The fifth chapter (zonal relations, transformation formulae) is one of the best in the book. As the student is not expected to know solid analytical geometry, the equation of a plane is derived by Cesàro's elementary method. Terpstra reduces most of the three-dimensional problems to questions of plane geometry by passing all planes through the point $z=c$. Cesàro's elementary derivation of the anharmonic ratio of four tautozonal faces is given. The duality principle is explained; "trimetric coordinates" are introduced. The old mnemonic rule of *cross-multiplication* ceases to be a magician's trick since enough is given about determinants and matrices for a logical derivation. The problem of teaching crystallography to students with scant mathematical background apparently can be solved!

In the description of crystal forms, the emphasis is laid on the derivation of forms from one another and also on the application of the Addition and Subtraction Rules. Terpstra sides with the opponents of merohedry, and yet manages to make use of the simplicity of merohedral derivations without patronizing merohedral nomenclature. Fedorov's idea of *isotropic zone* is introduced. A good feature is the table of forms of the isometric system with sketches showing the differences in the *face symmetry* of forms occurring in several crystal classes.

In the hexagonal system, the Bravais notation is adopted, and Weber's elegant four-index symbols are also preferred for zone notation. Both Miller and Bravais axes are used for the five classes of the rhombohedral subsystem.

The chapter on triclinic crystals contains interesting pages on the construction of the *rhombic section* in a stereographic projection, also the graphic determination of axial elements by means of a gnomonic projection.

Twelve pages are devoted to an elementary presentation of twinning, which exclusively reflects the tendencies of the German School. No heed is given to the remarkable explanation of twinning in terms of the space-lattice (the Mallard-Friedel theory).

Numerous exercises and problems are appended. The book is abundantly illustrated, well indexed, clearly printed, and solidly bound. It is gratifying that Dutch, of all languages, should be the most closely akin to English!

J. D. H. DONNAY

MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

ANNIVERSARY MEETING, NOVEMBER 9TH, 1933.

The following were elected officers and members of Council:—

President, Sir Thomas H. Holland; *Vice-Presidents*, Sir William H. Bragg and Mr. Arthur Russell; *Treasurer*, Mr. F. N. Ashcroft; *General Secretary*, Mr. W. Campbell Smith; *Foreign Secretary*, Prof. A. Hutchinson; *Editor of the Journal*, Dr. L. J. Spencer; *Ordinary Members of Council*, Prof. C. E. Tilley, Prof. P. G. H. Boswell, Prof. H. L. Bowman, Dr. L. Hawkes, Dr. W. R. Jones, Dr. F. Coles Phillips, Mr. J. B. Scrivenor, Mr. F. A. Bannister, Mr. T. Crook, Dr. W. F. P. McLintock, Mr. L. R. Wager, Dr. A. K. Wells.

PROF. P. L. DRAVERT (of Omsk): *Shower of meteoric stones in the neighbourhood of the village of Kuznetzovo, West Siberia, on May 26, 1932.* Between 5 and 6 P.M. in a cloudless sky ten detonations were heard, and one stone of 2 kg. was seen to fall, making a small oblique hole and then rebounding. Eight stones with a total weight

of 23 kg. (the largest 16 kg.) were collected. Two of them, found 300 metres apart, can be fitted together on their flat crusted surfaces. The stone is a greyish-white friable chondrite with inclusions of troilite and grains of nickel-iron. The troilite was thought by the peasants to be gold, which led to the destruction of some of the material.

Mr. P. A. Clayton and Dr. L. J. Spencer: *Silica-glass from the Libyan Desert.* Clear, greenish-yellow silica-glass has been found in considerable amount as wind-worn masses up to 10 lb. in weight over an area of £0 by 25 km. at about 500 km. S.W. of Cairo near the border of Italian Cyrenaica. It is found lying on the surface of the Nubian Sandstone in the "streets" between the north-south sand-dune ridges. Analysis by M. H. Hey shows, SiO_2 97.58% with small amounts of Al, Ti, Fe, Ca, Na, and a faint trace of nickel. Specific gravity 2.206, refractive index 1.4624 (sodium-light), hardness 6. Some pieces are cloudy, due to presence of minute (0.1 mm.) bubbles. Effective gem-stones have been cut from the material. It shows certain relations to tektites and also to the silica-glass from meteoric craters, but no craters have been recognized at the locality.

Dr. L. J. Spencer: *Fictitious occurrences of iron-silicide (ferrosilicon).* Bright, steel-grey nodules of iron silicide (FeSi), very resistant to acids (except HF) and to weathering, are sometimes present in the calcium carbide residues from acetylene lamps. This waste material has been found at times in strange situations, and has on two occasions been described as a new mineral. It has also been thought to be meteoric. Occurrences in the gold dredgings in British Guiana and in the diamond fields of South Africa are readily explained by the use there of acetylene flares.

Mr. Arthur Russell: *Notes on the occurrence of wulfenite at Brandy Gill, Carrock Fell, Cumberland; and of leadhillite at Drumruck mine, Gatehouse of Fleet, Kirkcudbrightshire.* Wulfenite occurs here in small ($1\frac{1}{2}$ mm.), honey yellow platy to scale-like crystals, often nearly circular in outline. Thirteen specimens were collected from an old trial level dump. Leadhillite, a single specimen showing six-sided tabular crystals, up to 5 mm. in diameter was collected during the working of the Drumruck mine in 1917.

Mr. Arthur Russell: *On the occurrence of harmotome at several new localities in the British Isles.* The occurrence of harmotome at the following mines is described: Snailbeach mine, Minsterley, Shropshire; Cwm Orog mine, Llangynog, Montgomeryshire; Settlingstones mine and Stonycroft mine, Fourstones, Northumberland; Whitespots mine, Newtonards, Co. Down, and Foxrock mine, Glendasan, Co. Wicklow.

