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MEGASPORES FOUND IN THE EARLIEST TRIASSIC DEPOSITS OF THE TATRA MOUNTAINS

(Pl. I—II)

Odkrycie megaspor w utworach najstarszego triasu w Tatrach

(Pl. I—II)

Abstract: In deposits of the earliest Triassic of the Tatra Mts., hitherto considered to contain no fossils, a megaspore assemblage containing nine species was discovered.

The majority of the species found have been also known from the Polish Lowland area; they permit determination of age of the examined rocks as Middle Bunter Sandstone.

The author's recent studies on stratigraphy of the Triassic of the Tatra Mts. resulted in finding megaspores in the earliest Triassic deposits, until recently considered to contain no fossils in that area. Megaspores were found in, so called, "Seisian" deposits in the Jaworzynka valley (Sub-tatric succession) and in the Stare Szalasiska valley (High-tatric succession).

The collected megaspore material is represented by nine species belonging to five genera among which one genus, *Henrisporites*, has been reported from the territory of Poland for the first time.

The Jaworzynka valley

An outcrop of the Lower Triassic in the Jaworzynka valley, located in the Pod Czerwieniec gully opposite the mouth of the Magura cave, is considered to be the best one in the Sub-tatric succession area (Roniewicz 1966). Triassic deposits are to a very small extent displaced tectonically, which permits of regarding this profile as a model for the Sub-tatric succession (Kotański 1963).

The Lowermost Triassic ("Seisian") in the Jaworzynka valley is developed in the form of sandstones prevailing in lower parts of the

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outcrop, with intercalations of greenish-grey and red argillo-silty rocks. Some where in the neighbourhood of the central part of the outcrop (layer 3, according to Roniewicz 1966), there occurs a 30 cm thick intercalation of greenish-grey siltstone in which a megaspore assemblage containing seven species has been found. In this assemblage the megaspores *Pusulosporites populosus* Fugl. and *P. inflatus* Fugl. are distinctly prevailing; *Hughesisporites inflatus* Fugl. is less frequent, and *Trileites polonicus* Fugl., *Pusulosporites* sp., ?*Echitriletes* sp. and *Hughesisporites variabilis* Dett. occur sporadically.

The Stare Szalasiska valley

An incomplete Lower Scythian profile outcrops in this area; it belongs to the High-tatric succession (Kotański 1963). Among conglomeratic and arkosic sandstones there occur siltstone intercalations with macroflora remnants (Roniewicz 1966), in which megaspores have been found.

In the megaspore assemblage consisting of four species, *Hughesisporites variabilis* Dett. and *Echitriletes echinatus* Fugl. are distinctly prevailing. *Pusulosporites populosus* Fugl. is less frequent, and *Henrisporites* sp. is represented by one specimen only. It should be noted that there is a great difference in the contents of species in megaspore assemblages from both outcrops — among nine species found only two are common.

PALAEONTOLOGIC DESCRIPTION OF SOME MEGASPORE SPECIES

Genus *Pusulosporites* Fuglewicz, 1973

Pusulosporites sp.

(Pl. 1, Fig. 3)

Material: 1 damaged specimen

Dimensions (in microns):

Diameter of spore — 232

Length of Y-rays — 0.9 R

Height of Y-rays — 23

Width of Y-rays — 10

Description: Megaspore rounded in shape. Trilete rays well-developed in the form of considerably high and slightly undulated bands. No curvaturae. The surface of spore covered with irregularly distributed glassy warty appendages which occur more abundantly on the proximal side.

Remarks: The specimen under description displays the greatest similarity to *Pusulosporites permotriassicus* Fugl., from which it differs in having a poorly developed ornamentation of the distal side.

Genus *Echitriletes* (van der Hammen 1954) Potonié 1956

?*Echitriletes* sp.

(Pl. 2, Fig. 2)

Material: 1 specimen

Dimensions (in microns):

Diameter of spore — 464

Length of Y-rays — 0.85 R

Height of Y-rays — 20

Width of Y-rays — 14

Length of spines — 30—46

Thickness of spines (at the base) — 6—10

Diameter of spine bases — 18—24

Description: Megaspore rounded in shape. Trilete rays well-developed in the form of ridges with tubercles in place of severed spines. Curvaturae indistinct. Nodular bases are in place of severed spines on the whole surface of the spore. The spines themselves are preserved in very few places; they are straight, with a sharp point or dichotomous branching. The spine bases are in the shape of truncated cones and have elongated ribs and furrows.

