

TWO NEW SPECIES OF NORTH AMERICAN TINGITIDÆ.

[Hemiptera—Heteroptera.]

(PLATE IV.)

By OTTO HEIDEMANN.

Acysta perseæ, n. sp.

Colors sharply contrasting, shining black and yellowish white. Head short, closely set into thorax, black except the two small, converging spines in front and the narrow bucculæ on the underside, which are yellowish white; surface between eyes convex and somewhat rugulose, a little impression at base near them; antenniferous tubercles blunt but prominent. Eyes dark brown, strongly faceted. Antennæ slender, somewhat longer than distance from front of head to apex of posterior portion of pronotum; basal joint not much longer than second, both only slightly thicker than third; fourth joint dusky towards tip. Rostrum yellowish, nearly reaching meso-metasternal suture. Thorax black and shining, strongly punctured, moderately convex, transversely impressed near front, thence the sides narrowing abruptly towards anterior margin, the latter with a narrow yellowish rim; pronotum without a hood and with only one median carina; membranous lateral margins of thorax nearly obliterated, visible only as two very small ear-like expansions near shoulders, translucent, yellowish white, bearing a few minute round cells; tip of posterior portion of pronotum of same color and closely reticulated. Elytra oblong-oval, much longer than abdomen, somewhat narrowing towards apex, rounded at tip, translucent, yellowish white, with a transverse black vitta near the middle which becomes broadest at the discoidal areas, and beyond the latter a few nervures infuscated; discoidal area apparently not closed posteriorly by a raised nervure, barely wider than the subcostal area, both closely reticulated with very small areoles; costal margin about as broad as the discoidal area, with rows of three or four areoles at its widest part, these areoles increasing a little in size towards apex of elytra. Wings attaining tip of abdomen, highly iridescent. Body black, shining, sparingly pubescent. Rostral groove uninterrupted, the marginal laminae not strongly raised, yellowish; metasternum black, highly shining, transverse, flat. Last abdominal segment in the female broadly rounded at apex; in the male, oblong, a small round fovea on sides and strongly curved claspers at tip. Legs yellowish white, except the claws, which are blackish. Length, 2 mm.; width, 0.8 mm.

Described from two specimens, male and female. In addition I have examined some others, and a few larval forms. Eustis, Fla., July 15, 1897 (H. J. Webber); Ft. Meyers, Fla.,

July 27, 1906 (A. W. Morrill); Cutler, Fla., August 14, 1900; Baldwin, Fla., March 10, 1879 (E. A. Schwarz); Orlando, Fla., August 15, 1907; Miami, Fla., February 2, 1908 (Wester); St. George, Fla., April 20, 1880 (Turner); New Orleans, La., October 25, 1907 (La. Exp. Sta.).

Type (from Miami, Fla., female and male).—No. 11860, U. S. National Museum. This neat little tingitid is most nearly allied to G. C. Champion's *Acysta*^a *interrupta*, recorded from Panama. The latter species, however, differs in having three pronotal carinae and the membranous lateral margins interrupted only in the middle; besides, the nervures in that species closing the discoidal areas are well defined.

The U. S. National Museum possesses several specimens from Florida which have been found infesting *Persea carolinensis* and *Persea gratissima* (alligator pear or avocado), and other specimens coming from New Orleans, La. (La. Exp. Sta. a. c. 457) are labeled "living on camphor trees (*Camphora officinalis*)."

Eggs were examined on foliage of avocado twigs. They were deposited on the underside of the leaves, standing upright in irregular rows; they are of the usual tingitid egg shape, of a dull yellow color with a white rim to the lid. Each egg is more or less thickly covered by a dark, sticky secretion from the insect.

