# Contributions to the Knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China

Part 7. Genus *Quedius* STEPHENS, 1829. Subgenus *Raphirus* STEPHENS, 1829. Section 2

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Abstract Taxonomic and faunistic data on the species of the genus *Quedius*, subgenus *Raphirus*, from the People's Republic of China are provided. Three new species are described: *Q. fen* (Sichuan), *Q. gang* (Fujian) and *Q. tian* (Sichuan). The lectotype is designated for *Quedius chinensis* BERNHAUER, 1915. *Quedius assamensis* is recorded for the first time from the People's Republic of China.

Before this series of papers on the Chinese Quediina was initiated, I published two papers that should be considered as parts of this series. One paper was on the genus *Pseudorientis* Watanabe, 1970 (Smetana, 1995a), with two new species *P. uenoi* and *P. gongga*, both from Sichuan. The second paper was on the genus *Strouhalium* Scheerpeltz, 1962 (Smetana, 1995b), with three new species *S. brezinai*, *S. sichuanense* and *S. farkaci*, all from Sichuan.

This is the ninth paper (two papers mentioned above included) of the series of papers dealing with the Quediina of the People's Republic of China. It treats five species, all belonging to the *Himalayicus* Group of species (SMETANA, 1988, 275). *Quedius assamensis* is recorded for the first time from the People's Republic of China (Yunnan), *Q. chinensis* BERNHAUER, 1915 is redescribed and a lectotype is designated. *Quedius fen* (Sichuan), *Q. gang* (Fujian) and *Q. tian* (Sichuan) are described as new.

## Quedius (Raphirus) assamensis CAMERON

Quedius assamensis Cameron, 1932, 293; Smetana, 1988, 284.

New record. China: Yunnan, Ruili, 4–II–93, G. DEROUGEMONT, 2 ♂♂, in the collection DEROUGEMONT, London, and A. SMETANA, Ottawa.

Comments. New record for China. The species was until now known from the Himalaya (Uttar Pradesh, Nepal) and from the Naga Hills in Nagaland, India (SMETANA, 1988, 285).

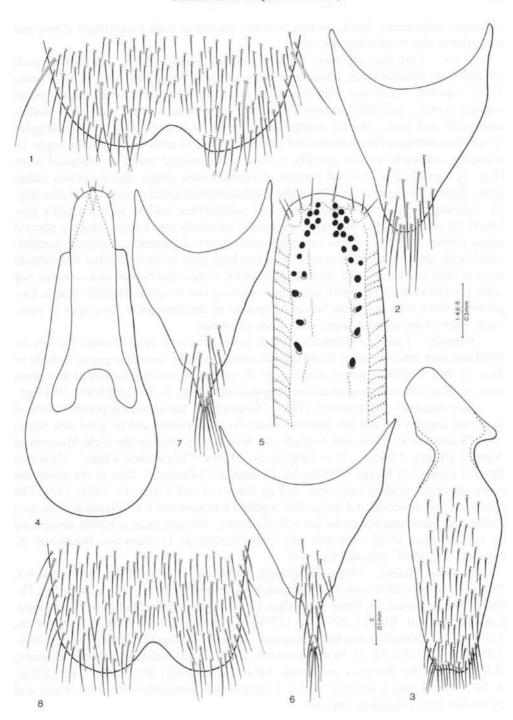
## Quedius (Raphirus) chinensis BERNHAUER

(Figs. 1-7)

Quedius chinensis Bernhauer, 1915, 74; Gridelli, 1924, 149; Smetana, 1988, 285.

