KRÖNER A., HEGNER E. and JAECKEL P., 1997. Cambrian to Ordovician granitoid orthogneisses in the Polish and Czech West Sudetes Mts. and their geodynamic significance. *Terra Nostra*, 11: 67-68.

MARHEINE D., KACHLÍK V., PATOČKA F., MALUSKI H. and ŻELAŹNIEWICZ A., 2000. Nouveaux ages hercyniens Ar–Ar dans les Sudčtes occidentales (Massif de Bohčme). RST 2000 Abstracts.

NOWAK I., 1998. Geochemistry of metabasic dykes from the northern part of the Izera–Karkonosze Block, SW Poland. *Geolines*, 6: 48-49.

PHILIPPE S., HAACK U., ŻELAŹNIEWICZ A., DÖRR W., and FRANKE W., 1995. Preliminary geochemical and geochronological results on shear zones in the Izera–Karkonosze Block (Sudetes, Poland). *Terra Nostra*, 8: 122.

ŻELAŹNIEWICZ A., 1994. Ductile shear zones versus amphibolitized basic dikes within the Izera gneisses: fragment of a passive margin stretching from Lausitz to West Sudetes. *Terra Nostra*, 3: 108-110.

Preliminary Data on Amphibolites of Northem Part of the Vysoká hole Nappe (E Sudetes)

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Rocks belonging to the crystalline complex of the Jeseniki Mts. occur in the southeastern part of the Fore-Sudetic Block. Their northernmost parts are situated in Poland. These are: rocks of the Červenohorské sedlo Belt in the vicinity of villages Burgrabice and Sławniowice and rocks of the Vysoká hole nappe, forming the Góra Parkowa between Głuchołazy and Polish/Czech border (cf. tectonic sketch of Chán et al. 1994).

Western and northwestern parts of the Góra Parkowa are dominated by quartzites with subordinate mica schists and biotite gneisses. Small, decimetre-sized veins of amphibolites and lenses of calc-silicate rocks occur also in that area. Southern part of Góra Parkowa consists of chlorite–muscovite or chlorite–muscovite–biotite schists with intercalations of amphibolites.

Three types of amphibolites occur in the discussed area. Amphibolites of the first one show preserved ophitic structure. They are medium-grained and contain subordinate quartz, plagioclase and small amounts of biotite plus accessory titanite, zircon and opaques. Amphibole grains form triangular spaces filled with quartz, plagioclase or quartz–plagioclase aggregates. This type of amphibolites was described by Muszyńska (1989).

The second type are banded amphibolites/ calc-silicate rocks. These were supposedly described by Majerowicz and Sawicki (1958) as "zoisite amphibolites". Banded amphibolites occur close to the Polish/Czech border in Gęstwina. The rock has very variable structure. Amphibolite layers are dominated by needle-like actinolite, locally including anhedral prismatic crystals of amphibole II or their aggregates. Fine-grained albite aggregates occur among amphiboles. They contain epidote–clinozoisite, titanite and opaques. Fine plates of biotite-like platy mineral occur sparsely among amphiboles. Calc-silicate bands consist of quartz, plagioclase, epidote–clinozoisite, pyroxene, carbonates and opaques. The bands are slightly cataclastic. They may contain various amounts of amphibole. Banded amphibolites are accompanied by homogeneous amphibolite, whose mineral composition and structure are similar to those of amphibolite layers described above.

The third amphibolite type is actinolitic quartzite, earlier described by Majerowicz and Sawicki (1958). It consists of quartz and subordinate amphibole, garnet and plagioclase. Amphiboles form elongated aggregates of needle-like crystals or layers. They locally contain prismatic crystals of amphibole II. Plagioclase occurs only within amphiboles. Garnet occurs in quartzitic parts of the rock.

Amphibolites of the Góra Parkowa are of low metamorphic grade. Those of types I and III occur, however, close to the staurolite-grade mica schists. Therefore, the position of amphibolites I and III relative to their surroundings should be assessed in detail. Amphibolites of type II contain mineral assemblage (albite+actinolite) typical of the greenschist facies. Muscovite-chlorite schists in their ambience also consist of the greenschist-facies mineral assemblage.

References

CHÁB J., MIXA P., VANĚČEK M. jun. and ŽÁČEK V., 1994. Geology of the NW part of the Hrubý Jesenik Mts. (the Bohemian Massif, Central Europe). *Věst. Čes. geol. úst.*, 69(3): 17-26.

KALIŃSKA M. and PUZIEWICZ J., 1997. Serie metamorficzne okolic Burgarbic i Gierałcic k. Nysy. *Pol. Tow. Miner. Pr. Spec.*, 9: 21-23.

MAJEROWICZ A. and SAWICKI L., 1958. Wschodnio-Sudeckie serie metamorficzne w okolicy Głuchołazów. Instytut Geologiczny. Biuletyn 127

MUSZYŃSKA J., 1989. Petrografia metabazytów okolic Głuchołaz (Sudety Wschodnie). Acta Universitatis Wratislaviensis. Prace Geologiczno-Mineralogiczne XV.

