SILICICLASTIC TERMINATION OF THE CARBONATE SEQUENCE–SIGNAL OF VARISCAN OROGENY

Z. KUKAL

Czech Geological Survey, Klárov 3, Klárov 3, 118 21 Praha 1, Czech Republic

Great part of the Devonian in the Barrandian is represented by a carbonate sequence. The topmost Devonian unit is, however, mostly of siliciclastic nature. The deposition of the Givetian Srbsko Formation starts sharply with dark claystones, bedded cherts and intraclastic limestones. Its base corresponds to a transgressive event of global character (Kačák Event). The overlying unit, the Roblín Member – consists mostly of siltstones and has a flysch character. It corresponds to distal turbidites with some specific features. The moderately mature detritus is river–borne. Slow and diluted turbidity currents were triggered by an input of river suspension into the basin. The turbidites were intensively reworked by traction currents. The freshening of water masses accompanied the turbidity sedimentation. The beginning of siliciclastic flysch sedimentation was influenced by an aseismic uplift of the source areas. The development of soils and terrestrial vegetation could have played also an important role. All the detritus is formed of a denudational material eroded from a regolith and trasported by rivers. Regolith (soils) and a stable river system possibly developed in the source area due to the onset of land vegetation. Thus the turbidity currents filling the basin did not start as earthquake–triggered slumps but as river suspension inflows.

The Roblín Member represents a natural sequence from immature flysch through mature flysch probably up to supermature molasse. This molasse, however, is preserved only in a small Koněprusy area.

THE DEVELOPMENT OF THE CARBONIFEROUS ACCRETIONARY WEDGE IN THE MORAVIAN–SILESIAN PALEOZOIC BASIN

O. KUMPERA[1], P. MARTINEC[2]

[1] *Department of Geology, Mineralogy and Geochemistry, Mining and Metallurgical University of Ostrava, tř. 17. listopadu, 70833 Ostrava–Poruba, Czech Republic*

[2] *Institute of Geonics, Czech Academy of Science, Studentská 1768, 708 00 Ostrava–Poruba, Czech Republic*

The Moravian–Silesian Paleozoic Basin, the most extensive Paleozoic Basin of the Bohemian Massif represents a relic of a polyhistory large basinal structure. It was formed between Variscan collision zone on the West, the remnants of the Brunovistulian platform on the East and the Crakowides on the ENE. The terminal stage of the collision exhibits the basin type transitions from the remnant basins with flysch sediments (Famenian? – Upper Viséan) overlying predominatly carbonate platform sediments to the foreland basin with marine (uppermost Viséan–Namurian A), paralic (Namurian A) and finally continental (Namurian A – Westphalian) molasse deposits.

In Late Devonian and Carboniferous, the borders of Brunovistulicum were gradually disintegrated. This process was provoked by gradual shifting of Variscan collision zone toward Brunovistulicum and was accompanied by formation of the thrust–fold belt which led to the creation of a mountain relief in the close source area. At the same time, a system of relatively narrow remnant basins filled by flysch–type sediments originated. During the closing stage of the collision, the foredeep and foreland basin were filled by marine, coalbearing paralic and coalbearing continental molasse deposits.

The geometry of the basin passed through great changes due to the subsidence axis migration from collision zone (from W) toward foreland (in E direction) and simultaneous folding and thrusting of sediments already deposited in western depressions. Under the conditions of the gradual resedimentation and tectonic reworking, a complicated accretionary wedge of clastic sediments and metasediments originated in Late Devonian (?) and Carboniferous. Its overall thickness (after compaction) is more than 10,000 m.