Description. Black, head and pronotum feebly, abdomen moderately, iridescent; maxillary and labial palpi rufo-testaceous, antennae with three basal segments rufobrunneous with apical portions of at least segments 2 and 3 darkened, remaining segments dark brunneous, legs piceous to piceous black with apices of femora and bases of tibiae more or less paler, tarsi brunneous to testaceo-brunneous. Head rounded, wider than long (ratio 1.19), narrowed behind eyes, posterior angles entirely obsolete; eyes large and markedly convex, protruding from lateral contours of head, tempora considerably shorter than eyes seen from above (ratio 0.25); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posterio-medial margin of eye, separated from it by distance smaller than diameter of puncture, one small puncture between it and posterior margin of head; temporal puncture almost touching posterior margin of eye; tempora impunctate; surface of head with fine, meshed microsculpture, most distinct on clypeus, with meshes becoming more or less incomplete toward posterior margin. Antenna moderately long, segment 3 longer than segment 2 (ratio 1.48), segments 4-7 longer than wide, gradually becoming shorter and wider, segments 8-10 about as long as wide, last segment about as long as two preceding segments combined. Pronotum slightly wider than long (ratio 1.13), widest at about posterior third, markedly narrowed anteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three fine punctures; sublateral rows each usually with two punctures, posterior puncture situated slightly behind level of large lateral puncture (but see Comments); microsculpture denser than that on head, consisting mostly of transverse waves with occasional longitudinal junctions. Scutellum rather densely and coarsely punctate and pubescent, surface with extremely fine and dense microsculpture of transverse striae. Elytra moderately long, at base slightly narrower than pronotum at widest point, only vaguely widened posteriad, at suture about as long as, at sides somewhat longer than pronotum at midline (ratio 1.19); punctation and pubescence fine and very dense, becoming slightly asperate toward posterior margin, interspaces mostly slightly smaller than diameters of punctures; pubescence black; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites finer and denser than that on elytra, slightly denser at bases of tergites, in general becoming slightly sparser toward apex of

Figs. 1–8. —— 1–7. Quedius chinensis: 1, apical portion of male sternite 8; 2, tergite 10 of male genital segment; 3, sternite 9 of male genital segment; 4, aedoeagus, ventral view; 5, apical portion of underside of paramere; 6, 7, tergite 10 of female genital segment (6=lectotype). —— 8. Quedius fen: apical portion of male sternite 8.



abdomen; pubescence black; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.25); segment 4 narrower than preceding segments. Sternite 7 with apical margin vaguely concave medially; sternite 8 with two large setae on each side; with moderately wide and deep, obtusely triangular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 1). Genital segment with tergite 10 triangular, narrowly arcuate apically, without differentiated apical or subapical setae (Fig. 2); sternite 9 with basal portion of characteristic shape, apical portion rather large, slightly emarginate apically, without differentiated apical or subapical setae (Fig. 3). Aedoeagus (Figs. 4-5) fairly large and voluminous; median lobe markedly narrowed anteriad, abruptly, angulately attenuated anteriorly into narrow, sharply pointed apical portion with fine median carina on face adjacent to paramere. Paramere parallelsided, with obtusely rounded apex almost reaching apex of median lobe; four minute setae at apex and two similar setae at each lateral margin just below apex; sensory peg setae on underside of paramere numerous, forming two irregular, slightly arcuate longitudinal rows, with peg setae becoming sparser in direction away from apex of paramere. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but less dilated and with less numerous modified pale setae ventrally; second segment as wide as apex of tibia. Genital segment with tergite 10 triangular, variably narrowed into acute apex, without differentiated apical or subapical setae (Figs. 6–7). Length 9.0–10.4 mm.

Type material. Bernhauer (1915, 74) described the species apparently from at least two females (he did not describe male sexual characters and he gave size range) from "Kiautschou". I was able to study one female, deposited in the Field Museum of Natural History, Chicago. It is labelled as follows: "Kiautschou China"/"chinensis Brnh. Cotypus"/"Chicago NHMus M. Bernhauer Collection". This is obviously the same specimen studied long time ago by Gridelli (see Gridelli, 1924, 149). The specimen was dissected and the genital segment was mounted into Canada balsam on a transparent plate attached to the pin with the beetle. The specimen is hereby designated as the lectotype of *Q. chinensis*; the label "Lectotype Q. chinensis Bernhauer A. Smetana des. 1996" was attached to it.

Material studied. China: [Zhejiang]: Hangzhou, 27–IV–93, G. DEROUGEMONT,  $2\ \delta\delta$ ,  $1\$ 9, in the DEROUGEMONT collection, London, and in the SMETANA collection, Ottawa; "Da-laen-saen. nr. Nong-po Walker Coll.",  $1\$ 9 in the Natural History Museum, London. [Fujian]: Kuatun,  $27^{\circ}40'$ N,  $117^{\circ}40'$ E, 2,300 m, 21–IV–1938, J. Klapperich,  $1\ \delta$ , in the Naturhistorisches Museum, Wien. [Guangxi]:  $10\ \text{km}$  N Liuzhou, 150– $200\ \text{m}$ , 11–XI–93, H. Schillhammer,  $2\$ 9, in the Naturhistorisches Museum, Wien and in the SMETANA collection, Ottawa. [Sichuan]: Mt. Emei, 500– $1200\ \text{m}$ , 4–18–V–89, S. and J. Kolibac,  $1\ \delta$ ,  $1\$ 9, in the Naturhistorisches Museum, Basel and in the SMETANA collection, Ottawa.

