MORPHOLOGY OF QUARTZ FROM PALEOGENE SEDIMENTS AT THE LOCALITY VEĽKÝ LIPNÍK, SLOVAKIA

FULÍN, M.
Eastern Slovakian Museum, Hviezdoslavova 3, SK-041 36 Košice, Slovak Republic.
E-mail: vsmuz@stonline.sk

Marmarosh diamond (originally described as quartz crystals of pseudocubic shape) is one of the genetic types of quartz. In the north-eastern part of Slovakia, in the Inner-Carpathian Klippen Belt Zone several occurrences of Marmarosh diamond have been described. The region of Veľký Lipník is one of the registered Marmarosh diamond localities. The clear crystals of quartz occur here in joints in grey-black slates and in sandstones. The occurrence of Marmarosh diamond is here the result of a low-temperature (140–190 °C) mineralization. An important condition for the mineral growth was the diagenesis of flysch. Water and methane, products of diagenesis, influenced the crystal morphology. The variability of quartz crystals depends on changes at the joints during the growth. By the opening of the joints the pressure and the chemical character of the solutions changed. The andesite volcanism in Poland near Szczawnica played an important role, too (BAJOVÁ, 1987).

At Veľký Lipník quartz crystals of the range 0.5–5.0 mm predominate. Centimeter-size crystals are common here, too. The largest crystal from this locality was 6.0 cm long and 4.0 cm wide. With the increasing crystal size, the typical morphological characteristics of Marmarosh diamonds (short ditrigonal resp. pseudohexagonal prism, two sides closed with area of positive and negative rhomboedra) change, their lustre and clarity decreases. The larger crystals show parallel intergrowths and also skeleton habit. Very frequent are inclusions of methane and carbon dioxide. According to the morphology of crystals the following types are distinguished (BAJOVÁ & FULÍN, 1989):

- Crystals with short prisms (length of prisms smaller than 1/3 of the whole length of the crystals)
- Crystals with long prisms
- Crystals with subordinate prisms
- Skeleton crystals

With the study of crystal faces we tried to find out, whether all the four morphological types described can be regarded as Marmarosh diamonds (in genetical sense) or they represent other genetical types of quartz (ZACICHA et al., 1984). We studied 52 crystals above the size of 1.0 cm. We calculated the reciprocal ratio of the crystal faces and compared these data between the crystals, so that we obtained the character of the dominant crystal form. The results confirm that the big crystals have the character of Marmarosh diamonds, too.

References

BAJOVÁ, Ľ. (1987). Diploma thesis, KGaM BF VŠT Košice.

BAJOVÁ, Ľ. & FULÍN, M. (1989). Zborník Východoslovenského múzea v Košiciach, XXX: 11–15.

ZACICHA, B. V. *et al.* (1984). Naukova dumka, Kiev/Lviv: 83–100.