

Revision of the *Ptilomera*-Group of the Gerridae, with  
Descriptions of three New Species  
(Heteroptera)

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During a recent visit to Paris I had the opportunity to examine the collection of Gerridae in the National Museum of Natural History. In this collection I found two very interesting and apparently new species of the *Ptilomera*-group. I have since discovered still another new species belonging to this group, in the collection of the British Museum (Natural History) in London.

The *Ptilomera*-group may constitute a new subfamily of Gerridae, the *Ptilomerinae* n. sp., and while describing these three new species, I have taken the opportunity to revise the group and to diagnose the new subfamily. My sincere thanks are due to Prof. E.-L. Bouvier and Dr. E. Séguy of the National Museum of Natural History, Paris, and to Major E. E. Austen and Mr. W. E. China of the British Museum, London, for the kindness shown to me during my stay in Paris and London respectively.

The *Ptilomera*-group of the Gerridae was separated for the first time from the rest of the family by Bianchi<sup>1</sup>, who divided the family as follows:

1. Subfamily *Halobatinae*, with the genera *Halobates* Eschscholtz, 1822, *Halobatopsis* Bianchi, 1896, *Trepobates* Uhler, 1894, *Chimarrhometra* Bianchi, 1896, *Brachymetra* Mayr, 1865, *Metrocoris* Mayr, 1865, *Rheumatobates* Bergroth, 1892, *Hymenobates* Uhler, 1894, *Metrobates* Uhler, 1871, *Platygerris* B. White, 1883, *Potamometra* Bianchi, 1896.

2. Subfamily *Gerrinae*.

A. *Gerrides*, with the genera *Hydrobates* Erichson, 1848 (= *Cy-*

<sup>1</sup> *Annuaire Mus. Zool. Acad. Sci.*, St.-Petersbourg, tom. I, pp. 69-76 (1896).

*lindrostethus* Fieber, 1861), *Gerris* Fabricius, 1794, *Limnotrechus*, *Hygrotrechus*, *Limnoporos* Stål, 1868, *Limnogonus* Stål, 1868 (= *Lamprotrechus* Reuter, 1883), *Limnometra* Mayr, 1865, *Tenagogonus* Stål, 1853.

B. *Ptilomerae*, with the genera *Ptilomera* Amyot et Serville, 1843, and *Heterobates* Bianchi, 1896.

Some of the genera enumerated above must now either be removed to the other subfamily owing to the erroneous observation of Bianchi, synonymized with each other, or separated as a new subfamily. Later Martin<sup>1</sup> founded another subfamily *Hermatobatinae* Martin, 1901, with two genera *Hermatobates* Carpenter, 1891, and *Hermatobatodes* Martin, 1901, which may be identical with each other<sup>2</sup>. According to my investigations, the family Gerridae may be divided into seven or eight subfamilies or tribes, but I have still to investigate some points, and hesitate to publish on my new classification of this family at present. It is, however, quite certain that the *Ptilomera*-group, which, under the name *Ptilomerae*, was treated by Bianchi as a subdivision of the subfamily Gerrinae, constitutes a distinct subfamily, defined by the following diagnosis.

#### **Ptilomerinae**, subfamilia nova.

Body cylindrical, spindle-shaped or rather oval. Head much produced anteriorly, anteocular portion much produced, sometimes longer than the rest of head. Eyes prominent, distinctly emarginate on the inner margin. Antennae very long and slender, four-jointed, much longer than half the length of body, sometimes even longer than body, first joint much the longest; second, third, and fourth subequal in length. Rostrum stout and sharp, third joint much the longest. Pronotum in apterous form transverse, anterior and posterior margins straight and parallel; the same in the macropterous form much developed backwardly, covering the mesonotum, more or less convex dorsally, posterior margin much rounded, forming nearly a semicircle. Mesonotum very broad and long, metanotum nearly half the length

<sup>1</sup> *Bull. Mus. Hist. Nat.*, Paris, 1901, pp. 215-226 (1901).

<sup>2</sup> See the note by Bergroth, *Wien. Ent. Zeit.*, Bd. XXV, pp. 6-7 (1906).

of mesonotum, distinctly separated from the latter. Anterior legs comparatively long, femur and tibia always straight, the latter a little shorter and less stout than femur, tibia distinctly projecting at the inner portion of apex; tarsus not shorter than half the length of tibia (except in the male of *Teratobates* m. gen. nov.), first joint always longer than second, claws inserted near the apex of second joint. Intermediate and posterior legs very long and slender; femora much longer than body or the rest of the legs, posterior femur more slender but subequal or a little longer than the intermediate one, tibiae and tarsi strongly tapering towards the apex, intermediate tibia with a fringe of long, thin hairs (which are sometimes obscure in the dried specimens), intermediate tarsus longer than half the length of tibia, first joint extremely longer than second, posterior tibia much shorter than femur, tarsus very short with two joints of subequal length. Abdomen with six abdominal and two genital segments.

