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STUDIES ON THE LEPIDOPTERA FROM FOSSIL RESINS. PART II. *EPIBORKHAUSENITES OBSCUROTRIMACULATUS* GEN. ET SP. NOV. (OECOPHORIDAE) AND A TINEID-MOTH DISCOVERED IN THE BALTIC AMBER

Abstract. — The paper includes a description of *Epiborkhausenites obscurotrimaculatus* gen. et sp. nov. (Oecophoridae) from the Baltic amber, closely allied to the fossil amber genus *Paraborkhausenites* Kuznetsov. A preliminary description of a presumed tineid-moth is given.

INTRODUCTION

The collection of the Baltic amber with Arachnoid and Insect inclusions found in Tyszkiewicz's Amber Mine near Palanga (Samland Peninsula), deposited in Palaeozoological Laboratory of the University of Warszawa, contains about 350 pieces [1]. Only two of them contained Lepidoptera (Microlepidoptera) of which descriptions are given below.

The author is indebted to Prof. Dr. A. Urbanek (Institute of Geology of the University of Warszawa) for allowing to examine the specimens and to Dr. S. Bernatt (Jelenia Góra) for valuable information on the collection. Also the author wish to express his best thanks to Mr. B. C. S. Warren (Folkestone) for assistance in preparing the paper. Drawings made by the author.

DESCRIPTIONS

Family **Oecophoridae** Meyrick, 1895
Genus *Epiborkhausenites* nov.

Type species: *Epiborkhausenites obscurotrimaculatus* sp. n.

Derivation of the name: Gr. *Epi-* near amber genus *Paraborkhausenites* Kuznetsov allied to fossil *Borkhausenites* Rebel.

[1] Some history of this collection was given by Kozłowski (1951) and Bernatt (1956).

Diagnosis. — Forewing elongate, length more than 3 times the width; apex blunt; tornus poorly developed; sc to before middle of costa; r_1 from before middle of costal arm of median cell; distance between r_2-r_3 more than twice that between r_3-r_{4+5}; between r_3-m_1 and m_2-cu_1 approximately equidistant; r_4 and r_5 long stalked, both free branches to costa; cu_1 and cu_2 curved; cu_2 from between r_2-r_3 on opposite arm of median cell. Hindwing nearly as broad as forewing; m_3 and cu_1 from one point.

Remarks. — This new genus is closely related to *Paraborkhausenites* Kuznetsov described from the Baltic amber (Kuznetsov, 1941). It may be distinguished by different development of veins r_1, r_2 and r_3 which in *Paraborkhausenites* Kuznetsov run parallel, but in *Epiborkhausenites* gen. nov. the distance between r_1-r_2 is longer than between r_2-r_3. As the systematic position of this genus in the light of the modern classification of Oecophoridae, rests only on the character of wing venation, it is impossible to establish with certainty. Some recent genera have similar types of wings venation. The new genus closely coincides with the West Palaearctic genus *Tubuliferola* Strand, the allied Nearctic genera: *Himmacia* Clarke, *Psilocorsis* Clemens and *Inga* Busck as well as with the cosmopolite genus *Hofmannophila* Spuler. These all belong to subfamily Oecophorinae.

Epiborkhausenites obscurotrimaculatus sp. n.

(Pls. XXXIII—XXXV; Text-figs. 1, 2)

Holotype: female, Coll. of the Palaeozoological Laboratory, University of Warszawa, No. 16, 8 IGUW/AWS;

Type locality: Samland Peninsula, Palanga.

Derivation of the name: *obscurotrimaculatus* — with three dark spots in forewings.

Diagnosis. — In forewing distance between r_1-r_2 2,8 times as r_2-r_3; arm of r_{4+5} 2,3 times as free branch r_4 or 1,7 r_5; distance between cu_1-cu_2 half that between r_2-r_3.

Material. — The inclusion is contained in a rectangular block of transparent yellow Baltic amber, size 18×15×7 mm³, mounted on microscope slide, and very well preserved [2]. Many details distinct and clearly visible. Only both palpi labiales are absent, probably were plucked. Also one visible hindwing is partly deformed by fold. Ventral part of the abdomen delicately covered with milky nebulae. Hairs, scales and cilia of wings, legs and greater part of the body are preserved. The wings pattern is well preserved also, this is the most interesting case for they are the first Microlepidoptera to be found in amber.

