GRAIN DIMINUTION AND REPLACEMENT PHENOMENA AT THE EPPAWALA PHOSPHATE DEPOSIT

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In the Eppawala phosptate deposit, the primary apatite crystals have undergone two types of degrading secondary mineralization, viz.
(1) grain diminution and (2) grain replacement.

In the grain diminution phenomenon, primary apatite crystals of size ranging from a few mm to few cm show rims of fine grained envelopes formed of francolite. The envelopes show different degrees of secondary mineral development, the last stage being the total engulfment of the initial apatite crystal by fine grained apatite. The resultant grains are referred to as phosphatic peloids.

In the replacement phenomenon, the primary apatite crystals have undergone a process of silicification which eventually transforms them to a multitude of finer quartz grains. The silicification process initially starts along the fractures of the apatite crystals. The process eventually spreads and totally transforms the crystals to an entity of quartz grains. These entities retain the orginal hexagonal structure of the primary apatite crystals.