Science, Arts and Letters and of the Junior Research Club of the University of Michigan. He also held membership in the Tau Beta Pi, Phi Kappa Phi, and Sigma Xi fraternities.

The intense scholarly activity and splendid scientific achievement of this short life of twenty-four years will remain an exceptional record in the history of American mineralogy.

BIBLIOGRAPHY OF EDWARD F. HOLDEN

1. Notes on an Occurrence of Quartz Crystals. *Am. Mineral.*, **2,** 81, (1917).
2. Famous Mineral Localities: Beryl Mountain, Acworth, N. H. *Am. Mineral.*, **3,** 199–200, (1918).
3. Limonite Pseudomorphs after Pyrite from York County, Pennsylvania. *Am. Mineral.*, **4,** 68–69, (1919).
4. An American Occurrence of Sarcopside. *Am. Mineral.*, **4,** 99–102, (1920).
5. A Calcium Phosphate with Ratios between those of Triplite and Sarcopside. *Am. Mineral.*, **5,** 166, (1920).
6. Specific Gravity and Composition in Iron-Rutile. *Am. Mineral.*, **6,** 100–3, (1921).
7. A Study of the Constitution of Thaumasite. *Am. Mineral.*, **7,** 12–14, (1922).
8. Ceruleofibrite, a New Mineral. *Am. Mineral.*, **7,** 80–83, (1922).
9. Note on an Unusual Carbonaceous Substance. *Am. Mineral.*, **7,** 161, (1922).
10. The Color of Three Varieties of Quartz. *Am. Mineral.*, **8,** 117–121, (1923).
11. Ceruleofibrite is Connellite. *Am. Mineral.*, **9,** 55–56, (1924).
12. The Cause of Color in Rose Quartz. *Am. Mineral.*, **9,** 75–88, 101–108, (1924).
13. Further Note on Sarcopside. *Am. Mineral.*, **9,** 205–207, (1924).
14. Graphic Intergrowths of Quartz and Black Tourmaline from Maine, (with W. H. Newhouse). *Am. Mineral.*, **10,** 42–43, (1925).
15. The Transmission of Light by Citrine. *Am. Mineral.*, **10,** 127–128, (1925).
16. The Cause of Color in Smoky Quartz and Amethyst. *Am. Mineral.*, **10,** 203–252, (1925).
17. Gems and Gem Materials, (with E. H. Kraus), **1925,** VI+222 pages.

PROCEEDINGS OF THE SIXTH ANNUAL MEETING OF THE MINERALOGICAL SOCIETY OF AMERICA

FRANK R. VAN HORN, *Secretary*

The Mineralogical Society of America held its sixth annual meeting at Yale University, New Haven, Connecticut, on December 28, 29, and 30, 1925, in conjunction with the Geological Society of America. At 2 P.M. on Monday, December 28, a joint session was held with the Geological Society of America, at which the petrologic papers were read. At the close of this session, Professor Arthur S. Eakle of the Mineralogical Society gave his presidential address on "*Needed Extension in Mineralogic Instruction*". This paper is printed in full in this number.

On Tuesday, December 29 at 9 A.M. President Eakle called the regular annual meeting to order in Room 2 of the Sterling Chemistry Laboratory. On motion of the Secretary, the reading of the minutes of the last annual meeting was dispensed with in view of the fact that they have been printed on pages 61–68 of Volume 10, (Number 3) of THE AMERICAN MINERALOGIST.

ELECTION OF OFFICERS AND FELLOWS FOR 1926

The Secretary announced that 129 ballots had unanimously been cast for the officers as nominated by the Council. For fellows there were 66 votes in the affirmative for all except one man who received 65 votes. All officers and fellows as nominated were declared elected. It was also announced that there were 123 votes for the amendments to the By-Laws, and 6 votes in the negative. The amendments to the Constitution were carried by a vote of 64 to 2. These amendments were printed on pages 353–354 of Volume 10 of THE AMERICAN MINERALOGIST.

