

New and little known species of Dolichopodidae from China (I)

by Ding YANG

Abstract

Thirteen new species (*Hercostomus hunanensis*, *Paraclius basiflavus*, *Hypocharassus sinensis*, *Liancalus maculosus*, *L. shandonganus*, *L. sinensis*, *Diostracus emeiensis*, *D. zhangjiajiensis*, *Hydrophorus polychaetus*, *H. qinghaiensis*, *Rhaphium xinjiangense*, *R. baihuashanum*, *R. gansuanum*) are described from China. Two species (*Diostracus nebulosus* TAKAGI, *Hydrophorus rasnitsyni* NEGROBOV) are newly recorded from China.

Key words: Dolichopodidae, new species, China

Introduction

The Chinese fauna of Dolichopodidae is not well known. The present paper is the first in a series dealing with the Chinese fauna. Here I describe 13 species as new to science, while 2 species are recorded for the first time from China. The types of the new species are mainly deposited in the Insect Collection of China Agricultural University (CAU) except for some paratypes kept in the Institut Royal des Sciences naturelles de Belgique (IRSN).

Subfamily Dolichopodinae

Hercostomus (Hercostomus) hunanensis sp. nov.
(Figs. 1-2)

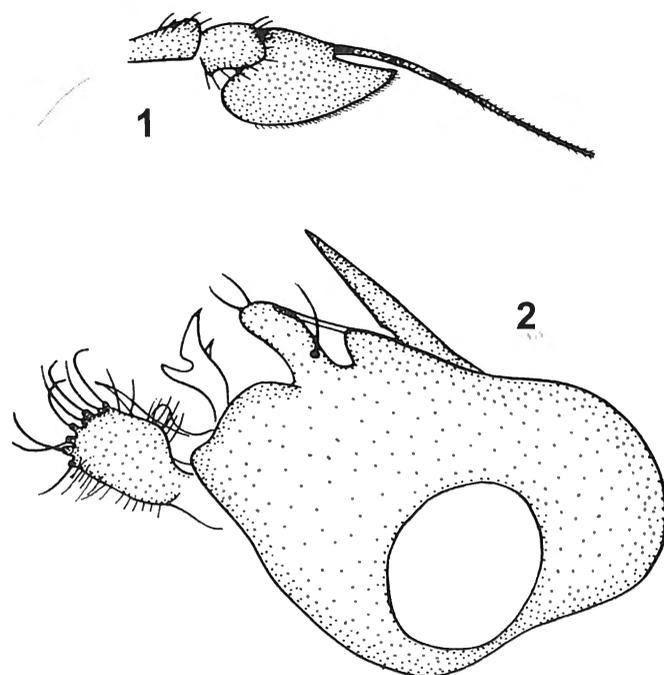
Diagnosis. Postocular hairs wholly black. Antenna entirely black; first flagellomere acute apically. Legs blackish to black with tibiae dark yellow to yellow, and fore and mid tarsomere 1 (except tip) dark yellow.

Male. Body length 3.2 mm, wing length 3.0 mm.

Head metallic green with pale gray pruinosity. Hairs and bristles on head black; postocular hairs wholly black. Antenna entirely black; first flagellomere 1.8 times as long as wide, acute apically; arista broken apically dorsal, black, minutely pubescent. Proboscis brown with black hairs; palpus dark brown with black hairs.

Thorax metallic green with thin pale gray pruinosity. Hairs and bristles on thorax black; 7-8 irregularly paired acr, short and hair-like; 6 uniformly strong dc; lateral scutellar bristle short and hair-like. Legs blackish to black; all coxae black; tibiae dark yellow to yellow; fore and mid tarsomere 1 (except tip) dark yellow. Hairs and bristles on legs black; mid and hind coxae with 1 bristle, mid and hind femora with 1 preapical bristle; fore tibia with 1 anterior dorsal bristle, 2 posterior dorsal bristles, 1 posterior ventral bristle and 1 long black apico-ventral bristle; mid tibia with 3 anterior dorsal bristles, 2 posterior dorsal bristles and 1 anterior ventral bristle; hind tibia with 2 anterior dorsal bristles, 3 posterior dorsal bristles and 1 anterior ventral bristle.

Relative lengths of segments of legs LI (fore leg) 2.7: 2.9: 1.2: 0.7: 0.6: 0.35: 0.4; LII (mid leg) 3.4: 4.0: 1.7: 1.1:



Figs. 1-2. – *Hercostomus (Hercostomus) hunanensis* sp. nov., male. 1: antenna, lateral view; 2: genitalia, lateral view.

0.8: 0.7: 0.4; LIII (hind leg) 4.0: 4.2: 1.3: 1.7: 1.15: 0.85: 0.6. Wing nearly hyaline; veins dark brown; R4+5 and M weakly convergent, CuAx ratio (length of m-cu/length of CuA distal section) 0.5. Squama yellow with black hairs. Halter yellow.

Abdomen metallic green with black hairs. Male genitalia (Fig. 2): Epandrium distinctly longer than wide, slightly narrow apically, with distinct lateral lobe; cercus nearly quadrate with short marginal denticles; hypandrium acute apically; aedeagus thin and straight.

Female. Unknown.

Holotype ♂, Hunan: Chengbuxian, 1985. VIII. 5, Yongxin XU. (CAU).

Distribution. China (Hunan).

Remarks. This new species is very similar to *H. (H.) xinjianganus* YANG from Xinjiang, but differs from the latter in the following characters: first flagellomere acute apically; legs blackish to black with tibiae dark yellow to yellow and fore and mid tarsomere 1 (except tip) dark yellow. In *xinjianganus*, the first flagellomere is obtuse apically, legs are entirely black.

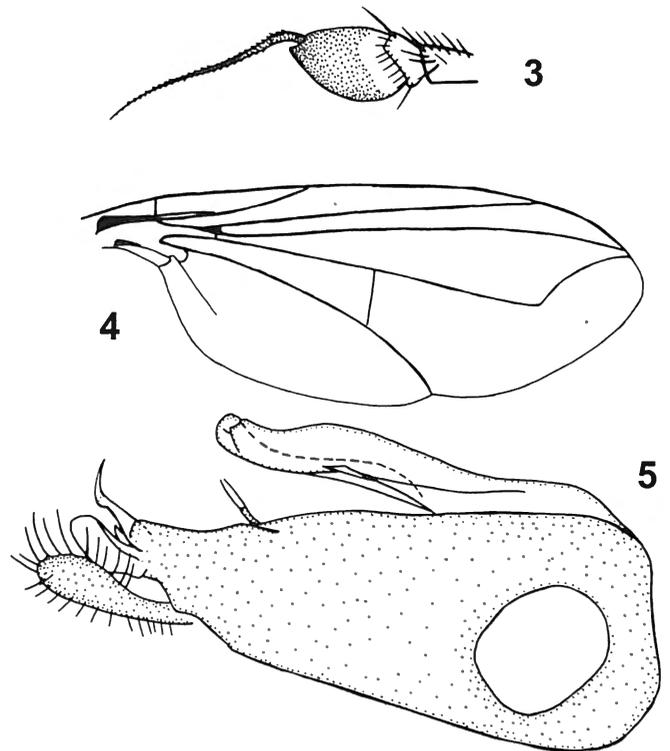
Paraclius basiflavus sp. nov. (Figs. 3-5)

Diagnosis. Antenna yellow with first flagellomere black except base; first flagellomere acute apically; arista arising near tip of first flagellomere. M strongly curved forward and close to R4+5 apically.

Male. Body length 6.3 mm, wing length 4.4 mm.

Head metallic green with pale gray pollen. Hairs and bristles black; middle and lower postocular hairs pale yellow. Face rather narrow. Antenna yellow; first flagellomere black except base, 1.4 times longer than wide, acute apically; arista arising near tip of first flagellomere, black, and very short pubescent. Proboscis brownish and palpus brown, with black hairs.

Thorax metallic green, with thin pale gray pollen. Mesonotum without distinct dark spots. Hairs and bristles black; 7-8 irregularly paired acr short, 6 strong dc; lateral scutellar bristle short. Legs yellow; fore coxa yellow but darker basally, mid and hind coxae blackish; apex of hind femur and entire hind tarsus black; fore tarsus yellow, mid tarsus from tip of tarsomere 1 onward dark brown. Hairs and bristles on legs black; fore coxa with 4 anterior bristles; mid and hind coxae with 1 black bristle; mid and hind femora with 1 preapical bristle. Fore tibia with 3 anterior dorsal bristles, 4 dorsal bristles and 2 posterior dorsal bristles; mid tibia with 4 anterior dorsal bristles, 3 posterior dorsal bristles and 1 anterior ventral bristle; hind tibia with 4 anterior dorsal bristles, 1 dorsal bristle and 4 posterior dorsal bristles. Relative lengths of segments of legs LI 4.9: 4.3: 1.8: 0.7: 0.5: 0.4: 0.4; LII 6.1: 6.3: 2.7: 1.3: 1.1: 0.7: 0.6; LIII 6.1: 7.1: 1.9: 2.8: 1.9: 1.1: 0.7. Wing hyaline; veins dark brown; M strongly curved



Figs. 3-5. — *Paraclius basiflavus* sp. nov., male. 3: antenna, lateral view; 4: wing; 5: genitalia, lateral view.

forward and close to R4+5 apically. Squama pale yellow with black hairs. Halter yellow.

