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The Carboniferous of the Chojnice area (Western Pomerania)

ABSTRACT: The Lower Carboniferous observed in boreholes in the Chojnice region of Western Pomerania (NW Poland) is discussed. Strunian, Tournaisian and Lower Viséan deposits have been macrofaunistically determined.

INTRODUCTION

A number of deep boreholes have been drilled in the Koszalin-Chojnice zone by the Oil Research Enterprise of Piła in which Carboniferous sediments represented by various stratigraphic members underlie the Zechstein deposits.

The present paper deals with the borehole profiles from the Chojnice region (Babilon *1*, Brda *1, 2*, Rzeczenica *1* and Biały Bór *1, 3*) where only the lower members of the Carboniferous (Figs 1–2) have been encountered.

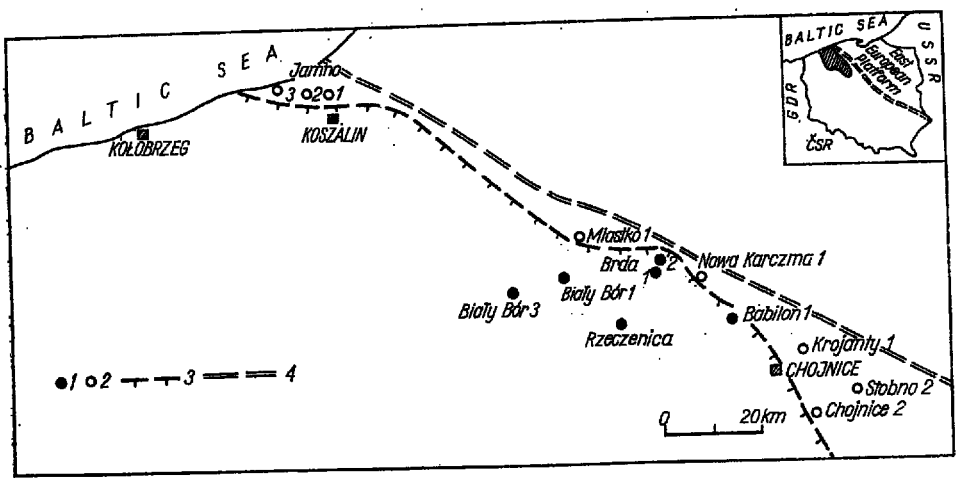


Fig. 1. Sketch map of boreholes with Carboniferous sediments in the Chojnice area
1 — boreholes with Carboniferous sediments, 2 — boreholes with sediments older than Carboniferous, 3 — extent of Carboniferous sediments under the Zechstein, 4 — Tornquist line

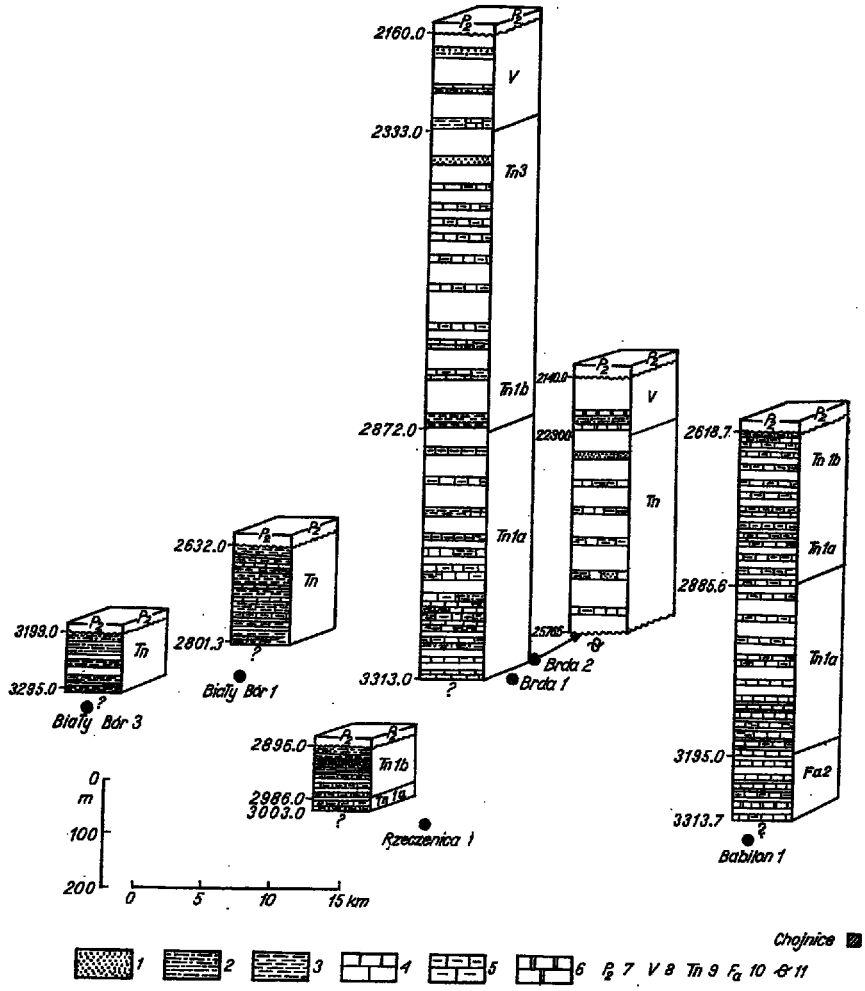


Fig. 2. Columns of Carboniferous sediments of the Chojnice area

1 — sandstone, 2 — siltstone, 3 — claystone, 4 — limestone, 5 — marly limestone, 6 — dolomite, 7 — P_2-Zechstein, 8 — V-Viséan, 9 — Tn-Tournaisian, 10 — Fa-Famennian, 11 — O-Ordovician

In the Babilon *1* profile (Korejwo 1975) the Famennian — in the Brda 2 profile the Ordovician deposits — underlie the Dinantian, while the bottom of the Carboniferous sediments has not been pierced in the remaining boreholes.

The Carboniferous stratigraphy is based on the macrofauna. The trilobites have been identified by H. Osmólska, the brachiopods by H. Matyja (1974, 1975a, b, 1976), the remaining fauna by the present writer.

The profiles have been currently described during the drilling operations or at the core storage places in Piła; the samples have been worked out at the Stratigraphic Laboratory of the Institute of Geological Sciences of the Polish Academy of Sciences as per the agreement concerning scientific co-operation between the Oil Research Survey and the above named Institute. The documentary materials are kept in the Laboratory of the Institute.

The writer's most sincere thanks are tendered to the Managers of the Oil Research Survey and of the Oil Prospecting Enterprise at Piła for their friendly co-operation and the access to their materials and archival data. Dr. L. Teller must be thanked for his valuable critical remarks and discussions on problems connected with the present paper.

CARBONIFEROUS STRATIGRAPHY

The stratigraphy of the Dinantian is based on macrofaunal fossils found in the particular cored intervals.

There is a fair abundance of brachiopods which are being worked out in detail by H. Matyja. The results will be published in a separate monograph. The data, so far obtained (Matyja 1974, 1975a, b, 1976), show that most of the species have a rather long vertical range hindering an accurate subdivision of the various stratigraphic members. The conodont remains, which have proved most useful in this line and which are also being worked out by H. Matyja, occur only in some intervals of certain profiles.

The remaining fauna is represented by lamellibranchs and gastropods inadequately preserved which hinders their specific identification. There are also sporadical trilobites and more closely indeterminate goniatite fragments, while ostracods are encountered only as moulds.

The above, together with incomplete coring (Table 1) makes it hardly possible accurately to determine the boundaries of the particular stratigraphic members within the Dinantian of the Chojnice region. These boundaries have been arbitrarily fixed on the now available faunistic data and on an analysis of the electric logging results.

It may be reasonably hoped that the data now available will become more accurate upon the completion by H. Matyja of her brachiopod and conodont studies, also on taking into account the results of the palynological researches now undertaken by E. Turnau.

Table 1

Borehole	Depth of the Carboniferous (m)	Total thickness (m)	Coring	
			m	%
Babilon *1*	2618.7—3195.0	576.3	126.5	21.9
Rzeczenica *1*	2896.0—3003.0	108.0	31.8	29.4
Brda *1*	2160.0—3313.0	1153.0	125.2	10.8
Brda *2*	2140.0—2576.5	436.5	41.8	9.3
Biały Bór *1*	2632.0—2801.0	169.3	118.5	69.9
Biały Bór *3*	3199.0—3295.0	96.0	25.0	26.0

THE STRUNIAN (Tn1a)

When discussing the stratigraphy of the sub-Zechstein sediments from the Babilon *1* profile, the term Strunian (now somewhat obsolete in the literature) has been used by the present writer as the age equivalent of the Etroeungt strata (Tn1a of the Belgian subdivision), suggesting their assignment to the Carboniferous (Korejwo 1975). Since the present paper is a complimentary continuation respecting the occurrence of the Carboniferous in the Chojnice region, the term Strunian is being retained without going into further details. The problem of the Strunian and its age still remains a controversial question. It should be mentioned here that, in the subdivision of the Soviet Union Carboniferous, valid since 1974, the Etroeungt beds have been included into the Tournaisian (Rotay & Stepanov 1975) while the lower boundary of the Carboniferous system has been placed at the base of the Wocklumeria Zone in the cephalopod facies and the Etroeungt beds and their equivalents in the coral-brachiopod facies.

Sediments referable to the Strunian have been encountered in the profiles Babilon *1*, Brda *1* and Rzeczenica *1* in the Chojnice region.

In the profile Babilon *1* the Strunian deposits are of considerable thickness and directly overlie the Famennian. They contain a rich interesting faunal assemblage previously not reported from Poland (Korejwo 1975; Matyja 1975a, 1976).

In the profile Brda *1* the Strunian deposits occur at a depth between 3313.0 and 2872.0 m without being pierced.

In its bottom part (3313.0—3302.5 m) they are represented by light-grey slightly sandy limestones containing carbonised flora detritus, fragments of crinoids and of more closely indeterminate brachiopods. Higher up, to the depth of 3077.0 m there occur grey and beige crystalline limestones with crinoids, or dark marly limestones with subordinate intercalations of calcareous mudstones and siltstones. From among the brachiopods those identified by Matyja (1974, 1976) are: *Leptagonia analoga* (Phill.), *?Schelwienella pauli* (Gallw.), *Steinhagella membranacea* (Phill.), *Composita struniana* (Deheé), *Sphenospira julii* (Deheé), *Eobrachythyris strunianus strunianus* (Goss.), *Kitakamithyris microgemma* (Phill.), *Torynifer cooperensis* (Swall.).

