

**17** EPIZONAL METAMORPHISM OF THE "PULO DO LOBO" ANTIFORM AND ITS RELATION TO REGIONAL METAMORPHISM OF THE PYRITE BELT (SOUTHERN IBERIAN MASSIF)

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The "Pulo do Lobo" antiform is a structural domain in the South Portuguese Zone, in contact with the Pyrite Belt through a ductile-brittle fault (Santa Bárbara thrust). In its Spanish extension, it is constituted by a predominately pelitic sequence, characterized by a simple and monotonous mineralogical paragenesis: quartz - muscovite 2M<sub>1</sub> - chlorite 11b - albite, typical of low grade metamorphic recrystallization.

In accord with the mica crystallinity (Kubler index: 0.19+0.02° 2θ) these materials have experienced epizonal metamorphism (greenschist facies), without reaching the biotite isograd, which implies a gradual lowering of the metamorphic gradient toward the Pyrite Belt, where the crystallinity indices correspond to the anchizone-epizone transition (Galan et al., 1991). Thus, the Santa Bárbara thrust does not represent a metamorphic gap.

The metamorphic conditions of the "Pulo do Lobo" antiform are estimated at approximately 425°C and 3 Kb. These results have been obtained by applying methods based on the crystallochemical parameters of phyllosilicates (Guidotti & Sassi, 1986; Noack et al., 1986).

**18** BUÇACO VOLCANICS: MINERALOGICAL AND GEOCHEMICAL CHARACTERISTICS

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Paleozoic mafic volcanics in the Centro Iberian Zone are widespread on the portuguese northeastern Trás-os-Montes region but very rare in the southern part of the Zone. On the other hand, the available geochemical data on most of the Trás-os-Montes volcanics are from samples of the allochthonous/parautochthonous regions. Thus, there is very little geochemical information on the autochthonous Centro Iberian paleozoic volcanism. The Buçaco basalts and dykes occurring near the SW contact to the Ossa Morena Zone belong to this type of rocks. Their outcrop area is about 15 km by less than 0.5 km, and is included in a meta-sedimentary fossiliferous formation, the "Formação de Porto de Santa Ana" (FPSA), dated as Upper Ordovician.

The paper presents new petrographic and geochemical data on the Buçaco volcanics. These rocks are very slightly metamorphosed and much of their original texture and mineralogy are preserved. The chemical analyses of the pyroxenes indicate augitic composition (Di<sub>38-42</sub>, En<sub>41-46</sub>, Fs<sub>15-21</sub>) coherent with the whole rock chemistry.

The geochemical data from these volcanics correspond to a sequence of tholeiitic basalts moderately enriched in incompatible elements, with some REE fractionation, and negative anomalies of Nb and Ti in the differentiated terms, suggesting continental volcanism (Ti/V = 29 - 38; Y/Nb = 1.7 - 3.7; (La/Yb)<sub>Cn</sub> = 17 - 4.4).

These results are compatible with the current geodynamic models for the Hercynian Orogene which assume that the Centro Iberian Zone was in expansion during the Upper Ordovician.

**19** GOLD MINERALIZATIONS OF THE ESCOURAL AREA (MONTEMOR, ÉVORA, PORTUGAL): A PROGRESS REPORT

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The gold mineralizations of the Escoural (Montemor) are hosted by formations of Upper Proterozoic age which experienced medium to high grade regional metamorphism, predating the D2 phase of variscan deformation. Two potentially ore targets (Chaminés and Casas Novas) were put in evidence after an extensive geochemical campaign. The ore bodies are subvertical and occur along a NW-SE band which deflects to N-S in its central segment. Their development is probably related to the late reactivation events of a NNW-SSE/N-S D2 right-handed mega-shear. The circulation of hydrothermal fluids along this major tectonic accident is in general characterized by prominent silicification and sericitization. The ore bodies are mainly composed of arsenopyrite, loellingite and pyrite; small amounts of native bismuth, and bismuthinite are locally important. Gold occurs mainly in its native form. The mineralogy of the gangue is largely dominated by quartz and sericite, although chlorite, alkaline feldspar, carbonate and tourmaline may be observed in some domains of the ore bodies.

**20** THE BEJA-ACEBUCHES OPHIOLITIC COMPLEX: STUDY OF CRITICAL OUTCROPS ALONG THIS SUTURE IN THE SOUTHERN IBERIAN VARISCAN FOLD BELT

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The Beja-Acebuches Ophiolitic Complex (BAOC) and associated oceanic sequences, corresponds to an ophiolite suture that evolved to a continent-continent collision suture. The BAOC is situated between the Iberian Terrane (Ossa-Morena Zone) and South Portuguese Terrane. This work is the result of the detailed study of two critical outcrops placed along this suture at Sr<sup>a</sup> da Neves and Ferreira do Alentejo. In Neves' outcrop one can observe in acidic lithologies (leptinites s.l.) related to a volcanic arc or a deformed Ossa Morena's margin, the development of centimetric to decametric sheat folds, as well as aspects of mesoscopic oriented deformation SW-NE in sigmoidal quartz grains. In this unit, as well as in the amphibolitic gneisses' one, we can observe on mylonitic shear zones C-S criteria and doleritic late intrusions (possibly related to oceanic crust's fusion during subduction) represented by sigmoidal masses (as the result of possible boudinage). This data, point's out the existence of shear criteria northeastwards (50°). Thin section of leptinites show wide quartz recrystallisation, with corrosive margins (borders), and deformation in feldspars. In Ferreiras' outcrop, metric to decametric sigmoids, that occur in metagabbros unit, clearly show movement towards N-NE as the result of ophiolite earlier emplacement stages, which occurs with intense shear zones formation (mylonites) in quartz-feldspatic lithologies (possibly related to a volcanic arc). Such zones develops multiple C-S criteria in accordance to the stated movimentation. The thin section study confirms that data, from the observation of sigma, and more often, delta type porphyroclasts. These lithologies are retrograded to greenschists/low amphibolitic facies, nevertheless its possible to recognise original paragenesis formed at higher temperatures, testifying the hot BAOC's obduction.