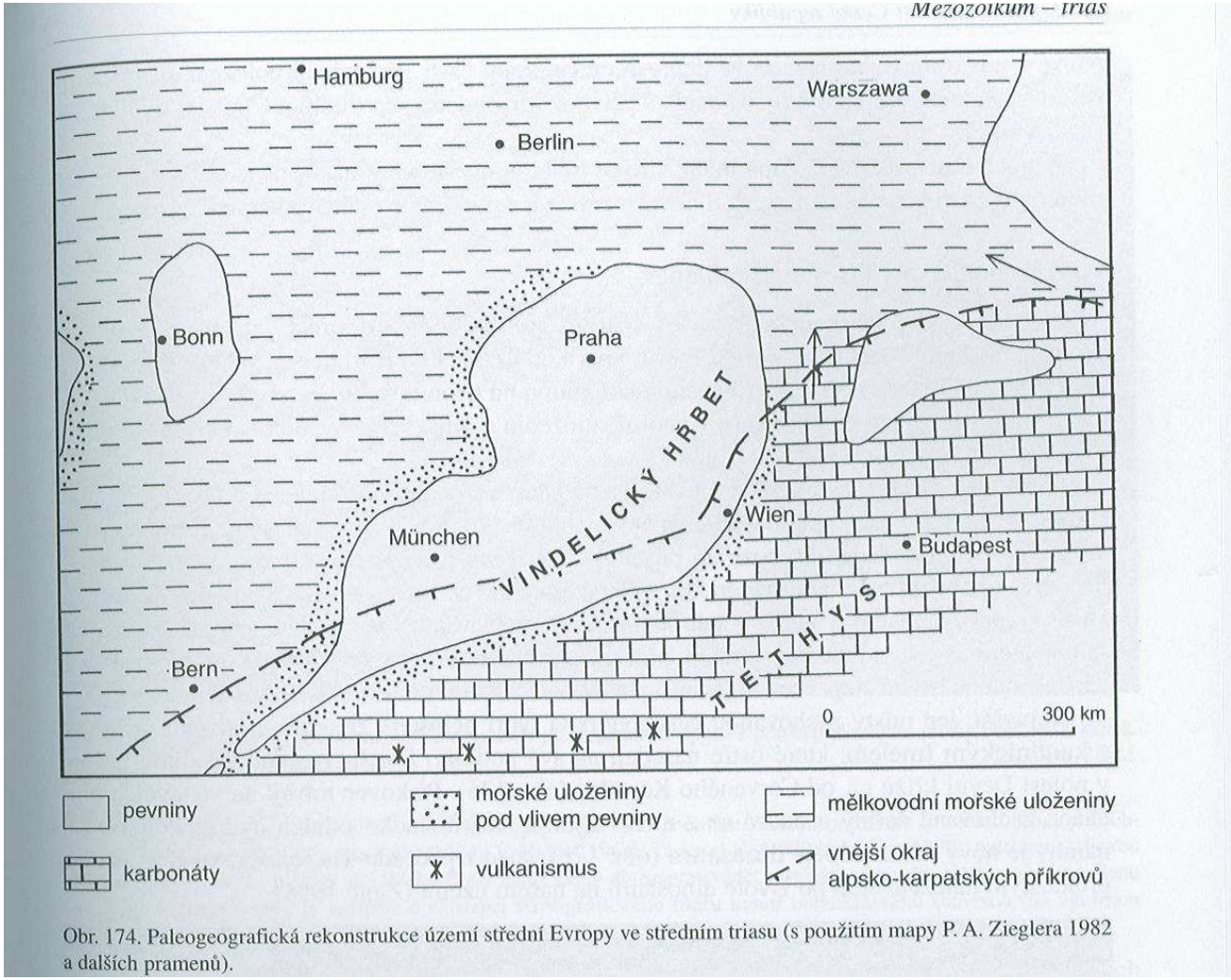
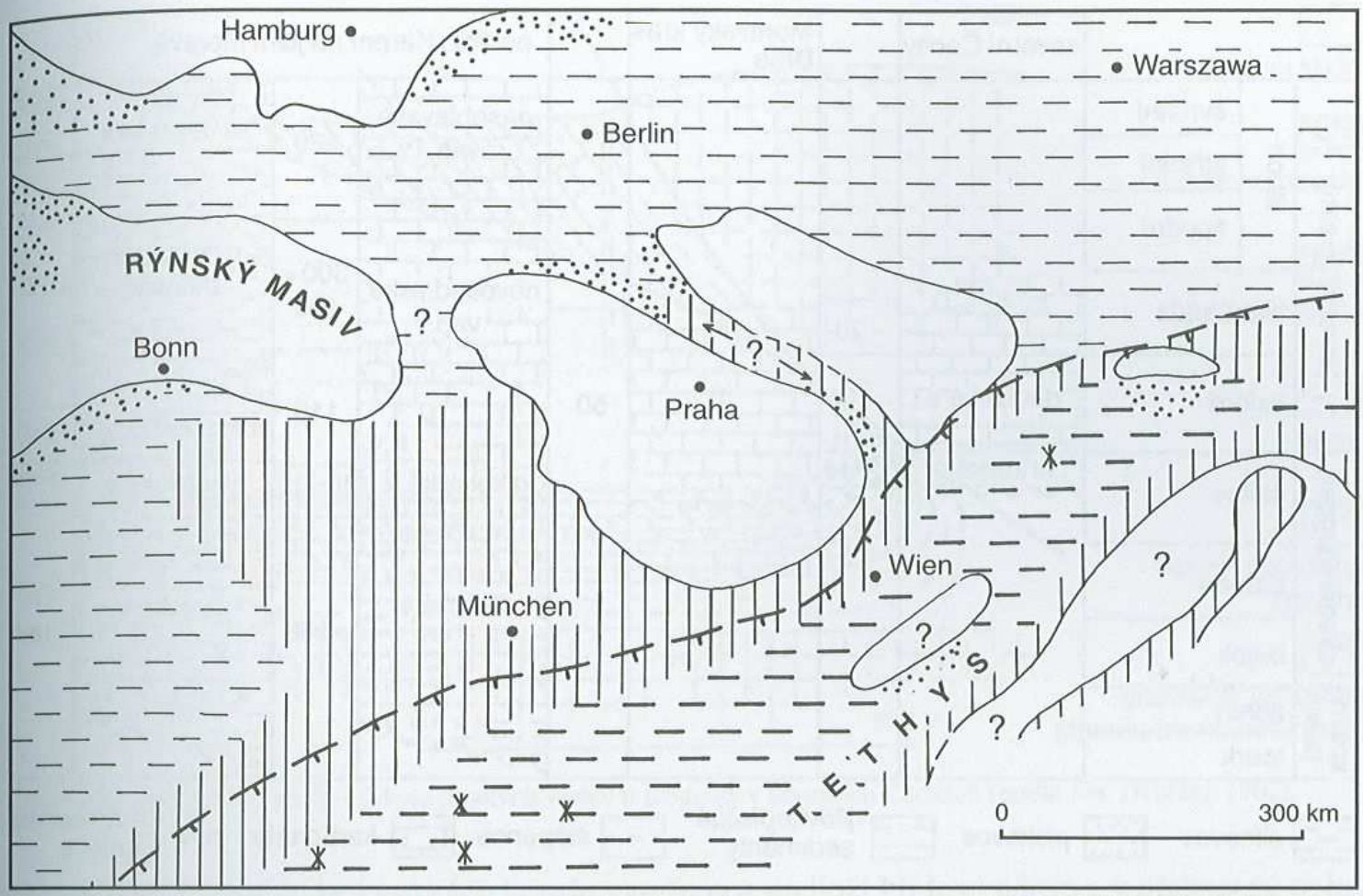
TRIASIC



Obr. 174. Paleogeografická rekonstrukce území střední Evropy ve středním triasu (s použitím mapy P. A. Zieglera 1982 a dalších pramenů).

Červený Kostelec, vicinity of Trutnov – Bohdašín Formation (sandstones, conglomerates), aluvial, Higher limnic sedimentation, in the upper part footprint of the theropod dinosaur

