

**A NEW POTAMOBATES FROM PERU, S. A.
(HEMIPTERA, GERRIDAE).**

BY H. B. HUNGERFORD, Lawrence, Kansas*

This interesting genus of water striders extends from Mexico to Peru. Two species have been described from Mexico, one from Costa Rica, one from Panama, one from Colombia, South America, one from Ecuador and the following from Peru, South America, which represents the farthest southern record known to date:

***Potamobates peruvianus* n. sp.**

Size: Length of winged male, 12 mm.; length of wingless male 10.5 mm.; length of winged female 12 mm.; length of wingless female 9.3 mm. The females somewhat plumper than the males.

Color: Body black above; venter pale. Head light brown above with a diamond shaped black spot, antennae dark brown to black, beak black-tipped. In the winged forms the anterior lobe of the pronotum is marked by a pale brown more or less diamond shaped spot and the posterior lobe has the humeri, a broad band on the rounded posterior margin and a thin line on lateral margins pale brown. Hemelytra dark with costal margins brown. In the wingless forms the anterior lobe of pronotum has a pale brown triangular spot on dorsum and a silvery patch on the side behind each eye; the mesonotum entirely black except for a silvery triangular patch above the meso-acetabula and, in a few specimens, two small brown spots on the dorsum; lateral margins with longitudinal silvery stripe and silvery patches on meso- and meta-acetabula; abdominal dorsum black except for some silvery pubescence laterally; all the coxae, and dorsal side of front trochanters and femora pale like the venter; front legs otherwise black, middle and hind legs brown, the femora longitudinally striped, above and below with black lines; lateral margins of abdomen and caudo-lateral margins of first genital segment of the male black.

Structural characteristics: Antennal formula of male holotype: 1st: 2nd: 3rd: 4th:: 9: 3.3: 3.4: 4.4. Tip of beak barely attaining anterior margin of front coxae. Pronotum of wingless male a little longer than half the width and shorter than the length of the head. Posterior lobe of pronotum in winged

* Contribution from the Department of Entomology, University of Kansas.

form with a longitudinal median carina, humeri elevated and connected transversely by a low ridge; rear margin broadly rounded. Mesonotum of wingless male a little more than three times the length of pronotum measured on dorsal line; a faint median depressed line on caudal third of mesonotum. Metanotum as long as the pronotum. Front legs short with anterior femora incrassate, somewhat more incrassate in the males than in the females. Front tarsus of male a little more than one-fourth the length of the tibia; the first tarsal segment one-third as long as the second. Intermediate and posterior legs long and slender. Formula for intermediate leg of male: femur: tibia: tarsus:: 16: 11: 6, first tarsal segment three times the second. Formula for posterior leg: femur: tibia: tarsus:: 16: 9.25: 1.25. Posterior tarsus small, first segment longer than the second. The last abdominal tergite of male about as long as the three preceding. In the male the connexivum is triangularly produced behind. In the female the connexivum is produced into a long, finger-like process, thicker in its distal half and somewhat incurved and slightly longer than the last two tergites. The first genital segment of the male measured on the median dorsal lines as long as four preceding abdominal tergites. The general shape of this segment like that in *P. tridentatus* Esaki and *P. williamsi* Hungerford but having a single large marginal tooth instead of two, this occupying the position of the distal one in those species. The hook-like tooth of the second genital is shaped much like that of *P. williamsi* Hungerford. The female genital segments much as in above species. The incision of the posterior margin of the sixth ventral segment of female decidedly asymmetrical.

Location of types: Holotype, allotype, holomorphotype, allomorphotype, and various paratypes in the Francis Huntington Snow Entomological Museum, University of Kansas. Paratypes sent to U. S. N. M., British Museum, Doctor Carl Drake, and Professor T. Esaki. This species described from seven winged specimens, 3 males and 2 females labeled, "Peru S. A. Sept. 5, 1935 F. Woytkowski, vicinity Sani Beni, 840 meters above sea level, River Sani Beni." and a pair labeled "Peru, S. A. Nov. 4, 1935 F. Woytkowski vicinity Rio Negro, 790 meters above sea level on the river" and 58 wingless forms labeled Peru, S. A. Sept. 5, 1935 F. Woytkowski, vicinity Sani Beni, 840 meters above sea level, River Sani Beni," 12 wingless, labeled like those of November 4th above, and 15 taken in May from the vicinity of San Pedro, 900 meters above sea level from jungle pools by the same collector. Holotype, allotype, holo-

morphotype, and allomorphotype from the collections of September 5th, 1935.

Comparative Notes: This species is much like *P. tridentatus* Esaki and *P. williamsi* Hungerford but lacks any median brown stripe on the mesonotum of the wingless forms. The first genital of the male has only one large marginal tooth instead of two. The female like the two species above has long finger-like projections of the connexiva but they are somewhat thickened distally.

