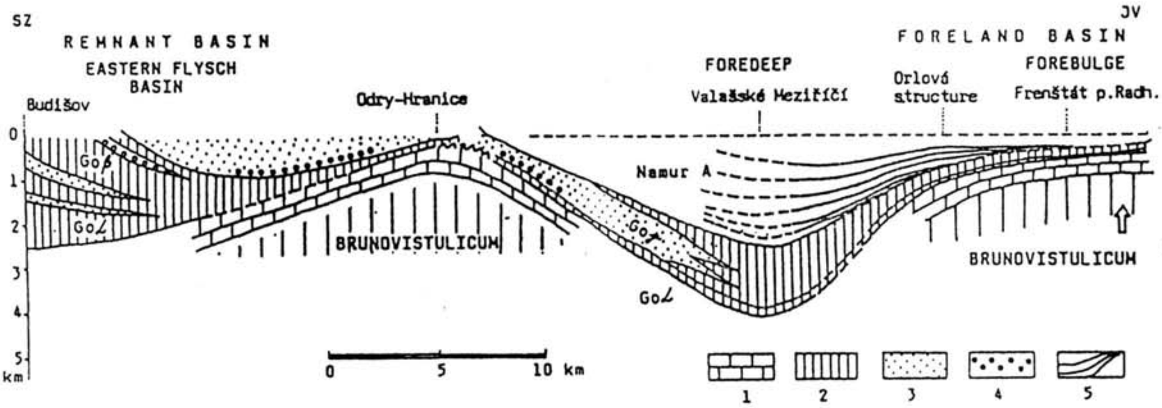
A western supply partly from the crystalline complex of the inner parts of Bohemian Massif has been proved. The marginal conglomeratic megafacies are not preserved in the older Viséan and Pre-viséan fans. They were probably eroded or absorbed during Viséan by the prograding western thrust-fold belt due 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 platforn. 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)

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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

