

1. Introduction

During the complex studies of global stratotype sections, and their auxiliary reference sections, it was felt that sedimentology and geochemistry had been insufficiently applied. Thus this paper tries to fill this gap and deals with a problem that has been only partly investigated in the Barrandian area. The results of current and continuing research are presented in this paper.

Three stratigraphic levels were chosen for this study: the Ludlow-Přídolí boundary interval (studied by P. Čáp in the Požáry quarry near Praha-Řeporyje, the Kosov quarry near Beroun, and the Marble quarry near Praha-Lochkov), the Silurian-Devonian boundary interval (studied by F. Vacek in the Požáry quarry near Praha-Řeporyje, Praha-Podolí, and Praha-Radotín), and the Lochkovian-Pragian boundary interval (studied by T. Vorel at Cikánka near Praha-Slivenec, Homolka near Praha-Velká Chuchle, and Černá rokle near Kosoř).

These sections were selected to demonstrate the transition of each individual boundary interval from a shallow-water to a marine basinal environment (see Fig. 1). Our discussion of the characteristics of the depositional environments, and the processes by which the limestones originated in each individual boundary interval, is based on microfacies analysis (WILSON 1975, FLÜGEL 1982) and the study of sedimentary structures and textures.

Most of these sections have been subjected to detailed biostratigraphical studies in the past, as many of them serve as international standards (CHLUPÁČ 2000a, b, CHLUPÁČ et al. 1972, 1985, CHLUPÁČ – HLADIL 2000, CHLUPÁČ – KUKAL 1977, CHLUPÁČ – OLIVER 1989, CHLUPÁČ – VACEK 2003, KRÍŽ et al. 1986). Sedimentological research, however, was limited to only several localities (see Tab. 1).

The results have been discussed among the present au-

thors. Each section of this paper contains partial conclusions, whereas the final general conclusions are the work of all three authors.

2. History of the research on the Barrandian limestones

Petrographical and sedimentological studies of the Early Paleozoic limestones in the Barrandian area have been connected mainly with the prospecting for mineral deposits after World War 2. Former authors have concentrated mainly on the qualitative petrography of the carbonate rocks (e. g. NÁPRSTEK 1954, PETRÁNEK 1951, 1960, KUKAL 1955). The main results of this phase of research have been summarized in papers by SVOBODA et al. (1957) and KUKAL (1964), which described the petrography, chemistry, origin, and secondary alterations (diagenesis, dolomitization, silicification) of the carbonate rocks in the Barrandian area.

Some minor papers dealing with these limestones were published in the 1970's and 1980's, such as one concerning of the origin of "stromatactis" structures (KUKAL 1971), and another on nodular limestones (KUKAL 1975). Some comprehensive texts contain chapters devoted to these Early Paleozoic limestones (KUKAL 1985, 1986).

New progress in this field began in the 1990's when updated methods, such as microfacies analysis (HLADIL 1991, 1992, VELEBILOVÁ – ŠARF 1996), isotope analysis, and the analysis of organic matter (HLADIL 1992, SUCHÝ et al. 1996), began to be used. Papers by HLADIL (1995, 1997) dealing with the facies development of the Koněprusy reef complex have been discussed by CHLUPÁČ (1998).

Recent papers have been published by FRANCŮ et al. (1998), FILIP – SUCHÝ (1999), DOBEŠ et al. (1999), HEJLEN et al. (1999), MANN et al. (1999), and VOLK et al. (1999).

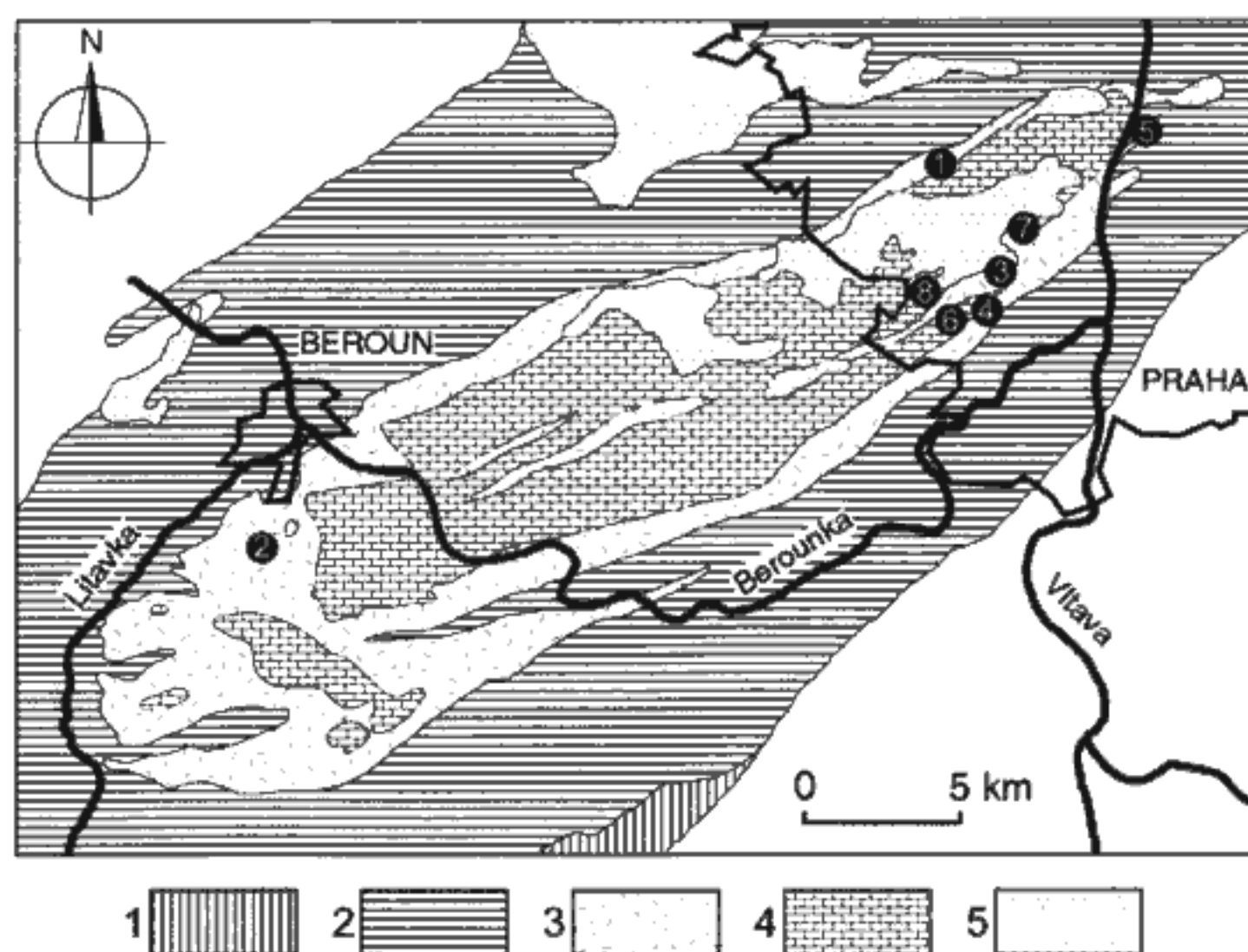


Figure 1. Map showing the position of studied localities.

1 – Cambrian, 2 – Ordovician, 3 – Silurian, 4 – Devonian, 5 – platform formations; Localities: 1 – Požáry quarry, 2 – Kosov quarry, 3 – Marble quarry, 4 – Radotín, 5 – Podolí, 6 – Černá rokle near Kosoř, 7 – Homolka quarry near Velká Chuchle, 8 – Cikánka quarry.