Le nombre des écailles ainsi que leur etendue superficielle ne peut être precisé à cause de nombreuses failles que coupent l'édifice. Dans la région de Agios Nikolaos de Laconie, nous avons décelé au moins trois écailles dans les niveaux inférieurs de Tripolitza.

Nous pensons que cet écaillege de la série de Tripolitza est du d'une part au sous-charriage de la zone ionienne et le chevauchement du Pinde d'autre part.

OBSERVATIONS ON THE MINOR STRUCTURES OF THE METAMORPHIC ROCKS OF VARNAVAS-RAMNOUNDA AREA, NE ATTICA

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The study of mesoscopic and microscopic scale structures of the metamorphic rocks of the Varnavas-Ramnounda area (NE Attica), showed that their fabric is the result of three deformation phases.

The first two phases are the result of ductile deformation with development of penetrative structures (fold axes, schistosity, cleavage and lineations). The third deformation phase, and also the last stages of the second phase, are the results of brittle deformation with development of non-penetrative structures (faults and joints).

The first deformation phase D_1, is synmetamorphic at the green-schist facies (M_1, metamorphic event with presence of chloritoid). It comprises, similar isoclinal folds (B_1, NE-SW) with a Hight/Width ratio 1.86, axial plane schistosity (S_1) and lineation L_1 parallel to the B_1 fold axes. In some cases, caxially refolding events have been observed, result of progressive deformation. In the microscope, the D_1 deformation phase is recognized by the presence of S_1 schistosity which is built by the minerals of the M_1 metamorphic event.

The second deformation phase D_1 comprises, open parallel folds (B_2 NW-SE) with a Hight/Width ratio between 0.3 and 1, axial plane cleavage (S_2), expressed as fracture cleavage or strain-slip or crenulation cleavage, and lineation L_2 parallel to B_2 fold axes. A lineation, in the form of conjugate kink-bands along the NW-SE and NNW-SSE direction, has been created during the last stages of phase D_2. In the microscope, the D_2 deformation phase is recognized by the deformation of S_1 schistosity and the associated minerals.

The third deformation phase D_3, mainly comprises faults and joints.

The above deformation phases are similar to those described by Mariolakos and Papanikolaou (1973) in the metamorphic rocks of Pentelikon mountain.

In terms of tectonic levels, deformation phase D_1 belongs to the lower tectonic level, deformation phase D_2 to the intermediate and deformation phase D_3 to the upper tectonic level.

The structures of deformation phase D_1 may be interpreted as a-structures from the kinematic view point, whereas those of deformation phase D_2 as b-structures, as Papanikolaou (1981, 1987) has proposed for the structures of the metamorphic rocks of the median

tectonometamorphic belt. This implies that the tectonic vergence has not changed throughout the deformation history, but basically the tectonic level of deformation.

RB-SR WHOLE ROCK GEOCHRONOLOGY OF GNEISSES FROM OLYMPIAS, CHALKIDIKI

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Two series of biotite-gneiss samples from the Olympias district, Halkidiki (N. Greece), have yielded Rb-Sr whole rock apparent ages of 337 ± 5Ma (lower Carboniferous) and 113 ± 11Ma (lower Cretaceous), respectively.

The older age relates to the culmination of the oldest metamorphic event – emphibolite facies regional metamorphism – that affected the deeper parts of the Servomacedonian massif (where Olympias district belongs to) and led to large scale Sr redistribution and Sr isotope homogenization with the aid of metamorphic fluids and anatectic melts. The 337 ± 5Ma date is coupled with a low, upper mantle type $^{87}Sr/^{86}Sr$ initial ratio (IR) of 0.70451 which resembles the equally low amphibolite and amphibolitic gneiss $^{87}Sr/^{86}Sr$ ratios determined in the context of the present study. It follows that: (i) the source regions of the clastic sedimentary precursors of the biotite-gneisses likely comprised felsic igneous rocks of short residence time in the crust; (ii) Sr isotope equilibration between the protoliths of the gneisses and of the amphibolites might had been accomplished at about 337Ma; and (iii) a mafic igneous parentage and upper mantle derivation for the amphibolitic matter is supported.

The 113 ± 11Ma date – a reset age – corresponds to the most intensive (greenschist facies) retrograde metamorphism of the Olympias district. At that time, parts of the metamorphic sequence, were subjected to open-system behaviour with respect to Sr which was once more redestributed and rehomogenized. The open-system beheviour was poesibly promoted by the affected parts lying proximal to leucosomes which (constituting geochemical inhomogeneities and structural discontinuities within the local lithostratigraphy) facilitated Rb and Sr exchange as well as metamorphic fluid circulation.

The uncertainties regarding the accuracy of the isotopic ages determined, are probably related to postmetamorphic geological disturbances of the isotopic systems established during the course of the successive metamorphisms. With respect to the younger event, they may also be linked with the patchy manner that Sr reequilibration and rehomogenization was likely effected.

On account of the pressure conditions prevailing during the regional metamorphism and theoritical considerations regarding potential sedimentation rates, it may be speculated that sedimentation and sulphide ore formation at Olympias had been accomplished in the Ordovician or, more likely, in the Silurian.