– in this volume) with the Bíteš gneiss (Rb/Sr whole rock age of 480±50 Ma after Van Breemen and al. 1932) and the idea of some Austrian geologists on the identity of the Moravosilesian terrane with the Variegated Series of the Moldanubicum. Also recently reestablished the Raabs (Fritz – in this volume) or Raabs–Meisling unit of Steyer and Finger – in this volume), when it is proposed as relics of oceanic suture, does not clarify sufficiently the geotectonic history of this region of the Czech Moldanubicum at least.

However, a complete agreement exists as the Gföhl tectonic unit of the Moldanubicum is concerned. Schematic correlation model for Austrian and Czech parts is presented in the Fig. 2.

The Gföhl tectonic unit divided now into St. Leonhard Mohelno nappe (granulite, HT–peridotite, garnet amphibolites) and Gföhl nappe (Gföhl orthogneiss, migmatites, amphibolites, retrogressed granulite, peridotite + eclogite) overlies clearly all other lithological units of the Moldanubicum and the western margin of the Moravicum. Granulite and amhibolite of the Gföhl nappe form also a small tectonic wedge at the contact between the Kutná hora – Svratka unit and the Bohemicum to the NE of Vír.

The Variegated Series in sense of classical nomenclature may be divided in the Czech Moldanubicum into lower "Quartzitic" Group and upper "Graphitic" Group. Horizontal facies replacement can be supposed to some extend.

Monotonous Series along the eastern contact of Central Moldanubian Pluton as mentioned by Steyer and Finger (in this volume) is not specified in the Czech region. It still contains few intercalations of calcsilicate rocks and amphibolites. The Monotonous Series occurs together with tectonicaly infaulted members of the Gföhl nappe in imbricated structures eg. along the Přibyslav Mylonite Zone, in zones of deep faults and in reduced limbs of large scale folds of the Gföhl nappe region near the contact of the Kutná hora–Svratka Unit with the Bohemicum.

MAIN GENETIC FEATURES OF THE BASE METAL DEPOSITS IN THE JESENÍKY MTS. (A REVIEW)

P. MIXA, J. AICHLER

Czech Geological Survey, P.O.Box 65, 79001 Jeseník, Czech Republic

The stratabound Fe–Pb–Zn–Cu–Au–Ba deposits at the Jeseníky Mts. area analogously to the sulfide deposits of the Iberian Pyrite Belt, Meggen and Rammelsberg, seem to have been formed in the similar geotectonic environment with dominance of crustal extension and increased heat flow. The deposits (Zlaté Hory, Horní Benešov, Horní Město, Oskava) are mostly bound to the products of the Devonian acid volcanism, often pyroclastics, and less to sedimentary rocks. Disseminated, streaky and irregularly banded ores are composed of prevailing pyrite, sphalerite and less abundant galena. Pyrrhotite and chalcopyrite are more common in the Zlaté Hory ore district only. Barite often forms separate lenses in the vicinity of stratabound sulfide bodies. The Variscan polyphase deformation, metamorphism and subsequent remobilization caused changes in the fabric and morphology of the ore bodies, resulting in folds, boudinage, fracture and the development of vein systems.

Fluid inclusion studies showed a great influence of metamorphism and only secondary inclusions were observed. At Horní Benešov (low greenschist facies) temperature of homogenization in water–rich inclusions in sphalerite ranges up to 170 °C and salinity up to 7 wt.% NaCl eq. while in barite the total Th reaching 210–250 °C was documented in H_2O–CO_2+HHC inclusions (higher hydrocarbons) (Dobeš, Mixa 1993). Late metamorphic quartz veins with chalcopyrite and pyrite from Zlaté Hory district (garnet zone) originated at T 220–280 °C (Ďurišová 1990).

The Variscan metamorphism and deformation had insignificant influence on isotopic composition of sulphur. The most $\delta^{34}S$ values of base metal sulfides lie between 0 and –12 0‰ with maximum in the range of –2 to –8‰ (Hladíková et al. 1990). The $\delta^{34}S$ values of barites from Silesian stratabound deposits range from 18 to 26‰ and are consistent with the $\delta^{34}S$ of the European Devonian evaporites. The wide scatter (over 50‰) of $\delta^{34}S$ values of both ore and in host rock disseminated sulfides indicates that these sulfides cannot be generated from only one source of sulfur. Sulfur derived from the marine sulfate and sulfur mobilized by hydrothermal solutions from the surrounding sedimentary rocks played a major role during the formation of the stratabound deposits. Analysis of sulfur isotope composition proved a polygenic character of the Jeseníky Mts. deposits (Hladíková et al. 1990).

