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A New Species in the Hormaphidinae (Hemiptera, Aphididae).

By G. F. FERRIS, Stanford University, Calif.

(Plate VI)

The subfamily Hormaphidinae of the Aphididae includes among its few species some of the most specialized members of the family. The life histories of such species as *Hamamelistes spinosus* and *Hormaphis hamamelidis* are certainly among the most extraordinary that are known in any of the insect groups. As far as I am aware but three species belonging to this subfamily have been recorded from the United States, and of these one is introduced. It is therefore a decided pleasure to be able to record another American representative of the group. Credit for the discovery of the new species is due to Mr. Donald L. Currier, County Commissioner of Horticulture of San Benito County, California, who forwarded specimens to me for determination in the belief that the insects were Coccidae.

The available specimens represent but a single form, and it is consequently more or less unsafe to express any opinion as

to the generic position of the species. I am inclined to think that it really represents a new genus, but alate specimens will be necessary to determine this definitely, and I am referring it tentatively to *Hamamelistes*. The discovery of the remaining stages may not soon occur, and it seems best to present such information as is available.

***Hamamelistes* (?) *agrifoliae* n. sp.** Coccidiform generation (Plate VI).

Habit. Occurring on the small twigs and under side of the leaves of the host and presenting the appearance of the first stage larva of some scale insect.

First stage (Fig. C). Length .35 mm. General color pale yellow, the eyes black and the appendages dusky. Margins of the body with a series of small, inconspicuous wax processes and the dorsum with a few similar processes.

Antennae (Fig. D) well developed, four-segmented, the third and fourth segments coarsely imbricated subequal and nearly as long as the first and second segments together. Legs (Fig. H) strongly developed, the tarsi two-segmented, without digitules. Lateral margins of the body with as many as twenty quite large pores and the dorsum with four median pairs of such pores in the thoracic region. Beak three-segmented. Cauda not developed. Cornicles lacking. Abdominal spiracles lacking.

Second stage (Fig. B). Length .42 mm. Color as in first stage. Antennae reduced to mere unsegmented tubercles. Legs (Figs. F, G) relatively and actually smaller than in the preceding stage, the first two pairs with the tarsi reduced to the merest vestiges, the third with the tarsus distinct but one-segmented, the claws lacking on all. Pores arranged as in the preceding stage but those of the marginal series more numerous. Beak three-segmented. Cauda not developed. Cornicles lacking. Abdominal spiracles lacking.

Third stage (Fig. A). Length .6 mm. At maturity quite heavily chitinized and with the venter greatly (and usually irregularly) swollen, the legs appearing as if rising from the dorsum and projecting uselessly above. Secretions lacking or at the most very scanty. Dorsal region composed chiefly of the head and thorax and marked off by very distinct sutures into definite areas. Head and pronotum marked off by a transverse suture which curves behind the anterior spiracles, the lateral areas from each antenna to the corresponding spiracle being strongly and finely reticulate. Mesonotum much elongate, divided by longitudinal sutures into three plates, the median plate being as broad as the other two together. Metanotum divided in similar fashion but scarcely more than one-third as long as the mesonotum. Behind the metanotum is a single undivided plate which conceals the cauda. The head and

thorax are beset with large, more or less symmetrically disposed, pore-like areas and the lateral margins of the meso- and metanota are cast into distinct ridges. Mesothoracic spiracles surrounded by a large, reticulated area. Cauda (Fig. E) distinctly knobbed and anal plate deeply bilobed, both the cauda and the anal plate with several rather long setae. Beak not discernible in the specimens examined. Legs as in the preceding stage. Cornicles lacking. Abdominal spiracles lacking.

Type host and locality. From *Quercus agrifolia* near Chitenden, Santa Cruz County, California, April 28, 1921. Holotype and paratypes and type material in the Stanford University collection.

Notes. The entire absence of cornicles will place this species in Baker's tribe Hormaphidini, which contains but two genera, *Hormaphis* and *Hamamelistes*. The present species agrees none too closely with either of these genera, but is perhaps nearer the latter.

A considerable quantity of material has been examined, but only the three stages described above have been found. Pergande has described three nymphal stages for the corresponding forms of both *Hormaphis hamamelidis* and *Hamamelistes spinosus*. Living examples of all the stages were present. None of the adults appeared to contain young.

EXPLANATION OF PLATE VI.

Hamamelistes (?) *agrifoliae* n. sp.: A, adult; B, second stage; C, first stage; D, antenna of first stage; E, cauda and anal plate of adult; F, G, anterior (or middle) and posterior legs of second stage; H, leg of first stage.

The Mating Habits of *Megarhyssa* (Hym., Ichneumonidae).

In the October issue of the News, A. B. Champlain reports "the discovery of the curious mating habit of *Megarhyssa atrata*," stating that "very little seems to have been recorded concerning the mating habits of the Ichneumonoids." Attention is called to the fact that the habit described by Champlain was described by Mr. George Gade, in 1884, in Vol. VII, p. 103, of the *Bulletin of the Brooklyn Entomological Society*, for a closely related species, called by him *Pimpla* (*Rhyssa*) *lunator*, as follows: "The males are often observed congregated upon an apparently sound part of a tree; scraping away bark sometimes to a depth of $\frac{1}{4}$ inch the ♀ was found ready to emerge. Retiring, the males at once returned and one finally succeeded in copulating with the ♀ while yet she was in the cell or burrow. They remain but a short time *in copula* then the ♀ completes her exit from the larval habitation, and flies about, further unmolested by the ♂, in search of a suitable tree upon which to oviposit."—JOHN BARLOW, Rhode Island State College, Kingston, R. I.



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