

have been interested in this region in the interval, there still remain many unsolved questions concerning it. These are chiefly of a petrographic or structural character. The processes of differentiation in this great intrusive body; the origin especially of the alkaline rocks; the structure of the mass as a whole; the sequence of lavas and intrusives and the structure of the Pilandsberg and its relation to the greater laccolite; the age of the laccolitic intrusion; these are some of the unsolved or but imperfectly solved problems from a petrographic viewpoint.

The mineralogist is attracted by the many types of alkaline rocks including pegmatites containing unusual minerals which have as yet been but imperfectly described; by the ore deposits of a number of metals which are satellitic to the laccolite; and by the various phases of contact metamorphism exhibited about its borders. The metals include particularly tin in characteristic cassiterite pegmatite and in quartz veins and pipes in the red granite; magmatic deposits of magnetite and chromite in the norite; and veins of copper, silver, cobalt and gold. The asbestos deposits have been already referred to.

I have attempted to present some of the problems that appear to the bibliographic student of South African mineralogy and petrology as possible subjects for profitable research. The field is large and varied and the writer will deem himself fortunate if he finds it possible to actually visit even a small part of the deposits here briefly pictured.

In conclusion let me add a word of appreciation of the energy and thoroughness displayed in the work of the South African geologists. They have described and elucidated with striking effectiveness the major elements of the earth features and mineral resources of their vast territory.

SECOND ANNUAL MEETING OF THE MINERALOGICAL SOCIETY OF AMERICA

The second annual meeting of the Mineralogical Society of America was held at Amherst, Massachusetts, in conjunction with the thirty-fourth annual meeting of the Geological Society of America. Both the President and Vice President having previously announced their inability to be present, the Council designated Dr. Edgar T. Wherry as chairman of the meeting. The meetings were held in the Biological Lecture Room of Amherst College, the morning session being called to order at 9:30 A. M. Thursday, December 29th, 1921.

On motion of the Secretary the reading of the minutes of the last meeting, previously printed in the *American Mineralogist* (volume 6, No. 2, pp. 35-40) was dispensed with. The Secretary announced that 60 ballots had been cast for the Officers nominated by the Council, who are therefore elected for the year 1922:

President: Thomas L. Walker, University of Toronto.

Vice President: Frederick A. Canfield, Dover, New Jersey.

Secretary: Herbert P. Whitlock, American Museum of Nat. History.

Treasurer: Albert B. Peck, University of Michigan.

Editor: Walter F. Hunt, University of Michigan.

Councilor, 1922-1925: Thomas L. Watson, University of Virginia.

(On one ballot the name of Edgar T. Wherry was substituted for Editor.)

The report of the Secretary was then read. The report of the Treasurer was read in abstract by E. H. Kraus. An auditing committee consisting of A. S. Eakle and Ellis Thomson was appointed by the chair, and at the afternoon session reported the Treasurer's accounts correct.

The report of the Committee on Nomenclature and Classification of Minerals was read, and accepted as a report of progress. It was voted to send copies of this report to all fellows and members of the Society for criticism and comment during the coming year. The report of the Editor was then read, and the discussion of possible changes which might be made in *THE AMERICAN MINERALOGIST* in the next volume, was called for. In the course of this, several fellows emphasized the desirability of publishing book reviews and abstracts of all articles even though the lack of space should compel them to be greatly abbreviated. On a motion of Dr. Kraus a vote of appreciation was tendered to Dr. Wherry for his services as Editor. The reading by Dr. Wherry of the *PRESIDENTIAL ADDRESS OF CHARLES PALACHE FOLLOWED; Some Problems of Mineral Genesis in South Africa*. It is printed in full in this number.

It was announced by the Chair that the balance of the morning session would be given over to three crystallographic papers as follows: AUSTIN F. ROGERS, STANFORD UNIVERSITY. (1) *A study of crystal symmetry*. (This and the following abstracts have been made by the chairman.) The fundamental importance of the 32 symmetry classes was emphasized, and it was shown with the aid of lantern slides how these classes can be simply derived, in accordance with the mathematical theory of space groups, by performing certain symmetry operations upon the stereographic projection of a single (hkl) face. These operations comprise rotations of varying extent around symmetry-axes, reflection in symmetry planes, and shifting thru a symmetry center, the last, altho theoretically not necessary, being the simplest way of regarding the final operation. (2) *The use of plans and elevations in teaching crystallography*. By the use of a plan and one or more orthographic elevations it is possible for a student to determine graphically most of the features of a crystal,—the symmetry, the axial ratio, and the symbols of most if not all forms. This method has been recommended in a recent new edition of the speaker's "Introduction to the Study of Minerals," and is capable of even further applications, of which illustrations were given.

EDGAR T. WHERRY, U. S. BUREAU OF CHEMISTRY: *Crystallographic notes*. Cases where different methods of discovering hidden symmetry in crystals yield different results were pointed out, and the explanation suggested that physical methods

show the symmetry of the structure (point-system) while chemical methods may show symmetries latent in the constituent atoms.

