NOTES ON PREDACEOUS HETEROPTERA, WITH PROF. UHLER'S DESCRIPTION OF TWO SPECIES.

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During the month of May, 1896, while making field observations in Malden and Medford, Mass., upon the insects known to attack the gypsy moth (*Porthetria dispar*), I found that many of the common predaceous bugs upon emerging from hibernation greedily availed themselves of the food supply offered by the tent caterpillar and destroyed large numbers of this insect. *Podisus placidus*, *P. serieventris*, *P. modestus*, *Dendrocoris humeralis*, *Euschistus fissilis*, *E. tristigmus*, *E. ictericus*, *E. politus* n. sp., *Menecles insertus* and *Diplodus lividus* were often found feeding upon partially grown tent caterpillars. *Podisus placidus* and *P. serieventris* enter the tents and prey upon the inmates, but the other species generally attacked the larvæ while they were feeding. The species of *Euschistus* are the least predaceous and it is probable that they naturally feed more upon plants than upon insects.

When feeding, these Pentatomids insert the setæ only, and not the sheath, into the body of the caterpillar. I have watched them very carefully under a hand lens and my observations fully agree with those of Mr. Marlatt, as given in the Proceedings of the Entomological Society of Washington, Vol. II., p. 249. I have seen *P. placidus* extend its setæ beyond the end of the beak to a distance equal to the length of the last rostral joint. When the setæ are inserted in a strongly chitinized part the struggles of the larva often pull them from the sheath. In such cases the beak is drawn through the fore tarsi in the same manner that an ant cleans its antennæ, and thus the setæ are forced back into the sheath. I have also removed the setæ of *P. cynicus* from the sheath by means of a fine needle applied along the labrum and have seen them replaced in the same manner.

In the Report of the Massachusetts Board of Agriculture for 1896 I have published, with illustrations, notes on a part of the early stages and habits of some of these Heteroptera and the life history of *P. placidus*. This insect was first brought to the attention of entomologists through some very interesting notes published by Prof. Saunders in the CANADIAN ENTOMOLOGIST, Vol. II., p. 15. The nymphs of this species, at first thought to be *Stiretrus anchovago* (Fab.) (*fimbriatus*, Say), were found attacking the larvæ of the currant sawfly, *Pteronus ribesii* (Scop.). Walsh,

on page 33 of the volume cited, corrects the identification and refers the insect to *Podisus spinosus* or *modestus* or to an allied species. Later specimens sent to Prof. Uhler (not Ulke) were found to represent a new species and were named *Arma placidum* (CAN. ENT., Vol. II., p. 93). Prof. Saunders also gives notes upon the predatory habits of this insect in the Report of the Entomological Society of Ontario, 1871, p. 31.

I have been unable to find the original description of the species. Through correspondence with Prof. Uhler I learn that he cannot recall the circumstances connected with the publication of the description, were such a description published, and he has very kindly sent me the following characterization of the species together with a description of *Euschistus politus*:

Podisus placidus, Uhler.—“Of a narrower and more oval form than *P. serieiventris*, with a head somewhat tapering anteriorly, and rounded at tip instead of being truncated, and with the humeral angles rounded off and very moderately prominent. Colour pale testaceous, stained with pale brown and punctate with darker brown. Head much longer than wide, depressed, remotely punctate, the edge reflexed, brown; each side of tylus is a slender brown line which is triangularly expanded on the base of the vertex; occipital margin dark brown in the middle, pale and narrowly callous each side; a pale callous line extends back from each ocellus; throat whitish testaceous; cheeks with a slender black line before each eye; eyes brown, bordered with testaceous behind; antennæ pale brown, paler at base and on the last two joints; the basal joint testaceous, very short, the second longest, third scarcely more than half the length of the second, fourth about three-fourths as long as the second, fifth a little shorter than the fourth; rostrum stout, pale testaceous, reaching upon the posterior coxæ, the apical joint narrow, about as long as the preceding one, brown. Pronotum with the sides straighter than usual, the lateral margin narrowly callous, pale ivory-yellow, and with a few indented points and small teeth before the middle; the submargin with a brown line, surface with wavy, transverse pale lines between the pale brown marbling, more generally brown behind the middle; post-humeral margins slightly sinuated; anterior margins callous, having a small group of coarse punctures behind each eye; punctures sunken, brown, mostly not close together in the transverse series; posterior margin truncate. Scutellum long, bluntly rounded and margined with white at tip, punctures in short transverse series, grouped in about three

spots at base. Corium slenderly bordered with pale testaceous, more broadly covered with brown at base and on the disk, the veins posteriorly yellow; membrane pale bronze. Legs minutely speckled with red, the tibiæ and tarsi a little stained with brown. Under side finely punctate, the sternum with two series of black points. Connexivum depressed, punctate, the outer edge ivory white, callous and marked with two black points at each incisure of the segments; the upper surface yellow, with the black points more linear. Length to end of abdomen, $8\frac{1}{2}$ to $10\frac{1}{2}$ mm. Width of pronotum, $4\frac{2}{3}$ to 6 mm.

