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New genus and species of Calisiinae from Cretaceous Burmese Amber (Hemiptera, Heteroptera, Aradidae)

HEISS

A b s t r a c t : To date nine species of the flat bug family Aradidae belonging to eight genera are known from Burmese Amber inclusions. Among them *Calisiomorpha* HEISS, 2016 was tentatively assigned to the subfamily Calisiinae USINGER, 1950, to which a second genus *Archecalisius* nov.gen. with the species *longiventris* nov.sp. can now be added which is described and figured herein.

K e y w o r d s : Hemiptera, Heteroptera, Aradidae, Calisiinae, new genus, new species, Mesozoic, Burmese Amber, Myanmar.

Introduction

The increasing interest in palaeodiversity in Burmese Amber from Myanmar and availability of inclusions resulted in hundreds of descriptions of new Hexapoda within the last few years. From the suborder Heteroptera eighteen families are recorded so far of which nine species from eight genera belong to the family Aradidae or flat bugs (ROSS 2019).

Aradidae are classified into eight subfamilies, of which three (Aradinae, Calisiinae and Mezirinae) are recorded from fossil cretaceous Burmese Amber inclusions. Although the extant fauna of Oriental Calisiinae is rich in species, *Calisiomorpha yuripopovi* HEISS, 2016 is the only fossil representative of Calisiinae. A well preserved specimen of a Calisiinae is different from the latter and from all extant taxa and is described and illustrated herein as *Archecalisius longiventris* nov.gen. et sp.

Material and methods

The inclusion originates from the well known amber mines in Kachin State in Northern Myanmar. Its age is supposed to be Cretaceous (90-100 Ma) (GRIMALDI et al. 2002).

This study is based on an inclusion belonging to and deposited in the collection of the author: CEHI Collection Ernst Heiss, Tiroler Landesmuseum, Innsbruck, Austria.

Measurements were taken with a micrometer eyepiece and are given in millimeters. Photos were taken with Coolpix P300 digital camera. Abbreviations: deltg = dorsal external laterotergite (connexivum), mtg = mediotergite; vltg = ventral laterotergite.

Taxonomy

Family *A r a d i d a e* BRULLÉ, 1836

Genus *Archecalisius* nov.gen.

T y p e s p e c i e s . Archecalisius longiventris nov.sp.

D i a g n o s i s : Recognized and distinguished from all Aradidae described so far from Burmese Amber by its "typical" *Calisius*-habitus with large scutellum covering mediotergites of abdomen and the double row of lateral tubercles on deltg I-VII.

D e s c r i p t i o n : Macropterous, size about 4mm; colour brownish under stramineous incrustation; surface of body finely granulate and punctured which is more conspicuous on head, pronotum and scutellum.

Head: Longer than wide, clypeus produced anteriorly, reaching about $\frac{1}{2}$ of antennal segment III; antennae slightly longer than width of head, segments I+II of equal length, IV longest; rostrum arising from an open atrium, shorter than head.

Pronotum: About 1.7 times as wide as long, lateral margins dentate converging anteriorly, disk with four longitudinal carinae, the median ones shorter.

Scutellum: About twice as long as wide covering mtg II-VI; lateral margins carinate, apex rounded; disk basally moderately raised, median longitudinal carina present.

Hemelytra: Visible lateral margin of corium raised and granulate, reaching deltg IV and fitting to an excision of the anterolateral margin of scutellum.

Abdomen: Of elongate oval outline, lateral margins of deltg I-VII with a double row of three distinct tubercles; surface rather flat and granulate.

Venter: Sternites III-VII separated by sutures, spiracles III-VI ventral, VII lateral, II not discernible.

Legs: Unarmed, tarsi two segmented, claws with pulvilli.