Other faunal remains here present are:

Nuculopsis sp. — Pl. 1, Fig. 2
Mytilarca sp. *a*
Leptodesma cf. *laminosa* (Phill.) — Pl. 2, Fig. 7
Leptodesma sp.*a* — Pl. 2, Figs 4, 5
Spathella cf. *typica* Hall — Pl. 3, Fig. 2
Schizodus aequilateralis (McCoy) — Pl. 3, Fig. 6
Edmondia sp.
Bellerophon cf. *costatus* Sow. — Pl. 5, Fig. 6

Still higher up at a depth between 3058.0—2900.0 m there are marly limestones intercalated by calcareous mudstones and thin interbeddings of crystalline limestones with crinoids in the top layers. These deposits have an extremely rich fauna. The brachiopods are represented by such species as *Schelwienella burlingtonensis* Weller, *Whidbornella pauli radiata* (Goldr.), *Cleiothyridina royssii* (Eveillé), *Composita struniana* (Deheé), *Eobrachythyris strunianus strunianus* (Goss.) (Matyja 1974, 1976).

The lamellibranchs and gastropods occur in great abundance:

Parallelodon cf. *squamosus* (de Kon.) — Pl. 1, Fig. 13
Mytilarca sp. *a* — Pl. 2, Figs 1, 2
Aviculopecten sp. — Pl. 2, Fig. 9
?Limoptera sp. — Pl. 2, Fig. 11
Posidonia (Posidonia) cf. *protobecheri* Sad. — Pl. 2, Fig. 8
Spathella cf. *typica* Hall — Pl. 3, Fig. 1
Edmondia senilis (McCoy) — Pl. 4, Figs 1, 2
Edmondia cf. *sulcata* (Flem.) — Pl. 3, Fig. 12

Grammysia omaliana omaliana (de Kon.) — Pl. 4, Fig. 3
Glossites cf. depressus Hall — Pl. 4, Fig. 5
Sanguinolites plicatus (Portl.) — Pl. 4, Figs 10, 11
Sanguinolites striatolamellosus (de Kon.) — Pl. 5, Fig. 1
Knightites (Retispira) cf. striata (Flem.)
Straparollus (Straparollus) cf. dionysii Montf. — Pl. 5, Fig. 8; Pl. 6, Figs 3, 4
Porcellia cf. woodwardi (Sow.) — Pl. 6, fig. 2
Porcellia cf. puzo Lev. — Pl. 5, Fig. 7

The presence has also been noted of:

Reticycloceras cf. sulcatum (Flem.) — Pl. 6, Fig. 10
Phacops sp. — Pl. 7, Fig. 7

An identical assemblage of brachiopods, lamellibranchs and gastropods has been found in the profile Babilon *1*. When analysing the vertical range of brachiopods in Brda *1* and Babilon *1* profiles (Matyja 1974, 1975a, 1976), as well as that of the remaining faunal fossils (Korejwo 1975) it is reasonably supposed that the deposits, reached in the Brda *1* profile between 3313.0 and 2900.0 m, also those from Babilon *1* in the interval of 3195.0—2885.0 m and higher up, represent the Tn1a sediments.

Deposits above the Tn1a sediments are referable to the upper members of the Tournaisian. Their base pierced by a rock bit has been arbitrarily placed at a depth of 2872.0 m.

In profile Rzeczenica *1* below the upper Tournaisian members, Strunian deposits have been pierced in the interval between 3003.0 and 2986.0 m. These are developed as dark-grey marly limestones intercalated by calcareous mudstones and grey compact limestones with thin (up to 1 cm) intercalations of crinoidal limestone. Most of the faunal remains identified by Matyja (1975b, 1976) represent such brachiopods as: *Aulacella interlineata* (Sow.), *Leptagonia analoga* (Phill.), *Crurithyris unionensis* (Weller), *Mucrospirifer* cf. *roemerianus* (de Kon.), ?*Unispirifer "tornacensis"* (de Kon.), *Eobrachythyris strunianus alatus* (Goss.), *Kitakamithyris* cf. *microgemma* (Phill.).

The remaining fauna is represented by:

Nuculoidea sp. — Pl. 1, Figs 4, 5
Palaeoneilo cf. sinuosa (de Kon.) — Pl. 1, Figs 7, 9
Parallelodon semicostatus (McCoy)
Parallelodon cf. squamosus (de Kon) — Pl. 1, Figs 14, 15
Mytilarca sp. *a* — Pl. 2, Fig. 3
?*Leptodesma* sp. — Pl. 2, Fig. 6
?*Posidonia* sp. — Pl. 2, Fig. 10
Spathella cf. typica Hall
Scaldia cf. lambotteana Ryckh. — Pl. 3, Figs 9, 10
Grammysia sp. — Pl. 4, Fig. 6
Sanguinolites plicatus (Portl.) — Pl. 4, Fig. 9
Sanguinolites striatolamellosus (de Kon.)
S. cf. luxurianus de Kon — Pl. 5, Figs 3, 4
Palaeozygopleura sp. — Pl. 6, Figs 8, 9
Clymeniida gen. et spec. indet. — Pl. 7, Fig. 1
Phacops sp. — Pl. 7, Figs 8, 9

The whole assemblage mentioned above strongly resembles that encountered in deposits of analogous age in profiles Brda *1* and Babilon *1*.

THE TOURNAISIAN

Tournaisian deposits (sensu Heerlen 1935) have been observed overlying the Ordovician in profile Brda *2* and above the Strunian in profiles Brda *1** and Rze-

* The preliminary stratigraphy of the upper part of the Brda *1* profile has been worked out in 1968 (Korejwo & Teller).

czenica *1*, probably also in that of Babilon *1*. In the latter profile the writer was hardly able undoubtedly to determine the Tn1a/Tn1b boundary. Moreover, Tournaisian deposits have been reached directly underlying the Zechstein in profiles Biały Bór *1* and *3*.

In the profile Brda *1* sediments between 2872.0 and 2333.0 m have been assigned to the Tournaisian.

In the interval between 2855.0 and 2718.0 m these are represented by marly limestones with crinoids or somewhat sandy limestones intercalated by calcareous mudstones. They contain carbonised fragments of flora and an abundant fauna. From among the brachiopods Matyja (1974, 1976), has observed the presence of *Schizophoria* sp., *Crurithyris unionensis* (Weller) and *Eobrachythyris strunianus strunianus* (Goss.).

Other identified faunal fossils are as follows:

Nuculopsis aff. *gibbosa* (Flem.) — Pl. 1, Fig. 3
Palaeoneilo cf. *sinuosa* (Ryckh.) — Pl. 1, Figs 6, 8
Parallelodon interruptus (de Kon.) — Pl. 1, Fig. 10
Parallelodon sp.
Pernopecten cf. *concentricum* (Hind) — Pl. 3, Fig. 8
Streblopteria sp.
Schizodus cf. *aequilateralis* (McCoy) — Pl. 3, Figs 3—5
Scaldia cf. *lambotteana* Ryckh. — Pl. 3, Fig. 11
Sanguinolites striatus Hind — Pl. 4, Figs 7, 8
S. cf. *portlocki* de Kon. — Pl. 5, Fig. 2
Bellerophon cf. *meeki* de Kon.
Porcellia cf. *wooëwardi* (Sow.) — Pl. 6, Fig. 1
Goniatitida gen. et spec. indet. — Pl. 6, Fig. 11; Pl. 7, Fig. 5
Phillibole sp. — Pl. 7, Fig. 10
Moschoglossis sp. — Pl. 8, Fig. 10

Most of the species mentioned above has a long vertical range (from the Strunian to the Visean), however, the presence of the trilobite genera *Phillibole* and *Moschoglossis* indicates that the deposits from the depth here considered are doubtless younger than Strunian. Genus *Moschoglossis* occurs exclusively in the Tournaisian (beginning from Tn1b), similarly as the genus *Phillibole* which is characteristic rather of the Upper Tournaisian (Gandl 1970, Osmólska 1970).

In the higher intervals 2682.0—2677.0 m and 2616.0—2611.0 m the dark marly limestones intercalated by lighter crystalline limestones have yielded — besides fairly numerous ostracod moulds and fragmentary single corals — only:

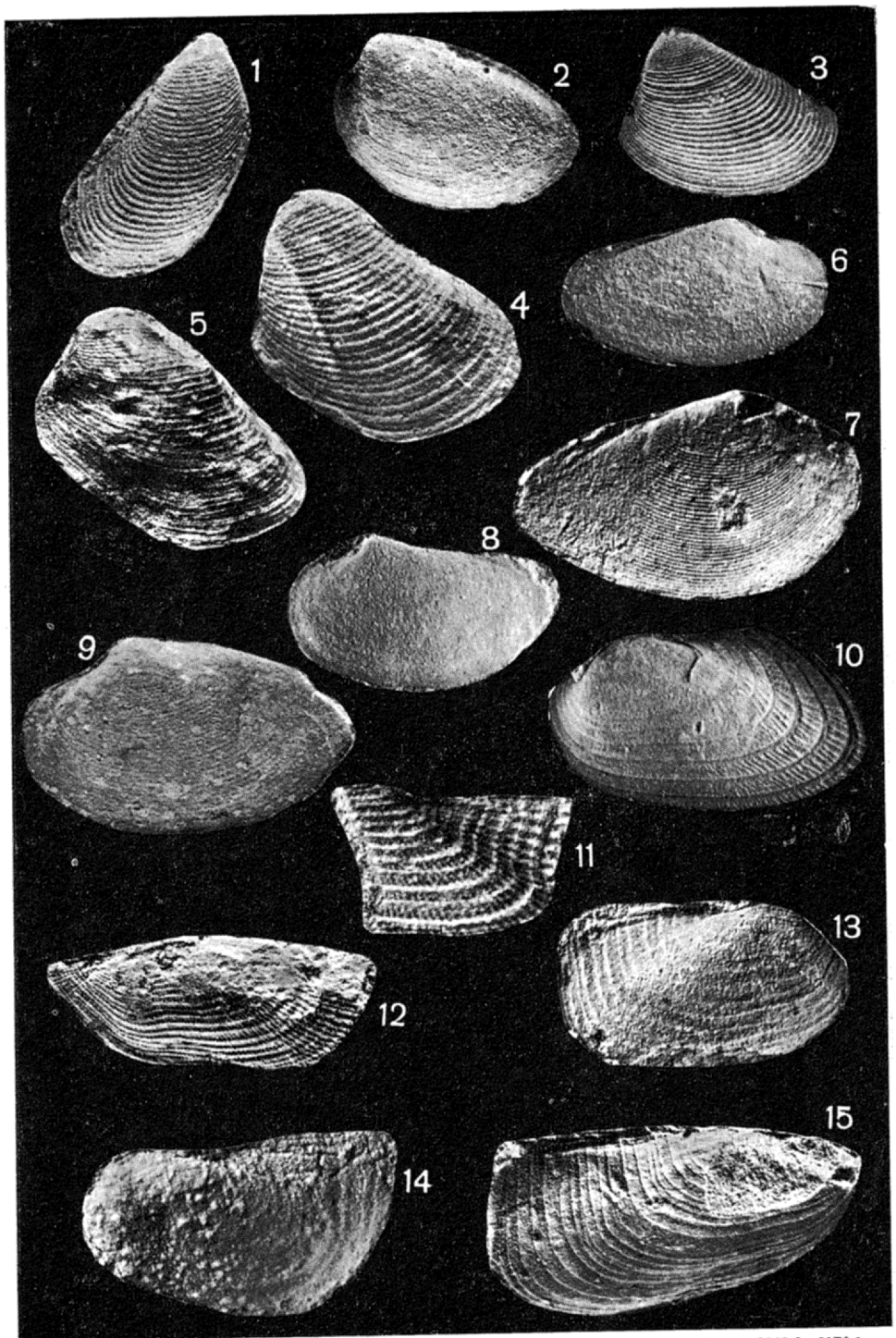
Schelwienella crenistria (Phill.)
Pernopecten cf. *concentricum* (Hind) — Pl. 3, Fig. 7
Moschoglossis sp. — Pl. 8, Figs 6—8

