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THE TECTONIC INVOLVEMENT OF THE JAVORNIK GRANITOIDS – SKRZYNKA-ZŁOTY STOK SHEAR ZONE (SUDETES)

INTRODUCTION

In the Góry Złote and the Rychlebske hory Mts., the Javornik granitoids form a partly concordant, up to one km wide and north-west dipping vein, which is accompanied by a rim of streaky granitization in blastomylonites and phyllonites of the Stronie formation, particularly well-developed in rocks overlying the north-western side of the vein. Field data indicate that Javornik granitoids was deformed.

GEOLOGICAL OUTLINE AND NATURE OF THE GRANITOIDS

The main body of the Javornik granitoids, having the form of the vein, up to 1200 m thick, occurs on the Czech side, between the Růženec pass in the south and the Bilá Voda in the north (Němec, 1951). In this area, these granitoids represent deeper, root parts of the intrusion. To the south-west, on the Polish side, the granitoid vein becomes thinner and tapers out on the progressively lower sides of transverse faults.

A detailed petrographic description of the Javornik granitoids in the Polish part of the Śnieżnik metamorphic unit was presented by Burchart (1960), and in the Czech part by Němec (1951). These two fundamental petrographic studies contain totally different interpretations of the described granitoids' origin: Němec opted for an intrusive origin, whereas Burchart saw metasomatism as the major factor responsible for the formation of these rocks. The isotopic dating of the Javornik granitoids was made on biotite using the K-Ar method (Borucki 1966), yielding result of ca. 335 Ma.

MACRO- AND MESOSTRUCTURES

The tectonic involvement of the Javornik granitoids was mentioned by Finckh & Fischer (1938), Finckh et al. (1942) and Cwojdzński (1977).

In the Polish part of the Javornik granitoids one can observe apical parts of this intrusion, showing gneissic fabric, concordant with the main foliation of the wall rocks (Fig. 1). In this area, there are also mylonitic varieties of granitoids, through banded orthogneiss to ultramylonites (Fig. 2a, 2c). The main foliation in the wall rocks and outside the contact zone, defined by strongly developed differen-

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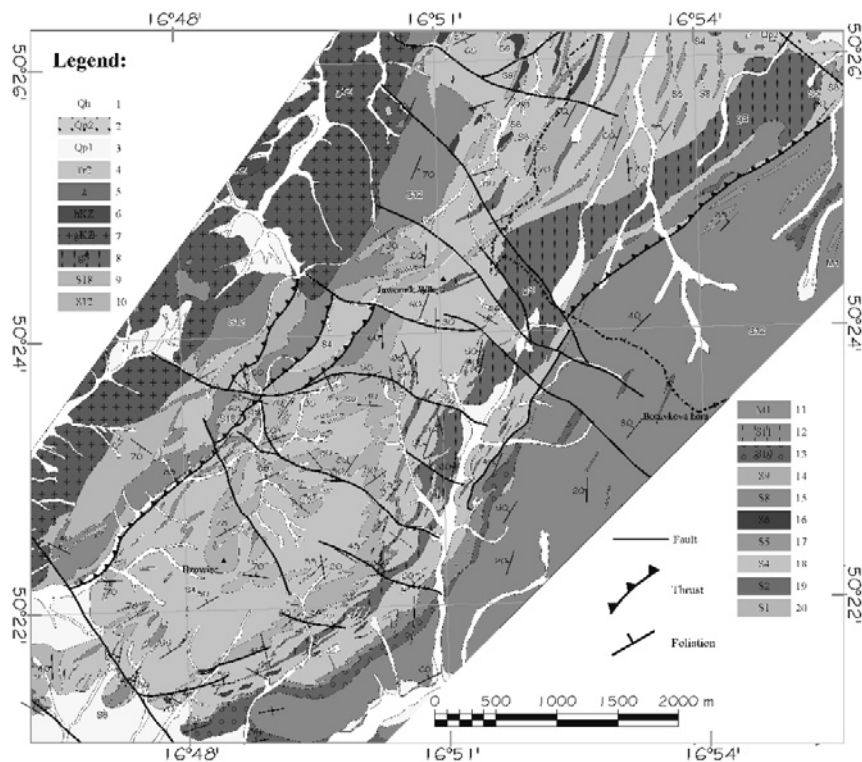