JURASIC



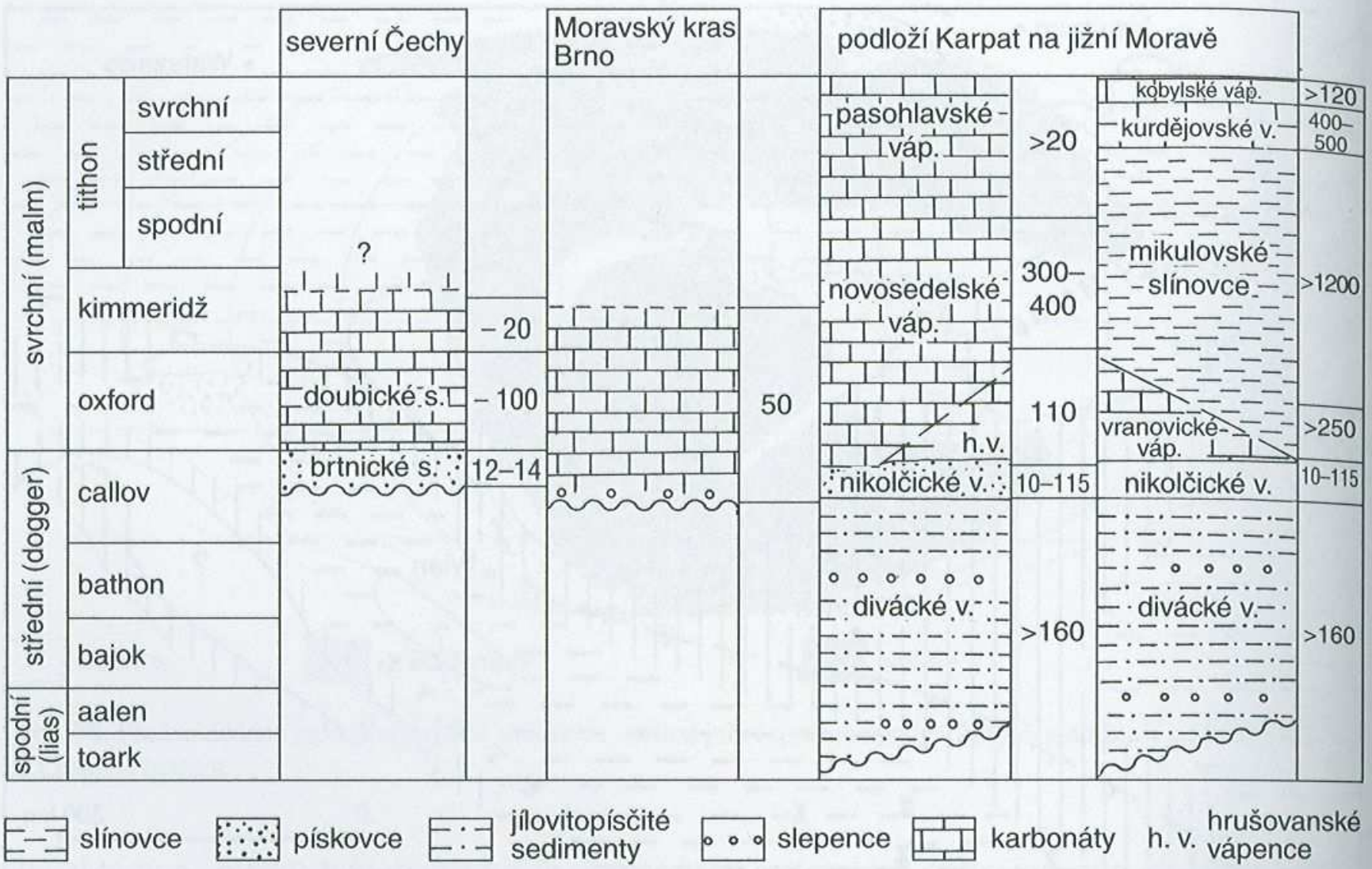
Obr. 179. Paleogeografická rekonstrukce území střední Evropy ve svrchní části jurského útvaru (s použitím mapy P. A. Zieglera 1982 a jiných pramenů).

Moravian strait –connection between tle Tethys and platform development, Narrow strait went from Česká Třebová through Blansko Through to the S Moravia.

Northern Bohemia – along Lužice Fault, vicinity of Krásná Lípa in tle Šluknov projection
Basal sandy member, limestones. Callov-kimmerridge

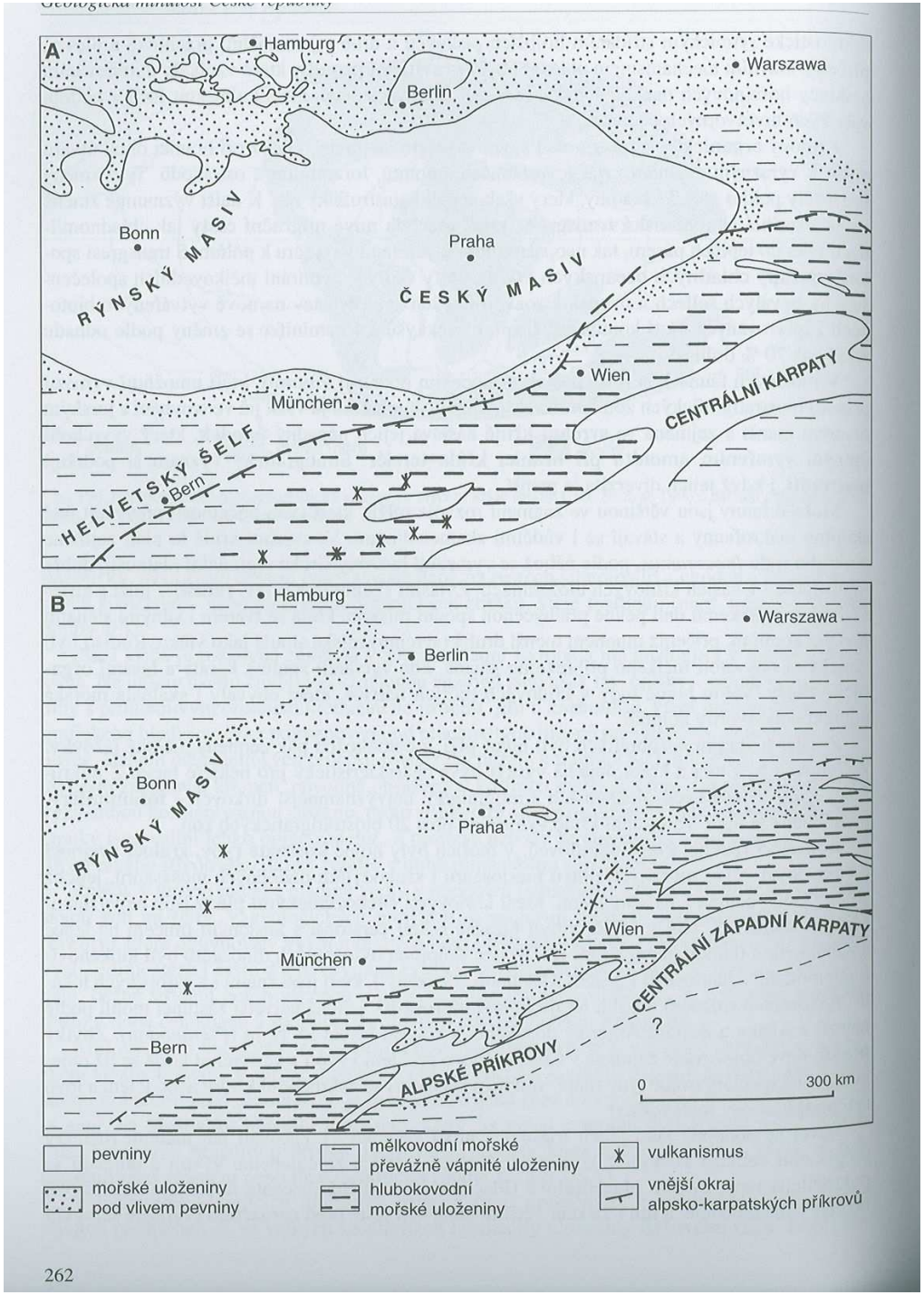
Moravian Karst and the vicinity of Brno – Blansko Through (vicinity of Olomučany, Rudice, Babice, Habrůvka, Brno – Stránská skála, Hády, Slatina. Shallow water platform carbonates.
Locally fosiliferous – crinoids, ammonoids, belemnites, bivalves, gastropods etc.

SE Moravia – eastern slopes of tle Bohemian Massif underneath West Carpathians
Two developments – shallow water carbonate platform (closer to Brno) and deeper development with shales and carbonates more to the east.
In both developments the sedimentation starts with clastic continental to marine sequence



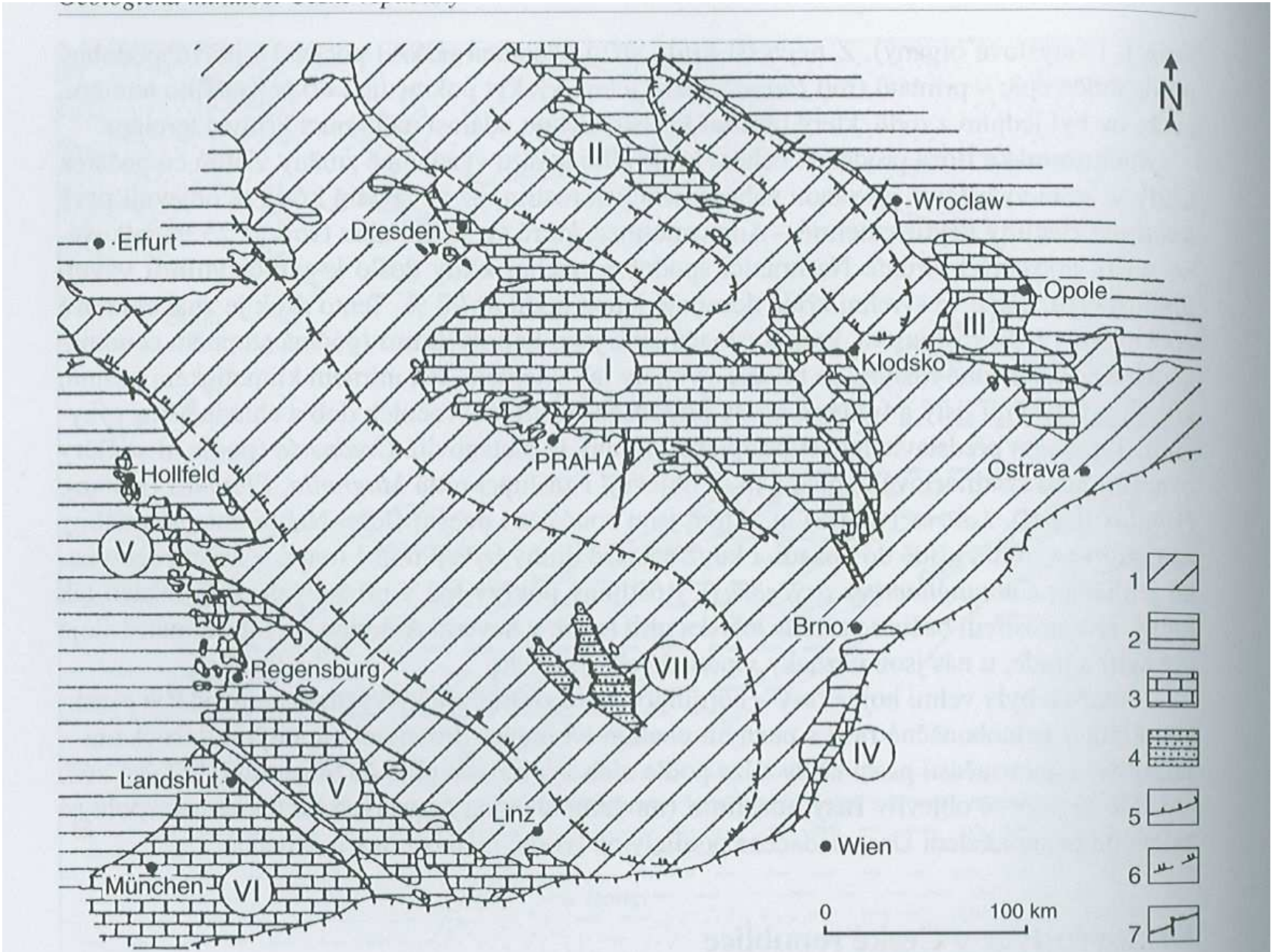
Obr. 180. Stratigrafická tabulka jury v pokryvu Českého masivu (upraveno podle M. Eliáše 1981). s. – souvrství, v. – vrstvy, váp. – vápence, čísla značí mocnosti v m.