The officers elected for 1926 are the following:

Honorary President: Edward S. Dana, Yale University, New Haven, Connecticut,
President: Waldemar T. Schaller, United States Geological Survey, Washington. D. C.
Vice President: George Vaux, Jr., Bryn Mawr, Pennsylvania.
Secretary: Frank R. Van Horn, Case School of Applied Science, Cleveland, Ohio.
Treasurer: Alexander H. Phillips, Princeton University, Princeton, New Jersey.
Editor: Walter F. Hunt, University of Michigan, Ann Arbor, Michigan.
Councilor 1925–1929: W. A. Tarr, University of Missouri, Columbia, Missouri.

The list of fellows elected follows:

Charles Anderson, Sydney, Australia.
Arthur F. Buddington, Princeton, New Jersey.
Roy J. Colony, Columbia University, New York City.
Charles M. Farnham, Barre Plains, Massachusetts.
Robert B. Gage, Trenton, New Jersey.
Donnel F. Hewett, United States Geological Survey, Washington, D. C.
S. Kôzu, Tohoku Imperial University, Sendai, Japan.
J. Orcel, Museum d'Histoire Naturelle, Paris, France.
Clarence S. Ross, United States Geological Survey, Washington, D. C.
Frank C. Schrader, United States Geological Survey, Washington, D. C.
Edward S. Simpson, Perth, West Australia.
Manjiro Watanabe, Tohoku Imperial University, Sendai, Japan.

REPORT OF THE SECRETARY FOR 1925

The Secretary reports that the roll of the Society now comprises 108 fellows and 187 members, a gain of 11 fellows and a loss of 2 members for the year. Actually, between December 28, 1924 and December 28, 1925, 26 new members have been added, but most of these joined before the report of the annual meeting was published in March, and the Editor was very conscientious in bringing the Secretary's report up to date so that it would coincide with the published list of fellows and members. Several members have been dropped for non-payment of dues. Two fellows, Dr. Edw. F. Holden and Prof. F. B. Peck, and three members, V. W. Field, G. W. Fiss, and M. L. Glenn, have died. In addition to the 295 fellows and mem-

bers, there are also 114 subscribers, so that 409 paid copies of the *Journal* are mailed monthly. As usual it is requested that everyone make an effort to increase the number of members and subscribers.

Respectfully submitted,
FRANK R. VAN HORN, *Secretary*

REPORT OF THE TREASURER FOR 1925

The report was read by the Treasurer. On motion it was accepted and ordered filed. On motion, an auditing committee was appointed by the President, which consisted of Dr. E. T. Wherry and Dr. C. S. Ross. This committee later reported to the Secretary that they found the books of the Treasurer correct.

To the Council of the Mineralogical Society of America: The treasurer herewith submits his annual report for the year ending November 30, 1925.

RECEIPTS

Cash on Hand, December 1, 1924	$ 251.56
Dues and subscriptions	1,392.08
Advertising	214.50
Sale of back numbers, etc.	82.04
Sale of Goldschmidt's Methods	7.00
Illustrations and Charges to Authors	448.68
Interest on bonds and bank deposits	41.21
Donation from Col. Washington Roebling	100.00
	$2,537.07
Bills Receivable	350.75

EXPENDITURES

Printing the *Journal*	$2,087.48
Miscellaneous printing and stationery	82.55
Postage	33.51
For 9 volumes of THE MINERALOGIST (1–9 inclusive)	20.00
Miscellaneous	15.50
	$2,239.04
Balance in Princeton Bank & Trust Co. $496.66	
Less checks Nos. 43, 44, 45, and 46, not returned on November 30 198.63	298.03
	$2,537.07

Respectfully submitted,
A. H. PHILLIPS, *Treasurer*

REPORT OF THE EDITOR FOR 1925

The report was read by the Editor and on motion it was accepted and ordered filed.

To the Council of the Mineralogical Society of America:

Two new records have been established by THE AMERICAN MINERALOGIST during the current year. These records refer to the number of original articles

published and to the size of the journal. This was accomplished mainly through the publication of two large issues which appeared in September and November. In each of these special numbers, which greatly exceeded the average size of a normal issue, the major portion of the expense was borne by the institution where the work was carried on, the Society paying only a fractional part which did not in either case exceed the cost of a regular number. All the members were thus enabled to secure two unusual publications, both from the standpoint of quantity and quality, without an additional burden being placed upon the Society. The favorable comments received from all quarters on the character of these special numbers has unquestionably confirmed the opinion of the Council in authorizing such a venture.

