

JOCHEN HELMS & ZDZISŁAWA WOLSKA

NEW UPPER DEVONIAN CONODONTS FROM POLAND
AND GERMANY

Abstract. — Four new species and one new subspecies of conodonts are described from the Upper Devonian of Germany and Poland, Holy Cross Mountains (Góry Świętokrzyskie). They are: *Nothognathella postsublaevis* n. sp., *Polygnathus dissimilis* n. sp., *P. fallax* n. sp., *P. lagowiensis* n. sp., *P. glabra media* n. subsp. Their stratigraphic range is given on the Table 1.

INTRODUCTION

In 1962, the second author began studies on the Upper Devonian conodonts from Poland. In 1965, she spent 3 weeks in the Institute of Palaeontology and Museum, Humboldt University, Berlin, GDR, thanks to a grant of the Polish Academy of Sciences. Then, it appeared that the first author had at his disposal similar material, including the same species. Thus, both authors decided to elaborate the new species, common for Upper Devonian of Poland and Germany, jointly.

The German material comes from Thuringia (Kapfenberg, Oettersdorf, Schleiz, Grosser Buschteich), while the Polish — from the Holy Cross Mountains (Gałęzice, Jabłonna, Łagów).

Moreover, in the Institute of Palaeontology and Museum, Humboldt University, Berlin, comparative material is housed: from the Holy Cross Mountains (Łagów, Psie Górki), from Moravia, Sardinia and the South Urals (Verkhneural'sk).

The holotypes of *Nothognathella postsublaevis* n. sp., *Polygnathus dissimilis* n. sp., *P. fallax* n. sp. and *P. glabra media* n. subsp. are housed in the Institute of Palaeontology and Museum, Humboldt University, Berlin, while the holotype of *P. lagowiensis* n.sp. — in the Palaeozoological Laboratory, Polish Academy of Sciences, Poznań, for which the abbreviation Z. Pal. P. is used. The drawings were made by the first author.

Table 1
Biostratigraphy of the described conodonts

Upper Devonian conodont zones*	<i>Palmatolepis triangularis</i>	<i>P. crepida</i>	<i>P. rhomboidea</i>	<i>P. quadrantinodosa</i> = <i>marginifera</i>	<i>Scaphignathus velifera</i>	<i>Polygnathus styriaca</i>	<i>Spathognathodus costatus</i>
Species							
<i>Polygnathus glabra</i>							
<i>media</i> n. subsp.				■			
<i>Polygnathus fallax</i>							
n. sp.				■			
<i>Polygnathus lagowien-</i>							
<i>sis</i> n.sp.			?	■			
<i>Polygnathus dissimilis</i>							
n. sp.						■	
<i>Nothognathella post-</i>							
<i>sublaevis</i> n. sp.				■			

* After Ziegler, 1962.

A detailed elaboration of the conodonts from the Famennian of the Holy Cross Mountains, prepared by the second author, will be published later.

Genus *Nothognathella* Branson & Mehl, 1934

Nothognathella postsublaevis n.sp.

(Fig. 1 a—b)

1960. *Nothognathella sublaevis* Sannemann; E. Zimmermann, Conodonten..., Pl. 7, Fig. 8.

Holotype: Specimen No. Ct. 402 Berlin; Fig. 1 a—b.

Type horizon: Grey, bedded limestones from the upper part of the Lower *P. marginifera* zone¹, according to the conodont stratigraphy of Upper Devonian.

Type locality: Quarry at Kapfenberg near Pahren, Zeulenroda sheet, Thuringia.

Derivation of the name: *postsublaevis*, Lat. *post* = after; derivating probably from *N. sublaevis*.

Diagnosis. — Species of genus *Nothognathella* with platform lobe, having undulated edge on inner side of posterior limb.

Material. — Complete specimens, 58 in number.