A fairly abundant fauna has been observed in several cores from the depth between 2563.5 and 2496.0 m, represented by grey crystalline limestones containing very numerous crinoids and ostracods, also by dark marly limestones with thin mudstone intercalations. Of the brachiopods there have been encountered: *Schizophoria resupinata rotundata* Dem., *Schuchertella portlockiana* (Semen.), *Sch. semenovi* Sok., *Rugosochonetes malevkensis* Sok., *Pustula* sp., *Brachythyris* aff. *suborbicularis* Hall.

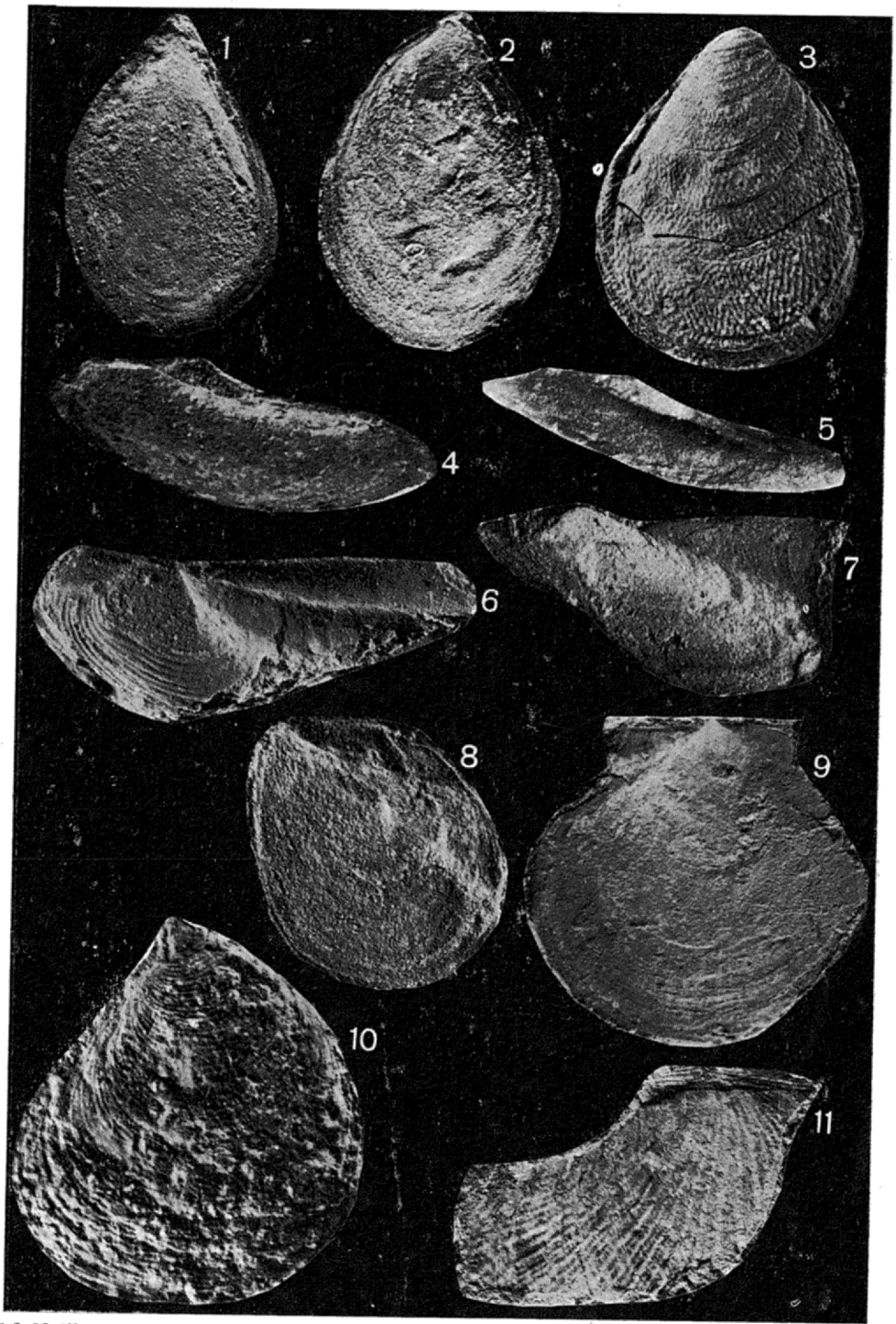
The other faunal remains that have been identified here are:

Conocardium truncatum (de Kon.) — Pl. 5, Fig. 5
Straparollus (Straparollus) planorbiformis (de Kon.) — Pl. 5, Fig. 9
Naticopsis sp.
Cummingella cf. *brevicauda* (Goldf.) — Pl. 8, Fig. 9
Cummingella sp. — Pl. 8, Figs 4, 5

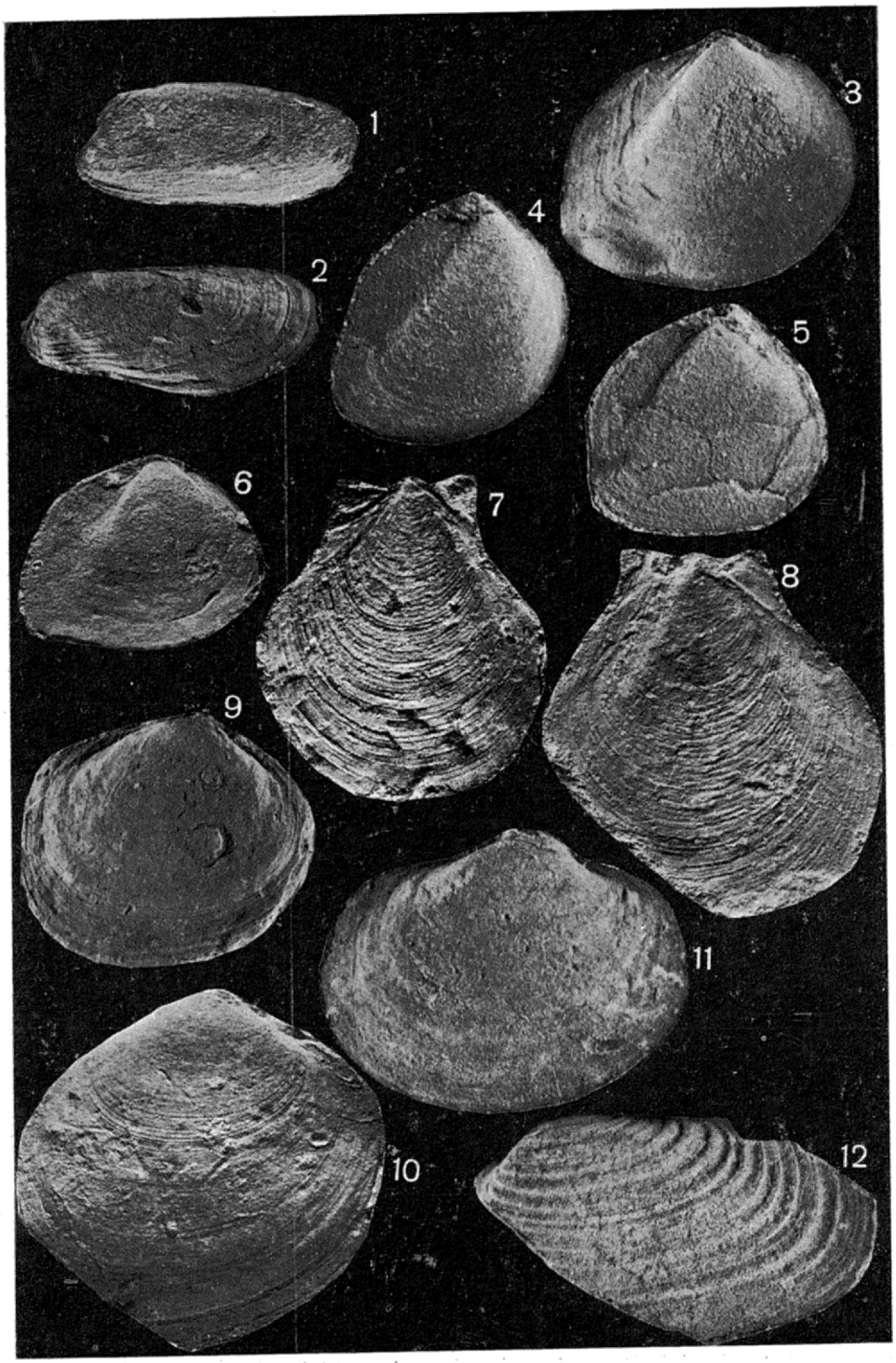
Most of the brachiopod species here mentioned are characteristic of the Tournaisian, partly of the Viséan (Matyja 1974, 1975a, 1976). The trilobite *Cummingella*



