

Two representatives of the genus *Mindarus* (Homoptera, Aphidoidea, Mindaridae) in Baltic amber

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(With 4 textfigures)

Manuscript submitted on March 30th 1990

Zusammenfassung

Aus der Sammlung des Naturhistorischen Museums in Wien werden zwei in baltischem Bernstein eingeschlossene Homopteren der Familie Mindaridae beschrieben: *Mindarus paratransparens* n. sp. und *Mindarus magnus* BAKER, 1922. Ein Bestimmungsschlüssel für die fossilen Vertreter der Gattung *Mindarus* ist angeschlossen.

Abstract

From the collection of the Naturhistorische Museum in Vienna two aphid specimens in amber are described: *Mindarus paratransparens* n. sp. and *M. magnus* BAKER. The key to fossil representatives of the *Mindarus* genus is provided.

Thanks to Dr. Ortwin SCHULTZ's kind loan of materials the author has been able to examine two pieces of Baltic amber containing inclusions of unidentified aphids. The label did not specify either the data or the place of finding. The holes drilled in pieces indicated that originally they were destined as items of jewellery.

Both pieces contained specimens belonging to the genus *Mindarus* KOCH, to which five fossil species have been assigned so far (HEIE 1967, 1985). One specimen is identified as *M. magnus*, the species which was already described from amber. The other is determined as a new species. The author decided to include figures and descriptions for both specimens because there arose some doubts as to the range of diversity (HEIE 1967) and the occurrence of an additional vein on one forewing in *M. magnus*.

Mindarus paratransparens n. sp.

(Fig. 1 and 2)

Material: An amber piece containing the specimen is pill-like in shape, with a hole drilled in it. It bears an identification number 1990/1381 A.

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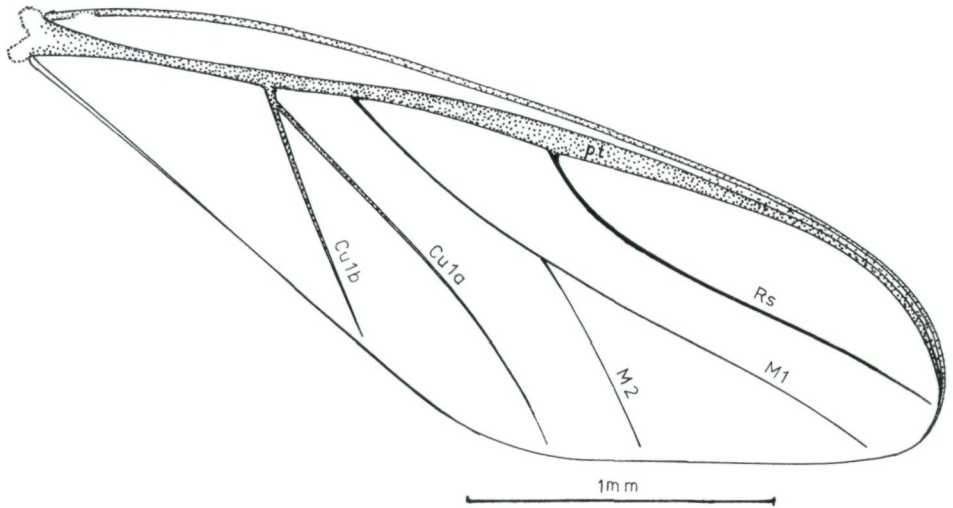


Fig. 1: The forewing of *Mindarus paratransparens* n. sp.

Description: Wings of the specimen lie flat along the body with the forewings partly overlapping the hind ones. Head, one antenna, rostrum, thorax and partly legs and abdomen obscured by milky impurities and difficult to observe.

Body 2.15 mm long. Head width across the eyes about 0.75 mm. Compound eyes large. Triommatidion present but poorly visible. Ocelli not discernible. Antennae 6-segmented. Total length of the antenna 0.90 mm, the other antenna and secondary rhinaria invisible. Antennal segment lengths in mm: III – 0.34; IV – 0.12; V – 0.12; VI – 0.17 (0.11 + 0.06). Rostrum reaching slightly beyond hind coxae, 1.39 mm in total length. Forewing: length 3.28 mm, width 1.1 mm (Fig. 1).



Fig. 2: Common stem of the cubital veins in *Mindarus paratransparens* n. sp.

Wing venation typical of the genus *Mindarus*; pterostigma very long, curved, with the long apex reaching the tip of the wing; radial sector long, slightly curved at base, its distal end meeting the apex of pterostigma; media with one fork; common part of medial vein shorter than the longer fork. Cubital vein unique among the known representatives of the genus *Mindarus*, with a short common stem (Fig. 2). Hind wing: length 1.90 mm, width 0.52 mm. Legs rather short. First tarsal segment short. The lengths of the second tarsal segment in mm: fore legs 0.15, mid legs 0.17, hind pair 0.18. Tarsal hairs short and few in number.

Differential diagnosis: The species is distinct by the occurrence of a common stem of the cubital veins. On the body length, the length of antennae and on the location of the medial fork it is close to *M. transparens* (GERMAR & BERENDT, 1856).

Mindarus magnus BAKER, 1922

(Fig. 3 and 4)

1922 *Mindarus magnus* – BAKER: 353–358, fig. 1: 1, 3, 6.

1951 *Mindarus magnus* – ANDREE: 61.

1962 *Mindarus magnus* – BECKER-MIGDISOVA & AIZENBERG: 196, fig. 574.

