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**MINERALOGICAL AND CHEMICAL STUDY OF DACITE FROM QUILOTOA  
VOLCANO IN ECUADOR**

The paper deals with the results of mineralogical and chemical study of dacite the main rock type forming Quilotoa volcano in the West Cordillera of the Ecuadorian Andes. Phenocrysts of hornblende, biotite and plagioclase were separated and examined particular attention being paid to glomerophyres of the latter mineral. No matter of comparatively easy accessibility of this volcano, its products were not yet studied in detail.

ZOFIA GUMOWSKA-WDOWIAK

**TWIN INTERGROWTH OF PLAGIOCLASES IN GLOMEROPHYRIC ANDESITES  
OF THE PIENINY MTS. IN POLAND**

Plagioclase phenocrysts of volcanic rocks of the Pieniny Mts, are typically high-temperature in character, displaying well developed recurrent zonal structure and fairly complicated twin-glomerophyric aggregations. The latter were the subject of detailed investigations, the results of which are exemplified by means of 8 grains (Fig. 1-8). In general, they form complicated intergrowths consisting of several, or even a dozen of individual crystals. The latter, in turn, consist usually of twin subindividuals, generally intergrown according to Pericline and Albite laws. It was necessary to examine all the possible combinations, the number of which ( $N_c$ ) depends on the amount ( $n$ ) of differently oriented subindividuals and is expressed by the equation:  $N_c = n^2 - n/2$ . The twinning degree  $D = N * 100 / N_c$  (%) ( $N$ -the number of twin relations) characterizes in general geometrical relations observed within glomerophyric plagioclase intergrowths. Another feature of these intergrowths is the presence of numerous twin laws in them. There occur nearly all these found in plagioclases and orthoclase and nearly 20 unknown laws. The results of these studies of glomerophyric intergrowths of plagioclases can be summarized as follows: 1 -There are no accidental intergrowths in them; 2 -All the intergrowths in question are based on twin laws; 3 -The simple laws display further geometrical relations resulting in complex twin intergrowths; 4 -A complex intergrowth represents a closed cycle of twin transformations and shows higher pseudosymmetry from trigonal to cubic; 5 -Pseudosymmetric systems can be deduced by appropriate operations of twin triad, producing various types of them; 6 -In glomerophyres consisting of larger amount of individuals, several types of pseudosymmetric systems are formed which, in turn, can originate superior pseudosymmetric systems; 7 -Complex twin (including all the individuals contained in them) explain twinning phenomena in individuals, displaying no direct contacts.

ZOFIA GUMOWSKA - WDOWIAK

**ORIENTED ASSEMBLAGES OF PLAGIOCLASE PHENOCRYSTS IN ANDESITES  
OF THE PIENINY REGION**

Assemblages consisting of larger plagioclase phenocrysts and orbitally distributed smaller feldspar grains were studied in detail using universal stage method. It was found that these assemblages display twin or nearly twin relations. Moreover, similarly as glomerophytic aggregations (intergrowths) of plagioclases, they form systems showing higher pseudosymmetry, whereby central grains play the role of ordering element. Calculations based on measurements of the inclination values, sizes and distances of grains within "orbital" system suggest the activity of long range forces in magmatic melt, most probably electrostatic in nature. This activity results in the formation of oriented system studied, representing an intermediate stage of the process of formation of glomerophytic intergrowths.

TADEUSZ WIESER

**BASALUMINITE IN THE WEATHERING ZONE OF CARPATHIAN FLYSCH DEPOSITS**

A powdery or compact, white to faintly yellowish brown sulphate mineral forming coatings and crack or joint infillings was found in abundance in Hieroglyphic beds, one of Flysch formations of the Northern Carpathians. Originated by interaction of sulphuric acid produced by pyrite decomposition with kaolinite-rich sediments, this supergene mineral can be observed on dry slopes of the outcropping shales with sandstone and mudstone lenses or interlayers. The last mentioned permeable sediments are responsible for the seasonal strata- or valley-sources outpouring near the water-level of the artificial Rożnów dam-lake.. The list of accompanying minerals embraces gibbsite, allophane, gypsum, hydrated Fe and Mn oxides and in farther neighbourhood - jarosite (in shales only). Basaluminite is the most stable, less hydrated form of hydrobasaluminite, precipitation product of dilute Al- and  $\text{SO}_4$ -rich and  $\text{SiO}_2$ -poor solutions or a replacement product of earlier formed allophane and gibbsite. Gibbsite is also the final, stable link in the hydrolysis processes of Al-sulphates.

ANDRZEJ WIEWIÓRA

### **X-RAY, INFRARED AND DTA STUDIES OF EXPANDED KAOLINITES**

Studies of fine particle size fractions of well-ordered Polish kaolinites, by X-ray, infrared and thermal analysis, distinguish intercalation and superficial sorption of organics on kaolinite particles. X-ray and infrared data provide a very good means of following the rate of intercalation. TG may be used for evaluation of the total amount of potassium acetate in kaolinite samples. It has been shown that the very fine particles with very regularly shaped, thin hexagons, did not absorb KAc between the layers, no matter how long and in which effective intercalation medium they were immersed. This must be taken into account when intercalation of KAc is used for characterisation or classification of kaolinitic material, especially fine grained materials.

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**MICROSCOPIC AND X-RAY INVESTIGATIONS OF 2H- AND 3R- GRAPHITE  
FROM THE MORASKO IRON METEORITE**

The presented data were obtained from examinations of graphite separated from coarse-structural octahedrite Morasko. In the meteorite under study this mineral appears in larger concentrations in the form of nodules in paragenesis with troilite, schreibersite, cohenite and kamacite. Cliftonite aggregates, on the other hand, are rare. Graphite from the Morasko meteorite has been found to differ from the Ceylon graphite in a more distinct lamellar structure (the highest  $L_a/L_c$ - ratio), larger size of crystallites but poorer three-dimensional ordering, and a higher content of rhombohedral structure (3R). The data obtained indicate that this mineral was subject to the activity of destructive forces (shock metamorphism) that caused an increase in the content of rhombohedral structure and a deterioration in three-dimensional ordering. The present authors are of opinion that graphite is an important indicator of the processes of shock and thermal metamorphism that meteorites were submitted to.