Abdomen metallic green with black hairs. Male genitalia (Fig. 5): Epandrium much longer than wide, narrowing toward apex, with a short and thin lateral lobe; cercus band-like, obtuse apically; hypandrium rather thick and weakly curved.

Female. Unknown.

Holotype ♂, Guangxi: Yinglou, 1995. X. 25, Tiansheng PU. (CAU).

Distribution. China (Guangxi).

Remarks. This species is similar to *maculatus* DE MEIJERE from Taiwan and Indonesia, but differs from the latter in the following characters: antennal first flagellomere black with yellow base; mesonotum without distinct dark spots; mid femur without ventral bristles; in *maculatus*, antennal first flagellomere black, mesonotum with darker spots, mid femur with long ventral bristles (DE MEIJERE, 1916).

Subfamily Hydrophorinae

Genus *Hypocharassus* MIK

Diagnosis. Antennal scape haired or bare dorsally; first flagellomere rather large and thick, and furcate, with

arista somewhat thickened and shorter than first flagellomere. Scutellum with more than 2 strong bristles. Abdomen distinctly flattened dorso-ventrally.

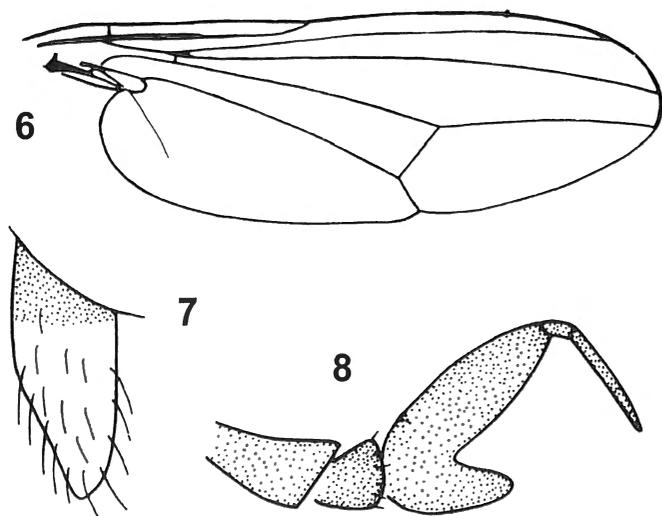
One species was known from Taiwan (BECKER, 1922). Another new species is recorded here.

Hypocharassus sinensis sp. nov. (Figs. 6-8)

Diagnosis. Antennal scape bare dorsally; first flagellomere with a short and thick ventral projection. Wing hyaline.

Female. Body length 13.6 mm, wing length 13.4 mm. Head metallic green with white pollen. Eyes widely separated with short pale hairs. Hairs and bristles on head black, lower postocular hairs pale. Ocellar bristles short and thick. Antenna black; scape bare dorsally; first flagellomere large with a short and thick ventral projection; arista somewhat thick, 2-segmented, shorter than first flagellomere. Proboscis black; palpus yellow with blackish base, and pale haired.

Thorax metallic green with white pollen. Hairs and bristles on thorax black; bristles rather short; humeri with 1 bristle and some short white hairs; irregularly paired acr, 17-18 dc; scutellum with 10 bristles; proepisternum with white hairs. Legs dark brown to black; knees yellow; fore and mid tarsomeres 1-4 (except tip of each segment) yellow. Hairs and bristles on legs black; coxae without hairs; hind femur with 1 short preapical bristle; fore tibia with 3 anterior dorsal bristles, 2 posterior dorsal bristles and 2 posterior ventral bristles; mid tibia with 2 posterior dorsal bristles and 2 lateral bristles; hind tibia with 3 anterior dorsal bristles and 3 posterior dorsal bristles. Empodium elongated and curved knife-shaped. Wing hyaline; veins black; R4+5 and M convergent, CuAx ratio 1.4. Squama pale yellow with pale hairs. Halter pale yellow.



Figs. 6-8. — *Hypocharassus sinensis* sp. nov., female. 6: wing; 7: palpus; 8: antenna, lateral view.

Abdomen rather thick and distinctly flattened dorso-ventrally, metallic green with black hairs.

Male. Unknown.

Holotype ♀, Guangxi: Yinglou, 1995. IV. 5, Tiansheng PU. (CAU).

Distribution. China (Guangxi).

Remarks. This species is similar to *H. farinosus* BECKER from Taiwan, but may be separated from the latter by having the squama and halter yellow and wing hyaline. In *farinosa*, the squama and halter are brown and the wing somewhat grayish (BECKER, 1922). It may be separated from *gladiator* MIK and *pruinosis* (WHEELER) from North America by having the bare antennal scape. The antennal scape in *gladiator* and *pruinosis* is haired dorsally (BECKER, 1922), but is unknown in *farinosus*.

Genus *Liancalus* LOEW

Diagnosis. Scutellum usually with 6 marginal bristles. Pro-epimeron with a finger-like projection just behind the fore coxa. Hind tarsomeres 1-2 much elongated, subequal in length. Cross vein m-cu distinctly oblique, much longer than final section of 5th longitudinal veins.

Two species were recorded from China by BECKER (1922) and WEI & LIU (1995). Here 3 new species are added to the fauna of China. A key to the known species from China is presented.

Key to species of *Liancalus* from China

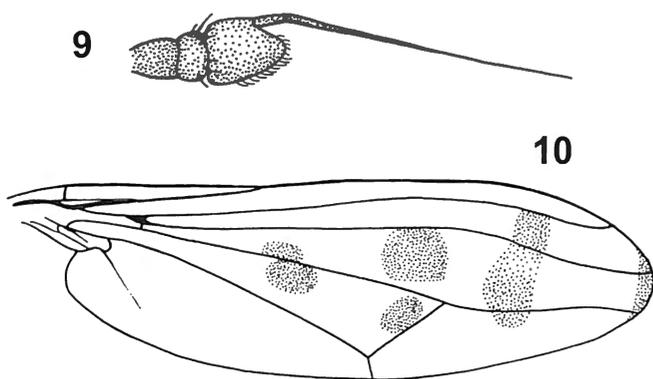
1. Mesonotum without acr 2
Mesonotum with acr 3
2. Wing with several brown spots; scutellum with 6 marginal bristles. Hebei *maculosus* sp. nov.
Wing without any dark spots; scutellum with 4 marginal bristles. Shandong *shandonganus* sp. nov.
3. Male cercus rather short, not filiform 4
Male cercus slender and filiform. Hebei
..... *sinensis* sp. nov.
4. Lower postocular hairs black. Taiwan
..... *benedictus* BECKER
Lower postocular hairs yellow. Guizhou
..... *lasius* WEI & LIU

***Liancalus maculosus* sp. nov. (Figs. 9-10)**

Diagnosis. Wing with several brown spots. acr absent. Scutellum with 6 marginal bristles.

Female. Body length 6.9 mm, wing length 8.6 mm.

Head dark metallic green with gray pollen. Hairs and bristles black; lower postocular hairs pale. Antenna wholly black; first flagellomere nearly triangular, 1.1



Figs. 9-10. — *Liancalus maculosus* sp. nov., female. 9: antenna, lateral view; 10: wing.

times longer than wide; arista dorsal, black, and bare. Proboscis and palpus black with black hairs.

Thorax dark metallic green, with gray pollen. Mesonotum with one pair of dark brown mid-longitudinal spots and one lateral dark brown spot. Hairs and bristles black; acr absent; 6 strong dc; scutellum with 6 marginal bristles which are not uniformly strong; proepisternum with pale hairs. Proepimeron with a finger-like projection just behind fore coxa. Legs entirely black. Hairs and bristles on legs black; coxae with pale hairs; mid and hind coxae with 1 black long bristle; mid and hind femora with 1 preapical bristle. Fore tibia with 3 anterior dorsal bristles, 2 posterior dorsal bristles and 2 posterior ventral bristles; mid tibia with 3 anterior dorsal bristles and 3 posterior dorsal bristles; hind tibia with 3 anterior dorsal bristles and 7-8 posterior dorsal bristles. Relative lengths of segments of legs LI 7.6: 7.4: 4.1: 1.7: 1.2: 0.9: 1.1; LII 9.4: 10.8: 9.0: 3.2: 1.6: 0.9: 1.0; LIII 13.2: 13.8: 6.4: 5.7: 2.2: 1.1: 1.2. Wing hyaline with several brown spots; veins black; R4+5 and M convergent apically. Squama yellow with yellow hairs. Halter dark brown.

Abdomen dark metallic green with gray pollen. Hairs black and pale.

Male. Unknown.

Holotype ♀, Hebei: Xinlong, 1973. VIII. 29, Chi-kun YANG. (CAU).

Distribution. China (Hebei).

Remarks. This new species may be separated from other known species from China by having the wing with several brown spots.