Description. — Head: well developed; antenna elongated scape, almost half the length of the forewing; galea long. Forewing: elongate, slightly

[2] This piece of amber contains also a specimen of *Diptera*.

longer than 3 times the width; costa arched; apex blunt; termen arched; tornus poorly developed. Venation: median cell 4/7 length of the wing being broadest posteriorly with poor developed r_{4+5} and m_{1+2}; 13 veins present; sc to before middle of costa; r_1 from before middle of costal arm of median cell; distance between r_1-r_2 2,8 times that between r_2-r_3; between r_2-r_3 nearly 3 times r_3-r_{4+5}; r_3 from exterior angulation; arm r_{4+5} 2,3 times as free branch r_4 or 1,7 r_5, both reach costa; distance between m_1-m_2 longer than r_3-m_1 and m_2-cu_2, these all approximately equidistant at the basis; veins r_1-m_2 straight; m_3 slightly curved; cu_1 and cu_2 curved; distance between both half that between r_2-r_3; cu_1 from interior angulation; cu_2 from half between r_2-r_3 on opposite arm of median cell; an and ax_{1+2} well developed; an a little longer than median cell; ax_{1+2} as long as this cell. Wings pattern is formed by three dark spots, one greater at transversal vein and two smaller on basal half of the wing. Length of forewing 4,3 mm. Hindwing: a little narrower than forewing. Venation: median cell extends half of the wing; sc sinuate to costa in 4/5 of its length; rr reaches costa before apex and m_1 termen beyond apex; m_2 between m_1 and m_3 parallel to the last; m_3 and cu_1 from one point; cu_2 in 2/3 from median cell; an and ax developed. Legs: first pair with epiphysis; meso-

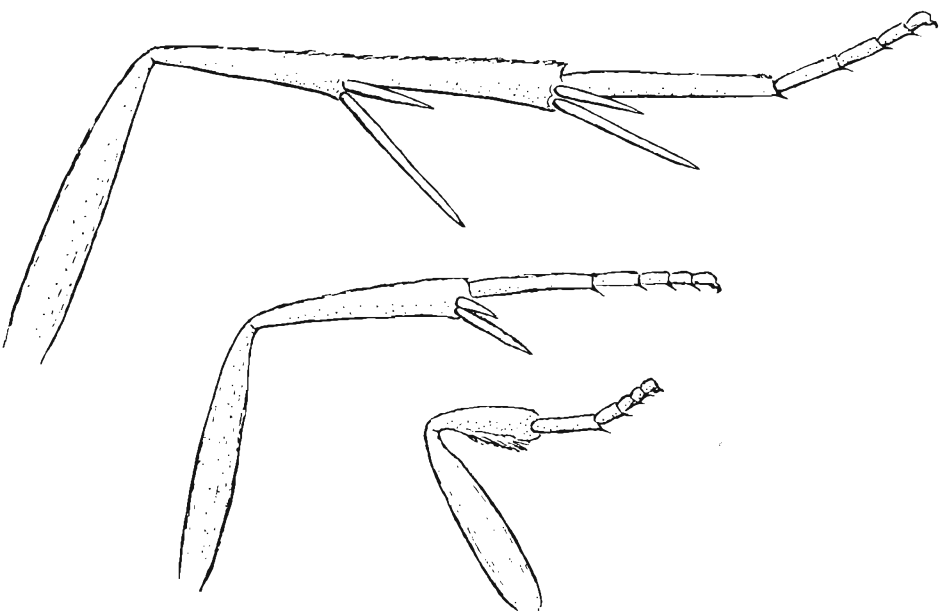

Fig. 1. — *Epiborkhausenites obscurotrimaculatus* n. gen., n. sp. Legs, ×36.

tibia with a pair and metatibia with two pairs of spurs, one of these in middle of metatibia; all interior spurs half shorter than exterior (Text-fig. 1). Genital armature: papillae anales partly protrudent from last segment of abdomen.