One of the weaknesses of our journal has always been our inability to accept lengthy manuscripts because of our limited resources. In the special numbers, however, it was possible to include a number of rather extensive investigations that ordinarily could not have been accepted and therefore would have been lost to our journal entirely.

The same privilege of using an entire issue of the journal is likewise extended to other institutions provided, of course, that the articles are suitable and the support sufficient so as not to place undue burdens upon our treasurer. It is hoped that since the precedent has now been established others may from time to time avail themselves of this privilege.

The current volume contains 57 leading articles or an average of nearly five per month and represents investigations carried on in twenty-three Universities and research bureaus, indicating clearly the rather extensive service rendered by the journal in serving as an outlet for mineralogical research. The present volume contains 448 pages of text proper, which compared with the 245 pages of the preceding year indicates an increase of 203 pages or nearly 83 per cent over last year—an increase over twice as large as the three previous years combined. The 57 leading articles occupied 383 pages of text while the 11 book reviews, 22 proceedings of societies, 38 abstracted accounts of new minerals and other items of general interest filled the remaining 65 pages.

The current volume is also characterized by a very liberal use of illustrations as is indicated by the 80 figures and halftones as compared with 61 of the preceding year. In many instances, especially where numerous cuts were involved, the author or institution fostering the research assisted in defraying the cost of these reproductions.

The concluding table of contents summarizes the distribution of subject matter in volume 10.

DISTRIBUTION OF SUBJECT MATTER IN VOLUME 10

Subjects	*Articles*	*Pages*	*Per cent of total*
Original articles	57	382⅔	85.4
Proceedings of societies	22	29⅓	
Notes and news	57	8⅔	
Book reviews	11	4½	14.6
Abstracted accounts of new minerals	38	16½	
Abstracts	32	6⅓	
Total of text	217	448	100.0

Illustrations	80	
Covers, advertisements, index		92
Total		540

Respectfully submitted,
WALTER F. HUNT, *Editor*

REPORT OF THE COMMITTEE ON NOMENCLATURE AND CLASSIFICATION OF MINERALS

The Chairman, Dr. H. S. Washington, reported that on account of his absence from the country, the committee had held no meetings during the past year. He suggested that certain members of our committee might be able to hold a meeting with mineralogists from abroad at the coming International Geological Congress to be held at Madrid the latter part of May. Dr. E. T. Wherry, a member of the committee, presented three resolutions relating to mineral names which were referred to the Committee by the President.

NEW BUSINESS

Dr. W. T. Schaller moved that a committee of five be appointed to discuss the feasibility of having a depository at one or more places, at which authors describing new mineral species would be requested to send type specimens for future comparison. This motion was seconded and carried, and the President appointed as members of the Committee, W. T. Schaller, W. F. Foshag, H. P. Whitlock, A. N. Winchell, and A. L. Parsons. Dr. W. T. Schaller, the incoming President, called attention to the fact that just twenty-five years ago he had been a student at the University of California, of the retiring President, Professor A. S. Eakle, and spoke of the respect and esteem which he and all former students had for Professor Eakle.

MEMORIAL BIOGRAPHIES

A memorial sketch of Professor F. B. Peck, written by A. Henry Fretz, was read by Professor Frank R. Van Horn, and a biography of Dr. Edw. F. Holden was given by Professor E. H. Kraus. These are printed in full in this number of THE AMERICAN MINERALOGIST.

PRESENTATION OF PAPERS

There being no further business, the Society proceeded to the reading of scientific papers. The papers presented with short abstracts follow:

EDGAR T. WHERRY: *The Dimensions of Oxygen Atoms in Crystals.* Two entirely different values have been assigned to the radius of oxygen atoms in crystals, 0.65×10^{-8} cm (Bragg) and 1.19×10^{-8} cm (Davey). Both estimates were arrived at by a complicated series of calculations, into which errors may have entered. Accordingly a differential method has been used, based on as few assumptions as practicable. It is thought that the value obtained from Ni-Ni and Ni-O represents a *minimum*; it is 0.84. The value obtained from Ag-Ag, AgCl and Ag_2O may represent a *maximum*; it is also 0.84. Accordingly the radius of oxygen in crystals is concluded to be 0.84×10^{-8} cm.

