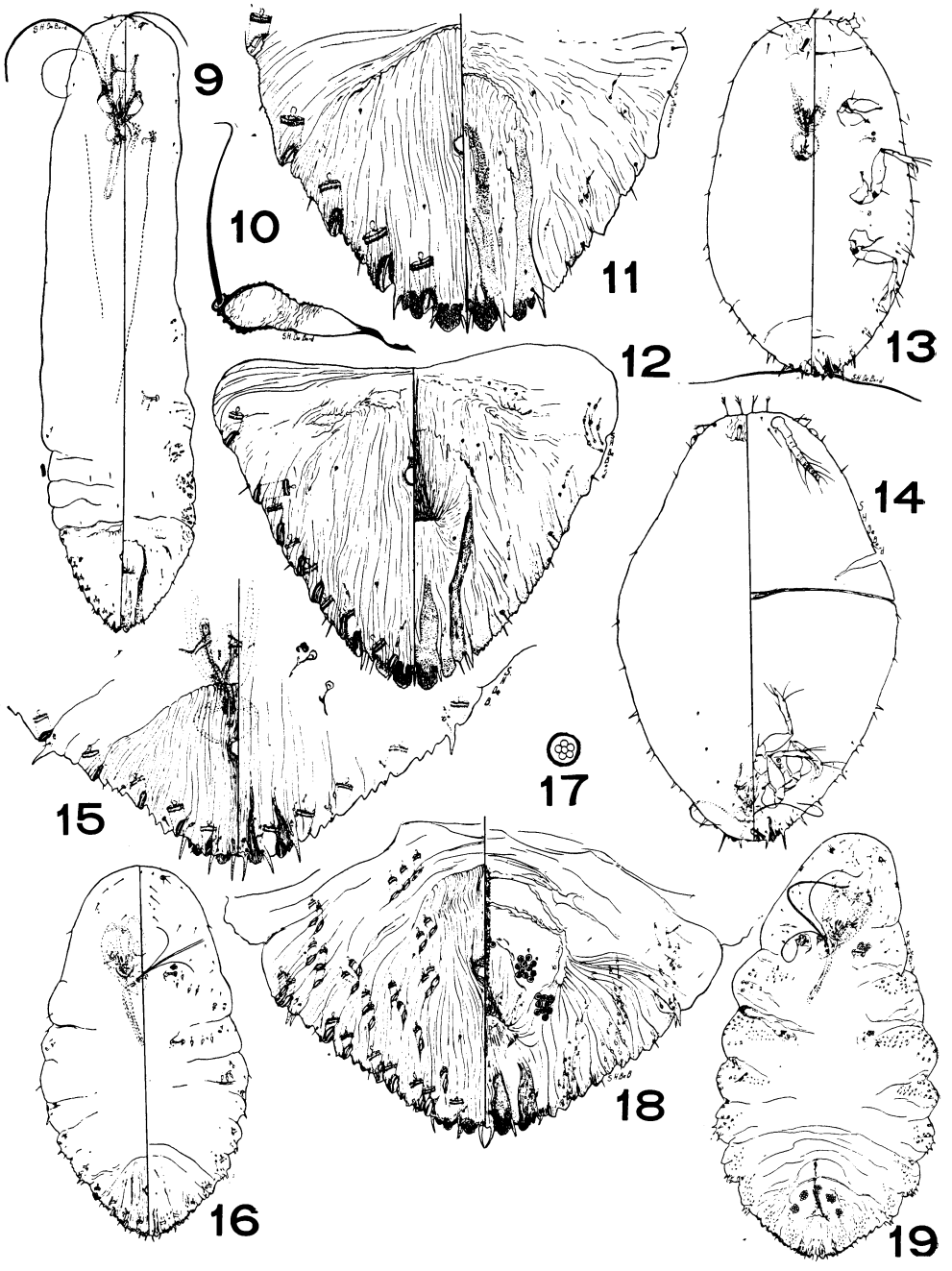

Gladys Hoke

SOME UNDESCRIBED DIASPINES FROM MISSISSIPPI.*

(Homoptera: Coccidae)

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Descriptions of four species are presented for publication in anticipation of the use of the names in a forthcoming technical bulletin on the Diaspines of the state to be published by the Mississippi Experiment Station.