Nymphs, probably in the fifth stage of their development.—Body oblong-oval, dark yellowish, except towards base of abdomen where the color becomes lighter with some scattered small reddish spots. On each abdominal segment, on each side near the lateral margins arises directly from the surface a peculiar prolongation in the shape of a cylindrical process; the two on the fourth and last segments are most prominent. There are also some thicker and larger processes in the middle of the first, fourth, fifth, and seventh segments dorsally; some tubercles at each side of the wing pads; two large processes placed near together on the metanotum, and less prominent ones at each side of thorax. The head carries three strong spines in front and two large strongly curved horn-like processes at base, which are conspicuously roughened. The processes at lateral margins of abdomen are yellowish-white towards the end, a little thickened and rounded at tip, with a few pores and short bristles; the others are dark brownish. Head brown. The thorax shows some dark patches; the lateral margins yellowish-white, nearly transparent; the wing pads, which extend to the fifth abdominal segment, are entirely translucent except for a blackish streak at base. Dorsal part of abdomen more or less speckled with reddish and brown.

^a *Biologia Centrali-Americana, Insecta, Rhynchota, Vol. II, p. 47, 1897-1900.*

Leptobyrsa explanata, n. sp.

Body short, oval in the female, more elongate in the male, shining black; membranous parts of pronotum and integument of elytra pale yellowish, semitranslucent, nervures yellowish. Head rather small, black, with three white frontal spines, two approaching each other, the middle one comparatively stouter; besides, there are two other more slender spines extending from behind the eyes towards front. Antennæ long, finely pilose, yellowish, the tips infuscated; two basal joints slightly thicker than the following ones, first joint twice the length of second, third little more than three times as long as fourth. Bucculæ yellowish, narrow, angulate and broader behind, the edge upturned a little. Pronotum transverse, feebly convex, coarsely punctured, and shining black; in fresh specimens the sides of pronotum are covered with a whitish film that also extends toward the underside at the sternum. Hood not much inflated, cristate and slightly tapering towards front; covering the head, except the eyes, with quite large areoles at the sides near top and a few smaller ones at lower part. The three pronotal carinæ yellowish, the median one strongly foliaceous, as high as crest of hood, rounded on top and slowly declining towards apex of the triangular posterior portion of pronotum, with a row of long, large areoles of which the middle ones are divided by a few cross nervures and embrowned; outer carinæ very low, only half as long as the median carina, extending from base of hood to sides of pronotal portion posteriorly; the triangular part of pronotum rather short, yellowish and finely reticulated; membranous pronotal margins strongly rounded behind, reflexed, widening moderately at sides, narrowing toward the neck and reaching the lower part of hood close to the eyes, with two or three rows of average-sized areoles. Elytra ovate, iridescent, extending one-half their length beyond abdomen, a little less in the male; strongly rounded from base to apex, broadest behind the middle; discoidal area pyriform and short, angularly raised at the outer nervure, somewhat rounded at apex and broadly scooped out on the upper surface, with three or four rows of quite large areoles at the widest part. Subcostal area subvertical, wider than the discoidal area, having about five rows of irregular small areoles, those of the upper row much larger; costal area broadly expanded, with four or five rows of very large, more or less irregular areoles, diminishing to three and two rows at base. Surface of elytra very peculiarly undulated, with two transverse, sharp impressions, and another at apex formed by the outer nervure of subcostal area; a light transverse fascia on basal half. Median nervure of subcostal area strongly sinuate towards tip of elytra; sutural area at inner part irregularly reticulated with rows of some extremely large areoles. Entire margin of elytra, lateral margins of pronotum, crest of hood, carinæ, and most of the nervures beset closely with long, very fine hairs. Rostral groove un-

interrupted, broad at mesosternum and metasternum, angularly closed in front; rostrum reaching metasternum. Abdomen of female broadly rounded at apex, in the male more elongate, the sides of genital segment sinuated; at tip two strong claspers. Length, 3.6 mm.; width of each elytron across widest part, 1.4 mm.

