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CAECULIDAE IN AMBER

BY Y. COINEAU * and W. Ł. MAGOWSKI **

SUMMARY: A new species of the genus Procaeculus, *P. eridanosae* n. sp. (Acari, Caeculidae), is described from Baltic amber (Upper Eocene).

ACARIEN DE L'AMBRE

RÉSUMÉ: Une espèce nouvelle du genre *Procaeculus, P. eridanosae* n. sp. (Acari, Caeculidae), est décrite de l'ambre de la Baltique (eocène supérieur).

The presence of *Caeculidae* in amber has already been briefly mentioned by Max Sellnick (1935 p. 149), in a list of genera belonging to the Prostigmata (= Actinedida) which he had found in the Amber Collection of the Albertus-Universität of Königsberg, incidental to his study of the oribatids. He attributed these fossils to *Caeculus*, the only genus of *Caeculidae* known at that time.

The material which we have examined comes from the Polish coast of the Baltic Sea. It was collected near Gdańsk-Stogi, Górci Zachodnie and subsequently purchased from Mr T. Gieciewicz by The Museum of Earth, Polish Academy of Sciences. As is the case with most Baltic amber, the stratigraphic position of this material is uncertain; it is dated by most specialists as Upper Eocene (40-45 mya).

This material comprises of two specimens, deposited in The Museum of Earth, PAS, Warsaw (Poland):

1) An adult, here designated as the holotype of the new species (The Museum of Earth, Catalogue No. 11533). This specimen was purchased in 1975 and later divided by the junior author to reveal the venter of the caeculid mite (11533a). A small, unidentified, acalyptide dipteran (now 11533b) was also embedded in the same piece of amber.

2) The exuvium of a nymph (Cat. No. 15680), possibly not conspecific with the holotype and therefore not designated as a paratype, purchased in 1977. There is a tiny pygmephoroid mite, provisionally identified as *Pediculaster* sp., attached to the lateral face of right tarsus I of the exuvium.

The present study is essentially based on the adult.

These fossils belong to the genus *Procaeculus* Jacot 1936. The holotype of the type species, *P. bryani* Jacot, 1936, was redescribed by Coineau (1967). H. Franz (1952) transferred *P. willmanni* (Vitzthum, 1933) to *Procaeculus* and Coineau (1967, 1969, 1972 and 1974) added the following species to this genus:

- *P. puertoricus* (Mulaik, 1945)
- *P. brevis* (Mulaik, 1945)
- *P. mexicanus* (Mulaik and Allred, 1954)
- *P. oregonus* (Mulaik and Allred, 1954)
- *P. orchidicolis* (Mulaik and Allred, 1954)
- *P. potosi* (Mulaik and Allred, 1954)
- *P. magnus* Coineau, 1974.

The thin layer of gas which covers the animal shows the reticulate-embossed microsculpture on the surface of the sclerites in fine relief, as well as...
the integumental folds in the furrows separating them. At first sight, using a low magnification, one has the impression of looking at an excellent preparation in gilt metal. The surface of the tegument appears so clean that one wonders whether the cerotegument has been dissolved by the resin. Unfortunately, serious difficulties are soon encountered when trying to discover the setae. In order to avoid impairing the good state of preservation of the inclusion, the specimen was observed dry with a compound microscope, using reflected light. The examination was limited to relatively low magnifications as the image soon became indecipherable at higher powers.

Examination of the ventral face provided relatively little information, because it is mostly obscured by a large bubble issuing from the genital opening. However, the characteristic silhouette of the amphiod sclerites of the penis can be seen, identifying the specimen as an adult male.

Procaeculus eridanosae n. sp.

Etymology: the specific name refers to the Eridanos river, a mythical amber-bearing river.

Procaeculus eridanosae shows all of the characters of the genus.

The body is ovoid, flattened and broadened towards the rear. Dorsally, the ensemble of sclerites characteristic of the family Caeculidae can be recognized.

The anterior sclerite A of the prodorsum is abruptly narrowed and effaced towards the front, leaving the chelicerae, peritremes, bases of setae Po, and the prodorsal bothridia uncovered. The setae Po, implanted on projecting tubercules, are long, muricate and clavate in form. They are flanked by the trichobothria bo, the bases of which project like a small horn at each side.

This combination of characters readily distinguishes Procaeculus from the other genera of the family.

The outline of the palp can be recognized, the subcylindrical femorogenu giving it a less contorted appearance than in the other genera.

The telofemur is not separate on any of the legs. The tarsal trichobothrium is present on all legs. We have been able to make out a few eupathidia, but the observation of more obscure chaetotaxic elements (solenidia, famulus, seta k") was hardly possible.

Despite the significant difficulties in observing the setae, it can be stated that the dorsal chaetotaxy does not correspond to that of any known species. We have not actually been able to see seta b₂ or its
Fig. 3 — Procaeculus eridianosae n. sp., dorsal view of holotype.
basal tubercle. This seta exists in all species of Procaeculus, but its absence would not be at all surprising, given that it is the first to be affected by regressive evolution in the genus Microcaeculus (COINEAU, 1974). However, the territory of seta b_2 contains two setae on the nymhal exuvium, which also shows seta bs. These observations indicate that the adult would have had a fairly strong neotrichy, and it is tempting to think that this nymph belongs to another species.

Remarks

As one of us (COINEAU, 1969) has already noted, very little is actually known about the exact habitat of the species of Procaeculus. In contrast to the majority of Caeculidae, which are saxicolous or sabulicolous, it would seem that the species of Procaeculus are mainly corticicolous.

Indeed, the Procaeculus sp. extracted from a mixture of lichens collected on a cedar tree in California (COINEAU, 1969) occupies a biotope quite comparable to that generally supposed for the animals of the Baltic amber.

The species of the genus Procaeculus are presently distributed in Central America and along the length of the western seaboard of the United States (Mexico, Trinidad, California and Oregon), as well as from the Hawaiian Islands.

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