Remarks. — This is an especially perfect specimen, therefore full re-

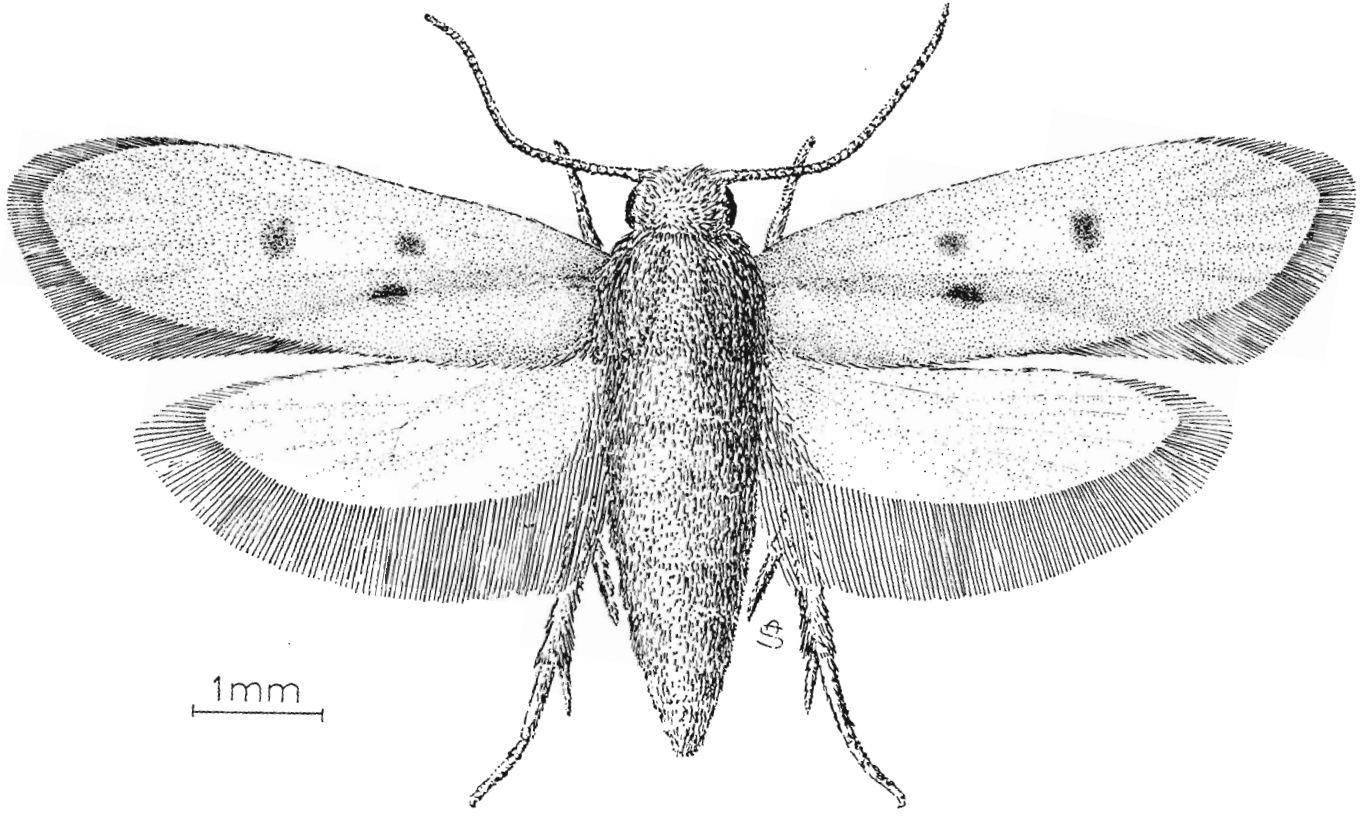

Fig. 2. — *Epiborkhausenites obscurotrimaculatus* n. gen., n. sp. Reconstruction.

construction of this fossil amber species was possible (Text-fig. 2). *E. obscurotrimaculatus* gen. et sp. nov. is related to fossil *Paraborkhausenites innominatus* Kuznetsov, *Borkhausenites implicatella* Rebel and *B. incertella* Rebel. The relations to Rebel's species were stated on the base of examination of holotypes. Unfortunately, drawns of wings venation of these species published by Rebel (1935) are inadequate. On the other hand, the amber genus *Borkhausenites* Rebel must be revised (Skalski, in press). At the basis of the wings venation *E. obscurotrimaculatus* gen. et spec. nov. is similar to some recent Oecophorid species, in particular, to *Tubuliferola josephinae* Toll (Europe), *Hofmannophila pseudospretella* (Stainton) (Holarctic), *Himmacia huachucella* (Busck), *Psilocorsis quercicella* Clemens or *Inga sparsiciliella* (Clemens) (Nearctic). But these are only external characters. It is a most interesting fact that very similar patterns occur in *T. josephinae* Toll and *H. pseudospretella* (Stainton); this refers to the position of the three dark spots which is almost identical in both recent and fossil species.