TYPE GENUS: *Ptilomera* Amyot et Serville.

DISTRIBUTION: Central and South-Eastern Asia, with Malayan and Papuan Archipelago.

Six genera belong to this subfamily, *i. e.* *Ptilomera* Amyot et Serville, 1843, *Heterobates* Bianchi, 1896, *Teratobates* m. gen. nov., *Rheumatogonus* Kirkaldy, 1909 (= *Jucundus* Distant, 1910), *Rhyacobates* Esaki, 1923, and *Potamometra* Bianchi, 1896 (= *Thaumastometra* Kirkaldy, 1899), the last of which was erroneously put in the Halobatinae by Bianchi. These genera are summerized in the following key to the genera. All the members of the subfamily are known to inhabit the surface of moving water, even of severe rapids.

#### Key to the genera.

- 1 (2). First joint of antennae much shorter than the other three joints taken together. Apex of anterior tibia not sharply pointed inwardly.....  
..... **Rheumatogonus** Kirkaldy = **Jucundus** Distant.
- 2 (1). First joint of antennae much longer than the rest. Apex of anterior tibia pointed into a sharp process..... 3
- 3 (4). Metanotum distinctly sulcated along the median longitudinal line, divided into two lateral parts, posterior coxae distinctly spined. Males: much larger than females, furnished with a very conspicuous brush-like fringe of stout hairs along the inner margin of the apical half of

- intermediate femur, genital segments very large and conspicuous, about as long as the rest of abdomen, second segment much dilated laterally on the dorsal side, much protruded posteriorly on the ventral side; parameres (styles) very strong, curved outwardly, much ciliated. Females: smaller than males, intermediate femur not ciliated, apex of connexiva and of the dorso-lateral portions of last abdominal segment sharply pointed posteriorly. Large in size.....
- ..... **Ptilomera** Amyot et Serville.
- 4 (3). Metanotum not sulcated along the median longitudinal line, posterior coxae not spined. Males are smaller or as large as females, not modified as in *Ptilomera*. Connexiva in female not pointed into a spine-like process at the posterior end..... 5
- 5 (6). Body not longer than three times the breadth. Abdomen very small, especially in females. Posterior acetabula dorsal to abdomen. Male genital segments narrower but longer than the rest of abdomen, parameres (styles) strongly developed as in *Ptilomera*. Abdomen in female much reduced in size, dorsal surface scarcely visible from above. .... **Potamometra** Bianchi = **Thaumastometra** Kirkaldy.
- 6 (5). Body much longer than three times the breadth. Posterior acetabula lateral to the abdomen. Abdomen well-developed, also in female.. 7
- 7 (10). Abdomen of female much modified. First anterior tarsal joint shorter than twice the length of the second..... 8
- 8 (9). Females much larger than males. Ventral side of abdomen in female extremely developed, rolled up dorsally over the morphological dorsal segments, the last abdominal segment is forming a tube-like structure. Anterior tarsus always longer than half the length of tibia.....
- ..... **Rhyacobates** Esaki.
- 9 (8). Both sexes of same size. Lateral sides of last abdominal segment in female strongly projecting posteriorly, forming two large lobes. Anterior tarsus in male shorter than half the length of tibia.....
- ..... **Teratobates** gen. nov.
- 10 (7). Abdomen of female not modified. First anterior tarsal joint longer than twice the length of the second..... **Heterobates** Bianchi.

[I] Genus **Potamometra** Bianchi.

*Potamometra* Bianchi, *Annuaire Mus. Zool. Acad. Sci. St.-Petersbourg*, t. I, p. 72 (1896).

*Thaumastometra* Kirkaldy, *Rev. d'Ent.*, t. XVIII, p. 85 (1899).

TYPE: *Potamometra Brezowskii* Bianchi.

DISTRIBUTION.—Western China.

This remarkable genus was described by Bianchi from Western

China as a member of the subfamily Halobatinae, but, as mentioned already, it is an error of Bianchi's observation<sup>1</sup>. The type specimens of the only hitherto known species, *Potamometra Brezowskii* Bianchi are one apterous male and two apterous and one macropterous females, and are now preserved in the collection of the Zoological Museum of the Russian Academy of Sciences, St.-Petersburg (Leningrad). These specimens were carefully studied by me, and I am now quite sure, that the genus belongs to the Ptilomerinae instead of to the Halobatinae. Bianchi was surely deceived by its stout shape of body and much reduced size of the abdomen.