Fig. 1. Geological map of the of the Złoty Stok-Skrzynka zone, showing the Javorník granitoids and surrounding rocks of the Śnieżnik metamorphic suite. 1, alluvia (Qh); 2, gravels and clays (Qp2); 3, sands and silts (Qp1); 4, clays, sands and gravels (Tr2); 5, vein aplites, pegmatites and lamprophyres (ż); 6, hornfelses and hornfels gneisses (hKZ); 7, Kłodzko-Złoty Stok granitoids and syenodiorites (gKZ); 8, Javorník granitoids (gS); 9, Gieraltów gneisses and migmatites with relicts of paragneisses of the Młynowiec formation (S18); 10, fine-grained or migmatic Gieraltów gneisses (S12); 11, Staré Město amphibolites (M1); 12, fine-augen and fine-laminated Śnieżnik orthogneiss (S11); 13, coarse-augen Śnieżnik orthogneiss (S10); 14, porphyroids and leptinites (S9); 15, amphibolites and amphibolite schists (S8); 16, crystalline limestones (S6); 17, graphite schists and quartzites (S5); 18, mica schists (S4); 19, amphibolites (S2); 20, biotite schists and paragneisses (S1).

tiated layering, may represent remnants of the one or more transposition events. The Foliation dips gently to moderately toward the north-west (Fig. 1). The folds within granitoids are typical of the envelope F2 and F3 structures and all show a consistent west-over-east sense of vergence (Fig. 2b, 2c). Fold axes and lineations (rodding and intersection l.), lying in the main foliation, plunge gently toward the north-east. Within the wall rocks noncylindrical meso- and macrofolds are common with axes rotated toward dip of the main foliation. Within Javorník granitoids F2/F3 folds show only an incipient tendency to be rotated or none.

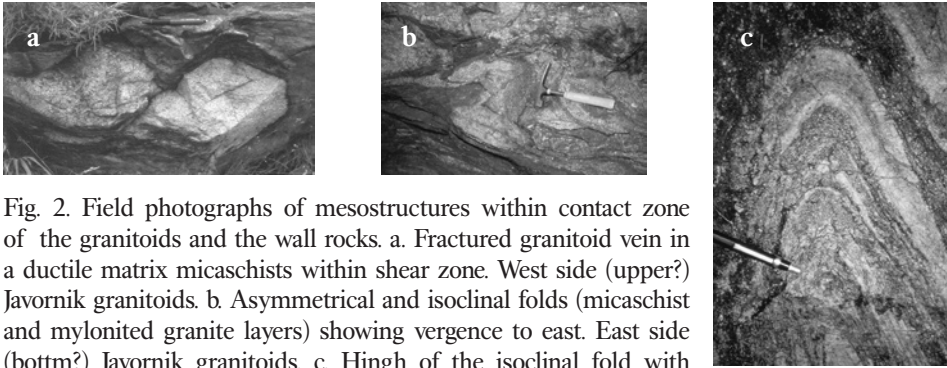


Fig. 2. Field photographs of mesostructures within contact zone of the granitoids and the wall rocks. a. Fractured granitoid vein in a ductile matrix micaschists within shear zone. West side (upper?) Javornik granitoids. b. Asymmetrical and isoclinal folds (micaschist and mylonitized granite layers) showing vergence to east. East side (bottom?) Javornik granitoids. c. Hinge of the isoclinal fold with protomylonite-mylonite bands of the granitoid. East side (bottom?) Javornik granitoids.

Field data indicate that Javornik granitoids are probably intradeformational to D2/D3 transition stages in relation to the Śnieżnik metamorphic deformation phases produce F2/F3 folds.

The Javornik granitoids isotopic data 335 Ma, overlaps with the age of the Staré Město granitoids (c. 339 Ma) and the isotopically determined age of the formation of the Gierałtów migmatite complex (c. 340 Ma).

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