

**EPPAWALA PHOSPHATE DEPOSIT - AN EXAMPLE OF
A TERRESTRIAL PHOSPHORITE**

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During the year under review, petrological, mineralogical and geochemical studies were continued on the Eppawala phosphate deposit. The studies were carried out using polarization microscopy, scanning electron microscopy, X-ray diffractometry, differential thermal analysis and electron microprobe analysis. For the purpose of these studies, samples collected in the field as well as those from bore holes were used. Logging of bore holes samples available at the Geological Survey Department was also carried out.

The studies so far indicate that the phosphate material used for fertilizers is concentrated in weathering profiles of thickness varying from a few meters to as much as 100m developed principally on apatite marble formations supposed to be of Precambrian age. Our observations show that the phosphate enrichment is mainly confined to the lower leached zone of the weathering profile. The composition of the material in this zone is comparable to phosphorites which are characterized by the presence of coated grains, intraclasts and peloids in stromatolitic groundmasses. It is noted that the main source of phosphate in the terrestrial phosphorite at Eppawala has derived from Precambrian chlor fluor hydroxyl apatite crystals. These have undergone diagenesis within the close confines of the thick weathering profiles developing in a tropical environment characterized by percolating solar-heated waters and microbial activity.

Eppawala phosphate deposit can be regarded as an example of a phosphorite forming in a terrestrial environment due to the weathering and diagenetic processes active on a phosphate-rich marble formation. The fact that the phosphate-rich nutrients emanate exclusively from single Precambrian primary apatite crystals makes it a rare if not unique example of phosphorite genesis.