

NEW PARASITES OF THE GENUS MERAPORUS.

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In a small quantity of seed wheat obtained from the storehouse of a grain dealer at Plano, Texas, in July, 1907, two dead bodies of a Chalcid fly were found, together with a few specimens of the common grain weevil, *Calandra oryzae* L. These parasites were found to agree closely, but still doubtfully, with *Meraporus calandrae*, described as a *Pteromalus* by Dr. L. O. Howard in the Annual Report of the (U. S.) Commissioner of Agriculture for 1880, p. 273. On submitting the specimens to Mr. J. C. Crawford, at the U. S. National Museum, he reported that they belonged to the genus *Meraporus*, though the species was not *calandrae*. My parasite thus appeared to be undescribed, and it was consequently cited as a new species by Mr. W. D. Pierce in his paper entitled, "A List of Parasites Known to Attack American Rhyncophora" (Jr. Econ. Ent., I, Dec., 1908, p. 384).

The species is herewith described; type and paratype as mentioned are deposited in the U. S. National Museum.

Meraporus utilis, n. sp.

Female: Length, 1.5 mm.; head, thorax and abdomen steely black, clothed with extremely fine and sparse silvery pubescence, except on base of abdomen, and minute black bristles on occiput and dorsum of thorax; reticulately punctured on head, confusedly so on thorax; abdomen smooth, shining, venter strongly keel-shaped. Head transverse, wider than thorax, front slightly depressed medially for reception of antennal scapes, below with convergent striæ at oral margin; antennæ about as long as thorax, dull reddish, pedicel and flagellum, excepting first and second ring-joints, darkened above; ring-joints together about two-thirds the length of pedicel, first and second ring-joints small, but combined equal to length of third, which is slightly smaller than first funicular joint, the latter a little longer than wide, second to fifth funicular joints quadrate; club with widest expansion at juncture of first and second joints, tapering to a conical point with third joint. Ocelli arranged in a curve.

Thorax a little longer than wide, parapsidal furrows indistinct; metathorax punctured as on dorsum, tricarinate, the median carina short, the lateral ones sinuate and extending to posterior corner of the short metathoracic neck; lateral folds indicated by basal foveolæ only, spiracles very small, broadly oval; spiracular sulci very deep and distinct.

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Tegulae fulvous ; wing-veins yellow, ciliate, stigmal vein scarcely two-thirds the length of marginal or postmarginal ; legs yellow, excepting coxae and last tarsal joint outwardly, which are black, the femora, tibiae and tarsi about equal in length for each pair, the fore legs short in proportion with others.

Dissection of the mandibles of the paratype has shown each one to have four denticles, colour ferruginous with front edges darker.

Before attempting the above description, efforts were made to obtain a series of specimens representing both sexes, but all the other specimens obtained failed to agree with my first species. The additional specimens were not secured until the season of 1909, when a quantity of cracked corn and oats infested primarily by *Calandra oryzae* was obtained July 26, from the same grain house at Plano, Texas, where my first examples had been taken. This mixed grain had been gathered from scatterings on the floor, under the shelling and cleaning machinery, where it had lain for probably a month before being sacked and set aside for sale as chicken feed. The infested grain was placed in breeding crocks at Dallas, Texas, and adult parasites appeared within four days, further emergences occurring August 6, 7 and 9, September 11, October 16 and 18, November 23, December 16, and again on April 5, 1910, and at various times since. Although I had collected weevily grain from other sources in the hope of rearing this or the first species, only one female had been thus secured, and this specimen matured October 3, 1908, from an ear of corn infested by *Calandra oryzae*, which had been collected by myself ten days previously in a field near Shreveport, La. The species agreed with those of my second collection from Plano, Texas, and the record is important for proof of the occurrence of the parasite in fields where the host abounds, though, as might be expected, stored grain when infested by weevils naturally becomes a place of concentration of the enemy as with the host.

