

TERESA MARCINKIEWICZ

OTOZAMITES FALSUS (BENNETTITALES) FROM THE
UPPER LIASSIC OF THE HOLY CROSS MTS, POLAND

Abstract.—The remains of a leaf of the bennettite *Otozamites falsus* is here described from the Wyszmontów borehole in the eastern margin of the Holy Cross Mts. The remains come from deposits whose age has been determined, on the basis of megaspores, as Upper Liassic.

INTRODUCTION

Some remains of a bennettite leaf, identified as *Otozamites falsus* Harris, were found in the upper part of the Liassic profile of the Wyszmontów borehole in the eastern part of the margin of the Holy Cross Mts. The remains, found at a depth of 210 m, come from a part of clayey-sandy deposits, assigned by Karaszewski (Karaszewski, 1970; Karaszewski & Kopik, 1970) to the Borucice beds. The stratigraphic position of this beds has precisely been determined on the basis of the presence of megaspores of the *Thomsonia phyllica* assemblage [consisting of: *Thomsonia phyllica* (Murray) Pot., *Minerisporites richardsoni* (Murray) Pot., *Echitriletes hispidus* Marc., *Bacutritiletes clavatus* Marc., *Erlansonisporites excavatus* Marc. and others], typical of the Upper Liassic deposits. At Wyszmontów, this assemblage (see Table 1) was found within the Ciechocinek beds (Liassic ϵ), distinguished by Karaszewski (1970) and within the Borucice beds (Liassic ξ) mentioned above.

This is the first finding of a bennettite of the genus *Otozamites* in the Liassic deposits of Poland. Former finds of this genus (*O. obtusus* Lindley & Hutton and *O. raciborskii* Reymanówna) are connected with somewhat younger deposits, that is, with the Grojec clays from the environs of Cracow for which Reymanówna (1963, 1968) is inclined to accept the Upper Liassic-Aalenian age¹. In addition to leaf remains, in Poland there

¹ However, it is not unlikely that Grojec clays represent a younger member of the Middle Jurassic. A definite solution of the problem of age of Grojec clays may only be possible after a complete elaboration of the Grojec flora, now being prepared by Dr. M. Reymanówna, as well as after the present writer's description of the megaspores.

are also known the stems of bennettites of the genus *Cycadeoidea* from the Lower Cretaceous of Southern Poland (Reymanówna, 1960).

Carbonized fragments of the remains of *O. falsus* have been subjected to maceration in HNO_3 and KClO_3 . Well preserved cuticles have been obtained after washing in water and treating the remains with a diluted solution of NH_4OH . These specimens are housed at the Geological Institute's Museum in Warsaw (abbreviated I. G. 63. III).

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SYSTEMATIC DESCRIPTION

Class Bennettitales

Genus *Otozamites* Braun, 1842

Otozamites falsus Harris, 1949

(Pl. III, Figs 1—4)

1900. *Otozamites feistmanteli* Zigno; A. C. Seward, p. 221.

1949. *Otozamites falsus* Harris; T. M. Harris, Notes on the Jurassis..., p. 287, Figs 6B—E.

1969. *Otozamites falsus* Harris; T. M. Harris, The Yorkshire..., p. 43, Figs 19, 20.

Material. — *O. falsus* is represented by several fragmentary leaves. The best preserved specimen contains 30 pinnae. Smaller fragments from the same surface of siltstone consist of five to nine pinnae. Another fragment of claystone contains also a relatively well preserved, obliquely compressed specimen with pinnae arranged on one side only. These remains are carbonized and may be easily separated from the rock.

Description. — The specimen being damaged, it is difficult to determine the entire length of the leaf which is 9 mm wide. Particular pinnae reach 4 mm in length and 2.5 to 3 mm in width and are arranged at an angle of 70° to the axis of leaf. They do not contact each other and are spaced at about 1 mm intervals. The width of leaf amounts to not very much more than 1 mm. The upper surface of pinnae is convex, margins are even, nearly parallel to each other, slightly rounded towards the apex, which is also rounded. Veins invisible.

The upper cuticle consists of irregular, sometimes subrectangular cells, whose walls form a strongly undulate line with irregular recesses.

The marginal region of the lower cuticle resembles in structure the upper cuticle. This zone, distinctly marked and easily separable is more

than 200 μ wide. Irregularly distributed, depressed and poorly visible stomata are situated in the inner part of lower cuticle. In the central part of the lower cuticle, cells are barrel-shaped and surrounded with swollen, irregular folds.

Remarks. — The specimen under study displays a considerable similarity to *Otozamites falsus* Harris, described by Harris (1949, 1969) from the deposits of the Lower Deltaic Series of Scarborough, England. However, they also display certain minor macroscopic differences. In the form from Scarborough, pinnae contact each other, while in our specimen they are spaced at intervals of the order of 1 mm. In addition, differences are observed in the width of leaf, somewhat narrower in the specimen under study (about 9 mm) and wider (about 12 mm) in that from Scarborough. The structure of cuticle seems to be identical in the two forms and on the basis of this fact the specimen of Wyszmontów has been assigned to *O. falsus* Harris.

Occurrence. — Wyszmontów borehole, Upper Liassic (Borucice series).

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OTOZAMITES FALSUS (BENNETTITALES) Z GÓRNEGO LIASU
GÓR ŚWIĘTOKRZYSKICH

Streszczenie

Opisano szczątki liścia bennetyta *Otozamites falsus* Harris znalezione w utworach mułowcowo piaszczystych serii borucickiej, w wierceniū Wyszmontów usytuowanym na wschodnim obrzeżeniu Gór Świętokrzyskich. Stwierdzono tutaj również występowanie charakterystycznych gatunków megaspor takich jak: *Thomsonia phyllica* (Murray) Pot., *Minerisporites richardsoni* (Murray) Pot., *Echitriletes hispidus* Marc., *Bacutriletes clavatus* Marc., *Erlansonisporites excavatus* Marc. i in., które pozwoliły uznać wiek tych osadów jako górnoliasowy.

ТЕРЕСА МАРЦИНКЕВИЧ

OTOZAMITES FALSUS (BENNETTITALES) ИЗ ВЕРХНЕГО ЛЕЙАСА
СВЕНТОКШИСКИХ ГОР

Резюме

Описаны остатки листа беннетита *Otozamites falsus* Harris, найденные в алевролито-песчаных отложениях боруцицкой серии, пройденных скважиной Выш-монтав в восточном обрамлении Свентокшиских гор. Кроме того, в этих отложениях были обнаружены характерные виды мегаспор: *Thomsonia phyllica* (Murray) Pot., *Minerisporites richardsoni* (Murray) Pot., *Echitriletes hispidus* Marc., *Bacutriletes clavatus* Marc., *Erlansonisporites excavatus* Marc., и др., которые определяют верхнелейасовый возраст вмещающих отложений.

EXPLANATION OF PLATES

Plate III

Otozamites falsus Harris

Upper Liassic of Wyszmontów

Figs 1 and 2. Remains of a leaf; nat. size.

Fig. 3. Fragment of the upper cuticle; × 300.

Fig. 4. Fragment of the lower cuticle with stomata; × about 300.