Described from several specimens, male and female, Washington, D. C., June 23, 1890; Highlands, N. C., September 15, 1906 (R. S. Woglum); Sugarloaf Mountain, Md., October 8, 1902 (O. Heidemann); Greensburg, Pa. (F. C. Pratt); Sea Cliff, L. I., New York, June (N. Banks); Berkeley Springs, W. Va.; Dellslow, W. Va., (A. D. Hopkins); Bedford Co., Pa., August 12, 1904; Kovona, N. C. July 29, 1899 (E. D. Sanderson); Portage, Pa., (Wirtner); Lehigh Gap, Pa., July 1, 1877 (Uhler's Coll.); Aurora, W. Va., August 12, 1904; Warren, Ohio, July 15, 1897 (H. B. Perkins); Black Mts., N. C., June 24 (Wm. Beutenmüller).

Type (from Rock Creek, D. C., July 6, 1897, female and male).—No. 9909, U. S. National Museum.

This new species seems to be most correctly placed in the genus *Leptobyrsa*^a, which was founded by Stål on a single species^b from Rio Janeiro, Brazil. It agrees very well with the diagnosis he has given of his genus. It also has much affinity with the genus *Stephanitis* Stål, but the hood is comparatively smaller and the lateral carinæ extend over the whole length of pronotum, not abbreviated in front. Dr. C. Berg^c recorded another species from Argentina, South America, and Dr. G. C. Champion^d described several new species from Central America. Our species resembles two species, *Leptobyrsa steinii* Stål and *Leptobyrsa translucida* Champion; from the first it differs in having the membranous margins of pronotum less advanced in front, the sides not straight but evenly rounded, and from the latter it can be distinguished by the more prominent hood, also in having two sharp impressions across the elytra.

This tingitid lives quite abundantly on the mountain laurel (*Kalmia latifolia*) and on *Rhododendron maximum*. It has been found up to the present time on the Atlantic side from Florida as far north as Boston, Mass., and westward to Ohio. The insect is recorded as injuring *Rhododendron* foliage.

^a *Leptobyrsa* Stål, Enumeratio Hemipterorum, III, p. 119 (1873).

^b Stål, *Tingis stenii*, Hemipter-fauna Rio Janeiro (1858) (K. Vet. Akad. Handb., B. 2, No. 7).

^c C. Berg, Hemiptera Argentina, p. 137 (1879).

^d Champion, Biologia Centrali-Americana, II, pp. 25-27 (1897-1901).

The eggs are laid late in the fall, very differently from those of all the other tingitid species with which I am acquainted. Instead of being fastened on the surface of the leaves, unprotected, as are those of the species living on oak, or being hidden beneath the pubescence of the leaf like those of the sycamore species, they are inserted entirely into the epidermis of the leaves, mostly at the sides of the main rib. In this enclosure the eggs are protected during winter, and the leaves of the laurel do not wither and fall off in this region before the middle of June. Late in March, or in the earlier part of April when the embryo insect in the egg begins to grow, there appear on the underside of the leaf, right on the midrib, some brownish spots. Later these spots show little cracks, and thereby the tip of the egg is exposed; soon the lid of the egg, which is somewhat oval in shape, is thrust open and the young larva emerges from its confinement. The egg is of a cylindrical-oval form, yellowish-white in color, and about 0.4 mm. long.

The young brood and some unhatched eggs were found on leaves of *Kalmia latifolia* in the woods near Brightwood, D. C., April 20, 1903. Some of the infested leaves of mountain laurel were taken home and placed in glass jars so that the hatching of the eggs and the development of the larval forms might be studied. After three days some of the eggs opened and the young larvæ appeared; they are of a whitish color, somewhat transparent at first, and without spines. After taking plenty of nutrition the color turns into a greenish white; the body is more elongate, and the head comparatively very large; the antennæ are long, nearly reaching end of abdomen, thick, and beset with fine hairs.

Four days later the young nymphs shed their skins and entered into the second stage of development. This time the color darkens on the thorax and middle of abdomen; the form of the body has changed and become broader; the eyes are large, showing five red facets; at sides of each abdominal segment small processes protrude, also a few prominent ones on the first, third, fourth, and sixth segments at middle of abdomen dorsally; others, still more prominent and stouter, on the pronotum and mesonotum and five on the head, those at base of head largest and bent forward; in this stage the antennæ and head appear smaller and less stout than in the former stage.

