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Contributions to the knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China. Part 44. Genus *Quedius* Stephens, 1829. Subgenus *Raphirus* Stephens, 1829. Section 11

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Taxonomy, new species, description, geographical distribution, Coleoptera, Staphylinidae, Staphylinini, Quediina, *Quedius*, mainland China, Palaearctic Region

Abstract. Two new species of the genus *Quedius* Stephens, 1829, subgenus *Raphirus* Stephens, 1829 are described based on specimens from the People's Republic of China: *Q. schneideri* sp. nov. (Sichuan) and *Q. iapetus* sp. nov. (Yunnan). Each species is described, illustrated and all available distributional and bionomic data are given. The previously unknown male sexual characters of *Q. pian* Smetana, 2008 are described and illustrated. New records of already described species are presented.

INTRODUCTION

This is the eleventh paper dealing with the species of the subgenus *Raphirus* Stephens, 1829 of the genus *Quedius* Stephens, 1829. It deals with the species of the *Muscicola*- and *Pluvialis*- species groups. *Quedius pian*, *Q. doan*, *Q. nujiang*, *Q. maculiventris*, *Q. microsauroides* and *Q. iapetus* sp. nov. belong to the *Muscicola*-group, the remaining three species *Q. pluvialis*, *Q. oui* and *Q. schneideri* sp. nov. to the *Pluvialis*-group.

ACRONYMS

The acronyms used in the text when referring to the deposition of the specimens are as follows:

ASC Collection of Aleš Smetana, Ottawa, Canada;
CNC Canadian National Collection of Insects, Ottawa, Canada;
MSC Collection of Michael Schülke, Berlin, Germany.

SYSTEMATICS

Quedius (*Raphirus*) *pian* Smetana, 2008
(Figs. 1-7)

pian Smetana, 2008: 190 (*Quedius*; subgenus *Raphirus*; description; habitat); Smetana, 2011: 154 (*Quedius*; subgenus *Raphirus*; characters in key)

New records. CHINA: Yunnan: Cang Shan at Dali, 25°40'17'=N 100°07'47'=E, 2698 m, sifting 34, V. Grebennikov, 1 spec. (CNC); same, E slope, 25°40'13.2'= N 100°07'54.8'=, 2728 m, sifting 05, 11.v.2010, V. Grebennikov, 12 spec. (ASC, CNC); same, E slope, 25°40'15.5'=N 100°07'45.4'=E, 18.v.2010, V. Grebennikov, 2 spec. (CNC); same, E slope, 25°40'15.1'=N 100°07'49.9'=E, 2711m, 10.v.2010, V. Grebennikov, sifting 04, 2 spec. (ASC,CNC); same, 25°41'07'=N 100°06'58'=E, 2714 m, 2.VII.2011, sifting 33, V. Grebennikov, 3 spec. (ASC, CNC); same, 25°40'17'=N 100°07'47'=E, 3.vii.2011, sifting 34, V. Grebennikov, 1 spec. (CNC).

Comments. The specimens were taken by sifting leaf litter and other floor litter in broadleaved forests.

The species was until now known only from the female holotype.

Male. First four segments of front tarsus moderately dilated, second segment about as wide as apex of tibia. Sternite 8 with two long setae on each side, with small, obtuse medioapical emargination, general setation fine and rather sparse (Fig. 1). Genital segment with tergite 10 markedly narrowed toward narrowly arcuate apex, setose as in Fig. 2; sternite 9 elongate, with long basal portion, apical portion emarginate apically, with two differentiated apical setae, general setation short and sparse (Fig. 3). Aedoeagus (Figs. 4-7) relatively short and robust, median lobe with short apical portion of characteristic shape, on face adjacent to paramere with median carina way below apex and on dorsal side (opposite to paramere) with long median carina, both carinae distinct in lateral view (Fig. 6). Paramere shaped as in Figs. 4, 7, with apex distinctly not reaching apex of median lobe, four fine setae at apical margin, medial setae longer than lateral ones, two longer setae at each lateral margin below apex; sensory peg setae on underside forming two longitudinal rows on middle portion of paramere, each with 8 or 9 peg setae.