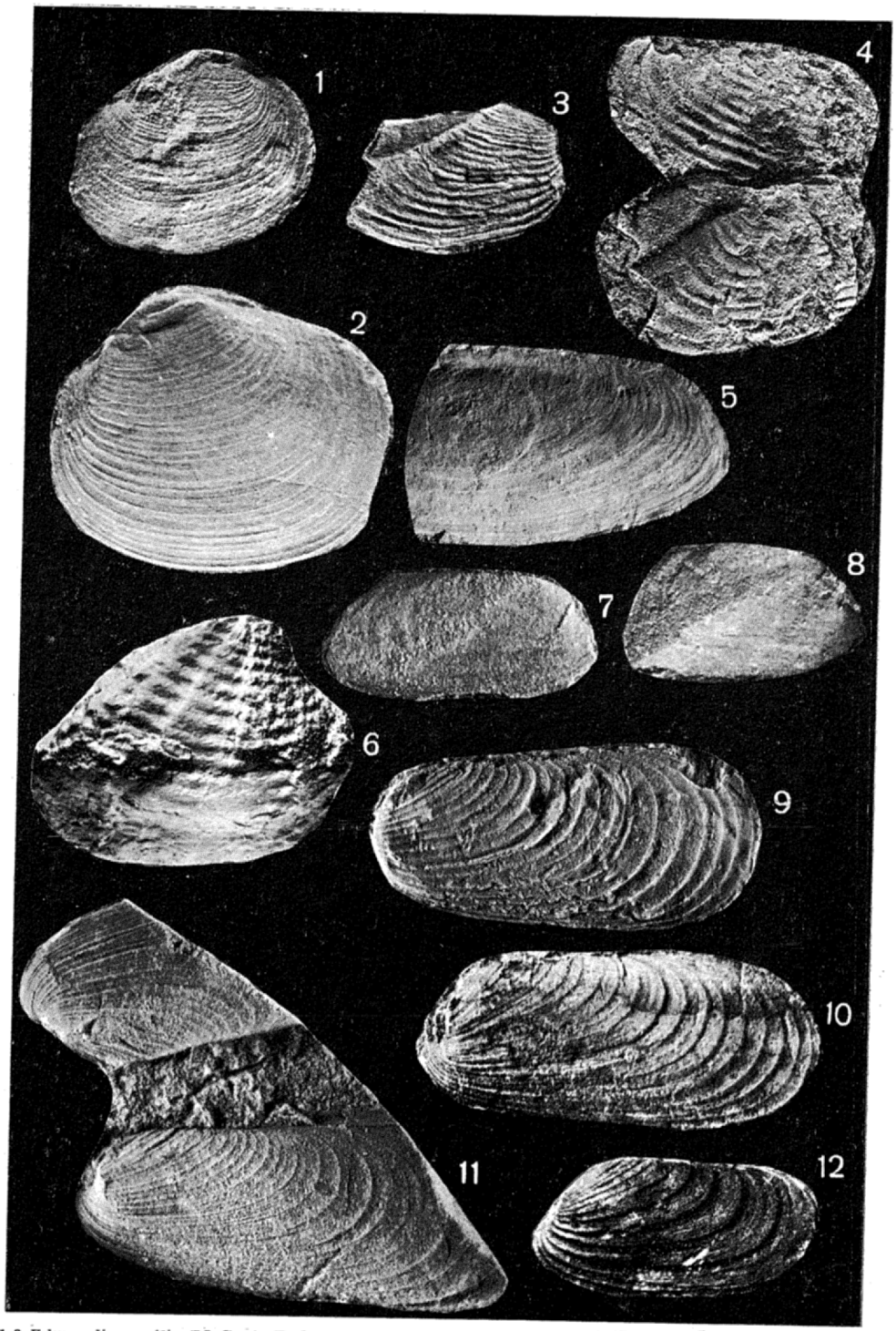
1 *?Nuculopsis* sp.; Rzeczenica *1*, 2946.5—2950.6 m, ×6. 2 *Nuculopsis* sp.; Brda *1*, 3168.0—3174.0 m, ×4. 3 *Nuculopsis* aff. *gibbosa* (Flem.); Brda *1*, 2849.0—2855.0 m, ×8.
4-5 *Nuculoidea* sp.; Rzeczenica *1*, 2999.0—3003.0 m; 4 ×8, 5 ×4.
6-9 *Palaeoneilo* cf. *sinuosa* (Ryckh.); 6, 8 Brda *1*, 2849.0—2855.0 m, 6 ×8, 8 ×6; 7, 9 Rzeczenica *1* 2999.0—3003.0 m; 7 ×6, 9 ×8.
10 *Parallelodon interruptus* (de Kon.); Brda *1*, 2849.0—2855.0 m, ×6. 11-12 *Parallelodon semicostatus* (McCoy); Rzeczenica *1;* 11 2916.0—2920.7 m, ×7; 12 2977.0—2983.2 m, ×5. 13-15 *Parallelodon* cf. *squamosus* (de Kon.); 13 Brda *1*, 2959.0—2965.0 m, ×7; 14—15 Rzeczenica *1*, 2999.0—3003.0 m; 14 ×8, 15 ×5.



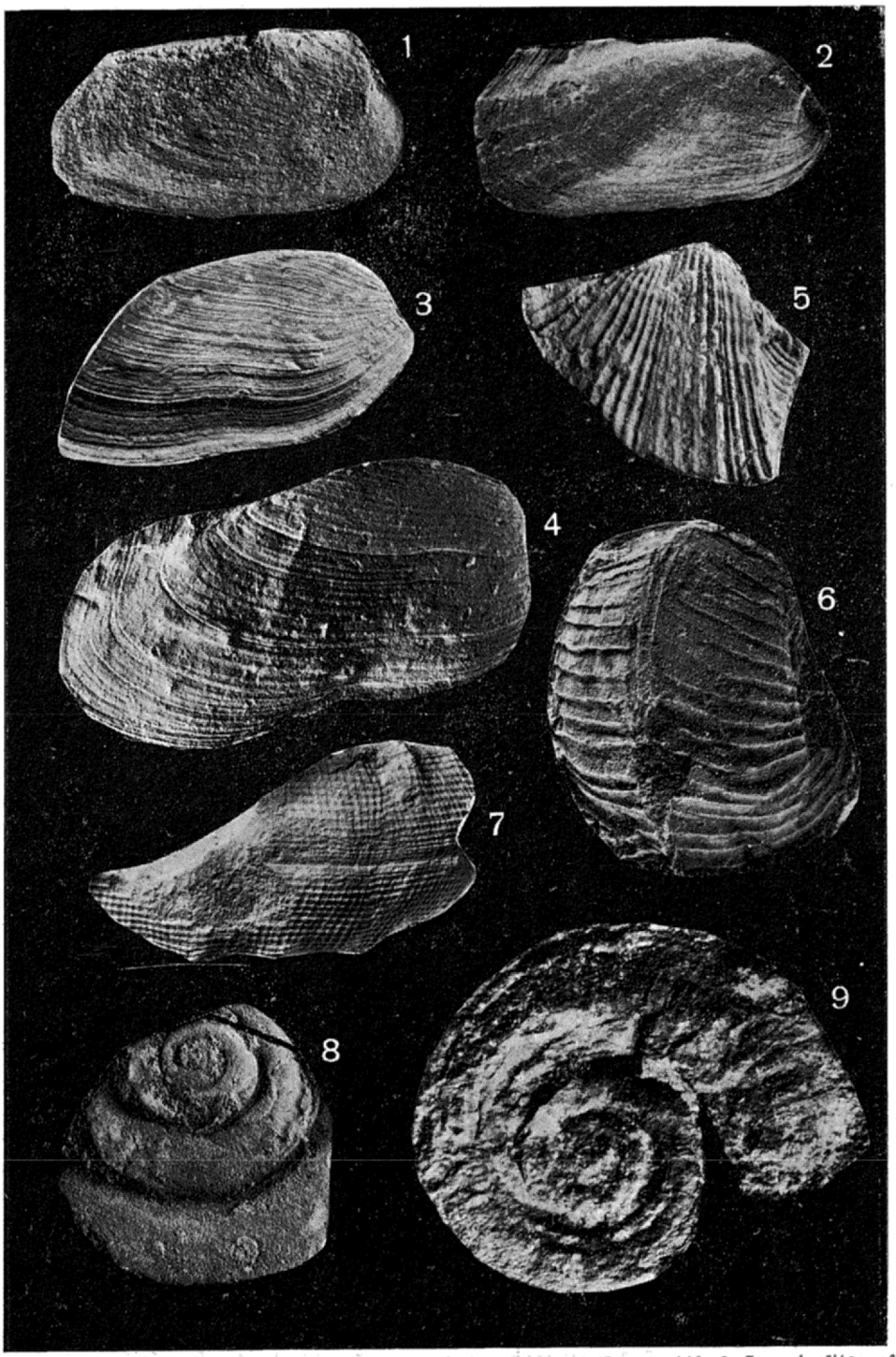
1-3 *Mytilarca* sp. *a;* 1—2 Brda *1,* 3016.0—3022.0 m, ×4; 3 Rzeczenica *1,* 2999.0—3003.0 m, ×4.
4-5 *Leptodesma* sp. *a;* Brda *1,* 3201.0—3204.0 m, ×5. **6** *?Leptodesma* sp.; Rzeczenica *1,* 2999.0—3003.0 m, ×4. **7** *Leptodesma* cf. *laminosa* (Phill.); Brda *1,* 3201.0—3204.0 m, × 4.
8 *Posidonia (Posidonia)* cf. *protobecheri* Sad.; Brda *1,* 3016.0—3022.0 m, ×5.
9 *Aviculopecten* sp.; Brda *1,* 2959.0—2965.0 m, ×3.
10 *?Posidonia* sp.; Rzeczenica *1,* 2999.0—3003.0 m, ×4.
11 *?Limoptera* sp.; Brda *1,* 3016.0—3022.0 m, ×1.5.



1-2 *Spathella* cf. *typica* Hall; Brda *1*; 1 3016.0—3022.0 m, ×4; 2 3196.0—3201.0 m, ×2.5.
3-5 *Schizodus* cf. *aequilateralis* (McCoy); Brda *1*, 2849.0—2855.0 m; 3 ×7, 4 ×8, 5 ×10.
6 *Schizodus aequilateralis* (McCoy); Brda *1*, 3168.0—3174.0 m, ×3.
7-8 *Pernopecten* cf. *concentricum* (Hind); Brda *1*; 7 2611.0—2616.0 m, ×3; 8 2718.0—2723.0 m, ×4.
9-11 *Scaldia* cf. *lambotteana* Ryckh.; 9—10 Rzeczenica *1*, 2999.0—3003.0 m; 9 ×2, 10 ×3; 11 Brda *1*, 2771.5—2776.0 m, ×5.
12 *Edmondia* cf. *sulcata* (Flem.); Brda *1*, 2959.0—2965.0 m, ×3.