"Through the kindness of many friends I have had an opportunity to examine specimens from the Provinces of Quebec, Ontario, and Columbia, in British America; from nearly all of the New England States, besides Illinois, Iowa, Michigan, and Colorado. The genital segment of the male is deeply excavated, and with two short processes on the middle. The tergum is often bright red, which colour becomes brownish in more mature specimens. The humeral angle is usually more or less black. In some specimens there is a series of minute black dots each side of the venter, and a few obscure spots distributed over the ventral surface."

Euschistus politus. New sp.—"Pale dull fulvous, or rufo-fulvous, suboval, with the humeral angles almost rounded and very moderately prominent. Head narrow, as in *E. tristigmus*, Say, deeply and finely punctate, the tylus prominent at tip and a little longer than the lateral lobes, the lateral lobes deeply sinuated, with the outer margin blackish. A black line extends from the eye to base of antennæ; antennæ clay yellowish; the basal joint short, hardly reaching the apex of head, marked with a few black points; second joint longer; third a little longer than the second; fourth longer, dusky at tip; fifth a little longer than the fourth, fusiform, blackish excepting at base; rostrum pale testaceous, slender, with the setæ piceous, reaching to the posterior coxæ. Pronotum much wider than long, polished, closely and finely punctate with brown; the lateral margins very slightly sinuated, smooth, ivory white; the submargins blackish; humeral angles triangularly rounded; posthumeral margins almost straight. An obsolete, callous, imperfect curved line extends between the humeral angles. Scutellum narrow and bluntly rounded at tip, where it is also slenderly margined with white; the surface is less densely punctate in small spots. Wing-covers closely punctate; membrane a little brownish, the veins and numerous dots darker brown. Legs pale yellow, remotely dotted with brown. Beneath pale greenish,

finely punctate, highly polished, the pleura with a row of fine black dots, and an extra dot outwardly; connexivum acute, the intersegmental sutures indented and marked with a black dot. Tergum black, the sutures, exteriorly, with a double black spot. Length to end of abdomen, 9 to 10 mm. Width of pronotum, $5\frac{1}{2}$ to 6 mm. A pair of these insects taken in Massachusetts have been kindly given to me by Mr. A. H. Kirkland. Other specimens have been sent to me for examination from Rhode Island, Pennsylvania, and the District of Columbia. I have found it once, July 4, in a sandy pine woods district in southern Maryland. Only a few specimens have thus far been reported. It seems to be of rather uncommon occurrence."

GRAPTA INTERROGATIONIS.

BY ARTHUR J. SNYDER, N. EVANSTON, ILL.

Under the title "Notes on *Vanessa Interrogationis*," in the February number of CAN. ENT., Mr. W. F. Fiske gives some interesting statements corresponding to observations made here. I kept bait for moths on the trees in and near my yard from the beginning of the year 1896, and captured Noctuids during January, February, and March.

Diurnals came to the bait for the first time on April 12th. *Vanessa Antiopa* led the van, followed closely by the *Graptas* and *Pyrameis Atalanta*. In a few days *Interrogationis* and *Atalanta* were abundant. *Grapta Comma* appeared on the 17th of April.

April 24th I made the following note in my record: "Previous to this date all the *Grapta Interrogationis* were hibernating specimens and of the form *Fabricii*. This evening (my observations were made from four p.m. 'till dusk) all were of the dark form *Umbrosa*, but also all old hibernating specimens."

On the 25th both *Umbrosa* and *Fabricii* were seen. During the last of April and first part of May *Graptas* were exceedingly abundant.

On May 7th saw the first *Grapta* depositing eggs on elm. Captured the ♀ and found it to be *Umbrosa*. A single butterfly procured from these eggs was of the form *Umbrosa*.

Soon the eggs and larvæ of *Graptas* were abundant on the elm trees and shrubs, especially on the low branches of young trees. One could hardly turn over a bough of one of these without finding several larvæ.