ALBERT B. PECK: *The Informational Type of Examination as Applied to Large Classes in Mineralogy.* A brief comparison is made of the advantages and dis-

advantages of oral, essay, and informational types of examinations. The types of questions used (plus and minus, completion of a statement, and underscored word), were discussed and illustrated, together with mistakes to be avoided in their statement and arrangement. The system of grading employed to penalize guessing, and the advantages of this type of examination over the essay type were discussed.

ALBERT B. PECK: *The Time Factor in the Formation of Some Artificial Minerals.* Some artificial mineral deposits formed under rather accurately known conditions of temperature and time in a high-temperature commercial ceramic kiln were described. These include silica glass formed at about 500°C, hematite pseudomorphs after magnetite formed at about 850°C, some artificial lithophysae-like formations composed of cristobalite, changes in the constitution of silica brick, and the oxidation of silcon carbide to cristobalite at temperatures of about 600°C. The probable causes of the formation of these deposits were discussed, pneumatolysis probably being a very prominent factor in most cases.

A. N. WINCHELL: *Chlorite as a Polycomponent System.* Evidence was presented to show that chlorite is a polycomponent system of six or seven important molecules, but in most cases crystals consist of only four molecules ($H_4Mg_3Si_2O_9$, $H_4Fe_3Si_2O_9$, $H_4Mg_2Al_2SiO_9$, and $H_4Fe_2Al_2SiO_9$), with or without small to trifling amounts of other molecules. Points on a square may be used to represent the analyses and their relationships; on the same square the optic properties may be indicated by appropriate lines, since the optic properties depend directly upon the variations in composition. The optic properties of jenkinsite are those which were predicted by the diagram. A new classification of the chlorite system was suggested. In order to show the relations in composition of the six-component system a three-dimensional model is necessary; it is a triangular prism. It was suggested that there may be a real or apparent change in the state of oxidation of iron in ferriferous chlorites without destroying the crystals.

WILBUR G. FOYE: *The Occurrence of Thulite at Haddam, Connecticut.* Few occurrences of the mineral thulite have been described in the United States. The occurrence at Haddam is associated with the contact of pegmatite dikes with calcareous sandstones belonging to the Middletown series. Epidote crystals from Haddam are quite well known. They occur under similar circumstances and within a half mile of Walkley Hill where the thulite is found.

SAMUEL G. GORDON: *An Account of a Recent Trip to Bolivia and Chile.* Mr. Gordon gave a very interesting illustrated talk on his trip to Bolivia and Chile taken last summer. He spent some time visiting the tin mines at Oruro.

SAMUEL G. GORDON: *Penroseite and Trudellite, Two New Minerals.* An abstract of this paper appeared in the February issue of THE AMERICAN MINERALOGIST (see page 42).

A. C. HAWKINS: *Notes on Celestite and Pyrite from Rochester, New York.* CELESTITE: Yellow tabular crystal from Barge Canal on west side of city is flattened parallel to base (*c*), and shows the following forms: (001), (010), (101), (011), (110), (124). White prismatic crystals from Brighton on east side of city are flattened parallel to macropinacoid (*a*) and show forms as follows: (110), (100), and a termination of domes and pyramid largely destroyed by etching and solution. PYRITE: Crystals 1 mm in size implanted on yellow dolomite from Brighton on east side of Rochester are found to have uniformly the simple dodecahedral form, in one or two cases very slightly modified by the octahedron. The crystals appear

black because changed to limonite on the exterior, but are bright brass yellow when broken.

A. C. HAWKINS: *Directional Sensitiveness in Radio Crystal Detectors.* The writer has long thought that there should be a difference in sensitiveness in natural crystal detectors in different directions along the molecular structure of the crystal. Accordingly, as many natural crystals of the detector minerals as could be used for the purpose were subjected to tests on the crystal set. It was found that with the "cat-whisker" on the natural faces, pyrite crystals from Tucson, Arizona, gave the following general results: octahedron, good; cube, fair; pyritohedrons, poor. The difference in cube and octahedron faces is also markedly strong in pyrite from other localities, the octahedron always being the better. Galena from Mineral Point, Wisconsin, in cubo-octahedrons, is also an excellent detector, even in dull, etched crystals; the octahedron faces in this case also are found to give much better results than those of the cube.

