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NEW NEOTROPICAL WATER-STRIDERS
(HEMIPTERA)

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The present paper contains the descriptions of a new genus and two new species of Gerridae and a new genus and four new species of Veliidae. The types are in the Drake Collection, U. S. N. M.

Family GERRIDAE Leach 1815

Tachygonus, new gen.

Limnometra Champion, 1898, Biol. Centr.-Amer. Rhynch. 2:150-151.

(Desc. and figs. two new spp. from Centr. Am.).

Tenagogonus Kirkaldy and Bueno, 1909, Proc. Ent. Soc. Wash. 10:209.

(Cat. of Am. spp.).

Tenagogonus Drake and Harris, 1934, Ann. Carn. Mus. 23:131-134.

(Desc. gen., spp., figs. and gives key to spp.).

Tenagogonus Kuitert, 1942, Bull. Univ. Kan. Univ. 28:131-134. (Desc.,

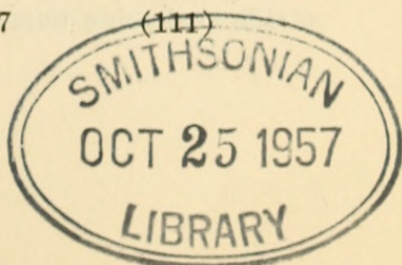
figs. and gives key to Am. spp.; two new spp. desc.)

The name *Tachygonus* is here proposed for the reception of the American species hitherto wrongly assigned to the genus *Tenagogonus* Stal (1853, 1855). The generic characters of *Limnometra* Champion (1898) (not Mayr) and by the authors Drake and Harris (1934) and by Kuitert (1942) (not *Tenagogonus* Stal, 1855) belong to the new genus *Tachygonus*. *Tenagogonus adamsoni* Drake is here designated as the genotype of *Tachygonus*.

The water-striders catalogued by Kirkaldy and Bueno (1909) also belong to *Tachygonus*. The species included by Hungerford (1919) in the genus *Tenagogonus* belong to the genus *Limnogonus* Stal. *Tenagogonus spinulosa* Poisson (1954, Beitr. F. Perus Bd. 4, p. 68, figs.) also belongs to *Limnogonus* and is a synonym of a Neotropical member of this genus. In addition to the type species, *Tachygonus* comprises *T. celocis* (Drake and Harris), *T. opacus* (Champion), *T. quadrilineatus* (Champion) and *T. dulineatus* (Kuitert). (New combinations). *T. duolineatus* (Kuitert) is a synonym of *T. adamsoni* (Drake). (New synonymy).

Ovatametra bella, new sp.

Apterous male: Head ochraceous with median stripe reaching from middle of vertex anteriorly between anterior pair of long sensory hairs, labrum and anterior part of front fuscous-black; three pairs of long, erect, sensory hairs (trichobothria?) placed as follows: First pair placed near base of head, second pair on vertex near middle of eyes and third pair just in front of eyes, the pairs widely separated from one another



and individuals of a pair by the width of vertex, each hair on a feebly raised, dark fuscous spot. Labium testaceous with posterior half blackish. Antenna shortly pubescent, testaceous or ochraceous with apical fourth of segment II, distal half of III and entire IV blackish, measurement—I, 0.50; II, 0.30; IV, 0.48. Entire body slightly shiny, with some bluish spots above, lateral sides and beneath quite bluish. Inferior surface whitish testaceous with narrow basal part of mesosternum, metasternum and abdomen blackish fuscous. Length, 2.70 mm.; width, 1.25 mm.

Pronotum short, depressed on disc, brownish ochraceous, with small, median basal spot and the broad, inverted U-shaped mark fuscous-black, the arms of the latter not quite reaching to base of pronotum. Mesonotum large, depressed on median line, brownish ochraceous, with a small, transverse, median spot in front, a triangular basal spot at middle and lateral stripes (one on each side) widely interrupted (not existing from behind middle to apical fourth) fuscous-black. Metanotum subquadrate, black. Mesopleuron with a black stripe along inferior edge and a median longitudinal stripe. Abdominal tergites above with posterior part of segments III to VII (inclusive) testaceous, II with a median testaceous spot. Connexivum very little narrowed apically, with last segment subquadrate, testaceous with exterior margin blackish. Male genital segments testaceous, beneath widely depressed on apical third; parameres fairly long, curved inward, narrowed apically. Last segment of ventor about as long as two preceding segments, roundly emarginate behind.

