

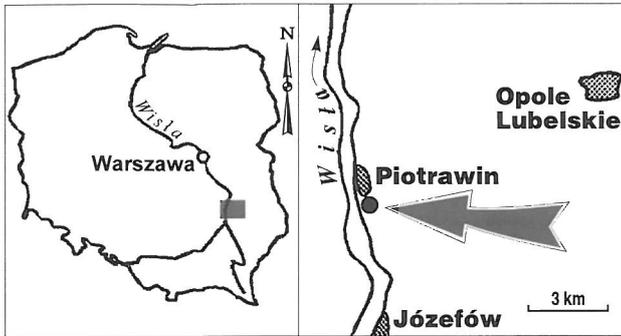
Diplomoceras cylindraceum (Defrance, 1816): a typically Maastrichtian ammonite in the Piotrawin section, Central Poland

Marcin Machalski*

A c. 35 m thick monotonous sequence of siliceous chalk ("opoka" in Polish literature), is exposed in a huge disused quarry at Piotrawin on the Middle Vistula Valley (Fig. 1).

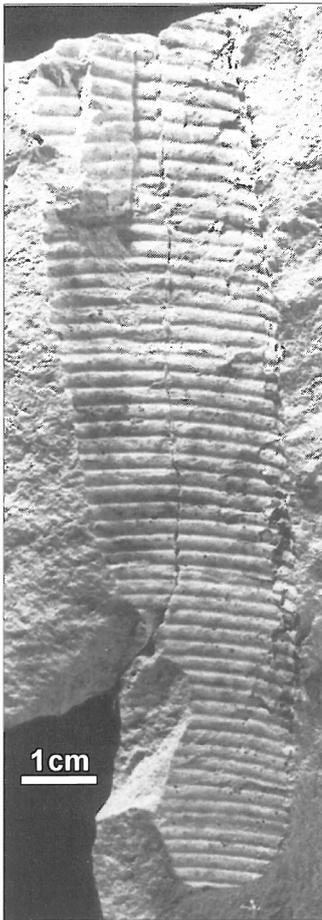
*Instytut Paleobiologii PAN, ul. Żwirki i Wigury 93,
02-089 Warszawa

The importance of the Piotrawin section is that it provides the best sequence of the latest Campanian *Nostoceras pozaryskii* Zone, as distinguished by Błaszkiwicz (1980) in the Middle Vistula Valley. Recently this zone, renamed as *Nostoceras hyatti* Zone, has been recognized in many parts of the world and has proved to be very important in global



Ryc. 1. Lokalizacja kamieniołomu w Piotrawinie na obszarze Polski

Fig. 1. Localization of the Piotrawin quarry (arrowed) on the territory of Poland



Ryc. 2. *Diplomoceras cylindraceum* (Defrance, 1816), Piotrawin
Fig. 2. *Diplomoceras cylindraceum* (Defrance, 1816), Piotrawin quarry

(Kner). The base of the *Nostoceras hyatti* Zone is marked by the appearance of *Jeletzkytes nodosus*, whereas *Nostoceras hyatti* and *N. helicinum* appear some way above the base of the zone; all these forms disappear before the first occurrence of *Belemnella lanceolata*, widely used for defining the base of the Maastrichtian up to the Second International Symposium on Cretaceous Stage Boundaries in Brussels, 1995 (see Błaszkiwicz, 1980; Kennedy et al., 1992; Burnett et al., 1992; Kennedy, 1993).

The Piotrawin section represents the upper part of the

correlations of Campanian/Maastrichtian boundary deposits (Kennedy et al., 1992; Burnett et al., 1992; Kennedy, 1993). The ammonite fauna from the *Nostoceras hyatti* Zone in the Vistula Valley was described by Błaszkiwicz (1980) and subsequently revised in part by Kennedy & Cobban (1993). This fauna was summarized by Kennedy (1993), who listed the following taxa: *Nostoceras hyatti* Stephenson, *N. helicinum* (Shumard), *Hoploscaphites vistulensis* Błaszkiwicz, *H. angulatus* (Łopuski), *H. minimus* Błaszkiwicz, *Jeletzkytes nodosus* (Owen), *Baculites* spp. (including the *Baculites leopoliensis* Nowak), *Neancyloceras* aff. *bipunctatum* (Schlüter), *Pachydiscus perfidus* de Grossouvre, *P. cf. colligatus latumbilicatus* Błaszkiwicz, *Pseudokosmaticeras galicianum* (Favre), *Pseudophyllites indra* (Forbes), *Placenticeraras meeki* Böhm and *Hauriceras* aff. *sulcatum*

