JAMBOR, J. L. & TRAILL, R. J., (1963): On rozenite and siderotil, *Can. Mineral.*, **7**, 751–763.

MILTON, CHARLES & JOSEPH AXELROD (1947), Fused wood-ash stones, *Am. Min.*, **32**, 607–624.

MROSE, M. E. (1953): α — eucryptite problem (abs.), *Am. Min.*, **38**, 353.

SABINA, A. P. & TRAILL, R. J. (1960): Catalogue of *x*-ray diffraction patterns and specimen mounts on file at the Geological Survey of Canada, *Geol. Surv. Canada*, Paper 60–64.

STEVENSON, J. S. & STEVENSON, L. S. (1965): The petrology of dawsonite at the type locality, Montreal. *Can. Mineral.*, **8**, 249–252.

SWANSON, H. E., GILFRICH, N. T. & COOK, M. I. (1957); Standard *X*-ray diffraction powder patterns, *Nat. Bur. Stand., Circ.* 539, **7**.

Manuscript received February 5, 1965.

ZINCKENITE

D. C. HARRIS
Department of Mineralogy, Royal Ontario Museum, Toronto, Ontario

Although the structural crystallography of zinckenite, a sulphantimonite of lead, has been studied carefully (Vaux & Bannister, 1938; Nuffield, 1946), the quality of the available analyses of this mineral is not high enough to settle the question of cell content. A recent *x*-ray spectrographic analysis of exceptionally fine zinckenite from Wolfsberg, Harz, Germany, may answer the question.

The symmetry of zinckenite originally was considered to be orthorhombic (pseudo-hexagonal), with twinning on (110), but Vaux & Bannister determined the unit cell as hexagonal, with $a = 44.06$, $c = 8.60$ Å. The composition of zinckenite was taken formerly as $PbS.Sb_2S_3$, but Vaux & Bannister found that the cell content 12 ($6PbS.7Sb_2S_3$] is more likely than 81 [$PbS.Sb_2S_3$]. Berry (1943) suggested that zinckenite might still be orthorhombic with very small departure from hexagonal symmetry, and that the cell content might then be 160 [$PbS.Sb_2S_3$]. Nuffield (1946) confirmed the cell dimensions of Vaux & Bannister on a fine specimen from Wolfsberg, and measured the specific gravity on a single clean crystal weighing 23 mg., as 5.36. The alternative cell contents appeared to be 81 [$PbS.Sb_2S_3$] (calc. sp. grav. 5.35), 80 [$PbS.Sb_2S_3$] (calc, sp. grav. 5.28), and 12 [$6PbS.7Sb_2S_3$] (calc. sp. grav. 5.22). Largely on the basis of the specific gravity determination, Nuffield suggested the composition $PbS.Sb_2S_3$, with either 81 or 80 formula in the unit cell as the mostly likely cell contents for zinckenite.

In the course of a recent study, an opportunity arose to analyze the mineral by *x*-ray spectrography, using new methods developed for micro-size samples. The samples were selected from two specimens of the same locality, Wolfsberg, Harz, (UT R 63, R 64). Two separate aliquots of 50 and 100 milligrams were fused in potassium pyrosulphate ($K_2S_2O_7$) at 40:1 dilution. The mineral was analyzed by comparing the net peak intensity ratio of Pb/Sb to that obtained from synthetic samples prepared in an identical fashion from weighed amounts of Pb and Sb.

Results of the analysis of the two fused samples of zinckenite gave identical atomic ratios for Pb/Sb of exactly 6:14. The new *x*-ray analysis therefore clearly supports 12 [$6PbS.7Sb_2S_3$] as the most likely cell content for zinckenite.

This work was carried out in the Department of Geological Sciences, University of Toronto, as part of a Ph.D. research program. I wish to express my thanks to Professor E. W. Nuffield and the National Research Council who supplied Professor Nuffield with financial assistance to develop *x*-ray spectrographic analysis at the University of Toronto.

References

Berry, L. G. (1943): Studies of mineral sulpho-salts: VII–A systematic arrangement on the basis of cell dimensions; *University Toronto Studies, Geol. Ser.*, **48**, 9-30.

Nuffield, E. W. (1946): Studies of mineral sulpho-salts: XII–fülöppite and zinckenite, *Univ. Toronto Studies, Geol. Ser.*, **50**, 49-62.

Vaux, G. & Bannister, F. A. (1938): The identity of zinckenite and keeleyite, *Min. Mag.*, **25**, 221–227.

Manuscript received January 19, 1965

NOTE ON THE OCCURRENCE OF EUDIALYTE IN CANADA[1]

Charles Milton
U. S. Geological Survey, Washington, D.C.

Hicks (1958) reports eudialyte (eucolite) from two Canadian localities; Hollinger, Pontiac County, Quebec, and Seal Lake, Labrador. He concludes "A search of the literature has failed to reveal any published data on Canadian occurrences of eudialyte and eucolite".

[1]Publication authorized by the Director, U.S. Geological Survey.