Aspidiotus socialis, new species.

Scale of Female.— Color yellowish brown;moderately convex, circular; exuvia sub-central, covered by secretion; 1 mm. in diameter.

Scale of Male.—Not observed.

Adult Female.—Body longer than broad, in older specimens pygidium telescoped into preceding abdominal segments until as broad as long; rudimentary antennæ bearing a stout seta; spiracerores lacking.

Pygidium.—Lobes in three pairs, median pair large, prominent, mesal margins parallel and fused for more than half their length, distal margin rounding into lateral, slight indication of lateral notch near base; second pair of lobes short, reaching only slightly beyond base of median lobe, narrow, converging toward median lobes, chitinized, lateral notch; third pair of lobes much reduced, converging toward meson, chitinized, slight lateral notch or crenulation; incisuræ very narrow; thickenings along edges of incisuræ (densaræ) conspicuous, mesal thickening of second incisura club-shaped, long and broad, lateral thickening smaller, those of third incisura shorter, sometimes apparently fused at cephalic end, thickenings of median incisura sometimes inconspicuous, a small thickening on lateral basal portion of a median lobe usually conspicuous; plates observed only in third incisura, long as setæ and slender, not discernible in some specimens; a dorsal seta at base of lateral margin of each lobe, one on lateris and one at base of pygidium; a ventral seta in close proximity to each dorsal seta; genacerores lacking; a ceratuba opening in groove between median lobes, three in grove from second incisura, a row of about six from third incisura, and about the same number in a row extending cephalad from near seta on lateris; anus small, about four or five times its width from distal end of lobes; vulva located in line with the setæ located on lateral margin of pygidium at its base; viviparous.

Host.—Bark of water-oak (*Quercus* sp.).

Locality.—Aberdeen, Mississippi: May 4, 1921. Collected by Dr. H. L. Dozier. Well developed embryonic larvæ were

*Contribution from the Mississippi Agricultural Experiment Station.

observed in one specimen. The absence of genacerores is apparently the chief morphological difference between this species and *A. forbesi.* Dr. Harold Morrison suggests that it is also probably closely related to *A. ehretiæ* (Brain). *Chrysomphalus obscurus* (Comst.) occurred in great numbers associated with this species. *Aspidiotus coloratus* Ckll. and a species of *Kermes* were collected from the same tree. On August 18, 1921 Argentine ants were collected "attending coccids" on the tree from which these species were taken.

Holotype in the Coccid Collection of the Mississippi State Plant Board. Paratypes in the U. S. National collection of Coccidæ, Washington, D. C. and in the author's collection.

Crypthemichionaspis ulmi, new species.

Scale of female.—Color white when clean, if weathered, a dirty white, or if secretion has been removed exuviæ showing as shiny black, specimens examined .8 to .9 mm. long, .4 mm. broad, pygidial portion much narrower, very convex, about .2 mm. high; ventral scale white, adhering to insect except beneath abdomen where it apparently usually adheres to bark, first exuvia at anterior end, delicate, covered by secretion, pale straw yellow when removed, black of second exuvia showing through when in place; position of first exuvia indicated on second which is shiny black and heavily chitinized, portions of pygidium and ventral surface less heavily chitinized than cephalothorax; plates visible on margin of pygidium.

Scale of male.—Color white; .8 mm. long, .3 mm. broad, sides parallel, concentrically ringed, exuvia terminal covered with white secretion, pale straw color; posterior end of scale open to allow for exit of male.

Adult male.—Body .56 mm. long; with wings folded back .75 mm. long not including antennæ, .16 mm. broad; legs with a button-like structure between tibia and tarsus.