Nostoceras hyatti Zone. No detailed data concerning the ammonite distribution within this section are available in the literature, except for the Burnett et al.'s (1992) remark that *N. hyatti* and *N. helicinum* are present from 12 to 30 m above the base of the sequence. These authors also pointed out that the belemnites collected from the top of the quarry belonged to *Belemnitella langei*, which proved that "the locality is entirely within the upper Upper Campanian" (Burnett et al., 1992). The concept and stratigraphic range of this species are open to question, however, which undermines its value for biostratigraphic correlation (see Christensen, 1995).

A specimen of a heteromorph ammonite not previously recorded from the Piotrawin section has recently been found by Dr. Herbert Klinger (South African Museum, Cape Town) during a joint excursion to the quarry. Found on the highest terrace of the quarry, in a loose block of the chalk, it undoubtedly comes from the topmost 3–5 metres of the section. This level is characterized by the occurrence of numerous *Baculites* spp. and of *Placenticeraras meeki*.

The specimen at hand is preserved as a fragmentary external mold of the straight, densely ribbed shaft, which is almost 12 cm in length (Fig. 2). Although fragmentary, the specimen can be safely identified as *Diplomoceras cylindraceum* (Defrance, 1816). It falls well within the range of variation of this species as defined recently by Kennedy (1987), Ward & Kennedy (1992) and Henderson et al. (1992). All material of the species known to date is fragmentary; the conch probably consisted of at least three straight shafts joined by tightly curved sections (*lit. cit.*).

Diplomoceras cylindraceum is a cosmopolitan species, widely recorded from various regions of the world. Where well dated this species is always Maastrichtian in age (Kennedy, 1987; Ward & Kennedy, 1992; Henderson et al., 1992 and the literature cited therein). It was also reported from Maastrichtian deposits of Vistula Valley (Błaszkiwicz, 1980).

The occurrence of *Diplomoceras cylindraceum* at the top of the Piotrawin section, which in current view corresponds to the latest Campanian, may thus represent the first Campanian record of the species. An alternative interpretation, admittedly much less probable due to the lack of the classic early Early Maastrichtian index fossils *Belemnella lanceolata* and *Pachydiscus neubergicus* in Piotrawin, is that some part of the section represents already the Maastrichtian Stage. In that respect, it should be pointed out that Peryt (1995) assigned the upper half of the Piotrawin section to the Maastrichtian Stage, based on benthic foraminiferal evidence.

L i t e r a t u r a

- BŁASZKIEWICZ A. 1980 — Pr. Inst. Geol., 92: 3–63.
 BURNETT J.A., HANCOCK J.M., KENNEDY W.J. & LORD A.R. 1992 — Newsl. Stratigr., 27: 157–172.
 CHRISTENSEN, W.K. 1995 — Spec. Pap. Palaeont., 51: 1–84.
 HENDERSON R.A., KENNEDY W.J. & MCNAMARA K. 1992 — Alcheringa, 16: 133–170.
 KENNEDY W.J. 1987 — Bull. Inst. R. Sci. Nat. Belg., Sci. de la Terre, 56: 151–267.
 KENNEDY W.J. 1993 — [In:] The Ammonoidea: Environment, Ecology, and Evolutionary Change, M.R. House (ed.), Systematics Association sp. vol., 47: 285–326. Clarendon Press, Oxford.
 KENNEDY W.J., COBBAN W.A. & SCOTT G.R. 1992 — Geol. Mag., 129: 497–500.
 KENNEDY W.J. & COBBAN W.A. 1993 — J. Paleont., 67: 404–434.
 PERYT D. 1995 — [In:] Subcommittee on Cretaceous Stratigraphy (SCS), A.V. Dhondt (ed.), Second Internat. Symp. on Cretaceous Stage Boundaries, Abstract Volume. Brussels.
 WARD P. & KENNEDY W.J. 1992 — Paleont. Soc. Mem., 34: 1–58.