

TWO NEW SPECIES OF ARADIDÆ FROM BALTIC  
AMBER (HEMIPTERA)

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A considerable collection of Hemiptera from Baltic Amber was received some time ago through the kindness of Prof. F. M. Carpenter. Of this material the aphids were examined by Prof. E. O. Essig, the scale insects by Prof. G. F. Ferris, and a beautifully preserved Tingitid by Dr. C. J. Drake. Two well preserved Aradids are treated in the present paper while the remaining specimens, mostly Fulgorids, Cicadellids, and Mirids, are as yet unstudied.

Only three species of Aradidæ, e.g. *Aradus supiestes*, *assimilis* and *consimilis*, and one Aradid nymph were recorded from Baltic Amber by Germar and Berendt.<sup>1</sup> Although specimens of these species have not been examined, the descriptions and figures clearly indicate that they conform to our present day definition of the nearly cosmopolitan though presumably originally holarctic genus *Aradus*. The present material is of more than usual interest in that the two species are the first representatives of their respective tribes in Baltic Amber. Moreover, the *Calisius* is the first representative of its tribe to be recorded from the fossil record.

***Calisius balticus* Usinger, new species**

Oblong-ovate with sides subparallel, head transverse and antennæ relatively long.

*Head* one-eighth shorter than broad, 21::24; tylus slightly dilated at about middle, scarcely surpassing level of apices of second antennal segments; antenniferous tubercles short,

<sup>1</sup>Germar, E. F. and G. C. Berendt. Die im Bernstein befindlichen Hemipteren und Orthopteren der Vorwelt. In Berendt, G. C. Die im Bernstein befindlichen organischen Reste der Vorwelt. Berlin. Band II, Abth. I. pp. 22-23, Tab. II, figs. 11-13, Tab. III, fig. 17. 1856.



reaching about to level of basal third of second antennal segment, divergent and blunt; postocular tubercles distinct but not reaching so far as outer margins of eyes; upper surface feebly elevated with granular areas in front of and behind eyes and with two moderately elevated, anteriorly divergent longitudinal rows of about four large granules each at middle of vertex; eyes small, less than half as wide as interocular space, 5::13. *Antennæ* equal in length to head, the proportion of segments one to four as 3:5:5:8; first and third segments cylindrical, second roundly clavate, fourth fusiform. *Pronotum* just twice as broad across humeri as long on median line, one-seventh shorter than head, 18::21; disk moderately convex with a distinct transverse impression at middle interrupting the four distinct, posteriorly divergent longitudinal carinæ; subparallel median carinæ produced forward slightly beyond base of head; lateral margins nearly straight but for the deep notch at transverse impression, roundly lobed. *Scutellum* a little less than three times as long as pronotum, 51::18, and about half as broad as long; broadest at base where it is somewhat less than two-thirds as broad as long, 28::51, then with the sides concavely sinuate to narrowest point just behind middle where it is distinctly less than half as broad as long, 24::51, widening posteriorly to about half as wide as long and then rounded to broadly rectilinear apex; depressed portion of disk evenly punctate; longitudinal carina well elevated, impunctate; lateral carinæ coarsely granular, almost roundly tuberculate basally; four anteriorly directed projections of basal elevation but feebly developed. *Abdomen* only moderately dilated, about four-fifths as wide as pronotum, 35:43; connexival surface finely granular, the lateral margins of segments each with three feebly developed, rounded tubercles.

Size, male, length 2.5 mm., width (pronotum) .87 mm., (abdomen) 1.07 mm.

Holotype: No. 4634 (male), Museum of Comparative Zoology, Harvard University; in Haren collection of Baltic amber insects.

Closest to the European *ghilianii* (Costa) but smaller than that species with broader head, less prominent tubercles on head, pronotum, and base of scutellum, and entirely



distinct antennæ. The antennæ of a female specimen of *ghilianii*, determined by Montandon and kindly loaned for comparison by Mr. W. E. China of the British Museum (Natural History), are much shorter than the head, 19::26, with the proportional length of segments one to four as 4:4:4:7.

The species of *Calisius*, due to their obscure habits and small size, have escaped the notice of most general collectors and hence are very imperfectly known. Most of the twenty-one species were described by Bergroth<sup>2, 3</sup> or by Horvath<sup>4</sup> in his excellent monograph of the old world species. Costa, Stal, Champion, Kirkaldy, and Schouteden have likewise added species and three as yet undescribed species are before me from islands of the south Pacific.