Exuvia of male.—Apparently not differing from that of female.

First exuvia of female.—Mounted on slide apparently .39 mm. long, .26 mm. broad; antennæ 6-segmented; distal segment with 6 or 7 setæ; tarsus twice as long as tibia; each abdominal segment apparently with a ceratuba opening on slight prominence on margin, slight median notch on margin of pygidium; 2 slender setæ folded back and crossed on pygidium; a pair of very short median lobe-like projections of margin, 2 setæ associated with each; slight indication of a second pair of lobes; and beyond each of these a large and long plate; several setæ on lateris; rostrum folded back in close proximity to margin.

Second stage female.—Body apparently .46 mm. long; .29 mm. broad; rudimentary antennæ with 3 stiff setæ; segmentation distinct; margins of abdominal segments bearing 2 or more short tubercles or stiff plates; pygidium with lobes in 2 pairs, median pair broad, deeply

incised forming 2 lobelets, median largest, distal end with 2 deep notches giving a trilobed appearance, lateral lobelet without notches; second pair of lobes similar to first pair but very much smaller, sometimes apparently wanting; median pair of lobes widely separated; 8 pairs of long plates, 2 pairs of large short ceratuba on margin, first between second plate and median lobe, second ceratubæ between third and fourth plates; ceratubæ on ventral surface slender; anus from 5 to 8 times its own width from posterior margin.

Second exuvia.—Densely chitinized excepting last 3 abdominal segments and pygidium, these chitinized but not so heavily as anterior portion; pygidium with lobes apparently in 2 pairs, median pair large, apparently incised forming 2 lobelets, the median with 2 notches on distal end giving a trilobed appearance, lateral lobelet much smaller and without notches; second pair of lobes incised, but very small and inconspicuous; 7 or 8 pairs of plates, long, stout, and chitinized, apparently arranged 2–1–1–1–1–2; 2 pairs of short stout ceratubæ opening on margin mesad of fourth and of second plates; a seta at base of each of lobes and 2 on lateris, possibly more; anus about 3 to 4 times its own length from margin.

Adult female.—Body mounted on slide .44 to .59 mm. long, .39 mm. broad, some specimens with one side much straighter than other; derm membraneous; rudimentary antenna bearing 3 or 4 long stout setæ and 2 or 3 shorter, slenderer ones; tentorium large and chitinized; anterior spiracles with 2 or 3 spiracerores; posterior spiracerores lacking; 2 small setæ caudad and mesad of anterior spiracle; a few small scattered setæ.

Pygidium.—Lobes lacking; margin unbroken; apparently 4 pairs of long setæ on margin, median pair ventrad of others; and 6 or 7 smaller submarginal setæ on ventral surface; ceratubæ submarginal, slender, each side apparently with 4 groups of about 3 or 4 each except last of only 1 or 2; genacerores in 3 groups, anterior groups fused forming one continuous band, posterior groups only slightly separated from median group of about 21–24 cerores, posterior groups of 4–6; 3 pairs of small setæ cephalad of genacerores, and three pairs on each of two preceeding segments, 2 pairs on third, and 1 to 2 on second abdominal segment, dorsal surface bearing 7 pairs beginning with first abdominal segment one pair on each segment, and 2 on pygidium; anus superimposed on vulva, about 3 times its own width from margin.

Host.—Elm (*Ulmus americana L.*).

Locality.—Freshman baseball field, A. & M. College, Mississippi: October 15, 1926. Collected by Mr. J. N. Roney.

This species was most abundant in cracks of the bark or partly or completely beneath the scales of *Aspidiotus juglansregiæ* Comst. The scales of the latter species were often partly elevated from the bark and 2 or more specimens of the *Crypthemichionaspis* were often found beneath one old scale, and also beneath females of *Lecanium caryæ* Fitch. The *Aspidiotus* and the *Lecanium* were heavily parasitized though no evidence

of parasitism was observed in the *Crypthemichionaspis*. At the suggestion of Dr. Harold Morrison of the U. S. Bureau of Entomology, Washington, D. C., this species has been placed in the genus *Crypthemichionaspis* of Lindinger. It appears to be closely related to *Crythemichionaspis africana* (Newst.).

