

REGIONAL TECTONICS AND EVOLUTION OF THE GREATER CASPIAN REGION

Sengor A. M. C. and Natalin B. A.
Istanbul Technical University, Istanbul, Turkey

The Caspian Sea sits in the middle of an extremely enigmatic region from the viewpoint of structure and tectonic evolution. In this region four major orogenic systems meet: In the north, the Uralides, in the northwest the Hercynides, and the northeast the Altaids. In the south, the Tethysides extend from the west to the east. The first step in understanding this region must be in sorting out structural connections. In the Urals, everything west of the Denisov-Oktyabrsk suture turns to the southwest and constitutes the pre-Triassic basement of the Scythian platform, making up the north-vergent Devonian to Permian collisional orogenic system of the Scythides. The Scythides is the connecting link between the Urals and the Hercynides. The Tornquist-Teisseyre strike-slip system (of various senses at different times) turns into the orogenic system somewhere in present-day Turkey. East of the Denisov-Oktyabrsk suture is the immense Altiid collage, which is delimited southward by the Sultan Uiz Tagh-Tien Shan suture zone striking eastward into China north of the Taimr Basin. A triangle is thus defined, the base of which is the Palaeo-Tethyan suture in the Central Pontides of Turkey, striking eastward into the Dizi succession in Svanetia and through a number of interruptions owing to later faulting jumps through the Chorchana-Utslevi Zone in the Dzirula, Chochiani Zone in the Khrami, Rasht and finally Mashhad joins the Paropamisus in Afghanistan. Within this triangle the provenance of rocks is unknown. These enigmatic units we have gathered under the designation "Intermediate Units." We show that the Intermediate Units in Turkmenistan have the same tectonic style and same kind of rock material as the Altiid collage. It is a strike-slip repeated collection of arc and accretionary complex fragments. The basement of the Greater Caucasus also turns out to have much accretionary complex material. All of this material gathered into the triangle zone just mentioned at the end of the Paleozoic and Triassic. It is unknown where it came from. In Eurasia it is hard to find a home for them. The alternative is Gondwana-Land, a giant continent with insufficient subduction record around it, especially along its Tethyan margins. The intermediate units may have been the missing arc apparatus; rifted from Gondwana-Land sometime in the mid-Paleozoic they may have switched polarity upon encounter with Eurasia. Their south-facing is thus only a record of a late event in their eventful history.