Family **Tineidae** ?
Gen. ? spec. ?
(Pl. XXXVI; Text-fig. 3)

Material. — The inclusion is present in a trapezoid block of transparent yellow Baltic amber size 48×20×7 mm[3], deposited in the collection of the Palaeozoological Laboratory, University of Warszawa, No. 174, 9 IGUW/AWS. The specimen lying with wings variously folded and closely adpressed to the body on ventral side is veiled by on opaque nebulae. Dorsal part of head, partly legs of first and second pair and surface of forewings are better exposed to study. The veins are partially visible on the periphery of both wings and on the one side on the surface of one forewing only.

Description. — Head: vertex convex; antennae to half length of the forewing; scape length about twice the width; pedicellus short; second joint of labial palpus slightly curved nearly as long as diameter of the eye; terminal joint straight, as 2/3 this diameter; maxillary palpi long (longer than labial?). (Text-fig. 3) Forewing: elongate lanceolate. Venation: median cell 2/3 length of the wing; visible veins straight; sc to costa before half of the wing; r_1 from 1/4 of costal arm of median cell; r_4 to costa and r_5 to termen; distance between r_2-r_3 nearly 4 times as r_3-r_4; between r_3-m_2 rather equidistant; next invisible. Length of forewing 4,0 mm. Hindwing elongate. Venation: visible veins straight; rr to costa far before apex; m_1 to termen near apex. Legs: mesotibia with a pair of spurs.

Remarks. — The above features are insufficient for a final identification

[3] This amber contains also one *Acarina* and one *Hymenoptera* specimen with some plant remains.