Liancalus shandonganus sp. nov. (Figs. 11-14)

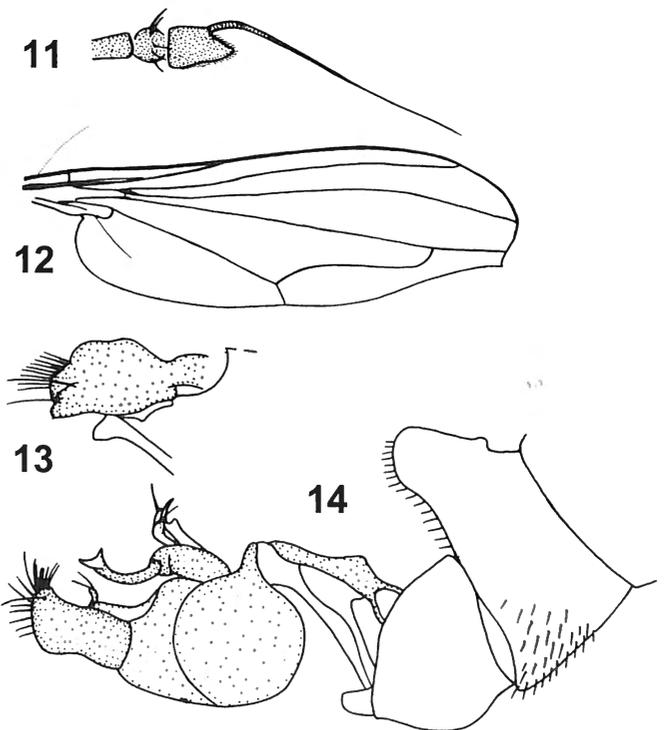
Diagnosis. Clypeus dark yellow. Wing hyaline. acr absent. Scutellum with 4 marginal bristles. Male fore tarsomeres 2-3 somewhat flattened with brush-like ven-

tral hairs on tarsomere 2. Male cercus rather short and broad.

Male. Body length 5.4 mm, wing length 5.7 mm.

Head metallic green with pale gray pollen; clypeus dark yellow. Hairs and bristles black; lower postocular hairs pale. Antenna wholly black; first flagellomere nearly triangular, 1.2 times longer than wide; arista dorsal, black, and bare. Proboscis and palpus black with black hairs.

Thorax metallic green, with pale gray pollen. Hairs and bristles black; acr absent; 6 strong dc; scutellum with 4 marginal bristles which are not uniformly strong; proepisternum with pale hairs. Proepimeron with a finger-like projection just behind fore coxa. Legs entirely black. Hairs and bristles on legs black; coxae with pale hairs; fore coxa with 1 strong black bristle anteriorly; mid and hind coxae with 1 black long bristle; mid and hind femora with 1 preapical bristle. Fore tibia with 2 anterior dorsal bristles and 1 posterior dorsal bristle; mid tibia with 2 anterior dorsal bristles; hind tibia with 3 anterior dorsal bristles and 2 posterior dorsal bristles. Fore tarsomeres 2-3 somewhat flattened with brush-like ventral hairs on tarsomere 2. Relative lengths of segments of legs LI 6.35: 6.2: 2.6: 2.1: 1.9: 1.0: 0.7; LII 8.2: 10.2: 11.3: 7.1: 3.6: 1.1: 0.8; LIII 13: 15: 8: 9.6: 3.9: 1.1: 0.8. Wing hyaline with posterior apical angle; veins dark brown; R4+5 and M convergent apically. Squama yellow with yellow hairs. Halter brownish yellow.



Figs. 11-14. — *Liancalus shandonganus* sp. nov., male. 11: antenna, lateral view; 12: wing; 13: cercus, dorsal view; 14: genitalia, lateral view.

Abdomen metallic green with pale gray pollen. Hairs black; tergites 1-3 and sternites 1-4 with pale hairs. Male genitalia (Figs. 14): Epandrium somewhat narrow apically; cercus (Fig. 13) rather short and broad, with apical marginal hairs; hypandrium short and thick with a curved lateral arm.

Female. Unknown.

Holotype ♂, Shandong: Taishan Mountain, 1974. IX. 22, Chi-kun YANG. (CAU).

Distribution. China (Shandong).

Remarks. This new species is somewhat similar to *maculosus* sp. nov., but differs from the latter by having the wing without markings and scutellum with 4 marginal bristles.

Liancalus sinensis sp. nov. (Figs. 15-18)

Diagnosis. Narrow brown apex of wing with a hyaline spot. acr present. Scutellum with 6 marginal bristles. Male cercus very long and filiform.

Male. Body length 7.2-7.8 mm, wing length 7.8-8.0 mm. Head dark metallic green with gray pollen. Hairs and bristles black; lower postocular hairs pale. Antenna wholly black; first flagellomere nearly triangular, 1.3 times longer than wide; arista dorsal, black, and bare. Proboscis and palpus black with black hairs.

Thorax dark metallic green, with gray pollen. Mesonotum with one pair of dark brown mid-longitudinal spots and one lateral dark brown spot. Hairs and bristles black; 1-3 very short acr; 6 strong dc; scutellum with 6 marginal bristles uniformly strong; proepisternum with pale long hairs.

Proepimeron with a finger-like projection just behind fore coxa. Legs entirely black. Hairs and bristles on legs black; coxae with pale thin hairs; fore coxa with 2-4 strong black hairs apically; mid and hind coxa with 1 black long bristle; mid and hind femora with 1 preapical bristle. Fore tarsomere 2 very short. Fore tibia with 3 anterior dorsal bristles, 2-3 posterior dorsal bristles and 3-4 posterior ventral bristles; mid tibia with 3 anterior dorsal bristles and 2 posterior dorsal bristles; hind tibia with 4 anterior dorsal bristles, 8-9 posterior dorsal bristles and 3 anterior ventral bristles. Relative lengths of segments of legs LI 8.6: 7.5: 3.2: 0.9: 1.75: 1.3: 1.0; LII 10.2: 13: 11.4: 4.9: 2.4: 1.1: 1.2; LIII 15: 17: 8.2: 7.2: 3.1: 1.0: 1.1. Wing hyaline, its narrow apex brown with a hyaline spot (without hairs); veins black; R4+5 and M convergent apically. Squama dark yellow with yellow hairs. Halter brown.

Abdomen dark metallic green with gray pollen. Hairs black; tergites 1-2 with pale hairs. Male genitalia (Fig. 17): epandrium distinctly narrow apically, with a sclerotized and acute lateral lobe; cercus very long and

filiform, with rather thick base (Fig. 18); hypandrium with distinctly curved lateral lobe.

Female. Unknown.

Holotype ♂, paratype 1 ♂, Hebei: Xinlong, 1973. VIII. 29, Chi-kun YANG. (CAU).

Distribution. China (Hebei).

Remarks. This new species is similar to *virens* (SCOPOLI) from the Palaearctic region including North Africa, but differs from the latter by having the narrow apex of wing brown with a hyaline spot; in *virens*, dark area in wing extending over two-fifths of wing anteriorly (DYTE, 1967; NEGROBOV, 1978).

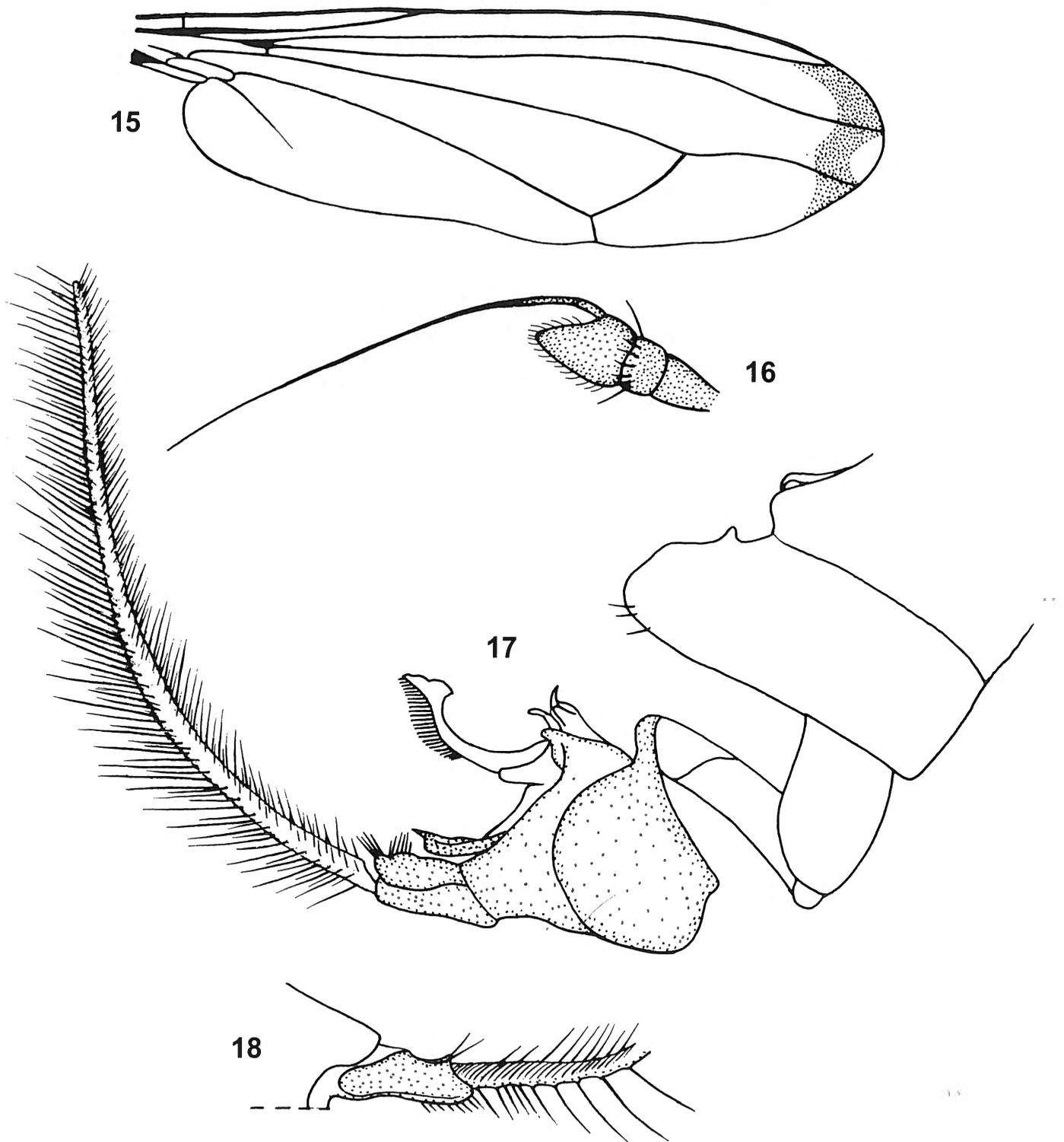
Genus *Diostracus* LOEW

Diagnosis. Palpus rather large and free. acr absent; 1-2 strong notopleural bristles. Scutellum with 2 strong bristles. Cross vein m-cu usually vertical, longer than final section of 5th longitudinal vein.