Holotype in the Coccid Collection of the Mississippi State Plant Board. Paratypes in the U. S. National Collection of Coccidæ and in the author's collection.

Lepidosaphes ilicis, new species.

Scale of female.—1.48 mm. long, very slender, little broader than exuviæ, transparent, body of insect showing through very distinctly, scale appearing on leaf as nearly white; exuviæ occupying one-half of total length of scale, first exuvia projecting entirely beyond scale, overlapping second only slightly, covered with thin white secretion, faint glistening straw-yellow color with secretion removed; ventral scale very delicate, not noticeable on leaf and only apparent as fringe along lateral margins beneath dorsal scale.

Scale of male.—Slightly shorter than scale of female, slightly opaque, otherwise very similar and scarcely distinguishable from female scale except by presence of only one exuvia in male scale.

Embryonic larva.—Body about .23 mm. long, .13 mm. broad; 2 chitinized tubular ducts near cephalic margin of head; antenna apparently 5 segmented, distal segment annulate; coxa and femur of each leg very broad; pygidium with a pair of large lobes, a pair of small lobe-like processes between large pair; ventral surface with a long seta and a short one between large and small lobes and apparently with 2 setæ on dorsal surface about opposite these.

Adult male.—Body, mounted on slide, 1 mm. long from base of antennæ to end of genital sheath, and twice as broad from tip of wings with these expanded, antennæ and legs apparently of usual type, basal portion of halter rather slender at base and broadly expanded toward apex, bristle slender, hook with slightly more than a right angle, basal portion of wing with distinct protrusion with pocket for hook.

Second stage female.—Derm membranous except portions of pygidium; antennæ rudimentary, bearing a long seta, apparently one anterior spiracerore; tentorium well developed; margin of body bearing small setæ, margins of abdomen and thorax with ceratubæ; pygidium with lobes in three pairs, median pair well developed, as broad as long, distal half broadly rounded with indication of a notch near lateral margin, second pair of lobes deeply incised, mesal lobelet similar to median lobe but smaller, lateral lobelet much reduced and bluntly pointed at apex; third pair of lobes scarcely recognizable as such, deeply incised, lateral margins serrate; median incisura almost as broad as a median lobe, second and third about same width; plates arranged 1–1–1; a dorsal and a ventral seta at base of each lobe, on lateris, and near base of pygidium, apparently with an extra dorsal seta at base of

median lobe; 5 pairs of broad altaceratubæ, arranged 0–1–1–1–1–1, with 2 or 3 pairs of small slender ceratubæ on dorsal surface laterad and cephalad of anus but nearer margin; anus about 8 times its own width from distal end of lobes; 2 pairs of chitinized thickenings on ventral surface extending cephalad from base of median and of second pairs of lobes, median pair converging and almost meeting at a point slightly cephalad of anus; second pair beginning short distance cephalad of second pair of lobes.

Adult female.—Body mounted on slide 1 mm. long, .24 mm. broad, cephalic end very bluntly rounded, pygidium bluntly pointed; derm membranous except portions of pygidium; antenna very rudimentary, each bearing 1 long and 1 short seta, a portion of derm between antennæ apparently protruding slightly and lacking finger-print-like markings of adjacent derm; tentorium long not heavily chitinized; derm adjacent to anterior portion of rostrum bearing numerous small chitinized, papilla-like projections; anterior spiracerores 3–6; thorax longer than abdomen and pygidium.