Description. — Conodont of limb-type, sigmoidally curved, composed of anterior and posterior limbs. Anterior limb arched with denticles,

¹ *P. marginifera* zone = *P. quadrantinodosa* zone (Ziegler, 1962).

inclined backwards and decreasing anteriorly and posteriorly. From the swollen sides of anterior limb a platform develops, which runs further along the posterior limb. Platform narrow on outer side of posterior limb, widened on inner side into a lobe expanding obliquely backwards. Plat-

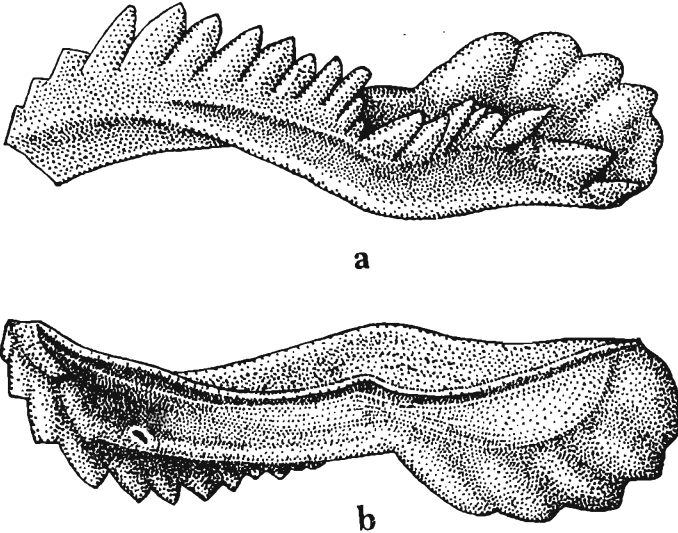


Fig. 1. — *Nothognathella postsublaevis* n.sp., holotype, No. Ct. 402 Berlin, Kapfenberg at Pahren, Thuringia, Famennian (Lower *P. marginifera* zone; a outer lateral view, b lower surface; $\times 90$).

form lobe with 5—7 costae directed obliquely backwards, causing undulation of edge. Denticles of posterior limb smaller than those on anterior limb, run towards inner side, forming a convex arch. Keel on lower surface corresponds with course of denticles on upper surface. Basal cavity invisible.

Remarks. — *Nothognathella postsublaevis* n. sp. is the most similar to *N. sublaevis* Sannemann, 1955, from which it differs in having undulated edge and costae present on the lobe.

Distribution. — Germany: Thuringia, Saxony, Harz — upper part of Lower *P. marginifera* zone. Poland: Holy Cross Mountains (Łagów) — probably upper part of Lower *P. marginifera* zone. A more precise determination of age is impossible, as the conodont fauna is here mixed (probably as a result of the stratigraphic condensation).

As shown by the first author's comparative collection, this species is also present in the Devonian of Sardinia.

Genus *Polygnathus* Hinde, 1879

Polygnathus dissimilis n.sp.

(Fig. 2 a—c)

Holotype: Specimen No. Ct. 403 Berlin; Fig. 2 a—c.

Type horizon: Grey-purple, thin-bedded limestone of Lower to V (*Clymenia* zone), on boundary between *P. styriaca* and *Sp. costatus* zones, according to the conodont stratigraphy.

Type locality: "Alte Heerstrasse", ENE from Oettersdorf, Thuringia, on boundary of Knau and Zeulenroda sheets.

Derivation of the name: *dissimilis*, Lat. *dissimilis* = different; because of unequal width of two platform halves and the asymmetric base.

Diagnosis. — *Polygnathus* with platform composed of halves of unequal width, rounded at posterior end; basal cavity asymmetric, with swollen edges.

Material. — Over 60 specimens from Thuringia; 10 specimens from Holy Cross Mountains (Jabłonna, Gałęzice).

Description. — Slender conodont, vaulted and slightly bent. Free blade is about $\frac{1}{2}$ to $\frac{2}{3}$ the length of platform. Lowering a little, it changes into a strong crest, reaching to the posterior end of platform. Narrow, somewhat deepened band of upper surface of platform, devoid of orna-

