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ADDENDUM

Since submission of this paper, Moore and Shen (1984) have published the crystal structure of roeblingite from Långban, Sweden, using X-ray diffraction data. The silicate portion of the structure was found to be based on $[Si_3O_9]^{6-}$ rings related to those in margarosanite, from which a formula $Pb_2Ca_6(SO_4)_2(OH)_2(H_2O)_4[Mn(Si_3O_9)_2]$ was derived without using any additional analytical data. This formula is similar to that proposed in this paper, but halved and idealized, and with the manganese linked with the silicate units.

It is owing to their structural similarity that the silicate portion of the infra-red spectrum of roeblingite is related to that of margarosanite.

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KEYWORDS: roeblingite, infra-red spectra, thermal analysis.

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Petalite and spodumene in the Meldon Aplite, Devon

ASPECTS of the mineralogy of the Meldon aplite have been reported in detail in the series of studies listed by Chaudhry and Mahmood (1979) but none of these recent investigations deal specifically with petalite and spodumene. Petalite here was first described by McLintock (1923) as moulded on, enclosing and filling spaces between quartz and feldspar in the coarser portions of the aplite and more commonly in pegmatite veins in the aplite. Similarly, Edmonds *et al.* (1968) described petalite in some of the sporadic coarser pegmatitic veins and forming disseminations in the surrounding aplite. Chaudhry and Mahmood (1979) noted the petalite is of extremely irregular occurrence, although tending to be most abundant in the pegmatite-rich areas, and primary orthoclase may have been replaced by petalite. Spodumene at Meldon receives only two notices; the description by Kingsbury (1966) is cited by Edmonds *et al.* (1968). Kingsbury described in the dyke coarse complex pegmatite lenses which show evidence of several stages of mineralization and notes that, in one or two of these pegmatites, amblygonite, spodumene, montebrasite, pollucite, and beryllium minerals are found. Edmonds *et al.* (1968) record among the coarser pegmatitic veins some that carry petalite and traces of columbite and the minerals—including spodumene—listed by Kingsbury.

Petalite and spodumene from Meldon in the A. W. G. Kingsbury Collection, British Museum (Natural History) were examined. The petalite is massive glassy greyish white petalite. No evidence was found of the isochemical breakdown of petalite to spodumene and quartz or of replacement of spodumene by petalite. Spodumene and petalite are never associated together. This petalite is similar in composition (Table I) to the petalites from Bikita, Tanco, Hirvikallio, Piaui, and Rubicon

TABLE I. *Composition of petalite and spodumene from the Meldon aplite*

	Petalite (BM 1968, 112)		Spodumene (BM 1968, 105)
SiO_2	78.1	±0.3	64.8
Al_2O_3	16.7	±0.2	27.4
FeO (total Fe)	0.03	±0.03	0.06
MnO	0.00	±0.02	0.17
MgO	0.08	±0.01	0.02
CaO	0.02	±0.01	0.02
Na_2O	0.14	±0.09	0.02
K_2O	0.04	±0.01	0.25
			0.04
Li_2O	about 4.0		about 7.0
Total	99.0±		99.0±

Analysis by electron microprobe; Li_2O estimate only by A.A. because of very small sample available.

and unlike the relatively total iron-rich, paragenetically very late-stage petalites, such as those from Transbaikalia that fill cavities and fissures and replace spodumene. The spodumene from Meldon is very coarse, with crystals several centimetres long, showing some good crystal faces; it is pale lilac in colour, sometimes semi-transparent. The only mineral associated with spodumene is fine granular pollucite. Compositionally this spodumene falls into the second category of Heinrich's (1978) classification: zonal spodumene from intermediate zones and cores, low in total iron, may contain significant manganese, some is pink or lilac (Table I). It closely resembles chemically spodumenes from Pala, Portland, Harding, Seymour, and Keystone.

Stewart (1978) grouped Meldon with occurrences of petalite in near surface contact aureoles of granite that suggest the components of petalite are readily transported in gases, and Chaudhry and Mahmood (1979) concluded the petalite is of metasomatic origin the metasomatic processes responsible for its formation having been operative only at certain points in the aplite intrusion. This conclusion is in agreement with the very low obliquities of feldspars from pegmatite and pegmatitic veins at Meldon (Chaudhry, 1971), with Cerny's (1970) observation of natural and experimental metasomatic replacement of feldspar by petalite, and with the textures of the Meldon petalite. Only two other occurrences are known of coarse accumulations of petalite in unzoned aplite: Hirvikallio and one vein at Lehtisaari (Vesasalo, 1959); these petalites are similar compositionally and somewhat similar texturally and paragenetically to those at Meldon. The composition of spodumene and its association with pollucite suggest its late-stage crystallization: a similar association of large crystals of spodumene is described by Mandarino and Harris (1965) and an association of pink-lilac spodumene formed from residual hydrothermal solutions with pollucite is noted by Rossovskii (1977).

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X-ray powder data for susannite and its distinction from leadhillite

SUSANNITE, the dimorph of leadhillite, was named as a distinct species by Haidinger (1845) although the entry in Palache *et al.* (1951) is devoid of supportive data. The latter authors do, however, suggest that susannite 'may represent a primary occurrence of the uniaxial polymorph of leadhillite