Pygidium.—Lobes in 3 pairs, median pair large, as broad as long, deeply rounded, serrate almost to base; second pair deeply incised, median much larger than lateral lobelet, serrate on lateral margin, lateral lobelet small, pointed, often without serrations, inconspicuous; third pair similar to second, broader and less lobe–like in appearance; incisuræ rather narrow; plates short, not longer than seta, arranged 1–1–1, median plate shorter than lobes, second as long as second lobe, third longest, as long as dorsal seta of second lobe; a dorsal and a ventral seta associated with each lobe, 2 on lateris; genacerores lacking; altaceratubæ large, arranged 0–1–2–2–2–1, paired arrangement of last two groups scarcely discernible; brevaceratubæ apparently lacking, 2 pairs of small ventral submarginal ceratubæ present on lateris; anus about 12 times its own width from distal end of lobes; vulva caudad of anus; ventral chitinized thickenings extending cephalad from median lobes for about two-thirds of distance to vulva, thickenings from second pair of lobes extending cephalad of vulva; viviparous.

Host.—Holly, (*Ilex opaca* Ait.), under side of leaves.

Locality.—Horse Shoe Lake, Tallahatchie River bottom near Como, Mississippi: October 29, 1921. Collected by the author.

The drawing of the second stage female is of a specimen on holly leaf, (*Ilex opaca*) from Flint Creek Swamp, Wiggins, Mississippi: December, 1920. Described from 2 adult females, 2 second stage females, 1 male, and the scales.

Holotype in the author's collection.

Paratype in the Coccid Collection of the State Plant Board.

Lepidosaphes solidaginis, new species.

Scale of female.—Variable; color yellowish white; usually about 2 mm. long, and three-fourth as broad, convex; first exuvia small, long, and narrow, second exuvia much larger, broad, projecting well beyond margin of scale, both exuviæ covered with secretion, scale without exuviæ often as broad as long, ventral scale white, thick, adhering to bark of host.

Scale of male.—Color similar to that of female, usually about 1 mm. long and narrow, sides of scale almost parallel, concentrically ringed, convex, exuvia about one–fourth as long as scale.

Larva.—Body about twice as long as broad, (antenna broken on specimens studied) a pair of tubular ducts on dorsal surface of head as in figure; 3 pairs of large setæ on dorsal cephalic margin, branched; legs well developed, tibia one–half as long as tarsus, coxa broad; pygidial margin with a pair of large lobes distinctly notched on inner and outer margins near base, between large lobes a pair of small chitinized lobe-like processes, deeply notched on distal end near inner and outer margins; a seta about one–third of length of body mesad of each large lobe, 2 small setæ between small median lobe-like process and large lobe, laterad and dorsad of each large lobe a short seta on a serrate chitinized projection of margin, laterad of this seta a large plate followed by a chitinized projection of margin, then a seta followed by a plate, 3 pairs of smaller plates, setæ and ceratubæ on margin as in figure; anus in close proximity to margin.

First exuvia.—Four or five pairs of setæ on anterior margin of head between the eyes, the 3 median pairs apparently may or may not be distinctly branched on distal half; antennæ 6-segmented; a pair of cylindrical ducts opening on dorsal surface of head near anterior margin; eyes marginal; a distinct constriction between anterior and posterior half of specimen; pygidial margin as in figure, the 2 long setæ folded cephlo-laterad and crossed on dorsal surface; rostrum, tentorium and legs pushed well back on to pygidium.

Second stage female.—Body slightly less than twice as long as broad, broadest through abdominal segments; rudimentary antenna bearing 2 or 3 setæ, setæ and certubæ on ventral surface of head as in figure; mesospiracerores 3–4, metaspiracerores not observed; a row of about 5 ceratubæ extending laterad from the posterior spiracles to margin, ceratubæ, and conical tubercles bearing certaubæ, extending cephalad along margin to anterior spiracles; pygidial margin with 2 pairs of short broad lobes, second pair incised; 2 plates in median incisura, 1 in second, and 1 in third; lateris chitinized and deeply serrate; a dorsal seta on inner and outer margin at base of median lobe, at base of second pair of lobes and 2 on lateris, a ventral seta cephalad of first 2 dorsal setæ and laterad of remaining three; 5 pairs of short stout altaceratubæ, a few brevaceratubæ as in figure; anus 5 to 8 times its own width from distal end of lobes.

