

obtained for "phosphochromite." The specimen in this case consists of large, clear to white, quartz fragments and a white friable material, both being seamed and cemented by green "phosphochromite." X-ray powder patterns confirmed that the green material is ferrian variscite; quartz patterns were obtained from the large colourless fragments and the white friable material. The only other materials evident in thin section are a few scattered grains of rutile and a small amount of a pale brown isotropic substance which is presumably Shepard's opaline silica. An x-ray powder pattern made on the latter material gave only weak lines for quartz. Thus, although Shepard's material does contain ferric iron and alumina, these elements are present in the ferrian variscite and not in any distinct mineral to which the name elroquite was applied. Elroquite should be discarded, being essentially a mixture of quartz and ferrian variscite.

## REFERENCES

- CHUDOBA, KARL F. (1959): *Hintze Handbuch der Mineralogie*; Erg. 2, *Neue Mineralien und Neue Mineralnamen*, Lief. 9, p. 697.  
DANA, E. S. (1892): *The system of mineralogy*, 6th ed., John Wiley and Sons, New York, p. 1033.  
HEY, M. H. (1955): *An index of mineral species and varieties arranged chemically*, 2nd ed., British Museum, London, p. 182.  
MCCONNELL, DUNCAN (1940): Clinobarrandite and the isodimorphous series, variscite-metavariscite, *Am. Mineral.*, **25**, 719.  
SHEPARD, C. U. (1877): *Min. Contr.* (not available to the present writer).

*Manuscript received September 24, 1962.*

## THE PROBABLE IDENTITY OF LAITAKARITE AND SELENJOSEITE

L. G. BERRY

*Queen's University, Kingston, Ontario*

During a study of sulphosalt minerals, commenced in 1938 at the University of Toronto, several museum specimens from Falun, Sweden, labelled "galenobismutite" (ROM, M12992, USNM, 84460), weibullite (USNM, R6532) and "seleniferouschiviatite" (NRS 24083, type material), were examined in polished section and by x-ray diffraction methods. All specimens consist of an intergrowth of two minerals. Preliminary data on the two phases were presented by Peacock & Berry (1940, p. 68, 69). The fibrous component was described as weibullite and the platy component as an undetermined mineral with a platy habit. Because of the intimate intergrowth of the two components, the chemical composition

of either could not be determined quantitatively. Microchemical tests indicate that both minerals contain Bi and Se; in addition weibullite contains Pb and S. Uncertain results were obtained in testing for S in the platy constituent. Both minerals were distinct from galenobismutite and the platy mineral gave an *x*-ray powder pattern distinct from the pattern of  $\text{Bi}_2\text{Se}_3$  (since described as paraganajuatite by Ramdohr, 1948).

In the course of an extensive study of the bismuth tellurides, Peacock (1941) noted the similarity of the powder pattern for joseite I with that for the platy mineral referred to above and suggested the name selenjoseite. Pure material suitable for chemical analysis was not available and the name remained in the files unpublished until the printing of the "*X-ray powder data for ore minerals: The Peacock atlas*" (Berry & Thompson, 1962). In the latter work it is pointed out that selenjoseite may be identical with the ill-defined mineral platynite for which structural data have not been published.

Vorma (1960) describes the mineral laitakarite from Orijarvi, Finland as a bismuth selenide which is structurally similar to joseite. The cell dimensions and *x*-ray powder spacings are similar to those given for selenjoseite. It is appropriate that the earlier published name laitakarite take precedence since the name is based on fully described material and the name selenjoseite should be abandoned. The data given in Table 1 show the probable identity of laitakarite and selenjoseite.