In describing the genus *Thaumastometra*, Kirkaldy apparently overlooked the genus *Potamometra*, owing to the fact, that the latter had been described under the subfamily Halobatinae, because he referred his genus to *Heterobates* Bianchi, which had been described in the same paper as *Potamometra*. According to the Kirkaldy's description and figures, it is quite certain that the genus *Thaumastometra* is a synonym with *Potamometra* Bianchi, and the type species of the former, *Thaumastometra Montandoni* Kirkaldy, may also be identical with *Potamometra Brezowskii* Bianchi. I found the types of it neither in the collection of the Natural History Museum in Bucarest nor in that of the British Museum in London, where most of Montandon's collection, in which the types should be found, is now preserved.

In the collection of the National Museum of Natural History in Paris there is another species of the genus from Tibet. Thus two species of the genus, both from Central Asia, are enumerated at present.

#### 1. *Potamometra Brezowskii* Bianchi.

*Potamometra Brezowskii* Bianchi, *Annuaire Mus. Zool. Acad. Sci. St.-Petersbourg*, t. I, p. 73 (1896).

*Thaumastometra Montandoni* Kirkaldy, *Rev. d'Ent.*, t. XVIII, p. 86 (1899).

Habitat: Western China, «Hui-hsien», 3.000 feet, Kan-su (Bianchi); «Ho-chan», Ngan-hoei (Kirkaldy).

<sup>1</sup> Bergroth already pointed out the fact, that the genus does not belong to the subfamily Halobatinae. [*Ohio Naturalist*, vol. VIII, p. 371 (1908)].

2. *Potamometra tibetensis* sp. nov. (fig. 1).

Apterous form. Body black with brown markings above, light yellow below, with yellow or gray pubescence. Head brown with a black spot which is bifurcated posteriorly, on vertex. Eyes brown, shining. Antennae dark brown; antenniferous tubercles, base of the

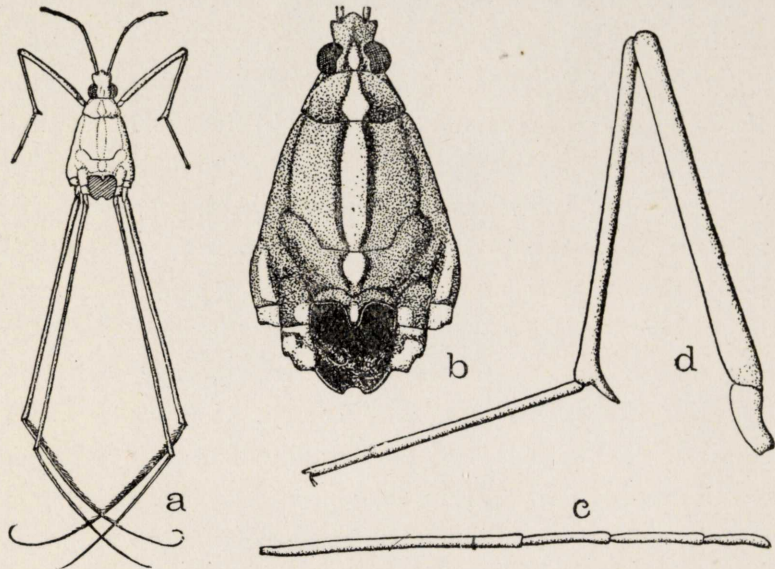


Fig. 1.—*Potamometra tibetensis* sp. nov.: *a*, female; *b*, female, dorsal surface of body, more enlarged; *c*, antenna; *d*, anterior leg.

first joint black, apices of second, third and fourth joints darker. Rostrum brown, apex of third joint black and shining (fourth joint mutilated in the unique specimen). Pronotum black, with yellow pubescence, with a large shining trapezoid brown spot at the middle, pleural portions covered with silvery pubescence. Meso- and metanotum black with yellow pubescence; the median longitudinal area shining, not pubescent, brown and margined with black; mesopleural portions with silvery pubescence. The process on the posterior margin of metanotum<sup>1</sup> brown. Underside of thorax light brown with gray pubescence. Anterior legs brown, femur with three black stri-

<sup>1</sup> This posterior portion of the metanotum was treated by Bianchi as a part of abdomen.

pes, of which two are on outer and one on the inner side, tibia and tarsus darker, the apical spine of the former black. Intermediate acetabula brown with a large black spot, posterior acetabula black with a brown spot. Intermediate and posterior legs mostly dark brown; posterior coxa black with a brown spot; both femora with three more or less distinct black lines at the basal portion, apical portion except the extremity much lighter in colour; tibiae and tarsi much darker. Dorsal surface of abdomen in female only visible from behind, concealed under metanotum, brown, situated vertically, ventral surface of abdomen light yellow.

