

Forresteria (Harleites) petrocoriensis (COQUAND, 1859) from the Upper Turonian *Mytiloides scupini* Zone of Słupia Nadbrzeżna, Poland

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ABSTRACT:

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Forresteria (Harleites) petrocoriensis (COQUAND, 1859), the classic ammonite marker for the base of the Coniacian stage in the Aquitaine Basin, France, is recorded from the Upper Turonian *Mytiloides scupini* Zone of Słupia Nadbrzeżna, Poland. The position of the upper and lower limits of the *petrocoriensis* Zone in terms of the standard inoceramid zonation across the Turonian-Coniacian boundary interval remains uncertain, and the proposed base of the Coniacian – the first occurrence of *Cremnoceras deformis erectus* (MEEK, 1877) – lies in the lower part of the range of *F. (H.) petrocoriensis*. The inoceramid-defined base of the Coniacian cannot be recognised in the environs of Cognac, the type locality of the stage.

Key words: *Forresteria petrocoriensis*, Turonian, Coniacian, Central Poland, Stratigraphy.

INTRODUCTION

The étage Coniacien was introduced by Henri COQUAND (1857), and is the lowest division of Alcide D'ORBIGNY étage Senonien (1843). In his classic account of French Upper Cretaceous stratigraphy and ammonite faunas (1894, 1901), DE GROSSOUVRE divided the stage into two ammonite zones, of *Barroisiceras* [*Barroisia*] *haberfellneri* below, and *Paratexanites* [*Mortoniceras*] *emscheris* above.

As KENNEDY (1984, p. 1) noted: "These zones have been universally accepted as standard zones for the Coniacian, and were adopted by the 1959 *Colloque sur le Crétacé Supérieur Française* (DALBIEZ 1960), in the *Treatise on Invertebrate Paleontology* (WRIGHT 1957) and

by SÉRONIE-VIVIEN (1972) in her definitive revision of the stratotype, among many others. Yet in 1947 BASSE had pointed out that the *B. haberfellneri* of DE GROSSOUVRE was based on a misinterpretation of VON HAUER's species, and that the French material all belonged to a distinctive form which she named *Reesideoceras gallicum* BASSE, 1947 (a synonym of *Ammonites petrocoriensis* COQUAND, 1859), although she nevertheless referred to a 'haberfellneri' Zone in some of her later works. As confirmed below, true *Barroisiceras* does not occur in France; indeed, there is no good evidence that the type species actually occurs in the Coniacian".

Doubts over the value of *F. (H.) petrocoriensis* as a marker for the base of the Coniacian stage were high-