Geographical distribution. Quedius chinensis seems to be widely distributed. It is at present known from the provinces of Zhejiang and Sichuan, and from the Guangxi Zhuang Autonomous Region.

*Bionomics*. Nothing is known about the habitat requirements of this species; it seems to occur at low elevations.

Recognition, variation and comments. There are some uncertainties about this species, caused mainly by the fact that it was originally described only from females. Also, it belongs to a group of species very similar in general habitus, that can be positively distinguished mainly by the male sexual characters. There seems to be some variability in the development of the sublateral rows of punctures on the pronotum (in some specimens the posterior puncture is bilaterally missing), as well as in the development of the microsculpture on the pronotum, which is not always as I described it previously for the lectotype (see SMETANA, 1988, 285); in addition, the shape of the apical portion of tergite 10 of the female genital segment seems to vary as well (Figs. 6–7). It is therefore possible that this species, as it is interpreted here, may in fact include two taxa. This problem can only be addressed when more material is available for study.

Quedius chinensis is quite similar in most characters to Q. fen, but it may be distinguished by the characters given in the description of the latter species, particularly by the differently shaped aedoeagus (Figs. 4–5, 10–11).

## Quedius (Raphirus) fen sp. nov.

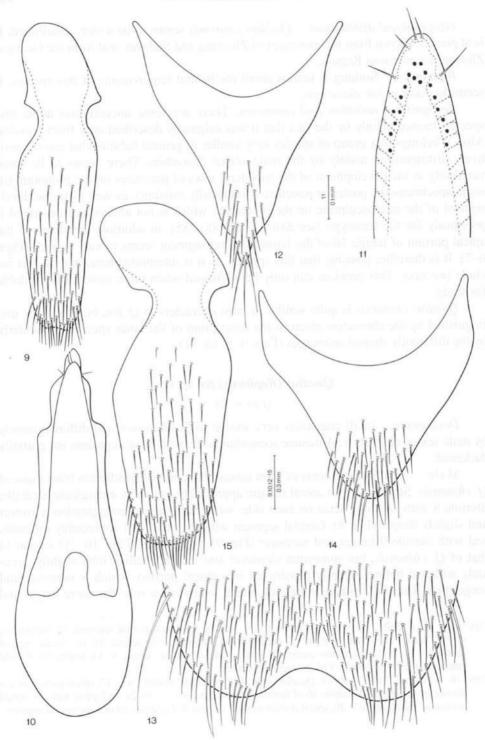
(Figs. 8-12)

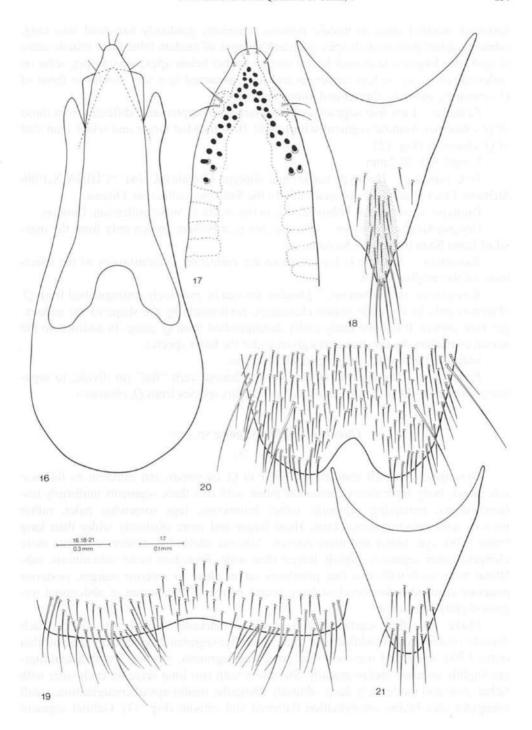
Description. In all characters very similar to Q. chinensis, and different mainly by male sexual characters. Antennae somewhat paler, with basal segments not partially darkened.