Six species were known to occur in China (TAKAGI, 1968; WEI & LIU, 1996). Two new species and 1 newly recorded species are added to the Chinese fauna. A key to the known species from China is presented.

Key to species of *Diostracus* from China

1. Fore coxae and femora yellow 2
Coxae and femora black 3
2. Antenna black; legs yellow with mid and hind coxae dark brownish yellow, tibiae (except base) and tarsi black. Hunan *zhangjiajiensis* sp. nov.
Antenna dark yellow; legs yellow red except mid and hind coxae dark brown. Guizhou
..... *dicercaeus* WEI & LIU
3. Anterior notopleural bristle absent; male cross-vein m-cu strongly bent 4
Anterior notopleural bristle present; cross-vein m-cu straight 6
4. Palpus more or less blue or metallic blue-green ... 5
Palpus yellow. Sichuan *nemeiensis* sp. nov.
5. Male cercus short and broad. Guizhou
..... *albuginosus* WEI & LIU
Male cercus long and stripe-like. Guizhou
..... *lamellatus* WEI & LIU
6. Arista dorsal 7
Arista subapical; sutural and postsutural bristles absent; cross vein m-cu with a jet black nodule. Taiwan
..... *saigusai* TAKAGI
7. Sutural bristle absent 8
Sutural bristle present. Taiwan *kimotoi* TAKAGI
8. Postsutural bristle absent. Xizang
..... *nebulosus* TAKAGI
Postsutural bristle present. Taiwan
..... *undulatus* TAKAGI



Figs. 15-18. — *Liancalus sinensis* sp. nov., male. 15: wing; 16: antenna, lateral view; 17: genitalia, lateral view; 18: basal portion of cercus, dorsal view.

Diostracus emeiensis sp. nov. (Figs. 19-22)

Diagnosis. Palpus yellow with golden yellow pollen. Antennal arista dorsal. 7 dc. Fore trochanter with many short black bristles below. Cross-vein m-cu strongly bent.

Male. Body length 6.0 mm, wing length 6.3 mm.

Head dark metallic green with pale gray pollen. Hairs

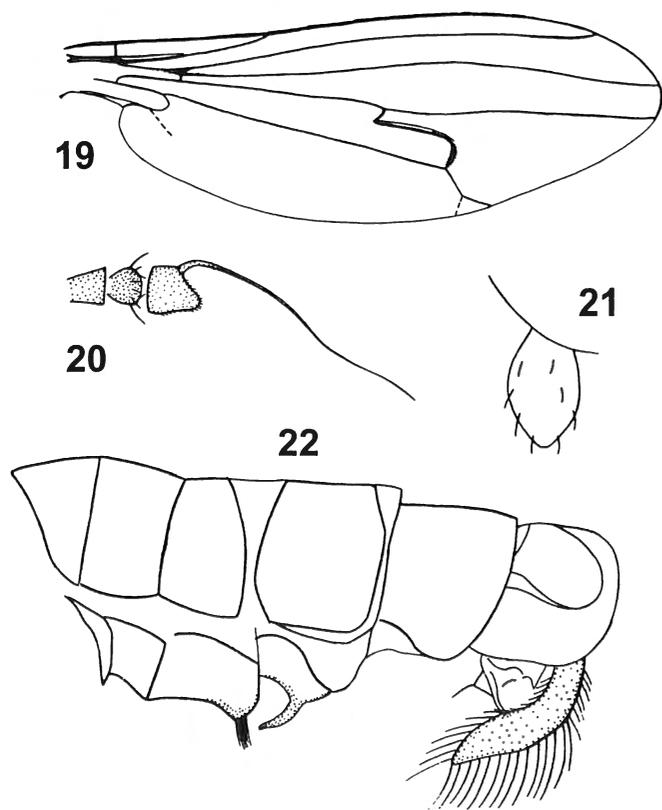
and bristles on head black, but middle and lower post-ocular hairs pale; vertical bristle rather short, shorter than first flagellomere. Antenna black; first flagellomere nearly triangular, 1.1 times longer than wide; arista dorsal, black, nearly bare. Proboscis black; palpus yellow, with golden yellow pollen, short pale haired.

Thorax dark metallic green with pale gray pollen; mesonotum with 1 grayish black mid-longitudinal spot.

Hairs and bristles on thorax black; 1 humeral bristle, acr absent, 7 dc (anterior 2 and most posterior 1 longer), 1 presutural bristle, 1 notopleural bristle (anterior notopleural bristle absent), sutural bristle absent; scutellum with 2 pairs of marginal bristles (lateral ones short and hair-like). Legs black; hairs and bristles on legs black; coxae with pale hairs; fore coxa with 3 black bristles on apical anterior margin; fore trochanter with many short black bristles below; fore femur with 1 dorsal bristle at base; fore tibia with 4 anterior dorsal bristles and 5 posterior ventral bristles; mid femur with 1 preapical bristle, 6 short anterior ventral bristles and 3 weak posterior ventral bristles; mid tibia with 4 anterior dorsal bristles; hind femur with 1 preapical bristle, 6-7 weak anterior ventral bristles and 1 posterior ventral bristle; hind tibia with 4 anterior dorsal bristles, 2 posterior dorsal bristles and 5 anterior ventral bristles. Relative lengths of segments of legs LI 5.2: 5.8:?:?:?:?:?; LII 7.1: 7.0: 4.2: 1.7: 1.2: 0.8: 1.0; LIII 9.0: 8.9: 4.1: 2.4: 1.8: 1.1: 1.1. Wing grayish; veins dark brown; cross vein m-cu strongly bent. Squama brownish yellow with pale hairs. Halter yellow.

Abdomen dark metallic green with pale gray pollen. Hairs on abdomen short and black; tergites 1-2 with pale hairs, tergite 1 also with some brownish yellow marginal bristles.

Sternite 3 projected posteriorly with dense hairs; ster-



Figs. 19-22. — *Diostracus emeiensis* sp. nov., male. 19: wing; 20: antenna, lateral view; 21: palpus; 22: genitalia, lateral view.

nite 4 with a pair of projections strongly curved forward; cercus band-like, with long hairs (Fig. 22).

Female. Unknown.

Holotype ♂, Sichuan: Emei Mountain (1800-2100 m), 1955. VI. 24, Xinchu YANG. (CAU).

Distribution. China (Sichuan).

Remarks. This new species is similar to *lamellatus* WEI & LIU from Guizhou, but may be separated from the latter by having the yellow palpus and 7 dc.

Diostracus nebulosus TAKAGI (Figs. 23-26)

Diostracus nebulosus TAKAGI, 1972, J. nat. Hist. 6: 531. Type locality: Nepal.

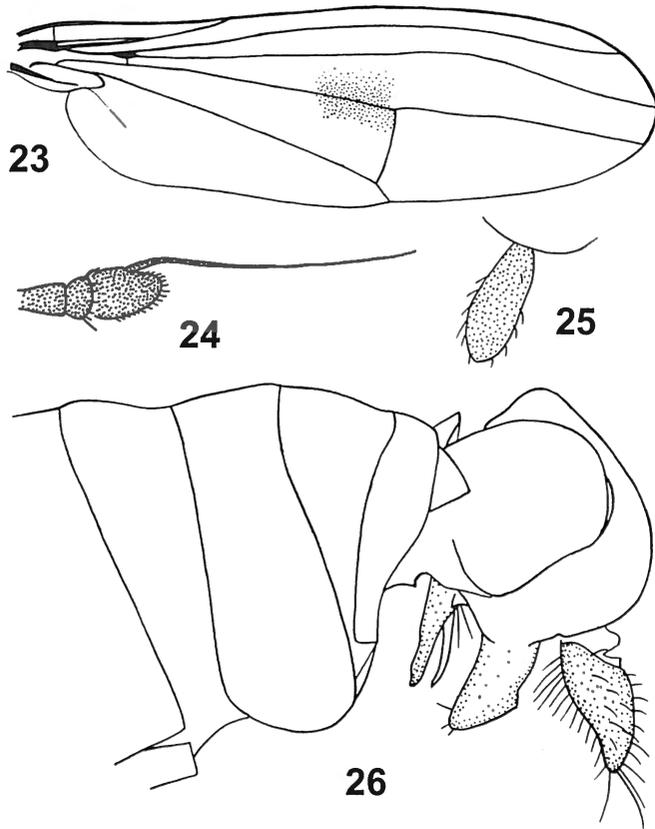
Diagnosis. Palpus black. Antennal arista dorsal. 5 dc. Fore coxa with 2 short thick bristles on apical tubercle. Wing with a large dark cloud around antero-apical portion of discal cell; cross vein m-cu nearly straight.