Second exuvia.—Pygidial margin similar to that of second stage; rostrum usually folded back to or beyond anus.

Adult female.—Body usually twice as long as broad, rudimentary antennæ bearing 2–4 setæ; groups of ceratubæ on lateral aspects of abdominal segments and on thorax as in figure; a chitinized structure on margin of head laterad of anterior end of tentorium; mesospiracerores 14–18, metaspiracerores 4–9.

Pygidium.—Lobes in 2 pairs, median pair twice as broad as long, slightly notched on inner and outer margin, second pair of lobes deeply incised, mesal lobelet more than twice as broad as lateral, lateris deeply incised and margin chitinized; median incisura as wide or wider than a median lobe, second incisura wide; plates arranged 2–1–1, median pair longest, three times as long as median lobes, converging toward apex, second and third plates sometimes unipectinate on lateral margins; a pair of setæ on ventral surface mesad and cephalad of median pair of lobes, a dorsal and a ventral seta associated with each pair of lobes, other setæ observed, as in figure; genacerores 5–7, 8–12, 7–10 in specimens observed; altaceratubæ 1–2–2–2 short and broad, brevaceratubæ large, about 12 pairs, usually as in figure; ceratubæ of ventral surface numerous, small, apparently usually with a group of about 4 cephalad of second pair of lobes, two groups of about 10 or 11 each on lateris, and a group of about 7–11 each on two preceding abdominal segments; a group of 2 about midway between vulva and posterior margin, a group of 2 or 3 between vulva and posterior group of genacerores, and 1 laterad of anterior group of genacerores; anus about 10 times its own width from distal end of lobes; vulva located between posterior groups of genacerores.

Host.—Golden rod, (*Solidago* sp.) Scales clustered at the base of the main stem in close proximity to the roots and on the roots near the stem.

Locality.—Pickens County, Alabama, September 8, 1925. Collected by Mr. George F. Arnold. The specimens were collected so near the Mississippi state line that it seems logical to include the species in this paper. A number of these scales had been parasitized but none of the parasites were collected.

The most outstanding morphological characteristics of this species seem to be the exceedingly long plates of the median incisura, the presence of only one plate in the second and in the third incisura, the chitinized and dentate lateris, the large number of anterior and posterior spiracerores, and the presence of grouped ceratubæ on the ventral surface.

Holotype in the Coccid Collection of the Mississippi State Plant Board. Paratype in the author's collection and specimens from the type material in the U. S. National Collection of Coccidæ at Washington.

EXPLANATION OF PLATES.

(The drawings were made by Mrs. G. G. DeBord, DeBord Laboratories, Fort Smith, Arkansas).

PLATE XVIII.

Aspidiotus socialis, new species.

Fig. 1. Adult female, × 51.
Fig. 2. Pygidium, × 193.

Crypthemichionaspis ulmi, new species.

Fig. 3. First exuvia, × 129.
Fig. 4. Second exuvia, dorsal, × 58.
Fig. 5. Adult female, ventral, × 87.
Fig. 6. Male, portion of hind leg, × 331.
Fig. 7. Second exuvia, pygidium, × 193.
Fig. 8. Adult female, pygidium, × 267.

