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INTERNATIONAL ASSOCIATION
OF
SEDIMENTOLOGISTS

ABSTRACTS

1st EUROPEAN REGIONAL

MEETING

1980

BOCHUM (GERMANY)



C O N T E N T S

Opening speech by the President of IAS

K.J. Hsü: European annual meetings of the International Association of Sedimentologists 6

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STUDY OF DIFFERENT TYPES OF QUARTZ FROM PALEOZOIC
FELDSPATHIC SANDSTONES OF THE IBERIAN RANGE: PROVENANCE
INTERPRETATION

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SUMMARY

A study of the different types of quartz for identification of source areas has been done on a probable Cambrian feldspathic detrital formation which outcrops at Malanquilla (Zaragoza), and belongs to the aragonese branch of the Iberian Range.

The first phase of our work consisted in the analysis of the undulose extinction of monocrystalline quartz grains, and the percentages of polycrystalline quartz composed of more than three or less than three crystal units. The results were applied according to the method proposed by BASU et al. (1975) (Fig.1).

A good provenance interpretation was not able to be accomplished by this method due to the strong diagenetic processes which have affected these materials (Anchizone from KUBLER, 1968), and low content of argillaceous matrix.

The results obtained from the extinction of quartz grains cannot be attributed to the source area, but to mechanical diagenetic processes of the studied material.

According to these results, the use of undulose extinction in monocrystalline quartz grains lacks validity for our purpose. For this reason, a more detailed statistical study was made on polycrystalline quartz grain textures (modes, number, orientation and intercrystal units boundaries). A classification was also done following several authors (KRYNINE, 1946; FOLK, 1968; YOUNG, 1976).

The former parameters were related to three main types of source areas (granitic, high-rank metamorphic -gneissic-

and low-rank metamorphic sources).

Based on these data, three groups of samples differently influenced by the former source areas were established (Fig.2).

The presence of a large content of different types of feldspars in most of the samples made us check up the method associating the feldspars with the different source areas (Fig.3).

According to this approach, the plagioclase and perthites are related to granitic sources, while orthoclase and microcline might be associated with gneissic sources (high-rank metamorphism), due to their large size.

Finally, we consider this method of great value in interpreting the provenance of high-diagenetic sandstones that cannot be analyzed by BASU's method (1975).

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SOURCE AREAS

- Plutonic
- Low & High rank Meta.
- Low rank Metam.

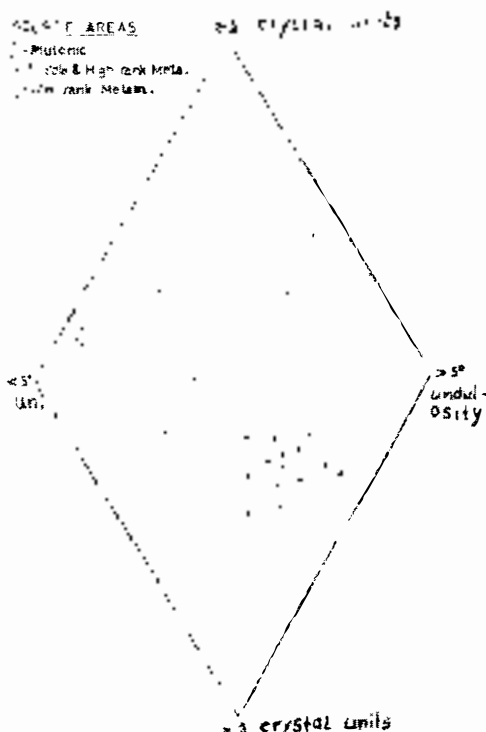


Fig.1.-BASU's diagram (1973) of the samples

Fig.2.-Relation between source areas and polycrystalline quartz grain textures in three groups of samples.

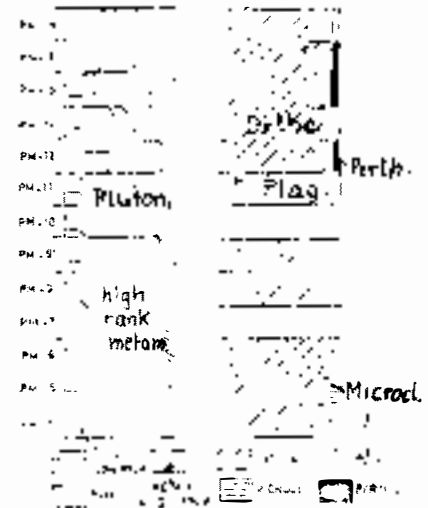
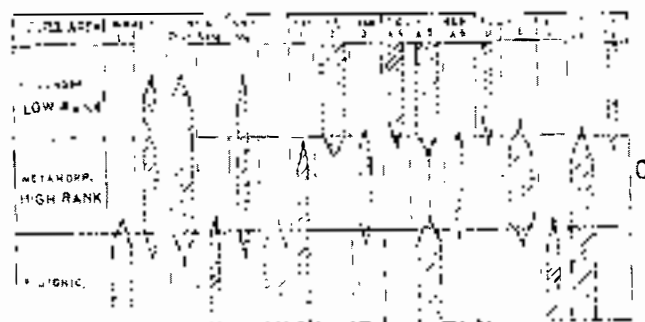
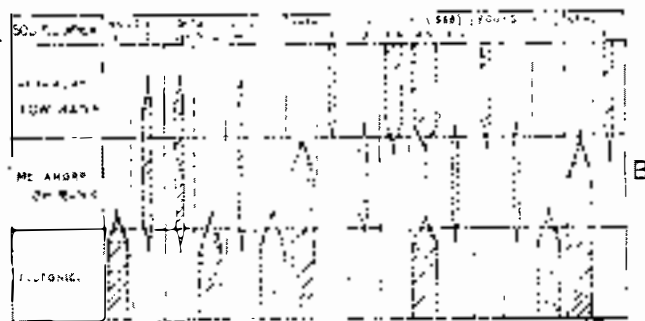
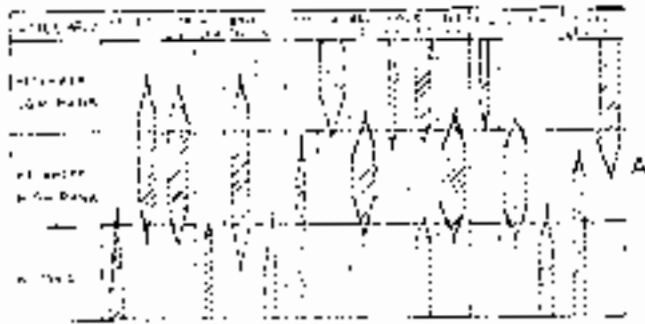


Fig.3.-Different influences of source areas throughout an stratigraphic section (left), and contents of several types of feldspars (right).