morphic „Telekesoldal nappe“ thrust over the Bódva nappe. In the D phase, characterized by NW-SE compression, SE verging reverse faults and fault-propagation folds were formed (Fig. 1.). The alternating dip values measured on the rocks of Bódva series and those of TO Fm. are probably the reason of a late folding phase (F5), characterized by open folds with long wavelength. The semi-vertical dipping of the Late Triassic basinal limestones can be formed by movements along SE verging fault-propagation folds (F5). The ongoing NW-SE compression resulted in SE verging thrusts. Among them, an uncertain unit of Gutenberg Dolomite, Steinalm Limestone and Early Triassic marl thrust upon the Bódva Unit. During this thrust the ramp fault might have not reach the surface, but connected to roof thrust of duplexes. The juxtaposition of Aggtelek Unit and Bódva Unit can be related to this phase, but it is more likely to be an older structure. Younger transpressive strike-slip and normal fault movements (D4–D5), connected to Darnó Zone, juxtaposed the Mesozoic formations of Rudabánya Hills and the Steinalm rocks of Uppony and Szendrő Hills. Parts of these movements are Tertiary in age, indicated by the involved Szuhogy Conglomerate and Pannonian sediments (Szentpétery 1997). This model can be extended to the major part of Rudabánya Hills, because it has a great similarity to the previous investigations made in other parts of the Rudabánya Hills (Fodor and Koroknai 2000, Kover et al 2005).

Acknowledgement

The study was supported by the grant OTKA 48824 (Hungarian Research Found) and the Aggtelek National Park.

References


Multiple Magmatic Fabrics in Episodically Emplaced Granites in Transtensional Setting: Tectonic Model Based on AMS Study and Numerical Modeling

Zuzana KRATINOVA1, Karel SCHULMANN2, Jean-Bernard EDEL3, Urs SCHALTEGGER4 and Josef JEZEK5

1 Institute of Petrology and Structural Geology, Charles University, Prague, Czech Republic
2 Centre de Geochimie de la Surface, EOST, Université Louis Pasteur, Strasbourg cedex, France
3 Institut Physique du Globe, EOST, Université Louis Pasteur, Strasbourg cedex, France
4 Département de Mineralogie, Université de Geneve, Geneve, Switzerland
5 Institute of Applied Mathematics, Faculty of Sciences, Charles University, Prague, Czech Republic

The three successive sigmoidal sheet-like granite intrusions (Thanenkirch, Brézouard, Bilstein granites – BBT Complex) in the Central Vosges Mts. (France) separates medium to high grade (~700 to 800°C, >9 kbar) gneiss and granulites to the north from low-presure (~700°C, ~4 kbar) anatectic migmaites to the south. The entirely compressional fabrics in the northern gneiss contrast with the pervasive extensional deformation in the south. This different structural record reflects the latest deformation event in the south.
Caledonian Orogeny in Southeast Asia: Questions and Problems

Michał KROBICKI and Jan GOLONKA
Faculty of Geology, Geophysics and Environmental Protection-University of Science and Technology-AGH, 30-059 Krakow, al. Mickiewicza 30, Poland

Avalonia probably started to drift from Gondwana and move towards Baltica in the late Tremadocian and was in a drift stage by the Llanvirnian (McKerrow et al. 1991, Torsvik et al. 1996, Golonka 2002). Between Gondwana, Baltica, Avalonia and Laurentia, a large longitudinal oceanic unit, known as the Rheic Ocean (McKerrow et al. 1991, Golonka 2002) was formed. Traditionally the continent of Avalonia consists of northwestern and possibly southern Poland, and their foredeep, terranes in northern Germany, the Ardennes of Belgium and northern France, England, Wales, southeastern Ireland, the Avalon Peninsula of eastern Newfoundland, much of Nova Scotia, southern New Brunswick and some coastal parts of New England. The Brunovistulicum terrane, some accreted terranes in the basement of East Carpathians parts of the Scythian platform, parts of Kazakhstan and Southern Mongolia terrane could constitute the eastern extension of the Avalonia (Paul et al. 2003a, b). The Turkmens (Zonenshain et al. 1990) and Solonker (Sengör and Natalin, 1996) oceans in Asia could constitute the eastern parts of this Rheic Ocean. Relationship of eastern peri-Gondwana terranes and Avalonia plates remain unknown and speculative. On presented maps the South China and Southeast Asia plates remain attached to Gondwana according to the previously published global paleoreconstructions (Golonka 2002). The alternative reconstructions (Paul et al. 2003a, b) suggest the possibility of extension of Rheic toward the easternmost part of Gondwana. It is not impossible that South China and Indochina plates were rifted from Gondwana in Ordovician. The uplift and volcanic rocks (Fig. 9) support such a possibility. According to Shouxin and Yongyi (1991) the Ordovician conformably overlays the Cambrian over most of the South China plate. The northern part of the plate (Yangzi Platform was covered with carbonates and mixed carbonate/clastic facies. The southern part of the plate is partially uplifted and partially covered by deep water synorogenic clastic deposits – more than 4000 m of weakly metamorphosed flysch, sandstones and graphitolic shales. Similar rocks formed on the margins of Indochina plate. They are known as Pa Ham formation (Ordovician-Silurian).

Late Silurian was the time of the major development of the Caledonian orogeny and final closure of the Iapetus. The collision between Baltica and Greenland continued, marked by nappes in Norway and Greenland. After the complete closure of the Iapetus Ocean, the continents of Baltic, Avalonia, and Laurentia formed the continent of Laurussia (P. Ziegler 1989). It is quite possible, that at that time several microplates rifted away from the Gondwana margin to arrive at Laurussia and Kazakhstan at the Devonian-Permian time (Golonka 2002). The exact time and the nature of rifting of these terranes and their relationship to Southeast Asia and Chinese plates remain speculative.