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A NEW PEST OF ALBIZZIA IN THE DISTRICT OF COLUMBIA (LEPIDOPTERA: GLYPHIPTERYGIDAE)

By J. F. Gates Clarke

During the summer of 1940, L. G. Baumhofer, late associate entomologist, division of forest insect investigations, U. S. Bureau of Entomology and Plant Quarantine, submitted a small series of moths, together with larvae and pupae of a species attacking the ornamental "mimosa" (*Albizzia julibrissin* Durazzini) in the northwestern part of the District of Columbia. More recent observations have indicated an extension in the distribution of the insect northeastward beyond the limits of the District of Columbia into adjacent Takoma Park and Silver Spring, Md. Both foliage and flowers of the "mimosa" are sometimes severely damaged.

Although the moth is evidently a glyphipterygid, it could not be identified as any known species of the American fauna or as referable to any American genus. During the midsummer of 1941, I made further collections and field studies, and with the help of August Busck it was possible to trace the species to the Australian genus *Homadaula* Lower.[1] As there were no examples of the genus in the National collection, a request was sent to Norman B. Tindale, of the South Australian Museum, Adelaide, South Australia, for specimens of the genotype. These were made available through the courtesy of Herbert M. Hale, director of the South Australian Museum. The moths from *Albizzia* proved to be specifically distinct but obviously congeneric with *lasiochroa*. They may represent a species described under some other genus in the family Hyponomeutidae (where Meyrick placed *Homadaula*), but no description or figure that fits them has been found. The species is obviously an exotic one, probably

[1] The genus *Homadaula* is generally credited to Meyrick (1907), but it was first published by Lower (1899) with *lasiochroa* Lower as the only included species.

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introduced from the Indo-Australian region, and, since it appears to be new, I am offering a description.

The structural diagnoses of the larva and pupa were prepared by Carl Heinrich; the photographs were made by M. L. Foubert, of the Office of Information, and the drawings by Arthur D. Cushman, of the Bureau of Entomology and Plant Quarantine, all of the United States Department of Agriculture.

HOMADAULA ALBIZZIAE, new species

PLATES 21–25, FIGURES 1–21

Antenna, palpus, head, thorax, and forewing and cilia mouse gray with a silvery luster, the scales tipped with pale cinereous. Forewing sparsely irrorated with conspicuous black spots. Hind wing fuscous; cilia gray with a light fuscous basal band. Forelegs and midlegs blackish fuscous strongly overlaid with cinereous, tarsi annulated with cinereous; hind leg shining luteous, overlaid with gray. Abdomen gray above, luteous beneath.

Eighth tergite strongly modified to form a close-fitting hood. Distal end broadly bifurcate, each point with a cluster of stiff setae. Eighth sternite greatly reduced, fleshy, ridgelike, and closely involved with the vinculum.

Male genitalia.—Harpe (fig. 16) very slender, with a large subquadrate costal expansion, rather profusely covered with fine setae; cucullus narrow, bluntly pointed. Anellus (fig. 13) strongly fused with bases of the harpes, with a small, slender, digitate process from each dorsolateral corner, each process bearing several stout setae at distal end. Aedeagus (figs. 6*a*, 14) stout, strongly constricted basally, forming a small bulbous process; distal end strongly sclerotized, compressed and curved as a cupped, bifurcate process. Vinculum (fig. 15) a broad U-shaped band. Tegumen with lateral edges broadly expanded, then abruptly narrowed anteriorly. Gnathos (fig. 12) arising from the narrow anterior edge of the tegumen in the form of two curved bars, one of these originating slightly to the left of the middle as a narrow, inverted S-shaped bar dilated at the distal end, the other arising from the right side as a broad, inwardly curved bar, its distal end also dilated. Alimentary canal opening distally between these two elements of the gnathos. Uncus (fig. 11) very broad, with a deep excavation on each side of middle distally.

Female genitalia (fig. 17).—Ostium opening at the end of a long, attenuated, curved tube, the latter emerging from a membranous pocket and curved toward the left. Ductus bursae membranous and entering the duct connecting the bursa copulatrix and receptaculum seminalis well before the bursa. Bursa copulatrix elongate oval; signa 2 lightly sclerotized, elongate plates, situated in the posterior

part of the bursa. Inception of ductus seminalis between entrance of ductus bursae and receptaculum seminalis.

Alar expanse 13 to 17 mm.

Type.—U. S. N. M. No. 56277.

Type locality.—Washington, D. C.

Food plant.—Albizzia julibrissin Durazzini.

Described from male type and nine male and female paratypes, all from the type locality (August and September dates).

