GEOCHEMICAL AND MINERALOGICAL PECULIARITIES OF DIFFERENT-AGE KIMBERLITES OF SIBERIAN PROVINCE.

Ilupin, I.P.
Central Research Institute of Geological Prospecting for Base and Precious Metals (TsNIGRI), Varshavskoye shops, 129 B, 113545, Moscow, Russia.

Within kimberlite fields of Siberian province pipes and dykes of different ages are known to occur. F.F.Brakhfogel has compiled a summary of data on Siberian kimberlites ages. Based on this summary, one could compare 1) Early and Middle Paleozoic pipes of Chomurdakh field; 2) Early and Middle Paleozoic, Early and Middle Mesozoic pipes of Kuoika field; 3) Early and Late Mesozoic pipes of Kuonamka fields. Used for comparison are most informative indicators - Ti,Fe,Al,P and K contents.

No regular changing of these indicators (from old to young pipes) within individual field was noted. A marked dependence of indicators not on age but on situation of pipe in certain field (in certain point within the province) has been revealed. For example, Kuonamka kimberlites, in comparison to Kuoika kimberlites, are enriched with aluminium and potassium; it is true for pipes belonging to any mentioned stage. Kimberlites of Chomurdakh field occupy the middle position in aluminium content between Kuoika kimberlites and Kuonamka kimberlites; it is true for pipes of both stage examined for Chomurdakh field.

Sometimes even the position of a pipe at question in definite part of the field has more influence on chemical composition of kimberlite than the age. For instance, in Kuoika field the values of 100 x MnO/FeO ratio in kimberlites of central part vary from 1.5 to 1.9, in NE and SW parts - within the range of 2.0-2.8; in NE part of the field high values of Mn/Fe are present in pipes of all stages studied - Middle Paleozoic (Vechernyaya pipe), Early Mesozoic (Noyabr'skaya) and Middle Mesozoic (Tokur, Irina , Muza).

There are also some mineralogical features common for certain fields. For example, in Kuoika field abundance of fresh olivine is observed both in Middle Paleozoic pipes (Vtorogodnitsa, Olivinovaya) and in Middle Mesozoic pipes (Slyudyanka, Tokur, Irina, Muza). In Chomurdakh field large megacrysts of ilmenite, garnet, diopside were found both in Early Paleozoic pipe Druzhba and Middle Paleozoic pipe Chomur.

It is likely that some peculiarities of kimberlites belonging to a certain field are governed by the peculiarities of corresponding area of upper mantle. An individual deep-seated magmatic reservoir may produce kimberlitic material of practically constant composition repeatedly during a long period of time.