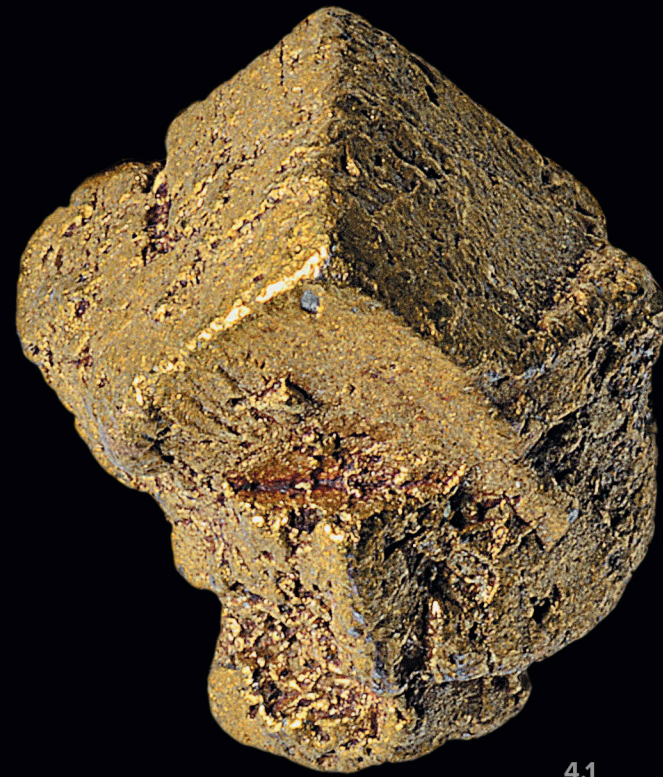


## CHAPTER 4. KONDER ALKALINE ULTRAMAFIC MASSIF



4.1

On page 42:

4.1. Isoferroplatinum: interpenetrant twin on (111) entirely covered with gold coating. 10 x 7 x 6 mm, 2.4 g. Gokhran of Russia.

Photo: Michael B. Leybov.

Geologists B.P. Kulesh (1935) and V.P. Shklyayev (1941) were first to report on geology of the Konder Massif. Since 1956, it has been surveyed at: (1) 1:1,000,000 scale by A.G. Kats, V.V. Arkhangel'skaya, and A.A. Elyanov (AUAGT in 1956); (2) 1:250,000 scale by A.N. Milto, A.A. Elyanov, and G.V. Andreev (AUAGT in 1957); and (3) 1:10,000 scale by E.P. Emelyanenko, A.S. Fomenko, A.N. Maslovskiy, D.A. Sineolyi, Yu.A. Solomancheva, and L.V. Grebeneva (Ring Party of *Dalgeologiya* PGA in 1984–1991) (Fig. 3.4). These studies yielded a basic understanding of its geology, providing a foundation for all subsequent exploration and research. In the late 20<sup>th</sup> century, V.I. Kitsula, M.A. Bogomolov, M.P. Orlov, V.I. Milhalchenko, O.V. Chernikova, A.M. Lennikov, P.D. Zalishchak, V.S. Prikhodko, and O.N. Khomenko contributed a great deal to the understanding of geology and origin of the Konder Massif.

The Konder Massif<sup>9</sup> is located at the Batomga inlier of the Aldan shield at the intersection of the Beraya submeridional and Konder–Net east-west trending crustal faults. In plan view, the massif forms a concentrically zoned circle, with up to 8.5 km in diameter (Fig. 3.4).

The Paleoproterozoic metamorphic rocks and Middle Riphean clastic rocks host the Konder Massif. They compose a Konder Ridge (Fig. 3.5). The Paleoproterozoic rocks are hypersthene-, amphibole-, garnet- and corundum-bearing gneisses, crystalline schists, amphibolite, marble, and calciphyre. These rocks occupy approximately 6 km<sup>2</sup> on the inner slopes of the Konder Ridge. Metamorphic rocks are intruded by the Paleoproterozoic plagiogranite, which is located at the southern and southwestern contacts of the massif as a discontinuous belt, 5.7 km long and 50–400 m wide. Metamorphic rocks and plagiogranite bodies confined to the ring faults form a continuous ring, 100 to 600 m wide, around the Konder Massif. They dip centerward at 60°.

The middle Riphean Konder and Omninka Formations consist of gravelstone, sandstone, siltstone, and mudstone. The Konder Formation outcrops on the inner divide slopes of the ring ridge and unconformably overlaps the Archean basement. The Omninka Formation, conformably overlapping the Konder Formation, occurs on divides and outer slopes of the ring ridge. The Middle Riphean clastic rocks periclinally dip at 50–60° near the massif, flattening to 5–7° at a distance of 1.5–2 km from it. The sedimentary rocks were contact metamorphosed. They are transformed into andalusite-cordierite-biotite and cordierite-andalusite-sillimanite hornfels, which is resistant to weathering.

The original Cenozoic alluvial sediments within the Konder ring ridge are not preserved because of platinum-group elements (PGE) placer mining (Figs. 3.5–3.7). At present, creeks run through technogenically reworked boulder-sand-and-shingle sediments, containing 0.01 to 0.1 g/m<sup>3</sup> placer-forming platinum minerals.

<sup>9</sup> The reported geological structure of the Konder massif is based on the open reports and published data by E.P. Emelyanenko, M.A. Bogomolov, M.P. Orlov, A.M. Lennikov, and P.D. Zalishchak with some additions and comments about important facts for understanding of the origin of placer-forming platinum minerals.