CRETACEOUS



Paleogeographic reconstruction in
A – early Cretaceous
B – late Cretaceous

Czech Cretaceous basin
Osoblaha – Opole Basin
S Bohemian basins – fresh water
S Moravia – marginal Tethyan basin



Obr. 192. Zachované zbytky křídových sedimentačních prostorů v Českém masivu a okolí (J. Valečka 1999). Pánve: I – česká křídová, II – severosudetská, III – opolská, IV – dolnorakousko-jihomoravská, V – bavorská, VI – wasserburská, VII – jihočeské pánve. 1 – předmezozoický podklad; 2 – trias, jura; 3 – mořské pánve; 4 – limnické pánve; 5 – vnější okraj alpských a karpatských příkrovů; 6 – okraj vynořených oblastí během turonu až coniaku; 7 – významné zlomy.

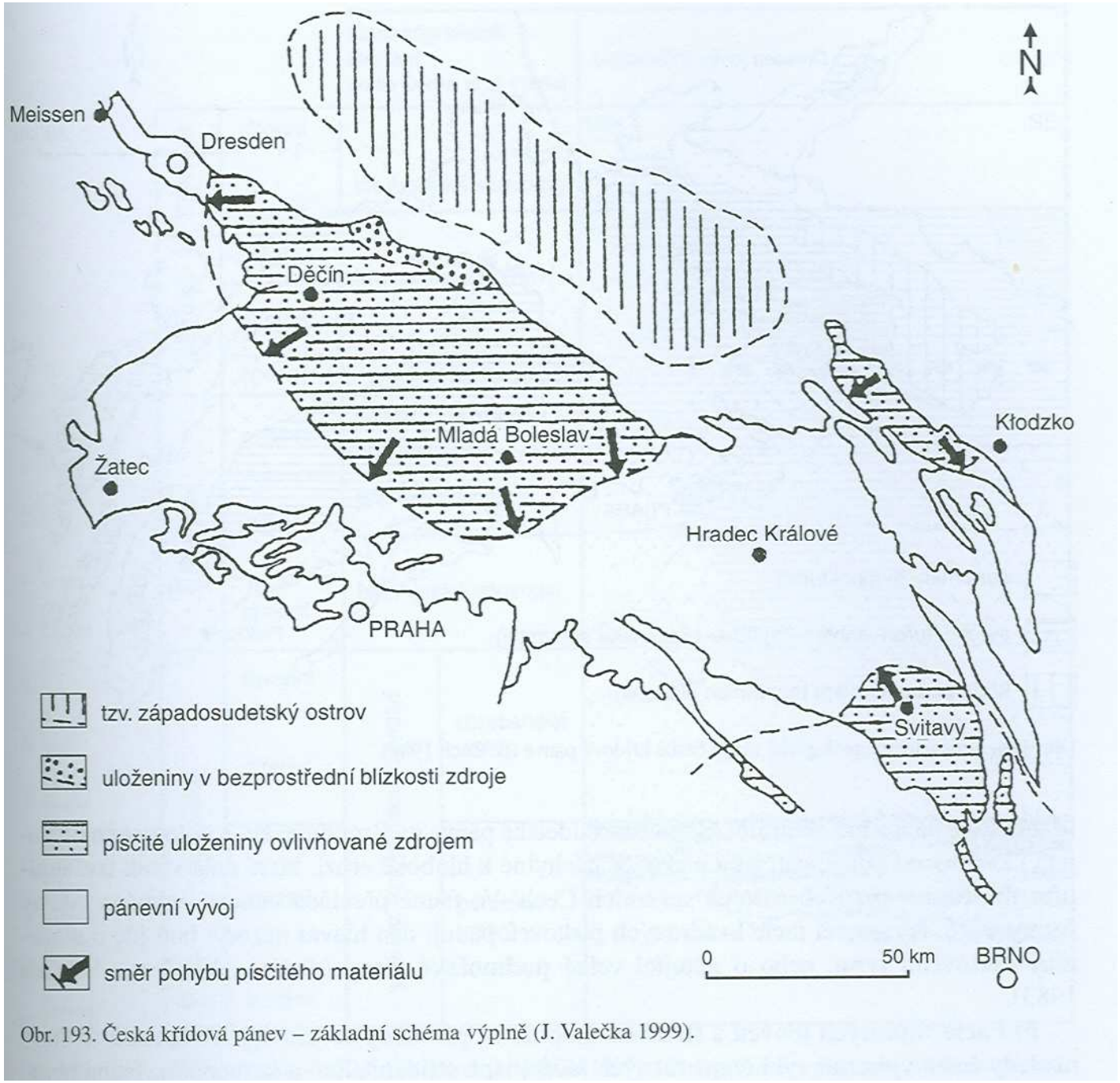
Czech Cretaceous basin

Depression between the Moldanubian and Saxothuringian blocks. First fresh-water sedimenttaion, Cenomanian transgression. Maximal transgression Coniacian, then retreat. Predominately clastic sedimentation

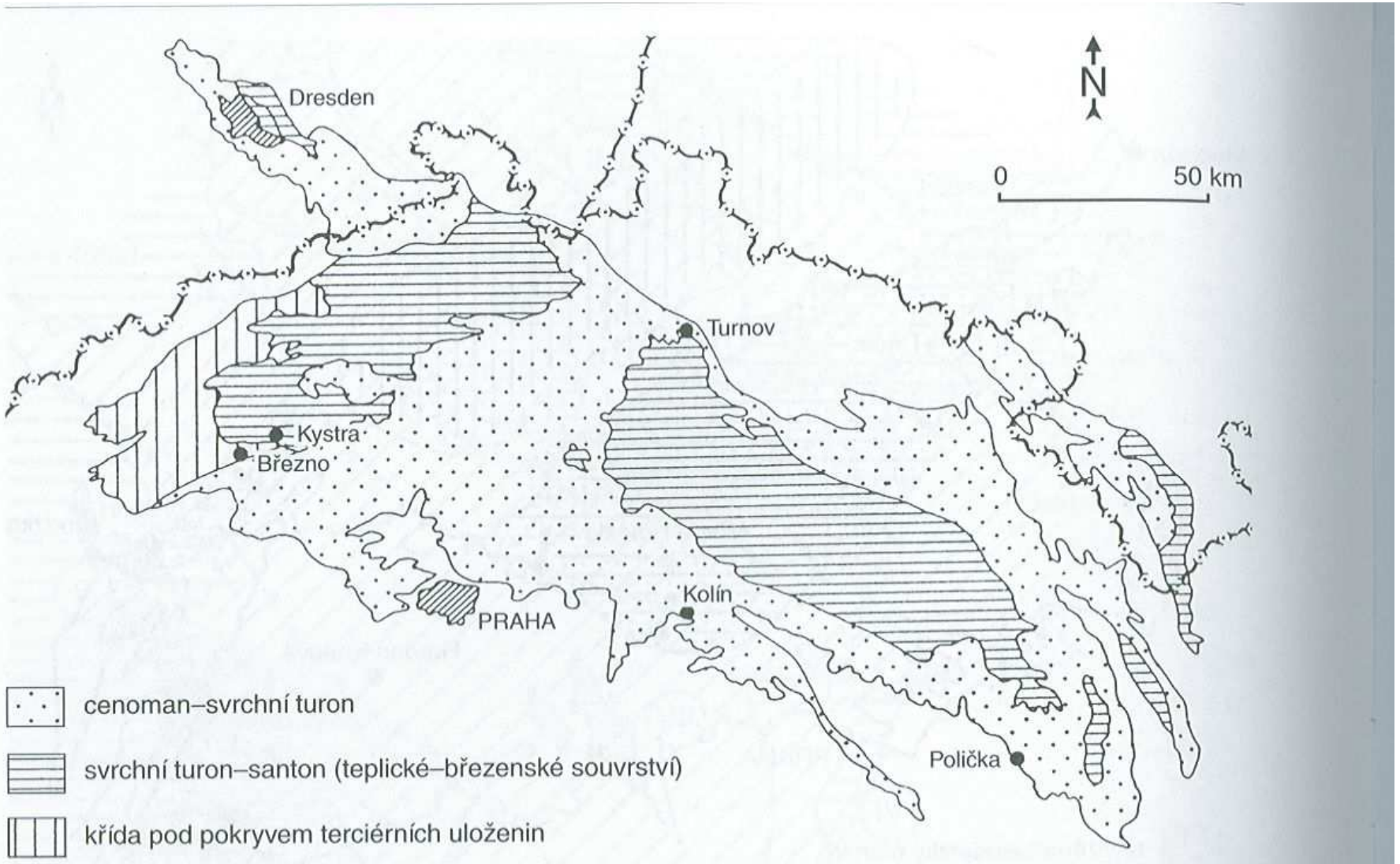
Cenomanian – great facial differencies. From early Turonian transgression two regions with different lithotypes

1) Facies of blocky sandstones. Closer to tle land. Sandstones susceptible to deep erosion – so called cliff towns

2) Facies of marls and arenaceous marls – more distant aresa from tle land



Obr. 193. Česká křídová pánev – základní schéma výplně (J. Valečka 1999).



