

AUTHOR'S PREFACES

Photos: all specimens of minerals and rocks are from Konder, Khabarovsk Krai, Russian Far East.

Photo: Alexander G. Mochalov, unless otherwise specified.

This work is devoted to outstanding platinum minerals from the unique Konder platinum placer deposit. The cascade of placers, forming the deposit, originates from amazing concentrically zoned Konder alkaline ultramafic massif. Massif and larger part of the platinum deposit occurs inside the Konder ring ridge, the only object of such type on the Earth.

This book contains 329 figures, including 11 schemes and 259 mineral photos on the morphology of precious metal minerals. Most of these photographs are part of the main chapter of this work – Atlas of morphology of Konder platinum minerals. The issue perfectly complemented with a photo gallery of isoferroplatinum crystals from Gokhran of Russia collection, photographed by Michael B. Leybov. Five chapters with of Atlas describe principal results of many different researchers in Konder geology, petrology and mineralogy, with a focus on platinum mineralization. My original data is among them. Some data was published before, but some is published for the first time here.

Author was first who started studying in detail the mineralogy of platinum-group elements from the Konder placer deposit and its bedrock source. Almost 90 platinum-group minerals were recognized, including 35 potentially new minerals, presented as poorly constrained mineral phases. Konderite, inagliite, cuproirid-site and bortnikovite were approved by the International Mineralogical Association as new mineral species. Crystallochemical studies were conducted for main placer-forming minerals of the Pt-Fe system. Their structure corresponds to the relatively low-temperature part of the phase diagram for this system. It was established that these minerals are mostly represented by isoferroplatinum and its fine intergrowths with tetraferroplatinum and native platinum. Based on forty years of research on platinum placer occurrences and deposits, including their ultramafic bedrock sources, in the Russian Far East, I developed a classification of mineralogical-chemical types of 'panning platinum', on the one hand, and its placer-forming formations, on the other hand. Such systematic approach revealed mineralogical-geochemical types of platinum-group minerals and their placer-forming formations in the Konder Massif, which hosts five types, more than in any other deposit area:

- (1) magmatogenic Pt;
- (2) magmatogenic-fluidal-metasomatic Pt;
- (3) magmatogenic-fluidal-metasomatic Os-Pt;
- (4) fluidal-metamorphogenic Ir-Pt;
- (5) magmatogenic-fluidal-metasomatic Pd-Pt.

Genetic characteristics of each type, including ontogeny of such minerals, were characterized. For the first time, this book provides broad mineralogical characteristics of new palladium-platinum type of alteration in the Konder dunite. Its brightest mineralogical feature is the presence of beautiful isoferroplatinum crystals, including some largest in the world.

One of the main tasks of this work is to help the reader to understand the amazing diversity of placer-forming platinum minerals and their source in the placer-forming formations. For this, Konder platinum minerals are represented in the Atlas by morphological or, more precisely, morphogenetic types. If dear reader has his own point of view on one of problems discussed here, and it is different from my point of view, I hope that illustrations can help to extend his knowledge. In any case, I would like to please the respected readers with the images and hope that reader would find in this book that they didn't know before reading this book on remarkable platinum minerals of the Konder Massif, one of the most outstanding mineralogical objects in the world.

Noteworthy that since 1976 I am systematic compiling the unique platinum-group minerals collection in each expedition to numerous ultramafic massifs and related placers in the Russian Far East. This collection is, first of all, scientific. It belongs to the Russian Academy of Sciences. It is actively studied. In the near future, I hope, it will be part of the collection of one of the major state mineralogical museums in Russia soon.