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ABSTRACTS : RESUMÉS

MARFIL, Rafaela; DE LA PEÑA, José Andrés; ARRIBAS, M<sup>a</sup> Eugenia and ARRIBAS, José  
Departamento de Petrología, Universidad Complutense, Madrid (3), Spain.

LACUSTRINE SEDIMENTATION (SALINE-ALKALINE) IN THE AUTUNIAN FACIES OF THE  
IBERIAN RANGE (SPAIN)

The Autunian facies of the Permian in the "Sierra de Aragoncillo" (Iberian Range), begin with a fluvial continental sedimentation composed by breccias, sandstones and shales with a great volcanic influence -acid piroclastic rocks- (lower unit) which gradually changes to shales with intercalated tuffs, ashes, volcanoclastic sandstones and dolostones of fluvio-lacustrine environments (middle unit). The top of this sequence is composed by silicified dolostones with subordinated shales, tuffs and ashes, of lacustrine environments (upper unit).

The aim of this paper is for the better understanding of the carbonate and evaporite sedimentation of the upper unit and the diagenetic evolution of these sediments in their reactions with the interbedded rhyolitic tuffs and ashes.

The dolostones of the upper unit are dolomicrites with a high content of Fe<sup>++</sup>. The depositional components identified are: Charophytes, Ostracods, sparse vegetable remains, pellets and intraclasts. Other very frequent and abundant components are evaporites as moulds or pseudomorphs. These have a dolomite, calcite, quartz and pyrite composition. The morphology of the pseudomorphs testify to the former presence of anhydrite, gypsum and halite.

The petrographic features of these carbonates are indicative of an early process of dolomitization in a hypersaline environment. The source of magnesium would come from the volcanic rocks that surrounded the closed lacustrine basin. The MgO/CaO ratio in these rhyolitic tuffs is very high (about 6).

Other common diagenetic products are: Zeolites, quartz and clay minerals. In the Fig. 1 we show the assemblage of these authigenic minerals. Frequently the zeolites are replaced by K-feldspar, quartz, clay minerals, calcite and dolomite. The authigenesis of these minerals are reported to be the result of the reaction of tuffaceous rocks with connate water trapped during sedimentation in a saline-alkaline lake. It looks obvious that these occurrences confirm the existence of a lacustrine sedimentation in arid conditions.

In previous papers the middle unit of Autunian facies had been interpreted as lacustrine deposits in a wet climate. In respect to the upper unit other authors only recognized a change in less wet conditions. We can establish that the lacustrine sedimentation at the end of Autunian took place in a closed basin with arid climate. In this environment a carbonate and evaporitic sedimentation had occurred. Moreover, very important diagenetic reactions between the rhyolitic tuffs and ashes with the saline brines were produced (Fig. 2).

The diagram at the top shows two geological units. The 'UPPER UNIT' is depicted with a sun, wavy lines representing water, and a cross-section of layered rock. The 'MIDDLE UNIT' shows a landscape with trees, a cloud, and rain, with a cross-section of layered rock.

ORGANIC MATTER	RARE (COAL)	ABUNDANTS (COAL AND BITUMEN)
VEGETABLE REMAINS	SPARSE AND OXIDATED	ABUNDANTS AND WELL PRESERVED
CARBONATES	ABUNDANTS (DOLOMITE, ANKERITE, MAGNESITE)	SPARSE (DOLOMITE, ANKERITE, SIDERITE)
EVAPORITES	ABUNDANTS (GYPSUM, ANHYDRITE AND HALITE)	SPARSE (GYPSUM)
ZEOLITES	ABUNDANTS (ANALCIME, CLINOPTILOLITE, PHILLIPSITE, MORDENITE, LAUMONITE, POTASSIUM FELDSPAR)	RARE
CLAY MINERALS	MONTMORILLONITE AND MIXED-LAYER (I-S)	CHLORITE, KAOLINITE, ILLITE, MIXED-LAYER (I-S)
PYRITES	COMMON ( $SO_4^{2-} \rightarrow S^2$ )	COMMON (NO RELATION TO $SO_4^{2-}$ )
OTHER AUTIGENIC MINERALS	QUARTZ	ANATASE, COFFINITE, QUARTZ

FIG. 1

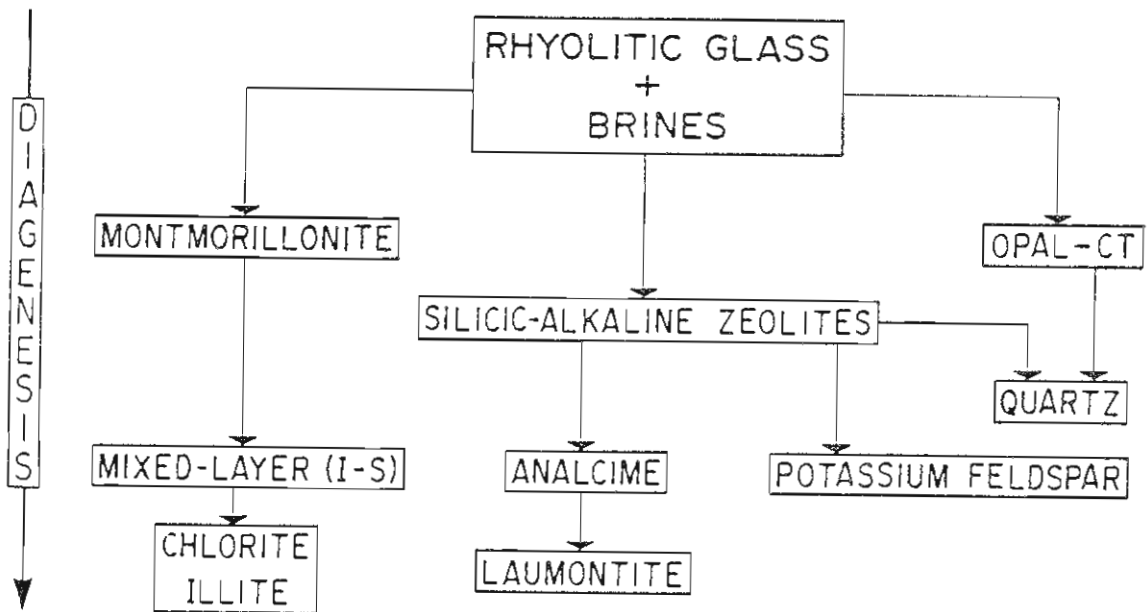


FIG. 2