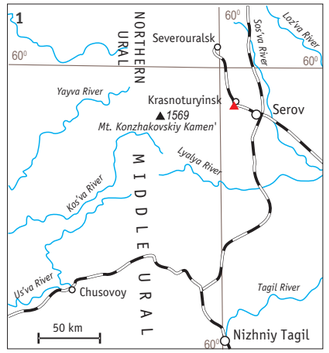
REMARKABLE MINERALS OF THE PESCHANSKOE IRON DEPOSIT, NORTHERN URALS

Mikhail V. Tsyganko,
Mineralogical museum *"Shtufnoy Cabinet"*, Severouralsk, Northern Urals, Russia
zigankom@mail.ru



1. Scheme of location of the Peschanskoe iron deposit in the Northern Urals, Russia.

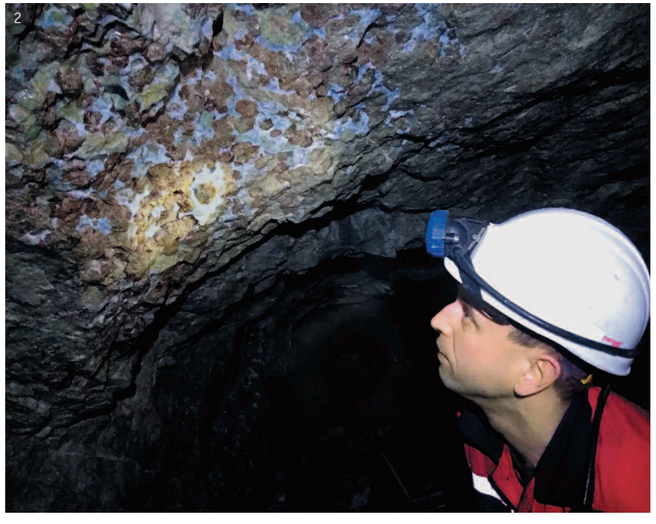
Specimens: Peschanskoe iron deposit, Northern Urals, Russia.

Specimens: *"Shtufnoy Cabinet"* museum, Severouralsk city, if other is not specified.

Photo: Mikhail V. Tsyganko if other is not specified.

The Peschanskoe iron deposit is located near the town of Krasnoturyinsk in the Sverdlovsk oblast, Northern Urals, in the southernmost part of this vast region (*Fig*. 1). It can be justly described as typical calc-skarn magnetite deposit; the collection-quality andradite, calcite, clinochlore, pyroxene, pyrite, pyrrhotite, and chalcopyrite are frequently found here. However, the most interesting and even mysterious find happened not so long ago, unusual mineral aggregates, which are abundant magnetite *"rods"* in white coarse-crystalline calcite (Figure on page 1, *Figs*. 28–33), were opened in underground workings.

Iron production in the area of Peschanskoe began in 1760s. The mine, operated by the miner Maxim Pogodyashin, was named Olkhovsky. Later, it was renamed Auerbakhovsky in honor of Aleksander Andreevich Auerbakh, the former head managing director of the Bogoslovskoe mining district (Fedorov, Nikitin, 1901). In the 20th century, this district is a large mining cluster: here,



2. Mikhail V. Tsyganko in a working of the Severopeschanskaya mine at the -320 m level of the Novopeschanskoe site. Large **andradite** crystals in **calcite** are seen on the working roof. Photo: Sergey V. Kuznetsov.

3. Pot-hole in the collapse zone of the Yuzhniy body, Severopeschanskaya mine.

4. Searching minerals: with schoolchildren at the rock dump, 2008.

5. Severopeschanskaya mine: central group of pits with tower type headworks.

copper (Turyinskie skarn copper deposits) and iron (Auerbakhovskoe and Vorontsovskoe deposits) ores were produced by mines and open pits. It has retained its importance in our time.