Obr. 194. Schematická geologická mapa české křídové pánve (S. Čech 1989).

Peruce-Korycany Formation – Peruce Member – conglomerates, sandstones, siltstones, claystones, aluvial and limnic sediments, also lagoonal sediments, rich subtropic to tropic flora
Korycany Member – Cenomanian transgression, typical sandstones with kaolinic matrix in upper part with Glaukonite, mollusc fauna, nearshore conglomerates

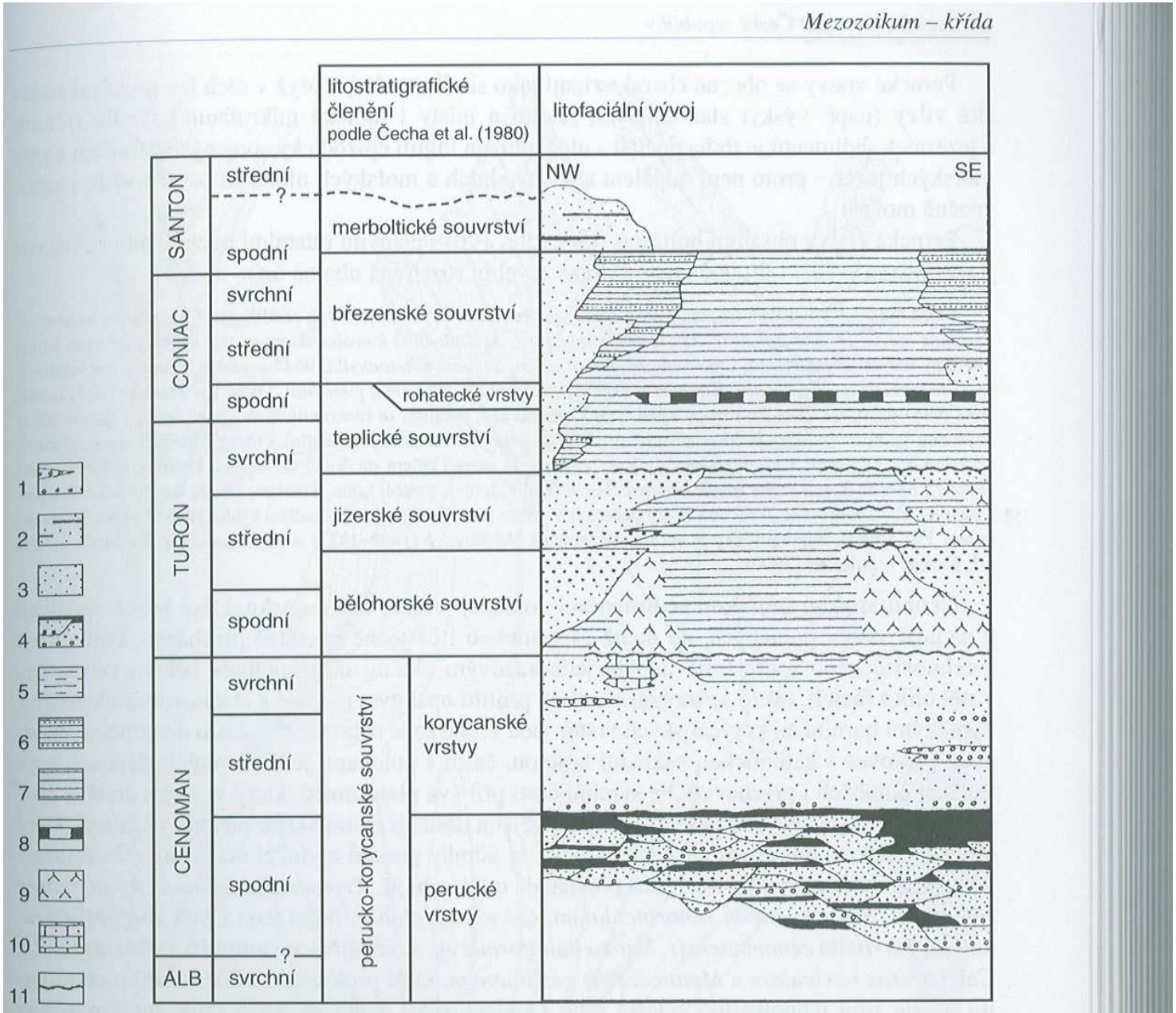
Bílá Hora Formation – further deepening and widening of the marine sedimentatione – basal glaukonitic claystones, in deeper environmen typical arenaceous marlstones, in shallower one blocky sandstones

Jizera Formation – continuing transgression. Deeper environment – calcareous claystones, marlstones, arenaceous marlstones. Blocky sandstones – cliff towns in the vicinity of Děčín, Kokořín, Doksy, Adršpach and Broumov stěny.

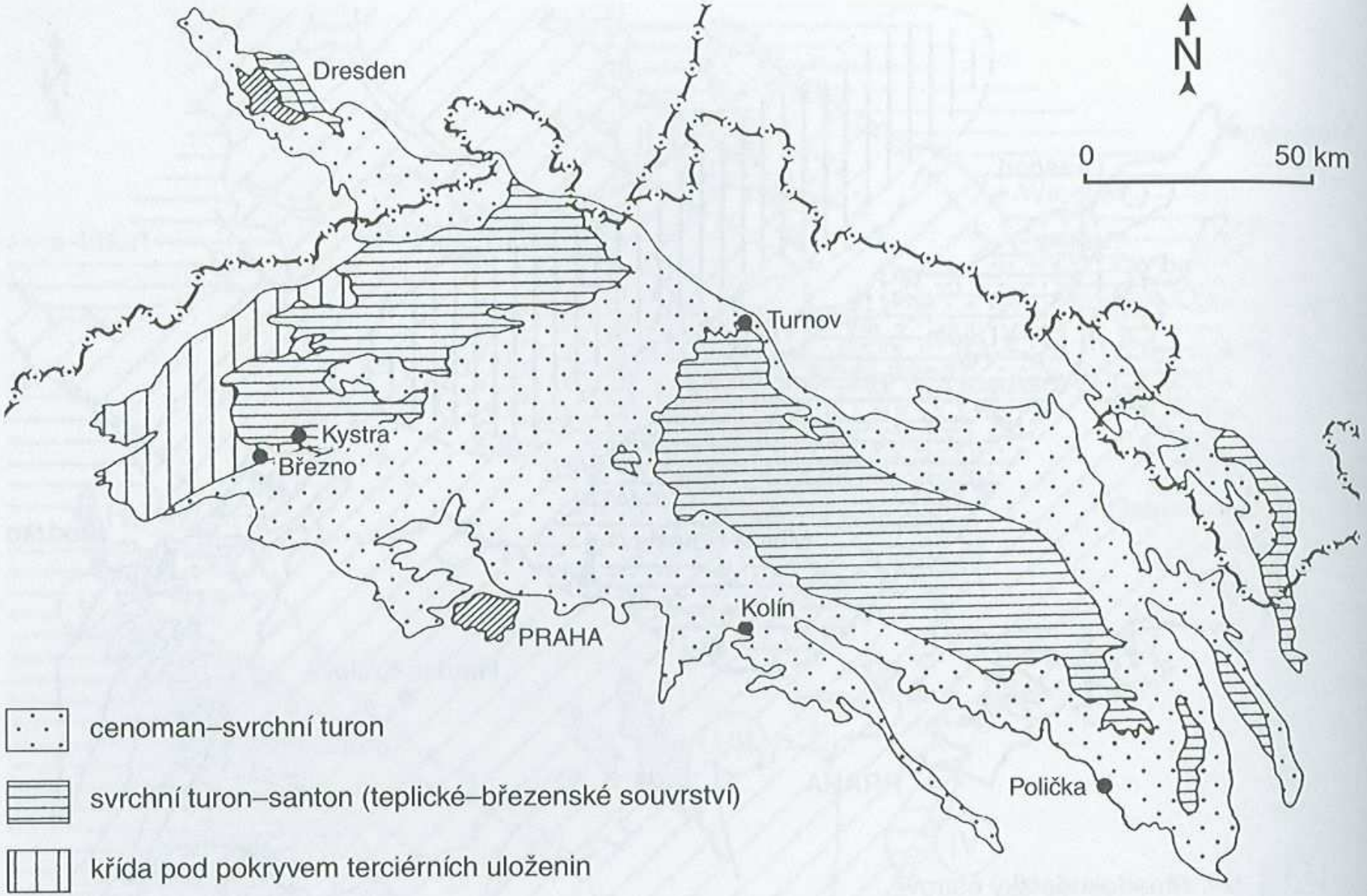
Teplice Formation – transgressive, probably the greatest extent of the basin. Mostly marls, the extent of the sandstone facies restricted. In the upper part Rohatec Member - silicified arenaceous marls, center of the basin.

Březno Formation – facial differentiation. Greater extent of the facies of blocky sandstones. Monotonous calcareous shales and marls in the center of the basin. Transitional facies – alternation of calcareous claystones and siltstones and sandstones, flysch-like appearance, tempestites.