Male. Body length 4.9 mm, wing length 7.5 mm.

Head dark metallic green with gray brown pollen. Hairs and bristles on head black, but middle and lower postocular hairs yellow; vertical bristle rather short, shorter than first flagellomere. Antenna black; first flagellomere obtuse apically, 1.2 times longer than wide; arista dorsal, black, nearly bare. Proboscis dark brown with pale hairs; palpus black, with shiny white pollen, short black haired.

Thorax dark metallic green with gray brown pollen. Hairs and bristles on thorax black; 1 humeral bristle, acr absent, 5 dc (most posterior 1 stronger), 1 presutural bristle, 2 notopleural bristles, sutural and postsutural bristles absent; scutellum with 2 marginal bristles and 2 thin lateral hairs. Proepisternum with pale hairs and 1 long strong pale hair on lower portion. Legs black; hairs and bristles on legs black; coxae with pale hairs; fore coxa with 2 short thick black bristles on apical tubercle and 5 black marginal bristles apically; fore femur with one row of 5-6 ventral bristles; fore tibia with 3 anterior dorsal bristles, 2 posterior dorsal bristles and 3 posterior ventral bristles; fore tarsomere 1 with apical 1/3 somewhat swollen with one row of 5 ventral bristles; mid tibia with 3 anterior dorsal bristles and 1-2 posterior dorsal bristles; hind femur with 1 preapical bristle, 1 anterior ventral bristle at middle; hind tibia with 4 anterior dorsal bristles, 3 posterior dorsal bristles, 4-5 anterior ventral bristles and 6-7 posterior ventral bristles; hind tarsomere 1 with 3 anterior ventral bristles and 1 ventral bristle (at base). Relative lengths of segments of legs LI 6.0: 6.2: 3.1: 3.1: 2.0: 1.0: 1.1; LII 10.0: 11.1: 5.2: 2.3: 1.7: 0.9: 1.2; LIII 11.7: 12.2: 5.0:?:?:?:?. Wing weakly grayish, with a large dark cloud around antero-apical portion of discal cell; veins dark brown; cross vein m-cu more or less straight. Squama yellow with pale hairs. Halter yellow.

Abdomen dark metallic green with gray brown pollen.



Figs. 23-26. — *Diostracus nebulosus* TAKAGI, male. 23: wing; 24: antenna, lateral view; 25: palpus; 26: genitalia, lateral view.

Hairs on abdomen black. Male genitalia (Fig. 26): Epandrium with rather large surstylus; cercus nearly triangular; hypandrium thick and more or less tapering toward apex; aedeagus thin and weakly curved.

Female. Not available.

Specimen examined. 1 ♂, Xizang: Nyalam (3000 m), 1966. V. 18, Shuyong WANG. (CAU).

Distribution. China (Xizang); Nepal.

This species is recorded for the first time from China.

***Diostracus zhangjiajiensis* sp. nov. (Figs. 27-30)**

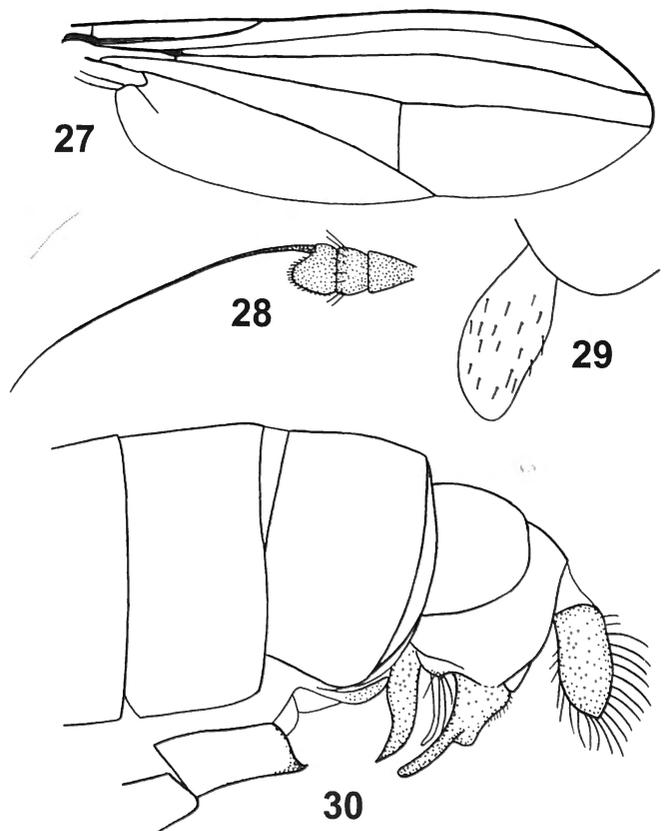
Diagnosis. Palpus yellow with golden yellow pollen. Antennal arista dorsal. 6 dc. Legs yellow; mid and hind coxae dark brownish yellow, tibiae (except base) and tarsi black. Cross vein m-cu straight.

Male. Body length 6.3 mm, wing length 7.0 mm.

Head dark metallic green with pale gray pollen. Hairs and bristles on head black, but lower postocular hairs pale; vertical bristle strong, longer than first flagellomere. Antenna black; first flagellomere somewhat triangular, 1.1 times longer than wide; arista dorsal, black, nearly

bare. Proboscis brown with pale hairs; palpus yellow, with golden yellow pollen, short black haired.

Thorax dark metallic green with pale gray pollen, mid-posterior part of mesonotum with yellow brown pollen; mesonotum with 1 pale brown mid-longitudinal spot. Hairs and bristles on thorax black; 1 humeral bristle, acr absent, 6 uniformly strong dc, 2 notopleural bristles, sutural and postsutural bristles absent; scutellum with 2 bristles and some short pale marginal hairs. Proepisternum with 1 black bristle and several pale hairs. Legs yellow; fore coxa yellow, mid and hind coxae dark brownish yellow; tibiae (except base) and tarsi black. Hairs and bristles on legs black; coxae with pale hairs, and black apico-anterior hairs; fore coxa with 1 black bristle on apical 1/5 of anterior margin; fore femur with 3 outer ventral bristle apically; fore tibia with 4 anterior dorsal bristles, 3 posterior dorsal bristles, 2 lateral bristles and 3 posterior ventral bristles; mid femur with 1 pre-apical bristle, 1 posterior ventral bristle apically; mid tibia with 4 anterior dorsal bristles, 3 posterior dorsal bristles and 5 posterior ventral bristles; hind femur with 1 pre-apical bristle; hind tibia with 4 anterior dorsal bristles, 3 posterior dorsal bristles and 4 anterior ventral bristles. Femora somewhat swollen with long pale ventral hairs basally; tibiae longer than femora. Relative lengths of segments of legs LI 7.1: 7.7: 3.8: 2.2: 1.75: 1.1: 1.1; LII 9.0: 11.0: 5.4: 2.0: 1.3: 0.9: 0.95; LIII 10.8: 12.3: 4.6: 3.0:



Figs. 27-30. — *Diostracus zhangjiajiensis* sp. nov., male. 27: wing; 28: antenna, lateral view; 29: palpus; 30: genitalia, lateral view.

2.1: 1.1: 1.1. Wing weakly grayish; veins dark brown; cross vein m-cu straight. Squama yellow with pale hairs. Halter yellow.

Abdomen dark metallic green with pale gray pollen. Hairs on abdomen short and black; tergite 1 with black bristles apically. Male genitalia (Fig. 30): Surstylus rather large with finger-like apical projection; cercus nearly uniformly wide; hypandrium curved and acute apically; aedeagus thin and curved.

Female. Unknown.

Holotype ♂, Hunan: Zhangjiajie, 1985. VII. 28, Yongxin Xu. (CAU).

Distribution. China (Hunan).

Remarks. This new species is similar to *dicercaeus* Wei & Liu from Guizhou, but may be separated from the latter in the following characters: antenna black, tibiae (except base) and tarsi black; in *dicercaeus*, antenna dark yellow with 3rd segment dark-red at base, legs yellow-red except for mid and hind coxae dark brown (WEI & LIU, 1996).

Genus *Hydrophorus* FALLEN

Diagnosis. Head with distinct cheek. Antennal first flagellomere with apical incision. Scutellum usually with 4 marginal bristles. Fore femur distinctly swollen with ventral spines; fore tibia with a row of ventral bristles.

Four species were known to occur in China (NEGROOV, 1991; DYTE, 1975). Here 2 new species and 1 newly recorded species are added to the Chinese fauna. A key to the known species (excluding *grisellus* BECKER from Taiwan) from China is presented.