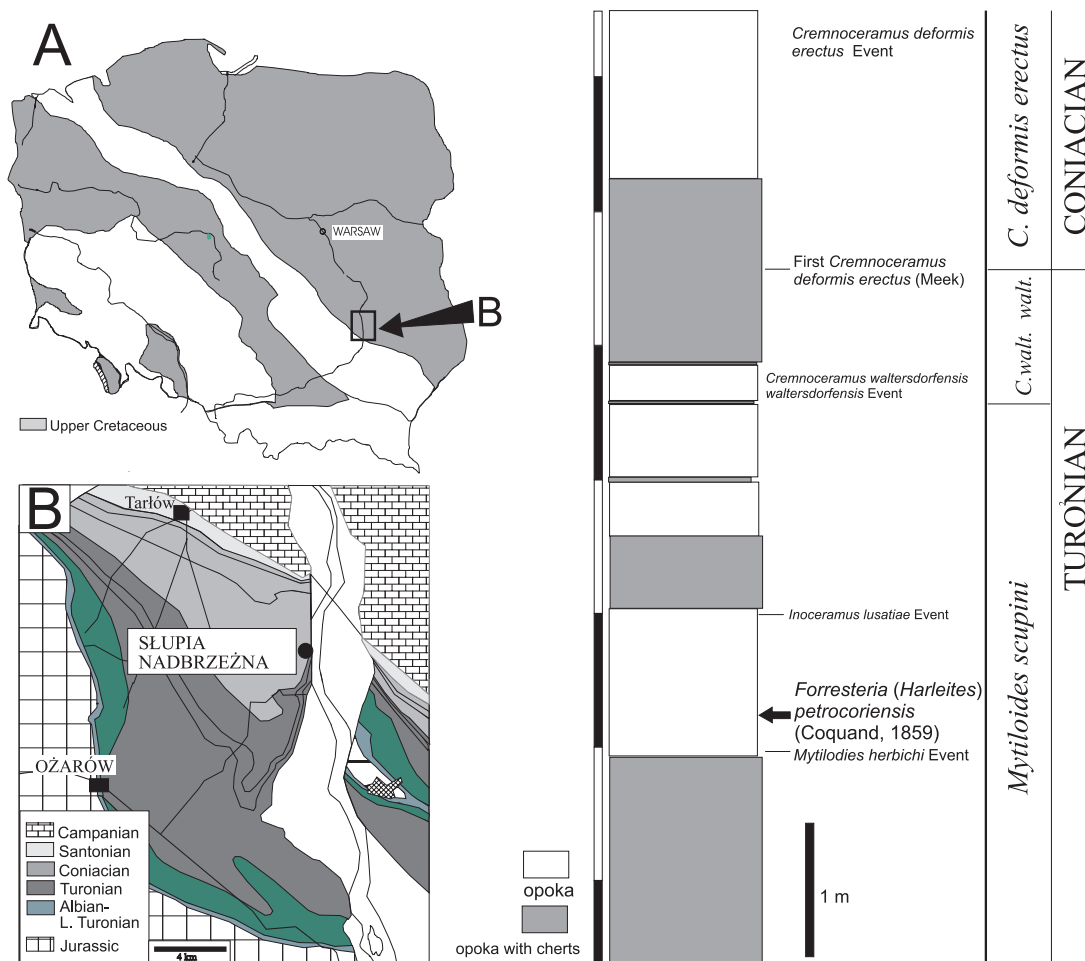


Fig. 1. Locality map, and Turonian-Coniacian boundary sequence at the Stupia Nadbrzeżna section, Poland. The position of the specimen of *Forresteria (Harleites) petrocoriensis* (COQUAND, 1859) described in the text is indicated, and lies 3 m below the lowest occurrence of *Cremonoceras deformis erectus* (MEEK 1877), within the *Mytiloides scupini* inoceramid Zone

lighted at the 1995 Brussels Symposium on Cretaceous stage boundaries (RAWSON, DHONDT, HANCOCK & KENNEDY 1996). In their report on the debate on the base of the Coniacian at that meeting, KAUFFMAN (compiler), KENNEDY & WOOD (1996) reported the unanimous view that the boundary should be drawn at the first occurrence of *Cremonoceras rotundatus* (*sensu* TRÖGER, *non* FIEGE). The correct name for this taxon is now known to be *Cremonoceras deformis erectus* (MEEK 1877), following the work of WALASZCZYK & WOOD (1999), and WALASZCZYK & COBBAN (2000).

Inoceramid bivalves are rare or absent in the Upper Turonian and lowest Coniacian of the Aquitaine Basin, especially so in the area around Cognac, the

town that gave its name to the Coniacian stage. Determination of the age relationships between the classic base of the Coniacian in the area (a hardground marking an unconformity between Upper Turonian rudistid limestones below, and coarse to fine-grained terrigenous clastic and carbonate sediments above) thus depends on determining the occurrence of *F. (H.) petrocoriensis* in the inoceramid-rich successions of central Europe.

Specimens from Germany (KAPLAN & KENNEDY 1994, 1996) occur at the level of the *inconstans* Event, within the *Cremonoceras crassus inconstans* Zone (WALASZCZYK & WOOD 1999). Records from the Czech Republic (CECH 1989) appear to be at approximately the

same horizon. Records from Romania (SZASZ & ION 1998, pl. 6, fig. 4) may be from the basal Coniacian *Cremnoceramus deformis erectus* Zone on the basis of co-occurring inoceramids, although further study is needed.

We document below a further record, from the upper part of the *Mytiloides scupini* Zone of Słupia Nadbrzeźna section, 180 km SSE of Warsaw, Poland.

