

## ABSTRACT FOR IFS ANNUAL SCIENCE CONFERENCE 1987

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Several field visits were made to the Eppawala phosphate deposit during the year 1987. The purpose of the trips being to study the geological, petrological, and mineralogical relations of the Precambrian apatite marble to the overlying exploitable phosphate deposit. A comparable phosphate deposit at Ambakote in Kurunegala was also investigated. In both locations, the exposed weathering profiles, weathered rocks and the parent rock were studied macroscopically for varying compositions and texture. Laboratory studies were done with polarisation and scanning electronic microscopy. Chemical analyses were also carried out.

The deposits on the weathering profiles showed that the original parent rock had been weathered to give rise to various compositional textures. The resistant Precambrian apatite crystals now occur in fine grained groundmasses which consist of secondary phosphate minerals such as francolite and collophane. The secondary mineralization has been made possible by (i) the phosphate-rich solutions which have precipitated in the pre-existing cavities of the parent rocks (ii) a phenomenon of grain diminution which causes the corrosion of the grain boundaries of Precambrian apatite crystals thus resulting in recrystallization into fine crystals. Filamentous microorganisms appear to have played a role in both instances of secondary mineralization. The preliminary observations highlight the necessity of separately investigating the groundmasses and the larger apatite crystals of the phosphate deposits for exploitation purposes.