Anterior leg testaceous with a longitudinal black stripe on outer face of femur, tarsus dark fuscous; femur 0.94 mm. long; tibia 0.75 mm. long, distinctly bowed inward, with a large, slightly raised ovate spot of short dense hair in middle of convex inner face, between there and apex with a fringe (3 or 4 hairs deep) of numerous longer brown hairs. Intermediate and hind legs dusky testaceous with tibiae and tarsi infusate. Middle femur 1.50 mm. long, tibia 2.40 mm. long and tarsus 1.75 mm. long. Hind femur 1.50 mm. long, tibia 0.82 mm. long and tarsus 0.56 mm. long.

Female: More robust than male with lateral stripe on each side of mesonotum solid and not interrupted; metanotum with a large ochraceous spot on each side of median line. Antennal measurements—I, 0.58 mm.; II, 0.34 mm.; III, 0.42 mm.; IV, 0.52 mm. Anterior femur with a prominent black stripe on outer face; tibia slightly bowed apically, without hairy ovate patch as in male but with fringe of brown hairs (3 or 4 hairs wide) on apical third beneath. Middle femur 1.50 mm. long, the tibia 2.30 mm. long and tarsus 1.75 mm. long. Hind femur 1.60 mm. long, the tibia 1.00 mm. long and tarsus 0.68 mm.

Type (Male) and *Allotype* (female), both apterous, Quarto Ojos, Bolivia, April 27, 1957, collected in a small stream.

The lateral, longitudinal, black stripe on outer face of anterior femur separates this species at once from the new species described below. The black markings of dorsal surface and lateral sides and the modified anterior tibia (especially the hairy ovate patch in male) distinguish *O. bella*, new sp. from the members heretofore characterized in the genus.

Ovatametra amnica, new sp.

Apterous female: Head above ochraceous with lateral stripe on each side coalescing anteriorly with black apical part of frons, wide median

stripe of black extending anteriorly almost to darkened part of frons; beneath whitish testaceous. Antennae dusky brownish testaceous with basal half of segment II testaceous, clothed with short pubescence, measurements—I, 62; II 0.42; III, 39; IV, 0.60. Labium testaceous with distal two segments blackish. Length, 2.80 mm.; width, 1.30 mm. long. Male unknown.

Dorsal surface brownish ochraceous, with prominent markings, somewhat bluish, much more bluish beneath. Pronotum short, depressed, with lateral sides and hind margin jointly rounded, with a black spot behind each eye; narrow median stripe and exterior outer edge (lateral sides and behind) edged with black. Mesonotum slightly paler on median line, with the large, median, subbasal, black spot longly attenuated from apex anteriorly, broad lateral black-fuscous stripe on each side solid and not extending to base of segment, front margin margined with black-fuscous. Metanotum black, large, subquadrate. Mesopleuron with inferior and median longitudinal stripes black-fuscous, not broken. Abdominal tergites very little narrowed apically, black-fuscous with all segments narrowly margined behind with ochraceous; connexivum black with first three segments ochraceous, last segment subquadrate and only a little smaller than the second. Body beneath pale testaceous with broad, median part of venter blackish fuscous.

Anterior leg dusky brown, paler beneath, without longitudinal stripe on femur; tibia straight without long brown hairs on apical part beneath, slightly shorter than femur, 0.80 mm. long. Middle legs with femur 1.60 mm. long, the tibia 2.62 mm. long, and the tarsus 1.70 mm. long. Hind femur 2.00 mm. long, the tibia 0.95 mm. long and tarsus 0.62 mm. long.

Type (female), Canal Zone, Panama, February 10, 1938, C. J. Drake, netted in a small stream emptying into the Canal.

Distinguished at once from *O. bella*, new sp. by the color markings of pronotum, antennal measurements and lack of a longitudinal black stripe on outer surface of fore femur.

