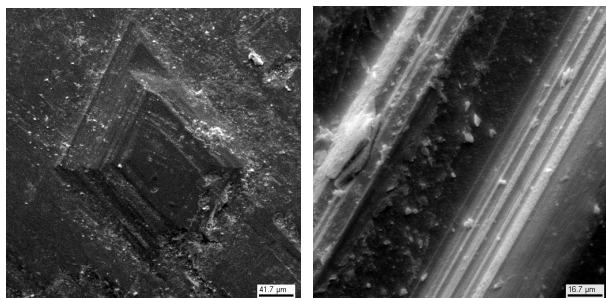


2.2.P11**The morphology and sculpture of natural garnets: Growth features**P. AZIMOV¹ AND A.G. SHTUKENBERG²¹Institute of Precambrian Geology and Geochronology, St.-Petersburg, Russia (az@pa1400.spb.edu)²St.-Peterburg University, Russia (sasha@as3607.spb.edu)

The garnet crystals from some metamorphic localities have been studied using optic microscopy and SEM. These crystals demonstrate usual morphology like euhedral or rounded crystals, skeletons, splitting, etc. The SEM studies display various face sculpture: macrosteps, step trains and bunches, growth hillocks, etching pits, convex step border. All these features are similar to ones found for artificial crystals of garnets and other compounds grown from the hydrothermal and low-temperature aqueous solutions. This means that we can apply our laboratory observations to interpretate growth conditions of natural garnets. Note that the same features are usual for crystals growing in free solution environment and in confined media.

The main crystallization mechanism ascertained for natural garnets is the layer growth. The normal growth mechanism is rather rare and possibly becomes apparent for granulitic garnets.

Analysis of garnet morphological features allow us to reconstruct the kinetic conditions for metamorphic reactions. Most important of them are disequilibrium (supersaturation) and growth limiting stage. In present time we can make only qualitative reconstructions. Most disequilibrium is revealed in zones of the intense fluid alteration. Some of them indicate also obvious evidences of the diffusional hunger.



The growth hillock at
{110} garnet face

The step bunches near
garnet crystal edge

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