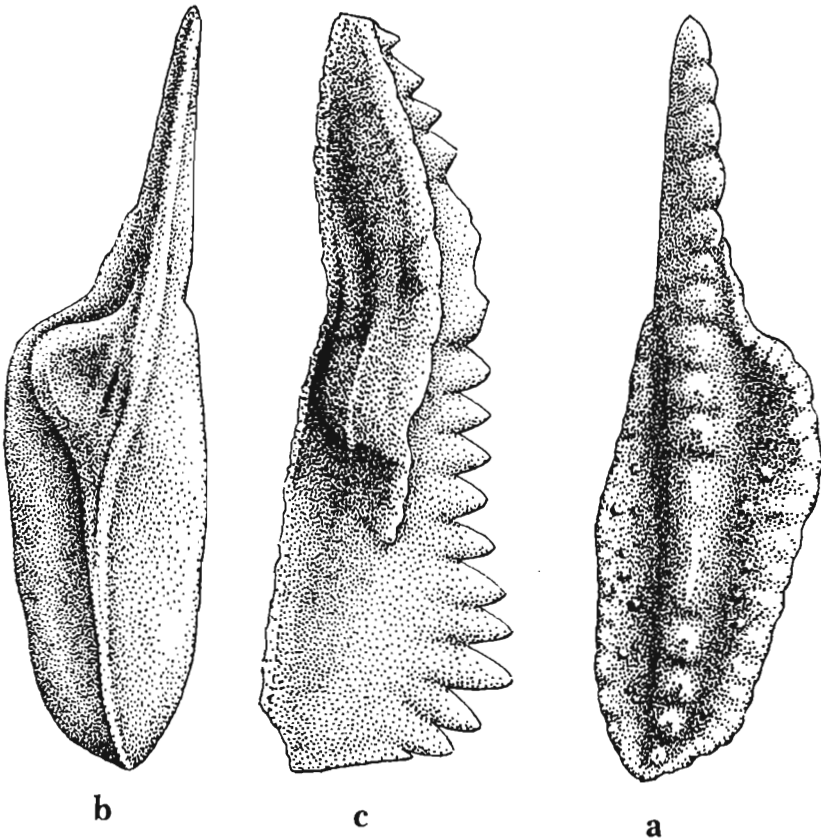


Fig. 2. — *Polygnathus dissimilis* n.sp. holotype, No. Ct. 403 Berlin, Oettersdorf, Thuringia, Famennian (*P. styriaca* / *S. costatus* zone); a upper surface, b lower surface, c lateral view; $\times 90$.

mentation at the both sides of crest. Generally, inner half of platform narrower than outer half. Basal cavity large, occupying $\frac{1}{3}$ of anterior part of lower platform surface. Swollen edge of cavity widened semicircularly towards outer side of platform.

Remarks. — The new species differs from *P. pennatula* Ulrich & Bassler, 1926 in its asymmetric basal cavity and asymmetric platform, rounded at posterior end and ornamented with tubercles. From *P. glabra media* n. subsp. it differs in having a higher blade, asymmetric, ornamented platform and large, asymmetric basal cavity.

Distribution. — Germany: Thuringia, Harz — on the boundary between *P. styriaca* and *Sp. costatus* zones. Poland: Holy Cross Mountains (Jabłonna, Gałęzice) — on the boundary between *P. styriaca* and *Sp. costatus* zones. As shown by the first author's comparative collection, this species is also present in the Drahaný Plateau (Czechoslovakia).

The new species is characteristic for the subzone in Lower to V (*Clymenia* zone) in Central Europe.

Polygnathus fallax n. sp.

(Fig. 3 a—b)

1960. *Polygnathus* cf. *procera* Sannemann; E. Zimmermann, Conodonten..., p. 192, Pl. 6, Fig. 2 a—b.

Holotype: Specimen No. Ct. 404 Berlin; Fig. 3 a—b.

Type horizon: Grey, bedded limestone of Lower *P. marginifera* zone.

Type locality: Old Geipelsch quarry on the W-end of Schleiz, Thuringia, centre of west wall.

Derivation of the name: *fallax*, Lat. *fallax* = deceptive; because of the resemblance to *P. glabra media* n. subsp. and *P. pennatula* Ulrich & Bassler.

Diagnosis. — *Polygnathus* with short free blade, low crest, and slender, flat, finely grained platform, in front transversely ribbed.

Material. — Over 70 specimens from various places in Thuringia and Harz; 5 specimens from Holy Cross Mountains (Łagów).