1967 *Mindarus magnus* – HEIE: 35, fig. 2.

Material: The specimen is closed in an amber piece with an identification number 1990/1381 B.

Description: The aphid has its wings in a roof-like position. The details are visible to such an extent that it is possible to take the most important measurements.

Body length 2.10 mm. Frons slightly protruding. Compound eye strongly protruding with a distally located triommatidion. Antennae 6-segmented, 0.9 mm long with 12 secondary rhinaria; secondary rhinaria transversely oval in shape and located along the entire length of antennal segment III. Lengths of antennal



Fig. 3: The forewing of *Mindarus magnus* with an additional vein between pterostigma and radial sector.

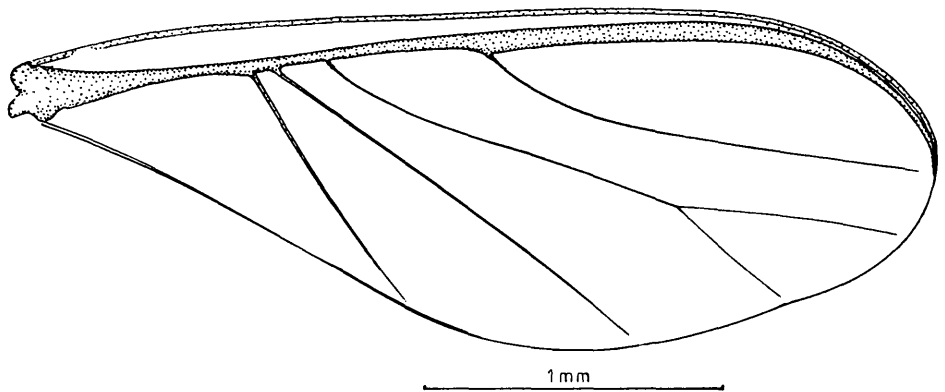


Fig. 4: The forewing of *Mindarus magnus* with typical venation.

segments in mm: I – 0.08; II – 0.06; III – 0.36; IV – 0.13; V – 0.11; VI – 0.18 (0.13 + 0.05). Processus terminalis with two spine-like apical hairs, and the subapical one. Rostrum 1.23 mm long (the apical segment 0.26 mm long), reaching beyond the hind pair of legs. Forewing: length 3.1 mm, width 1.08 mm, asymmetrical: one wing is provided with an additional vein which connects the middle part of radial sector with the middle part of pterostigma (Fig. 3); the other wing without the additional vein, typical of the genus *Mindarus* (Fig. 4). Pterostigma very long, curved, with the apex touching the tip of the wing; radial sector weakly curved at base, with its distal part turning towards the apex of pterostigma; media with a single fork; common stem of media much longer than forks; cubital veins arise from the common vein in close proximity to each other but remain separate (Fig. 4). Hind wing: length 1.8 mm, width about 0.48 mm. Legs relatively short, hind pair slightly longer than remaining ones. First tarsal segment in all pairs short. Lengths of the second tarsal segment in mm: fore legs 0.16, mid legs 0.16, hind pair 0.19. Tarsal and tibial hairs spine-like in appearance varying in length from 0.03 mm to 0.05 mm.

Key to fossil alate representatives of the genus *Mindarus*

1. Body longer than 2.5 mm, generally 2.8–4 mm. 2
(known from Oligocene clay – Florisent, North America)
- Body shorter than 2.4 mm, generally 2.3–0.85 mm 3
(known from Baltic amber – Europe)
2. Body length about 2.5–3 mm *scudderi* (BUCKTON, 1883)
- Body length about 4 mm *recurvus* (BUCKTON, 1883)
3. Antennae shorter than half body length, body longer than 1.5 mm 4
- Antennae as long as or longer than half body length, body shorter than 1 mm *parvus* HEIE, 1967
4. Common part of the median vein longer than each fork . . . *magnus* BAKER, 1922
- Common part of the median vein shorter than the longer fork 5
5. Cubital veins with a short common stem *paratransparens* n. sp.
- Cubital veins without a common stem *transparens* (GERMAR & BERENDT, 1856).

References

- ANDREE, K. (1951): Der Bernstein. Das Bernsteinland und sein Leben. – Kosmos, 96 pp. – Stuttgart.
- BAKER, A. C. (1922): Two new aphids from Baltic amber. – J. Washington Acad. Sci., **12**: 353–358.
- BECKER-MIGDISOVA, E. E. & AIZENBERG, E. E. (1962): Aphidomorpha. – Osnovy Paleont. S. S. S. R. Izdatelstvo Akad. Nauk. S. S. S. R.: 194–199. – Moskva.
- BUCKTON, G. B. (1883): Monograph of the British Aphides (fossil aphids), **4**: 144–178, pls. 131–133. – London.
- GERMAR, E. F. & BERENDT, G. C. (1856): Die im Bernstein befindlichen Hemipteren and Orthopteren der Vorwelt. – Organische Reste im Bernstein. – 125 pp., 8 pls. – Berlin.
- HEIE, O. E. (1967): Studies on fossil aphids (Homoptera: Aphidoidea), especially in the Copenhagen collection of fossils in Baltic amber. – Spolia zool. Mus. Haun., **26**: 1–274. – Copenhagen.
- (1985): Fossil aphids. – 101–134. – In: Evolution and biosystematic of aphids. Proc. of Int. Aphid. Symp. at Jablonna 1981. – 510 pp. – Wrocław.