tures of the Teisseyre — Tornquist zone already start taking part in formation of this branch of AHOB. In the north-east the folding formation wedges out near latitudinal Trotush fracture which separates Eastern and Southern Carpathians. In Peri-dobrudzha and Northern Dobrudzha at the depths of 10—20 km and 40—80 km there stretches CA with electric resistivity in a range of 40 to 100 Ω·m [Burakhovich et al., 1995].

An anomaly of electric conductivity in the earth crust of Western Carpathians is related to the juncture zone of Flysch Carpathians and inner units including Pennian and Marmarosh zones [Burakhovich, 2004]. In Southern Carpathians there is a CA located in the juncture zone of Inner nappies that separates Pannonia and Transylvania, and Southern Carpathians but not Peri-Carpathian depression. An anomaly of the western part of Ukrainian Shield (USh) and its slope is galvanically related with Flysch zone of Eastern Carpathians and Marmarosh belt. Western branches of the CA are located in a zone of deep Podolian fracture and the juncture of southwestern edge of EEP and Scythian platform. Dobrudzha is represented by a separate conducting object. It is absolutely obvious that in the studied region there is no universal and homogeneous asthenosphere.

Geoelectric models or crust CA do not always correspond to geology on a surface. For example, Pennian and Marmarosh belt as well as Flysch Carpathians are not a continuous CA in the Earth Crust. An anomaly of Precambrian USh and EEP wedges into alpine Carpathians. North-western branch of AHOB has some distinctive features characteristic to mobile belts; above all it's a week manifestation of the crust destruction in the beginning alpine stage of development.

A nature of a CA in the Earth Crust and Mantle can be different. First of all, it can be related to specifics of fluid (hydrothermal) regime deep in the Earth, to existence of melted rock phase in the crust. Second of all, it can be related to existence of inclusions with electronic conductivity. The most widespread representatives are graphite, sulphides bearing gneisses and shales which have graphite as one of their constituencies, graphite substance, pyrite, pyrrhotite and sometimes shungite. And finally, it can be due to a combination of inclusions with electronic conductivity and fluid which form an interconnected net of conducting channels.

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Towards the problem of genesis of Pripyat-Dnieper-Donetsk avlacogen

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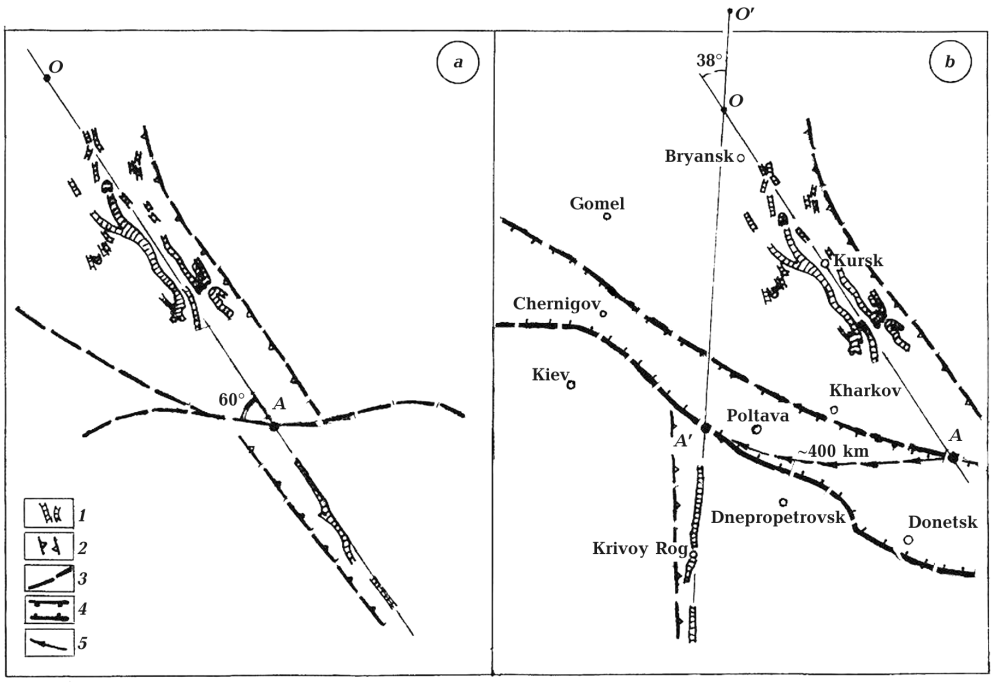
1. One of many problems in dynamics of lithosphere is the origin and development of rift systems inside and on the skirts of ancient platforms, in particular, the Pripyat-Dnieper-Donetsk avlacogen in body of East-European platform. The version about an origin of this avlacogen as a result of "superregional" right-hand shift lengthways Sarmat-Turan lineament, or more global (transcontinental) prolongation of this lineament to the west and to the east corresponding to the Schetland-Tsinlin fault-displacement [Roslyi, 2006; Isberg, Starchik, 2007], is well known. Horizontal



Model for formation of Pripyat-Dnieper-Donetsk system of formation of paleorifts: *a* — location of board`s zones of paleorifts and structures of iron-ore formations in earlyproterozoics time (1000 m. years ago); *b* — present location *(1* — magnetic anomalies in earlyproterozoics time (Krivorog`s and Kursk series [Zankevich, 2006]; *2* — boundaries of proterozois geosynclines zone; *3* — proterozois fault in massif of the Sarmat`s shield; *4* — boundaries fault of paleorifts; *5* — the trajectory of movement of conventional point $A–A^1$; $O–O^1$ — dislocation of rotation axis of the Ukrainian shield).

displacement of shift within the limits of described region makes 250—400 km.