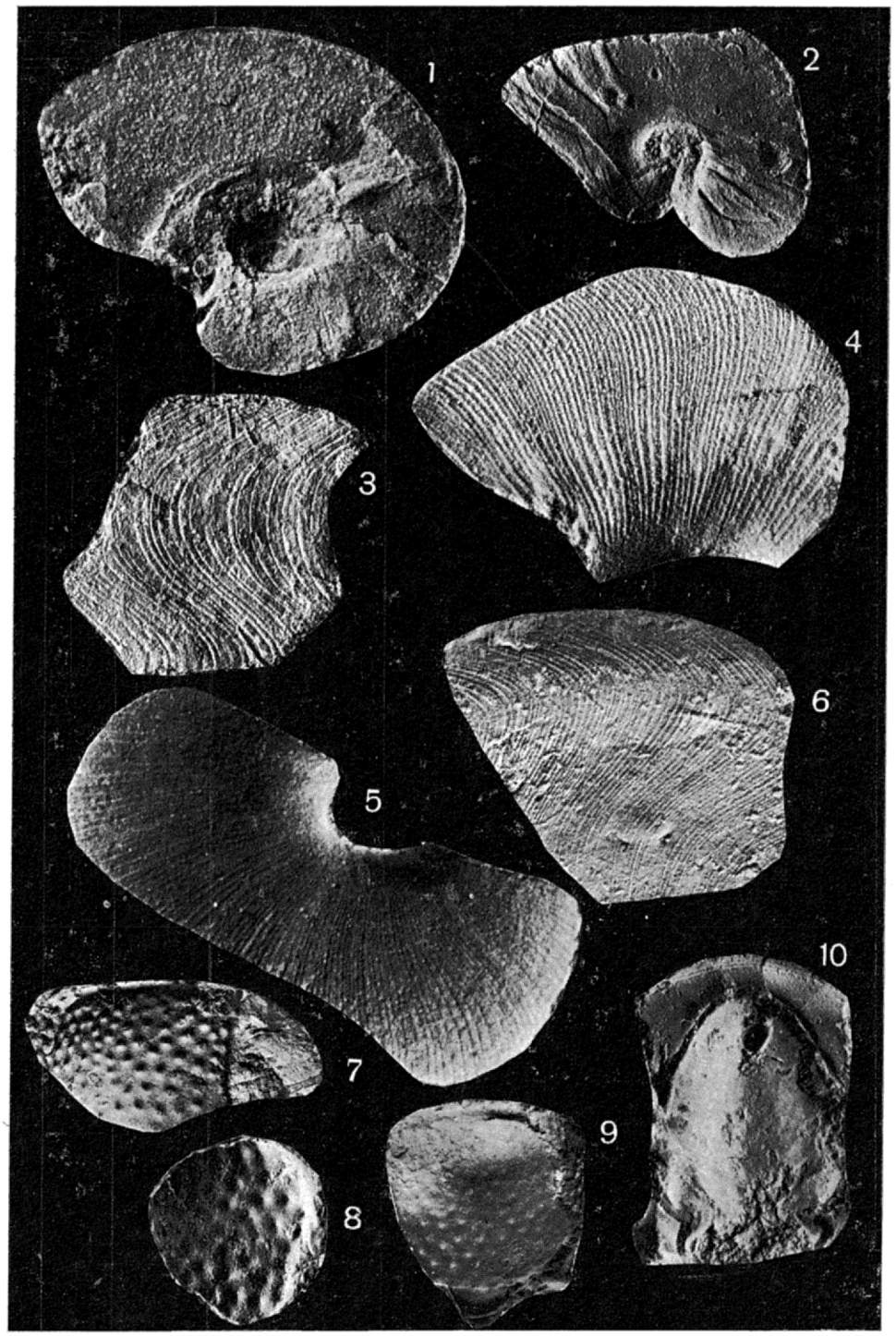


1-2 *Edmondia senilis* (McCoy); Brda *1*, 3056.0—3058.0 m; 1 ×5; 2 ×4.
3-4 *Grammysia omaliana omaliana* (de Kon.); 3 Brda *1*, 3056.0—3058.0 m, ×5; 4 Biały Bór *3*, 3211.0—3216.5 m, ×4.
5 *Glossites* cf. *depressus* Hall; Brda *1*, 3056.0—3058.0 m, ×1.
6 *Grammysia* sp.; Rzeczenica *1*, 2999.0—3003.0 m, ×4.
7-8 *Sanguinolites striatus* Hind; Brda *1*, 2849.0—2855.0 m, ×8. 9-11 *Sanguinolites plicatus* (Portl.); 9 Rzeczenica *1*, 2999.0—3003.0 m, ×2; 10—11 Brda *1*; 10 3016.0—3022.0 m, ×4; 11 3056.0—3058.0 m, ×5.
12 *Sanguinolites* sp.; Rzeczenica *1*, 2999.0—3003.0 m, ×4.

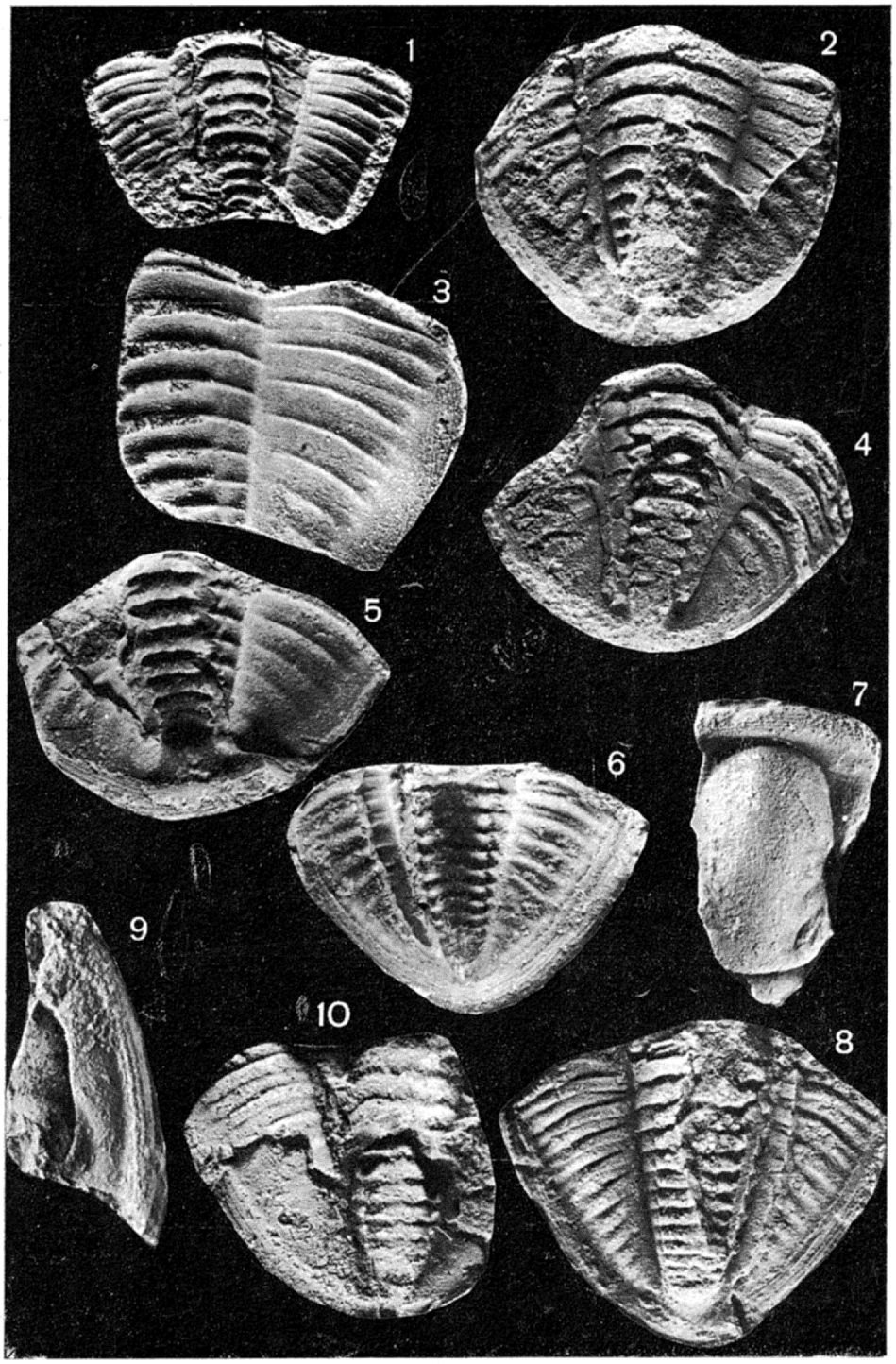


1 *Sanguinolites striatolamellosus* (de Kon.); Brda *1*, 2959.0—2965.0 m, ×6. 2 *Sanguinolites* cf. *portlocki* de Kon.; Brda *1*, 2849.0—2855.0 m, ×8. 3-4 *Sanguinolites* cf. *luxurianus* de Kon.; Rzeczenica *1*; 3 2990.0—2993.6 m, ×2; 4 2999.0—3003.0 m, ×3.
5 *Conocardium truncatum* de Kon.; Brda *1*, 2560.0—2563.5 m, ×5.
6 *Bellerophon costatus* Sow.; Brda *1*, 3168.0—3174.0 m, ×4.
7 *Porcellia* cf. *puzo* Lev.; Brda *1*, 2900.0—2906.0 m, ×2.5.
8 *Straparollus (Straparollus)* cf. *dionysii* Montf.; Brda *1*, 2959.0—2965.0 m, ×2.5. 9 *Straparollus (Straparollus) planorbiformis* de Kon.; Brda *1*, 2496.0—2501.0 m, ×3.

