; 3 ♂♂, 5 ♀♀: Panchkal valley, at km 49 from Kathmandu on Kodari (NE) road, at roots of plants growing on seepage on rocky banks of a small stream, 25.X.1979.

PUTHZ (in press.) recognises the synonymy of *S. signifer* Fv. with *S. himalayicus* Bernhauer (1915). The necessity for this was obvious even from the examination of the single series from Tistung quoted above: all these specimens correspond in every respect to Bernhauer and Cameron's descriptions of *S. himalayicus* except in the colouration of appendages and the extent and shape of the elytral spot. This latter character varies in this series from a small elongate spot as in the types of *S. himalayicus* Bernh., to a large securiform (hatchet-shaped) marking typical of *S. signifer* Fv. The degree of infuscation of the appendages also varies inside this series, but tends to darker forms, resembling the types of *S. signifer* rather than of *S. himalayicus*.

Having taken into account the range of variability of this species, it is unnecessary to give here a redescription. However it may be added that

⁷ As several species were found at this locality in this unusual habitat, it is thought that these insects may have been just emerging from hibernation. Note that ex. of the same species found in October were more active, not congregated, and living in different conditions.

the ♂ posterior femora are distinctly thickened in the middle, and carry a small spur on the hind margin near the base, as well as a tooth on the inner margin of the metatibia near the distal end. A figure (2, D–F) is given of the aedeagus and of the ♂ 9th sternite and ♀ valvifer, which have not previously been described.

S. signifer F. has a wide "Greater Himalayan" distribution, the species having been described from the Karen Hills of SE Burma, and (*S. himalayicus* Bernh.) from the Indian provinces on Nepal's Western Borders. It is new for Nepal.

In Puthz' key this species should be inserted after *S. flavovittatus* Champ. which differs from *S. signifer* most obviously by the large sub-marginal fascia extending from the humeral angle nearly to the posterior margin. The only other spotted *Hypostenus* known from Nepal is *S. bivulneratus* Mots. which is separated from *S. signifer* by the presence of a strong apicolateral tooth on the ♂ 9th sternite and ♀ valvifers.

10. *Stenus* (*Parastenus*) *immsi* Bernh.

Stenus immsi BERNHAUER, 1915, Col. Rundsch.: 49.

Stenus (*Mesostenus*) *immsi* CAMERON, 1930, Faun. Brit. Ind., Col. Staph., I: 387.

8 ♂♂; 11 ♀♀: Dakshinkali Temple, SW of Kathmandu, under a loose boulder on the bank of a stream, 20.I.1979; 1 ♀: Tistung, ca. 55 km SW of Kathmandu, under a stone in mixed gravel and soil on river bank, 16.III.1979; 4 ♀♀: Dhulikel, 30 km E of Kathmandu, in litter at roots of plants near a small torrent, 25.X.1979.

This distinctive species was previously known only by the type series from N India, so the extent of its distribution in the Himalayan system is not known. The ex. taken in January when ground frost prevailed at night, were apparently in a state of hibernation, these ex. being a sample from a large colony (ca. 50 ex.?) massed closely under a large boulder, and remained inactive when disturbed. That this behaviour is not characteristic of the species is evidenced by the normally active reactions of those captured in October.

This, and the following *Parastenus* species, may be included in Puthz' key by adapting it in the following way:

49 (48) Larger species, distinctly exceeding 5 mm in length. Abdominal puncturation coarse and very dense.

A (B) Elytral spot extending to posterior margin; abdomen very finely margined; puncturation of tergites very coarse, almost foveate *immsi* Bernh.

- B (A) Elytral spot not extending to posterior margin; abdomen normally margined, puncturation of tergites finer and dense.
- 50 (51) 9th sternite or valvifer apicolaterally acute.
- X (Y) Elytral spot larger, rounder (not more than $1\frac{1}{2}$ times as long as broad; median lobe of aedeagus suddenly constricted at apex, parameres longer, parallel, not divergent; larger: 6.2–8.5 mm **rubronotatus** Cam.
- Y (X) Elytral spot small, ovate, over $1\frac{1}{2}$ times as long as broad; apex of median lobe (fig.4) broadly rounded, parameres curved divergently; smaller: 5.7–7.5 mm. **languor** L. Ben.
- 51 (50)

11. *Stenus* (*Parastenus*) **rubronotatus** Cam.

Stenus rubronotatus Cameron, 1943, Proc. R. ent. Soc. Lond. (B), 12: 3.

2 ♀♀: Sundarijal Cascades, Kathmandu valley, in leaf refuse at roots of plants on gravel and clay bank in spray zone of cascade, 26.X.1979.

This species was described from N India, and is new to Nepal. The ex. recorded above are very large: 8.2 and 8.5 mm (Type ♂: 7.2), and have rather larger elytral spots than the type, but agree with it in other respects.

Key to the species of *Dianous* presently known from Nepal.

Although, in view of my remarks on page, a key to the *Dianous* species may be premature at this stage, it is felt that it would be a useful complement to Puthz' key to the *Stenus* species.

- | | | |
|-------|--|---|
| 1 (2) | Vertex of head concave, or median line depressed; smaller species, under 5 mm | 9 |
| 2 (1) | Vertex not concave or depressed medially, but raised between longitudinal sulcae or depressions; larger species, over 5 mm | 3 |
| 3 (6) | Pronotum and elytra very coarsely and rugosely punctate, the rugae forming a vorticose pattern on elytra | 4 |
| 4 (5) | 4th metatarsal segment bilobed; colour: black; apex of median lobe of aedeagus simple championi Cam. | |
| 5 (4) | 4th metatarsal segment at most slightly emarginate; colour: dark green, apex of median lobe bilobed hammondi n. sp. | |

- 6 (3) Pronotum and elytra very finely punctate, pronotum practically impunctate; punctuation of elytra never rugose 7
- 7 (8) Pronotum almost impunctate, disc coriaceous; elytra with a bottle green reflex under fasciae; average size larger (7.5–9 mm) **chetri** n.sp.
- 8 (7) Pronotum distinctly punctate; elytra unicolourous; average size smaller (7–7.5 mm) **inaequalis** Cam.
- 9 (10) Thorax and elytra dark green, sometimes suffused with a coppery, not a blue, reflex; tibia only lightly infuscate; elytral rugae less prominent, somewhat confused **reformatore** n.sp.
- 10 (9) Thorax and elytra dark green, suffused with a blue reflex; tibia strongly infuscate; elytral rugae more prominent, linear, forming a distinct lozenge-shaped pattern centred on suture **iridicolor** Scheerp.

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