The genus *Ovatametra* Kenaga (1942) now comprises *O. parvula* Drake and Harris (genotype) from Brazil, *O. obesa* Kenaga (1942) from Brazil, *O. fusca* Kenaga (1942) from Brazil and the two new species characterized above from Bolivia and Panama, respectively.

Velia paxilla, new sp.

Apterous form: Brown with base of first antennal segment pale, lateral sides of abdomen partly black, inferior surface of connexiva brownish testaceous. Legs brownish testaceous with distal half of superior surface of femora darker. Male and alate forms unknown. Length, 4.00 mm.; width, 2.50 mm.

Head above plump, clothed with pale pubescence, with longer hairs in front of eyes, with usual impressed median line, entire dorsal surface beset with numerous, short, stout, black, conical spinulae with sharp tips. Antennae moderately long, rather densely pubescent, with longer pubescent hairs on last two segments, segment II slenderer than I, III and IV slenderer than II, measurements—I, 0.75 mm.; II, 0.58 mm.; III, 0.56 mm.; IV, 0.60 mm. Labium testaceous with black tip.

Pronotum 1.28 mm. long, as wide as long, thinly clothed with short pubescence, depressed, without distinct calli, divided by a transverse row of large punctures into two distinct lobes; anterior lobe rectangular in

outline, pitted on posterior part, approximately one-third as long as hind lobe, with numerous, minute, erect, dark, conical setae on transverse, impunctate ridge behind collar, the collar constricted, short, ornated with an encircling row of small, low, rounded tubercles (no pits); hind lobe large, rounded behind humeri, coarsely rugosely pitted, with minute, conical, dark setae on elevated ridge along posterior border. Wing-pads not visible. Abdominal tergites slowly evenly narrowed posteriorly, with a broken pair (one on each side) of carinate ridges on all visible segments except VII, the two ridges somewhat bluish, parallel, extending entire length of segment II, thence progressively shortened and present only on basal part of III to VI (inclusive); connexivum fairly broad, widest near middle, slowly narrowed apically with apex truncate. Legs moderately long, unarmed, with femora scarcely swollen, clothed with short pubescent hairs, inferior face of middle and hind femora with pubescence more abundant and longer; tarsal segment II slightly shorter than III in both middle and hind legs. Pubescence of dorsal surface short and golden.

Holotype (female), Lorenzo, Salta, Argentina, Jan. 10, 1950.

Distinguished at once from *V. brachalis* Stal and other members of the group by the numerous minute, conical, dark spinulae on head and pronotum, lack of long hairs and annulae on legs and especially by the bicarinate dorsal tergites of abdomen.

***Velia nama*, new sp.**

Macropterous male: Head brownish with median longitudinal part in front dark fuscous, with usual impressed median line, transocular width 0.80 mm., vertex at narrowest point subequal to width of an eye. Labium not reaching to middle of mesosternum, testaceous with black tip. Antennae 2.87 mm. long, dark fuscous, shortly pubescent, without long hairs or even bristly hairs on first two segments, measurements—I, 1.00 mm.; II, 0.75 mm.; III, 0.56 mm.; IV, 0.56 mm. Length, 4.90 mm.; width, 1.47 mm.

Pronotum 1.75 mm. long and 1.70 mm. wide, triangularly extended behind humeri, long median carina widened anteriorly between calli, deeply coarsely punctate, each pit within furnished with depressed, silvery white, iridescent, short hairs; calli depressed, each densely clothed with a patch of appressed, silvery white, glittering hairs; median carina and callose hind margins impunctate, sparsely furnished with short, snowy white hairs; collar short, constricted, ornated with an encircling row of large pits; lateral sides of pronotum with two rows of large pits, the first four pits of upper row larger than the others. Mesosternum with a wide, obtusely angulate, deep, longitudinal furrow; metasternum tumid. Abdomen beneath with first three abdominal segments deeply transversely grooved on each side; upper edge of ventral surface of connexivum (base to segment V) equipped with a long and closely-set row (base to segment VI) of some 40 stridulatory pegs, the pegs becoming closer to one another apically; connexivum terminating behind in a sharp spine, triangular in outline from lateral aspect.

