

# PECULIARITIES OF EARLY-GERTSINSK TECTONIC-MAGMATIC ACTIVIZATION OF THE EASTERN-EUROPEAN PLATFORM NORTH.

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The basic structural plan of the Archean basement of the North of Eastern-European platform was formed during the Riphean period the time when reef structures of the Northern-Western strike were completing its active development.

The beginning of a platform sedimentary cover development is connected with large trough (syncline) development of the earth crust in early Vendian time. Riphean structures are overlapped with practically unbroken cover of Vendian sediments of considerable thickness. The Vendian structural substages have a near-meridional orientation what corresponds the common tendency of tectonic territory development. During the Early Paleozoic period the territory was subjected to smooth vertical, positive and negative movements, however the common structural plan of sedimentary cover development did not change until Middle-Devonian period.

At the end of Middle-Devonian period the Riphean development structures activated rapidly, Kola-Kuloy Block and Timan were uplifted and the process was accompanied by a demonstration of basaltic, alkaline and alkaline-ultrabasic including kimberlite magmatism (figure.1).

Nowadays kimberlite volcanism was detected within Kola-Kuloy Block and Timan. The types of volcanic manifestations are extremely various: there are explosion pipes with well-expressed crater parts, multi-staged sill beds, dike- and stock-like bodies.

In every kimberlite areas the volcanic rocks form regular differentiated series and take up a certain part of unified rock series according to an ultra-basidity degree decrease from diamond-bearing kimberlites till melilitites, picrites and basalts. The differences among volcanic rock series are conditioned by peculiarities of original rock of a fusible mantle substratum.

Within the Belomor-Kuloy plateau 2 contrary series of volcanic rocks are detected: aluminiferous and ferrum-titanium series.

Volcanic rocks of Onega Peninsula belong to Al-series, Terskiy Coast rocks and Middle Timan rocks form rock series of intermediate type with signs of Al-series as well as Fe-Ti-series. A diamond-bearing level of each volcanic series kimberlite rocks is conditioned by a approach degree of their modal and chemical composition to the composition of original diamond-bearing hypersilicics of a fusible mantle substratum.

In the whole the North of Eastern-European platform is characterized by a close spatial-temporal and genetic connection of kimberlite volcanism with melilititic and even basaltic volcanism.

As a result of it there is a presence of closely located volcanic objects with highly various signs including productivity. Rocks similar to kimberlites - piroxeneless olivine melilitites and piroxeneless alkaline picrites can be indicators of presence of the area diamond-bearing kimberlites connected genetically.

Unity of kimberlite volcanism within the area is confirmed also by morphology peculiarities of diamond crystals - a clear prevalence of +1 mm. grade rounded dodecahedron. This sign is typical for primary diamond deposits of the Belomorsk-Kuloy plateau and for diamond placer deposits in Devonian reservoirs in the areas close to kimberlite and melilitite pipes (Middle Timan) as well as within the areas with not-detected yet possible diamond sources (North Timan and Poludov Range).

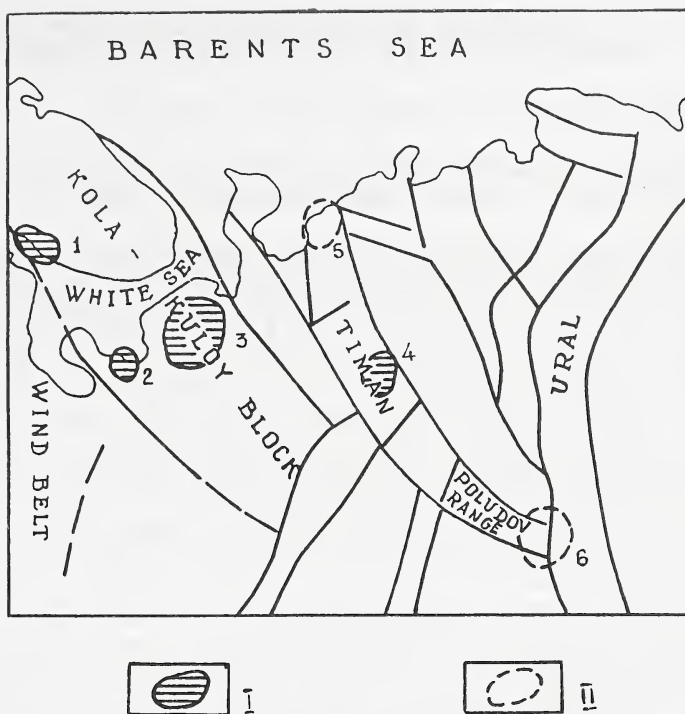


Figure 1. Tectonic scheme of the Eastern European Platform North

- I. Areas with detected alkaline-ultrabasic magmatism: 1 - Tersky Coast, 2 - Nenoksa, 3 - Belomor-Kuloy plateau, 4 - Umba.
- II. Prevalence rounded diamond area in placer deposit with an undetermined primary source: 5 - Northern Timan, 6 - Polyudov Range.