Acid dike rocks of subvolcanic character (felsitic granite porphyries, felsitic and vitreous microgranites) represent another important find. On the Czech side they are concentrated in so called Lásenice volcanotectonic zone (KLEČKA, 1984). In Austria, the continuation of the zone was found from Rubitzkoteich up to Schmidbrunner Bach (about 12 km). There was also ascertained the intrusive equivalent of the dike rocks - microporphyric fine-grained muscovite granite (the Rubitzko granite). It differs from the Homolka (topaz-bearing) granite.

CHLUPÁČOVÁ, M. (1985): Magnetic and electric properties of rocks at the locality of Nová Bystřice - Kozí hora. - Unpublished manuscript. Geofond Praha. (In Czech).

GNOJEK, I., et al. (1991): Ground magnetometry and ground gamma-ray spectrometry in Kautzen area-NW Lower Austria. - Unpublished manuscript, 10 p. GBA Wien, Geofyzika Brno.

GÖD, R., KOLLER, F. (1989): Molybdenite-Magnetite Bearing Greisens Associated with Peraluminous Leucogranites, Nebelstein, Bohemian Massif (Austria). - Chem. Erde 49, 185 - 200.

HEINZ, H., SEIBERL, W. (1990): Bewertung und Problematik aerogeophysikalischer Anomalien im österreichischen Bundesgebiet (Stand: Mitte 1990). - Abh. Geol. B.-A., 44, 244 p.

GENETIC CLASSIFICATION OF THE MOLDANUBIAN GRANITOIDS IN THE SW PART OF THE BOHEMIAN MASSIF

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The granitoids of the SW part of the Bohemian Massif build up several separate bodies cropping out in the central parts of the anticlinal structures in the Moldanubian of the Šumava and the Bayerischer Wald Mts. In several cases their position is controlled by disjunctive tectonics but their inner structure is conformable with that of the adjacent crystalline complex. The granitoids of the Moldanubian zone are usually divided into several groups or magmatic phases. FINGER & HÖCK (1987) proposed the division of the Moldanubian granitoids of Austria into two large groups. Within the framework of the two groups, LIEW et al. (1989), established four subgroups of granitoids, in accord with the CHAPPELL & WHITE (1974) genetic classification. The division of granitoids is supplemented and modified for Czech part of the Moldanubian batholith by KLEČKA & MATĚJKA (1992). The establishment of the group of transitional granitoids emphasizes the absence of the bimodal separation of I-type and S-type granitoids in the Moldanubian zone of the Bohemian Massif. The transitional type is represented by weakly to medium peraluminous granitoids with the molar $Al_2O_3/(K_2O + Na_2O + CaO)$ ratio of 1.0 to 1.1.

Area of the study cover SW part of the main body of the Moldanubian batholith and Plechý, Vydra a Prášily granitoid massifs. In these bodies the granites of the Weinsberg, Eisgarn and Srní types and granite and granodiorite of Freistadt are present. Additionally, a sample of the foliated diorite from the Velešín area (S of České Budějovice) has been analyzed. The Rastenberg type from the Knížecí stolec

(Želnava) body was not analyzed. The oldest Weinsberg biotite granite is a medium to coarse grained, usually coarse-porphyritic rock. The younger Freistadt granite to granodiorite is represented by two samples from the classical area of its occurrence in the Czech part of the Moldanubian batholith (Rejta quarry near Trhové Sviny, SSE of Č. Budějovice). The rock is fine- to medium-grained. Granite of the Eisgarn type is not of the same grain-size in all bodies. The fine to coarse-grained types are characterized by irregular occurrence of porphyritic K-feldspar phenocrysts. The coarse-grained types occur particularly in the Plechý massif. Subtype Srní is differentiated as a special type of granite or granodiorite, which differs from the Eisgarn type chiefly by the prevalence of biotite over muscovite. KODYM et al. (1961) regards this subtype as a differentiate of the Eisgarn type.