DESCRIPTION OF LARVA

Length 14 to 16 mm. Head and prothoracic shield testaceous, strongly marked with dark brown to black in the form of irregular longitudinal bands. Thoracic segments always gray to blackish brown, frequently darker than the abdominal segments, and with five longitudinal white stripes. Thoracic legs shining, dark brown to black; joints narrowly annulated with white. Abdominal segments pale gray to blackish brown, with five longitudinal white stripes. The dark ground color of the segments sometimes strongly suffused with rose or pink, especially when the larva is full-fed, and occasionally broken with white patches, giving a mottled effect. Anal plate dark brown mottled with white. Tubercles and spiracles dark brown to black.

STRUCTURAL CHARACTERS

PLATE 25, FIGURES 19–21

Head and body with only the normal primary setae.

Head, viewed from above, as long as wide; widest part well behind middle; adfrontal sutures extending to incision of dorsal hind margin; frons reaching to middle of dorsum; longitudinal ridge almost as long as frons; setae A^1, A^2, and P^1 lying in a straight line; A^1 and A^2 closer together than A^2 and A^3; A^2 and A^3 and L^1 well separated (A^3 almost equidistant from A^3 and L^1) and lying in a nearly straight line; setae Adf^1, P^1 and P^2 also lying in a straight line. Ocelli all present; 3, 4, and 5 lying in a line and very close together.

Prothoracic shield extended laterally to include the prespiracular setae. These setae three in number and situated in a line along the lateral margin of the shield; IV and V closely approximate and near the anterior lateral angle of the shield, III well back of the other two. Setae IV and V closely approximate and under the spiracle on abdominal segments 1 to 6 inclusive, slightly separated on abdominal segment 7, and well separated and lying in a longitudinal line on abdominal segment 8; seta V very short on all the abdominal segments. On the ninth abdominal segment seta I well separated from II and III, anterolaterad of II; IV and V approximate but not on a single pinaculum. VI well separated from IV and V. Crochets

38 to 40, irregularly biordinal and arranged in a complete circle. No anal fork.

PUPA

PLATE 23, FIGURES 7–9

Pupa small (5 to 6 mm.), moderately slender, tapering appreciably from abdominal segments 7 to 10; caudal end rounded; cremaster absent; abdominal segments 3 to 7 each with a low, postmedian, transverse, somewhat scalloped ridge on middorsum; a transverse row of fine, short spines near anterior margin on dorsum of each of abdominal segments 4 to 8, and a girdle of short, rather well-spaced setae encircling the posterior margins of each of abdominal segments 4 to 7; on each side and near the anterior end of the long slitlike anal opening, a small, strongly sclerotized, flangelike projection, partially covering a short, stout seta.

At the time of writing many pupae are on hand. This is the stage in which this species overwinters. The life cycle during the summer is short (22 days), and from the data already gathered it seems likely that there are at least two, possibly three or more, complete life cycles annually.

The eggs are laid either on the leaves or flowers, the latter usually being attacked first, and flowering trees definitely being preferred to nonflowering ones. The larvae are at first gregarious, living together in a heavy web spun throughout the affected parts of the plant. As the larvae grow they spread out to various parts of the trees, tying the leaves together in large, conspicuous masses. The leaflets, sometimes little else being eaten, are then skeletonized, which causes them to die, turn brown, and become detached at the rhachis. The leaflets may remain on the tree, however, owing to the heavy webs by which they are tied.

When the larvae are full-fed they drop to the ground on long silken threads. The threads are so numerous that one has the sensation of walking through spider webs when passing beneath an infested tree. After dropping to the ground the larvae crawl to nearby objects and spin cocoons in cracks and crevices, beneath the edges of the siding of houses, on the bark of adjacent trees or, rarely, between leaves of the host plant.

Note

Since the above was written (Jan. 1942) careful search in Virginia has been made as far as 10 miles south of Petersburg and east to Williamsburg. No evidence of the presence of the moth has been found in Virginia. North of the District of Columbia, in Montgomery County, Md., however, the species is much more abundant and widespread than previously. Many trees in Takoma Park were practically defoliated by the insect during the summer of 1942.

