GENETIC TYPES OF KIMBERLITE PIPE CRATERS OF A NEW DIAMOND-BEARING PROVINCE OF THE USSR AND SOME ASPECTS OF THEIR DEVELOPMENT.

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I. Shallow errosion of some newly-revealed kimberlite pipes and, as a result, well-preserved craters filled with specific volcanic and volcano-sedimentary rocks are distinctive features of the new diamond-bearing province situated in the north of the USSR European part.

2. Texturally, structurally and compositionally the crater fill consists of tuffs, tuffites, tuffstines as well as sandstones, siltstones, and claystones with pyroclastic admixture. The former three make up a tuffaceous member 20 to 40 m thick, and the latter three compose a volcano-sedimantary member 30 to 40 m thick.

3. Based on the position of and the relationship between these members the following major crater types reflecting specific features of their formation are recognised:

I - one-layered craters. Deposits form one volcano-sedimentary member dominated by sandy-argillaceous varieties accumulated under lakustrine conditions;

II - two-layered craters. Deposits are composed of the upper volcano-sedimentary member which is analogous to the member of the first type and the lower tuffaceous one derived from the explosion products either as direct fallout onto the crater bottom or as outwach from the area laying outside the crater;

III - three-layered craters. Deposits consist of three members of which the lower and upper members are volcano-sedimentary, while the middle unit is tuffaceous. The lower member is chiefly composed of sandy rocks simelar to host rocks. It was

formed in the environment of the prevalent gravity rockfall. The middle (tuffaceous) member was developed simultaneously with the lower unit by gravity rockfall and volcanic ejecta outwash from the area lying outside the crater. The upper member is analogous to that of the first type.

4. The defined types of the crater structure from the kimberlite field record a general pattern in the periodic development of kimberlite volcanism featured by a regular serries, from composite long-operating pipes-"leaders" to underdeveloped objects (with one-layered craters) marking the attenuation of volcanic activity within the territory in question.

5. Variety of volcanic structure types and different depths of postore erosion determine a multifactor distribution pattern of indicator components in the overlying deposits. It is due to this reason that there take place various prospecting situations requiring development of prognostic-prospecting models and a corresponding package of methods for their realisation.