

On the Tectonic Units of Southern Aegean Sea

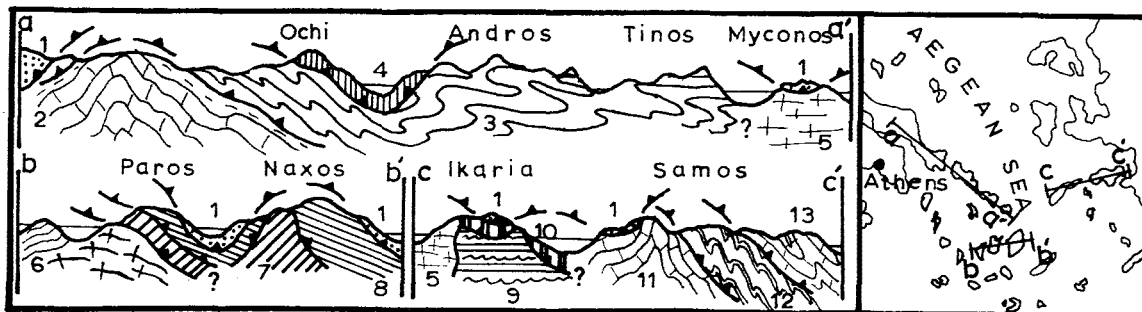
Dem. J. Papanikolaou, Dept. of Geology, University of Athens

Abstract: Three tectonic sections in Southern Aegean Sea show the existence of many tectonic units. Correlations among them or with the non-metamorphic W. Hellenides or distinguishing of groups seems very problematic. Their contacts are either complex deep tectonic zones with serpentinites and metamorphism or younger thrusts with brecciation.

Resumé: Les différentes unités tectoniques d'Egée du Sud sont présentées d'après trois sections tectoniques. Les corrélations entre eux et avec les Hellenides pas-métamorphiques ou leur distinction en groupes sont très problématiques. Leurs contacts sont d'un part des zones tectoniques profondes très complexes avec serpentinites et métamorphisme et d'autre part des plus jeunes nappes avec brecciation.

The metamorphic rocks of Southern Aegean Sea have been considered for long as an old pre-Erkynian basement, which formed the "Attica-Cyclades Massif" and the other "massifs". The younger ideas of alpine structure were recently favoured by the discovery of some fossils indicating alpine ages, while absolute ages show an alpine metamorphism and magmatism. Recent publications speak about a huge metamorphic window, which might mainly comprise two units, possibly equivalent to non-metamorphic zones of W. Greece (AUBOUIN et al, 1976); or about some groups of units with envelopes and cores of different ages or type of metamorphism, correlative with the "Menderes Massif" (DURR et al, 1977).

Recently published data of the islands of Paros, Andros and Ikaria (PAPANIKOLAOU, 1977, 1978a, 1978b), of Naxos (JANSEN, 1977), of Southern Euboea (KATSIKATSOS, 1977) and also unpublished data of the author, made possible to present three tectonic sections across Southern Aegean Sea. These sections permit to testify that the metamorphics belong to many distinctive tectonic units (13?), with a much more complicated structure and development than the assumed ones. Unit I comprises all the non metamorphic rocks of the area, which constitute the uppermost and latest nappe. The only possibly equivalent units are 5&7 with gneissic granites and 8&13 with meta-bauxites. Thus almost every unit has its own peculiarities in lithology, age, structure, metamorphism a.o. so that no correlation among them seems possible, neither with the non-metamorphic W. Hellenides. Blue schists



1: Limestones of Upper Paleozoic-Jurassic, ophiolite, Cretaceous limestone. 2: Marbles of Trias-Eocene, metaflysch (Almyropotamos). 3: Cipolines, schists, marbles (Styra, C.S. Andros). 4: Schists, marbles of Permian (Makrotantalos, Ochi). 5: gneissic granite, marbles, schists. 6: Gneissic granite, schists, marbles of Permian (Antiparos). 7: Marbles, schists. 8: Schists, marbles, meta-bauxite of Trias-Cretaceous? 9: Gneiss, marbles (I. Ikaria). 10: Marbles, phyllites (Messaria). 11: Marbles (Kerketefs). 12: Marbles, schists (Ambelos). 13: Marbles, schists, meta-bauxite of ?-Cretaceous (Vourliotes).

occur almost in all units, while Cretaceous has been found in the lowermost (2) and also in the uppermost (13) unit, so that any distinction of groups of units based on type of metamorphism or age and structural position seems not possible. This might be due to the complicated structure of thrusts, which were formed at some successive stages within Eocene-Lower Miocene and produced a kind of sheeted crust. The different aspects of the tectonic contacts can illustrate the big complexity, with extreme cases contact 3/4 which is characteristic of deep tectonics with complex zone of ultramafics with metamorphism and isoclinal folding and contact 11/12 or 12/13 characteristic of shallow thrusting with brecciation.

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