Merboltice Formation – only denudation remnants in the České středohoří Mts. Sandstones with clay matrix deposited during regression



Obr. 195. Stratigrafické schéma české křídové pánve (J. Valečka 1999). 1 – slepence; 2 – pískovce s vložkami jílovců; 3 – pískovce; 4 – cyklické střídání slepenců, pískovců a jílovců; 5 – prachovce; 6 – vápnité jílovce s vložkami pískovců; 7 – vápnité jílovce až biomikritové vápence; 8 – rohatecké vrstvy; 9 – slínovce (opuky); 10 – bioklastické vápence; 11 – glaukonitické obzory na hiátových plochách.



Obr. 194. Schematická geologická mapa české křídové pánve (S. Čech 1989).

Cretaceous sediments in the vicinity of Brno

Blansko depression
Rudice beds – kaolinic shales with interlayers of sands and pebbles of Jurassic limestones and cherts
Fe-ores – hematite, goethite, boehmote
Peruce-Korycany Formation in the top – interconnection with Czech Cretaceous Basin

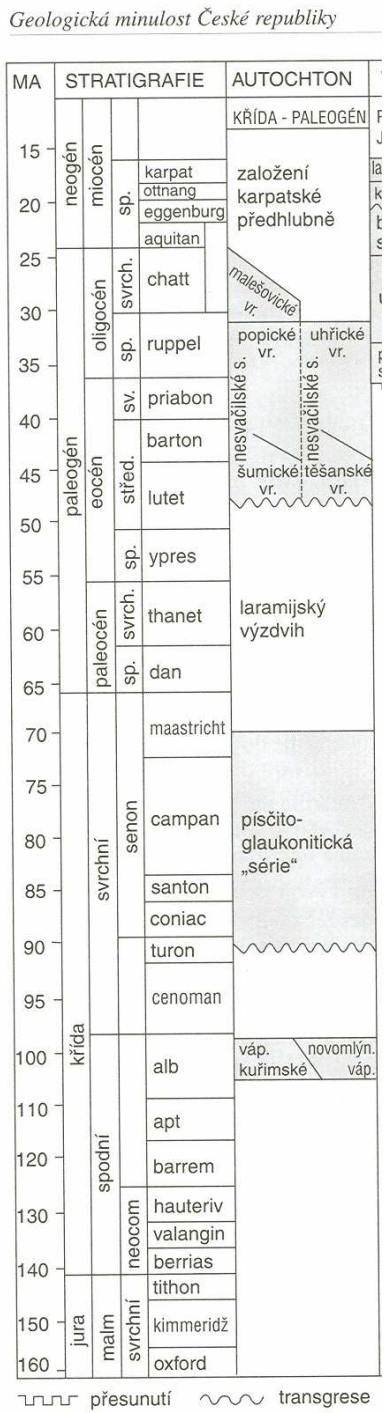
Kuřim Limestones and breccias – transgression of the sea from the sedimentation area of West Carpathians. Aptian-Albian

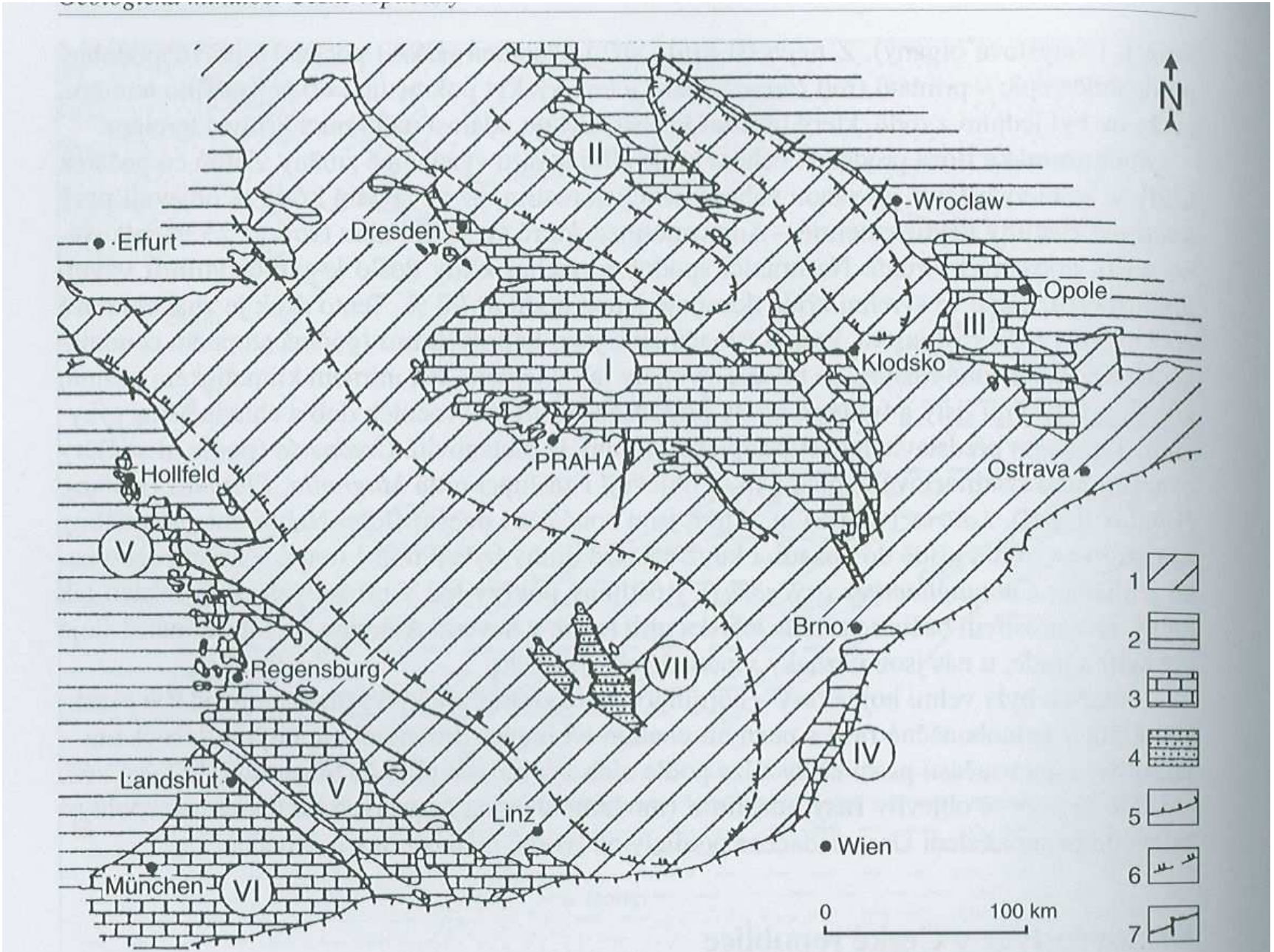
SE Moravia (Upper Austria-South Moravia Basin)

Underneath of West Carpathian units (Carpathian Foredeep, Outer flysch nappes)

Albian bioclastic and micritic limestones
Upper Turonian transgression – glauconitic sandstones, higher up calcareous claystones and siltstones with
interlayers of sandstones and sandy limestones

Cretaceous transgression penetrated from SE from Tethys to NW, interconnection with Czech Cretaceous Basin, interchange of fauna between northern Boreal and southern Tethyan province





Obr. 192. Zachované zbytky křídových sedimentačních prostorů v Českém masivu a okolí (J. Valečka 1999). Pánve: I – česká křídová, II – severosudetská, III – opolská, IV – dolnorakousko-jihomoravská, V – bavorská, VI – wasserburská, VII – jihočeské pánve. 1 – předmezozoický podklad; 2 – trias, jura; 3 – mořské pánve; 4 – limnické pánve; 5 – vnější okraj alpských a karpatských příkrovů; 6 – okraj vynořených oblastí během turonu až coniaku; 7 – významné zlomy.

