and $\gamma = 1{\cdot}545$ (both $\pm 0{\cdot}002$). The chemical composition of the mineral is: MgO 44·01, CO_2 35·70, H_2O 19·53, sum 99·24.

The mineral is an alteration product and its occurrence on the joint faces of sheared serpentinite shows it to have originated by the action of carbonated waters; the joint openings and the sheared nature of the rock facilitating the movement of the aqueous liquid and in its chemical reaction with the rock.

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BOOK REVIEWS

SHAW (D. M.), editor. *Studies in analytical geochemistry.* Toronto (Royal Society of Canada Special Publication No. 6), vii+139 pp. Price: 48*s*.

The book comprises six papers presented at a symposium as part of Section III of the Royal Society of Canada Meeting in 1962. Authors and papers are:

K. K. Turekian: The use of trace-element geochemistry in solving geologic problems.

H. G. Thode: Sulphur isotope geochemistry.

R. N. Clayton: Oxygen isotope geochemistry and thermometry of metamorphic rocks.

M. Fleischer and W. O. Robinson: Some problems of the geochemistry of fluorine.

E. H. T. Whitten: Application of quantitative methods in the geochemical study of granite massifs.

G. V. Middleton: Statistical inference in geochemistry.

The paper by K. K. Turekian explores the value of trace-element distribution and relationships in solving specific geological problems. He concludes (rather sweepingly) that such data rarely give unambiguous results when applied to stratigraphic correlation, delineation of the origin of certain metamorphic and igneous rocks, sedimention, and geochemical palaeoecology, but may be of greatest use in studies of diagenesis, metasomatism, and anatectic processes.

H. G. Thode presents more data on sulphur isotopes in meteorites and in basic sills and other igneous intrusions. The meteoritic ratio of S^{32}/S^{34} is discussed as a standard for sulphur isotope measurements and as a possible base level from which fractionation of sulphur isotopes in the crust began. Further work on the pattern of isotope changes in the sea during geological time may provide correlations with major biological and geological activity.

R. N. Clayton's paper is essentially a short review of oxygen isotope thermometry. The original application of this principle by Urey and co-workers to sedimentary rocks and fossils is discussed, together with current research towards an extension of the method to higher temperature igneous and metamorphic rocks.

M. Fleischer and W. O. Robinson's contribution is an abridgement of a review of fluorine geochemistry prepared for the U.S. Public Health Service. New arithmetic averages for the fluorine content of crustal materials are presented. The distribution of fluorine in ground waters in the United States is presented on a map (Fig. 3), which is of little value due to poor quality reproduction.

E. H. T. Whitten's paper is a survey of the sampling problems in obtaining reliable quantitative compositional data within granite complexes. Simple contour maps of elements or ratios of elements may be subjectively biased by impressions gained in the field or preconceived ideas. The author describes the use of two- and three-dimensional variation analyses in studies of palimpsest ghost stratigraphy in granite complexes, compositional variations, and problems of the origin of granite.

G. V. Middleton presents a non-mathematical account of statistical problems in geochemistry. More sophisticated techniques are required and multivariate analysis, by condensing the data to a more manageable form, reveals relationships between groups of variables not evident from simple graphical analysis. T. W. Bloxam

Gay (R.). *Cours de Cristallographie. Livre III. Radiocristallographie théorique.* Paris (Gauthier-Villars et C^ie^, 55 Quai des Grands-Augustins) 1961. 278 pp., 105 figs. Price, bound: 38 NF.

The book is divided into 3 parts and each part is further subdivided into 10, 4, and 2 chapters respectively. Part 3 deals only with the powder method, while parts 1 and 2 aim to deal with all the mathematical and geometrical representation including structure determination. The number of pages is of course insufficient to deal with the subject adequately, which is perhaps the reason why the contents