Key to species of *Hydrophorus* from China

1. Fore coxa with black bristles 2
Fore coxa without black bristles 4
2. Proepisternum at most with 1 bristle 3
Proepisternum with 2-3 bristles. Xizang
..... *koznakovi* BECKER
3. Proepisternum with 1 black bristle; fore coxa with 1-2 black bristles at base; scutellum with 4 marginal bristles. Qinghai, Xinjiang *qinghaiensis* sp. nov.
Proepisternum without bristle; fore coxa with 4 black bristles on anterior margin of apical portion; scutellum with 6 marginal bristles ... *polychaetus* sp. nov.
4. Fore tibia with short dense ventral bristles and without apico-ventral projection 5
Fore tibia with rather long ventral bristles and apico-ventral projection bearing 1 distinct bristle. Xinjiang, Xizang, Shandong, Beijing, Taiwan
..... *praecox* (LEHMANN)
5. Wing tinged with grayish. Xinjiang
..... *rasnitsyni* NEGROBOV
Wing hyaline. Qinghai, Xizang ... *tibetanus* BECKER

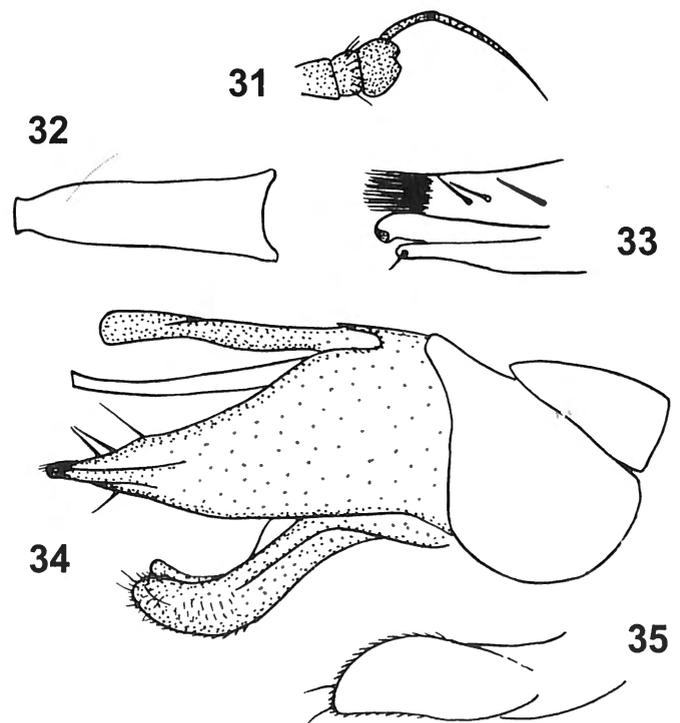
Hydrophorus polychaetus sp. nov. (Figs. 31-35)

Diagnosis. First flagellomere incised medially. Scutellum with 6 marginal bristles. Proepisternum with pale hairs, but without any black bristle on lower portion.

Male. Body length 4.3 mm, wing length 5.3 mm.

Head metallic green; frons, vertex and occiput with gray brown pollen; epistome and clypeus with dense pale pollen. Antenna black; first flagellomere 0.8 times longer than wide; arista subapical, nearly bare, with basal segment 0.4 times as long as apical segment. Hairs and bristles on head black, but lower postocular hairs pale; vertical bristle rather long, longer than width of first flagellomere. Proboscis black with black hairs; palpus black with pale hairs.

Thorax metallic green with dense pale gray pollen; dorsum more or less with gray brown pollen; pleuron with gray brown pollen on upper portion. Hairs and bristles on thorax black; 7 rather strong dc, 15-16 short ac; scutellum with 6 marginal bristles. Proepisternum with pale hairs, but without any black bristle on lower portion. Legs black. Hairs and bristles on legs black; coxae with pale hairs, fore coxa with 4 short black bristles on anterior margin, mid coxae with 3 black bristles on anterior margin. Fore femur more or less with 3 rows of ventral spines; fore tibia with 4 anterior dorsal bristles and one row of 15-18 distinct ventral bristles, its ventral tip projected with 1 bristle. Mid femur with 5 anterior dorsal bristles, 2 posterior dorsal bristles, 4 anterior ven-



Figs. 31-35. – *Hydrophorus polychaetus* sp. nov., male. 31: antenna, lateral view; 32: hypandrium, ventral view; 33: surstylus, ventral view; 34: genitalia, lateral view; 35: cercus, dorsal view.

tral bristles, and 3 posterior ventral bristles; mid tibia with 4 anterior dorsal bristles, 2 posterior dorsal bristles, 3 anterior ventral bristles, 2-3 lateral bristles, and 1 posterior ventral bristle. Hind femur with 4 anterior dorsal bristle, 2 posterior dorsal bristles, 3 anterior ventral bristles and 2 posterior ventral bristles; hind tibia with 5 anterior dorsal bristles, 2 posterior dorsal bristles, 3 anterior ventral bristles, 2 lateral bristles and 2 posterior ventral bristles. Relative length of segments of legs LI 4.3: 3.3: 2.0: 1.0: 0.8: 0.6: 0.7; LII 7.1: 5.6: 2.6: 1.65: 1.3: 0.9: 0.7; LIII 7.4: 6.6: 2.6: 1.8: 1.3: 0.95: 0.75. Wing hyaline; veins black, R4+5 and M convergent apically. Squama yellow with yellow hairs. Halter yellow with brown base.

Abdomen metallic green with dense pale gray pollen; hairs chiefly pale. Male genitalia (Figs. 32-35): Epanthrium much longer than wide, distinctly tapering apically; cercus band-like and curved in lateral view; hypanthrium rather thick; aedeagus thick and nearly straight.

Female. Unknown.

Holotype ♂, Xizang: Tingri (4300 m), 1974. VI. 2, Xuezhong ZHANG. (CAU).

Distribution. China (Xizang).

Remarks. This new species is easily separated from other known species from China by having the scutellum with 6 marginal bristles and fore coxa with 4 black bristles on the anterior margin of apical portion.

Hydrophorus praecox (LEHMANN)

Dolichopus praecox LEHMANN, 1822, Indic. scholar. Hamb. Gymn. Acad., p. 42. Type locality: "in agro Hamburgensis".

Diagnosis. Fore tibia with apico-ventral projection bearing a bristle. Posterior notopleural bristle somewhat close to anterior notopleural bristles and distinctly shorter.

Specimens examined. 31 ♂♂, 19 ♀♀, Xinjiang: Korla (1000-1020 m), 1958. VIII. 16, Changqing LI; 1 ♀, Shandong: Qingdao, 1960. V. 12; 4 ♂♂ 4 ♀♀, Xizang: lhasa (3660 m), 1960. V. 3, Chunguang Wang; 1 ♂ 1 ♀, Beijing: Xiyuan, 1955. V. 14, Chi-kun YANG; 1 ♀, Beijing: Xiyuan, 1951. V. 3, Chi-kun YANG. (CAU).

Distribution. China (Xinjiang, Shandong, Xizang, Beijing, Taiwan); Palaearctic region, India, North and South America, Australia, New Zealand.

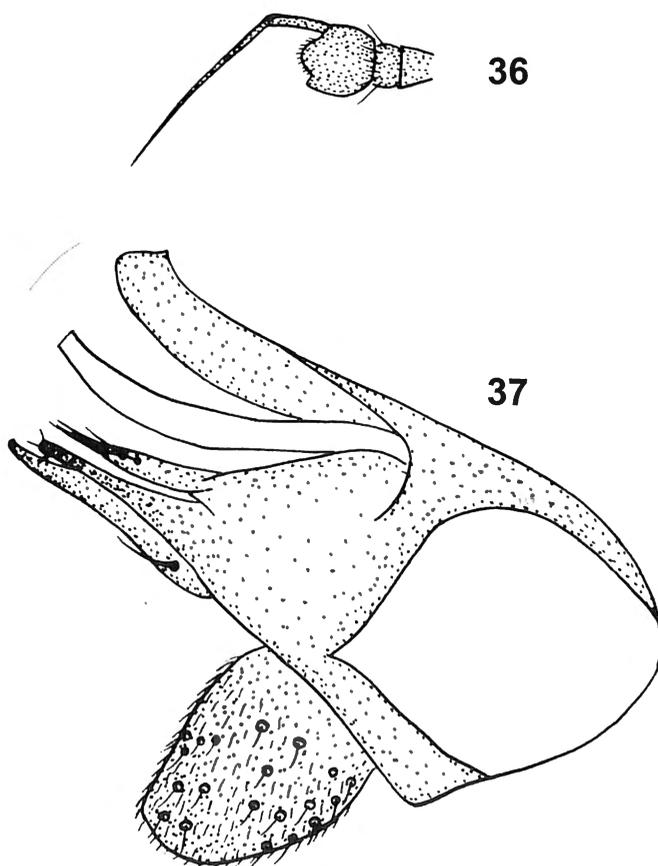
Hydrophorus qinghaiensis sp. nov. (Figs. 36-37)

Diagnosis. Fore coxa with 1-2 black bristles at base.

Male. Body length 3.3-3.6 mm, wing length 5.0-5.1 mm. Head metallic green with dense pale gray pollen; frons

darker, clypeus and lower margin of epistome with very dense pale pollen. Hairs and bristles on head black, but lower postocular hairs pale. Antenna black; first flagellomere as long as wide; arista black, subapical, nearly bare, with basal segment 0.3 times as long as apical segment. Proboscis black with black hairs; palpus black with black hairs.

