GRANITE PEGMATITES OF THE BORISOVSKIY PLUTON, SOUTH URALS

Sergei V. Kolisnechenko, Valentina I. Popova, and Vladimir A. Popov,
Institute of Mineralogy, Ural Branch, Russian Academy of Sciences, Miass;
popov@mineralogy.ru

Previously, pegmatites near the town of Plast in the South Urals were studied only as a source of mineral, and mineralogists often ignored them. This resulted in little information about localization, structure, and the mineralogy of these pegmatites.

The Late Paleozoic Borisovskiy granite pluton is a part of the major granite zone of the Urals that extends for 1500 km from Verkhoturye (59°N) to the southern termination of Mugodzhary (48.3°N) (Geology of the USSR, 1969). The NNE trending pluton of 20 x 7 km in area extending from the Upper Sanarka settlement to the northern outskirts of Plast belongs to the Varlamovo Complex of granitic rocks (Ferschtater *et al.*, 1994). The relief of the region is smooth and weakly hilly (Figure 1). The pluton comprises medium- to course-grained porphyritic granite accompanied by veins of leucocratic two-mica and muscovite granite, alaskite, aplite, porphyry granite, and granite pegmatite (L'vov, 1965).

Country rocks of granitic gneiss and crystalline schists are frequently found as outliers in the pluton (Figure 2).

The history of the mineralogical study, of the Borisovskiy pluton, which was considered as a part of the Kochkar granite pluton for a long time, is poorer when compared with that of the Kochkar gold deposit in the vicini-

1. Typical relief of the Borisovskiy pluton area. Photo: S.V. Kolisnechenko, 2012.

2. Geological map of the Borisovskiy pluton, after Kuklin *et al.* (1960).

Q (1) Quaternary sandy-clay sediments;

$\gamma_1 Pz_3$ (2) granite of the Borisovskiy pluton;

γ_3 (3) plagiogranite of the Plast pluton;

gγ (4) granitic gneiss;

C_1 (5) carbonate rocks;

Sp (6) serpentinite and talc-carbonate schist;

S_1 (7) porphyries and their tuffs;

(8) quartz porphyry and its tuff;

α (9) amphibolites;

(10) crystalline schist and gneiss;

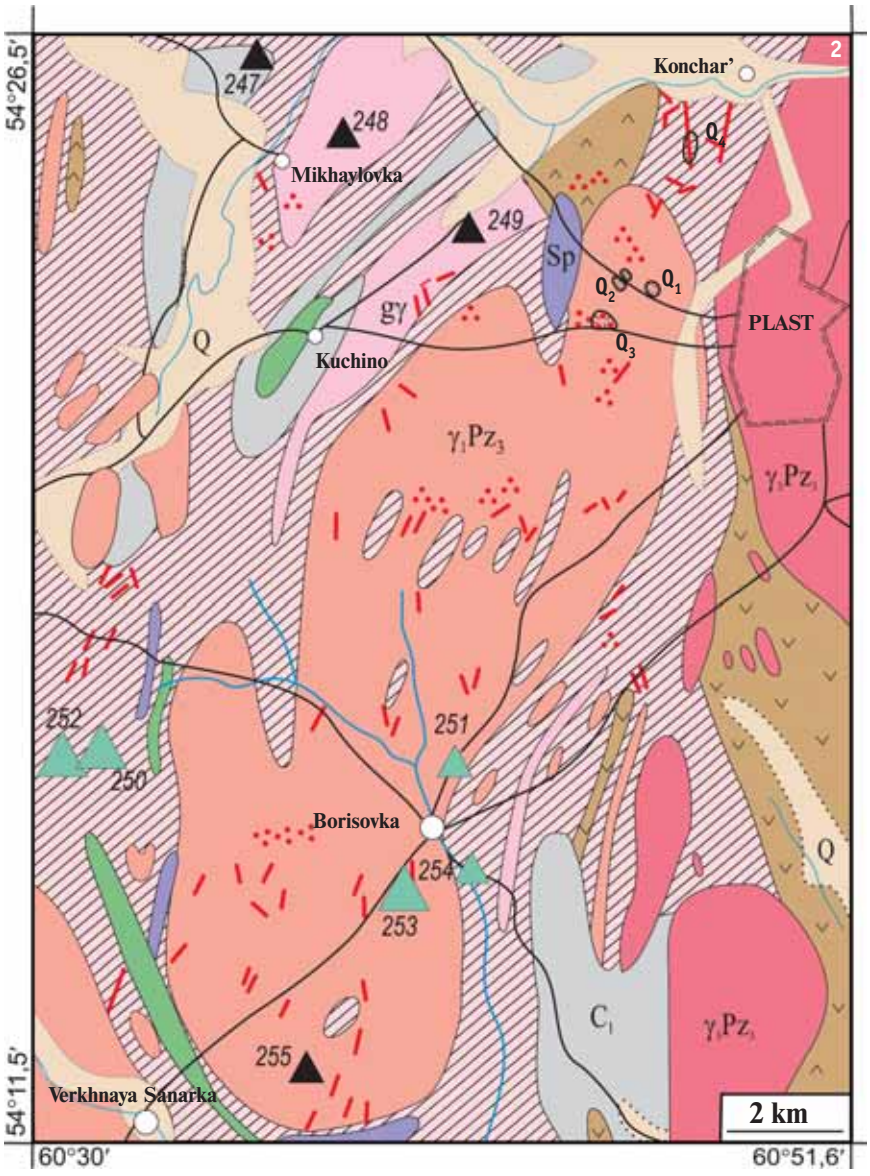
(11) granite pegmatite;

(12–13) explored granite pegmatite:

(12) beryl,

(13) rare earth elements;

Q-1 (14) new granite quarry with pegmatite (our data: Plast quarry (Q-1), Malygino quarry (Q-2), West Plast quarry (Q-3), Kochkar quarry (Q-4)).



ty, and gold placers of the Kamenka and Sanarka basins. G.P. Gelmersen (1836), M.P. Mel'nikov (1883, 1888) and N.K. Vysotsky (1900) provided the first information about the rocks from the southern Borisovskiy pluton and the country rocks. At the Borisovskiy hills, Mel'nikov opened a quarry in granite pegmatite with beryl (Mel'nikov quarry; no. 253 on Figure 2) and found beryl-bearing pegmatites near the village of Sekretarka (no. 247) and the settlement of Mikhailovka (no. 248). Different crews from Uralgeologiya and Uralquartzsamotsvety started to prospect the area of the Borisovskiy pluton and its contact in the 1920s–1930s and continued to the 1980s (Romanov, 1947; Kostina, 1966; Murkin, 1989). As a result, in 1938, the Kochkar prospecting crew under the guidance of N.I. Stupin explored the Otradny Ravine belonging to the Svetlinskiy rock crystal deposit. The deposit has been operated for more than 30 years since 1939 (Kashkurov and Baeva, 1953; Anufriev, 1973).

The Svetlinskiy pegmatite quarry is one of the best known localities in the South Urals. In the area of the pegmatite quarry, deposits of various minerals were "dis-