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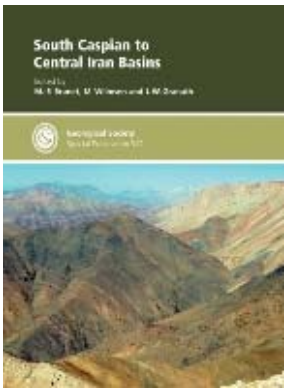

South Caspian to Central Iran Basins, edited by M.-F. Brunet, J. Granath & M. Wilmsen, 2009. GSL Special Publications 312. Geological Society of London. Hardback, 360 pages. Price GBP 95.00 (fellows price GBP 47.50; corporate affiliates price GBP 76.00; other societies price GBP 57.00); ISBN 978-1-86239-271-7.

This book includes fifteen chapters on studies of the South Caspian to central Iran basins. It focuses on the geodynamic history of the South Caspian Basin, northern and central Iran, and it is the first of six volumes being generated by the geoscientists of the Middle East Basin Evolution Programme (MEBE) which is funded by the oil industry and by French research organizations. The purpose are studies that cover the Arabian/peri-Arabian and Caucasian/Caspian areas, starting from the Late Paleozoic through the present. The MEBE group is examining the dating, regional kinematics, plate tectonics and geodynamic evolution of the Zagros, South Caspian Basin/central Iran, Caucasus, Black Sea, Levantine and East Arabian margins. Many of the studies are of Iran with the other three volumes intended to cover the Black Sea/Caucasus, the Zagros/East Arabian margin and the Levant.

The contributions are beautifully illustrated with both colour and black-and-white photographs and diagrams providing keys to the unravelling of the plate-tectonic evolution of the South Caspian and Central Iranian area. The contributions are usually tightly written and track the termination of the Paleotethys, the opening of the Neotethys, the uplift and erosion of the Cimmerian mountain chain, with the associated Neotethys subduction and large-scale Neotethyan back-arc rifting, predating the fill of the South Caspian Basin with its incomparable thickness of 20 km. The depth of coverage, and the disciplines handled vary from chapter to chapter but collectively, whether you are hunting for information on the lithostratigraphy, or on that of biostratigraphy or plate dynamics of the region, this is a great starting place and is an important source.

The first contribution considers paleomagnetic data to determine the drift history of Iran from the Ordovician to the Triassic, with the paleomagnetic poles of Iran and West Gondwanaland suggesting that Iran was initially part of Gondwanaland, drifting to subequatorial paleolatitudes, separated from the Gondwanaland margin in the southern hemisphere, and then moving into the northern hemisphere close to the Eurasian margin.

The next study investigates the sedimentary, metamorphic and igneous record of the Eo-Cimmerian (Late? Triassic) orogeny of North Iran, capturing the collision of the Iranian microplate of Gondwanaland with the southern margin of Eurasia. In the same vein, the Late Carboniferous Shanderman eclogites of the Talesh Mountain Metamorphic Complex are now interpreted as a fragment of the Late Paleozoic European continental crust that was deformed before the Eo-Cimmerian orogeny, and ascribed to the Variscan orogeny.

The volume then moves on to the stratigraphy of the central and eastern Alborz Range, detailing the Pennsylvanian to Early Triassic sedimentary succession, and describing and

supplementing this with a huge collection of new paleontological data from settings that range from shoreline to shelf, and that are explained as products of successive phases of global sea-level movement, climatic variation orchestrated by the beat of local geodynamic and regional movement and depositional settings that migrated through a belt of aridity in the Middle Permian, across the equatorial humid belt in the Late Permian, and reaching the northern arid tropical belt in the Triassic.

Another study suggests that the central and eastern Alborz Mountains be subdivided into northern and southern facies belts parallel to the strike of the mountain chain that captures the evolution of the Shemshak Foreland Basin of the Alborz Mountains.

From the perspective of hydrocarbon exploration, studies were made of the organic matter of the Late Triassic − Middle Jurassic Shemshak Group in the Alborz Range and it was resolved that, while the Upper Shemshak Group has a low petroleum potential, the Lower Shemshak Group is an important source rock in the Alborz Range, generating petroleum at Tazareh and Paland. This has potential regional implications beyond northern Iran that extend across the rest of the Middle East.

The Lower to lower Middle Jurassic non-marine sedimentary succession of the Binalud Mountains of NE Iran has been matched to the Jurassic part of the Shemshak Group of the Alborz Mountains. The overall non-marine section is interpreted to form the Cimmerian mountain chain in NE Iran and so helps determine the position of the NW-SE trending Eo-Cimmerian suture in NE Iran, suggesting that it should be placed further SW than it was before. The Kashafrud Basin is interpreted to be the eastern extension of the South Caspian Basin, with a rifting stage in the late Early Jurassic and the spreading stage in the Late Bajocian. Other papers explain the link between subsidence and sedimentation and crustal movement in northern Iran into Azerbaijan.

One paper records how the South Caspian Basin is filled by more than 20 km of Mesozoic and Tertiary sediments over oceanic or thinned continental crust. Though not been penetrated within the South Caspian Basin itself, rock exposures onshore on the basin margins are used to interpret the age and origin of the sedimentary fill seen on the seismic. In contrast, the Triassic stratigraphic succession of Nakhlak (Central Iran) records an active margin that was deformed during the Cimmerian orogeny. Interestingly, the Nakhlak and Aghdarband have quite different ammonoid faunal affinities during the Early Triassic, but similar faunal composition from the Bithynian to the Late Ladinian, so arguing against the location of Nakhlak close to Aghdarband.

The thick and well-exposed Late Triassic-Jurassic successions of the Tabas Block in east-central Iran were studied with the same pattern of response to relative sea-level change, facies development and succession of geodynamic events seen in the Late Triassic-Jurassic sediments of northern Iran, suggesting that the Iran Plate behaved as a single structural unit at that time.

This short review cannot do justice to all contributions of this magnificent volume, which is undoubtedly to become the type reference for the region. The authors, editors, and the Geological Society are to be congratulated for this professional volume. A must-read for those with an interest in middle and near eastern geology.

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