

PETROLOGY OF CARBON FRACTIONIZATION AND GEODYNAMIC OF IT'S METAMORPHISM DURING THE DIAMONDS FORMATION

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The modern state of study of diamond deposits of various ferent formational types and technological level of artificial growing of diamonds is perceived by us as following: 1) Diamonds are genetically connected with homogeneous mineral formation of eclogites in the all known types of deposits. 2) Diamonds and eclogites are cmetamorphogenic-metasomatic formation of Earth crust at the different stages of it's formation and at the every stage of its tectonic-magmatical development. Begining with Archean the formation of diamondsbearing eclogites as magnesial scars in the greenstones and ophiolite belts entails with multistage and longterm processes of granitization and basification. 3) Carbonate rocks masses are constantly presented in the containing masses of all known types of diamonds deposits or they completely compose their ore fields. 4) The carbon isotop composition and ratio ($C^{12}:C^{13}$) in diamonds and limestones are identical and nevertheless carbonate rocks are still regarded as the passive surrounding environment. 5) On global scale the placement of diamonds province of the kimberlits tubes of explosion corresponds to the Clifford's rule, however it doesn't define productivity of the specific diamondsbearing tubes, located by groups in the equal geo logical-structural environments and doesn't expose their genetical essence. 6) The formation of eclogites and diamonds are caused by dinamometamorphism in the superpressure conditions, though local and instant, but at least it is equal to the force of blow of large meteorit and is similar to the energy of origin of impactit types diamonds. 7) The artifical growing of diamonds goes with high concentration of carbon in the initial substratum subjected to the pressure more than 40 kbar and temperature more than 1200 C. The stable conditions for rise and growth of diamonds are experimentally achieved by two methods - the blasting and gradual statistical increasing of PT parameters, which corresponds to natural types of diamonds deposits formation. The metastable methods of development of embrionic diamond's crystals lead to lonsdeilit generation and to outdistancing grafite's growth or to diamonds combustion (at high temperature and low pressure).

The development of problem of the diamonds forming, systematization and placement of different formational types could be realized by the way of obtaining the factious carbon in the natural conditions and in the mechanizm of geodynamics origin of the stable regime for diamonds formation ($P > 40$ kbar, $T > 1200$ C) when metasomatic, tectonic and dynamometamorphic processes took part consistently or jointly (at explosion). The example of consecutive alternations of these processes when forming of the eclogites are the Precambrian metamorphic complexes of the Kokshetau Massif, Kirgiz Range and Mugodzhary Devonian ophiolite belt. The comparative analysis of these regions has shown the identity of frame of geologic, metasomatic and metamorphic formations, despite of the contrast of their tectonofacial level: the presence of greenstones

and ophiolite belts, invariably including formations of carbonate rocks, basic-ultrabasic intrusives, apobasalt slates, gneisses, migmatites, granite-gneisses, magnesial and apomagnesial-carbonatic scarns and eclogite budin and tectonites in the intensive crushed zones. Structurally Kokshetau Massif eclogites are located in the Precambrian gneisses and slates of greenstones belts, which are permeated and squeezed by the growing granite-gneiss domes of 3-rd types according to F.A. Letnikov (1975) - Zerendinskii, Borovskoi and another massifs. Interdome diamonds-bearing eclogites are facially changed by the Zholdybai type scarns (Lisitsin, 1970). In the Mugodgary diamonds-bearing eclogites are developed in the endocontact of basic-ultrabasic massif like Mamyt, Ebeta and other of the Kempirsai complex, stretched along the Main Ural Fault represented as a line of solder of collided lithospheric Paleozoic plates (Seitov, Bekmuhametova, 1983). The diamonds-bearing eclogites in the intrusive seam-zone on the western contact of the Habarninsk massif are facially changed by Velikhovsk plot scarns (Bekmuhametov, 1982, 1987).

The processes of magmatic substitution and skarnization carbonatic rocks of greenstones and ophiolite belts were accompanied by fractionization of carbon dioxide. The carbon dioxide bubbles are noted not only in scarn minerals and their interstitiums, but also in the micropores surrounding intrusive rocks (Parilov, Bekmuhametov et al, 1991), where the carbon dioxide partial pressure reaches 3 kbar in depth conditions (Pertsev, 1974).

The eclogitization of magnesial skarns and basic-ultrabasic took place in the dynamometamorphism conditions under anomalous pressure and temperature in the interdome zones of catazone and along seam-zones of continents collision in the ophiolite belts of any tectonofacial level. The eclogitization processes of magnesial skarns and periscarn rocks were accompanied by restoration of CO_2 to CO and C of graphite and diamond; in the basic-ultrabasic rocks - from ilmenite to rutile. Microinclusions of gas-liquid phases, diopside and graphite in diamonds and ilmenite's relics in the rutile eclogites confirms these. Eclogites have been arising along magnesial skarns form diamonds-bearing paraeclogites or formation of apomagnesialskarn eclogites with the basic-ultrabasic substrat - this is rutilic orthoeclogites.

When exploding and striking flare PT happen in the kimberlite blasting tubes in Yakutia, South Africa and in other provinces there are reactionally take part accomodating carbonate rocks of the platform cover. Here is momentary eclogitization take place, the stage of scarnation is absent. The carbon wave reflecting from carbonate roof outdistances itself in reverse penetration eclogitization of piroclastes and carbonate breccia of blasting tubes. So, diamonds in the deep eroded tubes could be with eclogites without visible association and according A.F. Williams (1932), V.S. Trofimov (1947). et al, their content decrease down the depth. During next explosions the carbonate pump in the blasting cameras of kimberlite tubes took place, which are connected with restoration and increasing partial carbonate pressure, with breaking and further diamonds crystallization to jewelry diamonds, frequentative formations like breccias (apobreccias) eclogites which inherited wreckaging states from collapsed roof's carbonate rocks. The involving processes skarnation happened in the adjacent regions of Siberian platform under the lower dynamometamorphic facies in the

tragic tubes of explosion under the hydrodynamic blow about 3-4 kbar only, under the temperature 600 C and oxidizing conditions (Puharevich, 1992).

The T.Clifford rule (1966) needs the essential correction, namely: it is necessary to consider the platform's cover compound of ancient cratons, which contain the carbonate rocks or consist of them completely within a fields of kimberlite tubes development like "Mir", "Zarnitca" and other in Yakutia. Systematization of diamond deposits of every types including diamondsbearing carbonatites, are based on carbonate component of forming part of the structural-forming complexes of surrounding rocks (Bekmuhametova, 1993).

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