Phylomylacris reisbachensis nov. spec., a new Blattoid from the Heusweiler Schichten (Stephanian B), Saar Basin

by

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INTRODUCTION

Tegmina of insects are regularly found during field excursions of the Laboratory of Palaeobotany and Palynology of the State University Utrecht (The Netherlands). In spite of the fact that the laboratory is specialized on the study of plant fossils the present author has decided to investigate the faunal remains himself, palaeo-entomologists appearing to be scarce in western Europe. A previous paper on the subject (Boersma, 1969) may be regarded as the first one of a series concerning tegmina of insects in the Collections of the laboratory mentioned above.

The tegmen to be described hereafter was collected by Mr. J. W. F. Reumer on the spoil tip of the Colliery Dr. A. Schäfer at Reisbach (Saar Basin). The colliery exploits the so-called 'Illinger Flöz', the only coal seam within the lithostratigraphical unit 'Heusweiler Schichten'. The 'Heusweiler Schichten' represent chronostratigraphically the traditional Stephanian B in the Saar Basin. At the moment the Colliery Dr. A. Schäfer at Reisbach is the only one exploiting coals of Stephanian B age in the Saar Basin.

Up to the present only one insect-remain has been reported from the 'Heusweiler Schichten' (Stephanian B) of the Saar Basin, i.e. *Platyphlebopteron jakobyi* Germer, 1971. The specimen was collected on the spoil tip of the Colliery Dr. A. Schäfer at Reisbach.

From the Stephanian A and C of the Saar Basin ('Göttelborner, Dilsburger and Breitenbacher Schichten') numerous insect-remains have been described. The papers by Guthörl (1934, 1936, 1939, 1963) give a detailed account of the blattoids described so far from the Upper Carboniferous of the Saar Basin.

Afster preparation the venation pattern of the tegmen has been drawn with a Wild binocular drawing microscope. The photographs were taken by means of a Leica miniature camera, movably adjusted to a vertical column, and artificial light (a 'reprovite' equipment). For reference reasons a punch-card system was developed enabling to limit the alternatives and thus facilitating the identification. The terminology used in the present paper may be considered the generally accepted one; it is mainly after Lameere (1922).

Phylomylacris reisbachensis, nov. spec.
Order: Blattopteriformia Hennig, 1969
Family: Mylacridae Scudder, 1885
Sub-family: Hemimylacrinae Pruvost, 1919
Genus: *Phylomylacris* Pruvost, 1920

Holotype: the specimen described in the present paper and figured in figs. 1, 2, 2a. The specimen is stored in the Collections of the Laboratory of Palaeobotany and Palynology of the State University Utrecht (The Netherlands). Collection number U 5295.

Locus typicus: spoil tip of Colliery Dr. A. Schäfer at Reisbach (Saar Basin).

Stratum typicum: Sediments at about the 'Illinger Flöz' of the 'Heisweiler Schichten', chronostratigraphically placed in the Stephanian B.

Derivatio nominis: after the village of Reisbach, where the holotype was collected.

Diagnosis: Costa marginal. Costal area long, occupying at least two thirds of the anterior margin. Veinlets in costal area mainly arising in a pectinate way from

Fig. 1. *Phylomylacris reisbachensis* nov. sp. Holotype. Laboratory of Palaeobotany and Palynology, State University of Utrecht (The Netherlands); collection number 5295.

the Subcosta; the proximal bundle arising from base of tegmen. Radius with 8 anterior branches. Media with 3 anterior branches.
Cubitus with at least 6 posterior branches. Anal area long, occupying proximal half of posterior margin. Interstitial venation forming an irregular network.

The almost complete tegmen figured in figs. 1, 2 and 2a is a right forewing of considerable dimensions: 52 mm. long and at least (and almost maximum) 24 mm. wide. The outline, as far as visible, tends to be ovate.

The veins in the narrowly triangular costal area arise mainly in a pectinate way from the delicate Subcosta. The proximal bundle, however, arises directly from the base of the tegmen. The proximal bundle may be best described as a vein giving off anteriorly 5—6 veinlets, of which the second and the third one are once bifurcate.