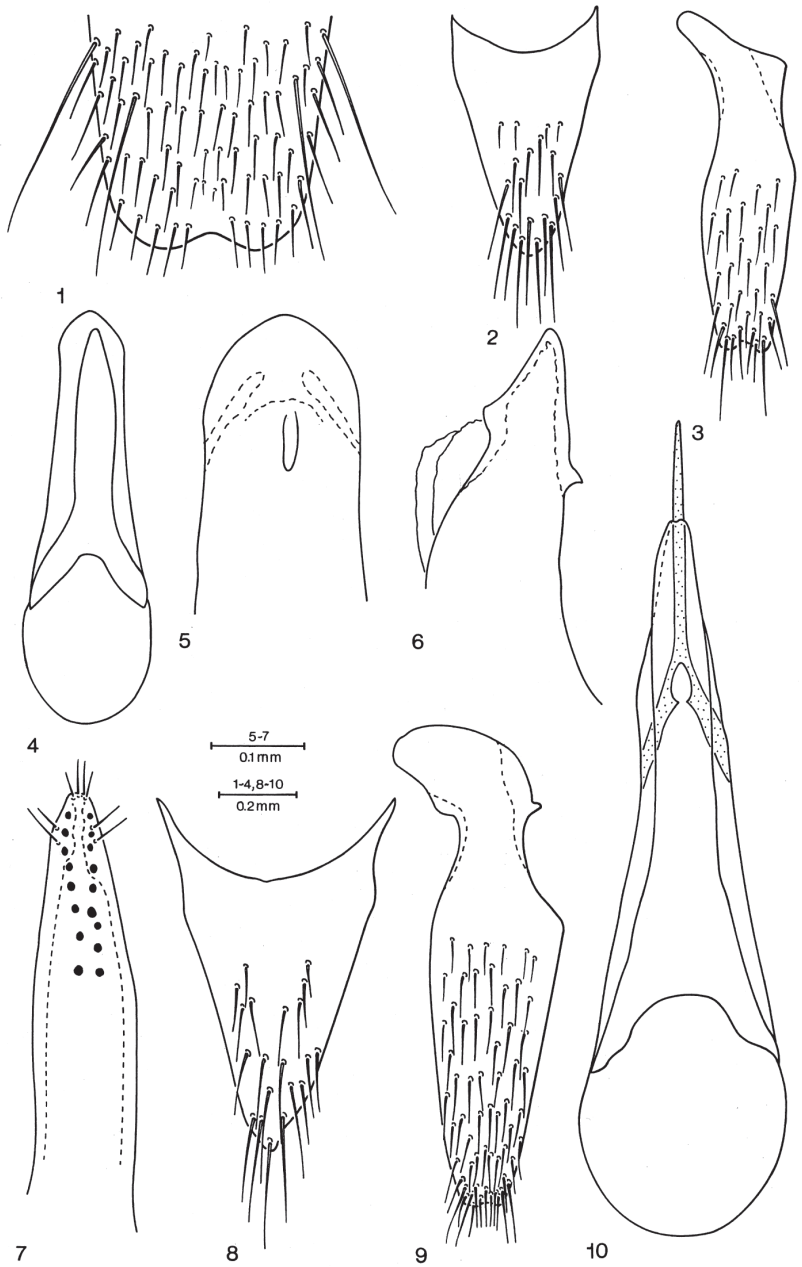
The body length of the species varies from 5.1 to 6.3 mm. The large size (exceeding 6 mm) used to differentiate the species in the key in Smetana, 2011: 154 is therefore not useful. However, the other character (outer segments of antenna slightly longer than wide) is reliable.

Quedius (*Raphirus*) *doan* Smetana, 2008

doan Smetana, 2008: 194 (*Quedius*; subgenus *Raphirus*; description; habitat); Smetana, 2011: 155 (*Quedius*; *Raphirus*; characters in key).

New record. CHINA: Yunnan**:** E slope N Gaoligongshan, 27°47'22.1'=N 098°32'17.7'=E, 3027 m, 24.v.2010, sifting 20, V. Grebennikov, 4 spec. (ASC, CNC).

Comment. The species is at present known only from Gaoligong Shan; it may be endemic to that range.