D i s c u s s i o n : The general aspect is that of an extant species placed in the genus *Calisius*. Examination of species from different regions (Neotropics, Oriental, Palaearctics) described as *Calisius* proved that they belong to different genera, which were partly described by HEISS (2016). As the Oriental fauna of "*Calisius*" is not yet investigated and taxonomic changes are expected, this fossil taxon is compared with the palaearctic genus *Aradosyrtris* COSTA, 1864, redescribed by HEISS (2016).

Archecalisius differs from *Aradosyrtris* by following characters:

	<i>Aradosyrtris</i>	<i>Archecalisius</i>
Antennae	plaques present on segment IV segments I-IV moniliform and I-III of equal length	no plaques discernible segments I-IV elongate I + II of equal length, III longer, IV as long as I + II
Clypeus	roundly elevated in lateral view	only slightly raised
Pronotum	4 distinct tuberculate carinae reaching to anterior margin	4 carinae less developed., two median shorter than lateral ones

	<i>Aradosyrtris</i>	<i>Archecalisius</i>
Scutellum	basally distinctly elevated with 4 large tubercles overlapping pronotum + 2 smaller tubercles at middle	basally only slightly elevated with tubercles barely overlapping median tubercles absent
Posttergum VIII	exposed with basal carina + tubercles	not present and exposed
Venter	vltg II – VII with sublateral tubercles	without tubercles

***Archecalisius longiventris* nov.sp. (Figs 1-2)**

H o l o t y p e : Female in a honey coloured, oval cabochon shaped piece of Burmese Amber 24x13x6 mm with two Apidae as syninclusions. It is designated as holotype and labelled accordingly.

D e s c r i p t i o n :

Head: Distinctly longer than wide (0.8 / 0.625); clypeus subparallel, rounded anteriorly and reaching $\frac{1}{2}$ of antennal segment III, surface rather flat beset with distinct tubercles; antenniferous lobes diverging anteriorly, apices acute; antennae slender, 1.08 times as long as width of head (0.675 / 0.625), segment I+II of equal length, III tapering toward base, IV fusiform; length of antennal segments I / II / III / IV = 0.125 / 0.125 / 0.175 / 0.25; eyes oval inserted in head; postocular lobes with few distinct tubercles, roundly converging to constricted neck; vertex with two rows of scattered tubercles.

Pronotum: 1.73 times as wide as long (1.125 / 0.65), lateral margins converging anteriorly with irregular dentation, disk with four carinae, the lateral ones converging anteriorly reaching anterior margin, median ones are shorter and restricted to posterior lobe; posterior margin straight.

Scutellum: About twice as long as wide (1.8 / 0.875), moderately triangularly raised at base with four larger tubercles barely overlapping pronotum; lateral margins and median carina beset with spaced round tubercles, surface deeply punctured, apex rounded reaching anterior margin of mtg VII.

Hemelytra: Narrow laterally exposed part of corium carinate, reaching deltg IV; membrane covered by scutellum.

Abdomen: Elongate oval, lateral margins of deltg I – VII each with a double row of three distinct flat tubercles; surface of deltg II – VII flat and finely granulate.

Venter: Pro-, meso- and metasternum flat, separated from sternite II by a suture; sternite VI roundly excavated posteriorly for the reception of the medially split sternite VII.

Measurements: Length 4.1; length of antennae 0.675; width of abdomen 1.5.

E t y m o l o g y : The specific epithet refers to the elongate habitus.

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Zusammenfassung

Bisher sind insgesamt neun Arten von Aradiden von acht Gattungen aus kreidezeitlichem Burmesischen Bernstein beschrieben. Davon ist nur *Calisiomorpha yuripopovi* HEISS, 2016 der Unterfamilie Calisiinae zugeordnet worden. Nun liegt eine weitere neue Gattung und Art dieser Unterfamilie vor: *Archecalisius longiventris* nov.gen. et sp., welche nachstehend beschrieben und abgebildet wird.

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Figs 1-2: *Archearadus longiventris* nov.gen. et sp. (1) dorsal view, (2) ventral view. Scale 1mm.

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