The Peschanskoe iron deposit comprises three sites, which are considered sometimes as separate deposits (from north to south): Novopeschanskoe (NPS), Severopeschanskoe (SPS), and Yuzhnopeschanskoe (YuPS) (*Figs*. 3, 4). The deposit is operated by the Severopeschanskaya mine (*Figs*. 5, 6, 8) and is a basis for the Bogoslovskoe Mining Group JSC, which is a part of the Ural Mining and Metallurgical Company (UMMC). Six vertical pit shafts opened up the mine in the recumbent side of the deposit.

In 1957, the Vorontsovskoe exploration crew discovered sufficiently deep Severopeschanskoe magnetite deposit as a result of checking of magnetic anomaly in the area of the Severopeschanskoe open pit located five km west of the settlement of Rudnichny and 10 km north of the town of Krasnoturyinsk. In 1960, the Novopeschanskoe magnetite deposit was discovered three km north of Severopeschanskoe.

In 1961, sinking operation of the Severopeschanskoe pit and building of industrial site began along with continuous exploration of the deposit. In 1970, the Yuzhnopeschanskoe deposit located 1.5 km south of Severopeschanskoe was explored. Initially, the mine with the production of 2.5 Mt per year was projected only on the basis of the Severopeschankoe reserves. Already during construction owing to the increased reserves, the design decision was revised in the direction of increasing production capacity to 5 Mt per year. Thus, this mine become the largest iron mine in the Urals and the third in the Soviet Union. The maximal production was reached in 1984, 4757.5 kt of ore mass. In 1991, it sharply decreased, down to 1751.6 kt, and at present it is approximately 2500 kt (Pavlov, Filichkin, 1998).

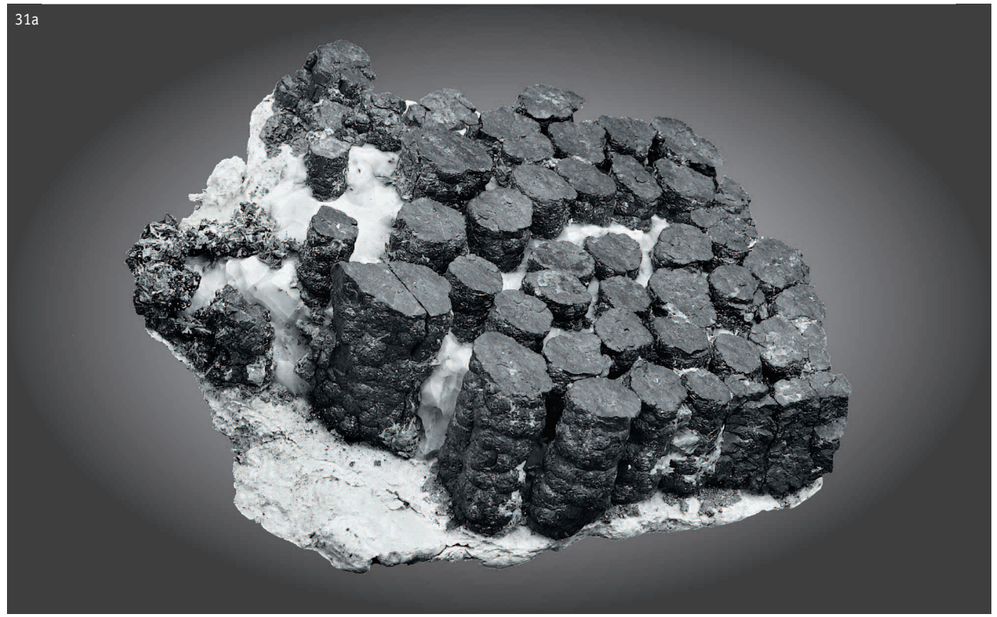


Figure 31 on page 60
31. "Rods" of **magnetite** (the **calcite** between them is partially dissolved during preparation); the "rods" of magnetite on both sides are "cut" by tectonic fractures filled with **sepiolite**. 15 x 12 cm. (a), (b) different views of the specimen.
Photo: (a) Igor O. Sitnikov, (b) Vladimir V. Danilov.

32. **Magnetite** "rods" in **calcite**. 15 x 9 cm
(a) general view; (b) specimen detail.