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# Summaries

UDC [550.4:552.14]:552.5

**Yudovitch Ya.E.**

## **REFLECTIONS ON INFILTRATION EPIGENESIS**

The problem of so-called infiltration katagenesis, (V.N. Kholodov) which according to A.G. Kossovskaya and B.A. Lebedev is more correctly to call epigenesis, is considered. The strata which have already gone through thermal katagenesis of immersing and then lifted to the surface as a result of tectonic inversion of sedimentary pools are exposed.

Meteoric waters rush into uplifting sedimentary thicknesses and spread through porous and fissured collectors which leads to intensive mobilization processes (leaching) and substance resedimentation. Numerous examples show that such processes can have macroscopical (low-temperature epigenetic mineralization imposed on earlier generation of minerals), and hidden attributes (for example, sharply lowered content of thalassogenic elements like Cl in a sea strata, and isotope anomalies of carbonate C, O or Sr). Dramatic changes of sedimentary rocks occur at outcrop of layers onto the surface. Karst, aeration crusts or their full genetic analogues – humid (grey-color) and arid (red-color) soils develop in such conditions. Further uplift leads to erosion of sedimentary strata and to recycling of sedimentary material at new subsidence of sedimentary pool.

However, the second sedimentogenesis-diagenesis makes collateral impact on underlying rocks of the previous lithogenesis cycle. This circumstance was missed out in the theory of lithogenesis, and it was the essence of V.I. Chalyshov's (1976) and E.I. Pirrus' innovations (1981). It was the first time the attention was paid to singularity of «al-lodiagenesis» or «imposed diagenesis»: being a diagenesis per se, it carries out intervention in underlying layers, diagenesis of which has ended a long time ago.

Infiltrational uplift epigenesis (hypergenesis) is offered to call regressive epigenesis (because regress of water pools takes place), and infiltrational subsidence epigenesis – transregressive epigenesis. It is essential, that a wide concept «transregressive epigenesis» covers various processes of mineral formation in zones of stratigraphic discrepancy – in the case when accumulation of pool deposits over discrepancy was anticipated continental aeration. Such «transregressive epigenesis» has an obvious ore-forming potential.

UDC 553.411.071.242.4+550.4

**Kucherenko I.V., Gavrilov R.Yu.,**

**Martynenko V.G., Verkhovzin A.V.**

## **PETROLOGIC-GEOCHEMICAL FEATURES OF ORE-BEARING METASOMATIC AUREOLE OF THE CHERTOVO KORYTO GOLDEN-ORE DEPOSIT (Patomskoe uplands)**

The article continues a cycle of publications containing petrologic-geochemical evidence of geologic-genetic uniformity of gold hydrothermal deposits formed in black-slate and non-slate (crystal) substratum. Structure, mineral composition and geochemical features of the ore-bearing metasomatic aureole are shown on the example of a new deposit Chertovo Koryto (Patomskoe uplands) of the «black-slate type». The obtained additional results are entered into the developed system of evidence of geologic-genetic uniformity of deposits of that and other set and confirm earlier revealed laws following from reconstruction of geological history of metals in blocks of metasomatism and ore-formation.

UDC 552.321.6+549.1

**Antsiferova T.N.**

## **DEFORMATION AND REACTIONARY (MELT/ROCK) CHANGES OF MINERAL STRUCTURE OF RESTITIC HYPERBASICS OPHIOLITES (EAST SAYAN): PETROGENETIC ASPECTS**

On the basis of detailed studying of structure of rock-forming and accessory minerals hyperbasics of the Osipinskiy massif (East Sa-

yan), an attempt has been made to quantitatively define a degree of influence of deformation transformations and interactions melt/rock on structure of minerals of mantle paragenesis.

