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PRELIMINARY GEOLOGY OF THE SHILMAN AREA, KHYBER AGENCY, WITH NOTES ON A COPPER-BEARING GABBRO

Reconnaissance geological work was carried out in Shilman, Khyber Agency, and traverses were made along roads and major streams, in the first week of August, 1969. The area is bounded by 34°8′ and 34°15′ N latitude, and 71°15′ and 71°18′ E longitude.

Low grade metamorphic rocks (phyllites and slates, with less abundant quartzite and schists, and minor limestone), striking northeast and dipping northwest, occur in the northwest of the area. The rocks are generally of a greyish colour, the phyllitic rocks having well developed cleavages. Some rocks are greenish-grey to dark grey and contain carbonaceous material. The rocks are cut by abundant quartz veins and also by some basic and a few granitic intrusions.

The metamorphic rocks interbed with thin-bedded, pure to shaly limestones in the southeast, stratigraphically above the more massive Khyber Limestone. The latter is dark grey, but some is white; and at places is thin-bedded, crystalline, and may locally contain chlorite and talc. Farther southeast along the Kabul River, phyllitic rocks with interbedded limestones reappear, but the dip is in the opposite direction to those of the previous ones, i.e. to the southeast. It appears that the rocks form a northward plunging anticline or dome.

The intrusions in the phyllitic rocks are mostly small, concordant bodies, not more than a few tens of feet thick. The basic rocks are dark coloured, medium-grained gabbros and dolorites. A gabbro near Bar Kili is composed of plagioclase, abundant dark minerals (hornblende, augite, minor biotite, chlorite and iron ore), and a little quartz. The granites (occurring near Wazir Kor) are medium-grained, equigranular to porphyritic, gneissose rocks, composed of microcline, sodic plagioclase, quartz, abundant biotite (some of which is chloritized) and ore. Most of the intrusions are very weathered, particularly some of the basic masses.

The Bar Kili gabbro contains various copper minerals - chalcopyrite, bornite, cuprite, malachite, etc. - either disseminated, in pockets, or as incrustations, in a ten foot-thick brecciated zone along the contact. Calcite and abundant quartz veins occur in this zone and the copper minerals are probably genetically related to the

quartz veins. Some of the samples are quite heavy and in them the Cu content may reach 15 per cent or more; none of the samples has been chemically analysed. The overall yield of copper, however, would probably be too low to be economically exploitable. Disseminated chalcopyrite and other copper minerals also occur in some of the other rocks in minor quantities.

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