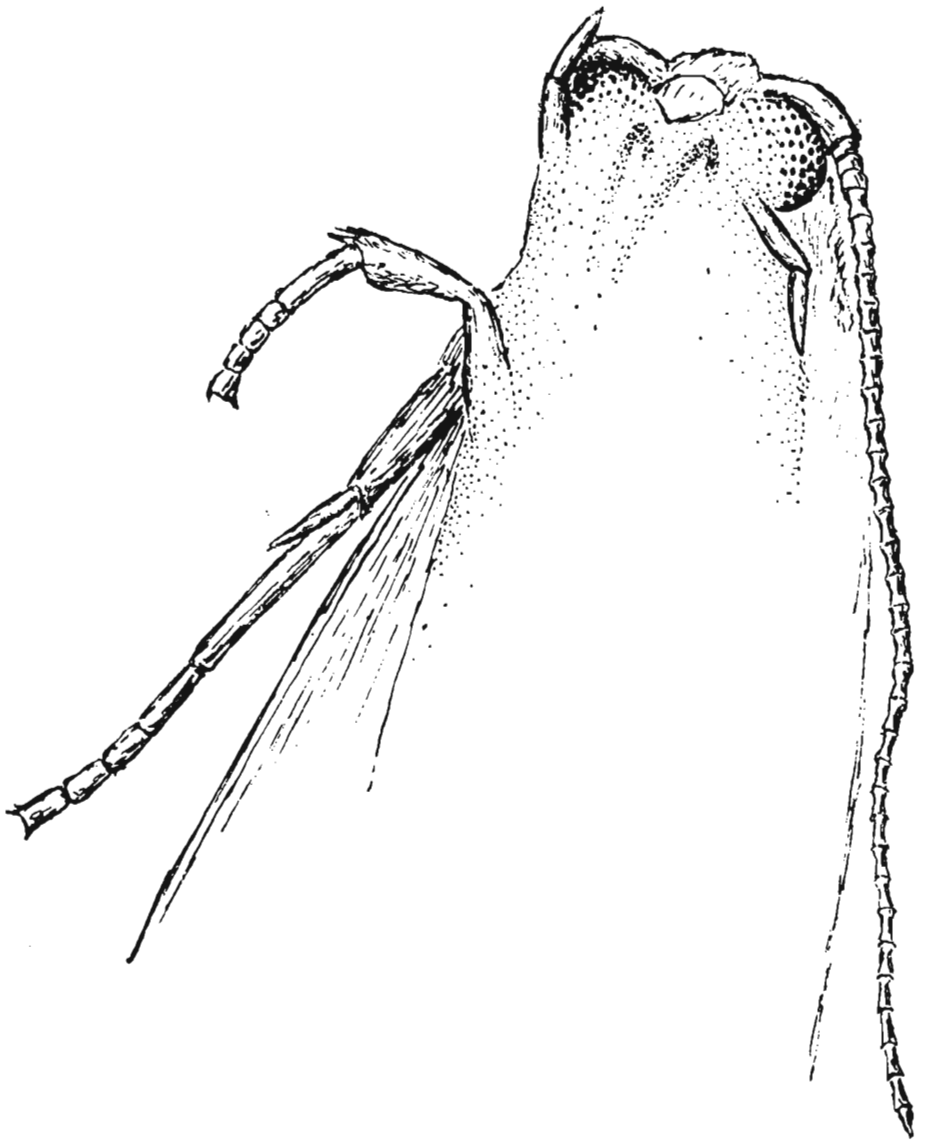

Fig. 3. — Tineidae? Gen.? sp.? Anterior part of the specimen in ventral view, ×66.

of this insect. The type of the antennae, labial palpi, long maxillary palpi, shape of wings and character of venation suggest that the moth is most closely related to the family Tineidae. But this cannot be determined with precision at present.

Natural History Division
Museum in Częstochowa
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ANDRZEJ W. SKALSKI

STUDIA NAD MOTYLAMI (LEPIDOPTERA) Z ŻYWIC KOPALNYCH. CZĘŚĆ II. *EPIBORKHAUSENITES OBSCUROTRIMACULATUS* GEN. ET SP. NOV. (OECOPHORIDAE) I PRZEDSTAWICIEL TINEIDAE Z BURSZTYNU BAŁTYCKIEGO.

Streszczenie

W pracy podano rezultaty badań dwóch inkluzji Microlepidoptera w bursztynie bałtyckim, pochodzących z kopalni bursztynu koło Połągi (Palanga).

Z jednej inkluzji, wyróżniającej się doskonałą czytelnością opisano *Epiborkhausenites obscurotrimaculatus* gen. et spec. nov. należący do rodziny Oecophoridae. Kopalny rodzaj *Epiborkhausenites* gen. nov. jest blisko spokrewniony ze znanym z bursztynu bałtyckiego rodzajem *Paraborkhausenites* Kuznetsov. Pod względem użyłkowania skrzydeł zbliża się on również do współczesnych rodzajów: *Tubuliferola* Strand, *Himmacia* Clarke, *Psilocorsis* Clemens, *Inga* Busck i *Hofmannophila* Spuler. Wyjątkowo dobrze zachowany u *E. obscurotrimaculatus* sp. n. rysunek skrzydeł w podstawowych elementach bardzo przypomina rysunek u żyjących obecnie *T. josephinae* Toll i *H. pseudospretella* (Stainton).

Z powodu bardzo złej czytelności drugiej z inkluzji możliwe było zidentyfikowanie w niej jedynie ogólnie przedstawiciela rodziny Tineidae.

АНДЖЕЙ В. СКАЛЬСКИ

К ИЗУЧЕНИЮ ЧЕШУЕКРЫЛЫХ (LEPIDOPTERA) ИСКОПАЕМЫХ СМОЛ. ЧАСТЬ II. *EPIBORKHAUSENITES EBSCUROTRIMACULATUS* GEN. ET SP. NOV. (OECOPHORIDAE) И ПРЕДСТАВИТЕЛЬ TINEIDAE ИЗ БАЛТИЙСКОГО ЯНТАРЯ

Резюме

В работе изложены результаты изучения двух находок Microlepidoptera в балтийском янтаре, происходящем из окрестностей г. Паланга.

Из одного образца янтаря, отличающегося высокой „читабельностью" описывается *Epiborkhausenites obscurotrimaculatus* gen. et sp. nov., принадлежащий к семейству Oecophoridae. Ископаемый род *Epiborkhausenites* gen. nov. весьма близок к известному из балтийского янтаря роду *Paraborkhausenites* Kuznetsov. По жилкованию крыльев он также близок к современным родам *Tubuliferola* Strand, *Himmacia* Clarke, *Psilocorsis* Clemens, *Inga* Busck и *Hofmannophila* Spuler. Исключительно хорошо сохранившийся крыловой рисунок *E. obscurotrimaculatus* sp. n. по основным своим элементам очень близок к рисунку современных *T. josephinae* Toll и *H. pseudespretella* (Stainton).