Body oval, much convex on ventral side. Head comparatively small. Antecular portion longer than the rest. Eyes much rounded laterally, distinctly emarginate on inner margin. Antennae shorter than body, first joint much the longest, longer than the other three joints taken together, second joint about one-third the length of first, third slightly longer than second, fourth the shortest, a little curved and flattened at the middle. Rostrum reaching the anterior coxae, third joint much the longest. Pronotum transverse, anterior and posterior margins nearly parallel, much broader than head; mesonotum very large, moderately convex; much widened posteriorly; metanotum nearly a half the length of mesonotum, but much broader, lateral portions much protruded anteriorly into the lateral areas of mesonotum, in female with a distinct process at the middle of the posterior margin. Underside of thorax and abdomen remarkably convex. Anterior legs rather short and stout, tibia a little shorter than femur, apical spine very acute, tarsus slightly shorter than tibia, first joint more than three times as long as second. Intermediate and posterior legs very long and slender, posterior femur a little longer than the intermediate one, posterior coxa without a process as in *Brezowskii*.

Measurements: ♀, length of body 11 mm., greatest breadth 6 mm., length of antenna 4.5 mm. + 1.5 mm. + 1.8 mm. + 1.2 mm. = 9 mm., length of anterior femur 6.5 mm., length of intermediate femur 21 mm., length of posterior femur 22.5 mm.

Male is unknown.

Habitat: Tibet.

Holotype, female, «Mou-Pin», Tibet, 1869-70 (A. David) (National Museum of Natural History, Paris).

This species is distinguished from the other species of the genus, *Potamometra Brezowskii* Bianchi in the following characters:

1. Much stouter in shape.
2. The conspicuous projection of the posterior margin of the metanotum in female is much shorter than in the latter.
3. Posterior coxa in female without a process in this species, while in the latter the same with a very conspicuous process on the inner side, which is longer than the coxa itself.

[2] Genus **Ptilomera** Amyot et Serville.

*Ptilomera* Amyot et Serville, Hémip., p. 413 (1843), Distant, Faun. Brit. Ind., Rhynch., vol. II, p. 185 (1904).

TYPE: *Ptilomera laticaudata* (Hardwicke).

DISTRIBUTION.—India, Southern China, Malay Peninsula, and Malayan and Papuan Archipelago.

Of this peculiar genus seventeen species have been hitherto described. This genus is taxonomically one of the most difficult groups, as all the species are more or less variable to some extent, and apparently much allied to one another. Lethierry and Severin, and Distant united several species from different localities together, but it is hardly possible that *Ptilomera laticaudata* Hardwicke from Nepal, *Ptilomera cingalensis* Stål from Ceylon, and *Ptilomera tigrina* Uhler from Hong Kong belong to a single species. It may be necessary to make a revision of the genus in the future. Besides these species I have still some undescribed species in my collection, but I have no opportunity to describe them at present.

1. ***Ptilomera laticaudata*** (Hardwicke).

*Gerris laticaudatus* Hardwicke, Trans. Linn. Soc., vol. XIV, p. 143, pl. 6, figs. 1-4 (1825).

? *Ptilomera laticauda* (!) Amyot et Serville, Hémip., p. 414, pl. 8, fig. 3 (1843); ? Herrich-Schäffer, Wanz. Ins., Bd. IX, p. 65, fig. 940 (1853).

? *Ptilomera laticaudata* Distant, Faun. Brit. Ind., Rhynch., vol. II, p. 185, fig. 133 (1903).

Habitat: Nepal (Hardwicke), ? Java (Amyot et Serville), ? India, ? Ceylon, ? Burma, ? Malayan Archipelago (Distant).



2. **Ptilomera agriodes** E. Schmidt.

*Ptilomera agriodes* E. Schmidt, Entom. Mit., Bd. XV, p. 63 (1926).

Habitat: S. India (E. Schmidt).

3. **Ptilomera lachne** E. Schmidt.

*Ptilomera lachne* E. Schmidt, Entom. Mit., Bd. XV, p. 64 (1926).

Habitat: S. India (E. Schmidt).

4. **Ptilomera cingalensis** Stål.

*Ptilomera cingalensis* Stål, Öfv. Vet-Ak. Förh., vol. XII, p. 190 (1856).

Habitat: Ceylon (Stål).

5. **Ptilomera canace** E. Schmidt.

*Ptilomera canace* E. Schmidt, Entom. Mit., Bd. XV, p. 65 (1926).

Habitat: Ceylon (E. Schmidt).

6. **Ptilomera tigrina** Uhler.

*Ptilomera tigrina* Uhler, Proc. Acad. Philad., 1860, p. 230.

Habitat: Hong Kong (Uhler).

7. **Ptilomera hylactor** Breddin.

*Ptilomera hylactor* Breddin, Soc. Entom., Bd. XIX, p. 148 (1903).

Habitat: Annam (Breddin).

8. **Ptilomera harpyia** E. Schmidt.

*Ptilomera harpyia* E. Schmidt, Entom. Mit., Bd. XV, p. 65 (1926).

Habitat: Cambodja (E. Schmidt).

9. **Ptilomera harpalos** E. Schmidt.

*Ptilomera harpalos* E. Schmidt, Entom. Mit., Bd. XV, p. 66 (1926).