Hemelytra 3.10 mm. long, scarcely reaching beyond tip of abdomen, dark fuscous with veins a little raised and darkened; basal two cells and exterior cell beyond outer basal cell furnished with dense rows of transversely appressed, fairly long, silvery white, glittering hairs, the median open apical cell with a small white spot. Veins sparsely furnished with

short, pale decumbent pubescence. Male paramere broadly blade-like, posterior edge sinuate, apex rather sharply rounded. Fore legs dusky testaceous with tibia and tarsus brown or fuscous; femur 1.35 mm. long, the tibia a little shorter and provided with a short apical comb. Middle legs dusky testaceous; femur and tibia nearly equal in length, each 2.00 mm. long; tarsal segment II 1.25 mm. long, III 0.45. Hind femur sordid testaceous with stridulatory patch, postmedian band and apex dark brown or fuscous, not strongly swollen, armed beneath with short, black, irregularly arranged spines, one spine in front of middle, one spine near black band, four or five spines in band and seven or eight spines between band and apex (spines in band and beyond scattered); stridulatory structures arranged in a rectangular patch within, subbasal, composed of numerous longitudinal rows of minute, very closely-set, dark spinulae or spinelike structures; tibia straight, scarcely longer than femora, 1.85 mm. long, unarmed, with apical spur.

Type (male), Quarto Ojos, Rio Piray, Bolovia, June 1, 1957.

Separated at once from the species described below by the different type of stridulatory structures on hind femora and connexiva and the less swollen hind femora and humeral processes.

***Velia alia*, new sp.**

Apterous form: Brown with basal third or more of all femora tending to be brownish testaceous, the hind femora with wide fuscous band situated just behind the middle. Dorsal surface of body and appendages clothed with short pubescence, the hairs on ventral face of all femora and tibiae a little longer. Stridulatory organs present. Female and macropterous forms not known. Length, 4.50 mm.; width, 1.25 mm.

Head with median longitudinal line; labium barely reaching to connexival cavities of middle legs, testaceous with last segment black. Antennae brown, shortly pubescent, measurements—I, 0.19; II, 0.65; III, 0.63; IV, 0.53 mm. Pronotum 1.22 mm. long and 1.37 mm. wide at humeral angle, with fairly distinct median carina, calli depressed and silvery; humeral angles provided with a fairly large, upright, triangular, spinelike process on each side. Abdomen beneath convex, with the first three segments transversely grooved on each side.

Abdominal tergites slowly evenly narrowed posteriorly to segment VII, then with VII slowly widened and nearly a half longer than VI; connexivum widest on III, IV and V, feebly narrowed on VI, deeply concavely narrowed on VII, terminating behind in a fairly long and acutely angulate projection which extends posteriorly to the end of first genital segment. Male parameres thin, fairly wide, narrowed on both edges apically, with apex blunt and on median line. Stridulatory organs: (1) connexiva (each side) provided with a long row (from base to middle of IV) of a very large number of fine, closely-set, transverse striae which form a rodlike structure extending from base of connexiva (one on each outer side near upper edge) to middle of segment IV and (2) and a stridulatory patch on inner face near the base of hind femora. The latter patch is somewhat obovate with apex almost acutely angulate, equipped with around 50 short, black, peglike structures fairly evenly arranged and spaced.

Fore leg with femur and tibia subequal in length, each 1.15 mm. long, latter with a short, rodlike apical comb. Middle leg with femur 1.80 mm.

long, the tibia 1.90 mm.; tarsal segment II slightly shorter than III (50:40). Hind legs with trochanter provided with numerous dark teeth; femur moderately swollen, 1.65 mm. long, widest near middle, armed beneath with numerous, short, blunt spines (more like teeth), the teeth-like spines more numerous on middle third of segment (there three rows deep), then only a few spines on basal third, also apical third; tibia straight, armed beneath with three rows of teeth on basal half, then diminish to two apically, provided with large apical spur; tarsal segments II and III subequal. Wing pads pale, short.