The afternoon session was called to order at 2:15 o'clock, and it was announced that the remaining papers would be taken up as listed in the preliminary program, except that in cases where a speaker had more than one to present, his second one would be held over until other speakers present also had a chance.

OLIVER BOWLES, U. S. BUREAU OF MINES: *A plea for economic mineralogy.* (Read by E. H. Kraus.) It was urged that more attention be paid to the economic side of mineralogy in teaching the subject.

EDW. F. HOLDEN, UNIVERSITY OF MICHIGAN: *Caeruleofibrite, a new mineral.* A blue fibrous mineral in cavities in cuprite from Arizona, heretofore called fibrous azurite or connellite, proves on analysis to be an extremely basic chlor-arsenate of copper. In the discussion it was suggested that the name be simplified to ceruleofibrite.

EDGAR T. WHERRY AND EARL V. SHANNON, WASHINGTON, D. C.: *Crocidolite from Pennsylvania.* A deep blue coating on gneiss, diabase, and shale, is shown by analysis to be crocidolite. It is believed to be of contact-metamorphic origin, tho often far removed from the diabase which gave out the active solutions.

HENRY S. WASHINGTON, GEOPHYSICAL LABORATORY: *The jades of Middle America.* The results of analysis and petrographic examination of some prehistoric jade objects were announced. Jadeite, diopside, and albite in various proportions were the principal constituents.

A. L. PARSONS, UNIVERSITY OF TORONTO: *Analcite from Nova Scotia, with a discussion of the formulas of analcite analyses in general.* From new analyses on material of unusually good quality and critical study of older analyses, it was found that a certain amount of isomorphous mixture of high and low-silica end-members can be recognized.

ARTHUR S. EAKLE, UNIVERSITY OF CALIFORNIA: *An occurrence of monosulfide of iron.* A specimen of massive bronzy mineral found by a prospector in an inaccessible part of northern California proves on analysis to be the normal iron monosulfide, FeS. It has been formed by the alteration of magnetite, cores of which still remain. It differs from pyrrhotite in being non-magnetic and in its more ready solubility in dilute sulfuric acid. The relation between composition and physical properties in pyrrhotite needs further study.

N. L. BOWEN, GEOPHYSICAL LABORATORY: *Two corrections to mineral data.* The optical properties of the supposed new species "rivaite" being suspiciously near those of wollastonite, the speaker obtained a specimen of the original material from Prof. Zambonini, its describer, and found it to be a devitrified glass, the crystals being actually wollastonite, and the analysis having been made on this with glass adherent. Lacroix's "reaumeurite" was admittedly of the same nature, and hardly seems worthy a special name. The axial angle given in text-books for monticellite is only half what it should be, (an error in copying from Penfield's original paper being perpetuated by copying from one to another). This mineral has a rather large axial angle, and is represented in Larsen and Foshag's "mineral A" accompanying merwinite.

ALFRED C. HAWKINS, WARD'S NATURAL SCIENCE ESTABLISHMENT: *Crystallography of three Rhode Island minerals.* Crystals of hematite, epidote and apatite were described, the most remarkable being the hematite which showed dominance of a new steep rhombohedral form.

EDWARD F. KRAUS, UNIVERSITY OF MICHIGAN: *Mineralogy for students of Dentistry*. At the University of Michigan the dentistry students are now being taught mineralogy, from the point of view of recognition of the constituents of artificial teeth, enamels, cements, tooth pastes, etc.

EARL V. SHANNON AND EDGAR T. WHERRY, WASHINGTON, D. C.: *White chlorite from Pennsylvania*. Material similar in occurrence and properties to colerainite proves on analysis to agree with the chlorite sheridanite. New analytical and optical data on several minerals of this group are presented; their composition is complex, and for the present the only appropriate term for them seems to be "white chlorite."

A. L. PARSONS, UNIVERSITY OF TORONTO: *The care of Museum specimens*. The need of protecting silver minerals, realgar, etc., from light is emphasized. Methods of preventing loss of specimens thru oxidation, hydration, etc., should be developed.

ARTHUR S. EAKLE, UNIVERSITY OF CALIFORNIA: *The silicates of the contact-metamorphic limestone of Crestmore, California*. A summary of the unusual mineralogy of this deposit was given. From a study of the nature of the unusual silicates present, the course of the metamorphism is somewhat clarified.

JOSEPH J. RUNNER, UNIVERSITY OF IOWA: *Index minerals for the interpretation of geological history*. It was pointed out by the use of illustrations from Black Hills specimens how the metamorphic history may be epitomized in a single rock section, and a plea was made for the presentation of mineralogy to students from the genetic view-point.

ALBERT B. PECK, UNIVERSITY OF MICHIGAN: *A new type of monochromatic light source*. (Read by E. H. Kraus.) A strip of perforated platinum coated with platinum black can be impregnated with a salt of sodium, lithium, etc., and gives a brilliant and long-lasting source for monochromatic light. The apparatus was demonstrated at the close of the meeting.

It is noteworthy that every paper offered for the meeting was actually presented, a record which we hope can be maintained in the future. The meeting adjourned about 5:30 P. M., a number of the mineralogists attending the G. S. A. dinner in the evening. The next annual meeting will be held at Ann Arbor, Michigan, on December 28, 1922.