TABLE 1. DATA FOR LAITAKARITE, SELENJOSEITE, JOSEITE

	Laitakarite <sup>1</sup>	"Selenjoseite" <sup>2</sup>	Joseite I <sup>3</sup>
<i>a</i>	4.225 Å	4.21	4.25
<i>c</i>	39.93	39.74	39.77
<i>a<sub>r</sub></i>	13.53	13.47	13.48
$\alpha$	17°58'	17°59'	18°08'
<i>G</i>	7.93 (8.12 corr.)		8.10
	$\text{Bi}_4\text{Se}_2\text{S}$	$\text{Bi,Se,S}$	$\text{Bi}_{4+z}\text{Te}_{1-z}\text{S}_2$
<i>Z</i> = 1 (rhomb.)			<i>Z</i> = 1 (rhomb.)
	<i>G</i> (calc) 8.279		
Strongest powder lines			
<i>hkl</i>	<i>d</i>	<i>I</i>	<i>d</i> <i>I</i>
0009	4.425	ms	4.44 3
0112	3.586	ms	3.59 2
1017	3.072	vvs	3.08 10
011.14	2.246	vs	2.24 6
1120	2.112	vs	2.10 3
0227	1.741	s	1.737 3
202.14	1.538	ms	1.535 3
112.21	1.410	ms	1.408 5
2137	1.341	ms	1.341 2
			1.349 3

<sup>1</sup>Vorma (1960).<sup>2</sup>Berry & Thompson (1962).

## REFERENCES

- BERRY, L. G., & THOMPSON, R. M. (1962): X-ray powder data for the ore minerals: The Peacock atlas, *Geol. Soc. Amer. Mem.* **85**, 29.
- PEACOCK, M. A., & BERRY, L. G. (1940): Röntgenographic observations on ore minerals, *Univ. Toronto Stud., Geol. Ser.*, **44**, 47-69.
- PEACOCK, M. A. (1941): On joseite, grunlingite, oruetite, *Univ. Toronto Stud., Geol. Ser.*, **46**, 83-105.
- RAMDOHR, P. (1948): Las especies mineralógicas guanajuatita y paraguanajuatita, *Com. Dir. Invest. Recur. Mineral Mexico, Bol.*, **20**.
- VORMA, A. (1959): Laitakarite, a new Bi-Se mineral in Orijarvi, *Geologi*, **11**, No. 2, 11, abstract in *Am. Mineral.*, **44**, 908 (1959).
- VORMA, A. (1960): Laitakarite, a new Bi-Se mineral, *Bull. Comm. Geol. Finlande, pt.*, **188**, 1-10.

## NEPTUNITE: UNIT CELL AND X-RAY POWDER DATA

L. G. BERRY

*Queen's University, Kingston, Ontario, Canada*

Prior to the publication of the "Catalogue of x-ray diffraction patterns and specimen mounts on file at the Geological Survey of Canada" (Sabina & Traill, 1960) no record of the x-ray powder pattern for neptunite ( $\text{Na}_2\text{FeTiSi}_4\text{O}_{12}$ ) was available in the literature. The purpose of this note is to record the pattern together with indexing based on a redetermination of the unit cell dimensions.

A small prism of neptunite (0.2 mm  $\times$  1 mm long) from San Benito Co., California yielded the following dimensions from single crystal films:

	Rotation CoK $\alpha$ = 1.7902	Weissenberg CoK $\alpha$ = 1.7902	Precession MoK $\alpha$ = 0.7107
<i>d</i> (100)	—	14.87Å	—
<i>a</i>	—	—	16.7Å
<i>b</i>	—	12.44	12.4
<i>c</i>	10.01Å	—	10.0
<i>d</i> (110)	—	9.56	—
$\beta$	—	—	115° 44'

and the following systematic extinctions:

$hkl$  present only with  $h + k = 2n$

$h0l$  present only with  $h = 2n$  and  $l = 2n$

$h00$  present only with  $h = 4n$

of which the first two lead to the space group  $C2/c$  (15). This data is in substantial agreement with that given by Gossner & Mussnug (1928):

$a = 16.57 \text{ Å}$ ,  $b = 12.67$ ,  $c = 10.06$ ,  $\beta = 115^\circ 38'$

space group  $C2/m$  or  $C2/c$