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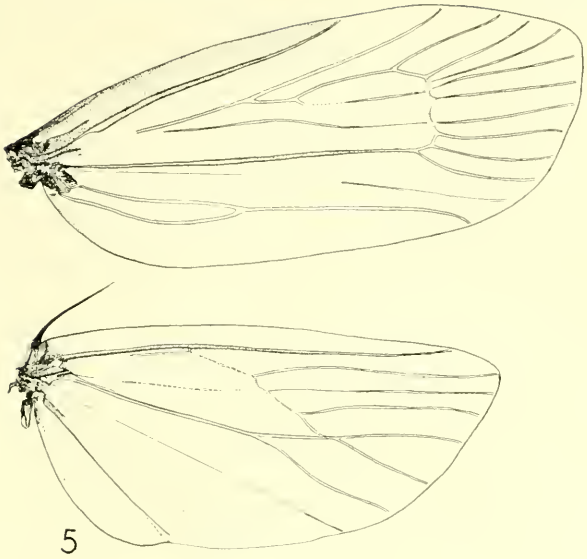
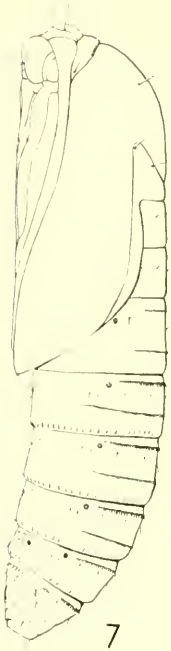
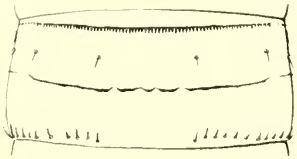
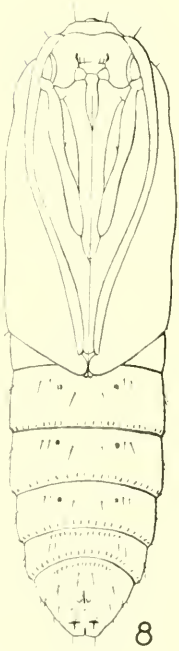
1. Adult male of *Homadaula albizziae*.
2. Normal, uninfested leaves of *Albizzia julibrissin* Durazzini.

3. Typical example of infested inflorescence with infestation beginning to spread to leaves.
4. Infested leaves with fruits involved. Note complete destruction of leaves and detached leaflets in lower part of photograph.









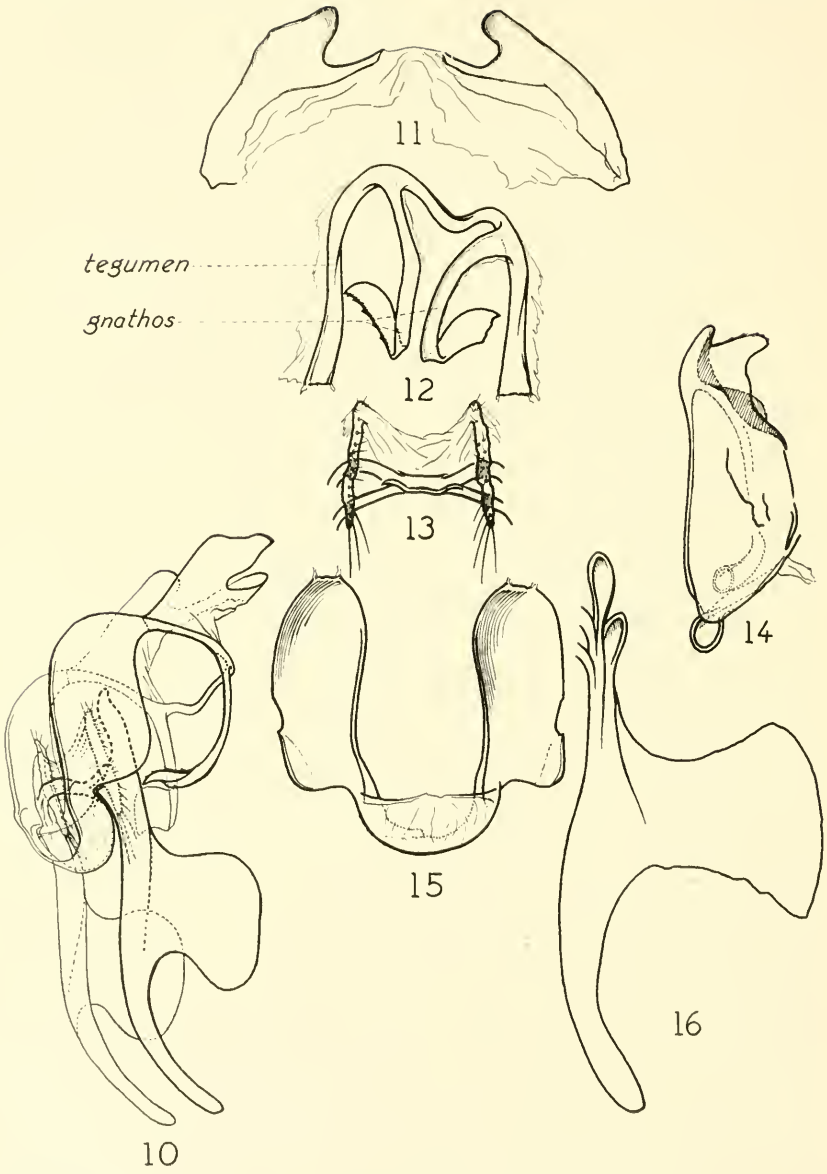
5. Wing venation of moth.