J. F. SCHAIRER: *Lithiophilite and Other Rare Phosphates from Portland, Connecticut.* Lithiophilite and other rare phosphates have been found at the Collins Hill Quarry, Portland, Connecticut. The lithiophilite has been studied chemically, and the other phosphates identified optically. The minerals occur with spodumene, lepidolite, quartz and feldspar.

* * * *

At 1 P. M. the Society adjourned for lunch, and to spend the afternoon attending the dedication of the new Peabody Museum. After the formal exercises, the Museum was open for inspection.

On Wednesday, December 30, at 9 A.M. President Eakle called the second session of the Society to order. He announced that the Council by virtue of the power given to it by the amendments to the Constitution recently adopted, had elected Dr. Edward S. Dana as Honorary President of the Mineralogical Society of America to serve for life. Later in the morning, when Professor Dana appeared to attend the meeting, the Society arose to receive him, after which he expressed a few words of appreciation of the action of the Society in electing him Honorary President.

The reading of scientific papers then proceeded according to program.

LLOYD W. FISHER: *Applications of Colloid Chemistry to Mineralogy (Preliminary Report):* Attention was called to some of the more recent developments in the field of colloid chemistry and their bearing on mineralogy. Some of these results may be of considerable value in connection with the theories of crystal structure and in other respects. The apparent value of such investigations has not been stressed, i.e., instances of formation of crystals in colloid media, banding phenomena, and chemical reactions in gels. Results of a preliminary series of experiments were reported upon showing the usefulness of this line of attack, the experimental technique developed and difficulties encountered.

T. L. WALKER AND A. L. PARSONS: *Minerals from the New Nephelite Syenite Area on French River, Ontario.* An examination was made of certain minerals occurring in the nephelite syenite area recently discovered by Professor T. T. Quirke while on field work for the Geological Survey of Canada. From nodular masses 6 inches to 24 inches in diameter occurring in the gneissoid syenite, the writers have collected and studied cancrinite, sodalite, zircon, nephelite, magnetite, acmite and biotite. The cancrinite occurs in brilliant yellowish masses several inches in

diameter and is often surrounded by an alteration product salmon to flesh red in color which is shown by optical and chemical methods to be hydronephelite.

T. L. WALKER AND A. L. PARSONS: *Zeolites and Related Minerals from Lake Nipigon, Ontario.* An examination of the minerals found in cracks and fissures in the Keewenawan traps of the southeastern shores of Lake Nipigon, Ontario.

T. L. WALKER: *Oxidation of Arsenides of Cobalt, Nickel, and Iron.* Quantitative measurements of the rate of oxidation for several arsenides of cobalt, nickel and iron were given with chemical analyses indicating the products resulting from the change.

A. L. PARSONS: *Additional Data Concerning the Preservation of Minerals.* Data in regard to causes of alteration of minerals supplementing the writer's paper (*Am. Min.*, **7**, 59–63) with suggestions as to means of preventing change.

FRANK R. VAN HORN: *Suggestions Concerning Use of Species Names in the Garnet, Amphibole, Pyroxene and Tourmaline Groups.* An extensive abstract of this paper is published as a separate article in this number.

FRANK L. HESS AND W. F. FOSHAG: *Carnotite from Colorado; and Rossite, a New Calcium Vanadate from Utah.* Carnotite, collected at Cave Spring Pass, near Moab, Utah, consisted of coarse platy crusts up to 2 mm in thickness on sandstone. Analysis of the carnotite gave the formula $K_2O.\ 2UO_3.\ V_2O_5.\ \frac{2}{3}H_2O$. The mineral is biaxial, $2V = 50°$. $\alpha = 2.06$, $\gamma = 2.08$. A new calcium vanadate, collected on Wm. O'Niell's claim, Bull Pen Canyon, Colorado, near Summit Point, Utah, proved to have the chemical composition $CaO.\ V_2O_5.\ 2\text{–}4\ H_2O$. It is triclinic in crystallization. This mineral has been called rossite, in honor of Dr. C. S. Ross of the U. S. Geological Survey.