Occasional records from widespread localities throughout the world suggest that the tribe Calisiini is very widespread and may even prove to be tropicopolitan, though no species have yet been recorded from the great Oriental Realm. With New Guinea (4 species) as a possible center, somewhat less than half of the species known to me radiate southward to Australia and Tasmania, eastward to Fiji and the islands of central and southeastern Polynesia, and northward to Micronesia. All of these species, as well as the two European species, *ghilianii* and *salicis*, are similar in body form and lack the prominent black granules at the apex of the scutellum and on the sides of the scutellum near the middle which are characteristic of the American species.

The discovery of an Oligocene species which is clearly congeneric though falling in a separate group, as used above, with greatly reduced connexival and other granules, a very broad head, and uniformly dull and immaculate coloration indicates great age and relative stability for the group. A warmer climate and probably different limits of tolerance doubtless permitted *Calisius balticus* to survive so far north

<sup>2</sup>Bergroth, E. Notes on American Hemiptera. II. Canadian Ent., 45:1-8, 1913.

<sup>3</sup>Bergroth, E. A New Species of *Calisius*. Canadian Ent., 45:9, 1913.

<sup>4</sup>Horvath, G. Species mundi antiqui generis *Calisius*. Ann. Mus. Nat. Hungarici, 11:623-634, 10 figs., 1913.



for neither *ghilianii* nor *salicis* extends today beyond middle Europe.

***Mezira succinica* Usinger, new species**

Figure 1

A relatively large species with broad depressed head, flattened and anteriorly dilated paraclypeal lobes reaching level of apex of first antennal segment, strongly produced postocular tubercles distinctly surpassing outer margins of eyes, moderately anteriorly produced and broadly rounded anterolateral pronotal angles, and strongly convex male genital capsule which exceeds lobes of basal genital segment. Surface in great part coarsely granular.

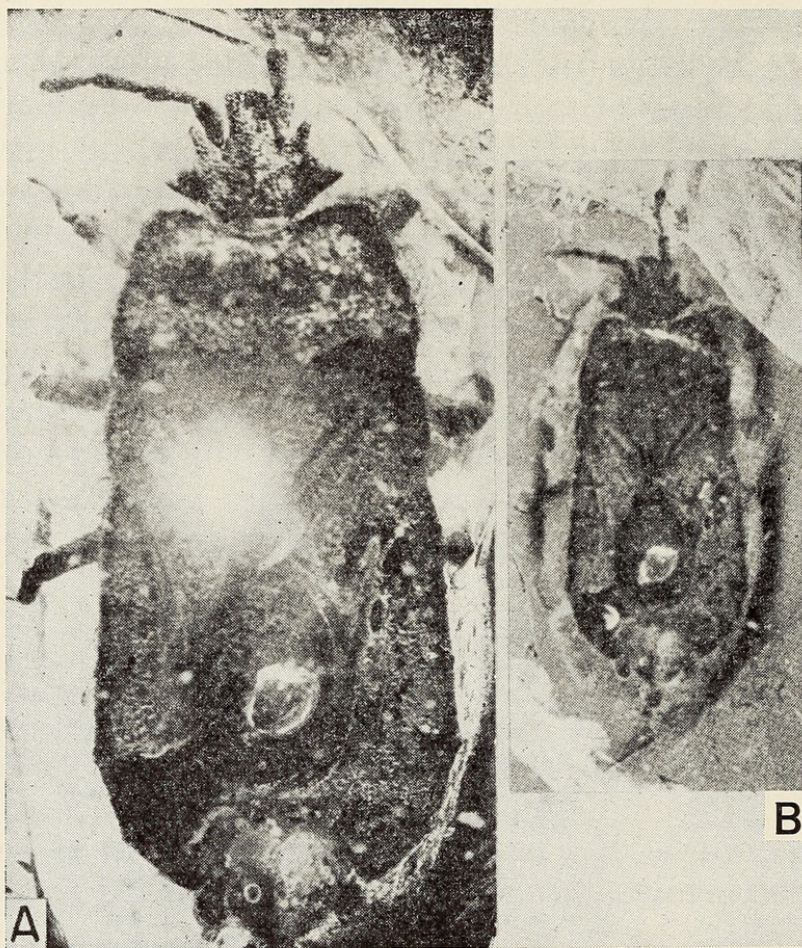


Figure 1. *Mezira succinica* n.sp. Photograph of holotype. A, x 8; B, x 4.