The larvæ began shedding the skin again on the 3d of May, but any further observations on the other stages of development came to a sudden stop; the insects died or dis-

appeared in spite of new and fresh food. The last stage of development of the nymph was examined at another time and is described below:

Description of last stage nymph.—Body elongate-elliptical, yellowish-white, pellucid, some brownish spots on inner side of the wing pads basally and at apex; abdominal segments on the middle and all the appendages or processes toward the tip brownish. Pronotum transverse, lateral margins rounded; hood, median carina, and triangular posterior part of pronotum already indicated. Antennæ as long as the whole body, finely pilose, yellowish, tip of the two terminal joints brownish. Wing pads reaching the third abdominal segment. Head with five long processes, of which two at base of head are most prominent and bent forward; two smaller ones on a little elevation of median carina near together; very large processes on each lateral margin of pronotum; two on the mesonotum and a single one at middle of the first, third, fourth, and sixth dorsal segments of abdomen; another on each wing pad; the processes on the lateral margins of abdomen are slightly smaller. These appendages or processes are peculiarly shaped, cylindrical, narrowing toward the apex, the edge of tip armed with two or three small sharp teeth; there are also some pores and short bristles on the surface of these processes visible by high power magnification. Length, 2 mm.

In naming this species I gladly adopt the manuscript name of Professor Uhler.

EXPLANATION OF PLATE IV.—*a*, *Acysta perseæ*, adult; *b*, nymph of same; *c*, lateral abdominal process of same; *d*, *Leptobyrsa explanata*, adult; *e*, nymph of same; *f*, lateral abdominal process of same.

MAY 7, 1908.

The 222d regular meeting was held at the Saengerbund Hall, 314 C Street, N. W. President Hopkins presided, and there were present Messrs. Barber, Burke, Davis, Dyar, Ely, Gahan, Heidemann, Hopkins, Kraus, Marsh, Patten, Piper, Quaintance, Sanders, Schwarz, Ulke, Van Horn, and Webb, members, and Messrs. Elsey and Bailey Willis, visitors.

—Mr. Sanders exhibited mounted specimens of the chalcidid species *Syntomaspis druparum* Boh. and *Megastigmus collaris* Boh. The larvæ of *Syntomaspis* was found in November, 1907, in the seeds of a hybrid (Pear × *Cratægus*) introduced from Christiania, Norway, by the Bureau of Plant Industry. The adults were reared May 2, 1908. The species was de-

scribed as *Torymus druparum* Boh. from specimens reared from the mountain ash (*Sorbus scandica*). It has been reported from Sweden, Germany, Crimea, and New York State.

The *Megastigmus* specimens were reared on May 1, 1908, from seeds of *Rosa* sp. sent from Peking, China, by Mr. F. N. Meyer, agricultural explorer for the Bureau of Plant Industry. The infested seeds were easily selected by their brownish color. The species was originally described by Boheman as presumably parasitic on *Trypeta continua* Meig. in rose fruits from Saxony.

—Mr. Sanders also exhibited specimens of the coccid *Capulinia sallei* Sign., on *Eugenia tuberculata*, from Santiago de las Vegas, Cuba. These were collected by Mr. Wm. T. Horne and are particularly interesting because of the cob-web-like waxy exudations. A very minute coccinellid, which was determined by Mr. Schwarz as a new species of *Scymnillus*, was reared from a large lot of specimens but no hymenopterous parasites were obtained.

—Doctor Hopkins called attention to the record of the destruction of Douglas spruce seeds by *Megastigmus pinus* Parfitt and referred to his observations on *Bruchophagus funebris* How., where a supposed hymenopterous parasite was discovered to be an enemy of clover seed and not of a *Bruchus* or any other insect living in the seed.