Male. First four segments of front tarsus not appreciably different from those of *Q. chinensis*. Sternite 7 with apical margin appreciably, arcuately emarginate medially. Sternite 8 with two long setae on each side, with medio-apical emargination narrower and slightly deeper (Fig. 8). Genital segment with tergite 10 not appreciably different, and with sternite 9 longer and narrower (Fig. 9). Aedoeagus (Figs. 10–11) similar to that of *Q. chinensis*, but somewhat slenderer and longer; median lobe slightly, arcuately widened before abruptly constricted into apical portion, which is narrower and longer than that of *Q. chinensis*, bearing lateral lobe at each side. Paramere longer and

Figs. 9–15 (on p. 230). — 9–12. Quedius fen: 9, sternite 9 of male genital segment; 10, aedoeagus, ventral view; 11, apical portion of underside of paramere; 12, tergite 10 of female genital segment. — 13–15. Quedius gang: 13, apical portion of male sternite 8; 14, tergite 10 of male genital segment; 15, sternite 9 of male genital segment.

Figs. 16–21 (on p. 231). —— 16–18. Quedius gang: 16, aedoeagus, ventral view; 17, apical portion of underside of paramere; 18, tergite 10 of female genital segment. —— 19–21. Quedius tian: 19, apical portion of male sternite 7; 20, apical portion of male sternite 8; 21, tergite 10 of male genital segment.





narrower, parallel-sided in middle portion, anteriorly gradually narrowed into long, subacute apical portion with apex not reaching apex of median lobe; three minute setae at apex, one longer seta at each lateral margin farther below apex; sensory peg setae on underside of paramere less numerous and finer, arranged in a way similar to those of *O. chinensis*, but rows shorter and joined anteriorly.

Female. First four segments of front tarsus not appreciably different from those of *Q. chinensis*. Genital segment with tergite 10 somewhat larger and wider than that of *Q. chinensis* (Fig. 12).

Length 9.0-10.2 mm.

*Type material.* Holotype (male) and allotype (female): China: "CHINA X.1986 Sichuan: Emei Shan G. de Rougemont". In the SMETANA collection, Ottawa.

Paratype: same data as holotype, 1 ♀, in the DEROUGEMONT collection, London.

Geographical distribution. Quedius fen is at present known only from the massif of Emei Shan in western Sichuan.

*Bionomics*. Nothing is known about the collection circumstances of the specimens of the original series.

Recognition and comments. Quedius fen can be positively distinguished from Q. chinensis only by the male sexual characters, particularly by the shape of the aedoeagus (see above). It may be fairly easily distinguished from Q. gang, in addition to the sexual characters, by the characters given under the latter species.

Entire left antenna is missing in the holotype.

Etymology. The specific epithet is the Chinese verb "fen" (to divide, to separate). It refers to the difficulty in distinguishing this species from Q. chinensis.

## Quedius (Raphirus) gang sp. nov.

(Figs. 13-18)

Description. In all characters similar to Q. chinensis, but different as follows: size larger, body form stouter; antennae paler, with first three segments uniformly testaceo-rufous, remaining segments rather brunneous, legs somewhat paler, rather piceous with rufo-brunneous tarsi. Head larger and more distinctly wider than long (ratio 1.38), eyes larger and more convex. Antenna somewhat stouter, segments more elongate, outer segments slightly longer than wide. Pronotum more voluminous, sublateral rows each with two fine punctures rather close to anterior margin, posterior puncture situated before level of large lateral puncture. Punctation of abdominal tergites slightly less dense.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.30); segment 4 narrower than preceding segments. Sternite 7 with apical margin slightly concave medio-apically. Sternite 8 with two long setae on each side; with rather wide and moderately deep, obtusely triangular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 13). Genital segment

with tergite 10 wide, triangular, arcuate apically, with numerous setae at apex and numerous shorter, finer setae in front of them, without differentiated apical or subapical setae (Fig. 14); sternite 9 with basal portion short, of similar shape as in *Q. chinensis*, apical portion relatively short and stout, subtruncate apically, without differentiated apical or subapical setae (Fig. 15). Aedoeagus (Figs. 16–17) large and voluminous; median lobe markedly, evenly narrowed anteriad, in apical fourth on each side with blunt, tooth-like process at base of narrow apical portion with subacute apex and fine, short, medial longitudinal carina on face adjacent to paramere, and with small lateral lobe at each side. Paramere large, almost parallel-sided in middle portion, slightly concavely narrowed into narrowly obtuse apex, slightly exceeding apex of median lobe; four setae at apex, medial pair longer than lateral pair, two rather long setae at each lateral margin far from apex; underside of paramere with numerous, fine sensory peg setae, forming two irregular, longitudinal rows diverging posteriad. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus considerably less dilated than those of male, only slightly bilobed, with less numerous modified pale setae ventrally; second segment narrower than apex of tibia (ratio 0.84); segment 4 narrower than preceding segments. Genital segment with tergite 10 relatively narrow, slightly, narrowly pigmented medio-apically, anteriorly rather abruptly narrowed into acute apical portion, without differentiated apical or subapical setae (Fig. 18).

