

"Alpidic Prehistory of the Aegean Back-arc basin:  
a Compilation"

Volker JACOBSHAGEN

Institut für Geologie der Freien Universität Berlin,  
Altenstein-Str. 34A, D-1000 Berlin 33, Germany.

Résumé: Après l'écroulement de l'orogène hercynien, la région égéenne était située au bout nord-ouest de la Téthys et comprenait aussi quelques parties voisines du microcontinent apulien. La croûte égéenne s'épaissit au cours de quatre orogénèses alpides, qui montrent toutes des signes d'une tectonique de plaques. Pendant le Miocène un dôme thermal se formait, dont la montée au Pliocène et Quaternaire était induite par la subduction encore active. Dans cette culmination, la croûte fut cassée et amincie fortement par l'érosion. Finalement elle s'est enfoncée formant le bassin marginal égéen. On n'a pas observé ni de traces de rifting ni de sea floor spreading.

The Aegean Sea is understood as a marginal trough with thinned crust behind the Hellenic arc. The latter is accompanied by a fore-arc trench system, a Benioff plane, and an internal volcanic arc.

In the Aegean region, the break-down of the Hercynian orogen is indicated by Upper Palaeozoic molasse series grading into Skythian clastics or by a disconformity below the Mesozoic geosynclinal sequence. In Mesozoic times, this region was situated at the northwestern end of the Tethys ocean, relics of which are preserved in the external Vardar zone. The Apulian micro-continent adjacent to

the west was ripped up by two further troughs with at least thinned crust (Pindos trough, depocenter of the Phyllite series). The platforms in between were connected with Apulia.

Whereas geosynclinal sedimentation started simultaneously in the whole depositional area of the Hellenides, it was terminated step by step by the Alpidic orogeneses which proceeded with time from the interior towards the foreland. Four paroxysms were recognized: Tithonian to Lower Cretaceous, Upper Cretaceous, Eocene, and Lower to Middle Miocene. During three of them, oceanic lithosphere was obducted from the Tethys basin. Metamorphism and related plutonism were testified for all events arranged, with one exception, in paired metamorphic belts. Flysch deposition was lacking only during the Miocene orogenesis but each was succeeded by molasse sedimentation.

The tectonic style of the Hellenides is characterized by flat nappe structures, the sequence of which originated by suture progradation: the higher the position of a nappe the older was its overthrust.

Among the thermal events, Mesozoic volcanism was not important outside the Tethys basin. The history and distribution of Mesozoic metamorphism and plutonism is unsatisfactorily known. In the Eocene, however, thermal metamorphism, granitoid intrusions and andesitic volcanism were widely spread. During the Miocene paroxysm, a thermal dome originated in the Cyclades area, behind the originating arc of the external Hellenides. Updoming continued up to the present induced by subduction. Accordingly, the central Aegean region was fractured and deeply eroded. Finally, the thinned crust break down giving rise to magmatic intrusions between the single blocks. No traces of rifting and sea floor spreading were observed in the Aegean back-arc basin.