smooth relief of the same limestones. The first type is ascribed to debris flows which deposited similar sedimentary breccias in the lower pelitic layers of the Lower Poshidonian Shales. The influence of strong currents is recognized in the second type by its laminated structure due to fossils of Possidonians accumulated in the smooth depressions of the underlying limestones.

The Upper Cretaceous phosporites overlie or mainly surround a submarine ridge west of the base of the continental shelf between tha Ionian and Gavrovo zone, whereas, the Cretaceous black shales were deposited deeper but close to submarine ridges. Both of them, Cretaceous phosphorites and black shales are associated with oceanic upwelling caused by trade winds.

The described black shales are good to excellent source rocks, allthough immature under normal tectonic conditions. It is estimated thouth that they have generated oil when burried deeper due to the overthrust tectonics. The controlling factor for the deposition of the rich organic sediments is the effect of oceanic upwellings, whereas anoxic conditions are not considered likely.

HARDNESS TEST USING A THIN SECTION LAPPING MACHINE. APPLICATION ON OPHIOLITIC SPECIMENTS FROM CHALKIDIKI / GREECE.

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Hardness of rocks can be expressed by the "abrasion loss of weight (AR)" as a measure of their mechanical behaviour and their ability to resist weathering. The used method is based to the calculation of the loss of weight of a pre-weighted sample after abrasion for a constant time under constant conditions. For this purpose a LOGITECH - LP 30 thin section lapping machine with constant rotation of 40 rpm is used. Tests are applied on mini cores of 24 mm diameter and 10 mm high, instead of 48 mm which is the ordinary hight used for other tests. This modification is considered necessary a) in order to obtain a more representative value of the loss of weight in relation to the total weight and b) for avoiding a possible damage coused on the specimen. The polishing material (sand) is emery No 400 and the specimens are loaded with 2 kg. The abrasion time is 1/2 h.

Twenty specimns from the gabbros and the peridotites of Chalkidiki are used for the tests. The calculated mean values of the abrasion loss of weight are 0.993 (std. dev.,

σ_{n-1}=0.232) for the babbros and 1.361 (std. dev., σ_{n-1}=0.225) for the peridotites. The total mean value is 1.177 with std. dev. σ_{n-1}=0.292.

Relationships between the abrasion loss of weight (AR, %) and properties such as dry density (d, gr/cc) and ultrasonic velocity (vp, m/msec) are determined, confirming the precision of the method. For sound rocks the existing relationships could be expressed by the following linear regressions:

a) AR=10.21-3.17d, r=0.826, b) AR=6.34-0.86vp, r=-0.806

Yet, in weatthered materials, especially in multiphase rocks, the rate of change of the abrasion loss of weight increases more quickly than the decrease of the dry density and the ultra sonic velocity. In case that tests cover a big range of values, from sound to weathered specimens, the existing relationships could be expressed better by the following exponential regressions:

a) $AR=6760.89e^{-3.05d}$, r=-0.870, b) $AR=175.38e^{-0.84vp}$, r=-0.806

The relationship between dry density and ultrasonic velocity is the following: vp= -3.40+3.30d, r=0.918.

KAOLINITE GENERATING PROCESSES IN THE MILOS BENTONITES AND THEIR INFLUENCE ON THE PHYSICAL PROPERTIES OF BENTONITES

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Kalonite and/or halloysite are present in almost every bentonite deposit of Milos and Kimolos. Although their genesis is well understood and has been attributed to the hydrothermal alteration observed on both islands, the nature of the relationship between smectite and kaolinite has remained rather obscure so far. The spetial distribution of these two different clay minerals does not follow a clear pattern, indicating that the genetic models proposed so far do not explain adequately their coexistence.

Both kaolinite and halloysite occur in the form of euhedral crystals (hexagonal, forming "books", in the case of kaolinite and acicular in the case of halloysite) which grow principally at the expense of smectite precursors. This relationship is observed in every deposit in which these phases are present, suggesting that the mechanism which led to their formations was different from that of smectite. The alteration of smectite to kaolinite might have taken place either by direct dissolution or during the conversion of smectite with high layer charge to smectite with low layer charge by release of Al. The

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