

**FIRST REPORT ON THE OCCURRENCE OF SUBVOLCANIC RHYODACITES
AND THEIR ASSOCIATED ALTERATION PHENOMENA - BOHEMIAN MASSIF,
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During a gold exploration campaign focusing on the Bohemian Massif, a so far unknown rhyodacitic lithology was discovered within a quarry ca. 7km NW of Waidhofen/Thaya, close to the village Arnolz in Niederösterreich. The dyke-like subvolcanic rocks of approximately 30m thickness intruded into a fine-grained biotite-granite described as "Mauthausen type granite" (WALDMANN, 1950) which itself intruded into cordierite-bearing gneisses of the "Monotonous Series". Boulder mapping proved those porphyritic rocks to occur over a distance of at least 7km, following the regional NNE striking direction of 10° to 15°. Preliminary U/Pb zircon ages are 311±2Ma and 290±4Ma for the biotite-granite and the rhyodacite, respectively. The rhyodacites generally display a textbook-like volcanic texture with plagioclase phenocrysts up to 1cm in size and idiomorphic quartz phenocrysts up to 5mm in size showing corrosive embayments. Subordinated, totally chloritized amphibole and biotite individuals averaging ca. 5mm in size (both together comprise ca. 5vol%) are locally visible. Extremely fine grained orthoclase - ranging between 5vol% and 10vol% - has been verified by XRD only. Chemical composition of plagioclase and orthoclase within the matrix is close to their end-member compositions. Two types of rhyodacites can be distinguished, a reddish to brownish (Type I) and a greenish, strongly chloritized (Type II) variety. However, both types include several phenotypes in terms of colours, grain sizes and textures. Type I is interpreted to be the initial variety which has been hydrothermally altered subsequently giving rise to the formation of the chloritized Type II. The chloritization is associated with a penetrative disseminated pyrite mineralization. The pyrite crystals - their content does not exceed 1–2vol% - form idiomorphic cubes up to ca. 0.5mm but most of them are significantly smaller. Chloritization and pyrite mineralization seem to be cogenetic. Equally, the pyrite mineralization infiltrates the adjacent granites up to 5 to 10m away from the contacts with the volcanics. No sulfides other than pyrite have been observed so far. The hydrothermal alteration is also associated with the formation of kaolinite and montmorillonite. In terms of their bulk composition, Type I and Type II plot closely to the rhyolite-dacite trachydacite boundaries using the descriptive TAS classification. The trace element spectrum (24 elements analysed, including gold) does not show any enrichments in one of these elements. Bulk and trace element chemistries of Type I and Type II, including their different phenotypes, are almost identical. The only exception is the sulfur content, which increases with chloritization reaching a maximum of 0.6wt%. The alteration phenomena as observed, i.e. the chloritization as well as the formation of clay minerals, are not associated with any change in elemental distribution within the volcanics.

WALDMANN, L. (1950): Geologische Spezialkarte der Republik Österreich, 1:75000, Blatt Litschau-Gmünd (4454), Geol. B-A., Wien.