**Discussion on the formation of diamond crystals of cubic habit from the deposit named after M.V. Lomonosov**

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The results of this scientific work allow us to make several important genetic conclusions, supplementing knowledge of the growth and evolution of diamond crystals in the deposit M.V. Lomonosov. According to the classical scheme of crystallization, diamonds of the cubic habit are formed during the last stages of diamond formation (Beskrovanov, 2000).

The Lomonosov deposit is characterized by the presence of specific forms of crystals (Criulina et al., 2012), which can not be attributed to a specific mineralogical-genetic variety according to Y.L. Orlova (1984), The mineralogical study identified transition series: cube-tetrahexahedral, dodecahedroid tetrahexahedral.

Based on the analysis of defect-impurity composition, microinclusions and the internal structure of diamonds, the patterns of formation and the genetic relationship of the limiting and transitional forms are established.

There are a number of crystals gradually changing their appearance from cubes to tetrahexahedroids, characterized by a yellow-green coloration, intense yellow-green photoluminescence and a microfibrous structure.

Crystals of diamond of cubic habit from pipes Arkhangelsk and them. Karpinsky-I are represented by: cubes and tetrahexahedroids with a fibrous growth mechanism of II variety from low to moderate nitrogen (170 <Ntot <1000 at.ppm). They are characterized by carbonate-silicate microinclusions with a predominant silicate component; Cuboids with a thick shell of IV species, which belong to the group of moderate-nitrogen low-aggregated crystals (700 <Ntot <1300 at.ppm,% B from 10 to 20). They are characterized by micro inclusions from extremely carbonate to carbonate-silicate ones.

Another feature of the Lomonosov deposit is the dominance of diamonds of the dodecahedral habit, with the predominance of limiting forms of dissolution (smooth-faced dodecahedroids). The series from smooth-edged dodecahedroids to near-color tetrahexahedra is characterized by average concentrations of nitrogen (IaA type), weak photoluminescence and zonal-sectorial structure. Tetrahexahedral crystals and some dodecahedraids contain scattered microinclusions of a calcareous-silicate composition (silicate phases predominate).

The diamonds of the cubic habit from the deposit of M.V. Lomonosov isolated individual features that are characteristic only for this field and can be distinguished from cubic diamonds from other deposits.

Bibliography:

Beskrovanov V.V. (2000). Ontogeny of diamond. N: Science, 264 p.

Kriulina G.Yu., Kyazimov V.O., Garanin V.K. (2012). Zonal diamonds from the Arkhangelskaya tube (Arkhangelsk diamondiferous province) // New data on minerals, No. 47, p. 26-32.

Orlov Yu.L. (1984). Diamond Mineralogy. Ed. The 2 nd. - M: Nauka, 170 p.