1-2 *Porcellia* cf. *woodwardi* (Sow.); Brda *1;* 1 2840.0—2846.0 m, ×3; 2 2900.0—2906.0 m, ×4.
3-4 *Straparollus (Straparollus)* cf. *dionysii* Montf.; Brda *1,* 2959.0—2965.0 m, ×3.
5 *Soleniscus* sp.; Brda *1,* 2319.0—2326.0 m, ×3.
6 *Straparollus (Euomphalus) catilliformis* (de Kon.); Brda *1,* 2319.0—2326.0 m, ×2.
7 *Palaeozygopleura* cf. *scalarioidea* (Phill.); Rzeczenica *1,* 2977.0—2983.0 m, ×3. 8-9 *Palaeozygopleura* sp.; Rzeczenica *1,* 2999.0—3003.0 m; 8 ×1.5; 9 ×3.
10 *Reticycloceras* cf. *sulcatum* (Flem.); Brda *1,* 2900.0—2906.0 m, ×2.5.
11 Goniatitida gen. et spec. indet.; Brda *1* 2849.0—2855.0 m, ×8.



1 Clymeniida gen. et spec. indet.; Rzeczenica *1*, 2990.0—2993.0 m, ×10.
2-6 Goniatitida gen. et spec. indet.; 2 Biały Bór *1*, 2786.8—2792.8 m, ×5; 3—4 Rzeczenica *1*, 2946.0—2950.6 m, 3 ×4; 4 ×8; 5 Brda *1*, 2849.0—2855.0 m, ×10; 6 Rzeczenica *1*, 2977.0—2983.2 m, ×5.
7-9 *Phacops* sp.; 7 Brda *1*, 2900.0—2906.0 m, × 3; 8—9 Rzeczenica *1*, 2999.0—3003.0 m, ×3.
10 *Phillibole* sp.; Brda *1*, 2718.0—2723.0 m, ×6.



1-2, 4-5 *Cummingella* sp.; 1—2 Brda *2*, 2538.0—2544.0 m, 1 ×4; 2 ×8; 4—5 Brda *1*, 2560.0—2563.5 m, 4 ×5; 5 ×6. 3 *Cummingella* cf. *brevicauda* (Goldr.); Brda *1*, 2560.0—2563.5 m, ×8. 6-8, 10 *Moschoglossis* sp.; Brda *1*; 6—8 2677.0—2682.0 m; 6 ×5; 7—8 ×6; 10 2718.0—2723.0 m, ×6. 9 *Bollandia* cf. *claviceps* (Burm.); Brda *1*, 2432.0—2433.0 m, ×4.

brevicauda (Goldr.) is known from the Tournaisian deposits (Tn1b — Tn3) of Belgium and France (Goldring 1958, Osmólska 1970).

The marly limestones with thin (up to 1 cm) intercalations of crinoidal or crystalline limestones from the intervals 2475.0—2469.0 m and 2433.0—2432.0 m have yielded — in addition to the remains of bryozoans, corals, crinoids and ostracod moulds — *Rhipidomella michelini* (Eveillé), *Schizophoria resupinata rotundata* Dem., *Aulacella whidbornei* (Gallw.), *Schuchertella semenovi* Sok., *Ovatia* cf. *laevicosta* (White), *Brachythyris rhomboidalis* (McCoy) and *Bollandia* cf. *claviceps* (Burm.) — Pl. 8, Fig. 9. Within this assemblage the trilobite *Bollandia* cf. *claviceps* (Burm.) may be regarded as an index form. It is known from the uppermost Tournaisian and the Viséan of Lower Silesia, also from the Moscow Basin and the Urals (see Osmólska 1970).

The next part of the Brda *1* profile, between a depth of 2387.5—2382.5 m is represented by light organogenous limestones with crinoids and fragmentary brachiopods i.a. *Schelwienella crenistria* (Phill.) and *Mucrospirifer roemerianus* (de Kon.) Higher up these limestones pass into grey-greenish finegrained calcareous sandstones, laminated by muddy material abounding in plant detritus.

Sediments observed above 2326.0 m have been referred to the Viséan and the boundary with the Tournaisian is arbitrarily placed in an uncored interval at the depth of 2333.0 m.

In the Rzeczenica *1* profile, Carboniferous members younger than Strunian have been reached directly underlying the Zechstein in the interval between 2986.0—2896.0 m. Their lower boundary has been arbitrarily determined while the upper one is based on electric logging data.

Sediments from the intervals 2983.2—2977.0 m, 2950.6—2946.5 m and 2937.8—2933.4 m represented by marly limestones intercalated by mudstones, have yielded the following fauna:

?Nuculopsis sp. — Pl. 1, Fig. 1
Palaeoneilo sp.
Parallelodon semicostatus (McCoy) — Pl. 1, Fig. 12
Palaeozygopleura cf. scalarioidea (Phill.) — Pl. 6. Fig. 7
Goniatitida gen. et spec. indet. — Pl. 7, Figs 3—4, 6

Higher up, from a series between 2925.0—2907.9 m, developed as marly limestones with crystalline, locally also oolitic intercalations and passing upwards into grey-greenish mudstones and calcareous siltstones with pyrite nodules, besides crinoids and ostracod moulds there have also been found brachiopods, identified by Matyja (1975b, 1976), i.a. *Orbiculoidea tornacensis* Dem., *Bagrasia* aff. *chonetiformis* (Krest. et Karp.) as well as *Parallelodon semicostatus* (McCoy) — Pl. 1, Fig. 11, and *Rhineoderma* sp.

The top part of the Carboniferous Rzeczenica *1* profile is represented by grey-greenish calcareous siltstones with mica, injections of pyrite and fragments of carbonised flora. Of the faunal remains the presence has been observed of crinoids, ostracods (moulds), also *Rhipidomella michelini* (Eveillé), *Leptagonia analoga* (Phill.) *Ovatia* sp., *Eomartiniopsis* cf. *tscherepeti* Sok., *Palaeoneilo luciniforme* (Phill.) and *Parallelodon semicostatus* (McCoy). On the presence of these species the deposits here considered have been referred to the higher part of the Lower Tournaisian (Tn1b).

In the profile of Brda *2* the Tournaisian sediments have been found in the interval of 2576.5—2330.0 m directly overlying the Ordovician and underlying the Viséan strata. The Carboniferous/Ordovician boundary has been pierced by the rock bit and determined on electrical logging.

The basal part of the Carboniferous strata, reached between 2544.0 and 2538.0 m, represented by dark-grey limestone, locally somewhat sandy and intercalated

by marly limestone, has yielded besides ostracods: *Schuchertella* sp., *Rugosochonetes hardrensis* (Phill.) and *Cummingella* sp. — Pl. 8, Figs. 1, 2. The presence of the trilobite from the genus *Cummingella* indicates that sediments from this interval are younger than the Strunian and are probably analogous to those encountered in the Brda *1* profile at a depth between 2563.5 to 2560.0 m referred to the Lower Tournaisian.

The cored parts of the profile from the intervals 2478.0 to 2473.0 m and 2415.0 to 2409.0 m are at the base represented by finegrained calcareous sandstone containing carbonised plant detritus and intercalated by grey slightly sandy limestones. Higher up there occurs calcareous mudstone and marly limestone with thin intercalations of lighter crinoidal limestones. Among the faunal remains here encountered are fairly numerous ostracod moulds, fragmentary corals and brachiopods, i.a. *Leptagonia analoga* (Phill.), *Schelwienella crenistria* (Phill.), *Rugosochonetes* cf. *malevkensis* Sok., *Mucrospirifer* cf. *roemerianus* (de Kon.), *Prospira* sp., *Brachythyris peculiaris* (Shum.).

In the intervals of 2363.0 to 2358.0 m and 2311.0—2305.0 m, both marly and crystalline limestones occur here, locally they are with subordinate intercalations of grey-greenish siltstones containing carbonised plant remains. The fauna is represented by crinoids and few brachiopods, i.a. *Schelwienella crenistria* (Phill.), *Schuchertella lens* (White) and *Kitakamithyris* aff. *uniplicata* (Campbell).

A higher part cored from a depth between 2262.0—2256.0 m represents a calcareous sandstone laminated by mudstone; it has not yielded any organic macrofossils. The brachiopod fauna reasonably suggests the assignment of the deposits to the Tournaisian (Matyja 1975b, 1976) whose boundary with overlying Viséan has been arbitrarily placed at a depth 2230.0 m.

In the Biały Bór *1* profile, the Carboniferous sediments underlying the Zechstein in the interval between 2632.0 and 2801.3 m have not been pierced. This is one of the most completely cored boreholes in the Chojnice region (Table 1). It was drilled in 1964/1965, a profile of the core was then made and the faunal remains collected. The results concerning the Carboniferous stratigraphy from this profile have not so far been published, except for some general data (Żelichowski 1971). The present writer has re-examined the profile and found only very few badly preserved faunal remains.

The basal part of the Carboniferous series from the Biały Bór *1* profile (2801.3—2774.8 m) is developed as black mudstones, strongly calcareous, with thin intercalations of brown limestone. *Rugosochonetes* cf. *hardrensis* (Phill.) and a fragment of a more closely indeterminate goniatite (Pl. 7, Fig. 2) are the only fossils here encountered.

The black mudstones intercalated by dark-grey marly limestones from a depth between 2772.8—2722.5 m have yielded *Avonia nigra* (Goss.) and ?*Martinia* sp. The species *Avonia nigra* (Goss.) has been reported from the Strunian (Tn1a) to the Middle Tournaisian of Belgium (Demanet 1958). In the profile of Babilon *1* representing the sediments of Tn1a, also partly those of Tn1b, this form is fairly common (Matyja 1975a, 1976). No other macrofauna has been encountered, except re-crystallised brachiopod shells, higher up at a depth from 2722.5 to 2680.3 m in a series of calcareous mudstones interbedded with a dark-grey marly limestone containing in its upper part an intercalation of compact beige limestone.

In the lower part of the interval 2680.3 to 2669.5 m there are dark-grey marly limestones passing into black calcareous mudstones locally with irregular ingrowths and pebbles of a hard conglomerate. The fauna is here represented by fragmentary brachiopod shells, i.a. of *Schuchertella* cf. *planiuscula* (Sem. & Moell.). This form has been observed in the profile of Babilon *1*.

The presence of *Prospira* sp. has been observed in calcareous mudstones intercalated by grey, somewhat sandy locally oolitic limestone, at a depth between 2667.5 to 2644.8 m.

In the top part of the Carboniferous strata reached by drilling (2644.8—2633.6 m) there occur grey crystalline limestones and black calcareous mudstones, towards the top passing into variegated siltstones. Fragments of *Lingula* sp. are the only fossils here encountered.

The scanty paleontological data can only suggest the assignment to the Tournaisian of the Carboniferous sediments in the Biały Bór *1* profile. Ostracods encountered in this profile (Żelichowski 1971) and identified by St. Woszczyńska indicate an analogous age.