Male. *Head* broadest across postocular tubercles, transverse, the ratio of width to length as 6::5; anterior portion of head beyond insertion of antennæ almost as long as



basal portion of head, 21::25, the tylus reaching slightly beyond its middle with the lateral lobes contiguous beyond it, subflattened, and dilated apically; antenniferous tubercles, measured from base of cleft in which the antennæ are inserted, two-thirds as long as first antennal segment and, though strongly produced, rather blunt at apices; postocular tubercles strongly produced, exceeding outer margins of eyes by a distance nearly equal to exposed width of an eye,  $4\frac{1}{2}$ ::6; disk apparently concave, though elevated along tylus and middle of base, because of elevated sides including eyes and postocular and antenniferous tubercles and especially because of strongly elevated lateral plates which cover inner portions of each eye. *Antennæ* stout, the greatest thickness of first segment about equal to that of apex of front femur; short, the total length scarcely more than one-sixth longer than greatest width of head, 73::60; proportion of segments one to four as 19:18:17:19; first segment reaching level of apex of head. Rostrum obscured but not exceeding base of head. *Pronotum* transverse, being a little over twice as broad as long, 104::49; subequal to head on median line; posterior margin distinctly concave in front of scutellum; anterior margin likewise distinctly concave so that the pronotum is actually two-sevenths longer laterally than at middle; sides sinuately narrowed and distinctly elevated in front of broadest posterior fourth; antero-lateral angles extending to level of basal fifth of head, broadly, evenly rounded; disk depressed on anterior lobe between four elevated callosities and within elevated lateral margins. *Scutellum* about as long as pronotum on median line, its disk scarcely elevated basally, surrounded by abruptly elevated carinæ broken only narrowly at apex and with a distinct longitudinal carina at middle which does not reach to apex; shape subtriangular, the base slightly arcuate and sides evenly narrowed to apical fourth and then briefly subparallel to rounded apex. *Hemelytra* reaching nearly to base of genital capsule, strongly narrowed posteriorly when at rest, the transverse width at level of apices of coria only half the width of abdomen at this point; basal third of corium only moderately dilated and feebly arcuate, the distance across dilated bases of coria only slightly greater than greatest width of pronotum, 109::104, outer margin of corium



beyond this concave to subangular apex; apical margin feebly, evenly arcuate. Connexivum unlike the rest of dorsal surface, apparently coarsely punctate. *Abdomen* gradually widening to the briefly flaring posterior lateral margins of fourth visible segment at which point it is almost one-fourth wider than greatest width of pronotum, 125::104, the margins of fifth segment concave but posteriorly convergent and margins of sixth gradually rounded. Lobes of sixth abdominal segment reaching apical eighth of greatly enlarged and obscured terminal segment. Under surface almost entirely clouded by a white film but with the abdominal venter evidently evenly and relatively finely granulate-punctate. Legs short, the femora strongly incrassate at middle. Color of entire body apparently rather uniform dark brown.

Size, length 7.45 mm., width (pronotum) 2.6 mm. (abdomen) 3.2 mm.

Holotype: No. 4635 (male), Museum of Comparative Zoology, Harvard University; in Haren collection of Baltic amber insects.

Closely allied to the widespread European *Mezira tremulæ* (Germar) which occurs along the shores of the Baltic to-day.<sup>5</sup> However, the antennæ are shorter and stouter, the paraclypeal lobes are broader and more dilated anteriorly, the antero-lateral pronotal angles are more produced anteriorly and are broadly rounded and the size is smaller than in *tremulæ*.

<sup>5</sup>Schumacher, F. *Mezira tremulæ* (Germar), ein Naturdenkmal aus dem Urwalde von Bialowies in Polen. Deutsch. Ent. Zeit., 1919: 285-288, 3 figs., 1 map. 1919.



Usinger, Robert L. 1941. "Two New Species of Aradidæ From Baltic Amber (Hemiptera)." *Psyche* 48(2-3), 95–100. <https://doi.org/10.1155/1941/72496>.

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