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## Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel

### Mecoptera: Fam. Panorpidae\*

by George W. Byers

**Abstract:** Insects of the order Mecoptera collected in Bhutan by the 1972 expedition from the Naturhistorisches Museum Basel include 8 specimens representing 3 species. Two of these species are undescribed, and the third is known from only a few individuals. These specimens are, to my knowledge, the first Mecoptera reported from Bhutan.

#### *Neopanorpa effusa* (Navás)

*Campodotecnum effusum* Navás, 1914: 429, fig. 7.

*Leptopanorpa effusa*; Esben-Petersen, 1921: 91—92, fig. 101.

For about 60 years, this species has been known only from the types (1 ♂, 1 ♀, in the Naturhistorisches Museum, Wien), taken in Sikkim in 1875 by Felder. In wing coloration, both the deep yellow tinge of the membrane and the smoky brown bands and spots, this species closely resembles *N. flava* (Esben-Petersen). Thoracic color pattern, however, differentiates the two. *N. effusa* has the pronotum and anterior mesonotum darkened, while *flava* has in addition the anterior half of the metanotum dark brown to black. The shapes of the subgenital plate and genital plate in the two species are similar, but the arms of the genital plate are more slender in *effusa*. Detailed comparison of these will be made in another paper (Rust and Byers, 1976).

The present collection includes a single female labelled "km 87 route Phuntsholing to Thimphu about 1700 m," collection no. 30, 22 May 1972.

#### *Neopanorpa ramulata* n. sp.

Description based on 2 males, 3 females, preserved in alcohol.

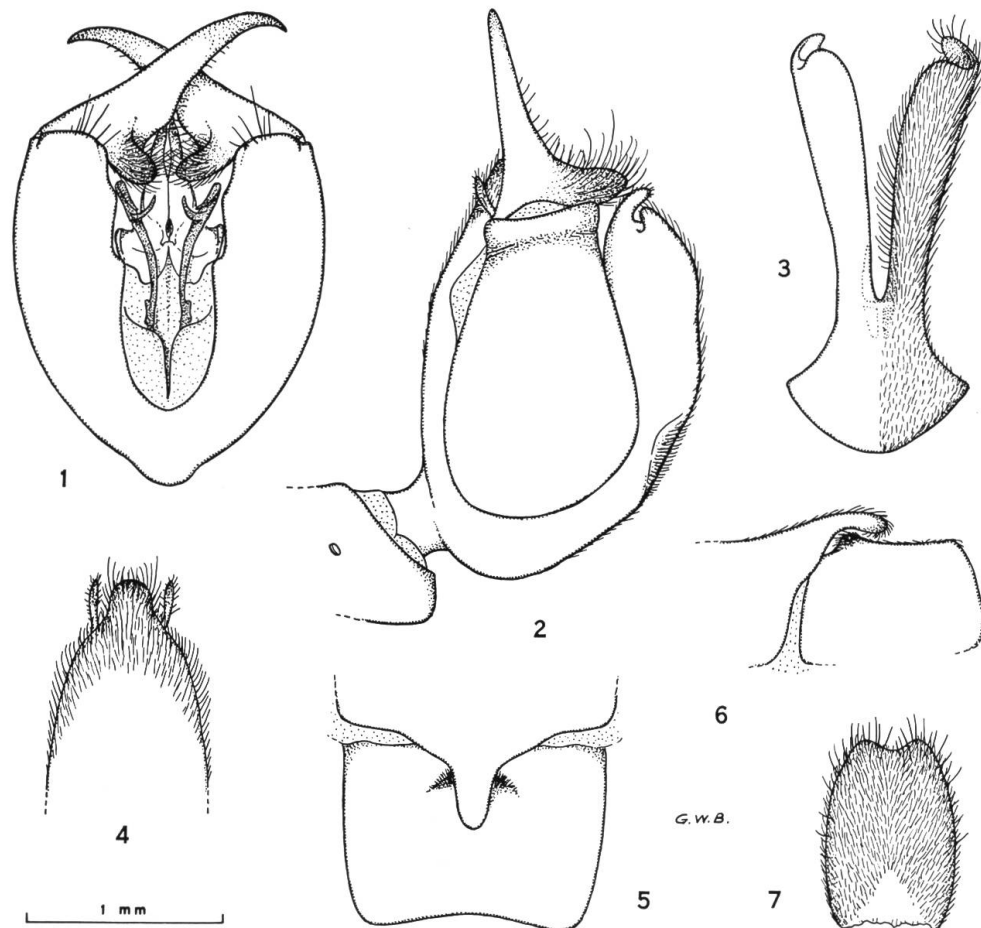
Head: Dorsum of head shiny black, this coloration extending narrowly below eyes and antennal sockets; rostrum pale brown with two diffuse lon-