6–6a. 6, Ventral view of eighth tergite and male genitalia with aedeagus removed; *6a*, lateral aspect of aedeagus.

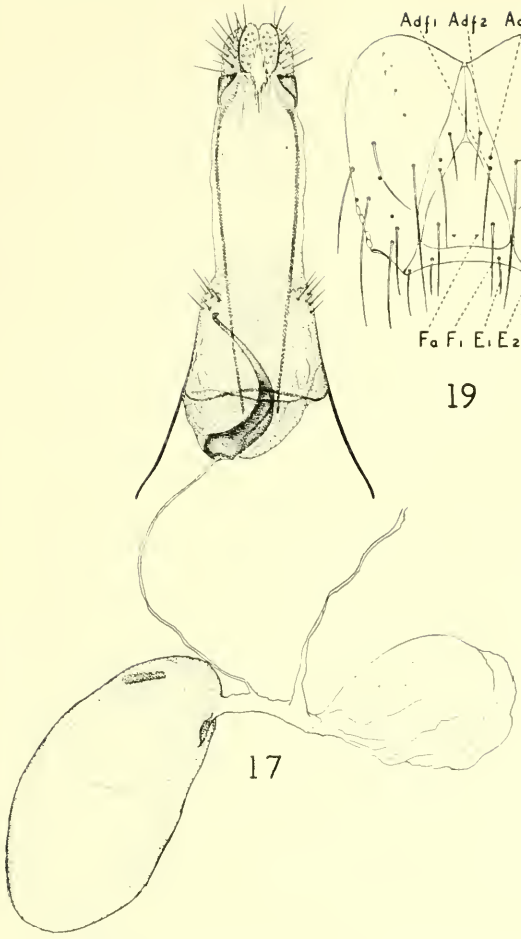
7. Lateral view of pupa.

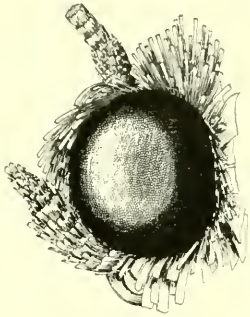
8. Ventral view of pupa.

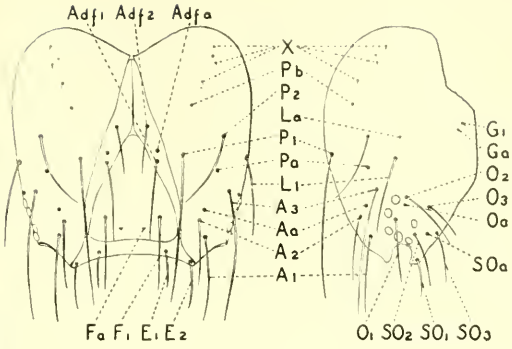
9. Dorsal view of detail of fourth abdominal segment of pupa.

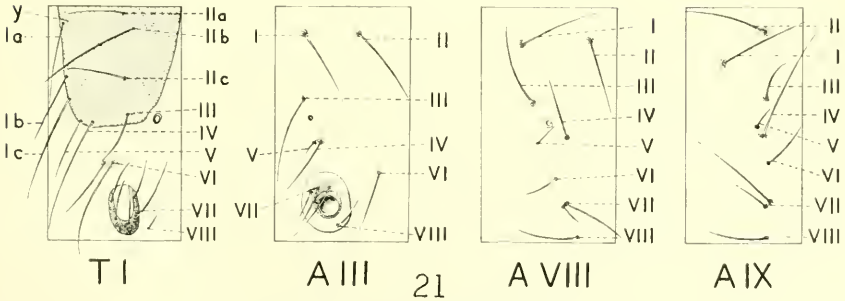


10–16. Male genitalia of moth dissected, flattened, and shown in diagram: 10, Lateral view with aedeagus removed; 11, uncus; 12, tegumen and elements of gnathos; 13, anellus; 14, aedeagus; 15, vinculum; 16, harpe.









17. Ventral aspect of female genitalia.
18. Lateral view of head of moth.
19. Dorsal view of head capsule of larva.
20. Lateral view of head capsule of larva.
21. Setal maps of body segments of larva.