Opole Basin in the vicinity of Osoblaha

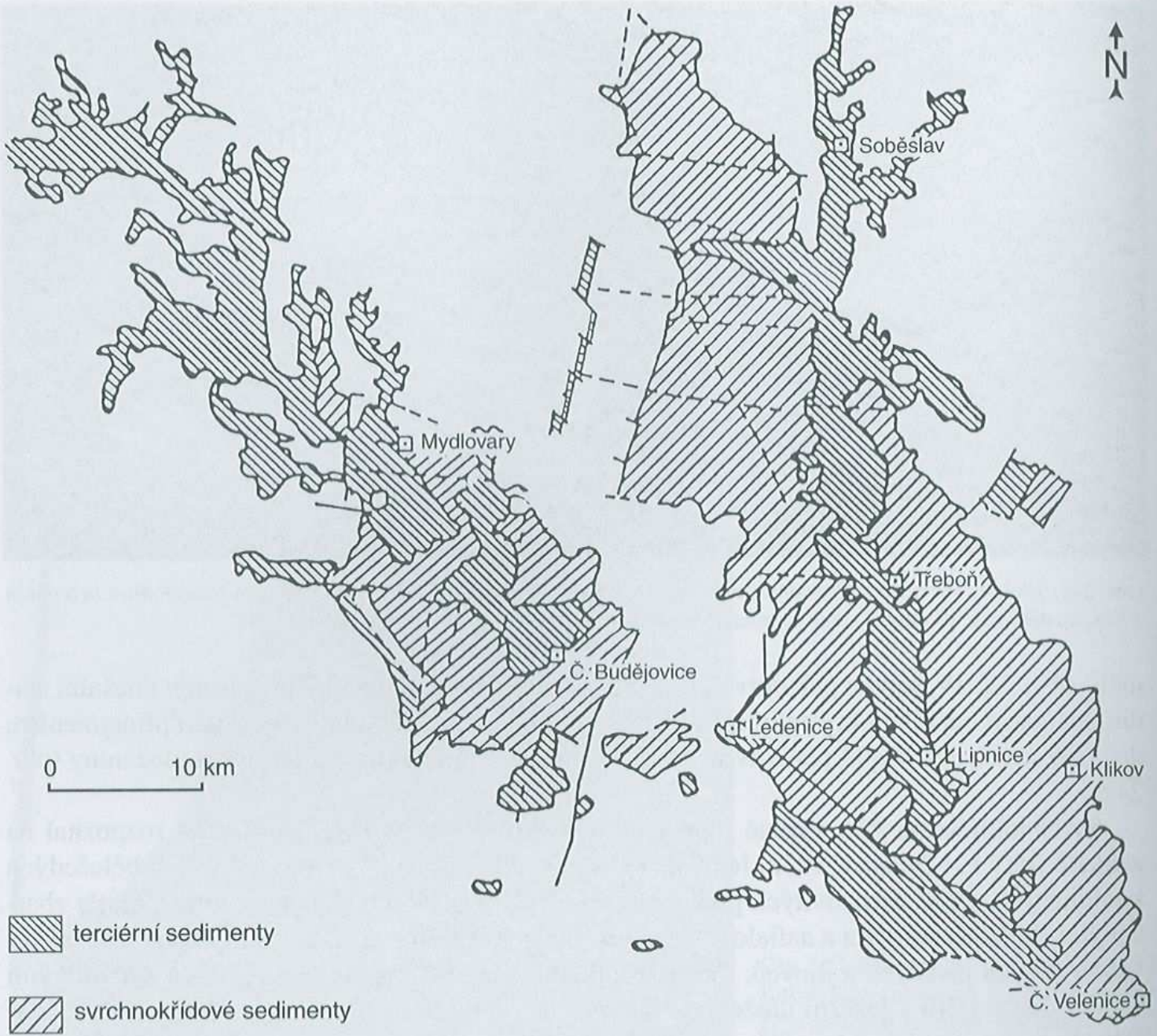
Cenomanian galuconitic and kaolinic sandstones, Turonian to Coniacian marlstones and calcareous siltstones (borehole)
To the SE communication with Tethys

South Bohemia basins

Třeboň and České Budějovice basins. Tectonic origin – impact of alpine orogeny

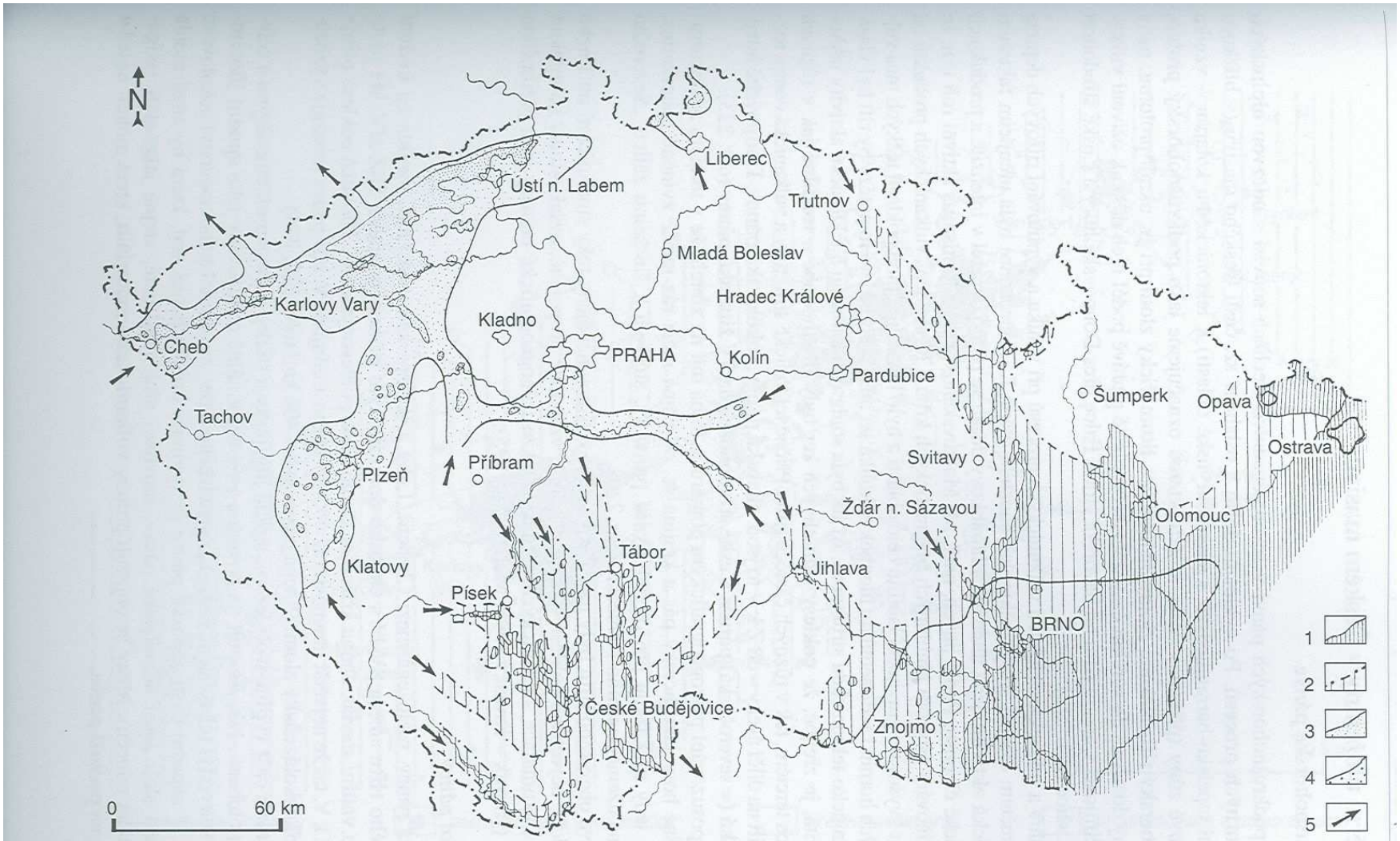
Fresh water upper Cretaceous and Tertiary sediments

Upper Cretaceous **Klikov Formation** –arcose sandstones and ferruginous conglomerates, siltstones, claystones.Alluvial and limnic sedimentation. Flora.



Obr. 212. Rozšíření svrchnokřídových a terciérních sedimentů v jihočeských pánvích (upraveno podle J. Slánské 1974).

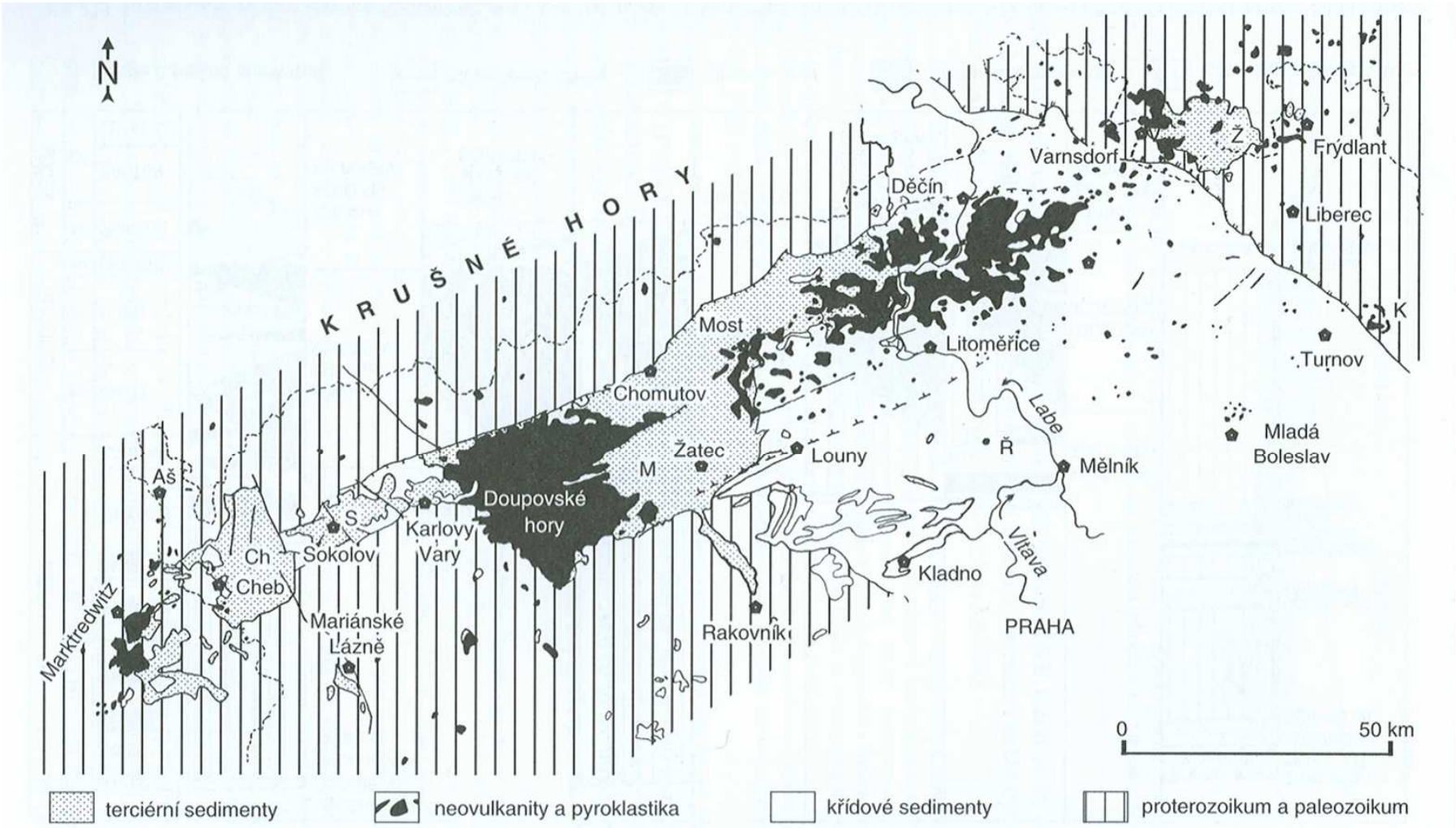
Tertiary



Obr. 221. Rozšíření miocenních uloženin Českého masivu na území ČR (podle M. Malkovského 1979, upraveno). Střední a svrchní miocén: zachované (1) a předpokládané (2) původní rozšíření; spodní miocén: předpokládané (3), zachované (4) sedimenty; 5 – směry přínosu.