In the profile of Biały Bór *3* Lower Carboniferous sediments 96 m thick were observed underlying the Zechstein at a depth of 3199.0 m. They were not pierced at 3295.0 m. Their boundary with the Zechstein has been traced in the core.

The bottom part from a depth between 3295.0 and 3289.2 m is represented by a black calcareous mudstone with thin (up to 5 cm) intercalations of beige dolomites. They have yielded only some crinoidal fragments and *Chonetes* sp.

Higher up in the interval between 3277.2 and 3270.0 m occurs a black mudstone with mica, modules of pyrite and scanty plant remains. There are also fine intercalations of dolomitic sandstone, locally pebbles of beige dolomite.

In the core samples from a depth between 3248.5 and 3242.5 m there occur black mudstones with mica, here and there streaked by a carbonate substance which passes towards the top into a dark-grey dolomite with an abundance of pyrite injections.

At a depth between 3227.4 and 3216.5 m rather numerous remains of bryozoans, crinoids, ostracods (moulds) and brachiopods, i.a. *Tornquistia polita* (McCoy) have been found within the calcareous mudstones intercalated by marly limestones.

In the interval between 3216.5 and 3211.0 m there occur black calcareous mudstones with intercalations of brown crystalline limestones and of a grey cherry-coloured siltstone. The faunal remains they yielded besides crinoids and some few ostracod moulds are represented by *Schuchertella portlockiana* (Sem.), ?*Unispirifer* sp. and *Grammysia omaliana omaliana* (de Kon.). The first species here mentioned occurs throughout the Tournaisian (including the Strunian) while in the Chojnice region it has been collected from the profiles of Brda *1* and Babilon *1* (Matyja 1974, 1975a, 1976). *Grammysia omaliana omaliana* (de Kon.) is reported from the Lower Carboniferous of Western Europe and North America as far down as the lowermost Namurian (Korejwo 1975). This species has also been found in the two profiles mentioned above.

The top part of the profile from a depth of 3211.0 m begins with a thin limestone intercalation, passing into a grey cherry-coloured siltstone abounding in mica and carbonised floral fragments, and intercalated by mudstones. Remains of bryozoans, crinoids, fish scales and fragmentary brachiopods belonging to the genera *Rugosochonetes* and *Tornquistia* have been found.

A closer stratigraphy is hardly possible owing to the scarcity of paleontological material. It seems, however, reasonable to assign the Carboniferous series from the profile of Biały Bór *3* to the Tournaisian. Neither is it excluded that the upper part of the profile of Biały Bór *1* may be its equivalent.

THE VISÉAN

In the Chojnice region, the Viséan sediments represented by the lower members have been encountered only in two of the profiles, namely those of Brda *1* and Brda *2*.

In the profile of Brda *1* they were observed directly underlying the Zechstein and overlying the Tournaisian in the interval between 2333.0 and 2160.0 m.

The bottom layer of sediments between 2326.0—2319.0 m and from 2266.0 to 2257.0 m are developed as mudstones and marly limestones with thin (up to 1 cm) intercalations of crinoidal limestones. Besides remains of bryozoans and corals they contained:

Buxtonia scabricula (Sow.)
Brachythyris peculiaris (Shum.),
Prospira sp.
Kitakamithyris aff. uniplicata (Campbell)
Streblopteria sp.
Straparollus (Euomphalus) catilliformis (de Kon.) — Pl. 6, Fig. 6
Soleniscus sp. — Pl. 6, Fig. 5

The brachiopod species here mentioned would rather indicate the Viséan age of the sediments (Matyja 1974, 1976). This is likewise confirmed by the presence of *Straparollus (Euomphalus) catilliformis* de Kon. (vide Batten 1966).

The upper part of the profile from a depth between 2198.0 m and 2179.0 m is represented by variegated silts, locally dolomitic, at the base with thin intercalations of dolomitic or crinoidal limestones, to the top passing into brownish-cherry coloured sandstones with carbonised plant detritus. *Rugosochonetes* sp. and *Straparollus* sp. are the only faunal remains found here.

In the profile of Brda 2, a 90 m thick series of sediments, referred to the Lower Viséan, underlies the Zechstein and overlies the Tournaisian. The Tournaisian/Viséan boundary has been arbitrarily placed at the depth of 2230.0 m.

The top complex of Carboniferous deposits from the profile of Brda *2* (2213.0—2181.0 m) is represented mainly by dolomitised frequently sandy limestones, partly oolitic. Siltstone intercalations with carbonised plant detritus are present, too. The fauna is scarce, consisting of crinoids, ostracod moulds, fairly numerous *Lingula* sp. and *Sanguinolites* sp., also fish scales.

The poor documentation of deposits in the profile of Brda *2* referred to the Viséan does not permit their closer age assignment. It seems that they represent only the lowest part of this stage.

FINAL REMARKS

The intensive prospecting for bitumens within the Koszalin-Chojnice zone has provided a number of new and most valuable profiles, especially so in the Sub-Zechstein series of the Chojnice region (Figs 1 and 2). From among them the most interesting one is the profile of Babilon *1*, already previously described (Korejwo 1975, Matyja 1975a, 1976).

Analogous deposits, a. 440 m thick (and not pierced), have been observed in the Brda *1* profile and also reached in the profile of Rzeczenica *1*. In the remaining profiles from the Chojnice region the Carboniferous strata are represented by various members of the Tournaisian, partly also of the Lower Viséan (Fig. 2).

The thickness of the Dinantian and of its particular members can hardly be now determined. The most representative Strunian (Tn1a) sediments occur in the profiles of Babilon *1* and Brda *1*. In the former

they overlie the Famennian and are covered by probably somewhat higher Tournaisian (Tn1b). It has been accepted that the doubtless Tn1a occurs in the interval between 3195.0 and 2885 m. The higher complex, up to 2618.7 m, i.e. the top of the Carboniferous strata, reached in the profile of Babilon *1*, is an age equivalent of Tn1a and Tn1b. However, the separation of these two members on macrofaunal basis is extremely difficult (vide Korejwo 1975). Therefore, the thickness of the Strunian in the profile of Babilon *1* must be at least 310 m but it may attain 400 m and even more.

On the other hand, in the profile of Brda *1*, the deposits belonging to Tn1a, occur at a depth of 3313.0—2872.0 m and have not been pierced. Overlying them are the high Tournaisian members (beginning with Tn1b), 539 m thick, and covered by the Lower Viséan. The thickness of the latter is 173 m in the profile here described, while in the near-by profile of Brda 2 it is c. 90 m.

Taking into account the above data it is reasonably supposed that in the Chojnice region the thickness of the Lower Carboniferous (the Strunian included) may be not less than 1500 m.

The Lower Dinantian deposits from the area here considered are characterized by a fairly uniformly developed facies. They occur as calcareous mudstones and dark marly limestones interbedded by crystalline — here and there slightly sandy or dolomitic — limestones, with thin intercalations of crinoidal or oolitic limestones. The siltstones and sandstones are rather subordinate, especially in the top parts of the drilled Carboniferous. A similar type of sedimentation is observable throughout the Koszalin-Chojnice zone, particularly so in the Lower Dinantian.

The great abundance of benthonic fauna, with numerous species in common, foremost with Western Europe, indicates that the sedimentation of the deposits had taken place in a shallow neritic zone, possibly in the shelf-zone of a large basin epicontinental in character. To the W this basin extended into the area now occupied by Rugia and Mecklenburg and communicated with the Franco-Belgian basin, while to the E it encroached the East European Platform (Korejwo 1975).

In the near neighbourhood of the Koszalin-Chojnice zone, the Lower Carboniferous deposits, developed chiefly in the carbonate facies, have been observed in the northern part of the German Democratic Republic, on the islands of Rugia and Hiddensee (Schmidt & Franke 1975; Hoffmann & al. 1975; Weyer 1975). The Etroeungt sediments are here referred to the Upper Devonian, their thickness ranges from 5 to 60 metres. The passage from the Devonian to the Carboniferous is continuous. In Rugia the Dinantian deposits are up to 2000 m thick. Palaeontological documentation is available for deposits beginning with the Tournaisian (Tn1b) to those from the middle part of the Upper Viséan (V3b).

The thickness of the Strunian deposits from the Chojnice region is several times that from Rugia indicating that, at the turn of the Devonian into the Carboniferous, the sea basin of the Chojnice region suffered far stronger subsiding. The thickness of the Tournaisian (Tn1b—Tn3) is more or less the same in the two areas, but the sequence of the Viséan is more complete in Rugia where only the top members are lacking. Higher up, with a sedimentary-erosional lacuna, there occur Westphalian and Stephanian deposits (Hirschmann & al. 1975). In the Chojnice region, the presence has been observed only of the Lower Viséan directly overlaid by the Zechstein. The upper Dinantian members have been destroyed by the Pre-Zechstein erosion, probably as early as during the Upper Carboniferous.

A closer correlation between the Lower and the Upper Carboniferous strata of Western Pomerania with those from the northern parts of the German Democratic Republic will not be possible before this system has been worked out throughout the Koszalin-Chojnice zone.

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REFERENCES

BATTEN R. L. 1966. The Lower Carboniferous gastropod fauna from the Hotwells Limestone of Compton Martin, Somerset. Pt. 1. *Paleont. Soc. Monographs*, Publ. 509. London.

DEMANET F. 1958. Contribution a l'étude du Dinantien de la Belgique. *Mém. Inst. Roy. Sci. Nat. Belg.*, No. 141. Bruxelles.

GANDL J. 1970. On the division of the Pericyclus stage (Lower Carboniferous) according to Trilobites. *C.-R. 6e Congrès Intern. Stratigr. Géol. Carb. Sheffield 1967*, **2**. Maestrycht.

GOLDRING R. 1958. Lower Tournaisian in the Carboniferous Limestone facies of the south-west province of Great Britain and of Belgium. *Palaeontology*, **1** (3). London.

HIRSCHMANN G. et al. 1975. Die lithostratigraphische Gliederung des Oberkarbons im Bereich der Inseln Rügen und Hiddensee. *Zeitschr. f. Geol. Wissenschaften*, **3** (7). Berlin.

HOFFMANN N. et al. 1975. Zum Unterkarbon-Vorkommen auf den Inseln Rügen und Hiddensee. *Zeitschr. f. Geol. Wissenschaften*, **3** (7). Berlin.

KOREJWO K. 1975. The lowermost Dinantian from the Babilon *1* column — Western Pomerania. *Acta Geol. Pol.*, **25** (4). Warszawa.