Remarks: The megaspore described above displays the greatest similarity to *Echitriletes echinatus* Fugl., from which it differs in the shape of spines and in having a porous, fine-spongy exine covered with numerous massive spine bases.

Genus *Henrisporites* (Potonie) Binda & Srivastava 1963, emend

Henrisporites sp.

(Pl. 2, Fig. 4)

Material: 1 slightly damaged specimen

Dimensions (in microns):

Diameter of megaspore — 290

Length of Y-rays — R

Height of Y-rays — 50

Width of Y-rays — 10

Length of spines — 30—60

Description: Megaspore laterally flattened. Trilete rays well-developed in the form of a wide undulated bands. Contact areas are limited by a well-developed undulated zona. The whole surface of the spore is covered with spines having elongated ribs and furrows.

CONCLUSIONS

A great lithological and palaeontological similarity between deposits of the earliest Triassic of the Tatra Mts. and Bunter Sandstone of the Polish Lowland permits of an unequivocal correlation between these two regions

The megaspore assemblage discovered in the Tatra Mountains is almost identical with the assemblage occurring in SW part of the Polish Lowland (the Fore-Sudetic Monocline and the Kujawy — Sw.Krzyż Mts. part of the Central Poland Anticline). It is an index assemblage for the Middle Bunter Sandstone (Fuglewicz 1973, 1977; Marcinkiewicz 1976).

The occurrence of relatively numerous and usually well-preserved megaspores in deposits of the earliest Triassic of the Tatra Mts. and, above all, the prevalence of forms belonging to the genera *Pusulospores* and *Echitriletes*, characteristic of limnic facies of the Bunter Sandstone (Fuglewicz 1973, 1977), gives evidence of the continental origin of the earliest rocks of the Tatra Mts. Triassic.

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STRESZCZENIE

W utworach najstarszego triasu („seisu”) w Tatrach, uważanych dotychczas za nieme, stwierdzono liczny zespół megaspor. Megaspory występują w szarozielonkawych mułowcach w dolinie Jaworzynki (seria regłowa) oraz w dolinie Starych Szalasisk (seria wierchowa). Zebrany materiał reprezentuje 9 gatunków, należących do 5 rodzajów, w tym 1 rodzaj *Henrisporites* jest cytowany z obszaru Polski po raz pierwszy. Na podstawie megaspor wiek omawianych skał określono jako pstry piaskowiec środkowy.

EXPLANATIONS OF PLATES — OBJAŚNIENIA PLAN SZ

(Plate I — Plansza I)

- Fig. 1. *Pusulospirites populosus* Fuglewicz, × 150, Jaworzynka valley
Fig. 2. *Pusulospirites inflatus* Fuglewicz, × 250, Jaworzynka valley
Fig. 3. *Pusulospirites* sp., × 250, Jaworzynka valley
Fig. 4. *Hughesisporites inflatus* Fuglewicz, × 200, Jaworzynka valley
Fig. 5. *Pusulospirites inflatus* Fuglewicz, × 200, Jaworzynka valley
Fig. 6. *Trileites polonicus* Fuglewicz, × 200, Jaworzynka valley
Fig. 7. *Trileites polonicus* Fuglewicz, × 250, Jaworzynka valley
Fig. 8. *Hughesisporites variabilis* Dettmann, × 250, Jaworzynka valley

Plate II — Plansza II

- Fig. 1. *Echitriletes echinatus* Fuglewicz, X 220, Stare Szałasiska valley
Fig. 2. a, b — ?*Echitriletes* sp.,
a — X 120, b — part of megaspore, X 300, Jaworzynka valley.
Fig. 3. *Echitriletes echinatus* Fuglewicz, X 230, Stare Szałasiska valley
Fig. 4. *Henrisporites* sp., X 220, Stare Szałasiska valley

SEM micrographs were made in the Nencki Institute of the Experimental Biology, Warsaw.