Habitat: Sumatra (E. Schmidt).

10. **Ptilomera dromas** Breddin.

*Ptilomera dromas* Breddin, Abh. Naturf. Gesel., Halle, Bd. XXIV, Taf. I, fig. 14 (1901) (figures only); Soc. Entom., Bd. XIX, p. 147 (1903).

Habitat: Java (Breddin).

11. **Ptilomera argus** Breddin.

*Ptilomera argus* Breddin, Soc. Entom., Bd. XIX, p. 147 (1903).

Habitat: Java (Breddin).

12. **Ptilomera asbolus** Breddin.

*Ptilomera asbolus* Breddin, Mit. Naturhistor. Mus. Hamburg, Bd. XXII, p. 132, figs. 10-11 (1905).

Habitat: Java (Breddin).

13. **Ptilomera laelaps** Breddin.

*Ptilomera laelaps* Breddin, Abh. Naturf. Gesel., Halle, Bd. XXIV, p. 88, Taf. I, fig. 13 (1901); Soc. Entom., Bd. XIX, p. 147 (1903).

Habitat: Celebes (Breddin).

14. **Ptilomera oribasus** Breddin.

*Ptilomera oribasus* Breddin, Abh. Naturf. Gesel., Halle, Bd. XXIV, p. 88, Taf. I, fig. 12 (1901).

Habitat: Celebes (Breddin).

15. **Ptilomera dorceus** Breddin.

*Ptilomera dorceus* Breddin, Abh. Naturf. Gesel., Halle, Bd. XXIV, p. 87, Taf. I, fig. 11 (1901).

Habitat: Celebes (Breddin).

16. **Ptilomera pamphagus** Breddin.

*Ptilomera pamphagus* Breddin, Abh. Naturf. Gesel., Halle, Bd. XXIV, p. 86, Taf. I, fig. 10 (1901).

Habitat: Celebes (Breddin).

17. **Ptilomera sumizome** Esaki.

*Ptilomera sumizome* Esaki, Philipp. Journ. Sci., vol. XXVI, p. 59, pl. 1, figs. 7-8 (1925).

Habitat: Celebes (Esaki).

[3] Genus **Rhyacobates** Esaki.

*Rhyacobates* Esaki, Philipp. Journ. Sci., vol. XXII, p. 387 (1923), *ibid.*, vol. XXVI, p. 60 (1925).

TYPE: *Rhyacobates Takahashii* Esaki.

DISTRIBUTION.—Formosa.

A single species is known from Formosa.

1. **Rhyacobates Takahashii** Esaki.

*Rhyacobates Takahashii* Esaki, Philipp. Journ. Sci., vol. XXII, p. 388, pl. 1 (1923); *ibid.*, vol. XXVI, p. 60, pl. 1, figs. 9-12 (1925).

Habitat: Formosa.

[4] Genus **Teratobates** nov.

Apterous form. Body elongate, much slender, both sexes of same size. Head much longer than broad between eyes, antecular portion longer than the rest of head. Eyes much rounded laterally, moderately emarginate on inner margin. Antennae very long and slender, about as long as body, first joint much longer than the remaining three joints taken together, second shorter than one-third of the first, third shorter than second, fourth shorter than third. Rostrum not passing the anterior coxae, third joint much the longest.

Pronotum transverse, anterior margin straight, posterior margin slightly waving. Mesonotum very large, lateral margins almost parallel. Metanotum distinctly separated from mesonotum, but the pleural portions are more or less confluent with mesothorax, divided into two portions, anterior part more than twice the length of posterior part. Anterior legs rather short, femur stout, slightly incrassate at the middle, tibia much shorter and less stout than femur, with an acute process at the inner side of apex; tarsus a little shorter than half the length of tibia in male, a little longer in female, first joint one and a half times as long as second, claws subapical. Intermediate and posterior legs very long and slender: intermediate femur about one and a half times as long as body, tibia about half the length of femur but much thinner, tarsus a little shorter than half the length of tibia, but much thinner and tapering towards the apex, first joint more than five times as long as second: posterior femur nearly as long as but thinner than intermediate femur, tibia very short, about one-fifth the length of femur, tapering towards the apex, tarsus extremely short, about one-tenth of tibia, two joints of equal length. Abdomen small and narrow, a little shorter than meso- and metanotum taken together. Dorsal abdominal segments narrow, first four segments subequal in length, fifth a little longer, sixth about twice the length of the fifth. Connexiva very conspicuous, vertical in position, the sixth segment in female strongly developed into two lateral lobes, extremely protruding posteriorly beyond the apex of the genital segments. Genital segments in male consisting of two distinct segments, first segment transverse, second segment conical. Female genital segments very small, only a single segment is visible from above.

TYPE: *Teratobates bilobatus* sp. nov.

DISTRIBUTION.—Nepal and United Provinces of India.