По причине очень плохой „читабельности" второго образца в нем удалось определить по общему виду представителя семейства Tineidae.

EXPLANATION OF PLATES

Plate XXXIII

Epiborkhausenites obscurotrimaculatus n. gen., n. sp.

Bottom view of inclusion: *a* in transmitted light, *b* explanatory drawing of the above figure; ×14.

Plate XXXIV

Epiborkhausenites obscurotrimaculatus n. gen., n. sp.

Upper view of inclusion: *a* in transmitted light, *b* in reflected light; ×14.

Plate XXXV

Epiborkhausenites obscurotrimaculatus n. gen., n. sp.

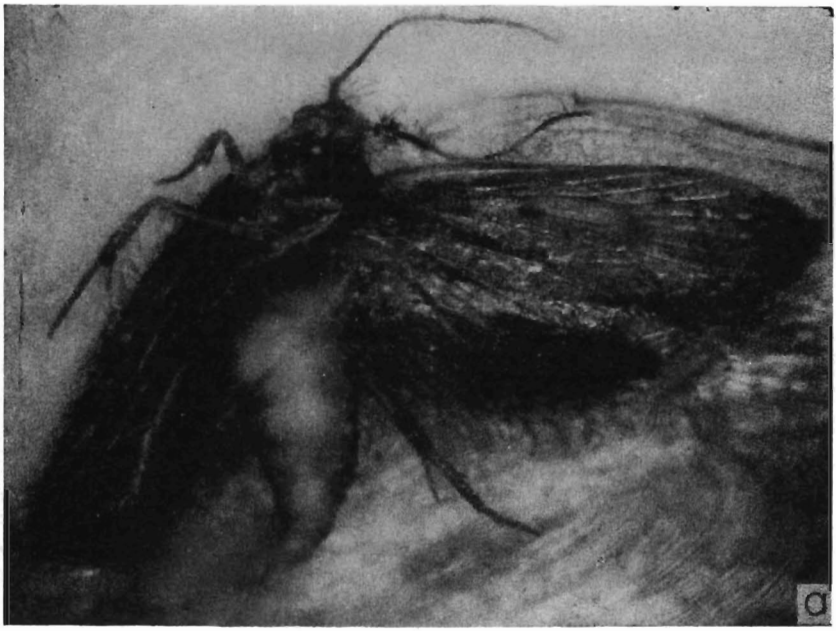
Wing venation: *a* of forewing, *b* of hindwing, *c*, *d* explanatory diagrams of the above figures; ×22.

Plate XXXVI

Tineidae? Gen.? sp.?

a upper view of inclusion, *b* part of hindwing with venation, *c*, *d* diagrams of visible parts of forewing and hindwing venation; ×22.

