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[1] Published values increased by 1 in 500 to convert kX to Å.

[2] Published by permission of the Director of the Geological Survey of Great Britain and of the Director of the Royal Museum of Central Africa, Tervuren.

Crystal structure of stokesite, $CaSnSi_3O_9.2H_2O$

STOKESITE was first described by Hutchinson (1899, 1900) and later on reinvestigated by X-ray and micro-analytical methods by Gay and Rickson (1960). The present author had an opportunity to do X-ray crystallographic work (1961–62) at the Department of Mineralogy and Petrology of the University of Cambridge, England, during which he determined the crystal structure of stokesite. The specimen was kindly supplied by Dr. P. Gay.

The space group as determined by Gay and Rickson (*ibid.*) is *Pnna* and the lengths of the axes are: *a* 14·465 Å, *b* 11·625 Å, *c* 5·235 Å. There are four formulae units of stokesite in a unit cell. The intensity data was collected by Weissenberg camera from the axial projections on (001), (010), and (100) using Mo-$K\alpha$-radiation. The trial structure was concluded

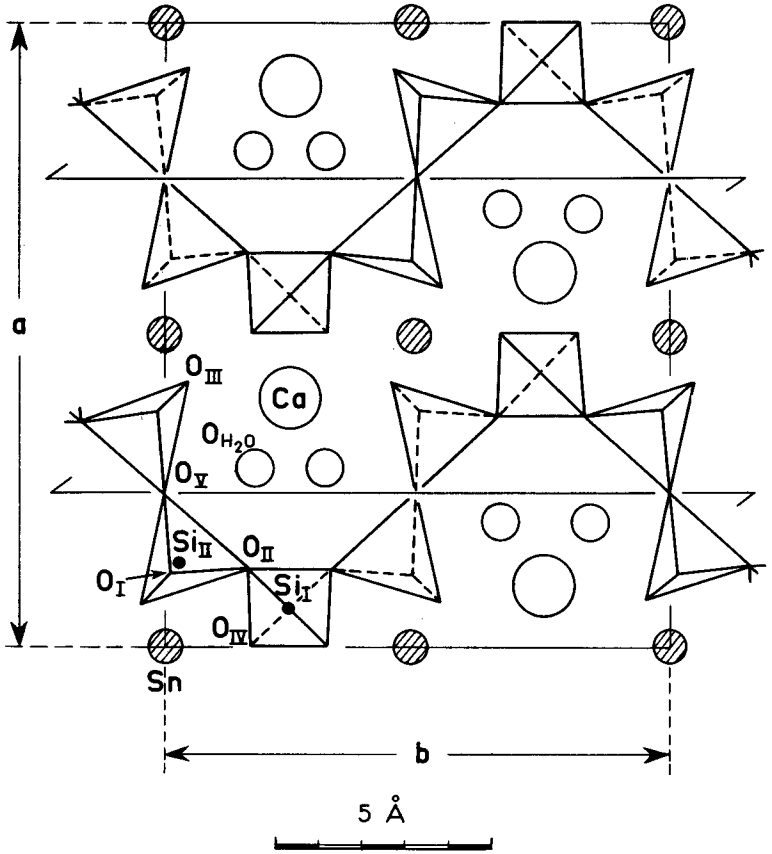

FIG. 1. Schematic representation of the structure of stokesite on (001).

from the Patterson projection on (001). The structure was refined by difference syntheses in all three projections, and the final coordinates of the atoms proved to be:

		x	y	z
4 Sn	at 4*b*	0	0	1/2
4 Ca	at 4*d*	0·4000	1/4	3/4
4 Si_I	at 4*d*	0·0648	1/4	3/4
8 Si_{II}	at 8*e*	0·1415	0·0317	0·0000
8 O_I	at 8*e*	0·1175	0·0090	0·2950
8 O_{II}	at 8*e*	0·1315	0·1668	0·9190
8 O_{III}	at 8*e*	0·4235	0·0480	0·8130
8 O_{IV}	at 8*e*	0·0010	0·1720	0·5705
8 O_{H_2O}	at 8*e*	0·2870	0·1770	0·4780
4 O_V	at 4*c*	1/4	0	0·9520

The customary reliability index for *hk*0-refinement (314 observed independent reflections) was 9·99 %, for 0*kl*-refinement 6·48 % (173 refl.) and for *h*0*l*-refinement 13·33 % (145 refl.).

As seen from the schematical representation of the structure (fig. 1) the silicate framework is formed of spiral-like chains. This represents a new variety among the chain silicates having six tetrahedra in a period unit of tetrahedral structure. The chains are bound together by Sn ions (coordinated by six oxygen atoms belonging to the chains) and by Ca ions (coordinated by four oxygen atoms belonging to the chains and by two oxygen atoms belonging to the water molecules).

A detailed description of the structure of stokesite will be given in the near future in *Bull. Comm. géol. Finlande.* This will include the structure factor tables, electron density maps, difference maps, and Patterson projection on (001) as well as the most important interatomic distances and angles.

Acknowledgements. It is a great pleasure to the author to thank Dr. P. Gay under whose supervision this work was done. His thanks are also due to Dr. C. Kelsey, Dr. M. Bown, and Mr. K. Rickson for much helpful advice during the work, to Dr. M. V. Wilkes, who kindly gave permission to have the calculations performed in EDSAC II (in the Mathematical Laboratory of the University of Cambridge) and to Mr. M. Wells, who wrote the programmes. The author is greatly indebted to Prof. P. Eskola and Dr. V. Marmo, the director of the Geological Survey of Finland, without whose help he would not have had opportunity to become acquainted with the methods in crystal structure analysis. This work has been financially supported by the Tekniikan Edistämissäätiö-Foundation (Helsinki, Finland) and by the Geological Survey of Finland to whom the author is very grateful.

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The cleavage of periclase

MANY standard mineralogical texts state that there is an octahedral cleavage in periclase, in addition to the perfect cubic cleavage. Thus Winchell (1931, 1951) and Larsen and Berman (1934) refer to perfect {100} and poor {111} cleavages. Dana, in the 6th edition of the *System of mineralogy* (1892), described the octahedral cleavage as 'less distinct'.[1] Palache *et al.*, in the 7th edition (1944), describe it as 'imperfect' (a