Prof. C. E. Tilley and Mr. A. R. Alderman: *Progressive metasomatism in the flint nodules of the Scawt Hill contact zone.* The flint nodules of the Chalk of the Scawt Hill contact zone provide striking examples of progressive metasomatism. Various stages—of which analyses are given—from an original nodule composed wholly of quartz to an assemblage built up essentially of wollastonite, melilite and alkali-pyroxene can be traced. In the successive stages of replacement the characteristic shape and form of the nodules is preserved. The assemblages thus provide a particularly convincing illustration of a replacement process unaccompanied by volume change. The nature and source of the replacing solutions are discussed.

Dr. F. Coles Phillips: *Some relationships between the reflectivities of sulphide ore-minerals.* A review of the reflectivity data now available for a large number of opaque minerals has shown that the relative reflectivity of simple sulphides, selen-

ides and tellurides increases with atomic number. "Molecular refractivities" of over forty complex sulphides calculated from the measured reflectivities agree well with values computed from the "molecular refractivities" of the constituent simple sulphides, assuming additivity. This relation indicates a method of calculating the reflectivity of an ore-mineral and also affords a useful check on the specific gravity quoted in the literature. The "molecular refractivities" of sulphur, selenium, and tellurium calculated from reflectivities also agree with values derived from a study of transparent ionic compounds.

Dr. F. Coles Phillips: *A critical list of the specific gravities of the sulphides and allied ore-minerals*. Variations in the values of the specific gravities of ore-minerals quoted in the literature are due to misprints, determinations on impure material or mixtures, and actual variation in composition of specimens owing to solid solution. The probable correctness of a specific gravity determination can be checked by comparison of calculated and computed "molecular refractivities," by direct specific gravity determination of the synthetic mineral, and by the *x*-ray method. These criteria govern the author's choice of critical values, when correllated physical and chemical data on the same specimen are lacking. They are tabulated together with the maximum range of variation recorded in the literature.

NEWARK MINERALOGICAL SOCIETY

Eighteenth Annual Report of the Secretary (*Condensed*).

To the Members of the Newark Mineralogical Society:

The Eighteenth Annual Report of the Secretary of the Newark Mineralogical Society is presented, covering the fiscal year beginning November 1, 1932 and ending October 31, 1933.

Membership

On the roll, November 1, 1932	65	
Admitted to membership during the year	7	
Total		72
Lost during the year		2
On the roll October 31, 1933		70

Officers and Trustees

At the annual election on November 6, 1932 the following officers were chosen:
President: Louis Reamer of Orange, N. J.
Vice-President: Ernest A. Maynard of Brooklyn, N. Y.
Secretary: Herbert L. Thowless of Newark, N. J.
Treasurer: Herman M. Lehman of New Haven, Conn.

Meetings and Programs

During the past fiscal year the society has held eight regular monthly meetings, with programs, and a brief account of each meeting is given.

131st. meeting, November 6, 1932. Annual election of officers and trustees. Program, "The Inspection of Minerals under the Microscope." Microscopes furnished by Mr. Broadwell, Mr. Grenzig, Mr. Reamer and Mr. Walther.

132nd. meeting, December 4, 1932. Program consisted of a "Symposium on

Geodes." The Secretary exhibited the Neward Geode. Other exhibitors were Mr. Broadwell, Mr. Maynard and the President.

133rd. meeting, January 8, 1933. The program consisted of an illustrated talk by Dr. Horace R. Blank on "Observations in New York City's New Water Supply."

134th. meeting, February 5, 1933. The program consisted of a talk by Dr. Albert C. Hawkins on "Some Interesting Minerals of New Jersey," illustrated with many fine specimens.

135th. meeting, March 5, 1933. The program for the afternoon comprised a round table talk on "Minerals of California." Specimens were shown by the President, Mr. Broadwell, Mr. Grenzig, Mr. Milburn and Mr. Giordano.

136th. meeting, April 2, 1933. The afternoon was devoted to an illustrated talk by Dr. L. S. Wills, of Philadelphia, on "The Preparation of Micro Mounts."

137th. meeting, May 7, 1933. The program comprised a fine talk by Mr. Joseph F. Burke on the "Minerals of Staten Island." Mr. Ashby, Mr. Broadwell, Mr. Grenzig and others exhibited specimens.

138th. meeting, October 1, 1933. The subject for the meeting was a "Symposium on Summer Collecting" in which Mr. Maynard, Mr. Grenzig, the President and other members participated.

Respectfully submitted,
HERBERT L. THOWLESS,
Secretary

NEW HAVEN MINERAL CLUB

At the first meeting of the New Haven Mineral Club, organized by Lillian M. Otersen, and held on Sunday, December 17th, 1933, Mr. Frederick W. Fowler was elected acting Chairman. The following officers were then elected:

President: H. M. Lehman
Vice-President: Lillian Otersen
Treasurer: Charles Thomas
Secretary: Frederick S. Eaton

It was decided to hold the meetings on the third Monday of each month, starting with January 15th, 1934, at 8 P.M. at the Club House connected with East Rock Park Rose Gardens.

After the naming of the following committees: Program, Outing, Publicity and Membership, a tentative Constitution, and set of by-laws were proposed by President Lehman and accepted by the Club.

After the business meeting the club members held an informal gathering, and discussed their plans for the coming year.

Mr. Frederick S. Eaton gave an interesting talk on the different books and bulletins published covering the study of mineralogy and also the source of Connecticut minerals. Charles Thomas, Frank Wilson and Frederick Eaton also discussed their experiences in visiting different mineral localities in Connecticut, which proved most interesting.

LILLIAN OTERSEN, *Vice-President*