This interesting genus is placed between *Rhyacobates* Esaki and *Heterobates* Bianchi, differing from them in the structure of the anterior legs and of the abdomen in female.

***Teratobates bilobatus* sp. nov. (fig. 2).**

Apterous form. Body black with brown markings and grayish pubescence. Head brown, with a posteriorly rather bifurcated spot

on vertex, posterior margin, and antenniferous tubercles, black. Eyes black, shining. Antennae entirely black. Rostrum brown, with the apical half of third joint and fourth black. Pronotum black with a median longitudinal stripe brown, mesonotum black with a median longitudinal stripe brown, metanotum entirely black. Underside of thorax with much silvery pubescence, posterior portion of mesosternum and the metasternum entirely brown. Anterior coxa, trochanter and femur brown, the last with three black lines, tibia and tarsus black. Intermediate coxa, trochanter, and basal portion of femur except the outer side brown, remaining parts of intermediate legs black. Posterior coxa brown with a black spot, trochanter and basal portion of femur except the outer side brown, the rest of femur, tibia and tarsus black. Dorsal surface of abdomen except the last genital segment black, ventral surface of abdomen and the entire last genital segment in both sexes brown.

Antennae as long as body, first joint much longer than the rest of antenna, second joint about one-fourth of first in length, third shorter than second, fourth shorter than third. Characters of legs are given in the generic description. Anterior femur furnished with several long setose hairs along the basal half of the posterior margin. Abdomen shorter than meso- and metathorax taken together, last dorsal abdominal segment nearly as long as two preceding segments taken together. Connexiva vertical. Male genital segments very conspicuous, first dorsal segment a little shorter than the last abdominal seg-

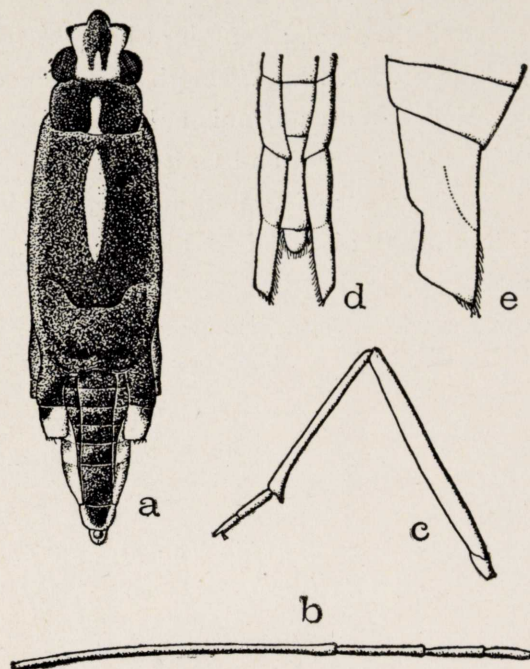


Fig. 2.—*Teratobates bilobatus* sp. nov.: a, male; b, antenna; c, anterior leg of male; d, apical part of abdomen of female, dorsal view; e, the same, lateral view, from the left side.

ment, second shorter than first, tapering towards the end. In female connexiva of the last abdominal segment forming two lateral lobes and much protruded posteriorly beyond the apex of small genital segment—a curious structure never met with in the other species of the Gerridae known to me.

Measurements: Length of body ♂ 6.5-7 mm., ♀ 8 mm., breadth of body 1.6-1.8 mm., length of intermediate femur 10.5-11 mm.

Macropterous form is unknown.

Habitat: Nepal and United Provinces of India.

Holotype, male, allotype, female, two paratypes, males, Bijrani, Naini Tal. Dist. (Plains), U. P., May 18th, 1909; another paratype, male, Katmandu, Nepal (Distant collection) in the collection of the British Museum, London.

[5] Genus **Heterobates** Bianchi.

*Heterobates* Bianchi, Annuaire Mus. Zool. Acad. Sci., St. Pétersbourg, t. I, p. 74 (1896).

TYPE: *Heterobates Dohrandti* Bianchi.

DISTRIBUTION.—Turkestan.

Only a single species from Turkestan has hitherto been known.

1. **Heterobates Dohrandti** Bianchi.

*Heterobates Dohrandti* Bianchi, Annuaire Mus. Zool. Acad. Sci., St. Pétersbourg, t. I, p. 75 (1896).

This species was for the first time collected by Dohrandt at «Napus, just above the delta of Oxus River» (= Amu Darya). According to the personal report of Dr. A. N. Kiritschenko, St. Petersburg (Leningrad), the species was afterwards found by him also at Petro-Alexandrovsk and Termez on the Amu Darya and at Perovsk on the Syr Darya. Thus all the known localities are found on the rivers Syr Darya and Amu Darya, both flowing into the Sea of Aral. The specimens from these localities are all kept in the Zoological Museum of the Academy of Sciences, St. Petersburg.