Figs. 1-10. *Quedius pian:* 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 median lobe, paramere removed, ventral view; 6- apical portion of median lobe, paramere removed, lateral view; 7- apical portion of underside of paramere with sensory peg setae. *Quedius schneideri*: 8- tergite 10 of male genital segment; 9- sternite 9 of male genital segment; 10- aedoeagus (transmitted light).

Quedius (*Raphirus*) *nujiang* Smetana, 2011

nujiang Smetana, 2011: 146, 155 (*Quedius*; subgenus *Raphirus*; description; characters in key; habitat)

New record. CHINA: Yunnan, Nujiang Lisu Pref., Gaoligong Shan, W « Cloud pass », 24 km NW Liuku, 25°59'02''N 98°39'56.5''E, 2940 m, small cleft, wet moss & litter sifted, 3.ix. 2009, leg. M. Schülke [CH09-24], 2 spec. (ASC, MSC).

Quedius (*Raphirus*) *maculiventris* Bernhauer, 1934

maculiventris Bernhauer, 1934: 12 (*Quedius*; subgenus *Raphirus*; description) ; Smetana, 2012: 52 (*Quedius*; subgenus *Raphirus;* redescription; characters in key; distribution, habitat).

New records. CHINA: Sichuan, Emei Shan, 29°33'56''N 103°21'24''E, 1829 m, 26.v.2011, sifting 06, V. Grebennikov, 2 spec. (ASC, CNC); same, 29°33'04''N 103°21'19''E, 1729 m, 25.v.2011, sifting 05, V. Grebennikov, 2 spec. (ASC, CNC); same, 29°33'00'N 103°21'38'', 1639 m, sifting 8, 1 spec., V. Grebennikov (CNC); same, 29°34'46''N 103°22'04''E, 1463 m, 17.v.2011, sifting 07, V. Grebennikov, 1 spec. (ASC).

Comment. These are the first detailed records of the species from Emei Shan. Note that all collecting sites are well below 2000 m.

Quedius (*Raphirus*) *microsauroides* Smetana, 2008

microsuaroides Smetana, 2008:196 (*Quedius*; subgenus *Raphirus*; description); Smetana, 2011: 155 (*Quedius*; subgenus *Raphirus;* characters in key)

New record. CHINA: Xinjiang Uygur Autonomous Region: Ürümqi, 61 km Fukang, 42 km Seavenly [sic] Lake, Bogda Shan, 14.vii.1991, lgt Snížek, 1 spec. (MSC).

Comment. This is the easternmost record of this species. The correct name of the lake is Heavenly Lake.

Quedius (*Raphirus*) *pluvialis* Smetana, 1998

pluvialis Smetana, 1998: 99 (*Quedius*; subgenus *Raphirus*; description, habitat); Smetana, 2010: 255 (*Quedius*; subgenus *Raphirus*; male characters; faunal record: Sichuan, Emei Shan; habitat)

New record. CHINA: Sichuan: Emei Shan, 29°32'37.3'=N 103°19'57.5'=E, 2440 m, 18.vi.2010, sifting 37, V. Grebennikov, 1 ♂ (ASC).

Comment. The specimen is markedly teneral.

Quedius (*Raphirus*) *oui* Smetana, 2010

oui Smetana, 2010: 252 (*Quedius*; subgenus *Raphirus*; description; habitat)

New record. CHINA: Sichuan: Emei Shan, 29°33'36.3'=N 103°20'38.0'=E, 1947 m, 15.vi.2010, sifting 33, V. Grebennikov, 3 ♂♂, 3 ♀♀(ASC, CNC).

Comment. Additional specimens, all more or less teneral, from the type locality. The species is likely endemic to Emei Shan.

Quedius (*Raphirus*) *schneideri* sp. nov.
(Figs 8-13)

Type locality. China, Chongqing, Jinfo Shan, 29°01'N 107°14'E, 1800 m.

Type material. Holotype (♂) and allotype (♀): CHINA: "CHINA: SE Sichuan Jinfo Shan, 29°01'N 107°14'E, 1800 m, 27.vi.1998, A. Smetana [C 70] / 1998 China Expedition J. Farkač, D. Král, J. Schneider & A. Smetana". (See Comments). Holotype and allotype in the Smetana collection, Ottawa, Canada, to be eventually deposited in the Museum d'histoire naturelle, Genève, Switzerland. Paratypes (1 ♂, 2♀♀), same data as holotype (in ASC).