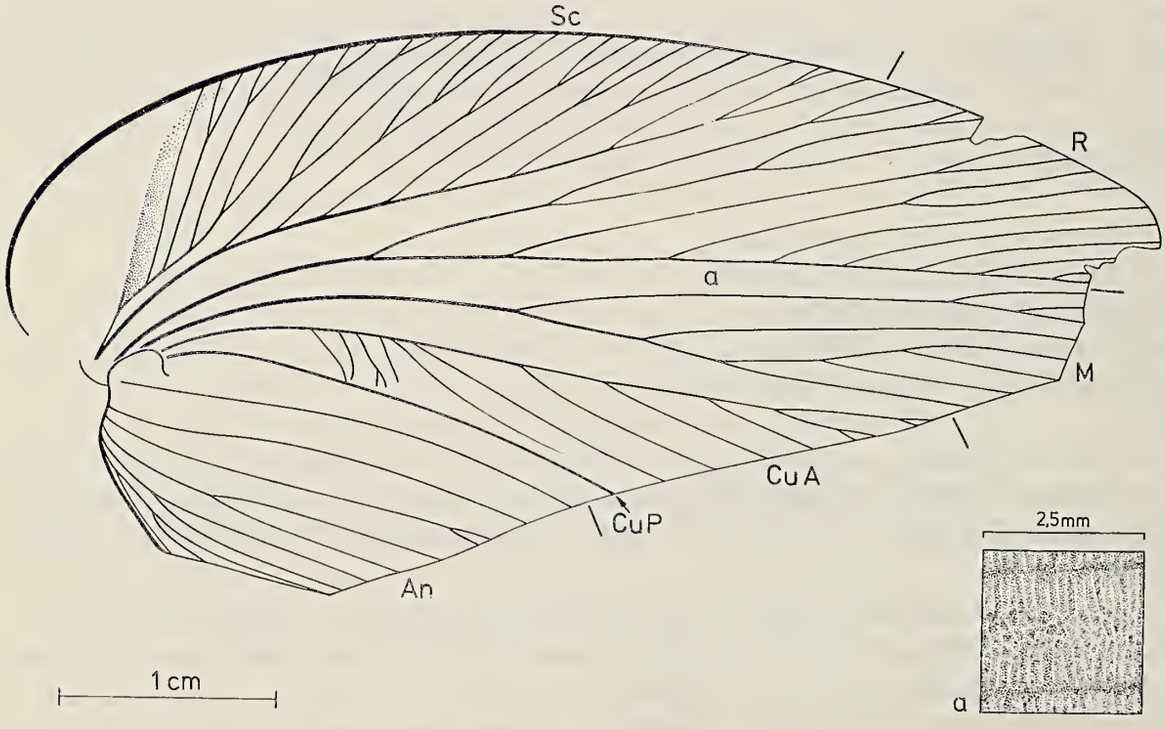

Fig. 2. *Phylomylacris reisbachensis* nov. sp. Sketch of venation pattern of holotype. After fig. 1.

The Subcosta gives off 8 veinlets in a pectinate way, all except one being at least once bifurcate, the two proximal veinlets even showing an additional bifurcation of one of the fork arms; the seventh veinlet remaining undivided. The costal area occupies more than two thirds of the anterior margin.

The Radius does not show a distinct Radius s.s. and Radius Sector. This part of the venation may be best described as a Radius giving off anteriorly at least 8 veinlets, probably no more. The first (proximal) veinlet bifurcates twice, the third ultimate ramification dividing once more. The second and third veinlet bifurcate once. The remaining 5 veinlets are undivided. The veinlets of the Radius occupy the distal part of the anterior margin and the anterior part of the apex.

The Media is interpreted as a vein giving off anteriorly 3 veinlets. The first one bifurcates terminally; one of the resulting forks arms dividing again. The second veinlet remains, as far as visible, undivided. The third veinlet bifurcates, one of the resulting fork arms dividing again. The Media occupies the posterior part of the apex.

The Cubitus is only partially preserved. At least 6 veinlets are given off posteriorly by the Cubitus anterior, the fifth (distal) one showing a bifurcation. The Cubitus posterior is undivided. Between Cubitus posterior and the first (proximal) veinlet of the Cubitus anterior additional veinlets occur, not reaching the posterior margin. The veinlets of the Cubitus occupy the distal half of the posterior margin.

The fragmentarily preserved anal area occupies about the proximal half of the posterior margin and is more than twice as long as wide. In the anal area at least 6 veinlets are visible. The two first (distal) veinlets are undivided; the remaining ones are once bifurcate, the sixth one even showing and additional bifurcation of one of the fork arms.

The interstitial venation forms an irregular network, giving the tegmen a leathery appearance (cf. Text-fig. 2a).

ADDITIONAL MATERIAL

The fragmentary specimen U 5296 collected by the author at the same locality as the holotype of *P. reisbachensis* may be identified as *P.* cf. *reisbachensis*. The specimen is figured in fig. 3. No essential differences with the holotype have been noted. However, the anal area is lacking as well as the distal part of the tegmen,

Fig. 3. *Phylomylacris* cf. *reisbachensis*. Additional material. Laboratory of Palaeobotany and Palynology, State University of Utrecht (The Netherlands); collection number 5296.

precluding a certain identification. The proximal bundle of the costal area is not very well preserved. The general aspect of the venation in the costal area, however, is the same as in the holotype. The Radius gives off anteriorly at least 5 branches, the Media at least one. The Cubitus posterior is missing; the Cubitus anterior gives off at least 2 posterior branches and an additional anterior veinlet, not reaching the margin. The interstitial venation is as in the holotype of *P. reisbachensis* (cf.Text-fig. 2a).