Saxon tectonics – faults that have been active already in Mesozoic but inTertiary it had the crucial impact on the origin of sedimentary basins. Influence of the alpine orogeny. Ohře rift (Podkrušnohorský prolom), fault zones paralel to the Labe lineament, south Bohemian basins.

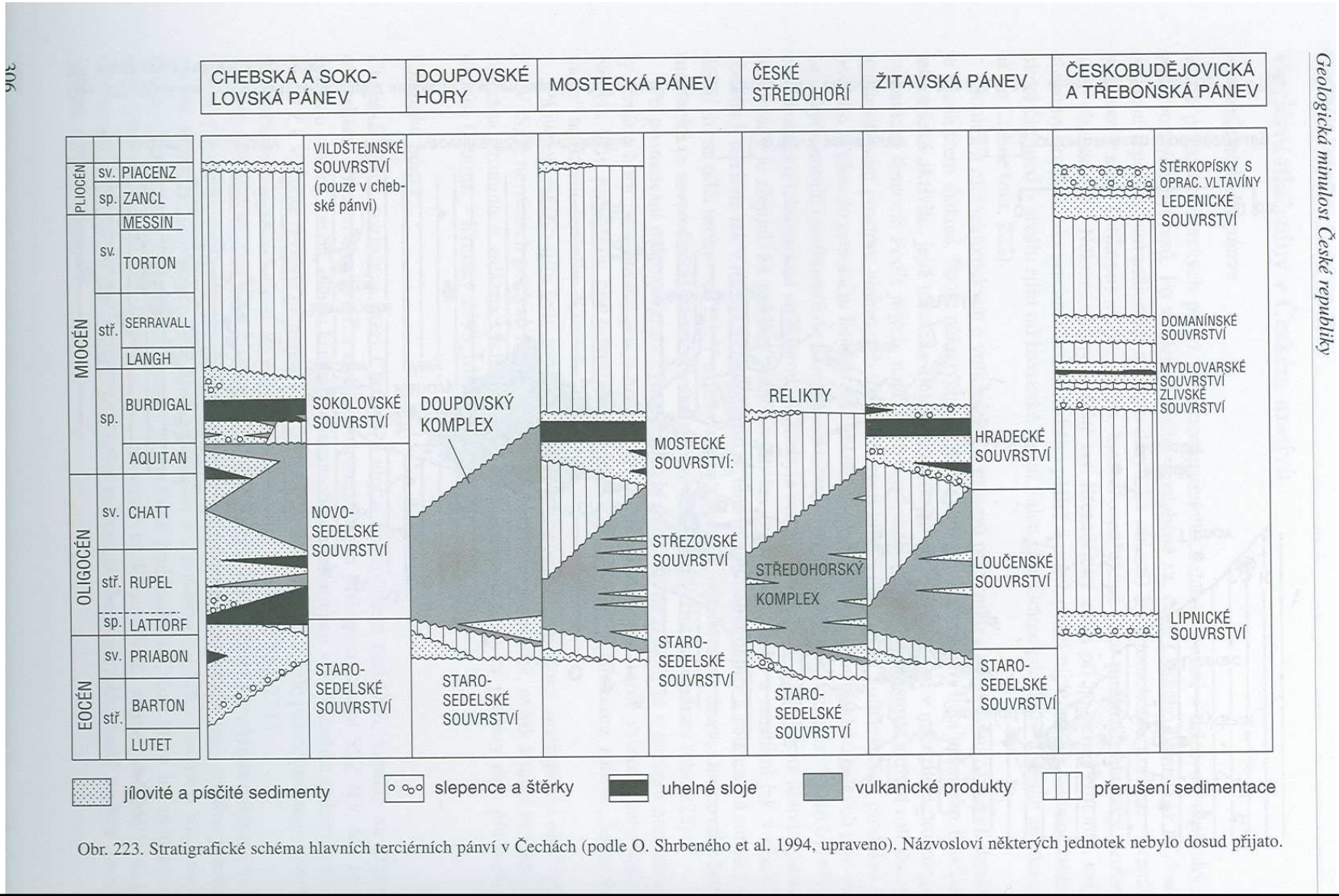
Krušné hory Graben – along the contact of the moldanubian and Saxothuringian terrane, deep seated faults (e.g. Litoměřice fault)-volcanism(Doupov Mts etc.). Transversal fault divided the graben in different basins – Cheb, Sokolov. Most, Žitava (lakes). Krušné hory did not exist



Obr. 222. Rozšíření terciérních sedimentů a vulkanitů v severozápadních Čechách a okolí. Pánve: Ch – chebská, S – sokolovská, M – mostecká, Ž – žitavská; Ř – Říp; K – kozákovské vulkanické centrum.

Cheb and Sokolov basins – sedimentation of clays and sands starts in Eocene. Oligocene-lowermost Miocene coal seams, especially in Sokolov basin, subtropic flora, Cypis formation – clays with silt and sand admixture

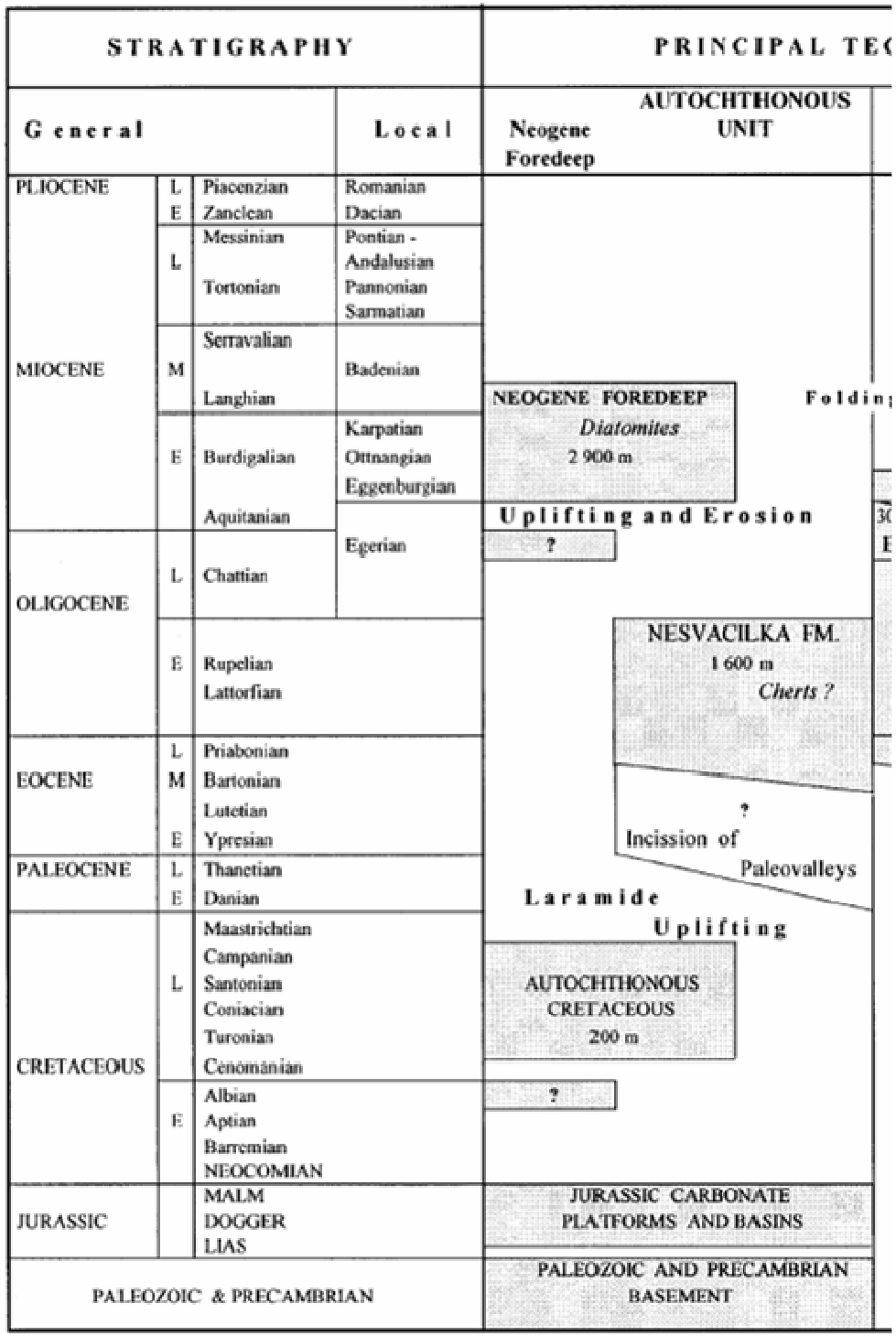
Most basin – between Doupov Mts(stratovolcano) and České středohoří Mts) Lake with river deltas. Eocene-Oligocene – clays, sands volcanic products. Main coal seams (10-30m)– lower Miocene. Than again sandsand clays. Big coal quarries, devastation.



