



Is the Palaeozoic of Istanbul a part of Gondwana-Land or Laurasia, or both?

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The Istanbul Zone, northwestern Turkey, located along the southwestern Black Sea coast, consists of a Neoproterozoic (almost entirely Ediacaran) middle to high-grade crystalline basement with relicts of oceanic lithosphere, volcanic arc and continental crust of unknown affinity and it is overlain by a continuous, well-developed transgressive sedimentary sequence extending from the late Ordovician to the Carboniferous. The Palaeozoic sequence was folded and thrust-faulted during the Carboniferous Hercynian orogeny, and is unconformably overlain by Lower Triassic and younger sedimentary strata. The Istanbul Zone is separated from the Sakarya Zone by the Intra- Pontide suture of early to medial Eocene and from the Strandja Massif by an inferred right-lateral strike-slip West Black Sea Fault. The Sakarya and Strandja fragments exhibit late Triassic and late Jurassic–Early Cretaceous metamorphism and deformation, respectively, which are not observed in the Istanbul Zone.

The Palaeozoic sequences of Istanbul and Zonguldak have been compared and correlated with similar sequences in Europe, including the Moesian platform in Romania and Bulgaria, Moravo-Silesia (Brunovistulian) in the Czech Republic and the Rhenohercynian zone in Germany and Belgium, all deposited on the northern passive margin of the Rheic ocean. However, these correlations are based on insufficient knowledge of the correlated rock sequences. By contrast, the İstanbul sequence resembles the Carnic Alps, the Montagne Noir, the Bohemian (Saxo-Thuringian), the Morocco, the Pyrenean sequences and thus northern Gondwana-Land of the Palaeozoic times. Istanbul Zone thus combines the characteristics of both the north and south Hercynian margins!

The Istanbul Zone shows characteristics of graben-facies deposits during the Ordovician-early Silurian followed by Atlantic-type continental margin sediments of late Silurian- late Devonian age. Since the arc is missing, the ocean facing İstanbul must have been consumed in a now unknown direction, colliding with a now unidentified Devonian–Carboniferous magmatic arc. The Carboniferous flysch of the Trakya Formation marks the progress of this collision. That collision created a dominantly (now) west vergent marginal fold and thrust belt on the eastern side of the Bosphorous and what now seems an east vergent (but with many inconsistencies) on the western side as a retrocharriage. The region of İstanbul shows essentially no metamorphism and only a weak cleavage development. What collided with İstanbul is unknown. The structural style of folds and faults in İstanbul requires a décollement underneath the whole city which thrusts the entire structure westward.