—In answer to a question by Professor Quaintance about the sorghum seed crop, Professor Piper said that the cecidomyiid *Diplosis sorghicola* Coq. destroyed the entire seed crop of sorghum south of a certain definite line in Texas. This was proved by bagging the heads at an early stage. When the insects were eliminated in this manner, full heads of seed were grown.

—The question by Mr. Willis as to what determines the habitat of a species led to a spirited discussion. Mr. Willis said the commonly accepted idea was that the temperature at breeding time was the determining factor. Mr. Schwarz said he doubted this and he did not believe that the cause or causes that determine the range of species were known. Temperature is probably only one of the many factors. Doctor Hopkins

thought that there were two primary factors in the distribution of a species—one, climate, the other, food. But while as a general principle this appears to apply, there is sometimes a great difference between species as affected by one or the other. He stated that in his study of the Scolytidæ and other forest insects he found that some species of a genus may be restricted to a given faunal zone regardless of the natural or artificial distribution of the host, while others will be distributed over several widely different zones of a continent and become adapted to many hosts. Professor Piper said that sometimes one factor determines and sometimes another. That temperature is not always the prime factor was well illustrated by an observation on two species of spermophiles in Washington State. The two species had definite ranges. When a disease nearly exterminated one the other occupied the abandoned range, proving that competition between the species was a strong factor in determining their habitat.

—Mr. Heidemann exhibited specimens of *Teraticoris herbat-icus*, a capsid described by Uhler from Labrador, and referred to a lately published paper in Swedish by Prof. O. M. Reuter, "A North American Hemipter found in Norway," in which it is stated that specimens found in Tromsø, northern Norway, proved to be in every detail identical with the species from Labrador. It has nowhere else been found in the Palæarctic region and the probability is that the North American species was distributed over Greenland and Iceland into Norway.

Doctor Hopkins stated that his observations on the Scolytidæ led him to believe that many so-called circumpolar species are distinct and that often the supposed affinities are more apparent than real, being due to the parallel development of characters under similar environments. He stated further that it was not impossible or even improbable that many forms of life, common to two or more countries, which are recognized as species, may have had independent origin from a common primitive stock.

—Mr. Van Horn exhibited adult specimens of the elaterid beetle *Microrrhagus pectinatus* Lec. and some interesting larvæ which may prove to be its immature stages. The larvæ

are remarkable because of their peculiar mouthparts, which are so fused as to be almost indistinguishable. They bore in the decaying wood of oak, sycamore, and yellow poplar. Some photographs, taken by Mr. Barber, of the larvæ, were also exhibited.

—Mr. Webster reported the finding of the clover root-borer (*Hylastinus obscurus* Marsham) on the Pacific Coast, Mr. Geo. I. Reeves having recently sent it from Vancouver, Wash., where it was seriously injuring red clover.

—Mr. Webster also reported the finding by Mr. Ainslie of both males and egg-laying females of the spring grain-aphis (*Toxoptera graminum* Rond.) in April of the present year. The material from which the insects probably originated was sent by Mr. E. O. G. Kelly from Leavenworth, Kans., late in February; the insects were kept on wheat in the office and continued to give birth to their young as usual. Some time late in April Mr. Ainslie, on looking over the breeding jars, came across eggs stuck on the inside of the glass with which the infested wheat was covered. Almost immediately after, he found the male and sexual female, some of the latter containing both eggs and embryos within their abdomens. The finding of the sexes in spring—and the males continue to appear up to date, May 6—is without a precedent, so far as he was able to learn. These forms always occur in the fall, and their presence, as here shown, indicates that they may thus occur in the fields in spring in the far South.

—The following papers were presented for publication:

TWO NEW STENOMID MOTHS FROM THE EASTERN UNITED STATES.

By AUGUST BUSCK.

Brachyloma decorosella, n. sp.

Labial palpi brownish ochreous; tip of second joint and base of terminal joint whitish. Face, head, and tongue whitish ochreous. Antennæ light brown, as in the following species ciliated in the male (♂); simple in the female. Thorax light brown. Fore wings rich deer brown, with a strong silky lustre; the entire costal edge narrowly