[6] Genus **Rheumatogonus** Kirkaldy.

*Rheumatogonus* Kirkaldy, Canad. Entom., vol. XLI, p. 390 (1909). (As a subgenus of *Ptilomera*).

*Jucundus* Distant, Ann. Mag. Nat. Hist., ser. 8, vol. V, p. 45 (1910); Faun. Brit. Ind., Rhynch., vol. V, p. 145 (1910).

TYPE: *Rheumatogonus luzonicus* (Kirkaldy).

DISTRIBUTION.—Philippines, India, and Malayan Archipelago.

This genus was described by Kirkaldy as a subgenus of *Ptilomera* in his description of *Ptilomera luzonica* Kirkaldy. His description of this species was so careless that he gave neither the locality of the specimens nor the measurements of them. It is fairly certain, however, that the specimens originated from Luzon, Philippines, judging by the specific name. In the collection of the Natural History Museum, Stockholm, there is a pair of this species determined by Kirkaldy as *Ptilomera luzonica* Kirkaldy. The species seems not rare in Luzon, as I have seen several specimens of it from the same locality in the collections of the Zoological Museum, Berlin, and of the National Museum of Natural History, Paris. It is quite certain that *Rheumatogonus* described as a subgenus of *Ptilomera*, is generically distinct from the latter. *Jucundus* Distant with two known species, of which one is not a good species, is to be synonymized with *Rheumatogonus* Kirkaldy as I can find no difference between them.

1. **Rheumatogonus luzonicus** (Kirkaldy) (fig. 3, a-c).

*Ptilomera luzonica* Kirkaldy, Canad. Entom., vol. 41, p. 389 (1909).

This species was very insufficiently described by Kirkaldy, and here I give another description of it.

Apterous form. Body brown above, light brown with gray pubescence beneath. Head brown with two spots on vertex and a spot on frons dark brown. Eyes dark brown or black. Antennae black. Rostrum brown with the base of first joint, apex of third and the fourth entirely black. Pronotum brown with anterior margin black. Mesonotum brown with two more or less indistinct stripes on each humeral angles black, and in female a very distinct longitudinal stripe projecting anteriorly from the posterior portion. Metanotum black in the middle, lateral portions brown. Ventral surface of thorax yellowish

brown, with gray pubescence. Anterior legs yellowish brown, with the apical half of femur, tibia and tarsus black. Intermediate and posterior legs black, coxae and trochanters and the base of intermediate femur yellowish brown. Intermediate and posterior acetabulae with a small black spot. Dorsal abdominal segments black, the last

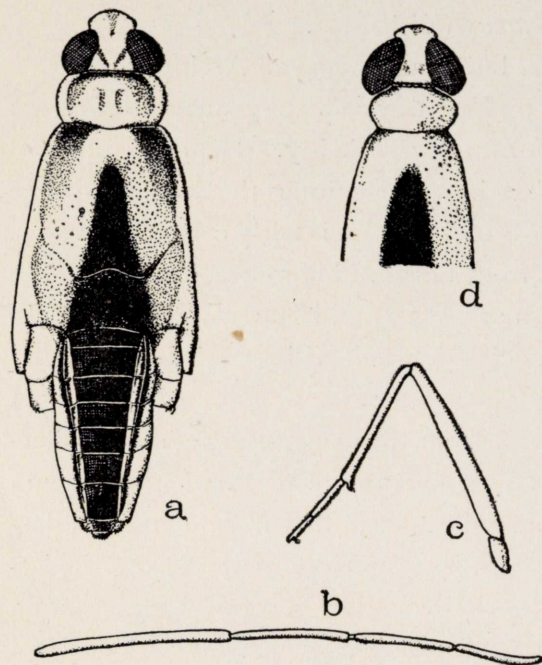


Fig. 3.—*a*, *Rheumatogonus luzonicus* (Kirkaldy), female; *b*, the same, antenna; *c*, the same, anterior leg; *d*, *Rheumatogonus borneensis* sp. nov., anterior half of female.

one (♀) or two (♂) sometimes brownish. Ventral surface yellowish brown with gray pubescence. Male genital segments brown with the apex black. Female genital segments brown with the dorsal surface black.

