GRANITIZATION PHENOMENA IN THE GILĂU MOUNTAINS (ROMANIA). A GEOCHEMICAL APPROACH

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The Gilău Mountains represents a morphological subdivision of the Apuseni Mountains. The later unit is localized in the western part of the Romanian territory and considered as one of the three units of Romanian Carpathians.

The geological background of Gilău Mountains is provided by the medium-grade metamorphic series of Someş, built up mainly by migmatites, leptynites, gneiss, micaschists with almandine, disthene, staurolite and sillimanite. The geology of the area is completed by the granite body of Muntele Mare that penetrates the metamorphic formations and by numerous pegmatite bodies hosted both by granite and metamorphic rocks. Our last studies carried out on pegmatites (STUMBEA, 2000) seem to confirm MÂRZA's (1980) hypothesis, which attach to these rocks a metamorphic genesis (metamorphic differentiation or even anatexis).

Granitization phenomena in the Gilău Mountains have been reported almost forty years ago. In the span of time of a decade, STOICOVICI & TRIF (1961), TRIF (1961), TRIF & STOICOVICI (1963), TRIF (1968) lead research works – mostly field works followed by both macroscopic and microscopic observations; the outline of their conclusions consist in a spatial superposition of granitization phenomena on the most intense metamorphic phenomena (metamorphic differentiation and/or anatexis).

The geochemical approach of the granitization phenomena consist in establishing the geochemical balance between the rocks arisen by means of granitization and those presumed not being affected by this process; in this respect, the standard cell of these two types of rocks has been determined. The results of the geochemical balance have been compared to the theoretical modeling of input and output in the rocks during the granitization process (Si, Al, K input and Ti, Fe, Mg, Mn output).

Taking into account the above mentioned hypothesis we have been able to identify features of granitization-like process regarding the following pairs of rocks: micaschist/*granite gneiss*; paragneiss/ *granite gneiss*; granite gneiss/ *plagioclase + microcline-bearing pegmatite* (PM pegmatite), *hosted by metamorphic rocks*; granite gneiss/ *plagioclase + microcline + muscovite-bearing pegmatite* (PMm pegmatite), *hosted by metamorphic rocks*; plagioclase + microcline-bearing pegmatite, hosted by metamorphic rocks/*granite of Muntele Mare* (the words wrote in italic characters represent the terms presumed as arising by means of granitization process). In the following scheme, our main results are exhibited:

Micaschist		→	PM pegmatite in metamorphic rocks ↓
	→ Granite gneiss	→	Granite
Paragneiss		→	PMm pegmatite in metamorphic rocks

This scheme shows that granite gneiss can arise as a result of micaschist granitization and it reveals also that PM pegmatites, PMm pegmatites (both hosted by metamorphic rocks) and granite can be generated by the granitization phenomenon of gneiss. But the most interesting conclusion revealed by the geochemical balance and pictured in the scheme above is the granitization-like feature of the balance between PM pegmatite and granite. Though the granite body of Muntele Mare is much younger than the metamorphic rocks of Someş series and it can't be the result of their anatexis, the result could represent a geochemical proof of the possibility of granite engendering through this way.

References

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