08. INORGANIC AND MINERALOGICAL CRYSTALLOGRAPHY

08.4-2 HRT EM STRUCTURE MODEL OF SERPENTINE-LIKE PHASES. M. Mellini (a), G. Ferraris (b) & R. Compagnoni (c)

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A new asbestos-like mineral from Varaita Valley (Italy) has been submitted by the authors to I.M.A. for approval. Its ideal composition is Na₂[(Si₆O₁₈)(OH)₄]·(OH)₃·H₂O (Na, Mg, Fe, Al cations, respectively) and it can be considered a water for complex sulphates, phosphates and silicates.

08.4-3 TOWARDS A STRUCTURAL CLASSIFICATION OF MINERALS. By E. C. Hawthorne, Dept. of Earth Sciences, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2.

It is proposed that structures may be classified according to the polymerization of those coordination polyhedra with higher bond-valences. The most strongly bonded clusters of coordination polyhedra (a homo- or heteropolyhedral cluster) is the fundamental building block of a structure. This model explains observed properties and is supported by agreement between observed and calculated HRTEM images. Starting from it, a comprehensive discussion of possible derivative phases is given; they are based on F or C layers where. A translational symmetry operator to form the crystal chemical comparison of a number of aluminosilicate relics. Kaolinite was treated with an aqueous solution of monocalcium phosphate which is a common phosphate fertilizer. The reaction was allowed to proceed at 50°C for 10 weeks during which the products were examined at intervals.

X-ray diffraction analysis indicates that kaolinite decomposes into amorphous silicates, and orthophosphate is transformed into monetite. A well crystallized metaveriscite was detected by electron microscopy. It is believed that the reaction is initiated by protonation of the hydroxyl groups which are covalently bound to structural aluminum of kaolinite. The resultant water molecules are then displaced by phosphate ions to form a kaolinite-phosphate complex. When the proportion of phosphate in the complex exceeds a certain limit, metaveriscite is separated leaving a residue of amorphous silicate relics.