Length 9.0–11.0 mm.

*Type material.* Holotype (male) and allotype (female): China: "Kuatun (2300 m) 27, 40 n. Br. 117, 40 ö. L. J. Klapperich 19. 4. 1938 (Fukien)". In the Naturhistorisches Museum, Wien, Austria.

Paratypes:  $17 \ \delta \delta$ ,  $21 \ \varsigma \varsigma$ , same data as holotype, dates 9–IV-, 12–IV-, 14–IV-, 15–IV-, 19–IV-, 21–IV-, 28–IV-, 3–V-, 4–V-, 6–V, 8–V-, 13–V-, 25–V-1938, in the Naturhistorisches Museum, Wien, and in the SMETANA collection, Ottawa;  $7 \ \delta \delta$ ,  $4 \ \varsigma \varsigma$ , Kuatun, 1– and 14–V–1946, Tschung SEN, in the Naturhistorisches Museum, Wien, Musém d'Histoire naturelle, Geneva, Switzerland and in the SMETANA collection, Ottawa.

Geographical distribution. Quedius gang is at present known only from the province of Fujian.

*Bionomics*. Nothing is known about the collection circumstances of the specimens of the original series.

Recognition, variability and comments. Quedius gang may be fairly easily distinguished from the two similar species, Q. chinensis and Q. fen, in addition to the characters on the aedoeagus, by the larger, stouter body form.

The sublateral rows of punctures on the pronotum show some variability. In a few specimens, the posterior puncture is situated almost at the level of the large lateral puncture, in some specimens it is entirely missing.

The locality "Kuatun" is the village Guadun in Wuyi Shan, Chongan Xian.

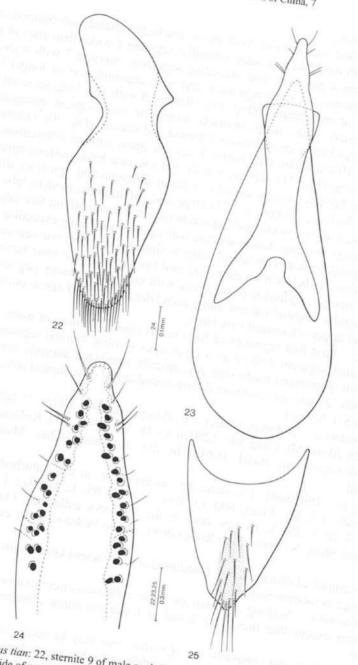
Etymology. The specific epithet is the Chinese adjective "gang" (strong). It

refers to the large, stout body form of the species.

### Ouedius (Raphirus) tian sp. nov.

(Figs. 19-24)

Description. Black, head and pronotum with vague metallic lustre; head and pronotum vaguely, abdomen appreciably iridescent. Maxillary and labial palpi brunneous to brunneo-piceous, antennae piceous-black, sometimes becoming somewhat paler toward apex, bases of first three segments paler, rufo-brunneous, legs piceousblack with distinctly paler, sometimes almost testaceous, tarsi, dorsal faces of front tibiae sometimes paler, rufo-brunneous. Head rounded, distinctly wider than long (ratio 1.32), markedly narrowed posteriad behind eyes, posterior angles entirely obsolete. Eves very large and conspicuously convex, markedly protruding from lateral contours of head, tempora considerably shorter than eyes seen from above (ratio 0.22); no additional setiferous punctures between anterior frontal punctures; posterior frontal and temporal punctures almost touching posterior margin of eye, temporal puncture situated somewhat closer to posterior frontal puncture than usual, one puncture between posterior frontal puncture and posterior margin of head; tempora almost impunctate; surface of head with dense and very fine microsculpture of oblique and transverse waves, becoming to various extent submeshed on frons. Antenna moderately long, segment 3 longer than segment 2 (ratio 1.47), segments 4-7 distinctly longer than wide, gradually becoming shorter, segments 8-10 slightly longer than wide, last segment shorter than two preceding segments combined. Pronotum vaguely wider than long (ratio 1.06), widest at about posterior third, markedly narrowed anteriad, with lateral margin continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; microsculpture similar to that on head, but transverse and oblique waves with occasional longitudinal junctions denser, particularly toward posterior margin of pronotum. Scutellum with very fine and dense microsculpture of transverse waves, sparsely, moderately coarsely punctate and pubescent on apical portion. Elytra fairly long, at base somewhat narrower than pronotum at widest point, slightly widened posteriad, at suture vaguely longer (ratio 1.04), at sides appreciably longer (ratio 1.23) than pronotum at midline; punctation and pubescence dense, moderately coarse, transverse interspaces between punctures mostly as wide as diameters of punctures; pubescence pale brownish to almost yellowish-brown; surface between punctures without microsculpture, but with numerous microscopical irregularities, surface therefore appearing somewhat rough. Wings fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites distinctly finer and denser than that on elytra, becoming slightly sparser toward apex of each tergite and in general toward apex of abdomen; pubescence brunneo-piceous; surface between punctures with exceedingly dense and fine microsculp-