Description. — Conodont weakly bent and slightly vaulted. Free blade comparatively high. Length of free blade to length of platform ratio changing, during growth, from 1 : 1 to 1 : 3. Low crest reaching posterior end of platform. Flattened, elongated platform, broadest at centre. Upper surface of platform sloping flatly towards crest (in young specimens more strongly), grained (8—12 grains on 0.25 mm). On anterior part of platform the grains fuse together, forming transverse ribs. Basal cavity small, asymmetric, with swollen edges. Keel reaching to posterior end of plate. Crimp wide.

Remarks. — *P. fallax* n.sp. differs from *P. pennatula* Ulrich & Bassler, 1926, in its more symmetric structure, finer sculpture, more faintly pro-

nounced blade and crest, and in smaller basal cavity, with less swollen edges: from *P. lagowiensis* n. sp. it differs in its narrower platform, elongated along the blade, and its stronger tendency to transverse arrangement of the sculptural elements.

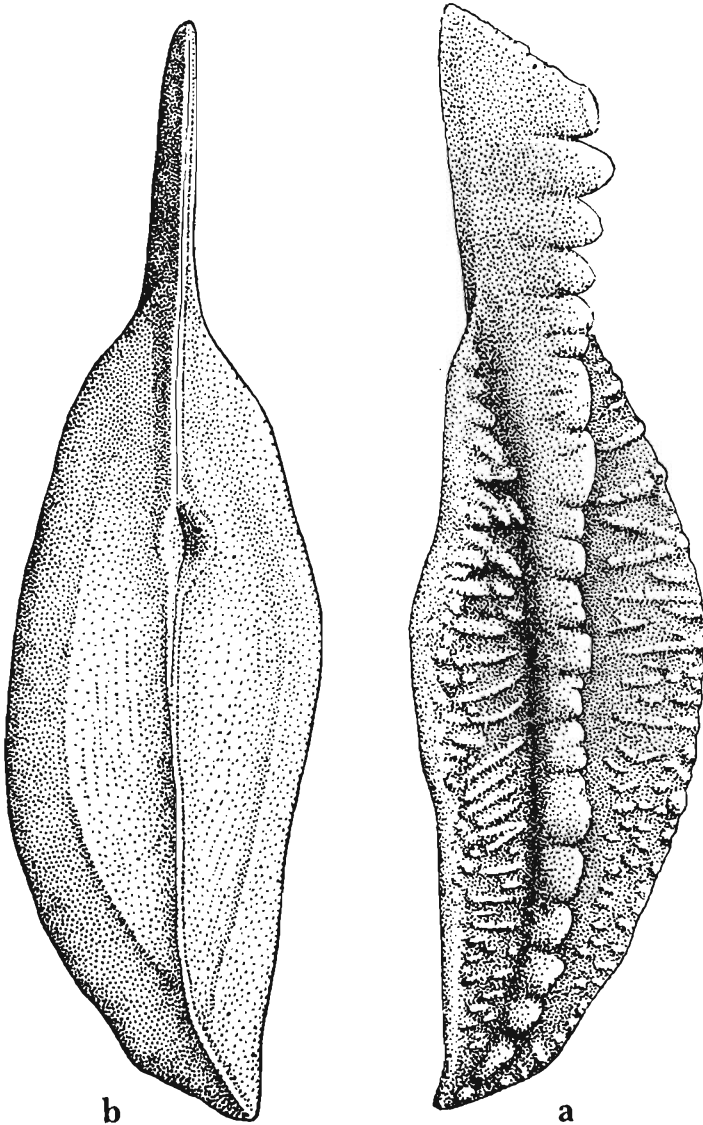


Fig. 3.—*Polygnathus fallax* n.sp., holotype, No. 404 Berlin, Geipelsch-quarry at Schleiz, Thuringia, Famennian (Lower *P. marginifera* zone); a upper surface, b lower surface; $\times 90$.

The larger specimens, with nearly obsolete sculpture, are similar to *P. glabra media* n. subsp. However, the two forms can be differentiated on the base of the symmetry, outline and the upper surface of platform. Small specimens resemble *P. procera* Sannemann, 1955, but the troughlike

shape of the platform is in that species more distinct and the sculpture coarser.

Distribution. — Germany: Thuringia, Saxony, Harz. Poland: Holy Cross Mountains. Lower *P. marginifera* zone, according to the conodont chronology.