A. N. WINCHELL: *Doubtful Species as Illustrated by "Faroelite."* Isomorphous variations in composition are so common in silicate minerals that they should be expected in all cases. Therefore the formulas of such minerals derived from one or even from a few analyses are apt to be misleading. The X-ray pattern of "faroelite" is almost indistinguishable from that of ordinary thomsonite, but differs distinctly from that of natrolite. It is therefore clear that thomsonite and natrolite do not belong to a single isomorphous series, and very probable that "faroelite" and thomsonite do belong to such a series.

W. T. SCHALLER: *Origin of Pegmatite Minerals.* The minerals now found in ordinary pegmatite dikes are, to a large extent, not the original ones solidified from a magma, but are later hydrothermal replacements of the first formed ones. The original minerals of the intruded igneous dikes were only the feldspars and possibly quartz. A potash feldspar, probably orthoclase, was the chief mineral constituent of the original dikes. All the other minerals, micas, tourmalines, garnets, lithium minerals, phosphates, sulphides, etc., most of the albite, most of the quartz, and considerable microcline, are later hydrothermal replacements of the first formed dike rock.

W. T. SCHALLER: *Origin of Graphic Granite.* Both field and laboratory study suggest that graphic granite is the result of later quartz entering and partially replacing microcline. All stages from quartz-free microcline to the average graphic granite can be seen. Much of the quartz of graphic granite is directly connected with clearly later replacing quartz masses. Most of the quartz of graphic granite follows a crystallographic direction of the microcline—commonly a cleavage plane.

The shape and orientation of the quartz suggest that its position is the resultant compromise of the effects of crystal forces of both the microcline and the quartz.

ERNEST E. FAIRBANKS: *Opacity.* (Read by title.) Most of the opaque minerals possess a metallic or a submetallic luster and are distinguished by the following physical properties: high electrical and good heat conductivity, high reflective power and very slight permeability to light. In the practical identification of the metallic or submetallic minerals (most ore minerals) no scheme is perfect but a combination of methods yields very satisfactory results. Quantitative data are difficult to obtain especially in polished ore section work. Determinations of dielectric constants of the ore minerals gave quantitative data of great diagnostic value in overcoming the difficulties in identification resulting from opaque character. Simple methods of determining high dielectric constants and a list of the constants of many ore minerals have been determined.

FRED E. WRIGHT AND E. T. ALLEN: *Curtisite, a New Organic Mineral from Skaggs Springs, Sonoma County, California.* In the hot spring area of the Franciscan formation at Skaggs Springs inflammable gases are given off in small quantities at one of the vents. At this point a greenish mineral was observed by Mr. P. L. Curtis of Skaggs Springs who in turn showed it to one of us (Allen) as something unusual. On examination we found its optical properties to be unlike those of any known mineral. Its approximate chemical composition is (analyses by Dr. F. B. LaForge) C=92.36, H=5.52, O=2.12, which corresponds roughly to the formula $C_{60}H_{40}O$; it is soluble in hot benzol and in hot pyridine. It melts with some decomposition above 350°C; it sublimes when heated in an open tube. Crystal system, probably orthorhombic; cleavage, (001) perfect, (100) poor. Color, yellow to greenish yellow; pleochroic, γ=yellow, β=yellow, α=pale yellow to nearly colorless; absorption, $\gamma>\beta>\alpha$; refractive indices for sodium light: $\alpha=1.557\pm.001$, $\beta=1.734\pm.001$, $\gamma=2.07$; optic axial angle $2V=83.5°$, measured with an oil immersion objective; optical character, positive; dispersion of the optic axes slight $2V_r>2V_v$. Acute bisectrix emerges apparently normal to the cleavage plane (001); plane of optic axes normal to (100). There is a possibility that the crystal system is monoclinic and that the acute bisectrix is slightly inclined to the cleavage plane; the inclination is so slight however that it was not possible to measure it; attempts to produce etch figures on cleavage flakes were not successful. Hardness less than 2. Specific gravity at 21°C=1.21. Fluorescent in ultra violet light in pale bluish green tints.

PAUL F. KERR: *Strain Structure in Quartz from Ducktown, Tennessee.* A brief description of peculiar strain structure developed in massive quartz found at Ducktown, Tennessee, together with a discussion of explanations for such a phenomenon.