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\* Contribution no. 1525 from the Department of Entomology, The University of Kansas, Lawrence, Kansas 66044, USA. I wish to thank Dr. W. Wittmer of the Naturhistorisches Museum Basel for making available to me the specimens upon which this report is based.

gitudinal brown stripes, one below each antennal base; mouthparts brown, tips of palps nearly black. Antennal scape dark yellowish brown, brown at apex; pedicel dark brown; flagellum dark brown, with 47 to 48 flagellomeres.

Thorax: Pronotum dark brownish black throughout, with only very short hairs on anterior margin. Mesonotum dark brownish black on anterior half, medially and on scutellum and bases of axillary cords, with dark yellowish brown spot adjacent to each wing base. Metanotum patterned generally as mesonotum. Pleural surfaces and coxae pale buff, narrowly darkened along sutures, with scattered short, dark hairs; longer, more dense hairs on anterior surfaces of coxae; an elongate brown spot on each meron. Femo-



Figs. 1—7 *Neopanorpa ramulata* n. sp. 1, genital bulb of male paratype, ventral aspect, hypovalves removed. 2, genital bulb of male holotype, left lateral aspect. 3, hypovalves, male paratype, ventral aspect. 4, apex of ninth abdominal tergum, male paratype, dorsal aspect. 5, notal organ (abdominal terga 3, 4), male holotype, dorsal aspect. 6, same, left lateral aspect. 7, subgenital plate, female allotype, ventral aspect.

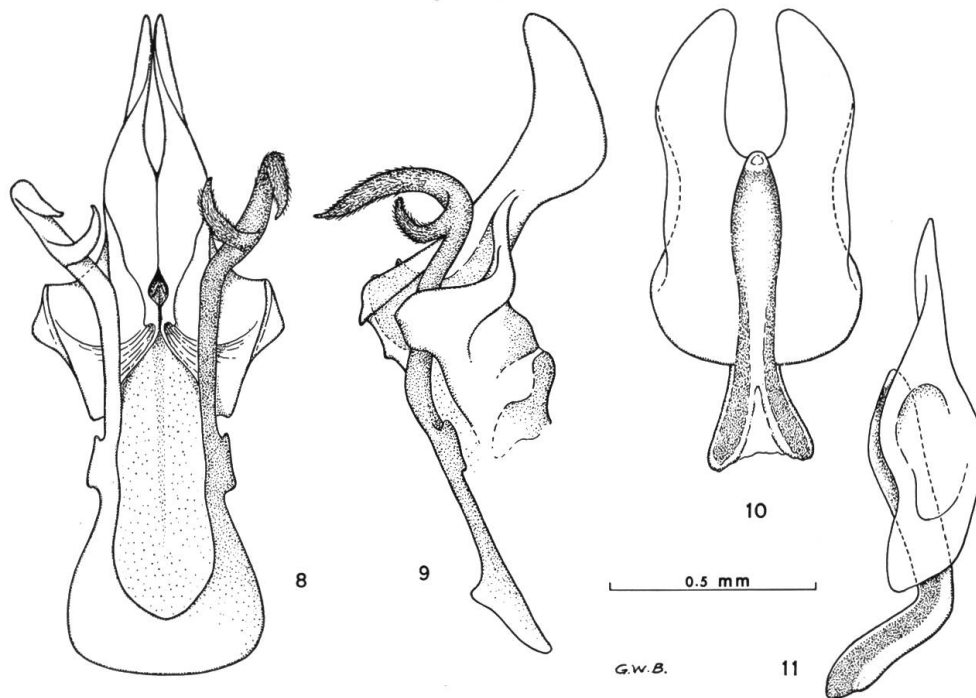
ra, tibiae and basitarsi sordid yellowish brown, tarsi darkening to black on apical tarsomere.

Wings lightly tinged with brown, bands and spots light to dark smoky brown. Apical band darkest anteriorly, fading or absent behind vein  $R_5$ . Pterostigmal band nearly black over stigma, entire and forked, but distal branch faint yet discernible behind vein  $M_1$ , proximal band darker, fading only near posterior margin of wing. Median spot from near C to a little behind  $R_{4+5}$  (more reduced in hind wings). Trace of basal band, as two small, diffuse spots, in one female paratype.