At the time my specimens were being studied, still other examples, comprising five females and one male reared from rice primarily infested by *Calandra oryzae*, which material was obtained by Mr. D. L. Van Dine in a rice mill at Welsh, La., August 2, 1909, were discovered to be identically the same parasite. The species is consequently named in honour of Mr. D. L. Van Dine, who furthermore submitted still other identical specimens which he had collected in similarly infested rice, and also on windows in rice mills at El Campo, Texas, June 22, and at Lake Arthur, La., July 29. His records add materially to a knowledge of the importance of the parasite and its distribution. These specimens are

included under the designation of paratypes for the following description, which is based on an examination of 40 females and 5 males. Types are deposited in the U. S. National Museum.

Meraporus Vandinei, n. sp.

Female : Head and thorax dark greenish, clothed with thin and fine silvery pubescence, a thick linear patch on each side of the metathorax ; abdomen smooth, shining greenish, thinly pubescent on apical segments, venter deeply keeled ; head transverse, somewhat wider than thorax, finely reticulated rather than punctured on occiput, front and cheeks, with convergent striæ at oral margin of middle face ; front above insertion of antennæ hollowed for reception of scapes ; mouth-parts ferruginous, each mandible with four denticles ; antennæ about as long as thorax, scape dull reddish ; flagellum dull reddish beneath, darker above, with fine silvery pubescence ; pedicel about twice the length of the three ring-joints together, but scarcely longer than the first funicle-joint, which appears distinctly longer than wide ; second and third funicle-joints slightly longer than wide, fourth and fifth quadrate ; club expanded at junction of first and second joints, the third forming a small conical tip. Anterior ocellus situated but little in advance of a median point between the posterior ones.

Thorax with fine shallow thimble-pitted punctures, contiguous and distinctly larger than on head ; length of thorax scarcely exceeds the width, parapsidal furrows very faint only on anterior half of mesonotum. Metathorax very finely punctured, with a median longitudinal carina ; metathoracic neck very short, smooth ; lateral folds indicated by basal foveolæ only, spiracles very small, broadly oval ; spiracular sulci very deep and distinct.

Tegulæ fulvous ; wing-veins yellow, ciliate, stigmal vein shorter than marginal or postmarginal by about one-fourth the length. Legs yellow, excepting the coxæ, femora in greater part between the base and apex, and last tarsal joint outwardly, which are dark brown or fuliginous. Tibiæ of middle and posterior legs little longer than femora or tarsi, which are about equal in length, but no noticeable difference in these respects with fore legs. Comparatively the fore legs are shorter than the others.

Type : Plano, Texas, July 26, 1909 ; emerged September 11.

Male : Antennæ with larger microscopical pits than with female ; the first and second ring joints very small and compressed, the third appears as the first joint of funicle, but is smaller and shorter than the true funicular joints. Abdomen hardly as long, or at most not longer than

thorax, almost flattened above, not deeply keeled ventrally, widest near apex, and with a dorsal fulvous area near base expanding to the lateral edges; otherwise agreeing with females.

Type: Plano, Texas, July 26, 1909; emerged August 6.

Paratypes show some variations of colour; the greenish tinge of head and thorax being stronger in some examples than others, and the flagellum is sometimes nearly or wholly black.

Length of female type and paratypes ranges from 1.25 to 2 mm.; male type and paratypes from 1 mm. to 1.5 mm.

A single specimen reared with *Vandinei* from same material collected by Mr. D. L. Van Dine at Welsh, La., August 2, 1909, represented another species, which is described as follows:

Meraporus requisitus, n. sp.

Male: Length, 1.25 mm.; resembling *Vandinei* and similarly punctured, but distinguished by blacker colour of body, and paler legs, including fore coxæ, the femora only dull brown; no metathoracic carina, nor fulvous area on base of abdomen; first and second funicle-joints little longer than wide, third to fifth subquadrate; left mandible with three denticles, but four on the right.

The genus *Meraporus*, as established by Francis Walker (Monographia Chalciditum, Ent. Mag., v. 2, 1834, p. 298), was accorded 12 antennal joints, but in Ashmead's classification, it is considered as having 13 joints of the antennæ. Walker very likely failed to distinguish more than two ring-joints. In fact, the entire three ring-joints, particularly of male examples, are difficult objects for clear definition even under a binocular with high power magnification.

