

## RAMSDELLITE AND GROUTITE FROM NOVA SCOTIA

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Ramsdellite has been reported in Nova Scotia from Whale Cove (lat. 45°14'N, long. 64°00'W), north of Whale Creek, Hants County (Sabina, 1964) and from East River, Pictou County (Fleischer & Richmond, 1943). Groutite has never been reported from Nova Scotia. Both samples were handed to me for investigation by Professor C. G. I. Friedlaender. The ramsdellite was collected from Cape Split, Kings County and the groutite from the Walton Mine, Hants County.

As these two manganese minerals are noted in very few localities, I wish to report them briefly.

The paragenesis of the minerals of the Walton area is very complex (Boyle, 1963 and Boyle & Jambor, 1966). The principal hypogene minerals are barite, siderite, pyrite, marcasite, galena, sphalerite, tennantite, proustite, chalcopyrite and acanthite. Less common are quartz, bravoite,

TABLE 1. X-RAY DIFFRACTION DATA FOR RAMSDELLITE AND GROUTITE  
(A compilation of  $\text{CuK}_\alpha$  and  $\text{FeK}_\alpha$  radiations)

Ramsdellite, Cape Split Kings Co., Nova Scotia			Groutite, Walton Mine, Hants Co., Nova Scotia		
$d(\text{\AA})$	$hkl$	$I$	$d(\text{\AA})$	$hkl$	$I$
4.061	110	100	5.343	020	20
3.337*		80	4.200	110	100
2.543	130	60	3.467	120	20
2.447	021	80	3.390		10
2.350	111	70	2.799	130	70
2.320	040	60	2.670	040	70
2.150	121	70	2.526	021	5
2.062	140	40	2.370	111	60
1.911	131	50	2.298	140	50
1.819	230	70	2.222	210	10
1.800	041	5	2.098	220	5
1.716	150	5	2.006	131	5
1.670	141	40	1.953	{041 150}	20
1.656	221	20			
1.622	240	80	1.791	060	5
1.543	060	20	1.758	211	10
1.520		5	1.737	240	40
1.474	151	60	1.694	221	50
1.433	002	50	1.603	151	40
			1.557	250	30
			1.515	061	30

\*Due to quartz.

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TABLE 2. COMPARISON OF UNIT CELL DIMENSIONS

	Ramsdellite		
	Present work	Byström	Klingsberg & Roy
<i>a.</i>	4.52 Å	4.53 Å	4.52 Å
<i>b.</i>	9.27 Å	9.27 Å	9.27 Å
<i>c.</i>	2.86 Å	2.86 Å	—
	Groutite		
	Present work	Collin & Lipscomb	Gruner
<i>a.</i>	4.56 Å	4.58 Å	4.56 Å
<i>b.</i>	10.70 Å	10.76 Å	10.70 Å
<i>c.</i>	2.87 Å	2.89 Å	2.85 Å

TABLE 3. TRACE ELEMENT DETERMINATIONS IN RAMSDELLITE AND GROUTITE  
(Average of two determinations in ppm)

Element	Ramsdellite	Groutite
Ag	30	100
Al	30	150
B	20	30
Ba	—	1000
Be	1	3
Cd	30	100
Co	15	30
Cr	100	15
Cu	1000	100
Fe	1000	1000
In	400	1000
Mg	100	170
Mo	30	100
Nb	1000	1000
Ni	60	30
Pb	1000	1000
Rb	50	100
Sn	25	80
Sr	10	100
Ta	400	500
Th	200	800
Ti	15	30

stromeyerite, pearceite, gersdorffite, clausenthalite, and penroseite. The main supergene minerals include limonite, goethite, pyrolusite, malachite, azurite, erythrite, lavendulanite, moorhouseite, aplowite, chalcantinite, szomolnokite, metavoltine, and chalcocite. Of less certain origin are hematite, kaolinite, calcite, and covellite.

The  $x$ -ray powder patterns were obtained with both  $\text{CuK}_\alpha$  and  $\text{FeK}_\alpha$  radiations using a Philips generator. The results are shown in Table 1.

These results are found to be very satisfactory when compared with the data published by Byström (1949), Collin & Lipscomb (1949), Fleischer & Richmond (1943), Gruner (1947), Klingsberg & Roy (1957) and Ramdohr (1956). The *a*, *b*, and *c* unit cell lengths were calculated from the powder patterns. They are very close to those given by Byström, Klingsberg & Roy, Collin & Lipscomb and Gruner.

Trace elements were determined spectrographically using an A.R.L. Spectrographic Analyzer. The measurements of line densities were made with the A.R.L. Spectroline Scanner. Samples and synthetic standards were mixed with graphite (1:1) using 0.015% (NH<sub>4</sub>)<sub>2</sub>PdCl<sub>4</sub> as an internal standard. A water-cooled Stallwood jet of argon and oxygen (50% each) was used to improve precision and to reduce cyanogen bands. Johnson-Matthey "Specpure" chemicals were used to prepare standards. The data obtained are given in Table 3.

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