Males much smaller than females. Head longer than broad between eyes. Eyes moderately emarginate on inner margin. Antennae not longer than body, slender, first joint slightly stouter than the rest, much longer than any other joint, second a little longer than a half of the first, third shorter than second, fourth slightly shorter than third. Rostrum scarcely passing the anterior coxae, third joint much the longest. Pronotum a little shorter than head, anterior and posterior margins nearly parallel and straight. Meso- and metanotum moderately convex, the latter divided into two parts transversely, the posterior part about one-third as long as the anterior part. Anterior legs not very stout, femur longer and thicker than tibia, tibia about three-fourths of femur in length, projecting inwardly at the apex, tarsus about three-fifths as long as tibia, much thinner than the latter, first joint one and a half times as long as second. Intermediate and posterior legs very long and slender, both the femora nearly equal in length, but the intermediate femur

second, fourth slightly shorter than third. Rostrum scarcely passing the anterior coxae, third joint much the longest. Pronotum a little shorter than head, anterior and posterior margins nearly parallel and straight. Meso- and metanotum moderately convex, the latter divided into two parts transversely, the posterior part about one-third as long as the anterior part. Anterior legs not very stout, femur longer and thicker than tibia, tibia about three-fourths of femur in length, projecting inwardly at the apex, tarsus about three-fifths as long as tibia, much thinner than the latter, first joint one and a half times as long as second. Intermediate and posterior legs very long and slender, both the femora nearly equal in length, but the intermediate femur



stouter than the posterior one, intermediate tibia longer than half the length of femur, tarsus very thin and shorter than half the length of tibia, posterior tibia about half the length of femur, tarsus very short. Abdomen in female rather small, sixth dorsal segment about as long as the fourth and fifth taken together, connexiva narrow, genital segments small, somewhat cylindrical. Abdomen in female much broader than in male, ventral surface well developed, connexiva vertical in position, genital segments small.

Length of body: ♂ 5.5 mm., ♀ 7.5 mm.

Habitat: Luzon. I have seen many specimens from this island, but no detailed locality is known to me.

### 2. *Rheumatogonus custodiendus* (Distant).

*Fucundus custodiendus* Distant, Ann. Mag. Nat. Hist., ser. 8, vol. V, p. 143, (1910); Faun. Brit. Ind., Rhynch., vol. V, p. 145, fig. 78 (1910).

The type, a single female macropterous specimen, is preserved in the British Museum, London. The «second male apterous example» noted by Distant (loc. cit.) is not found in the collection of that museum. Another female apterous specimen from Malay Peninsula, Aug. 21st, 1926 (C. Dover) is in the collection.

The second species of *Fucundus* Distant, *F. burmanus* Distant, described together with this species, is not a good one. The type specimen, which is now kept in the British Museum, is nothing but an immature specimen of a *Ptilomera* in rather poor condition.

### 3. *Rheumatogonus borneensis* sp. nov. (fig. 3, d).

Apterous form. ♀ Body brown with black markings, lighter in colour on underside. Head brown, with a dark brown spot on frons, posterior margin of vertex black. Eyes black. Antennae entirely black. Rostrum brown, apex of third joint and the fourth entirely black. Pronotum brown, with the anterior margin black. Meso- and metathorax brown, with the anterior margin of mesopleural portions, and central area of mesonotum except the anterior portion, and of metanotum black. Underside of thorax lighter in colour. Anterior legs black, with coxa, trochanter, and basal half of femur except the inner side, brown. Intermediate and posterior acetabula brown with a

black spot at the apex. Intermediate and posterior legs black, with coxae, trochanters, and the basal portion of intermediate femur brown. Dorsal surface of abdomen black, shining, connexiva dark brown, ventral surface of abdomen brown.

Body spindle-shaped. Head much constricted at the base. Vertex moderately constricted at the middle. Eyes very large and conspicuous, rather angularly projecting postero-laterally. Antennae very slender, first joint much the longest, second about three-fifths of first, third slightly longer than second, fourth equal to second. Rostrum reaching the anterior coxae, third joint much the longest. Pronotum transverse, much constricted at the anterior margin, antero-lateral margins not touching the posterior margin of eyes, posterior margin slightly sinuate posteriorly. Mesonotum convex, broadest at the posterior end, metanotum distinctly separated from mesonotum, depressed on the middle area, divided into two parts transversely, the posterior part about one-fourth the length of the anterior part. Anterior legs rather slender, femur straight, tibia about three-fourths the length of femur, much thinner than the latter, projecting inwardly at the apex, tarsus about one half as long as and much thinner than tibia, first joint longer than second. Intermediate and posterior legs very long and slender; intermediate femur much longer than body, slightly tapering towards the end, tibia about three-fourths of femur in length, thinner than the last [tarsus mutilated in the type]; posterior femur equal to the intermediate one, but much thinner, tibia more than one-third the length of femur, more slender [tarsus broken in the type]. Abdomen tapering in breadth posteriorly, dorsal surface flat, shining, connexivum vertically elevated, genital segments very small.

Measurements: ♀ length of body 5.5 mm., greatest breadth 1.2 mm., length of intermediate femur 6.5 mm.

Male is unknown.

Habitat: Northern Borneo.

Holotype, female, Pontianak, Northern Borneo, 1897 (R. Oberthur) (National Museum of Natural History, Paris).

This species differs from the two known species of the genus in its strongly constricted conjunction between the head and prothorax, and in the more prominent structure of the eyes. This is also more slender in shape than *Rheumatogonus luzonicus* (Kirkaldy).