Different types of rock alteration, namely K–metasomatism, silicification, chloritization, carbonatization, ev. tourmalinization and biotitization, are widespread in these deposits. Also a presence of numerous iron deposits of Lahn–Dill type documents the Devonian submarine hydrothermal and exhalative activity. Convective geothermal systems accompanying crustal extension in the Devonian comparable to modern systems at spreading centres are assumed to have existed in this region.

GEOCHEMICAL EXAMINATIONS OF MOLDANUBIAN AMPHIBOLITES FROM THE WALDVIERTEL (AUSTRIA)

O. MONTAG, V. HÖCK

Institute of Geology, University of Salzburg, 5020 Salzburg, Hellbrunnerstr. 34, Austria

According to Tollmann (1985), Fuchs (1986) and Weber & Duyster (1990) three units can be distinguished in the Moldanubikum: the Ostrong–unit, including the "Monotone Serie" with its cordierite-gneisses, a few orthogneisses and calcsilicate–schists. The Drosendorf–unit, seperated from the Ostrong–unit by a narrow granulitic layer consists of orthogneisses at the bottom and of the "Bunte Serie"– a succession of paragneisses, amphibolites, quarzites, calcsilicate–schists and graphite bearing marbles in its upper parts. The Gföhl unit finally is marked by the Gföhl Gneiss, granulites, ultramafitites, amphibolites and anorthosites. There are two main amphibolitic bodies. The first, east of the Gföhl Gneiss is named Rehberg amphibolite, the second west of it is named Buschandlwand layer. At the base of the Gföhl Gneiss there are amphibolites north of the Danube as well as south in the Dunkelstein Forest.

Careful fieldwork indicates that in some amphibolite bodies, despite their medium– to highgrade metamorphism, relicts of old magmatic textures are recognizable. An interlayering of coarse–grained and fine grained amphibolites can be easily interpreted as former gabbros cut by basaltic dikes. This texture, together with the occurrence of ultramafitites and basaltic–andesitic–rhyolitic volcanics on top argues for an ophiolitic origin of the Rehberg amphibolite. The composition of the mafic rocks is characterized by a slight enrichment of elements such as K, Rb, Ba, Th, and a relative depletion of Ta, P, Zr, Y etc. This distribution suggests an island arc origin for the Rehberg amphibolite, but intern relations are, due to the fact that the analyses show tholeiitic as well as calcalkalic tendencies, probably more complex.

The Buschandlwand amphibolites show cleavent relations, but the amphibolites located in the Weitental and the Dunkelstein Forest show unequivocaly within plate signatures.

MOR basalts as described by Steyrer & Finger (1993) from the Raabs–Meisling unit (probably equivalents to the Rehberg amphibolites) could not be proved. The Rehberg amphibolite seems to be a relict of an ancient island arc or marginal basin above a subduction zone. It is clearly distinguishable from most of the other amphibolites and quite well comparable to the Letovice amphibolite situated north of the Moravian Svratka window (Jelínek et al. 1984).

DATING OF THE SILVRETTA OLDER ORTHOGNEISS INTRUSION: U–PB–ZIRCON DATA INDICATE CADOMIAN MAGMATISM IN THE UPPER AUSTROALPINE REALM

B. MÜLLER[1], U. KLÖTZLI[2] & M. FLISCH[3]

[1] *Laboratory of Isotope Geochemistry and Mass Spectrometry, Inst. of Crystallography and Petrography, ETH–Zürich, CH–8092 Zurich, Switzerland*

[2] *University of Vienna, Geological Department, Laboratory for Geochronology and Isotope Geology, Franz Grill Str. 9, A–1030 Vienna, Austria*

[3] *Brückfeldstr. 23, CH–3012 Berne, Switzerland*

The crystallisation age of the **main intrusive suite** in the upper austroalpine Silvretta Nappe (Flüelagranitic association) is assumed to be **Ordovician** (Rb/Sr whole rock isochron, 450±2 Ma). Together with the Simano Augengneiss and the Berisal gneiss in the penninic region of the Alps (Köppel et al.,1980), the suite appears to be part of the Central and SW–European tectonomagmatic event of Heinisch and Schmidt (1982), which took place in Ordovician to Silurian time. The other inmportant intrusive series in the Silvretta nappe consist of older, mainly calc–alkaline (Flisch, 1989), basic to intermediate and granitic rocks known as **older orthogneisses** (Grauert 1969). The crystallization age of the older orthogneisses was previously only roughly estimated to be Precambrian (approx. 600