



## **Hercynian And Post-Hercynian Events In The Balkan/Carpathian/Anatolian Area High Mobility In The Core Of The Pangaea**

Nurbike G. SAĞDIÇ (1), Gürsel SUNAL (2), and A.M. Celal ŞENGÖR (1)

(1) Avrasya Yer Bilimleri Enstitüsü, İstanbul Teknik Üniversitesi, İstanbul, 34469, Türkiye, (2) Jeoloji Bölümü, Maden Fakültesi, İstanbul Teknik Üniversitesi, İstanbul, 34469, Türkiye

Hercynian Orogeny built a large orogenic system as a consequence of the formation of the Pangaea during the late Paleozoic. It is widely-known that this evolution was governed by the collision between Laurussia and Gondwana-Land. While its subduction process was initiated in the late Devonian, collision began probably during the early to medial Carboniferous and convergence continued until the Permo-Triassic. Farther east, the collision never happened and subduction continued. A late Permian to early Triassic rifting started to form a marginal basin by disrupting the former arc in the east and it tore westward, using dextral strike-slip segments, into the present Hellenic/Dinaric System and the Pannonian/Carpathian area. This basin closed only during the early Jurassic. The eastern European part of this system may be its least-known sector. Here, we present the geological structure of the tectonic units of Eastern Europe from the Carboniferous to the Jurassic-Cretaceous and discuss their tectonic implication for the evolution of the Hercynian Orogeny. To follow its trace in these little-known areas, from Turkey to Austria, comparative anatomy of orogens constitutes the key guide. Like any other orogen, the Hercynian orogen also had fore-arcs, arcs, back-arc basins, flysch and molasse basins, etc. Mostly felsic magmatic rocks and flysches of the Carboniferous represent the subduction. Termination of subduction and consequent collision are indicated by cover sequences above the suture stitching two colliding continents. On the other hand, for the rift zone, volcano-sedimentary complexes disrupting a formerly continuous table, such as a carbonate platform, are used. Data collected on Carboniferous rocks show that the core of the orogen goes from the eastern Pontides to the Western Carpathians by passing through the Pelagonian Zone and the Rhodope-Pontide Fragment. Flysches also show that fore-arc basin/trench/retroarc assemblages are located on the SW part of the Rhodope-Pontide Fragment and the inner, i.e. northeastern parts of the Adriatic- Dinaric Platform. Lithostratigraphic charts of all the main zones of the Hercynian orogenic belt in Eastern Europe were drawn to delineate the marginal basin that disrupted the core of the orogen from the Carboniferous to the Jurassic-Cretaceous. In other words, that basin survived the closure of the Rheic Ocean and closed later. According to our lithostratigraphic charts, the rift zone goes from the Karakaya Complex to the inner West Carpathians by passing through the Pelagonian Zone, Internal Dinarides, and the Meliaticum. With the aim of revealing the end-Hercynian geometry, a basic reconstruction was attempted, so that a proper interpretation could be made. After this basic reconstruction was made for the ALCAPA unit, a continuity was obtained from the Northern Calcareous Alps/Southern Alps through the ALCAPA to the Dinarides. When the orogen comes to the present Aegean Sea, it now turns to the east/northeast and follows the northern ranges of Turkey as far as Eastern Pontides. Moreover, the marginal basin tracks almost the same route by using the weak zones of Hercynian magmatic arc. The resulting picture shows much greater lateral mobility of the units in the Anatolian/Balkan/Carpathian regions during Pangaea formation than hitherto assumed.