

A NOTE ON THE OCCURRENCE OF BLUE QUARTZ IN RUSTAM, MARDAN DISTRICT, PAKISTAN

INTRODUCTION

The Swabi-Chamla sedimentary group of Martin *et al.* (1962) generally borders the Ambela granite along its western and southern margin. The main lithologies include shales, quartzites, limestones and dolomites. The low grade regionally metamorphosed phyllitic rocks of Chamla are pelitic to semi-pelitic in composition and contain the so-called quartzitic and graywacke layers and zones of elongate pebbles of generally psammitic composition (Martin *et al.*, 1962). The rocks are locally schistose in character. We report here an occurrence of blue quartz in quartz-rich shaly lenses enclosed in the Chamla phyllitic shales. The lenses represent either a layer in the phyllitic country rocks as described by Martin *et al.* (1962), or quartz veins associated with the Ambela granite. Further data on detailed petrography, tectonic setting and correlation of the rocks in the area and the origin of the quartz will be given elsewhere.

FIELD FEATURES AND PETROGRAPHY

The blue quartz, considered to be generally confined to high grade metamorphic rocks (e.g. granulites, charnockites; Subramaniam, 1959), especially metamorphosed igneous rocks (Dietrich, 1965; Wise, 1981), has been found at two localities near Landi village ($34^{\circ} 15'$, $72^{\circ} 15'$; Topo Sheet No. 43 B/7) of Rustam area. The host rocks for the quartz are very localised and mostly concordant to the phyllitic country rocks, however, they have boudinaged faulted contacts and have no strike extension (range in area upto 200 m²). Petrographically they are composed mainly of quartz with minor amounts of kaolinite, ore (? magnetite), carbonate, muscovite, and traces of sphene.

The blue quartz (usually anhedral to subhedral grains, upto 5mm) is found either as individual crystals disseminated in the shaly host rock or as segregated grains. The shaly host is usually elongate, lensoid, xenolith-like boudinages in the phyllitic country rocks. The boudinages are mostly rounded to oval, though elongate tongue-like shapes are also common, and are characterized by chlorite reaction rims along their contacts. The boudinages reach in size upto 40x50 cm².

DISCUSSION

The presence of blue quartz (an optical effect) in such a limited occurrence reveals two possibilities: either the rocks are sedimentary in origin and the quartz grains are derived from an extraneous source, or the rocks are the result of hydrothermal activity genetically related to the Ambela granite. Igneous features are not clear and although such quartz can be produced in a number of environments, field observations and petrographic features favour the possibility of hydrothermal phenomenon. The restricted occurrence may be due to lack of detailed mapping of the area. Somewhat strong deformation may have resulted in the stretching and elongation of the boudinages as also suggested by chlorite along the contacts of the boudinages.

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- M.U.K. KHATTAK
IRSHAD AHMED
- NCE and Department of Geology,
University of Peshawar.
- JAMIL AHMED
ABID AHMED
- Hard Rock Division,
Atomic Energy Mineral Centre, Peshawar.