All plates: Baltic amber, Palanga (Samland)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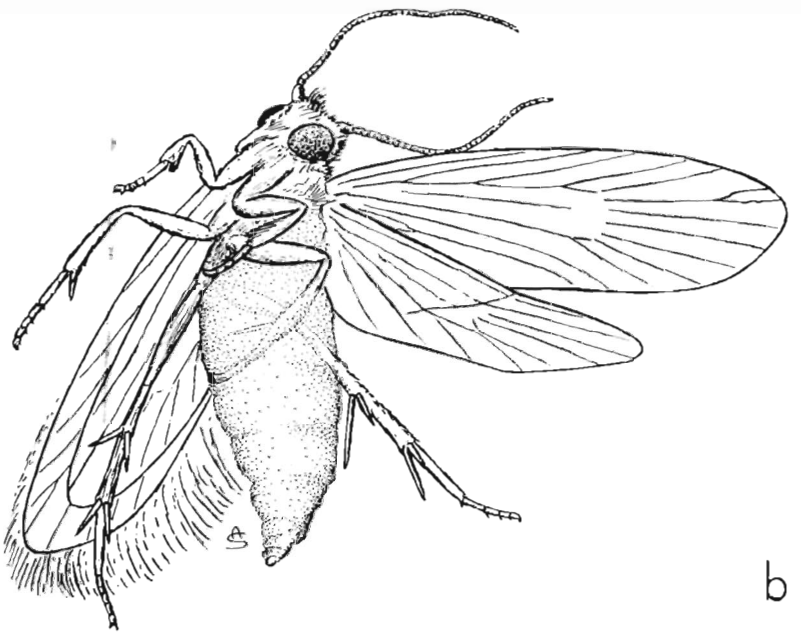
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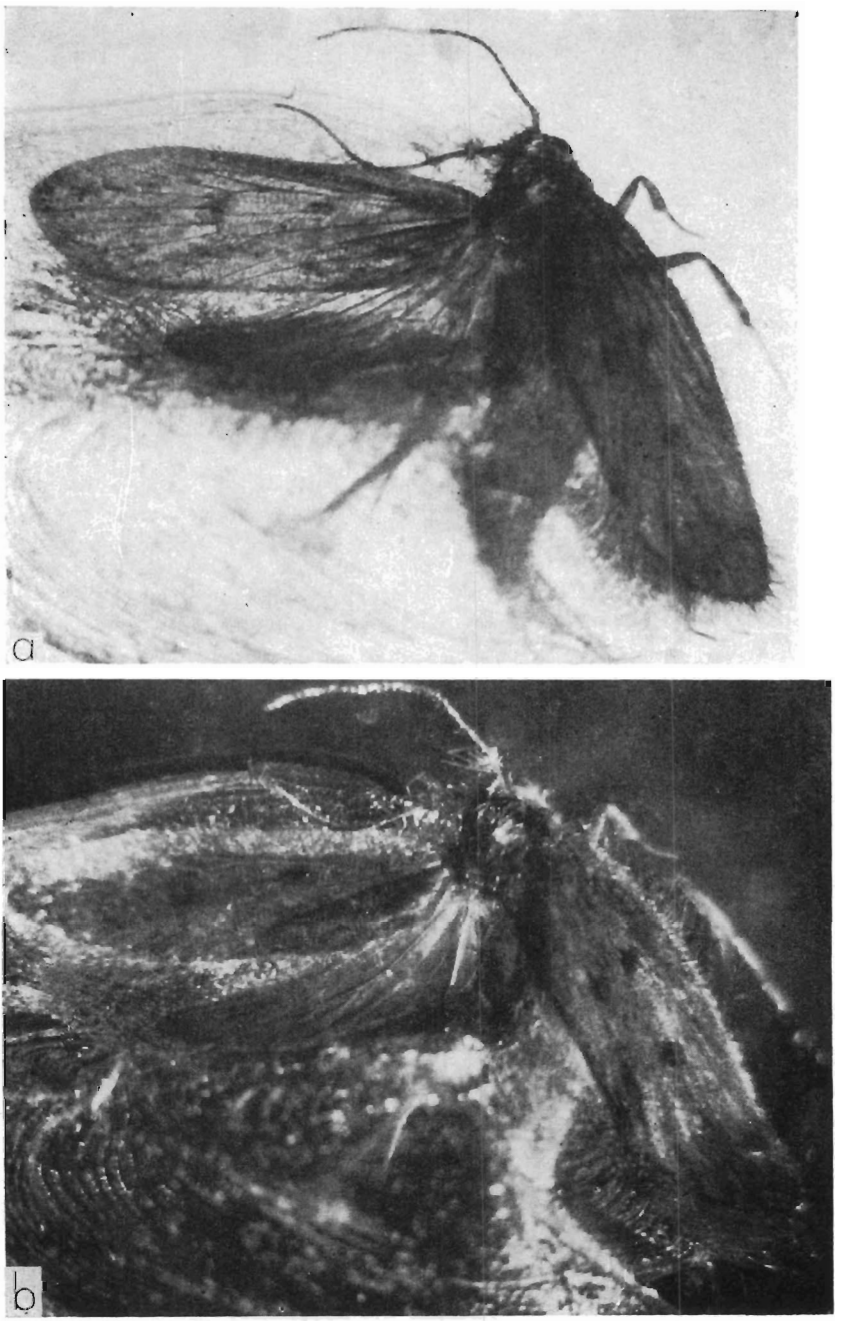
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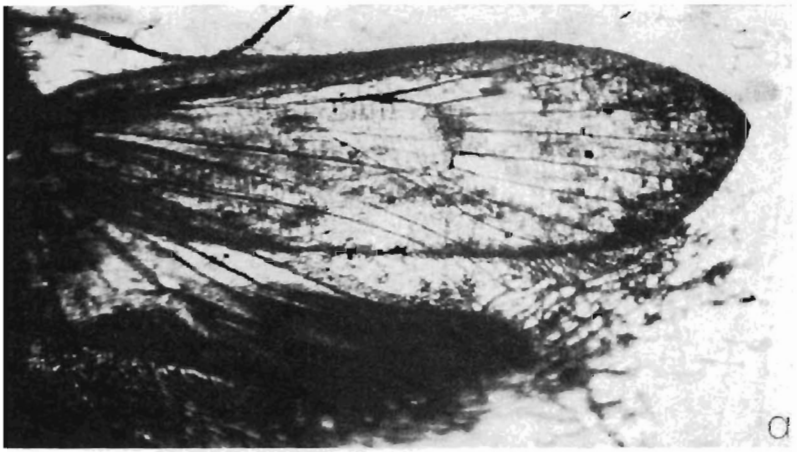