Obr. 223. Stratigrafické schéma hlavních terciérních pánví v Čechách (podle O. Shrbeného et al. 1994, upraveno). Názvosloví některých jednotek nebylo dosud přijato.

South Bohemian basins. Třeboň Basin – basal clastics- sands, sandstones, gravels.Than in both basins lower Miocene (Ottnangian-Karpatian) clays, sandstones, conglomerates in the upper part coal seams and diatomites and diatomite clays. Also brackish sedimenation-at least two ingressions of the sea.

Neoid volcanism – along **Saxon faults**. Main volcanic centers in the Ohře rift (Doupov and České středohoří Mts)., and along Labe lineament.
Volcanic activity started in the late Cretaceous, maximal in Tertiary and aftermath in Quarternary.
Two phases – prerift phase (Campanian-lower Eocene) – Ultrabasic magmas and veins. Rift phase – ultrabasic to intermediate rocks, volcanoclastics in the main phase



Autochthonous Paleogene – Vranovice and Nesvačilka Depression. Margin of the Tethyan sea. Paleogene age, uncertain late Cretaceous. Conglomerates at the base, higher up calcareous claystones
with variable sand admixture. High content of organic matter in the upper part – source rocks for oil and gas (depositsnear Dambořice and Karlín)

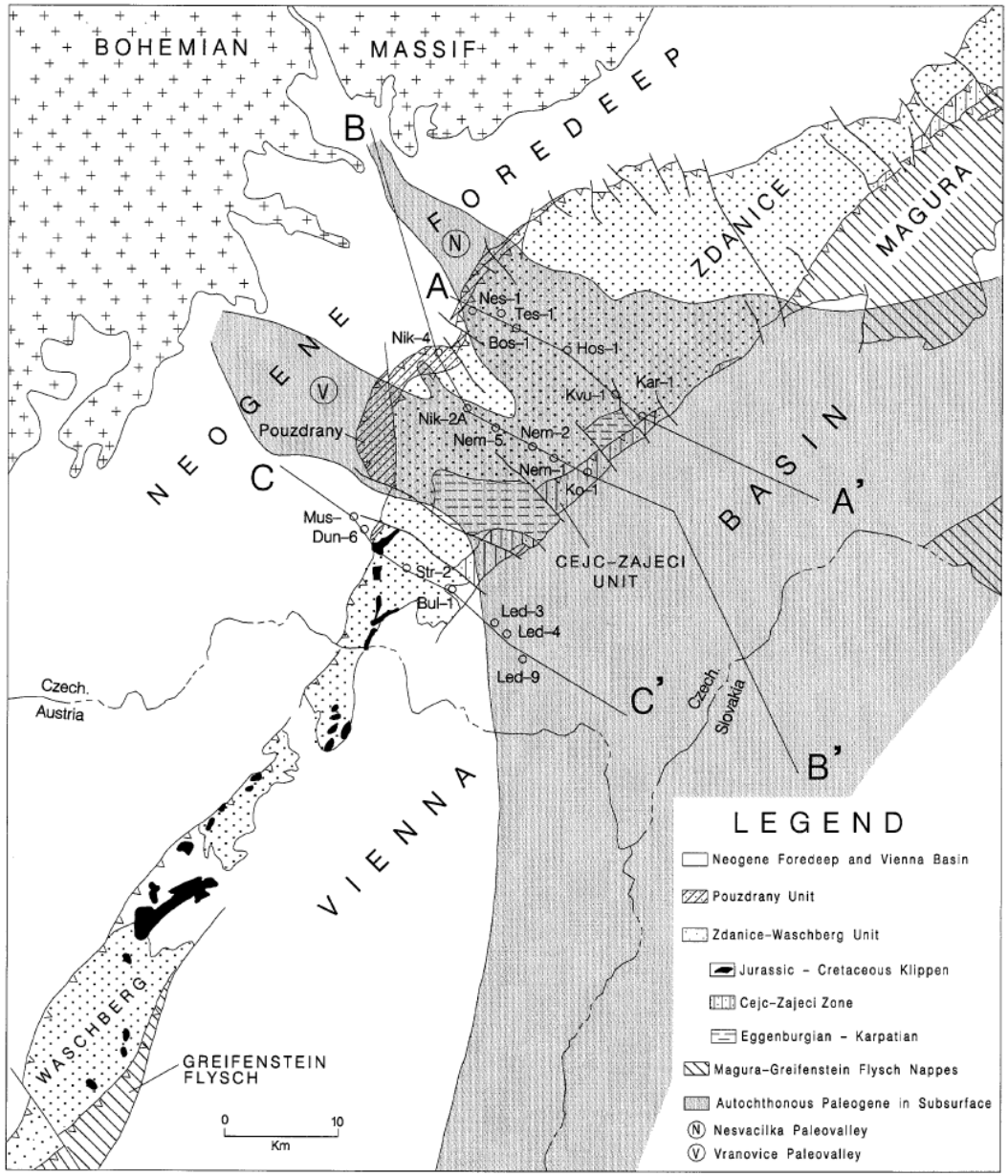


Fig. 2 Diagramatic map showing the principal tectonostratigraphic units comprising the Late Cretaceous to Early Miocene marginal strata of the Carpathian foreland basin in southern Moravia. These include the Autochthonous Paleogene unit (in subcrop), the marginal Pouzdrany unit, the Zdanice unit, and the Magura unit. In Lower Austria, the Waschberg unit comprises equivalents of both the Pouzdrany and Zdanice units

helped to preserve these strata in their autochthonous position below the sole decollement of the thin-skinned Carpathian belt. These deposits thus provide a critical link between the mostly undisturbed sequences of the Bavarian and Austrian Molasse and the tectonically disrupted coeval deposits in the Carpathian region.

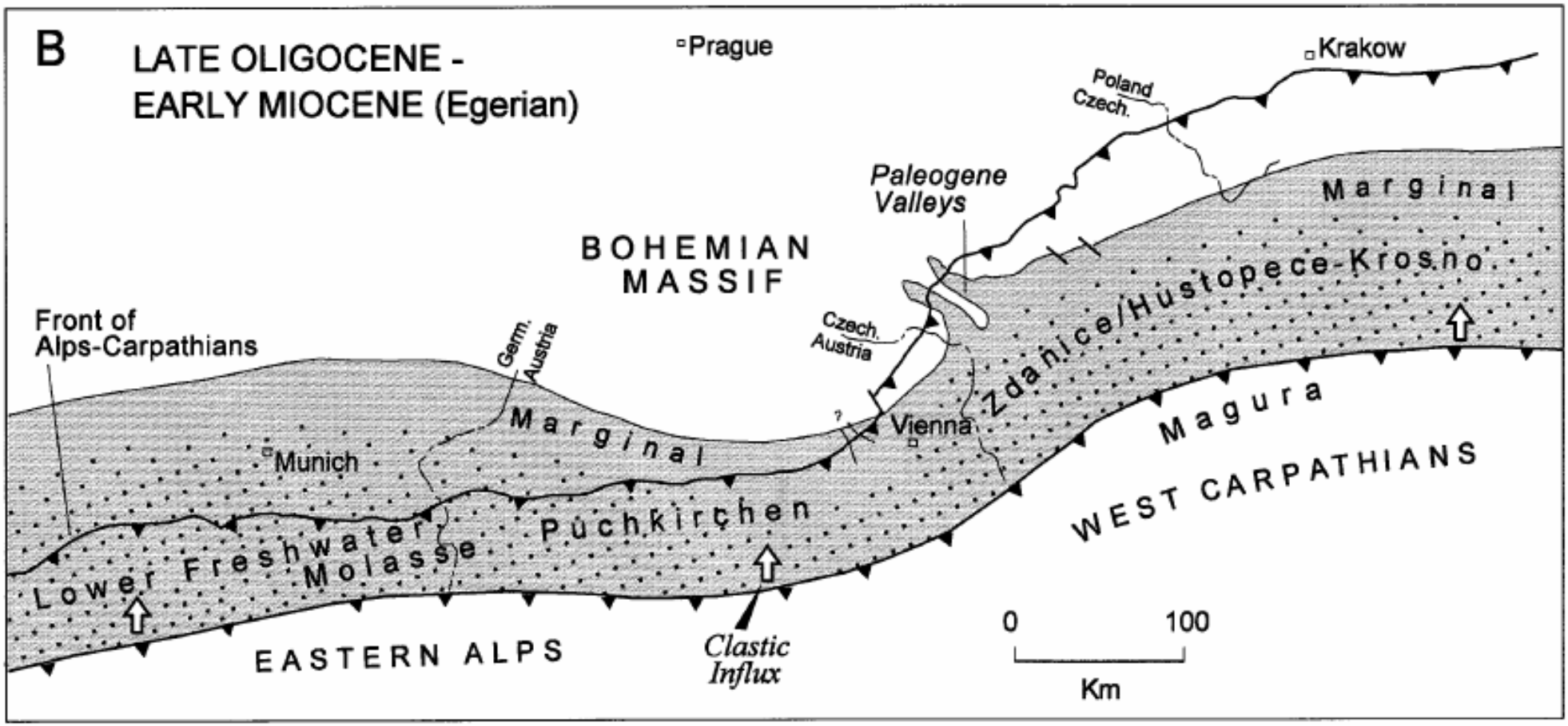


Fig. 7 Paleogeographic reconstruction of the foreland basin in **A** Late Eocene to Early Oligocene and **B** Late Oligocene to Early Miocene. While in the Alpine realm the Late Eocene to Early Miocene deposits are found both below and in front of the Alpine thrust belt, in the Western Carpathians, these marginal deposits, with the exception of two paleovalleys, are buried below the Carpathian belt

Conclusion

The Late Cretaceous to Early Miocene strata of the Carpathian foreland basin have been related to four major tectonic and depositional events. These events