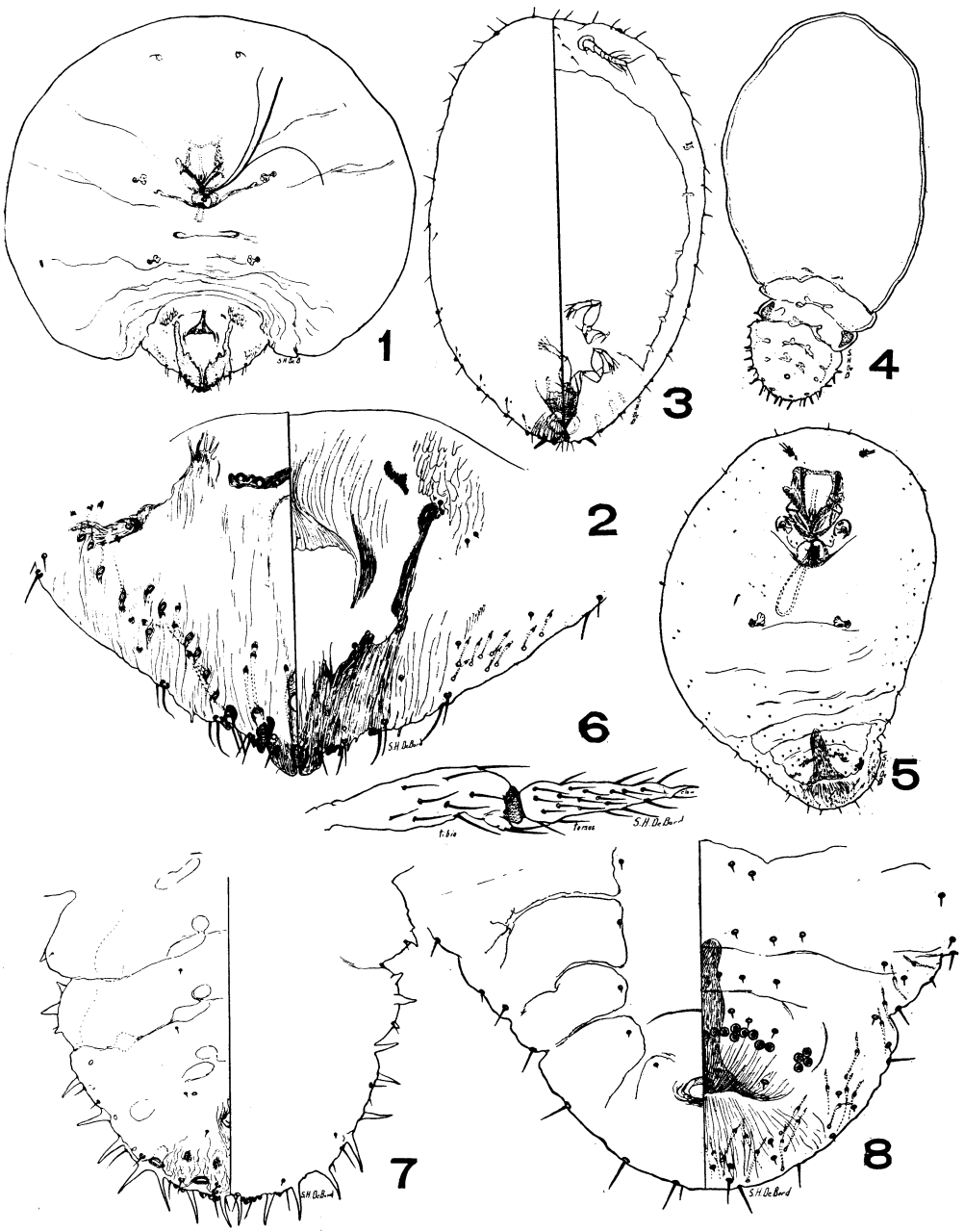
PLATE XIX.

Lepidosaphes ilicis, new species.

Fig. 9. Adult female, × 79.
Fig. 10. Male, halter, × 500.
Fig. 11. Female, second stage, pygidium, × 331.
Fig. 12. Adult female, pygidium, × 267.

Lepidosaphes solidaginis, new species.

Fig. 13. Larva, × 129.
Fig. 14. First exuvia, × 129.
Fig. 15. Second exuvia, pygidium, × 127.
Fig. 16. Second stage female, × 79.
Fig. 17. Adult female, genacerore, × 733.
Fig. 18. Adult female, pygidium, ×141.
Fig. 19. Adult female, ventral, × 51.



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