EDITORIAL

PUBLICATION AND ITS DIFFICULTIES.

In another part of this number will be found the notices of two recent works—Balduf's "Bionomics of Entomophagous Coleoptera" and Weiss's "Pioneer Century of American Entomology." These are two important works, the fruits of vast labor and research, which the authors themselves have had to publish at their own cost and risk—no commercial publishers could be found to undertake either, because, forsooth, there was no money in them! But this attitude is too well-known to cause astonishment. Business is dedicated to the proposition of making money.

Still, it might seem that publishers might once in a while act as patrons of the sciences by taking an occasional risk of loss. Either of these two works could have been printed in a limited edition for not to exceed \$1500 apiece; a sale of 500 copies at \$3 would have covered. But the overhead, the advertising, the publisher's profit, the retailer's profit would add another \$1500 to the cost of printing at least. Yet, either of these works could have been priced to retail at \$6 and still have found the same sale. And further, the nature of the two works is such that there would be a steady continuing small sale.

And so, the author has to dig into his own pockets to publish his work, or suppress work of great interest and importance; not to mention the terrible waste of energy from all the research and labor required to round out and complete the data scattered through countless publications, spread over years—in Dr. Weiss's case, centuries.

Meantime, our entomological works and publications are making heavy weather. Those on whom they depend—professional or not—are sharing the common lack of wealth; and alas! cannot do what they would.

J. R. T.-B.

BOOK NOTES.

The Bionomics of Entomophagous Coleoptera, by Walter Valentine Balduf. Pp. one not numbered + 1-220, figs. 1-108. (John S. Swift & Co., Inc., Chicago, Ill., 1935. \$4.50).

This is one of those invaluable source works devoted to a single Order of insects and bringing together so far as is humanly possible, all that has been published with regard to one single aspect of their biology. It is, of course, limited by the stated purpose; but no other aspect of habits is omitted, from embryological development through the entire life-cycle, so far as known. For life is a whole, not a thing of delimited and isolated cubby-holes, each apart from all the others. Life is a weave, no single thread of which can reveal the broad pattern, but every thread must be considered in relation to all the others, in order to approximate a final truth.

The treatment is by families, serially arranged according to the best and latest generally accepted catalogues. The figures are excellent and well reproduced, from drawings by Mrs. Balduf. There is an extensive bibliography arranged under families, which takes up some 17 pages. The Index takes up 35 pages; the insect names are arranged alphabetically according to genera; and under each species, also alphabetically, are the several topics dealt with for that species; author names are included in this index, also in alphabetical order.

Dr. Balduf is to be congratulated on this work; through it, he lays all coleopterists as well as students of insect bionomics under a deep debt of gratitude.

The Pioneer Century of American Entomology, by Harry B. Weiss. Pp. 1-320. (Published by the author, New Brunswick, N. J. \$4.25).

Dr. Weiss, in this work, brings into the field of living men those who in this country labored in a fallow field and established the broad lines of American Entomology. In these pages, we meet the great and the small, the remembered and the forgotten—men remembered by their work, or immortalized (we hope) in entomology by a name attached to an insect.

Dr. Weiss begins his account with the early travellers from 1588 to 1723, although he mentions the scattered comments of the Spanish explorers and conquerors as early as 1526. Even in those days of struggle and trial, there were men who at least attempted to get some understanding of nature. From 1731 to 1800, we get the true naturalists, beginning with Mark Catesby and going through the three Bartrams, Lewis, Byrd, Kalm, Hughes, Ellis, Collinson, Thaddeus M. Harris, Barton, Burnaby, Peck, up to John Abbott, and including many lesser lights.

From 1800 on we begin to know the true entomologists; bare names here become persons with all their foibles and greatnesses. To name them would be to call the roll of the illustrious names known to every student of insects. Yet we also become acquainted with such personalities as Latrobe, the architect; Charles Coatesworth Pinckney, of Revolutionary fame; John Torrey, the botanist; Rafinesque; Timothy Dwight, president of Yale College; DeKay, Zimmermann, Lorquin; and so many others less conspicuous.

There is a short bibliography of sources; and a complete index of names.

The first paragraph of Dr. Weiss's "Postface" demands thoughtful attention. It reads: "It is a matter for regret that this book should not appear in printed form. Various commercial publishing houses, university presses, and several foundations were approached, but the manuscript was refused. The commercial firms stated that the market for a history of entomology was not extensive enough to warrant publication. The university presses wanted the book to be subsidized. The foundations had no funds."