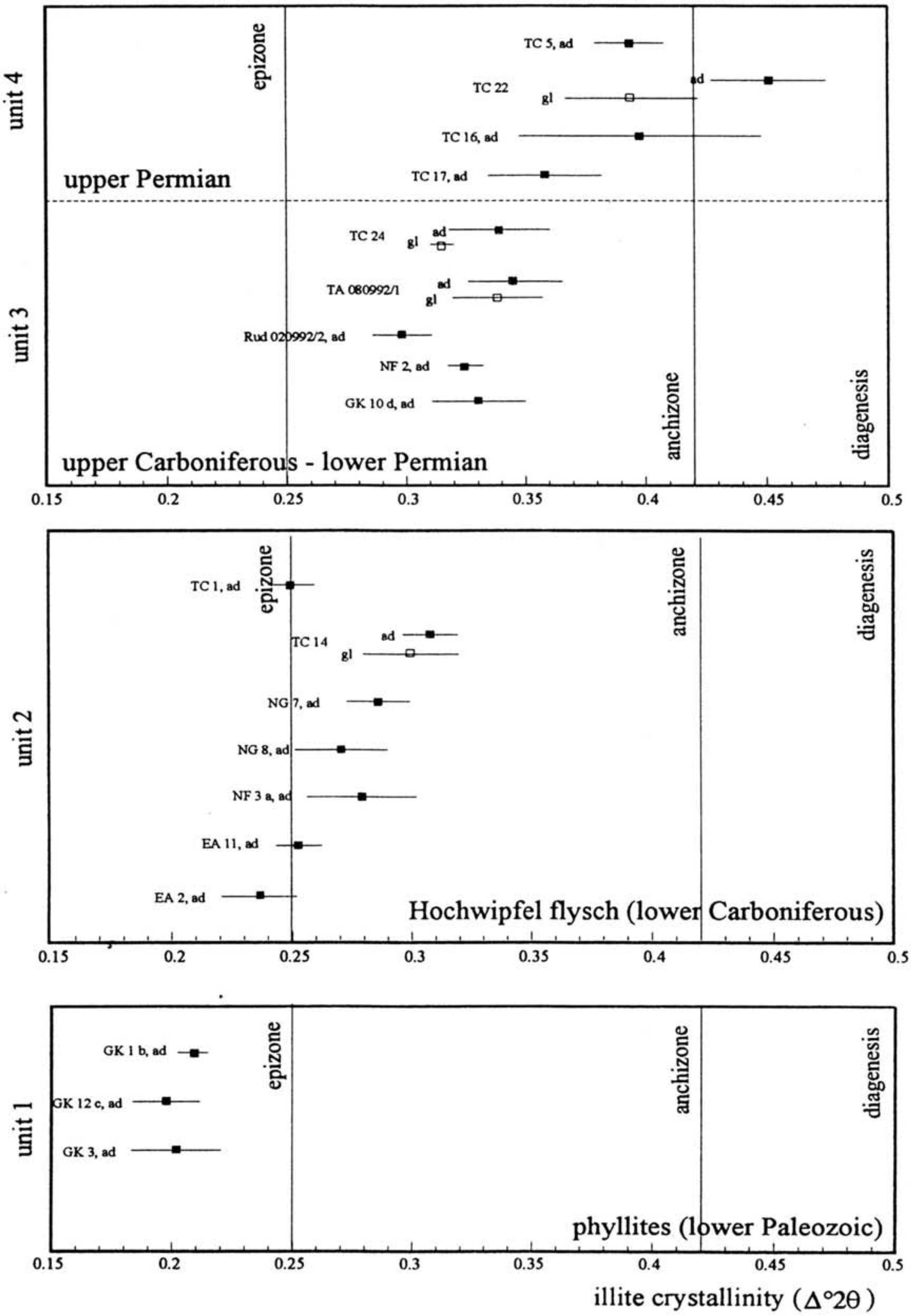

Fig.1: Kübler index of illite crystallinity with standard deviation (2 sigma) for phyllites, Hochwipfel flysch, and upper Carboniferous – Permian cover rocks of the Carnic Alps. Filled quadrangles = air dried slides (ad), blank quadrangles = glycolated slides (gl). Samples TC 16, TC 17, GK 10 d, EA 2 have been decarbonated with acetic acid.

lower Carboniferous Hochwipfel flysch. It is covered by an upper Carboniferous to Triassic post–Variscan sequence.

A first deformation event (D1) of probably lower Carboniferous age (Viséan–Namurian) has affected only the Eder nappe. Banded limestones and phyllites show a strong E–W–oriented stretching lineation (str1) of calcite and quartz, feldspars are deformed cataclastically. Strong isoclinal folds show axes parallel to str1. Tectonic transport was towards E indicated by scand ecc–fabrics, rotated clasts, and preferred orientations of quartz and calcite c–axes. Extensional kink bands perpendicular to str1 formed in a late stage of D1 under retrograde metamorphic conditions. The illite crystallinity method has been used on <2µ – fractions of all units to determine the metamorhic conditions (fig. 1). The limits for the diagenesis–anchizone boundary is 0.42 $\Delta°2\Theta$ and for the anchizone–epizone boundary 0.25 $\Delta°2\Theta$, as used by M. Frey at the University of Basel, Switzerland. Illite crystallinity data of three phyllites of the Eder nappe (unit 1 in fig.1) range between 0.20 and 0.21 $\Delta°2\Theta$ for air–dried specimens and indicate lower epizonal conditions for D1.

Contemporaneously to D1 in the Eder nappe, the lower Carboniferous Hochwipfel flysch was deposited in a deepening trench to the south and olistolites of different sizes broke off the continental margin and slid into this trench. Both flysch and olistolites were deformed and metamorphosed during a second deformation event (D2) of probably lower Westfalian age (Hochwipfel nappe). A stretching lineation has not been developed. Axes of isoclinal folds are oriented approximately WNW–ESE. Thrusting has been towards S to SSW onto the southern foreland, that is in a broad sense northern Africa. Illite crystallinity data of the Hochwipfel flysch (unit 2 in fig. 1) range from 0.24 to 0.31 $\Delta°2\Theta$ for air–dried specimens and indicate mainly upper anchizonal conditions. Lower values at or above the anchizone–epizone boundary are probably due to tectonic influence.

Upper Carboniferous and Permian cover rocks have slightly higher illite crystallinity values (units 3 and 4 in fig.1) of 0.45 to 0.30 $\Delta°2\Theta$ for air–dried specimens indicating mainly lower to medium anchizonal conditions. With the exception of sample TC 22 of unit 4, glycolation of some samples show only a slight shift towards lower values.

ON THE ORIGIN OF MIGMATITES IN THE CENTRAL DAMARA OROGEN, NAMIBIA. MEGASCOPIC AND MICROSCOPIC EVIDENCES

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The Damara Orogen represents a part of the Pan–African mobile belt system which was formed at the triple junction of the Kalahari–Congo craton in Africa and the Sao Francisco cration in Brasil during late Precambrian to early Paleozoic time (e.g. Porada, 1989). During this orogenic event the central zone of the Damara Orogen underwent polyphase folding during three regional deformation phases. Intrusions of a series of voluminous pre–, syn– and posttectonic granitoids took place between 550 and 460 Ma. In the central zone, an increase in metamorphic grade from east to west has been established, indicated by a sequence of isograd reactions: It is important to note, that all isograds cut the tectonic structures discordantly, emphasizing that regional metamorphism in general outlasted the main deformation phases. Progressive metamarphism culminated in a migmatite area located in the western part of the central zone.

Previous petrographic and experimental work by Winkler (1983) and Hoffmann (1976) on rock samples from the central Damara Orogen dealing on granite and migmatite formation, showed that in the most parts the investigated leucosomes represent cotectic or close cotectic composition. Therefore they postulated minimum melting conditions for an in situ anatexis of high grade metapelitic schists in a water rich system.

The reconstruction of the fluid evalution during progressive metamorphism by Hoernes & Haffer (1985) indicated however, that fluid present conditions were only periodically verified among these rocks and they were confident that apart from these short periods of water expulsion, metamorphism occurred at ± water absent conditions. Recent work of Masberg et al. (1992) showed that the Pan–African regional metamorphism culminated in the highest metamorphic part of the central Damara Orogen at conditions of dry low–pressure granulite facies (5kbar, 720 °C). Based on these observations doubts arised that the overwhelming part of migmatites could be products of in situ