Description. In all characters similar to *Q. oui*, but different in both male and female sexual characters.

Male. First four segments of front tarsus markedly dilated, each densely covered with tenent setae ventrally; segment 2 wider than apex of tibia (ratio 1.33), segment 4 markedly narrower than preceding segments. Abdominal sternites 5 and 6 without any secondary sexual characters, sternite 7 with apical margin moderately, subarcuately emarginate at middle, moderately large, square medial area before emargination flattened and smooth, smooth area bordered along each side by long setae, medial area of sternite in continuation of smooth area more densely punctate and pubescent; sternite 8 with wide and rather deep, obtusely triangular medioapical emargination, triangular area before emargination depressed and smooth. Genital segment with tergite10 large, rather long, markedly narrowed toward acute apex, setose as in Fig. 8; sternite 9 rather elongate, with large, markedly differentiated basal portion, minutely subemarginate apically, with two vaguely differentiated apical setae on each side, setose as in Fig. 9. Aedoeagus (Figs 10-12) very large, with voluminous basal bulbus, similar to that of *Q. oui* but larger, median lobe evenly, almost conically narrowed anteriad and then attenuated into extremely long, narrow, seemingly dagger-like apical portion which is considerably longer than that of *Q. oui* and is ventrally shaped into elongate lamina of characteristic shape in lateral view (Fig. 11); paramere very long, of characteristic shape, with apex reaching past middle of apical portion; four fine setae at apex of paramere, medial setae longer than lateral ones, two similar setae at each lateral margin below apex; sensory peg setae on underside of paramere fine, situated as in Figs 11,12.

Female. First four segments of front tarsus slightly dilated, slightly subbilobed, each with some tenent setae ventrally; segment 2 about as wide as apex of tibia; segment 4 narrower than preceding segments. Genital segment with second gonocoxites similar to those of *Q.*

oui, but longer; tergite 10 larger and longer than that of *Q. oui*, dagger-like apical portion longer than that of *Q. oui*, setation similar to that of *Q. oui* (Fig. 13).
Length 9.5-10.5 mm.

Geographical distribution. *Quedius schneideri* is at present known only from the type locality in Jinfo Shan in Chongqing municipality.

Bionomics. The specimens were taken in a broadleaved forest by sifting fallen leaves with underlying humus, accumulated at bases of huge rock blocks.

Recognition and comments. *Quedius schneideri* is a large species of the *Pluvialis*-group, of about the same size as *Q. oui*. It differs from all remaining species of the group by the weakly developed male secondary sexual characters that are entirely missing on abdominal sternites 5 and 6, and in the female sex by the size and shape of tergite 10 of the genital segment (Fig. 13).

The locality labels of the specimens of the original series bear the province name Sichuan. The Municipality of Chongqing was not yet established when the specimens were collected and labelled.