What a commentary on our vaunted culture! Had he written on "The Scandals of Insect Polyandry," the commercial publishers would have stormed his gates. Had he produced a documented demonstration that human beings have two matching eyes, no university press but what would have yearned to father and mother the great discovery. And as to the foundations, this abstract from "Science" is not without interest: The Rockefeller Foundation spent in 1935 the prodigious sum of \$12,725,439; of this appropriations in the natural sciences came to \$2,426,125. Reading the list of the grants, two facts stand out: they were made to rich institutions which should be self-supporting; and they were in general for well-publicized research in biology, from genetics to hormones. No less than seven of these grants were to European institutions of learning! And not one cent (apparently) for entomological research *per se*! It might seem as though a small proportion of such funds might be allocated to pure entomology, say \$10,000—which is eight one-hundredths of one per cent, or 1/1250, of the whole. And since some of the greatest work of this foundation—its yellow-fever research and control work—is based on entomology, it might seem as though so opulent an institution could easily make a ten-thousand dollar gesture.

Under the circumstances, Dr. Weiss's book is one of those modern reproductions by some photographic process from the typed original. It is good, but it lacks the dignity of the more formal printing from type.

Meantime, as the edition is limited to 150 copies, it might be

well if our readers lost no time in getting theirs; for this is a book for pleasant reading; and also for permanent reference.

And finally, the Brooklyn Entomological Society is no Midas, but it is a Maecenas in its humble way. Our ENTOMOLOGICA AMERICANA is brought to the attention of authors of such important works. Arrangements can always be made.

General Entomology, by Robert A. Wardle. Pp. i-vii-1-311, figs. 1-96. (P. Blakiston's Son & Co., Inc., Philadelphia, Pa. 1936. \$2.25).

This new book of Dr. Wardle's is difficult to appraise. It is completely worked out; it is modern in every aspect; it is provocative of thought. With these goes a very great condensation, so great that a whole vast subject is compressed into 301 pages of text! As a sharp reflection of the current state of the science, it is destined to be extremely useful. As a text, however, it will require much elucidation by the teacher; not that the work is not lucid—it is, extremely so—but that to condense so much matter into so restricted a space compels the ruthless pruning of all redundancies. The backgroundless student will be swamped—not because of obscurity or difficulty, but because each page is replete with facts, many of which demand antecedent knowledge on many subjects.

There are twelve chapters, the first five dealing with external anatomy, development and life-cycle, physiology, behavior. The next seven deal with the several taxonomic groups. Necessarily, to include this systematic matter in 175 pages makes it imperative to present only salient facts. For example, the great Order Heteroptera (Hemiptera herein), whose importance to man is day by day becoming more appreciated, is compulsorily discussed in only 5 pages! A key to the families fills one page; structure and morphology are presented in a little more; a few remarks on habits fill another page; figures take up about the same space; and general remarks on the Order fill the remainder. Only three of the economic forms are specifically named—*Blissus*, *Anasa* and *Murgantia*; but not one of the parasitic or blood-sucking species that convey disease producing organisms. This is mentioned merely to bring out the extreme abridgment demanded by space limitations.

The figures are excellent and well reproduced; the letterpress is beautiful; the paper very good; and the pleasing and sturdy binding is water- and vermin-proof.

But I can think of no better conceived and executed work of this general nature. In fact, a busy entomologist could profitably read this through to brush up his general knowledge and keep in touch with current ideas.

J. R. T.-B.

EFFECTS OF THE PROTECTIVE VAPORS OF THE COREID BUG *THASUS GIGAS* ON A TARANTULA (*EURYPELMA* SP.).

BY RICHARD T. DE LA TORRE-BUENO AND WILFRED G. AMBROSE,
Tucson, Ariz.

On the evening of July 23, 1936, an adult *Thasus gigas* was given for food to a captive tarantula (*Eurypelma sp.*). After scrutinizing it warily for several minutes, the tarantula pounced on the bug. After perhaps thirty seconds, the *Thasus* waving its legs feebly, the tarantula started to give way, slowly rolling over on its side away from the *Thasus* and ineffectively pawing the air with the second and third legs on one side as if for support. The insect, released, dragged itself away. The tarantula lay flat on the floor of the cage, legs drawn up. In a minute or two it was again moving around, but it was quite sluggish and much the worse for its experience. When the *Thasus* was pushed toward the tarantula, the latter scuttled rapidly away.

The *Thasus* had received a cut about one quarter inch long on the venter and an injury to the right hind leg. When first released by the tarantula, it used this leg with difficulty for a while, but it gradually became paralyzed and was bent under the body. When the insect was removed from the jar about twenty minutes after the attack, the entire leg broke off. During this time the *Thasus* had twice rolled over on its back, seemingly dead, but when it was stirred up was quite as lively as before. Perhaps ten minutes later, because of humanitarian impulses, the untrained observers, not attaching any importance to their observations, killed the *Thasus*.

