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# Deep “plugs” caught in continent-to-continent collisions, gemstones, deposits of metals, oil & gas

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Large structures with circular 2-D map-outlines have been trapped during continent-to-continent collisions: — a “plug” of resistant rock, 255 km in diameter trapped between E. and W. Gondwana in the Kenya/Tanzania border region east of the Rift Valley [1]; — a 180 km diameter feature in south central Turkey at the contact of the Eurasian-Anatolian plate with the semicircular NW extremity of the Arabian plate [2]; and a pair of tangent circles, — the >400 km diameter “Middle-Ural Ring Structure (MURS)” of Burba [3, 4] partly within the Urals, — and a 210 km circle tangent to it to its SW.

All four of these features, each in its own distinctive manner, is associated with major economic deposits: — with transparent gems (ruby, sapphire, tanzanite, kornerupine, garnets, tourmalines...) in the case of the faint East African circle; — with oil & gas in faults and joints opened on the Arabian plate while it pivoted against the 180 km Turkish circle; — with the supergiant Romashkino oilfield, which is situated within the 210 km Uralian structure (visible on the infolded map in [5]); — and with the Arlan supergiant oilfield, transparent gems, and deposits of Fe, Mn, Cr, Ni, Cu, Ti, Pb, Au and Pt on or near the perimeter of the MURS [4]. At least 3 of these circles are associated with ophiolites.

Formation of gem-quality crystals requires locally low pressure, as does accumulation of oil & gas. The depths at which metamorphic gems crystallize indicates that these 2-D circles are surface expressions of deeply-eroded deeply-penetrating 3-D plugs. As such, they are interpreted as orogenically rejuvenated vestiges of the Late Heavy Bombardment or, alternatively, of the tail end of our planet’s accretionary period, in either case older than 3800 Ma [1, 6]. The proximity of ophiolites, plus deep vertical feeders at Romashkino [5], suggest a deep abiogenic origin for the oil & gas.

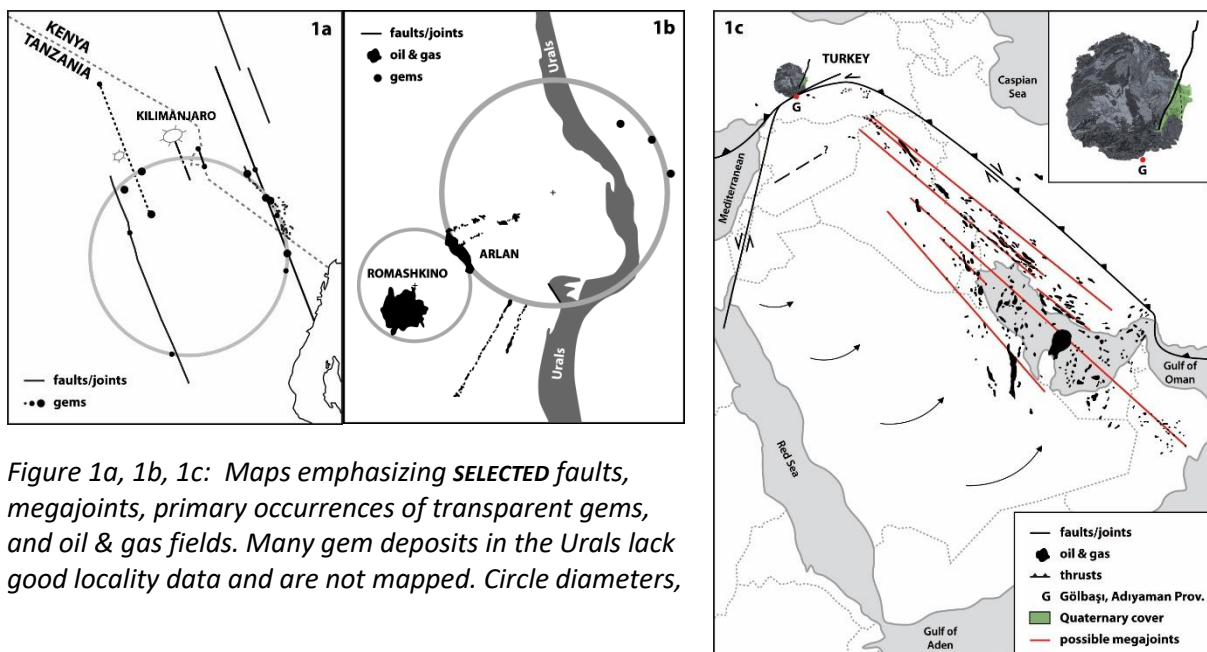


Figure 1a, 1b, 1c: Maps emphasizing **SELECTED** faults, megajoints, primary occurrences of transparent gems, and oil & gas fields. Many gem deposits in the Urals lack good locality data and are not mapped. Circle diameters,

*left to right, are 255, 210, >420 and 180 km.*

*Red trend lines in Fig. 1c indicate POSSIBLE MEGAJOINTS.*

Oil/gas fields as mapped by Dr. Michael Izady,  
[www.Gulf2000.Columbia.edu/maps.shtml](http://www.Gulf2000.Columbia.edu/maps.shtml)

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