Abdomen of male: Terga 1-5 black, corresponding sterna dark blackish brown. Segment 6 dark brown anteriorly, yellowish brown on posterior one-third; segments 7-8 yellowish brown narrowly bordered with dark brown posteriorly; genital bulb yellowish brown except dististyles and apex of tergum 9 dark brown. Notal organ (posterior process of tergum 3) broad at base, slender and curved downward apically (figs. 5, 6). Hypovalves (figs. 2, 3) somewhat rolled, convex ventrolaterally, concave mesally, pale at tips, with lateral apical corner slightly extended and curled over ventral apex (fig. 2); hairs longest along ventromesal margins and near tips. Tergum 9 (fig. 4) narrowed and rounded at apex. Outer margins of dististyles slightly concave a little before mid-length (fig. 1); basal lobe of each dististyle prolonged ventrad, rounded and somewhat flattened, bearing numerous long hairs. Ventral parameres elongate, slender, darkly sclerotized, forked near apex with both branches curved (one ventrad, one caudad) and covered with fine short hairs (figs. 8, 9), attached to aedeagus only in basal one-third (portion concealed by membranous pouches). Dorsal parameres greatly enlarged (figs. 8, 9), expanded dorsad and caudad as subparallel pale blades. Lateral processes recurved at outermost tips, each forming a shallow mesal concavity. Ventral valves of aedeagus small, their ventral edges divergent and curved, prolonged dorsad and caudad to join dorsal parameres. Dorsal valves minute, blackened, inconspicuous, set in recess above ventral valves (fig. 8).

Abdomen of female: Terga 1-5 black, corresponding sterna brown to dark brown; tergum 6 dark brown, terga 7-9 yellowish brown; cerci black. Abdomen short and thick in all females seen. Subgenital plate (fig. 7) slightly narrowed toward apex, broadly and shallowly notched at tip. Genital plate weakly sclerotized, with more darkly sclerotized axial portion having anterior apodemes elongate, slightly divergent, but strongly deflected ventrad (figs. 10, 11).

Body length, male, about 14 mm; female, about 13 mm. Front wing



Figs. 8—11 *Neopanorpa ramulata* n. sp. 8, aedeagus of male paratype, ventral aspect. 9, same, right lateral aspect. 10, genital plate, female allotype, ventral aspect. 11, same, right lateral aspect.

length, male, 15.2 mm (holotype) to 15.8 mm; female, 14.2 to 15.0 mm (allotype 15.0 mm). Antennal length, male, about 14 mm; female, about 12 mm.

Holotype, male, Tongsa (Tongsa Dzong, 27° 33'N, 90° 30'E), Bhutan, 2150 m, 24 June 1972, collection no. 50, Naturhistorisches Museum Basel Bhutan Expedition. Allotype and 1 ♀ paratype, same data as for holotype. One ♂, 1 ♀ paratypes, Changra, 18 km south of Tongsa, 1900 m, 22 June 1972, collection no. 49. Holotype, allotype and 1 ♀ paratype in collection of the Naturhistorisches Museum Basel; 1 ♂, 1 ♀ paratypes in the Snow Entomological Museum, University of Kansas, Lawrence, Kansas, USA.

*Neopanorpa ramulata* appears to be most closely related to *N. chillcotti* Byers and *N. nipalica* (Navás), both from Nepal, and somewhat less so to *N. contracta* Cheng. Like these species, *ramulata* has slender ventral parameres and conspicuously developed dorsal parameres, in the male, and in the female a large genital plate, the axial portion of which is strongly sclerotized and bears divergent anterior apodemes. From these species, males of *ramulata* may be readily differentiated by shape of hypovalves, shape of basal lobe of the dististyles, and the peculiar, antler-like branched ventral paramere-

res, from which the species takes its name (Latin *ramulata* = having small antlers, or branches). In aedeagal structure, *ramulata* approaches some species of *Panorpa*, particularly in the shapes of dorsal and ventral parameres. The genital plate of the female likewise resembles that of many species of *Panorpa*.

**Neopanorpa** - n. sp., unnamed

Two females from Changra, 18 km south of Tongsa, 22 June 1972, collection no. 49, represent this undescribed species. These are of approximately the size of *N. ramulata*. They have the genital plate reduced, more typical of the regional species of their genus. The subgenital plate, seen in ventral aspect, has darkened, somewhat projecting, bluntly angular lateral margins and a deeply notched apex. Wing markings are more extensive than in *N. ramulata*, and the membrane is more strongly tinged with yellow. Description of the species is deferred until male specimens are available.

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Author's address:

Prof. Dr. George W. Byers, The University of Kansas  
Department of Entomology  
Lawrence, Kansas 66044 USA