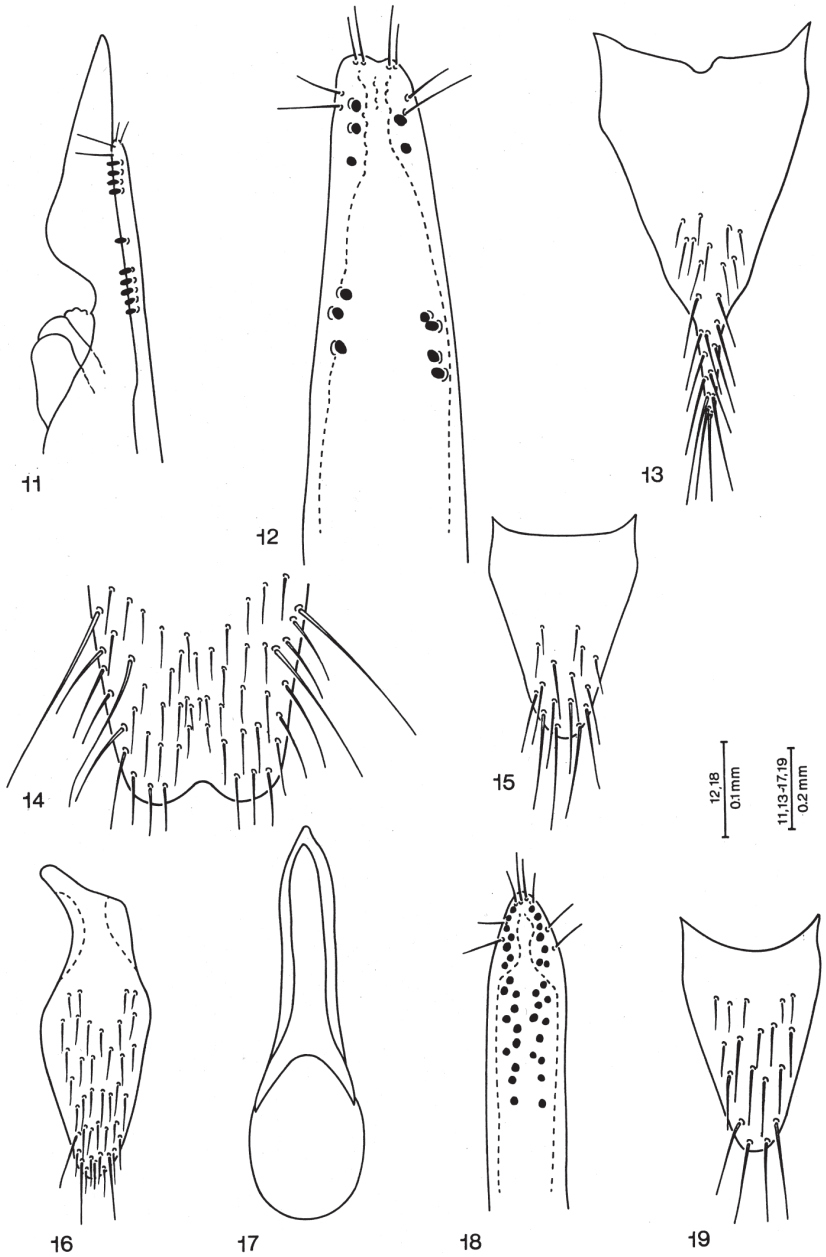
Etymology. Patronymic. The species is named for my friend and colleague coleopterist Jan Schneider, Praha, Czech Republic, to commemorate our entomological and other related adventures in China.

Quedius (*Raphirus*) *iapetus* sp. nov.
(Figs 14-19)

Type locality. China, Yunnan, Cang Shan at Dali, 25°40'20''N 100°06'25''E, 3693 m.

Type material. Holotype (♀) and allotype (♂): "P.R. CHINA Yunnan, Cang Shan at Dali, N 25°40'20" E 100°06'25" 05.vii.2011, 3693 m, sift36, V. Grebennikov". Holotype temporarily in The Canadian National Collection of Insects, Ottawa, Canada; to be eventually deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijin, Peoples Republic of China. Allotype in the Smetana collection, Ottawa, Canada, to be eventually deposited in the Museum d'histoire naturelle, Genève, Switzerland.

Description. Head piceous-black, pronotum dark brown with paler lateral margins (male), or almost uniformly dark piceous (female), elytra light brunneous; abdomen light brunneous with apical margins of sterna more or less paler; head, pronotum and elytra with faint metallic bronze lustre, abdomen iridescent; both maxillary and labial palpi, antennae and legs uniformly testaceous. Head rounded, wider than long (ratio 1.23); eyes very large and convex, tempora very short, considerably shorter than length of eyes seen from above (ratio 0.18); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture touching posteriomedian margin of eye, one puncture between it and posterior margin of head; temporal puncture touching posterior margin of eye; surface of head with moderately coarse, dense microsculpture of transverse and oblique waves gradually becoming coarser and changing into meshes on middle of clypeus. Antenna moderately long, segments 2 and 3 subequal in length, segments 4-8 longer than wide, gradually becoming shorter, segments 9 and10 about as long as wide, segment 11 as long as two preceding



Figs. 11-19. *Quedius schneideri:* 11- apical portion of aedoeagus, lateral view; 12- apical portion of underside of paramere with sensory peg setae; 13- tergite 10 of female genital segment. *Quedius iapetus*: 14- apical portion of male sternite 8; 15- tergite 10 of male genital segment; 16- sternite 9 of male genital segment; 17- aedoeagus, ventral view; 18, apical portion of underside of paramere with sensory peg setae; 19- tergite 10 of female genital segment.