Our reconstruction confirms displacement on 400 km and assumes turn of the Ukrainian shield clockwise on 38° with respect to southern suburb of the East-European platform in area of the Voronezh massif. The radius of turn is 650 km, and the center of rotation is gradually displaced to the "north" on 150 km. As a result initial points O and A (see Figure) have occupied positions O^1 and A^1.

The above reconstruction is based on the assumption of genetic connection of the magnetic anomalies of the Krivoy Rog — Krementchug and Kursk iron-ore formations as uniform linear structure in early proterozoic time. Slanting break (under an angle 60° to an axis) of this structure has begun right-hand shift, formation and expansion of rift cleft.

2. The process of transregional shift started at the beginning of late proterozoic era (1 bln years ago), proceeded non-uniformly, being entered during general planets tectogenes epochs, it was marked by formation of “rifey graben” in a southeast part of the future Dnieper-Donetsk paleorift, it brightly showed itself by formation of described rift system in late devonian epoch and has practically come to naught in cretaceous-paleogen times. However and nowdays in a landscape and a geological structure of region it is possible to observe neotectonic attributes of the latent movement: ring and linear aircosmic anomalies are displays of tangential and normal deformations in a sedimentary cover, listric faults [Geology ...,1991]. Shift right-hand deformations are clear visible along borders of rift forming deep breaks, lengthways the Smelov-Kholm diagonal break, in places of breaks of the Sarmat-Turan lineament, they are well traced along chains of salt rods in the central and south-east parts of Dnieper-Donetsk paleorift [Geology ...,1991; Kurilenko, Janshina,1988; Roslyi, 2006].

3. Rift formation combined with stretching, extension and crushing of basement blocks, it was accompanied by faulting of every possible types, listric chipping off, overturning and dropping of separate blocks, extensive landslides. Deformations of a stretching were non-uniform along described system of paleorifts: for the Dnieper-Donetsk graben it was 2—5 km in its extreme north-west, 5—7 km in a middle part and 10—18 km in a southeast. The Pripyat graben was generated mainly under influence of shift deformations, and broadening here did not exceed 2,4 km.

The paleorifts width also is changeable along all the system spreading. The Pripyat graben extends in the western direction from 110 up to 160 km at

thickness of a sedimentary cover from 2,5—4 km above ledges of the base up to 5,5—6,0 km above the immersed blocks. The Dnieper-Donetsk graben extends in a southeast direction from 75—90 km up to 110—130 km, being correlated with increase of a sedimentary cover in board zones from 3—4 km in the west up to 6—7 km in the east, and along an axial zone — from 6 up to 18 km in the same direction.

4. The bottoms of paleorifts ("rift valleys") are formed by "the breccia of rubbing" arisen under influence of transcontinental shift and consisting mainly from different sizes products of grinding blocks of crystalline rocks from basement and vulcanites. The range of the sizes of these "products" is very wide: from blocks in volume in hundreds cubic kilometers up to boulders and pebbles. A filler of these breccia are products of erosion and drift from onboard sites (mainly clastits), endogenous materials (effusive and halogens), chemic- and biogenic materials (carbonates). The same initially not consolidated deposits provided noncompensated filling of paleorifts.

Proceeding from the above stated representations, and taking into account an idea about of structure (fractality) and "geoblock divisibility" of the earth's crust [Krasnyi, 2005; Zankevich, 2006], the structure of paleorifts (their board`s and bottom) can be represented as system of relatively stable weakly deformed ("rigid") blocks divided by labile (unstable) zones of "hummocking". Stable blocks under influence of transregional shift deformations exercise some progress-rotary movement, and labile zones compensate superfluous pressure, playing a buffer role between blocks. Indicators of labile zones are anticlinal folds and chains of positive structures in a sedimentary cover. The majority of structures have attributes of imposed folding (dragging, squeezing, etc), complicated by halokinesis. Within the limits of labile zones the salt domes, often built in rhythmical chains or ring formations are located all. The overwhelming majority of oil and gas fields containing the lion's share of oil-gas provinces is related to labile zones.

Thus, the new approach is outlined in the tectonic zoning of the Pripyat-Dnieper-Donetsk oil-gas province and allocation on this basis of perspective zones of oil-gas accumulation that should raise a level of a scientific substantiation of accommodation of volumes of exploration.

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Constraining the composition, density and thermal state of the lithospheric mantle of the Siberian craton from inversion of seismic data

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Quantitative estimation of the temperature distribution in the Earth's mantle is a key problem in