UDC 550.831

**Isaev V.I.**

## **FORECAST OF OIL AND GAS ACCUMULATION ZONES ON THE TRAVERSE KRASNOLENINSKIY ARCH – LYAPINSKIY MEGADEFLECTION (ACCORDING TO RESULTS OF GEODENSITY MODELING)**

Petrogeological interpretation of the geodensity model of pre-Jurassic deposits is shown on the traverse Krasnoleninskiy arch – Lyapinskiy megadefflection. Forecast of new zones of oil and gas accumulation is performed: in pre-Jurassic section of northeastern part of the Krasnoleninskiy arch; in pre-Jurassic section of central and eastern parts of the Visimskiy megaswell; in Jurassic deposits of western slope of the Lyapinskiy megadefflection; in a Neocomian complex of the Yuzhno-Bobrovskiy megadefflection.

UDC 550.4.01:519.233.5

**Tkachev Yu.A.**

## **CORRELATION ANALYSIS IN GEOCHEMISTRY: THREE PROBLEMS OF PRACTICAL APPLICATION**

Typical mistakes of the correlation-regressive analysis application in geochemistry and the obtained as a result fallacies having character of artifacts are analyzed. Theoretical analysis is given for each kind of mistakes, then the results of computer modeling of the situation generating a mistake, in comparison with correct results. At last, as a typical example, one work (thesis for a doctor's degree) containing all three kinds of the considered mistakes is analyzed.

UDC 624.131

**Strokhova L.A.**

## **DEFINITION OF DURABILITY PARAMETERS BY THE METHOD OF TWISTING OF RING SAMPLES**

Results of laboratory researches of durability parameters of clay soils by the method of torsion of ring samples are stated. Tests were conducted at constant deformation speed and continuous registration of vertical and horizontal deformations and pressures. Dependency of durability parameters on rate of tangent force application is established.

UDC 624.131

**Strokhova L.A.**

## **MODELING OF SURFACE SUBSIDENCE AT TUNNELING BY THE SHIELD METHOD**

Results of modeling of surface subsidence as a result of mountain works by the shield method for construction of the subway line U-8-Nord, Munich are stated. Measurements of surface subsidence after completion of mountain works served for verification of the design model. The model of soil most authentically describing surface subsidence at tunneling is chosen. Factors controlling magnitude of surface subsidence are defined. Soil deformations connected with massif drainage during mountain works were not considered.

UDC 622.233.05

**Shadrina A.V., Saruev L.A.**

## **RESEARCH OF CYCLIC DEFORMATION PROCESSES OF CARVING CONNECTIONS OF DRILL PIPES AS ELASTIC-FRICTIONAL SYSTEM**

The process of power impulse energy transfer through threaded connection of boring drill pipes as elastic-frictional system is considered.

red. Evaluation of impulse energy loss on friction in threaded connections of drill pipes by means of hysteresis diagrams is performed. Elastic-deforming characteristics for three types of connections of drill pipes are obtained.

UDC 622.233.016.25

**Shadrina A.V., Saruev A.L., Saruev L.A., Kazantsev A.A.**  
**RESEARCH PROCEDURES OF TECHNICAL**  
**AND ECONOMIC EFFICIENCY OF MACHINES FOR DRILLING**  
**OF UNDERGROUND WELLS OF SMALL DIAMETERS**

Technical and economic model of drill installations allowing optimizing their parameters is offered. Interrelation between separate operations performed by drives, and degree of their influence on productivity of a drill installation depending on the type of a drive at the design stage is established.

UDC 556.314

**Dutova E.M., Vologdina I.V., Pokrovskiy D.S.,**  
**Zamorovskaya L.V.**  
**CHANGING OF HYDROGEOCHEMICAL CONDITIONS DURING**  
**USE OF ACADEMICAL DEPOSIT OF GROUNDWATERS**

The results of research of hydrogeochemistry of groundwater deposit which is used by the big apartment borough of Tomsk city for water-supply is presented. The information about changing of hydrogeochemical measures during use of this deposit of groundwater is given. Steady-state increasing of  $\text{SO}_4^{2-}$ ,  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  in time and decreasing of dissolved concentrations of Fe ion at one time is established. The aeration of the interior of the Earth in conditions of broken hydrodynamic regime and long-term use is the main cause of this changing. The changing of chemical composition of groundwater is accompanied by development of secondary minerals on processing equipment of intake wells. The sediments represent polymineral mixture of oxide ferriferous, phosphate, carbonate, silica-alumina mineral phases.