Polygnathus glabra media n. subsp.

(Fig. 4 a—b)

1960. *Polygnathus glabra* Ulrich & Bassler; E. Zimmermann, Conodonten..., Pl. 5, Fig. 8 (non Figs. 5,7 = *P. glabra bilobata* Ziegler; Fig. 6?).

1962. *Polygnathus glabra glabra* Ulrich & Bassler; W. Ziegler, Taxionomie..., p. 89 (part.), Pl. 10, Figs. 18—20.

Holotype: Specimen No. Ct. 406 Berlin; Fig. 4 a—b.

Type horizon: Grey, bedded, compact limestone, 12 m below upper boundary of Upper Devonian; Lower *P. marginifera* zone, according to conodont stratigraphy.

Type locality: Old quarry at Grosser Buschteich, SW of Rödersdorf; Zeulenroda sheet, Thuringia.

Derivation of the name: *media*, Lat. *media* = middle; because of the position within the phylogenetic series of *P. glabra*.

Diagnosis. — Subspecies of *P. glabra* with platform slightly deflected at growth centre and inclined towards inner side. Crest composed of discrete nodes.

Material. — Over 100 specimens from various places in Thuringia, Harz and Holy Cross Mountains (Łagów).

Description. — Platform conodont with comparative high blade. Crest consisting of discrete nodes, slightly bent inwards. Platform deflected at growth centre and inclined inwards. Beyond growth centre, the upper surface of platform becomes flat or very weakly depressed. Lower surface with distinct keel and small basal cavity in anterior part of platform.

Remarks. — The new subspecies differs from the nominal subspecies in having lower crest, divided into single nodes and in having the platform flattened or shallowly depressed.

Intermediating forms are assigned to the nominal subspecies. In upper part of Lower *P. marginifera* zone in Thuringia, forms are found with not numerous, transverse ribs in the anterior deflected part of the platform. Such forms were also reported by Ziegler (1962, p. 89), when describing *P. glabra bilobata*.

Distribution. — Germany: Thuringia, Saxony, Harz. Poland: Holy Cross Mountains (Łagów). Lower *P. marginifera* zone, according to the conodont chronology. The first author's comparative collection shows that this subspecies is also present in Sardinia.

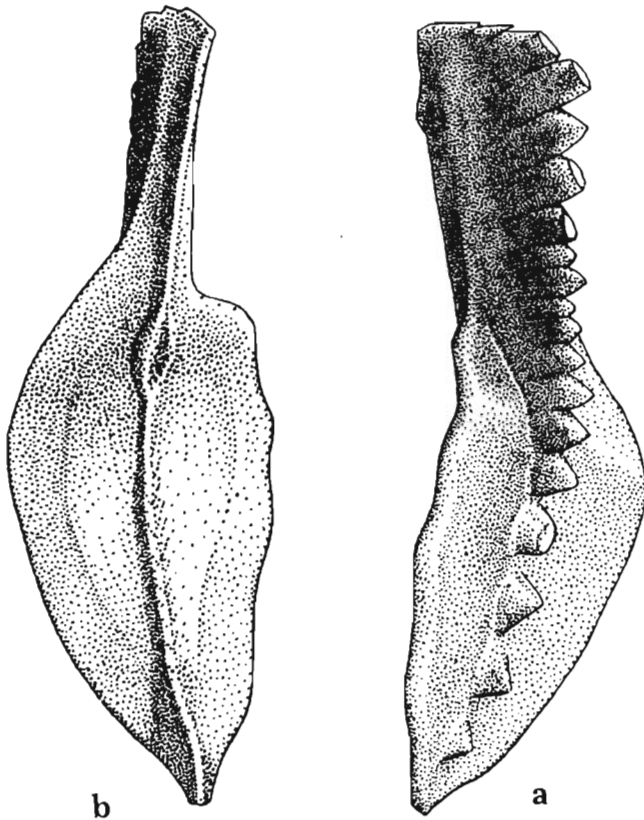


Fig. 4. — *Polygnathus glabra media* n.subsp., holotype, No. Ct. 406 Berlin, quarry at Grosser Buschteich, Thuringia, Famennian (Lower *P. marginifera* zone); a upper-lateral surface, a lower surface; $\times 90$.