The following fellows and members of the Mineralogical Society attended the meetings:

- Ayres V. L., Case School of Applied Science.
- Baker J. W., Pawtucket, Rhode Island.
- Bowen N. L., Geophysical Laboratory.
- Eakle A. S., University of California.
- Gilson J. L., Waltham, Massachusetts.
- Hawkins A. C., Ward's Natural Science Establishment.
- Holden E. F., University of Michigan.
- Honess A. P., State College, Pennsylvania.
- Kraus E. H., University of Michigan.
- Lane A. C., Tufts College.
- Luquer L. McI., Columbia University.
- Parsons A. L., University of Toronto.
- Phillips A. H., Princeton University.
- Ries H., Cornell University.

- Rogers A. F., Stanford University.
- Runner J. J., State University, Iowa.
- Thomson E., University of Toronto.
- Van Horn F. B., Case School of Applied Science.
- Walker T. L., University of Toronto.
- Washington H. S., Geophysical Laboratory.
- Watson T. L., University of Virginia.
- Wherry E. T., Bureau of Chemistry.
- Whitlock H. P., American Museum of Nat. History.
- Wolf J. E., Harvard University.

REPORT OF THE SECRETARY FOR 1921

The Secretary herewith reports that the rolls of the Society now comprise 66 Fellows and 155 Members, a gain of 18 Fellows and 30 Members for the year. The lists are printed in full on subsequent pages.

Respectfully submitted,
HERBERT P. WHITLOCK, *Secretary*.

REPORT OF THE TREASURER

To the Council of the Mineralogical Society of America:

The Treasurer herewith submits his report covering the year from December 1, 1920 to November 30, 1921.

<i>Receipts</i>	<i>Expenditures</i>
Cash on hand Dec. 1, 1920. \$ 611.14	Ptg. Journal and Reprints. \$1553.09
Dues and Subscriptions. . . . 1357.95	Stationery and other Ptg. . . . 32.85
Advertising. 240.00	Postage. 31.36
Sale, Back Numbers and	Purchase of Liberty Bonds
Reprints. 145.98	from Life Payment of
Goldschmidt Reprints. 317.31	Dues. 350.60
Miscellaneous. 68.16	Miscellaneous. 15.00
\$2740.54	\$1982.90
	Cash in Bank November 30,
	1921. 757.64
	\$2740.54

A comparison of the mailing lists on November 30, 1921 and December 15, 1920 was as follows:

	Nov. 30, 1921	Dec. 15, 1920
Fellows.	66	48
Members.	155	125
Subscriptions.	96	130
Unpaid for various reasons.	5	17
	322	320

No accurate figure of the number of names dropped from the list for varying reasons can be given but when it is considered that the figures given above represent the present standing of the list, the net growth is hardly satisfactory.

The Treasurer takes this opportunity to offer his thanks to all who aided him in his work by paying dues and subscriptions unsolicited except by the published notice and trusts that the response to such will continue to be as good.

Respectfully submitted,

ALBERT B. PECK, *Treasurer.*

REPORT OF THE EDITOR FOR 1921

The 1921 volume, 6, of THE AMERICAN MINERALOGIST, Journal of the Mineralogical Society of America, contained 176 pages of text and 71 pages of covers, advertisements and indexes, a decrease of 37 and 14 respectively. This decrease was made necessary by increased costs of printing and by diminution in the amount of money available for the journal. The subject matter included may be classed as follows:

<i>Subjects</i>	<i>Articles</i>	<i>Pages</i>
Descriptions of new minerals, including discrediting of old ones, etc.	5	14½
New data, forms, occurrences, etc.	14	24½
Descriptions of famous mineral localities and collections.	12	36½
Miscellaneous: addresses, obituary notices, tabulations, etc.	7	31
TOTAL ORIGINAL ARTICLES.	37	
Proceedings of societies.	28	30
Personal notes and news, book reviews, etc.	46	8½
Abstracted accounts of new minerals and discredited minerals.	25	17½
Abstracts of crystallographic literature.	29	3½
Abstracts of mineralogic literature.	65	10
TOTAL ABSTRACTS AND NEWS ITEMS.	193	
Illustrations.	16	
TOTAL PAGES.		176

Two new mineral species were described in this volume for the first time, jurupaite and merwinite, while new data was furnished on flagstaffite, and two supposed species, "allemontite" and "colbranite," were discredited.

The editor has endeavored to include in every number both technical and nontechnical articles; and there has been no difficulty in obtaining sufficient manuscript for this purpose. The limitation in the number of pages in the volume made necessary by our slender resources has led, indeed, to delay in publication of the longer articles for periods of 6 months to a year after their receipt. It has also seemed wise to diminish the space allotted to abstracts, which has resulted in our running about two years behind in this respect. In order to catch up, it will probably be desirable to limit our abstracts to 2 or 3 lines each during the coming volume. However, with increasing membership and decreasing costs of printing, it is to be hoped that gradual increase in size of the journal will be possible in future volumes.

Respectfully submitted,

EDGAR T. WHERRY, *Editor.*