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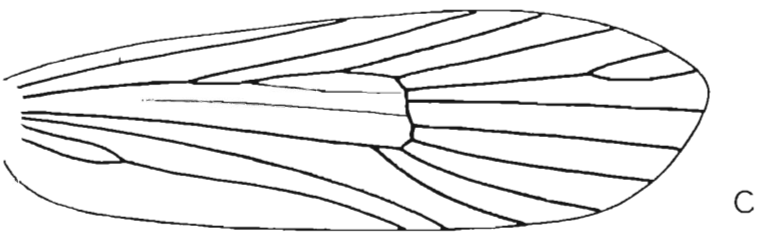
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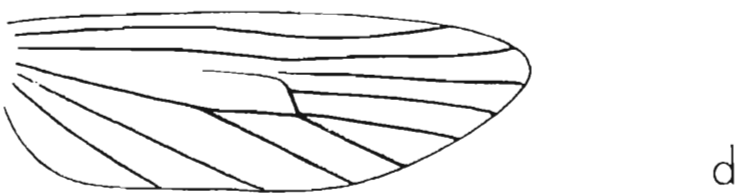
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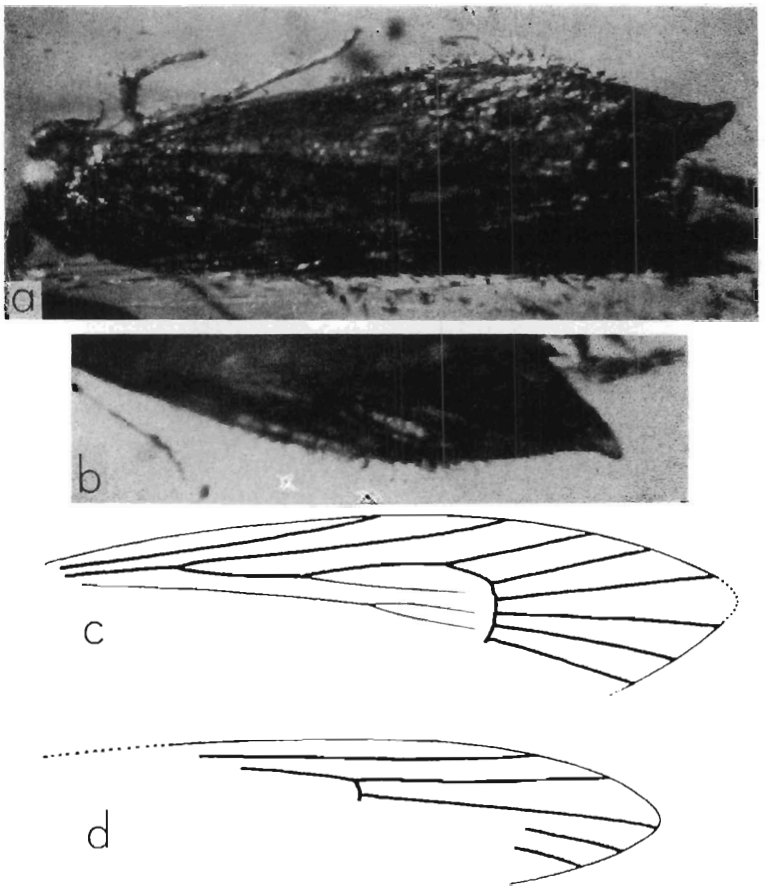
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