Polygnathus lagowiensis n. sp.

(Fig. 5 a—b)

Holotype: Specimen No. Z. Pal. P./C. II/1; Fig. 5 a—b.

Type horizon: "Sacculus bank"? with *Cheiloceras lagowiense* Gürich and *Dimeroceras lentiforme* Sandberger, to II β ; limestone contains mixed conodont fauna from the Uppermost *P. rhomboidea* and Upper *P. marginifera* zones.

Type locality: Outcrop on NW of Łagów-Dule, Holy Cross Mountains.

Derivation of the name: *lagowiensis* — after the type locality Łagów.

Diagnosis. — Very variable species of genus *Polygnathus*; upper surface of platform irregularly granulated (diameter of grains 0.02—0.025 mm).

Material. — Seventy five specimens.

Description. — Conodont with lancet-shaped to blade-like platform. Free blade comparatively high. Crest lowering backwards. Platform pointed at posterior end, covered with grains, 0.02—0.025 mm in diameter.

A narrow band, devoid of granulation, continues along the crest. A strong keel runs throughout the lower surface of vaulted conodont. Basal cavity elongated, with swollen edges. Crimp comparatively wide.

Remarks. — The blade, crest and platform show great variability. The extreme variants are characterized by a low crest and broad platform, or high crest and narrow platform. The new species differs from *P. glabra* in the sculpture of platform. Most probably, there exists a

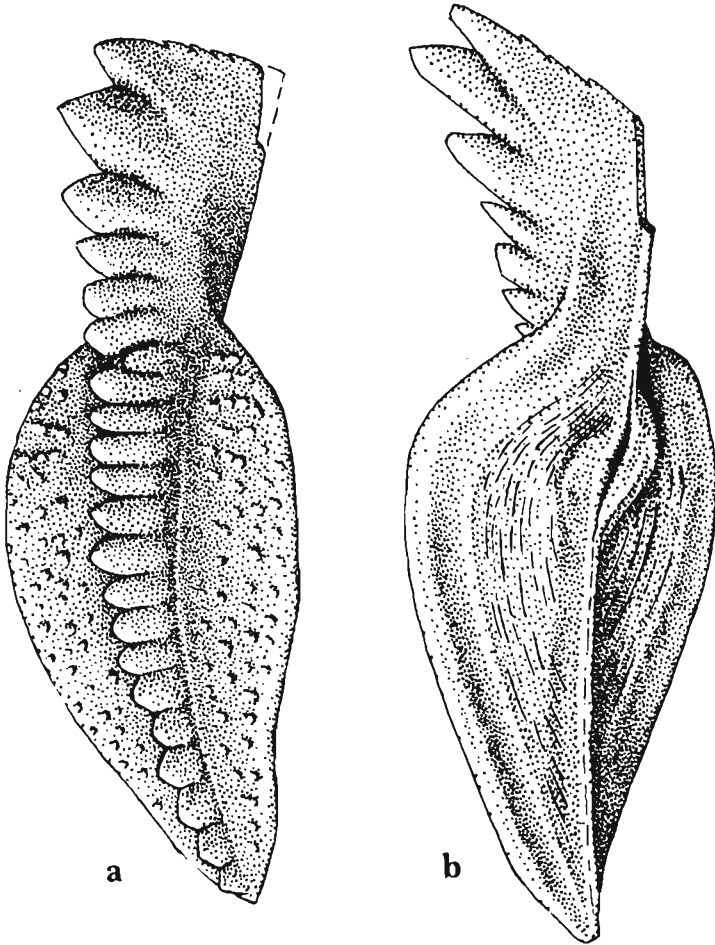


Fig. 5. — *Polygnathus lagowiensis* n.sp., holotype, No. Z. Pal. P./C. II/1, Łagów-Dule, Holy Cross Mountains, Famennian; a upper surface, b lower surface; $\times 90$.

close relation between the new species and *P. sublatus* Ulrich & Bassler, 1926. Their detailed analysis, however, is not possible, as Ulrich and Bassler illustrated only one, adult specimen.