COMPARISONS

The above-described specimen of *Phylomylacris* holds an isolated position within the genus because of *(1)* its considerable dimensions, the specimens described so far being 11—32 mm. long (average 20—25 mm.), and *(2)* the high stratigraphical position: the genus has not been reported from Stephanian sediments before. However, in the present author's opinion, these facts do not warrant the establishment of a new genus. The application of the wing-venation formula introduced by Pruvost (1919, p. 202) on the present tegmen results in the following code:

$$14Rd + 7Md + ?8Cb \geqslant 29$$

The code agrees with the codes for species of *Phylomylacris.*

Apart from the differences in stratigraphical position the Reisbach specimen may easily be distinguished from *P. lafittei* and *P. godoni,* because of the absence of undulating main veins in the former tegmen. Additionally, the Media in *P. lafittei* is very reduced (3Md). In *P. godoni* the Cubitus occupies only one third of the posterior margin.

P. cor, P. brevis and *P. chailleti* can be excluded by the length—width ratio of their tegmina, being 1.5:1, 1.65:1 and 1.8:1, respectively.

Apart from the difference in size, *P. parallelus* (only 11 mm. long) can be easily distinguished from the Reisbach specimen by its short costal area, occupying only one third of the anterior margin, and the short anal area. Another species which can be excluded because of its short costal area is *P. abrupta.*

The Reisbach specimen essentially differs from *P. membranacea* in the veinlets of the Media given off anteriorly, whereas, in *P. membranacea* they are given off posteriorly.

Since one of the main differences between *Phylomylacris* on the one hand, and *Soomylacris* and *Hemimylacris* on the other exists in the anteriorly directed veinlets of the Media in *Phylomylacris* it is the question whether indeed *P. membranacea* should be classified within *Phylomylacris* rather than in *Hemimylacris* or *Soomylacris.*

P. fougerollesi is distinguished from the Reisbach specimen because of its reduced Cubitus, occupying only one third of the posterior margin, and the relatively short costal area, occupying hardly more thans one half of the anterior margin.

The Reisbach specimen cannot be attributed to *P. nervosa* because of the length-width ratio of 3 : 1 of tegmina of the latter species. Moreover, the anal area in *P. nervosa* is relatively short and occupies only one third of the posterior margin.

An extremely short anal area, occupying hardly one fourth of the posterior margin is found in *P. pintrandi,* which precludes an attribution of the Reisbach specimen to the latter species.

The fragmentarily preserved *P. mantidioides,* only 8 mm wide, shows a definite commissural vein which connects the Media with the Cubitus, and which is absent in the Reisbach specimen. Such a commissure is found in genera such as *Archimylacris* and *Manoblatta,* but places *P. mantidioides* somewhat apart within the genus *Phylomylacris.*

The Reisbach specimen shows much resemblance with *P. chavyi* and *P. villeti.* However, apart from the already quoted differences in dimensions and stratigraphical position, the Reisbach specimen shows 8 veinlets given off anteriorly by the Radius, whereas in *P. chavyi* and *P. villeti* this number is 5 and 4, respectively.

DISCUSSION

Up to the present no tegmen has been found in the Saar Basin which may be undoubtedly attributed to the Mylacridae Scudder, 1885. Guthörl (1963, p. 256) described the first insect-remain probably belonging to the Mylacridae, viz. a pronotum, figured on his Plate 28, fig. 4a, 4b. Guthörl (1936, p. 103, Pl. 4, fig. 1, text-fig. 14) has introduced his new genus *Ottweileria,* based on a single specimen collected from the 'Untere Ottweiler Schichten', i.e. Stephanian, of the Saar Basin. Guthörl assigned the genus to a separate family Ottweileriidae. Although the only specimen of

Ottweileria is fragmentary to such an extent that it cannot serve as a holotype, the fragment might be interpreted as part of a tegmen attributable to the Hemimylacrinae Pruvost, 1919.

In this interpretation Guthörl's text-fig. 14 is not accurate: his Radius in fact represents part of the costal area, his Media should be the Radius, the anterior part of his Cubital complex should be the Media, the posterior part of his Cubitus should be the Cubitus anterior. Finally, his first anal veinlet should be the Cubitus posterior.

Guthörl's specimen may easily be compared with the proximal part of the holotype of *Phylomylacris reisbachensis*. The so-called 'Saum' (p. 103: family diagnosis) surrounding the tegmen is in fact the impression of the thick marginal Costa. Unfortunately, the interstitial venation of Guthörl's specimen was not preserved.

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