The Chlorite Series of Flagstaff Hill Area, California: A Preliminary Investigation

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Abstract: The results of X-ray diffraction, DTA, i.r. spectroscopy, and chemical tests are presented for some chlorites typical of the Flagstaff Hill area. The area is notable for the large variety of chlorite types occurring in considerable quantities. Chlorite, in this area, is found as veins, as pseudomorphs, and as individual crystals. Textures vary from massive, fine-grained aggregates to books which are more than 20 mm in width. Crystals more than 5 mm in size occur in parallel groupings at rock interfaces. Judging from 45 chlorite samples studied, sheridanite is most abundant; clinochlore and ripidolite are common. Penninite and its Cr-chlorite equivalent are less abundant. The parent rock is an irregularly shaped ultramafic body surrounded by low-grade schists and located very close to a granodiorite stock. The original ultramafic rocks have been highly altered by metamorphism and metosomatism into assemblages comprised mainly of serpentine, talc, hornblende, and chlorite with relics of olivine, pyroxene, and other less abundant original minerals. Much of the exposed rock is essentially monomineralic, mostly consisting of various polytypes of serpentine. Preliminary investigation indicates that the area merits much more study because of the opportunity for readily observing the various chlorite types and determining their genesis, alteration sequences and weathering characteristics. The area, being easily accessible, could also serve as an adequate source for samples to be used as reference standards.

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