Type (male). British Guiana (Bartica District), May 25, 1944, netted in a small stream.

Allied to *V. quadrispinosa* Hungerford, but easily separated from it by the elevated humeral angles, male parameres and striated rodlike stridulatory organ of connexival segments.

***Euvelia*, new gen.**

Head short, broad, feebly produced in front of eyes, deflected anteriorly, with median impressed line; eyes fairly large, widely separated, contiguous behind with anterior margin of pronotum. Labium stout, extending a little beyond prosternum. Antennae short, stout, with two or three bristly hairs on segments II and III, all segments of nearly equal thickness and differ from one another very little in length. Pronotum large, strongly extended posteriorly so as to conceal mesonotum except latero-posterior angles; metanotum rather short. Abdominal tergites slowly evenly narrowed posteriorly; connexiva fairly thick, reflexed obliquely upward outward, slowly narrowed apically with last segment subquadrate. Mesosternum very large, longitudinally furrowed. Procoxal cavities rather widely separated from each other, placed near the hind margin of the segment; mesocoxal cavities widely separated from each other, also from procoxae, placed far back on mesosternum; metacoxal cavities more widely separated from each other than middle pair, situated just behind the outer side of middle pair. Legs rather short, stout; tarsi two-segmented. Tarsal segment II of middle legs very deeply cut-out on apical two-thirds so as to leave only a short basal cleft, equipped with four large, thin, pellucid, membranous bladeliike structures attached at the base of the excavation, each blade almost two-thirds as long as the segment. Legs rather short, stout. Male and alate forms unknown.

Type species, Euvelia advena, new sp.

Most closely allied to the Neotropical genus *Husseyella* Herring, but quickly separated from it by the much stouter and shorter antennae with segments of nearly equal in length and thickness and the larger membranous blades of middle tarsi. Up to this time, these are the only two genera of American veliids known to have bladeliike structures on the second tarsal segment of middle legs.

***Euvelia advena*, new sp.**

Apterous form: Black with a little bluish bloom; hind part of head adjacent to eyes, subapical habena of pronotum last five connexival segments (both surfaces), last tergite in greater part and dorsal surface of genital segments reddish brown. Legs testaceous with femora and tibiae lightly brownish, tarsi more infuscate. Male and macropterous forms unknown. Length 2.00 mm.; width, 1.25 mm.

Head with impressed median line, vertex twice as wide as an eye. Antennae stout, short, segment II tapering from apex to base, IV fusiform, measurements—I, 17; II, 16; III, 21; IV, 20. (80 units equal 1 mm.) Pronotum very large covering all but lateroposterior angles of mesonotum, wider than long (90:40), strongly sinuate behind, there roundly produced on each side so as to form an excavation at middle, somewhat depressed on median line anteriorly, anterior lobe much shorter than hind lobe. Abdomen above with a few scattered hairs, tergites slowly evenly narrowed posteriorly; connexivum slowly roundly narrowed posteriorly, last segment subquadrate, about half as wide as basal segment, reflexed obliquely upward laterally at an angle of about 45 degrees.

Legs short, stout, unarmed, sparsely pubescent, all trochanters rather long. Anterior femur 0.45 mm. long, with a thin row of long hairs on inferior face; tibia 0.35 mm. long, with a short, blackish, apical comb, the tarsi stout. Middle femur 0.81 mm. long, the tibia 0.75 mm. long; tarsal segment I half as long as II (15:30), taken together half as long as tibia, II provided with four, long, thin, bladelike structures as described under genus. Hind legs with femur 0.50 mm. long; tibia scarcely longer than femur; tarsal segment I about half as long as II (8:18), the latter shallowly excavated beneath at apex of the reception of two claws.

Type (apterous female), Cuarto Ojo, Piray River, Bolivia, April 25, 1957. Separated easily from *Huseyella diffidens* (Drake and Harris) and *H. turmalis* (Drake and Harris) by the shorter and stouter appendages, length of antennal segments and modifications of tarsal segment II of middle legs.



Drake, Carl J. 1957. "New neotropical water-striders (Hemiptera)." *Proceedings of the Biological Society of Washington* 70, 111–117.

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