

Betpakdalite and melkovite, which have unit cells dimensionally similar to that of mitridatite, may be related structurally. Other structures, known or hypothetical, based on the Fe_9O_6 ring are shortly discussed.

REFERENCE

Moore (P. B.), 1974. *Am. Mineral.* **59**, 48.

The full text appears in the 'miniprint' section of this volume, pp. M8-M.

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Metamorphism in a Himalayan thrust zone

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METAMORPHIC assemblages from the vicinity of a thrust in the Sikkim to Darjeeling area of the Himalayas contain some of the following minerals: quartz, plagioclase, epidote, sericite, lawsonite, chlorite, stilpnomelane, aragonite, phengite, and pumpellyite. Textural relationships suggest that stilpnomelane replaces pumpellyite and that both of these minerals are replaced by epidote. The assemblage lawsonite-quartz-aragonite appears to have been stable and indicates that a moderate- to high-pressure metamorphism developed coevally with the thrusting. The rocks involved are Proterozoic but it seems likely that the thrusting was Tertiary. The metamorphism associated with the thrusting may have outlasted a more general Tertiary metamorphism or may have been superimposed on a Precambrian event. Either way this is unusual for in general the stratigraphic age of rocks involved in such tectonic zones is not much greater than the age of the metamorphism.

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Zoned amphibole in the Yirri intrusive complex, Manus Island, Papua, New Guinea

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FIVE representative probe analyses of zoned hornblendes in a dioritic suite and two rock analyses are tabulated and about sixty analysed hornblendes plotted to reveal petrogenetic relationships that are interpreted as showing that the brown amphibole cores are from a partially melted mafic source (base of the crust?) while the green margins have crystallized from the magma produced by partial melting.

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