The genetic classification of granitoids was performed according to CHAPPELL & WHITE (1974). Their scheme was complemented by the transitional type set forth by LIEW et al. (1989). The Weinsberg granite belongs to the I- and/or transitional type and its molar $Al_2O_3/(K_2O + Na_2O + CaO)$ ratio corresponds to values assessed by LIEW et al. (1989). The Freistadt granite is a typical transitional granite, which agrees with its position in the differentiation development of the Hercynian granitoids of the Moldanubian zone. The character of the analyzed Eisgarn granite samples ranges from the I-type through the transitional to the S-type. Relative to the Eisgarn type from the Austrian part of the Moldanubian zone it is characterized in the SW part of the Bohemian Massif by a lower $Al_2O_3/(K_2O + Na_2O + CaO)$ molar ratio. It has a value range of 0.95 - 1.2, whereas, according to LIEW et al. (1989), it varies from 1.08 to 1.30 in this type from the Austrian Moldanubian zone. In addition, the granite of the Srní sub-type, considered as a facies of the Eisgarn type richer in biotite, provided a molar ratio of $Al_2O_3/(K_2O + Na_2O)$ equal to 0.94 - 1.13, and can thus be grouped rather with the transitional type between the I- and S-types. This development of the ratio value discussed may suggest a progress to the plutonism of I-type towards the Moldanubicum - Saxothuringicum boundary, which would correspond to the model of LIEW & HOFMANN (1988). If we accept this explanation of the change in chemical composition of the Moldanubian granitoids, we may assume the presence of a Rhenohercynian subduction system and parallel, zonally developed collision granitoid magmatism of the Saxothuringian and Moldanubian continental plates. It cannot be excluded, however, that the differences in the $Al_2O_3/(K_2O + Na_2O + CaO)$ molar ratio are due to the differences in the composition of the original material affected by anatexis at the formation of granitoids of the Moldanubian zone.

CHAPPELL, B.W., WHITE, A.J.R. (1974): Two contrasting granite types. - Pacific Geol., 8, 173 - 174.

FINGER, F., HÖCK, V. (1987): Zur magmatischen Entwicklung des Moldanubikums in Oberösterreich. - Jahrb. Geol. Bundesanst., 29, 641 - 642.

KLEČKA, M., MATĚJKA, D. (1992): Moldanubian pluton as an example of the Late Variscan crustal magmatism in the Moldanubian Zone. - Abstracts of the 7th Geological Workshop - Kutná Hora. GLÚ AV, 13 - 14.

KODYM, O. Jr., et al. (1961): Vysvětlivky k přehledné geologické mapě ČSSR 1:200 000 M-33-XXVI Strakonice. Ústř. Úst. geol., 1 - 149.

LIEW, T.C., HOFMANN, A.W. (1988): Precambrian crustal components, plutonic associations, plate environment of the Hercynian Fold Belt of central Europe: Indications from a Nd and Sr isotopic study. - Contrib. Mineral. Petrol. , 98, 129 - 138.
LIEW, et al. (1989): The Moldanubian granitoid plutons of Austria: Chemical and isotopic studies bearing on their environmental setting. - Chem. Geol., 76, 41 - 55.

UMWELTSCHONENDE VERWENDUNG VON BRAUNKOHLENASCHE BEIM LANDFILLING IN AUSGEKOHLTEN TAGEBAUEN

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Die hier dokumentierten Untersuchungen wurden im Rahmen eines Projektes zur Rekultivierung der Westmulde des Tagebaues Oberdorf der Graz-Köflacher Eisenbahn- und Bergbau-Gesellschaft (GKB) durchgeführt.

Vorrangiges Ziel der Untersuchungen war, mit einer Mischung aus anfallendem Abraum (Tonmergel i.w.S.) und Braunkohlenasche (Wirbelschichtfeuerungs-Asche) ein die Umwelt nicht beeinträchtigendes Füllgut herzustellen, das im Zuge von "landfilling" in ausgekohlten Tagebauen zum Einsatz gelangen sollte.

Die dazu im Labor durchgeführten Versuche dienten der Simulierung von Zuständen, die nach gemeinsamer Verhaldung von Abraum und bereits deponierter Asche durch zutretendes Niederschlags- bzw. Grundwasser zu erwarten sind.

Der erste Teil des Untersuchungsprogramms umfaßte die Beprobung der beteiligten Materialarten und ihre Charakterisierung nach granulometrischen, mineralogischen und chemischen Kennwerten. Anschließend wurden an sieben Mischungsverhältnissen Elutionen über batch- und Säulenversuche durchgeführt mit dem Ergebnis einer generellen Abnahme von Ionenkonzentration und pH-Wert mit steigendem Abraumgehalt im Probekörper.

Die aufgezeigten Veränderungen sind im wesentlichen auf die jeweiligen Ca- und SO_4-Konzentrationen zurückzuführen. Alle Mischungen sind praktisch frei von toxischen Spuren.

Nach den orts- und betriebsspezifischen Rahmenbedingungen, dem eingehaltenen Untersuchungsablauf und den festgestellten Ergebnissen ergibt sich für das angestrebte Projektziel nachfolgende Durchführungsmöglichkeit:

- Eine umweltschonende Rekultivierung der Westmulde im Tagebau Oberdorf ist mit einer Mischung aus anfallendem Abraum und bereits verhaldeter WSF-Asche ab einem Mischungsverhältnis von 1:3 möglich.

- Betriebsspezifisch auftretende Mischungsverhältnisse zwischen 1:27 und 1:70 sind als besonders umweltschonend einzustufen.