Distribution. — A more precise determination of the stratigraphic age of *P. lagowiensis* n.sp. in Łagów is impossible, because the fauna is here mixed as a result of the stratigraphic condensation. *P. lagowiensis*

n. sp. is rare in Thuringia and occurs on the boundary between *P. marginifera* and *S. velifera* zones. It occurs together with *P. glabra bilobata* Ziegler, *P. diversa* Helms and *S. velifera* Helms.

According to the data from the comparative collection in the possession of first author, the new species is numerous and occurs together with *P. glabra bilobata* in South Ural (Verkhneuralsk). This form has, however, a broader platform than that from Poland. The new species undoubtedly occurs in Upper *P. marginifera* zone and also probably in the upper part of *P. rhomboidea* zone and in Lower *P. marginifera* zone.

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JOCHEN HELMS & ZDZISŁAWA WOLSKA

NOWE GÓRNO-DEWOŃSKIE KONODONTY Z POLSKI I NIEMIEC

Streszczenie

W roku 1962 drugi autor przystąpił do opracowywania górno-dewońskich konodontów Polski. W czasie jego pobytu w 1965 r. w Instytucie Paleontologii i Muzeum

przy Uniwersytecie im. Humboldta w Berlinie, NRD, na 3-tygodniowym stypendium Polskiej Akademii Nauk, okazało się, że pierwszy autor posiada podobne materiały oraz identyczne gatunki w opracowywaniu; w związku z tym, autorzy postanowili wyodrębnić nowe gatunki i opracować je wspólnie.

Materiały niemieckie pochodzą z Turynгии (Kapfenberg, Oettersdorf, Schleiz, Grosser Buschteich), zaś polskie — z Gór Świętokrzyskich (Gałęzice, Jabłonna, Łągów). Ponadto w Instytucie Paleontologii i Muzeum w Berlinie znajdują się materiały porównawcze z Gór Świętokrzyskich, Moraw, z Sardynii i południowego Uralu.

Opisano 4 nowe gatunki i 1 nowy podgatunek.

Holotypy *Nothognathella postsublaevis* n.sp., *Polygnathus dissimilis* n.sp., *P. fallax* n.sp. i *P. glabra media* n.subsp. znajdują się w Berlinie, w Instytucie Paleontologii i Muzeum przy Uniwersytecie im. Humboldta, a holotyp *Polygnathus lagowiensis* n.sp. — w Pracowni Paleozoologii PAN w Poznaniu.

Występowanie stratygraficzne wyżej wymienionych gatunków przedstawiono na tabeli 1.

ИОЖЕН ГЕЛЬМС & ЗДЗИСЛАВА ВОЛЬСКА

НОВЫЕ ВЕРХНЕДЕВОНСКИЕ КОНОДОНТЫ ИЗ ПОЛЬШИ И ГЕРМАНИИ

Резюме

В 1962 году, второй автор начал изучать верхнедевонские конодонты Польши. Во время его пребывания в 1965 г., на 3-недельной стипендии Польской Академии Наук, в Институте Палеонтологии и Музее при Университете им. Гумбольдта в Борлине, ГДР, оказалось, что первый автор имеет похожие материалы и изучает идентичные виды; в связи с тем, авторы решили выделить общие им новые виды и изучать их совместно.

Германские материалы происходят из Турингии (Капфенберг, Оеттерсдорф, Шляйц, Гроссер Буштайх), а польские — из Свентокржиских Гор (Галэнзице, Яблонна, Лагув). Кроме того, в Институте Палеонтологии и Музее в Берлине находятся сравнительные материалы из Свентокржиских Гор, Моравии, Сардинии и южного Урала.

Описано 4 новые вида и 1 новый подвид.

Голотипы *Nothognathella postsublaevis* n. sp., *Polygnathus dissimilis* n. sp., *P. fallax* n. sp., *P. glabra media* n. subsp. находятся в Берлине, в Институте Па-

леонтологии и Музее при Университете им. Гумбольдта, а голотип *Polygnatus lagowiensis* n. sp. — в Палеозоологической Лаборатории Польской Академии Наук в Познане.

Стратиграфическое распространение выше упомянутых видов представлено на Табл. 1 (стр. 228).