Three previously described species of *Meraporus* have been recognized in the United States: *calandræ* How., has an asymmetrical denticulation, the right mandible with four denticles, and the left with three; *bruchivorus* Ashm., is readily known by the smooth lower face and cheeks, besides larger size; and *dubius* Ashm., although characterized by a tricarinate metanotum, is said to have strongly curved lateral folds, and subcosta nearly three times as long as the marginal vein.

The very helpful assistance of Mr. J. C. Crawford in the study of my specimens is gratefully acknowledged.

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 5. Fernald, C. H.—Report on insects. (Hatch Exp. Sta. Mass. Agr. Coll., Bull. 19, May, 1892, p. 116.)
Mentions an undescribed species of *Meraporus* bred from pupæ of Gypsy moth. See correction in 7.
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 10. Riley, C. V., and Howard, L. O.—Special notes. (Insect Life, v. 4, Nos. 11 and 12, Aug., 1892, p. 354.)
In review of Bull. 19, Hatch Exp. Sta. Mass. Agr. Coll., an undescribed species of *Meraporus* is mentioned as issuing from the pupa of the Gypsy moth. See correction in 7.
 11. Riley, C. V.—The insects occurring in the foreign exhibits of the World's Columbian Exposition. (Insect Life, v. 6, No. 3, Feb., 1894, p. 223.)
Cites *Meraporus* (?) sp. in sheaf grain, "badly infested with *Gelechia cerealella*"; another species recorded as "parasite of *Bruchus 4-maculatus* from Brazil"; one other species at large.

12. Smith, J. B., and Ashmead, W. H. Order Hymenoptera. Insects of New Jersey. (Supp. 27th An. Rept. St. Bd. Agr. N. J., 1899 [1900], p. 558.)

Cites *Meraporus calandraræ* How. "Should occur in New Jersey."

A NEW SPECIES OF JAPANESE MICROLEPIDOPTERA.

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A pair of specimens of the species herewith described were sent to me by Dr. John B. Smith, the latter part of May, with the statement that they had been bred from larvæ found on young hemlock trees, recently imported from Japan by a nurseryman in this State. As the species was unknown to me and of a distinctly Oriental appearance, I sent a male to Dr. Edward Meyrick, Marlborough, England, the authority on Eastern Lepidoptera. Dr. Meyrick was good enough to make a prompt reply, stating that the species was undoubtedly referable to his genus *Ptochoryctis*, of which he has already described five others, all from Indian regions, and that the nearest allied genera, *Methathrinca* and *Linoclostis*, are also only known from India and the Malay Archipelago, hence he did not doubt that this species is truly Japanese. Dr. Meyrick also stated that the species nearest to it is *P. simbleuta* Meyr., the larvæ of which are brick-red, and feed beneath a web, covered with refuse and pieces of bark, on bark and shoots of tea-plants (*Thea*), eating right through to the cambium, and thus killing the branch or plant. (Journal Bombay Natl. Hist. Soc., XVIII, 150, 1907.)

This letter was duly communicated to Dr. Smith, and he was good enough to forward fourteen other specimens, together with notes, larvæ, cocoons or cases and pupal shells, from all which the following description was made:

The larvæ were taken April 5th, in cocoons or larval-cases, larvæ all alive at this date, first pupa observed May 4th.

My belief is that the cocoons in which the larvæ pupated are larval-cases, making the habit similar to *P. simbleuta*. The case is of rather tough silk, thickly covered with pellets of dried frass, hemlock-needles and other refuse, lightly fastened to the twigs and apparently fairly well concealed in a cluster of needles. The cases are 10-15 mm. long, by 5-6 mm. in diameter. Pupal shell remains within the case when moth emerges.

As it is quite possible that other shipments of hemlock from Japan may be infested with this species, it might be well for State entomologists and nurserymen to be on the lookout for its appearance. The moth is

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