UDC 556.1

**Kuzevanov K.I., Petrovskaya Ya.E.**  
**THE RUNOFF IN FORMATION OF WATER-INFLOWS**  
**AT OPEN-CUT THE BACHATSKY COAL-FIELD**

Results of an estimation of a runoff in the general structure of water-inflows of the Bachatsky coal cut, Kemerovo region are resulted. The local runoff catchment basins participating in formation of water-inflows are allocated. The structure of water-inflows is analysed, is established, that the leading part in their formation belongs to the atmospheric precipitation acting directly on the area career. Other sources of formation of water-inflows have the subordinated value.

UDC 556.06:551.482.212

**Savichev O.G.**  
**BIOLOGICAL WASTEWATER TREATMENT**  
**WITH USE MARSH ECOSYSTEMS**

The technology of clearing of people-made wastewaters of small settlements and oil-and-gas objects in shallow biological ponds with peat substratum and marsh vegetation is offered. The substantiation of

use of this technology in conditions of Western Siberia is resulted. The clearing of wastewaters includes adsorption of polluting substances on particles of peat, mastering of biogenic substances by vegetation and mineralization of organic substance. The formed deposit can be used as organic fertilizer at restoration of the broken grounds and in forestry.

UDC 502.7:551.215 (282.251.1)

**Bolotnov V.P.**  
**APPLICATION OF THE MODEL OF BIRD POPULATION**  
**DYNAMICS FOR MONITORING OF FLOODPLAIN ECOSY-**  
**STEMS (ON THE EXAMPLE OF THE MIDDLE OB)**

The model of bird population dynamics in floodplain of the river with the purpose of monitoring floodplain ecosystem, based on the principles of system dynamics formulated by D. Forrester has been developed. A number of supervisions (performed between 1977–2000) during the spring-and-summer period in floodplain of the Middle Ob area, Kolpashevskiy district, Tomsk oblast is used for this purpose which has allowed to improve the structure of the model. The model is realized by means of MATLAB 5.2.1 package. Modeling has confirmed a hypothesis that hydrological mode is a primary factor defining dynamics and structure of bird population in floodplain of the Middle Ob.

UDC 550.3(571)(09)

**Domarenko V.A., Rikhvanov L.P.,**  
**Molchanov V.I., Potseluev A.A.**  
**SKETCHES ON HISTORY OF STUDYING RADIO-ACTIVITY**  
**AND BECOMING OF URANIUM GEOLOGY**  
**IN CENTRAL SIBERIA. Second sketch**

History of studying radio-activity and radioactive elements is more than hundred years. Interest to uranium in the beginning of the XX century is defined, first of all, by the cost of its disintegration product – radium, which even at the earliest stage has been applied in medicine and for research purposes. A brief review of history of studying radio-activity and becoming of uranium geology in Central Siberia is given. Earlier unknown pages of this history are given.

UDC 55(092)

**Pshenichkin A.Ya., Rikhvanov L.P.**  
**SUBJECTED TO REPRESSION GEOLOGISTS – GRADUATES**  
**AND EMPLOYEES OF TOMSK POLYTECHNIC UNIVERSITY**

Brief data on geologists, graduates and employees of Tomsk Technologic Institute (TTI), Siberian Technologic Institute (STI), Siberian Geological Prospecting Institute (SGPI), Tomsk Industrial Institute (TII), Tomsk Polytechnic Institute (TPI) – nowadays Tomsk Polytechnic University (TPU), subjected to repression in 20–40s of the XX century is given.

UDC 553(09)

**Kucherenko I.V., Skripko O.K.**  
**PROFESSOR S.S. ILYENOK (to the 95th anniversary)**

Course of life and scientific activity of head of the department of petrography of Tomsk Polytechnic Institute of professor S.S. Ilyenok (1912–1983) is portrayed.