SHORT COMMUNICATIONS

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Akrochordite, a second occurrence: Sterling Hill, New Jersey

AKROCHORDITE was originally found in the 'Japan workings' of the Långban mine in Varmland, Sweden, and described by Flink (1922). Preliminary discussions of its chemistry were presented by Alström (1923), and the space group and lattice parameters given by Moore (1968). The Långban akrochordite occurs as spherical aggregates which have a wart-like appearance, from which the name was derived. These spherical aggregates resemble those of sarkinite from the same locality, but are considerably browner in colour and quite dull in surface lustre. Single crystals have been found and were used by Moore (1968) to obtain crystallographic data ($a = 5.70$, $b = 17.60$, $c = 6.752$ Å, $\beta = 99° 48'$).

A new find of akrochordite was discovered in the Sterling Hill mine in 1979. It was found in the 1220 undercut pillar, 30 feet below the 800 foot level. Approximately twenty specimens were recovered and, given the paucity of specimens of this species in systematic collections, this occurrence greatly increases the known quantity of specimens of this species. The Sterling Hill akrochordite occurs as flattened round patches on an altered surface of willemite–franklinite ore rich in carbonate. The associated minerals are sarkinite, chlorophoenicite, carbonates, and several unidentified compounds. The flattened round patches of akrochordite have varying thicknesses and curved rising edges, suggesting that they might have developed spherical or semispherical aggregates if there was room for unrestricted growth. Because the akrochordite occurred in thin fissures and seams, its growth was apparently limited to the flattened aggregates. There are insufficient samples and contact relationships to determine the sequence of formation of the species. The aggregates have a radial texture.

The akrochordite was originally identified on the basis of X-ray powder diffraction and the data are in good agreement with that given by Moore (1968) for Långban akrochordite. The Sterling Hill material differs from the Långban material in two characteristics: in the previously mentioned flattened nature of the aggregates and in the aggregates having a decidedly coarser surface texture. Sterling Hill akrochordite is light brown with a density, measured with heavy liquid techniques, of 3.35 g cm^{-3}.

Chemistry. The akrochordite samples studied here were chemically analysed with an ARL-SEMQ electron microprobe utilizing an operating voltage of 15 kV and a beam current of 0.15 μA. The standards used were manganite for Mn, synthetic ZnO for Zn, hornblende for Fe, Mg, and Ca, apatite for P, and synthetic olivenite for As. The data were corrected using a modified version of the *MAGIC-4* computer program. The resultant data are presented in Table I.

Examination of the data in Table I indicates that the Sterling Hill akrochordite differs from the Långban material in the absence of appreciable magnesium. The only extant analysis of Långban akrochordite is the one by Flink (1922) which indicates that approximately one of the five M^{2+} cations in akrochordite is Mg and the other four are Mn. The chemical formula of akrochordite (Flink, 1922; Moore, 1968) is $Mn_4Mg(AsO_4)_2(OH)_4 \cdot 4H_2O$ ($Z = 2$). Because there was only one prior analysis of the Långban material, several additional Långban samples were included in this study, one of which is a metatype from Flink. The Mg content of these samples is close to that reported by Flink and close to the 6.08% MgO required for one atom of Mg per formula unit.

The essential absence of Mg in the Sterling Hill akrochordite suggested the possibility of a manganese analogue of akrochordite with the possible formula $Mn_4Mn(AsO_4)_2(OH)_4 \cdot 4H_2O$. Moore (1968) assigned the space group $P2_1/c$ to akrochordite. This requires equipoints of rank 4 and 2 which indicates that the Mg in Långban akrochordite may be ordered on a specific rank-2 site and, if so, the Sterling Hill material could be considered a new species, essentially the Mn_4Mn analog of akrochordite. However, there is not yet any crystal structure determination for akrochordite and the ordering of magnesium is speculative. If the Mg in the Swedish material is randomly substituting for Mn over other equipoints, then the Sterling Hill material would have no claim to species status. Accordingly, at this time, it is best to note the

TABLE I. *Analyses of akrochordite*

Sample	FeO	MgO	CaO	ZnO	MnO	As_2O_5	H_2O	Total	Locality
Theory*		6.08			42.87	34.73	16.32	100.00	
Flink (1922)	0.46	6.94	0.99		38.98	33.51	16.78	100.31†	Långban
NMNH R5396	1.5	7.6	0.5	0.5	39.8	32.5	17.6‡	100.0	Långban
NMNH 94849	1.5	7.9	0.4	0.4	42.1	32.2	15.5‡	100.0	Långban
S-7-4-4A	0.2	0.8	0.8	1.5	49.5	31.6	15.6‡	100.0	Sterling Hill
146502	0.2	1.3	0.5	3.8	48.6	28.6	17.0‡	100.0	Sterling Hill
K-48	0.2	0.9	0.3	2.6	49.3	32.6	14.1‡	100.0	Sterling Hill
Theory§					51.22	33.19	15.59	100.00	

* Theoretical composition for $Mn_4Mg_1(AsO_4)_2(OH)_4 \cdot 4H_2O$.
† Includes 0.42 P_2O_5, 0.50 Mn_2O_3, 0.55 K_2O, and 1.18% Na_2O.
‡ Water by difference. Fluorine and chlorine both less than 0.3%.
§ Theoretical composition for $Mn_4Mn_1(AsO_4)_2(OH)_4 \cdot 4H_2O$.
Accuracy of data: ±3% of the amount present for major elements.

occurrence of an essentially Mg-free akrochordite and let the nomenclature decisions await a full crystal structure analysis.

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Triplite from the Megiliggar Rocks, Cornwall

THIS paper describes a new locality for the mineral triplite $(Fe,Mn,Ca)_2PO_4(F,OH)$, and its first reported occurrence in the British Isles. It was discovered during the summer of 1978 as a dark-brown irregularly shaped piece measuring about 5 × 2 cm across, partially rimmed by a blue mineral and closely associated with löllingite in pegmatite and leucogranite at the top of the main granite sheet at the Megiliggar Rocks (Grid ref. SW 610266). Since then several other samples of triplite have been found here.

The granitic sheets at the Megiliggar Rocks originate from the layered roof zone of the Tregonning granite and form part of the over-all roof complex. They are composed of leucogranite with thin pegmatitic stringers close to the Tregonning granite but pass away laterally from this body into dominantly layered pegmatite–aplite bodies with some leucogranite and tourmaline granite. The sheets are emplaced in the mainly pelitic rocks of the Mylor Series. Field relations have been described by Hall (1930) and Stone (1969, 1975). The