LOCALITY DETAILS AND STRATIGRAPHY

The specimen of *F. (H.) petrocoriensis* described below comes from the outcrops in the left, high bank of the River Vistula at Słupia Nadbrzeźna, 180 km SSE of Warsaw, Poland (Text-fig. 1). The sections lie north of the main road in the village (WALASZCZYK 1992). They

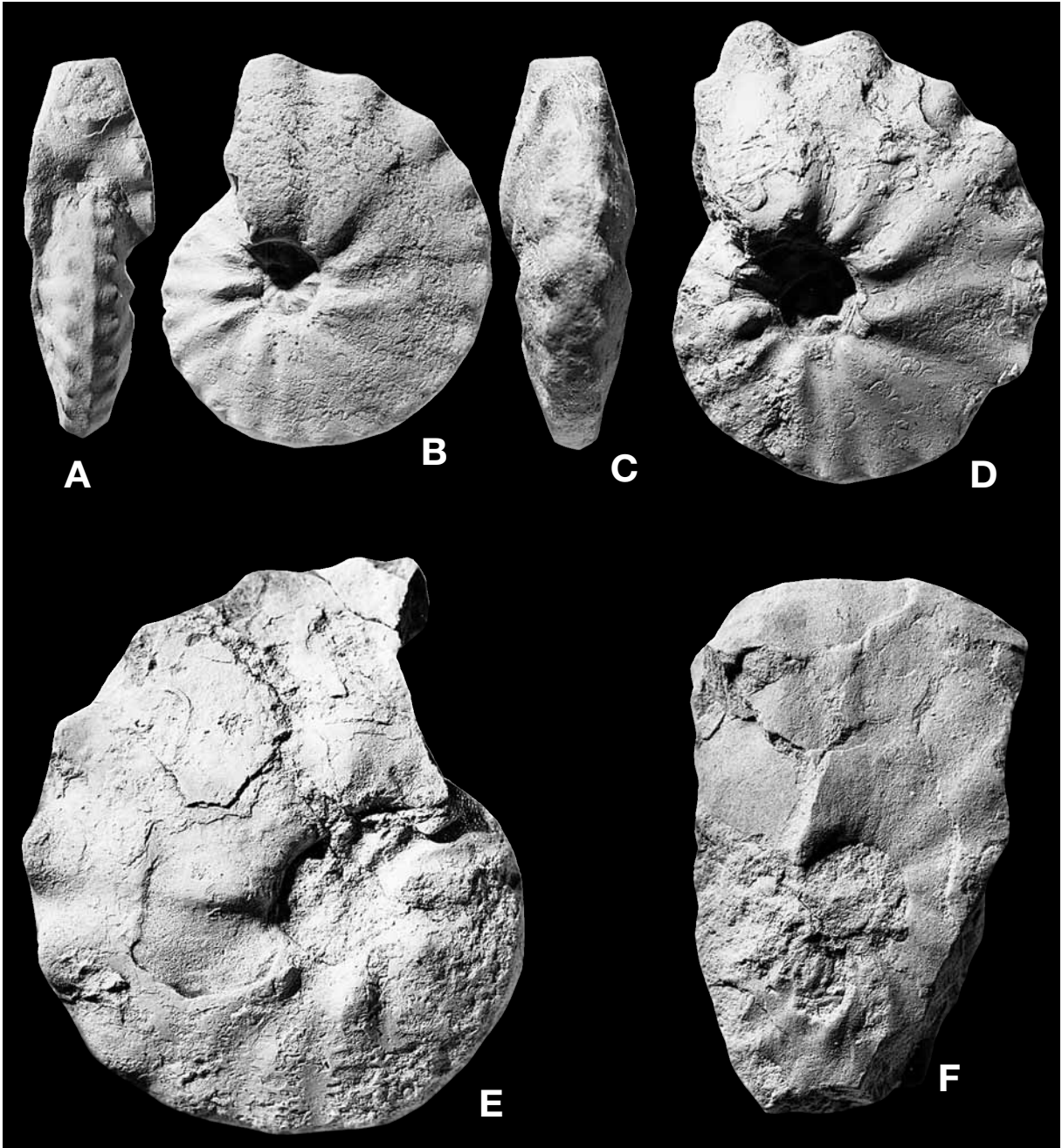


Fig. 2. *Forresteria (Harleites) petrocoriensis* (COQUAND, 1859). A-C, an unregistered specimen in the Sorbonne Collections, from Les Eyziez-de-Tayac, Dordogne, France, the original of DE GROSSOUVRE 1894, Pl. 1, Fig. 1. D, E, two unregistered specimens in the Sorbonne Collections, from Assize K of ARNAUD (1877), Gourd de l'Arche, near Périgueux, Dordogne, France. F, ZI/35/001, from the Upper Turonian *Mytiloides scupini* Zone, 2.5 m below the first occurrence of *Cremnoceramus deformis erectus* (MEEK 1877), Słupia Nadbrzeźna section, 180 km SSE of Warsaw, Poland

form part of the classic Vistula section; dipping gently to the SE, it provides outcrops from Albian to Maastrichtian, with successively younger strata appearing to the north (POŻARYSKI 1938, 1948; MARCINOWSKI & RADWAŃSKI 1983).

The highest Turonian to Lower Coniacian succession is made up of siliceous marls (opokas), with variable developments of chert. The interval close to the village extends from the upper part of the *Mytiloides scupini* Zone of the Upper Turonian up into the *Cremonoceras waltersdorfensis hannovrensis* Zone of the middle Lower Coniacian (see WALASZCZYK & WOOD 1999). The base of the Coniacian, defined by the lowest occurrence of *Cremonoceras deformis erectus*, the prior name of *Cremonoceras rotundatus sensu* TRÖGER non FIEGE (WALASZCZYK & COBBAN 2000) lies 1.3 m below the *erectus* I Event (a flood level of the marker species).

The ammonite specimen, described below, came from the upper part of the *Mytiloides scupini* Zone, 3 m below the base of the Coniacian (Text-fig. 1).

DESCRIPTION OF THE AMMONITE

