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NEW DATA ABOUT THE CRYSTAL MORPHOLOGY OF "MARMAROSH DIAMONDS"

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We carried out electron microscopic and goniometric studies on quartz crystals from the area of the village Nyzhni Vorota in the Ukrainian Carpathians. Among the crystals one can distinguish a few morphological types:

- The prism type, in which the {1 0 $\bar{1}$ 0} prism predominate in their development over the main rhombohedra;
- The prism-rhombohedron type of nearly equal development of both the prism {1 0 $\bar{1}$ 0} and rhombohedra {1 0 $\bar{1}$ 1} and {0 1 $\bar{1}$ 1};
- The complicated prism-rhombohedron type, showing a good development of faces of the {1 1 $\bar{2}$ 1} dipyramid;
- The rhombohedron (pseudocube) type. The forms of the rhombohedrons {1 0 $\bar{1}$ 0} and {0 1 $\bar{1}$ 1}; prevail over those of the prism {1 0 $\bar{1}$ 0}, the faces of which are presented only by narrow strips.

Sometimes intergrowth of quartz, close to twins after Fridel's law ([0001] axes of the crystals are oriented at the angle of 90°), are also observed.

Investigation of surfaces of various simple forms of the crystals from the surroundings of Nyzhni Vorota by means of scanning electron microscopy has shown that the crystals display almost no signs of various visible forms of growth or dissolution. On the faces of prism there are noticeable narrow faces of different rhombohedra, polar coordinates of which differ from those of the main rhombohedra.

Such crystals of quartz, as well as ones showing a good development of the dipyramid faces, were an object of the goniometrical study. In many crystals, minor faces of the acute rhombohedra {2 0 $\bar{2}$ 1} and {7 0 $\bar{7}$ 3} are observed in the zone of the {1 0 $\bar{1}$ 1} rhombohedron. Sometimes minor faces of the {0 5 $\bar{5}$ 1} and {0 .10. $\bar{1}$ 0. 7} rhombohedra appear in zone of the {0 1 $\bar{1}$ 1} rhombohedron. A combination of the above mentioned acute rhombohedra make faces of prism {1 0 $\bar{1}$ 0} complicated.

Two crystals of quartz, having an extraordinary scarce form of the {0 1 $\bar{1}$ 2} rhombohedron, are of unique finding not only among "Marmarosh diamonds" but also among crystals of quartz in general. The obtuse rhombohedron {0 1 $\bar{1}$ 2} is established for the first time not only for the crystals of "Marmarosh diamonds" but also for quartz crystals from various hydrothermal mineralizations of the Ukraine.