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### THE "GARNET LADY"

The present issue of *Elements* is entitled "Garnet: Common Mineral, Uncommonly Useful." This gives me the perfect occasion to write a few words about the "Garnet Lady," Irina Galuskina, who was the first and the major author of the discovery and description of seven new garnet species with unusual compositions. The recent publication in *American Mineralogist* (April 2013), by a committee chaired by Edward Grew, of a new nomenclature and classification for the garnet supergroup, comprising 32 mineral species, underscores this mineralogical record.



Grossular crystals from the Wiluy River type locality; the crystal in the center is 3.5 cm in diameter. PHOTO: E. GALUSKIN

Irina works in the Department of Earth Sciences, University of Silesia, Poland. She is also a member of the Polish, Russian, and American mineralogical associations. In her work, she combines the best features of the Russian and Polish mineralogical schools. However, her first contact with mineralogy occurred in her childhood, beginning her fascination with the subject.

In the 1970s and 1980s, Irina's parents worked on diamond deposits in the Sakha-Yakutia Republic. "Garnet" and "pyrope" were household words in the family's conversation. Irina's father, Oleg Viktorovich, told fantastic mineralogical stories, one of which involved exceptional amounts of big green garnet crystals that could be collected by the bucketful on the shore of a Siberian river, the Wiluy. This fascinating story turned out to be true when Irina visited this known historical site close to the town of Chernyshevsky in 1992. In the middle of summer, when the water level in the river had fallen, grossular crystals a few centimeters in size appeared in huge quantity before her eyes. The Wiluy River is the type locality of grossular as well as wiluite and "achtarandite," a tetrahedral pseudomorph of grossular after a mayenite-like mineral. Here at the Wiluy locality, where A. G. Werner described grossular more than 200 years before, Irina was to find the scandian garnet eringaite ( $\text{Ca}_3\text{Sc}_2\text{Si}_3\text{O}_{12}$ ), which was approved by the IMA's CNMNC in 2009.



Druze of tetrahedral grossular crystals ("achtarandite"); the field of view is 1 cm. Wiluy River locality, Sakha-Yakutia Republic, Russia. PHOTO: E. GALUSKIN



In Kabardino-Balkaria, 2007. This photograph was taken during the first expedition to the Lakargi locality. In the background are Viktor Gazeev (left) and Sasha Zadov (right), discoverers of the Upper Chegem xenoliths in which more than 25 new minerals have been discovered in the last few years. In the foreground is Irina Galuskina. Sasha Zadov, a phenomenal scientist and a nice man, and the author of more than 60 new minerals, passed away in December 2012. PHOTO: E. GALUSKIN



Thomas Armbruster, the "guru" of structural investigations of minerals from the Lakargi locality, and his close collaborator, Biljana Lazic, with Irina on the left. The photograph was taken at IMA 2010 in Budapest. PHOTO: E. GALUSKIN

Another six new garnet species were found in altered carbonate-silicate xenoliths in ignimbrites of the Upper Chegem Caldera near Lakargi Mountain in the Northern Caucasus of Kabardino-Balkaria during 2008–2011. Two of these, toturite ( $\text{Ca}_3\text{Sn}_2\text{Fe}_2\text{SiO}_{12}$ ) and irinarassite ( $\text{Ca}_3\text{Sn}_2\text{Al}_2\text{SiO}_{12}$ ), belong to the schorlomite group. The remaining four species constitute a new group in the garnet supergroup: the bitikleite group, represented by the oxides bitikleite ( $\text{Ca}_3\text{SnSbAl}_3\text{O}_{12}$ ), dzhuluite ( $\text{Ca}_3\text{SnSbFe}_3\text{O}_{12}$ ), usturite ( $\text{Ca}_3\text{ZrSbAl}_3\text{O}_{12}$ ), and elbrusite ( $\text{Ca}_3\text{U}^{6+}_0.5\text{Zr}_{1.5}\text{Fe}_3\text{O}_{12}$ ).

Naturally, all these discoveries would have been impossible without the participation of colleagues from various countries, with whom Irina continues to study new minerals from high-temperature skarns and pyro-

metamorphic rocks.

What comes next for the garnet supergroup? The "Garnet Lady" considers the discovery of seven new garnets to be just the beginning. Work on the next new garnet species is already close to being finished: analogs of toturite and kerimasite with Ti in the tetrahedral sites and a tin analog of elbrusite.

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