OLEJNICZAK K. and PUZIEWICZ J., 1999. Petrology of quartzites and amphibolites of Polish part of the Žulová pluton mantle (eastern part of the Fore-Sudetic Block). *Mineral. Soc. Poland Spec. Papers*, 14: 105-107.

PUZIEWICZ J. (in print). Petrology of amphibolites from the Polish part of the Červenohorské sedlo Belt (Fore-Sudetic Block, SW Poland). *Mineral. Polon.*

Sediment Dispersal in the Moravian–Silesian Culm Based on Garnet Geochemistry and Mica Dating

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There were many attempts to reconstruct the ways of infilling and redistribution of sedimentary load within the Lower Carboniferous Culm Basin of the Moravian–Silesian Variscan orogen. The most usual methods used in the past were the analysis of pebble composition of conglomerates and the petrology of greywackes. Probably the most complete evaluation of conglomerates was presented by Kumpera and Martinec (1995). Nevertheless, their diagrams showing conglomerate composition in different parts and levels of the Culmian sequence are somewhat confusing. The first reason of such a confusing pattern should result from compilation of data produced by 12 authors often using very different methods of sampling, sorting and analysing of the rock types in pebbbles. Other unfavourable circumstances are often relative exclusivity of psephitic sediments in the basin, their generally small area and volume and their irregular distribution. All the mentioned disadvantages are eliminated in the study of thin sections of greywackes, but the results are even less plausible and satisfactory. Some authors (e.g., Štelcl, 1995) even conclude their microscopic study supported by X-ray and chemical analyses by the idea of a single source area, which remained unchanged during the whole time of deposition of the Drahany Culm. This is, of course, an unacceptable conclusion.

Progress in the knowledge of provenance and distribution of sedimentary load in the basin has been made using the study of translucent heavy-mineral assemblages. The principal results should be expressed very shortly in two conclusions:

1) The basin fill consists of two entities of the first order, i.e., the western subbasin and the eastern subbasin. These entities differ both in composition and provenance.
2) The Drahany (southern) and the Nízký Jeseník (northern) parts of the Culm were both dominantly fed from the same point source in the south. This opinion is very well supported by older works of Kumpera expressed in the paper of Kumpera and Martinec (1995). This means that originally there was one unique western subbasin between southern Moravia and southern Poland. The younger, eastern subbasin of Upper Viséan age reflects the change of source when an influx of high-grade metamorphic material blanketed the basin from the territory of S Moravia to S Poland in the north.

The recent detailed comparative study of geochemistry of detrital garnet has brought more accuracy and precision into the estimation and/or determination of provenance and allowed to parallelize assemblages over large areas and long distances (Drahany Upland, Nízký Jeseník Mts., southern Poland, boreholes under the Western Carpathians).

The recent study of Schneider et al. (1999) focused on $^{40}Ar/^{39}Ar$ multi- and single-grain dating of detrital white mica from various Culm formations and revealed interesting parallelism with the results of the study of detrital garnet assemblages. The similarity is experessed by wider range of garnet types and of detrital mica ages (mostly ranging between 370 and 590 Ma) in the older, western subbasin. On the other hand, the younger, Upper Viséan eastern subbasin contains an oligomict mixture of detrital garnets and shows a narrower range of detrital mica ages (332–341 Ma for the Myslejovice Fm).

The results of the study of detrital white mica ages support very well the general pattern of sedimentary material distribution within the Moravian–Silesian Culm basin. Together with the study of detrital garnet assemblages it is an another promising method of basin analysis and is definitely worth continuation.

References

KUMPERA O. and MARTINEC P., 1995. The development of the Carboniferous accretionary wedge in the Moravian–Silesian Paleozoic Basin. *Journal of the Czech Geological Society*, 40/1-2: 47-64.

SCHNEIDER D., HANDLER R., NEUBAUER F., KALVODA J. and TOMEK Č 1999. $^{40}Ar/^{39}Ar$ single- and multigrain ages of detrital white mica from the Silesian Culm basin (Czech Republic). *Geolines*, 8: 59-60.

ŠTELCL J., 1995. Results of petrological research of the Lower Carboniferous clastic sediments in the military training area at Březina (central Moravia). Geol. výzk. Mor. Slez. v r. 1994, 2: 73-75. (in Czech).

Gneisses of Polish Part of the Červenohorské sedlo Belt

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The Fore-Sudetic part of the Jeseniki Mts. is situated almost entirely in the Czech Republic. However, the northernmost parts of the Žulová granitic massif and its cover stretch out into the area of Poland (in the vicinities of villages Sławniowice, Burgrabice and Gierałcic, SE of Nysa). The metamorphic rocks belong to the Červenohorské sedlo Belt (cf. tectonic sketch of Cháb et al. 1994). The rocks of the northernmost parts of Vysoká hole nappe form the Góra Parkowa between Głuchołazy and Polish/Czech border.

Gneisses and quartzites dominate in the Polish part of the Žulová pluton cover; subordinate are marble lenses close to Sławniowice and very small amphibolite occurrences in Apla