The specimen ZI/35/001 is a well-preserved composite mould with an estimated original diameter of 90 mm (Text-fig. 2F). Coiling is very involute, with a small umbilicus. The whorl section is compressed and high-whorled, with convex inner flanks and convergent outer flanks. At the beginning of the outer whorl, well-developed umbilical bullae give rise to a low, broad, straight prorsiradiate rib that links to a strong lateral bulla. These give rise to a low broad rib that links to coarse ventral clavi, with single short intercalated ribs separating the primaries. This ornament effaces progressively on the body chamber. Umbilical and lateral tubercles are lost, leaving flanks that are ornamented by low, broad ribs that efface progressively across the flanks. The venter is obtusely fastigiate, with effaced ventrolateral clavi, and a mid-ventral ridge.

Although incomplete, the specimen differs in no significant respects from well-preserved material from northern Aquitaine (Text-fig. 2A-E), and its identity is not in doubt. The presence of both umbilical and lateral bulla clearly distinguishes the specimen from *Barroisiceras haberfellneri* (HAUER, 1866), an older Turonian species revised by SUMMESBERGER & KENNEDY (1996).

STRATIGRAPHIC IMPLICATIONS

The occurrence of the present specimen, as with the material from the Münster Basin (KAPLAN & KENNEDY

1994, 1996) confirm the view that the base of the *F. (H.) petrocoriensis* ammonite Zone, which was taken as the classic marker for the base of the Coniacian stage since the work of DE GROSSOUVRE (1894, 1899, 1901) lies within the Upper Turonian as now conceived. The Turonian-Coniacian boundary, as defined in inoceramid terms, lies in the lower part of the *F. (H.) petrocoriensis* ammonite Zone, the upper limit of which extends at least to the *inconstans* Event in the *C. crassus inconstans* Zone of the Lower Coniacian, on the basis of records from the Münster Basin in Germany. The base of the Coniacian, defined by the first occurrence of *Cremonoceras deformis erectus* cannot be recognised in northern Aquitaine, which includes the classic type area of the stage.

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