— & TELLER L. 1968. Wstępna stratygrafia karbonu z profilu Brda *1* (gł. 2160,0—2610,0 m). *Arch. Biura Dokum. i Proj. Geol. ZGN*. Warszawa.

MATYJA H. 1974. Wstępne opracowanie górnodewońskiej i dolnokarbońskiej fauny brachiopodowej z profilu wiercenia Brda *1*. *Arch. ZNG PAN*. Warszawa.

— 1975a. Brachiopods from the Devonian-Carboniferous passage beds in the Babilon *1* column — Western Pomerania. *Acta Geol. Pol.*, **25** (4). Warszawa.

— 1975b. Opracowanie fauny brachiopodowej warstw przejściowych dewon-karbon z profilów Rzeczenica *1* i Brda *2*. *Arch. ZNG PAN*. Warszawa.
— 1976. The biostratigraphy of the Devonian-Carboniferous passage beds from the selected profiles of NW Poland. *Acta Geol. Pol.*, **26** (4). Warszawa.
OSMÓLSKA H. 1970. Revision of non-Cyrtosymbolinae trilobites from the Tournaisian-Namurian of Eurasia. *Pal. Polonica*, **25**. Warszawa.
ROTAY A. P. & STEPANOV D. L. 1975. Stratigraphic scale of Carboniferous system adopted in the USSR. In: *The main features of Carboniferous stratigraphy of the USSR*. Ed. by Prof. A. P. Rotay. „NEDRA", Leningrad.
SCHMIDT K. & FRANKE D. 1975. Stand und Probleme der Karbonforschung in der Deutschen Demokratischen Republik. Teil I: Unterkarbon. *Zeitschr. f. Geol. Wissenschaften*, **3** (7). Berlin.
WEYER D. 1967. *Kitakamithyris* Minato 1951 (Brachiopoda, Spiriferida) aus dem Etroeungt (Oberdevon) und Tournai (Unterkarbon) des Rheinischen Schiefergebirges. *Geologie*, **16** (4). Berlin.
— 1975. Korallen aus dem Tournai der Insel Hiddensee. *Zeitschr. f. Geol. Wissenschaften*, **3** (7). Berlin.
ŻELICHOWSKI A. 1971. Karbon. *In:* DADLEZ *et al. Ropo- i gazonośność obszaru nadbałtyckiego między Świnoujściem a Darłowem na tle budowy geologicznej*. cz. I. Wyd. Geol. Warszawa.

KRYSTYNA KOREJWO

KARBON REJONU CHOJNIC (POMORZE ZACHODNIE)

(Streszczenie)

W wyniku intensywnych poszukiwań bitumінów w strefie Koszalin—Chojnice (NW Polska), uzyskano bardzo cenne i nowe profile, w których pod cechsztynem napotkano osady karbonu, reprezentowane przez różne ogniwa stratygraficzne.

Opracowanie niniejsze obejmuje profile z rejonu Chojnic, gdzie obecne są tylko osady dolnego karbonu (fig. 1, 2).

W profilu Babilon *1* nadwiercono pod dinantem osady famenu, a w profilu Brda *2* — ordowiku. W pozostałych wierceniach (Brda *1*, Brda *2*, Rzeczenica *1*, Biały Bór *1*, Biały Bór *3*) karbon nie został przebity.

Stratygrafia dinantu oparta jest na makrofaunie napotkanej w poszczególnych interwałach rdzeniowanych. Brachiopody oznaczyła Matyja (1974, 1975a, b, 1976), trylobity H. Osmólska, pozostałą faunę autorka niniejszego.

Dość licznie napotkane gatunki brachiopodów mają stosunkowo duży zasięg pionowy, trylobity i bliżej nieoznaczalne fragmenty goniatytów są obecne tylko sporadycznie, małżoraczki zaś występują w postaci ośródek. Stan zachowania małżów i ślimaków jest natomiast dość słaby, co utrudnia ich dokładne oznaczenie gatunkowe.

Powyższe, a także niepełny uzysk rdzenia (tab. 1) jest przyczyną, że ustalenie ścisłych granic pomiędzy poszczególnymi ogniwami stratygraficznymi w obrębie dinantu rejonu Chojnic nie jest możliwe. Granice przyjęto umownie w oparciu o dotychczasowe dane faunistyczne oraz analizę pomiarów karotażowych. Wydaje się, że po szczegółowym opracowaniu przez H. Matyję brachiopodów i konodontów, które są obecne w niektórych interwałach, oraz uwzględnieniu wyników badań palynologicznych, aktualnie prowadzonych przez E. Turnau, można będzie dotychczasowe dane uściślić.

Spośród profilów karbońskich w rejonie Chojnic niewątpliwie najciekawszym jest profil Babilon *1*, gdzie obecna jest dużej miąższości seria zaliczona do strunu *. Zawiera ona bogaty i interesujący zespół fauny napotkany w Polsce po raz pierwszy (Korejwo 1975, Matyja 1974, 1975a, b, 1976).

Analogiczne osady o miąższości około 440 m (nie przebite) stwierdzono w profilu Brda *1*, a także nadwiercono w profilu Rzeczenica *1*. W pozostałych profilach rejonu Chojnic karbon jest reprezentowany przez różne ogniwa turneju i częściowo wizenu dolnego (fig. 2).

Miąższość dinantu i poszczególnych jego ogniw jest w tej chwili trudna do ustalenia. Najbardziej reprezentatywne osady strunu (Tn1a) występują w profilach Babilon *1* i Brda *1*. W pierwszym leżą one nad famenem i przykryte są prawdopodobnie nieco wyższym turnejem (Tn1b). Przyjęto, iż niewątpliwy Tn1a mieści się w interwale 3195,0—2885,0 m. Kompleks leżący wyżej aż do 2618,7 m tzn. do stropu odwierconego karbonu w profilu Babilon *1* reprezentuje wiekowo Tn1a i Tn1b z tym, że rozgraniczenie tych dwóch ogniw w oparciu o dane makrofaunistyczne jest trudne (vide Korejwo 1975). Miąższość więc strunu w profilu Babilon *1* wynosi co najmniej 310 m i dochodzić może do ponad 400 m i więcej.

W profilu Brda *1* natomiast osady należące do Tn1a występują na głębokości 3313,0—2872,0 m i nie zostały przebite. Na tym leżą wyższe ogniwa turneju (począwszy od Tn1b) o miąższości 539 m, przykryte wizenem dolnym. Miąższość tego ostatniego w omawianym profilu wynosi 173 m, podczas gdy w blisko położonym profilu Brda *2* — około 90 m.

Biorąc pod uwagę powyższe dane wydaje się, że miąższość dolnego karbonu (łącznie ze strunem) w rejonie Chojnic może dochodzić do 1500 m.

Osady dolnego dinantu z omawianego obszaru charakteryzują się dość jednolitym wykształceniem facjalnym. Są to wapniste iłowce i ciemne wapienie margliste z przeławiceniami wapieni krystalicznych, miejscami nieco piaszczystych lub dolomitycznych z cienkimi wkładkami wapieni krynoidowych lub oolitowych. Mułowce i piaskowce występują raczej podrzędnie i to przeważnie w stropowych partiach odwierconego karbonu. Podobny typ sedymentacji odnotować można w całej strefie Koszalin-Chojnice szczególnie w dinancie dolnym.

Bardzo liczna fauna bentoniczna, mająca wiele wspólnych gatunków przede wszystkim z Europą Zachodnią, świadczy, że sedymentacja osadów odbywała się w płytkiej strefie nerytycznej, a być może i szelfowej rozległego basenu o charakterze epikontynentalnym. Zbiornik ten ku W sięgał na obszar dzisiejszej Rugii i Meklemburgii i łączył się z basenem franko-belgijskim, a ku E wkraczał na platformę wschodnio-europejską (Korejwo 1975).

W niedalekim sąsiedztwie strefy Koszalin-Chojnice utwory dolnego karbonu, wykształcone głównie w facji węglanowej stwierdzone zostały w północnej części NRD na wyspach Rugii i Hiddensee (Schmidt & Franke 1975, Hoffmann et al. 1975, Weyer 1975). Osady Etroeungt zaliczone są tutaj do górnego dewonu, a ich miąższość waha się od 5 do 60 m. Przejście od dewonu do karbonu jest ciągłe. Miąższość

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* Przy omawianiu podcechsztyńskich osadów z profilu Babilon *1* autorka stosowała termin strun (rzadziej obecnie w literaturze używany) dla wiekowego odpowiednika warstw Etroeungt (Tn1a podziału belgijskiego), sugerując zaliczenie ich do karbonu (Korejwo 1975). Ponieważ niniejsze opracowanie jest dalszym uzupełnieniem dotyczącym występowania karbonu w rejonie Chojnic, pozostawia się termin strun, nie wchodząc w szczegóły. Zagadnienie bowiem strunu i jego przynależności wiekowej jest wciąż problemem dyskusyjnym. Należy tu wspomnieć, że w schemacie podziału karbonu aktualnie obowiązującym w ZSRR, warstwy Etroeungt są włączone do turneju (Rotay & Stepanov 1975), a dolna granica systemu karbońskiego jest przyjmowana w spągu zony Wocklumeria w facji głowonogowej oraz warstw Etroeungt i ich odpowiedników w facji koralowo-brachiopodowej.

dinantu na Rugii dochodzi do 2000 m. Paleontologicznie udokumentowane są osady od turneju (Tn1b) do środkowej części wizenu górnego (V3b).

W porównaniu z obszarem Rugii kilkakrotnie większa miąższość osadów strunu w rejonie Chojnic wskazuje, iż ta część zbiornika morskiego ulegała na przełomie dewonu i karbonu znacznie intensywniejszym ruchom przegłębiającym. Miąższość turneju (Tn1b-Tn3) mniej więcej na obu obszarach jest podobna, wizen natomiast jest pełniej zachowany na Rugii, gdzie brak tylko jego stropowych ogniw. Wyżej z luką sedymentacyjno-erozyjną leżą utwory westfalu i stefanu (Hirschmann et al. 1975). W rejonie Chojnic stwierdzono obecność tylko wizenu dolnego, na którym bezpośrednio leży cechsztyn. Wyższe ogniwa dinantu uległy bowiem erozji przedcechsztyńskiej prawdopodobnie już w górnym karbonie.

Bliższe korelacje karbonu dolnego i górnego Pomorza Zachodniego oraz północnego obszaru NRD będą możliwe dopiero po całkowitym opracowaniu osadów tego systemu w całej strefie Koszalin-Chojnice.