Thorax metallic green with dense pale gray pollen; mesonotum and scutellum with gray brown pollen. Hairs and bristles on thorax black; 6-7 rather strong dc, 9 short ac; scutellum with 4 marginal bristles. Proepisternum with pale hairs, and with 1 black bristle on lower portion. Legs black. Hairs and bristles on legs black; coxae with pale hairs, fore coxa with 1-2 black bristles at base and 2 short black bristles on antero-apical margin. Fore femur more or less with 3 rows of ventral spines (inner row with 11 somewhat long spines, middle row with 20 very short spines, outer row with 4-5 thick spines on basal half); fore tibia with 6 anterior dorsal bristles and one row of 21 ventral bristles; fore tarsomere 1 with 3 ventral bristles. Mid femur with 2 anterior dorsal bristles, 2 anterior ventral bristles and 2 posterior ventral bristles; mid tibia with 2 anterior dorsal bristles, 2 anterior ventral bristles, 2 posterior ventral bristles. Hind femur with 2 anterior dorsal bristles, 2 anterior ventral bristles and 2 posterior ventral bristles; hind tibia with 3 anterior dorsal bristles, 2



Figs. 36-37. — *Hydrophorus qinghaiensis* sp. nov., male. 36: antenna, lateral view; 37: genitalia, lateral view.

posterior dorsal bristles, 2 anterior ventral bristles, 1 posterior ventral bristle; hind tarsomere 1 with 2 ventral bristles and 3 lateral bristles, hind tarsomere 2 with 5 short ventral bristles. Relative lengths of segments of legs LI 4.0: 3.6: 1.8: 0.9: 0.7: 0.3: 0.55; LII 6.6: 5.4: 2.0: 1.3: 1.0: 0.7: 0.7; LIII 7.2: 6.9: 2.5: 1.8: 1.2: 0.7: 0.75. Wing hyaline; veins black, R4+5 and M convergent apically. Squama yellow with yellow hairs. Halter yellow with brown base.

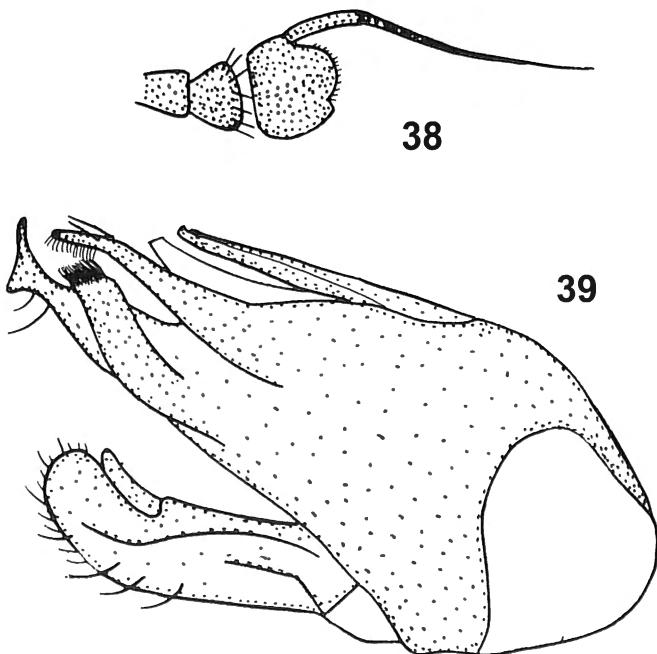
Abdomen metallic green with dense pale gray pollen; hairs black. Male genitalia (Figs. 37): Epandrium longer than wide; cercus rather short and broad; hypandrium rather thick, weakly curved apically; aedeagus thick and distinctly curved.

Female. Body length 2.9-3.6 mm, wing length 4.3-5.1 mm. Similar to male.

Holotype ♂, paratype 1♀, Qinghai: Dulan, 1950. VII. 31, Baoling LU and Chi-kun YANG. *Paratypes*: 1 ♂, same as holotype, 1950. VIII. 1; 1 ♂, Qinghai: Chimahe, 1950. VIII. 18, Baoling LU and Chi-kun YANG; 6 ♂♂, Xinjiang: Fukang (1910 m), 1959. VIII. 30, Changqing LI; 1 ♀, Xinjiang: Xiaotalate, 1956. VIII. 9, Weiyi YANG. (CAU & IRSN).

Distribution. China (Qinghai, Xinjiang).

Remarks. This new species is somewhat related to *polychaetus* sp. nov., but differs from the latter by having the proepisternum with 1 black bristles and fore coxa with 1-2 black bristles at base.



Figs. 38-39. — *Hydrophorus rasnitsyni* NEGROBOV, male. 38: antenna, lateral view; 39: genitalia, lateral view.

Hydrophorus rasnitsyni NEGROBOV (Figs. 38-39)

Hydrophorus rasnitsyni NEGROBOV, 1977, Flieg. pal. Reg., 4(5): 382. Type locality: Transbaikalia.

Diagnosis. Wing tinged with grayish. Fore tibia with one row of very short dense ventral bristles. Antenna and male genitalia as shown in Figs. 38-39.

Specimens examined. 22 ♂♂, 19 ♀♀, Xinjiang: Oku (3500 m), 1960. VI. 1, Shuyong WANG. (CAU & IRSN)

Distribution. China (Xinjiang); East Siberia.

This species is recorded from China for the first time.

Hydrophorus tibetanus BECKER

Hydrophorus tibetanus BECKER, 1917, Nova Acta Acad. Caesar. Leop. Carol., 102(2): 292. Type locality: Xizang.

Diagnosis. Fore femur more or less with 2 rows of ventral spines; fore tibia with one row of 29-30 short dense ventral bristles. Wing hyaline.

Specimens examined. 3 ♂♂, 4 ♀♀, Qinghai: Dulang, 1950. VII. 31, Baoling LU & Chi-kun YANG. (CAU & IRSN). *Distribution.* China (Xizang); Kazakh SSR, East Siberia, Mongolia.

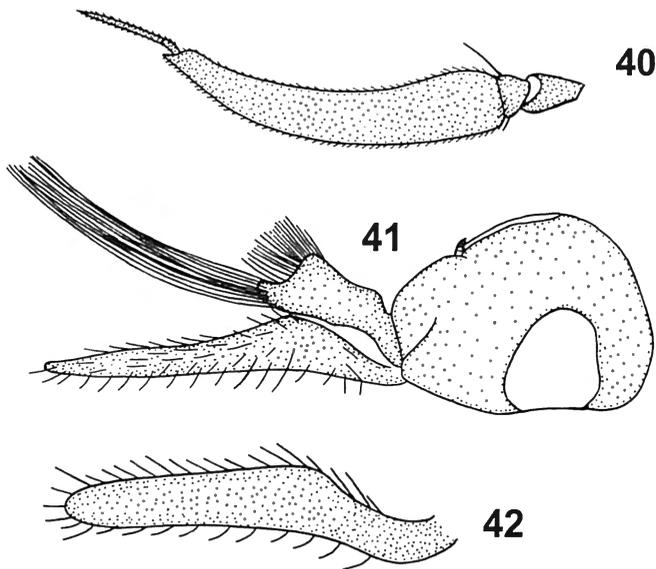
Subfamily Rhapsiinae

Rhaphium xinjiangense sp. nov. (Figs. 40-42)

Diagnosis. First flagellomere much elongated (5.2 times as long as wide), obliquely acute apically. Male cercus long and band-like; surstylus with dense long hairs.

Male. Body length 3.2-4.4 mm, wing length 3.0-3.4 mm. Head metallic green with pale gray pruinosity; frons highly polished. Hairs and bristles on head black; middle and lower postocular hairs pale. Antenna entirely black; first flagellomere much elongated, 5.2 times as long as wide, obliquely acute apically; arista short, 1.5 times longer than width of first flagellomere at base. Proboscis brown with black hairs; palpus brown with black hairs.

Thorax metallic green with pale gray pruinosity. Hairs and bristles on thorax black; 6-7 irregularly paired acr, short and hair-like; 6 uniformly strong dc; lateral scutellar bristle short and hair-like. Legs yellow; coxae yellow, but mid coxa somewhat darker; fore and mid tarsi dark brown from tip of tarsomere 1 onward; hind tarsus dark brown. Hairs and bristles on legs black; fore coxa with 2 bristles on anterior margin, mid coxa with 2 bristles near anterior margin, hind coxa with 1 outer bristle; fore tibia with 2 anterior dorsal bristles and 2 posterior dorsal bristles; mid tibia with 2 anterior dorsal bristles, 2 posterior dorsal bristles and 1 posterior ventral bristle; hind tibia with 2 anterior dorsal bristles and 2 posterior dorsal bristles.



Figs. 40-42. — *Rhaphium xinjiangense* sp. nov., male. 40: antenna, lateral view; 41: genitalia, lateral view; 42: cercus, dorsal view.

Relative lengths of segments of legs LI 3.0: 3.1: 1.2: 0.6: 0.4: 0.3: 0.4; LII 4.0: 4.2: 1.9: 1.0: 0.8: 0.6: 0.4: LIII 5.2: 5.8: 1.5:?:?:?:?. Wing tinged with gray, darker on apical anterior area; veins brown; R4+5 and M convergent apically, CuAx ratio 0.35. Squama yellow with yellow hairs. Halter yellow.

Abdomen metallic green with black hairs. Male genitalia (Fig. 41): Epandrium slightly longer than wide; surstylus rather large with dense long hairs apically; cercus (Fig. 42) long and band-like.

Female. Unknown.