The next day the tarantula was observed to be very subdued, lying on the bottom of its jar with legs drawn up close. The left leg of the first pair, however, was held almost straight up and was somewhat paralyzed. The left leg of the fourth pair was completely paralyzed and stiff and was bent under the cephalothorax. The tarantula was sluggish, and when a hand was brought near, it did not take alarm as it ordinarily did. Presently it also was killed, again because of humanitarian impulses.

Thasus gigas is quite common on mesquite (*Prosopis velutina*), especially on the pods, on which it feeds, according to A. A. Nichol, assistant professor of botany at the University of Arizona.

The tarantula was kept in a desiccating jar about ten inches in diameter, covered with a perforated piece of paper.

PROCEEDINGS OF THE SOCIETY

MEETING OF JANUARY 16, 1936.

(Continued from June number).

President, William T. Davis.

Vice-President, Jose R. de la Torre-Bueno.

Treasurer, George P. Engelhardt.

Recording Secretary, Carl G. Siepmann.

Corresponding Secretary, Frederick Lemmer.

Librarian, Herbert Wilford.

Curator, John M. Sheridan.

Delegate to the New York Academy of Sciences, George P. Engelhardt.

There being no other nominations, a motion was made and seconded that the officers be elected as nominated; the secretary was directed to cast one ballot for their election, and the officers were declared unanimously elected.

Mr. Engelhardt reported that Mrs. William T. Bather, wife of the former President of the Brooklyn Entomological Society, passed away on January 2, 1936, and proposed that the society notify Mr. Bather that the society learned with deepest regret of the death of Mrs. Bather and extends to Mr. Bather its heartfelt sympathy. The motion was seconded and carried.

The following new members were proposed by Mr. Engelhardt:

Mr. William G. Bodenstein,
Department of Entomology,
Cornell University,
Ithaca, N. Y.
Home Address: 8733 96th Street,
Woodhaven, N. Y.

Mr. Henry J. Dietz,
3220 Decatur Avenue,
Bronx, New York.

The motions were seconded, and the members were elected by unanimous vote.

Mr. Engelhardt read a letter from Pedro Denier, Encargado del Laboratorio de Entomologia del Servicio de Fiscalización Algodonera, Calle Saenz Peña 87, Resistencia (Chaco), Republic of the Argentine, who was interested in obtaining Meloid beetles from the United States by exchange. He also read a letter from Wm. Clarke-MacIntyre, Baños, Province de Tungurahua, Republic of Ecuador, who was anxious to enter into arrangements to collect

insects for collectors who wanted material from this locality. Mr. Davis spoke on Cicadas and Cicada Killers, illustrating his talk with photographs and specimens. He prefaced his talk with a reminder that Brood X of the 17-year locust would appear in 1936. In 1919 this brood, which is the greatest brood known, appeared on the south shore of Long Island, at Freeport, Mastick, Patchogue and below Hicksville. The brood occurs almost all over New Jersey.

Specimens of the Cicada Killer and Cicadas which had been captured by it, were shown. Mr. Davis read an account of the life history and habits of this insect, commenting that the Cicada Killer carries its prey legs up, and not legs down as shown in the figure in Dr. Howard's book, the Cicada being easier to hold in this position. The egg of the Cicada Killer is usually placed under the right middle leg of the Cicada, sometimes the left middle leg. The mating habits of this insect are unusual, the males congregating within a small area and seizing the females as they fly past. The Cicada Killer does not confine itself to one species of Cicada, but will take all species indiscriminatingly. Among other insects which are known to kill Cicadas are the spider, *Miranda aurantia*, which catches the Cicada in its web; *Rehnia speciosa*, the lubber grasshopper, and *Proctacanthus nigriventris* and other Asilid flies. A species of mutilla is said to be parasitic on the Cicada Killer, *Sphex speciosus*.

Mr. Engelhardt exhibited a series of the Clematis borer, *Alcathoe verrugo*, race *californicus* Engelh. This handsome clear-wing moth, originally described from Central America, extends its range along the Pacific Coast into southern California as far as Santa Barbara, the northernmost record thus far. Normally deep orange in coloration it was surprising that out of 100 examples, more or less, bred during the past several years, about 30 specimens were glossy black, but there were no transitions to connect the two color phases. The material in hand seemed sufficient to conclude that transition forms do not occur in this species. This conclusion has now been proven to be erroneous. Mr. Theo. W. Hower, of Orange, California, bred a large number of this borer during the summer of 1935, obtaining the orange and black color phases in about equal parts and in addition a limited number of transition forms, beautifully illustrating the gradual blending from orange to black. Mr. Hower's fine series, including his intergrade specimens, were shown.

The meeting adjourned at 10.20 p. m.

CARL GEO. SIEPMANN,
Secretary.



Hungerford, Herbert B. 1936. "A new Potamobates from Peru S. A. (Hemiptera, Gerridae)." *Bulletin of the Brooklyn Entomological Society* 31, 178–186.

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