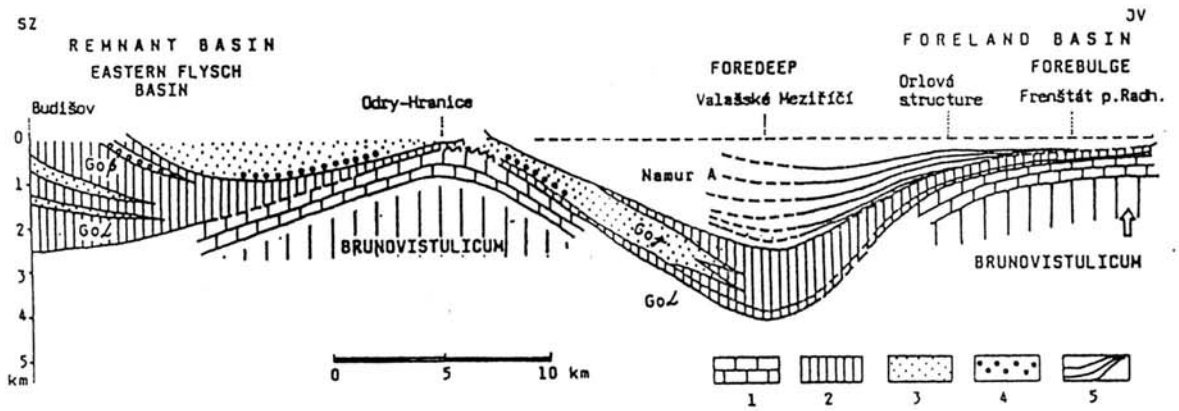
The flysch stage of the accretionary wedge evolution is typical of the sedimentation and resedimentation by turbidity currents, mudflows and sandflows. Sedimentary lineations (sole marks) prove the longitudinal filling of the flysch depressions from S to N up to ENE. The Upper Viséan flysch sediments, which are paleontologically well proved include a whole megafacies distribution starting by marginal coarse conglomeratic beds in southern part of Drahanská vysočina Upland (deep sea midfan) and continuing to the north by fluxoturbidites, proximal turbidites, distal turbidites (outer fan) and hemipelagic sediments gradually in the northern parts of the preserved accretionary wedge.

A western supply partly from the crystalline complex of the inner parts of Bohemian Massif has been proved. The marginal conglomeratic megafacies are not preserved in the older Viséan and Pre–viséan fans. They were probably eroded or absorbed during Viséan by the prograding western thrust–fold belt due to the oblique collision. The composition of the Upper Viséan coarse clastics deposited in the southern inner parts of the fan testifies the gradual change of the source area from low to high metamorphosed crystalline rocks and the supply from the deep eroded crust in Moldanubicum. In addition to this hinterland source area, the older flysch and pre–flysch sediments and probably also sediments originated in piggy–back basins were redeposited from the thrust–fold belt into the Upper Viséan part of the accretionary wedge.

A different development of the flysch clastics can be observed in the northern areas of the accretionary wedge where the distal megafacies prevail.

Olistolites, frequent pebbly mudstones, redeposited clasts with older fauna, mutual eastern shifting of the axis of maximum subsidence and different thickness of the stratigraphic units testify the changes in basin configuration and mutual uplifts of the intrabasin elevations on the places of ceased flysch partial basins. The basinal cannibalism led to the extensive resedimetation of clastics mainly in more compressed northern parts of the basin. The increasing mineralogical and chemical maturity can be therefore observed in younger sediments. All these processes caused not only the W–E polarity of the accretionary wedge but also significant changes in its lithology, structure and metamorphose.

The foreland basin with molasse differs from the previous stage by the decreasing thrusting activity and by more stationary tectonic conditions. The accretionary wedge originated in two contrasting tectonic units. Up to 4000 m of marine and paralic molasse sediments accumulated in the western foredeep while their thickness is reduced up to several hundred meters in the eastern platform. The foredeep and platform differs not only in thickness but also in facies, number of coal seams, their thickness, coal capacity, coalification degree and tectonic structure. Compared with flysch basin, the extensive source areas with low relief include not only the units in hinterland and in older parts of accretionary wedge but also in the forebulges uplifted in the eastern part of the platforrn. The maturity of clastics increases gradualy in paralic molasse sequence and reaches its maximum in continental coalbearing molasse deposits.



Schematic palinspatic cross section showing the transition from remnant basin to foreland basin in the Moravian–Silesian Paleozoic Basin during Late Viséan ($Go_{\alpha-\gamma}$) and Namurian A.1–carbonates, 2–predominatly shaly deposits, 3–predominatly graywackes, 4–conglomerates, 5–coal–bearing paralic molasse.

EFFECTS OF VARISCAN OROGENY IN THE CARNIC ALPS (AUSTRIA/ITALY)

A. LÄUFER

Geological Institute, University of Tübingen, Sigwartstr. 10, D–72076 Tübingen, Germany

The Carnic Alps are part of the southern branch of the Variscan orogen. Due to their deformational and metamorphic history, two tectonic nappes can be distinguished. These are the lower, geographically northern Eder nappe already recognized by former authors, and the upper, geographically southern Hochwipfel nappe. The Eder nappe consists of probably lower Paleozoic banded limestones and phyllites, the Hochwipfel nappe of clastic and carbonate rocks, both mainly lower Paleozoic, and the