segments combined. Female antenna somewhat shorter. Pronotum about as long as wide, widely rounded basally, vaguely narrowed anteriad, evenly transversely convex; dorsal rows each with three punctures; sublateral rows each with two punctures, posterior puncture situated in front of large lateral puncture; surface of pronotum with very fine and very dense microsculpture of transverse waves, markedly finer and denser than those on vertex of head. Scutellum with numerous punctures, surface with very fine, dense microsculpture of transverse striae. Elytra short, at suture markedly shorter (ratio 0.79), at sides vaguely shorter (ratio 0.92) than pronotum at midline; punctation fine and dense; transverse interspaces between punctures mostly somewhat smaller than diameters of punctures; pubescence dense, brunneous; surface between punctures without microsculpture. Wings apparently reduced to non-functional stumps. Abdomen with tergite 7 (fifth visible) without whitish apical seam of palisade setae; tergite 2 (in front of first fully visible tergite) with some scattered punctures; punctation of tergites markedly finer than that on elytra, rather dense on bases of tergites, but becoming sparse to very sparse toward apical margins of tergites, and in general becoming sparser toward apex of abdomen; pubescence brownish; surface between punctures with excessively fine microsculpture of transverse striae.

Male. First four segments of front tarsus moderately dilated, subbilobed, each with some tenent setae ventrally, segment two about as wide as apex of tibia; segment 4 narrower than preceding segments. Sternite 8 with two long setae on each side, apical margin with moderately wide and deep, obtusely triangular, medioapical emargination, small triangular area before emargination flattened and smooth (Fig. 14). Genital segment with tergite 10 narrow, markedly narroved toward narrowly arcuate apex, setose as in Fig. 15. Sternite 9 with short basal portion with acute apex, apical portion arcuate apically, with differentiated apical setae at each side and one subapical seta on left side, otherwise sparsely setose (Fig. 16). Aedoeagus (Figs 17, 18) relatively robust, median lobe parallelsided in middle portion, anteriorly narrowed into robust, triangular apical portion with subacute apex, on face adjacent to paramere with short medial carina. Paramere elongate, largely parallelsided, with narrowly arcuate apex not reaching apex of median lobe; four fine setae at apical margin, medial setae longer than lateral ones, two similar setae at each lateral; margin below apex; sensory peg setae on underside of paramere numerous, forming two longitudinal groups, as in Fig. 18.

Female. First four segments of front tarsus simple, not dilated. Tergite 10 of genital segment as in Fig. 19.

Length 5,5-5.7 mm.

Bionomics. Specimens were sifted from habitats above tree line, but no details are available.

Geographical distribution. This wingless species is at present known only from Diancang Shan in Yunnan; it may be endemic to higher elevations of this mountain range.

Recognition and comments. *Quedius iapetus* occurs in Diancang Shan together with two species of the subgenus *Raphirus*: *Q. pian* (see above) and *Q. li* Smetana, 2008. *Quedius iapetus* and *Q. pian* are separated ecologically, *Q. pian* occurs at lower elevations in forest habitats, always well below 3000 m, whereas *Q. iapetus* is apparently a species of habitats

above tree line. Both species differ in some external characters (*Q. pian* is larger and more robust, the antenna is longer with outer segments longer than wide, etc.), and there are distinct differences in the development of both male and female secondary sexual characters (Fig. 35 in Smetana, 2008:192 and Figs 2,3,15,16,19) and in the shape of the aedoeagus (Figs 4-7, 17,18). *Quedius li*, that is at present known from a habitat at 3078 m of elevation, differs by the darkened middle and hind tibiae and by the aedoeagus with apex of median lobe characteristically knob-like dilated (Fig. 19, 20 in Smetana, 2008: 185). The only two additional brachypterous species with entirely testaceous legs known at present (*Q. nujiang* Smetana, 2011 and *Q. angustiarum* Smetana, 2011) are isolated geographically, since they occur in Gaoligong Shan west of Salween river at the Myanmar border.

Etymology. The specific epithet is the name of Iapetus, one of the moons of Saturn.

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