Figs. 22–25. Quedius tian: 22, sternite 9 of male genital segment; 23, aedoeagus, ventral view; 24, apical portion of underside of paramere; 25, tergite 10 of female genital segment.

ture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.22); segment 4 narrower than preceding segments. Sternite 7 with wide, not deep, subarcuate medio-apical emargination and with accumulation of longer black setae at each side of emargination (Fig. 19). Sternite 8 with two long setae on each side; with moderately wide, deep, obtusely triangular medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 20). Genital segment with tergite 10 triangular, with narrowly arcuate apex, without differentiated apical or subapical setae (Fig. 21); sternite 9 with characteristic basal portion, apical portion rather short, broadly arcuate apically, without differentiated apical or subapical setae (Fig. 22). Aedoeagus (Figs. 23-24) large and voluminous; median lobe almost conically narrowed into subacute apex, apical portion without tooth on face adjacent to paramere. Paramere elongate, lancet-shaped, with apex considerably exceeding apex of median lobe, apical portion with lateral margins slightly bisinuate; one seta just below apex, one smaller seta below it on each side, and two approximate setae further below at each lateral margin; underside of paramere with numerous sensory peg setae forming a long, irregular longitudinal row along each lateral margin of apical portion. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but somewhat less dilated, segment 2 about as wide as apex of tibia. Genital segment with tergite 10 slightly pigmented medio-apically, apically somewhat abruptly narrowed into short, narrowly arcuate apex, without differentiated apical or subapical setae (Fig. 25).

Length 8.0-9.5 mm.

Type material. Holotype (male) and allotype (female): China: "CHINA/Sichuan 103.20 el/29.30 nw Mt. Emei 500–1200 m 4.–18. V. 1989 S. & J. Kolibác leg."/"Freiwilliger Museumverein Basel 1989". In the Naturhistorisches Museum, Basel, Switzerland.

Paratypes: [Sichuan]: 1 ♀, same data as holotype, in the Naturhistorisches Museum, Basel; 1 ♂, Mt. Emei, 600–1,050 m, 5–19–V–89, L. Bocák; 1 ♀, Mt. Emei, 1,000 m, 4–20–V–89, V. Kubán, both in the Smetana collection, Ottawa, Canada; 2 ♂♂, Emei Shan, X–1986, G. DEROUGEMONT, in the DEROUGEMONT collection, London.

Geographical distribution. Quedius tian is at present known only from the Emei Shan range in western Sichuan.

*Bionomics*. Nothing is known about the collection circumstances of the original specimens except that they were found at lower mountain elevations from 500 to 1,200 m.

Recognition and comparisons. Quedius tian may be easily recognized among the Chinese species of similar habitus, in addition to the sexual characters, particularly by the shape of the aedoeagus, by the very large, conspicuously convex eyes, and by the faint metallic lustre on the head and pronotum. On the other hand, it in general

habitus closely resembles *Q. aureipilis* CAMERON, 1932 from the Naga Hills in Nagaland. However, the latter species differs, in addition to sexual characters, by the partially pale appendages and by the pale pubescence of the elytra and abdomen (see SMETANA, 1988, 288).

Etymology. The specific epithet is the Chinese noun "tian" (heaven, god). It refers to the occurrence of this species on the sacred mountain Emei Shan.

### Acknowledgments

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### 要 約

A. SMETANA: 中国産ツヤムネハネカクシ亜族に関する知見. 7. ツヤムネハネカクシ属 Raphirus 亜属の2. — 中国産ツヤムネハネカクシ属のうち, Raphirus 亜属の3 新種を四川省と福建省から記載し, それぞれ Quedius (Raphirus) fen, Q. (R.) gang および Q. (R.) tian と命名した. また, Q. chinensis BERNHAUER に後基準標本を指定し, Q. assamensis CAMERON を中国から初めて記録した.

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