Holotype ♂, Xinjiang: Jichang (680 m), 1959. VIII. 27, Afu TIAN. *Paratype* 1 ♂, Xinjiang: Chaosu (1480 m), 1957. VIII. 10, Guang WANG. (CAU).

Distribution. China (Xinjiang).

Remarks. This new species is very similar to *R. macrocerum* MEIGEN from the Palearctic region, but differs from the latter by having the first flagellomere obliquely acute apically and male surstylus with concave apical margin. In *macrocerum*, the first flagellomere is obtuse apically, the apical margin of male surstylus is straight (NEGROBOV, 1979).

Rhaphium baihuashanum sp. nov. (Figs. 43-46)

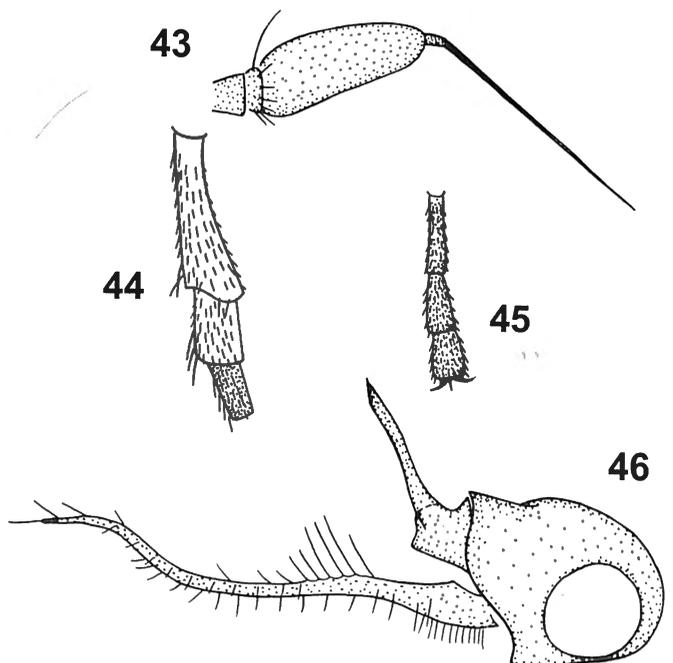
Diagnosis. First flagellomere moderately elongated, shorter than arista. Fore tarsus with apical portion of tarsomere 1 and tarsomere 2 distinctly swollen.

Male. Body length 6.1 mm, wing length 5.3 mm.

Head metallic green with pale gray pruinosity. Hairs

and bristles on head black; middle and lower postocular hairs pale. Antenna entirely black; first flagellomere moderately elongated, 2.1 times as long as wide; arista longer than first flagellomere. Proboscis black with black hairs; palpus black with black hairs.

Thorax metallic green with pale gray pruinosity. Hairs and bristles on thorax black; 5-6 irregularly paired acr (of which anterior 2-3 pairs rather short); 7 dc, longer than acr; scutellum with 8 marginal bristles (of which 2 bristles are strong and long). Legs black; coxae black; tips of fore and mid femora yellow, hind femur (except apical portion) yellow; entire fore and mid tibiae and basal portion of hind tibia yellow; fore and mid tarsomeres 1-2 yellow. Fore tarsus with apical portion of tarsomere 1 and tarsomere 2 distinctly swollen (Fig. 44); mid tarsomeres 4-5 weakly swollen (Fig. 45). Hairs and bristles on legs black; coxae with pale hairs; mid coxa with one clump of black bristles on anterior tip; hind coxa with 3 black hair-like bristles on anterior tip, without any outer bristle; fore femur with long pale hairs on outer surface, mid femur with 3 preapical bristles. Fore tibia with 5-6 anterior dorsal bristles and 3-4 posterior dorsal bristles; mid tibia with 3 anterior dorsal bristles, 5 posterior dorsal bristles, 1 anterior ventral bristle and 1 posterior ventral bristle; hind tibia with 4 anterior dorsal bristles, 5 posterior dorsal bristles, 1 anterior ventral bristle and 4 posterior ventral bristles. Relative lengths of segments of legs LI 4.6: 4.7: 2.0: 0.9: 0.6: 0.4: 0.4; LII 6.0: 6.3: 2.9: 1.4: 1.0: 0.6: 0.4; LIII 8.3: 8.8: 3.0: 2.3: 1.6: 1.1: 0.8. Wing hyaline; veins black; R4+5 and M convergent apically, CuAx ratio 0.5. Squama yellow with yellow hairs. Halter yellow with dark brown stem.



Figs. 43-46. — *Rhaphium baihuashanum* sp. nov., male. 43: antenna, lateral view; 44: fore tarsomeres 1-3, lateral view; 45: mid tarsomeres 3-5, dorsal view; 46: genitalia, lateral view.

Abdomen metallic green with pale gray pollen. Hairs on abdomen black, but tergites 1-2 and sternites 1-3 with some pale hairs. Male genitalia (Fig. 46): Epandrium nearly as long as wide, rather wide apically; surstylus broad with a long style-like projection; cercus slender and filiform.

Female. Unknown.

Holotype ♂, Beijing: Baihuashan Mountain (1200 m), 1973. V. 29, Yongshan SHI (CAU).

Distribution. China (Beijing).

Remarks. This new species is similar to *patulum* (RADATZ) from Europe, but differs from the latter in the following points: first flagellomere longer (2.1 times longer than wide), arista simple apically; in *patulum*, first flagellomere rather short (1.7 times longer than wide), arista somewhat swollen apically.

Rhaphium gansuanum sp. nov. (Figs. 47-49)

Diagnosis. First flagellomere weakly elongated (1.6 times as long as wide). Male cercus slender, but strongly swollen basally.

Male. Body length 4.4 mm, wing length 5.2 mm.

Head metallic green with pale gray pruinosity. Hairs and bristles on head black; lower postocular hairs blackish. Antenna entirely black; first flagellomere weakly elongated, 1.6 times as long as wide; arista much longer than first flagellomere. Proboscis black with black hairs; palpus black with black hairs.

Thorax metallic green with pale gray pruinosity. Hairs and bristles on thorax black; 6-7 irregularly paired acr; 5-6 dc; lateral scutellar bristle short and hair-like. Legs

black; coxae black; tips of fore and mid femora and basal portion of hind femur yellow; tibiae yellow except apical portion of hind tibia; fore and mid tarsi yellow, but darker from tip of tarsomere 3 onward. Hairs and bristles on legs black; coxae with pale hairs; mid coxa with one clump of black bristles on anterior tip and also with 2 black bristles on antero-apical margin; hind coxa with 1 weak black bristle on antero-apical margin, but without any outer bristle. Fore femur with long black hairs on outer surface; mid femur with 2 preapical bristles. Fore tibia with 5 anterior dorsal bristles and 5 posterior dorsal bristles; mid tibia with 5 anterior dorsal bristles, 6 posterior dorsal bristles, 2 anterior ventral bristles and 1-2 posterior ventral bristle, mid tarsomere 1 with 4 ventral bristles; hind tibia with 2 anterior dorsal bristles and 4 posterior dorsal bristles. Relative lengths of segments of legs LI 4.4: 4.3: 2.1: 1.3: 0.8: 0.5: 0.5; LII 6.1: 6.0: 3.1: 1.8: 1.1: 0.8: 0.6; LIII 8.1: 8.0: 2.2: 2.25: 1.6: 1.1: 0.7. Wing hyaline; veins black; R4+5 and M convergent apically, CuAx ratio 0.5. Squama yellow with yellow hairs. Halter yellow.

Abdomen metallic green with pale gray pollen. Hairs on abdomen black, but 1-3 basal segments with some pale hairs. Male genitalia (Fig. 48): Epandrium longer than wide; surstylus short and broad, with concave apical margin; cercus (Fig. 49) slender, but strongly swollen basally.

Female. Unknown.

Holotype ♂, Gansu: Chengxian, 1980. VII. 29, Fasheng LI. (CAU).

Distribution. China (Gansu).

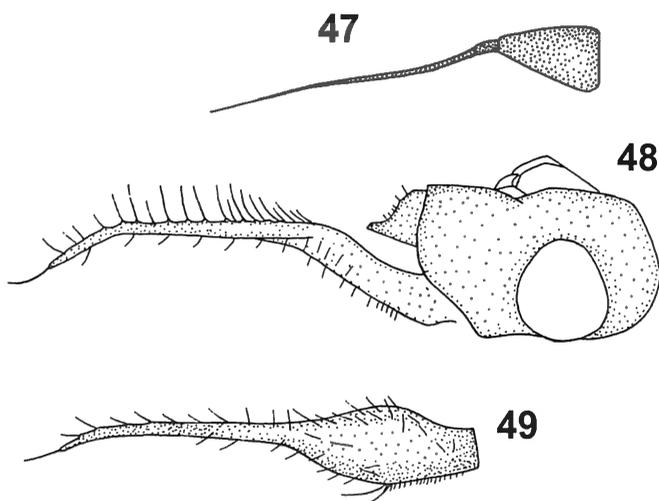
Remarks. This new species is similar to *fascipes* (MEIEN). It may be separated from the latter by the male cercus slender but strongly swollen basally.

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Figs. 47-49. — *Rhaphium gansuanum* sp. nov., male. 47: antenna (excluding scape and pedicel), lateral view; 48: genitalia, lateral view; 49: cercus, dorsal view.

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