



■ HYDROTHERMAL VEINS

Hydrothermal veins bearing various mineralization at the Belorechenskoye deposit are localized only in the Paleozoic rocks. Uranium-bearing dolomite veins in most cases do not reach the surface. Two main types of uranium mineralization are distinguished (Dymkov *et al.*, 1970; Melkov, Sergeeva, 1971): uranium-sulfide (coffinite-pitchblende-sphaleritic one) and uranium-arsenide (pitchblende-nickelinic one). Uranium-sulfide mineralization is related to stockwork zones and thin veins of northeastern and submeridional strike, located predominantly at lower levels of the deposit. More widespread uranium-arsenide mineralization is restricted to the veins of northwestern strike, having greater thickness, which occur in higher hypsometricly.

In publications of the 1970s, rock-forming carbonates of the uranium-bearing veins are called by very different terms: ankerite (most often), dolomite-ankerite, ferruginous dolomite, sometimes parankerite or brown spar. It should be noted that the term “ankerite” is used in all of these works is not the mineralogical, but rather in the “ore-petrographic” sense. In the limits of the modern mineralogical nomenclature, these carbonates by their composition are related to ferroan varieties of dolomite with the atom ratio $Mg > Fe$, and that is confirmed by all analyses of the vein-forming Belorechenskoye “ankerite” of different generations, published by Yu.M. Dymkov with co-authors (1970). “Actual” ankerite with predominance (in atom proportions) of Fe over Mg is also found at the deposit (Krivovichev, 1972a), but it is a late-stage mineral, distributed in small quantities, predominantly in cavities, and not pertaining to major vein-forming ones. Thus, according to mineralogical terminology, we shall call the Belorechenskoye veins not ankeritic, but rather dolomitic ones.

The veins not containing carbonates of the dolomite-ankerite series, substantially baritic ones and related to them (sulfide-calcitic, fluoritic), having as a rule submeridional or northwestern trend, are later in relation to the dolomitic ones; they crosscut and sometimes telescope them.

Dolomite veins with uranium-sulfide mineralization occur at the endocontact zone of metasomatically altered granitoids and are restricted mainly to cataclized and milonitized dykes of alaskite granites. They are related to the fissure system nearmeridional and northeastern, forming a zone of intense fissuring, elongated in the direction NE-SW. Veinlets with thickness from 1 to 10 cm form a stockwork zone, the upper limit of which coincides with a roof of granitoid intrusion and plunges to the northeast at angles 30–35°. Also, separate veins are found which do not make up a part of stockworks. The dolomite veins with uranium-sulfide mineralization are studied in detail at the level 777 m (adit No 5). They are also found

The largest open cavity at the Belorechenskoye deposit represents winding cave incrustated by large calcite crystals.