N. L. BOWEN AND G. W. MOREY: *Crystalline Compounds in the System Sodium Metasilicate-Calcium Metasilicate-Silica.* Attention was called to the compounds that have been encountered in a study of equilibrium in melts of the system. Among them is the compound, $Na_2O.3CaO.6SiO_2$, which may form in many commercial glasses at low temperatures and whose bearing on rivaite of Zambonini and reaumurite of Lacroix were discussed.

RALPH W. G. WYCKOFF: *The Structure of High Temperature Quartz and the Possible Nature of Silicates.* The atomic arrangement in crystals of high temperature quartz has been deduced from powder and Laue photographic data. This

atomic arrangement is that of the enantiomorphic pair 6D-4 (c, j) and 6D-5 (d, i). The unit hexagonal cell contains three molecules of SiO_2 and has the dimensions $a_0=5.01$, $c_0=5.47$Å. In this structure each silicon atom is surrounded by a tetrahedron of oxygen atoms, and each oxygen atom is equally distant from two silicon atoms. There is no evidence for the existence of molecular groupings in this structure. A similar distribution of oxygen with respect to silicon atoms has been found for the high temperature form of cristobalite. In the recently studied compound Na_2CaSiO_4 a tetrahedron of oxygen atoms occurs about each silicon atom but these silicate tetrahedrons are not linked together definitely throughout the crystal as was the case in the two forms of SiO_2 itself. These results suggest that two distinct types of structures may occur in silicates: in one of these groups the silicon and oxygen atoms form isolated ions; in the other, the silicon and oxygen atoms are linked together in a continuous chain extending throughout the crystal.

RALPH W. G. WYCKOFF: *A Simple Model for Illustrating Crystal Structures.* Models for showing the atomic arrangements in crystals can be made by supporting glass plates upon nuts threaded on very long screws. The atomic arrangements are marked on these glass plates with paper circles of various sizes and colors. As many of these glass plates will be needed to illustrate the contents of a unit cell of the crystal as there are different kinds of atomic planes perpendicular to some chosen direction in the crystal. These models are simple to build and have the advantage that viewed from the top they show considerable perspective.

* * * *

The last paper was finished at 12:55 P.M. after which Dr. E. T. Wherry moved that the thanks of the Society be extended to the local committee, and to the President and Trustees of Yale University for their kindness and hospitality. This was seconded and unanimously adopted after which the Society adjourned. At this meeting two memorials and twenty-five scientific papers were presented; and one was read by title. This was the longest program ever given before the Society. Seventy-three fellows and members as well as additional guests and visitors attended the meeting, which was the longest in the history of the Society.

The following fellows, members and visitors registered at the meeting: H. L. Alling, Miss F. Bascom, W. S. Bayley, R. H. Beckwith, H. R. Blank, N. L. Bowen, Miss Ferga Carmichael, R. J. Colony, E. S. Dana, C. G. Doll, A. S. Eakle, G. L. English, C. R. Fettke, L. W. Fisher, W. E. Ford, W. F. Foshag, W. G. Foye, R. B. Gage, E. K. Gedney, J. L. Gillson, S. G. Gordon, C. K. Graeber, R. P. D. Graham, J. W. Greig, H. C. Ganning, A. E. Hammer, A. C. Hawkins, F. L. Hess, D. F. Hewett, A. P. Honess, W. F. Hunt, R. A. A. Johnston, P. F. Kerr, E. H. Kraus, G. F. Kunz, K. K. Landes, A. C. Lane, E. S. Larsen, L. W. Lewis, J. H. C. Martens, E. B. Mathews, H. W. McClellan, H. E. McKinstry, E. T. McKnight, L. W. McNaughton, B. L. Miller, W. J. Miller, E. S. Moore, W. E. Mumford, Charles Palache, A. L. Parsons, A. B. Peck, A. H. Phillips, H. Ries, C. S. Ross, Edward Sampson, J. F. Schairer, W. T. Schaller, D. H. Selchow, C. B. Slawson, V. G. Sleight, Miss Isabel F. Smith, W. G. Valentine, F. R. Van Horn, George Vaux, Jr., T. L. Walker, H. S. Washington, L. G. Westgate, E. T. Wherry, H. P. Whitlock, A. N. Winchell, F. E. Wright, and R. W. G. Wyckoff.