



The Geochemical News

NUMBER 43

January 1966

THE GEOCHEMICAL SOCIETY COUNCIL MEETING

Kansas City, Missouri, Nov. 5, 1965

The Council met from 2:30 to 6:30 p.m. Nov. 5, 1965, at the Muehlebach Hotel.

Present: John A. S. Adams, C. Wayne Burnham, E. C. T. Chao, Paul L. Cloke, W. S. Fyfe, Paul Gast, Julian Goldsmith, H. E. Hawkes, Heinrich D. Holland, R. M. Honea, Kurt E. Lowe, Brian Mason, presiding, K. J. Murata, Leon Silver, Sol Silverman, J. B. Thompson, P. Toulmin, and Kenzo Yagi.

REPORTS OF OFFICERS

Secretary's Report: The Society has continued its gradual growth this year. There were 103 new members this year as compared to 135 new members in 1964 and 107 in 1963. The total membership is 2111; of this, 312 belong to the Organic Geochemistry Group and 502 are from countries other than the United States.

As discussed at the AGI advisory board meeting on October 4, 1965, the U.S. Post Office requires that beginning Jan. 1, 1967, for bulk mailings, the mail be sorted by Zip Code. AGI has for the past year maintained the Society's addressograph file and this problem will be handled by them. They did the mailing for the Society after the material had been properly stuffed. In addition to savings in cost, it has saved a great deal of work for the Secretary. Only the mailing of GSA circulars to members who are not also members of MSA or GSA was done separately by the Secretary's office.

The new membership directory is on its way from Germany to AGI. Members are listed alphabetically and by geographic regions. Members of the Organic Geochemistry Group are listed separately. The new directory will be mailed out to members as soon as they arrive at AGI in Washington, D. C.

E. C. T. Chao, Secretary

Treasurer's Report: By action of Council in 1962, the fiscal year of the Society was changed to coincide with the membership year (calendar year). At the same time, the term of office of the incumbent Treasurer was extended to the end of the calendar year; hence, the final accounting of the Society's funds will be made on December 31, 1965, and the records and funds will then be transferred to the Treasurer-elect.

The gross income to the Society so far this year, excluding NSF Grant funds, amounts to \$5,585.32, of which \$5,310.73 is from membership dues and \$112.84 is royalty income that was deposited in the Publication Fund. The remaining \$161.75 represents the actual cost of administering NSF grants and is in lieu of overhead.

Society expenses so far total \$6,399.53, including \$1,131.00 for the new directory. Inasmuch as additional expenses this year probably will amount to about \$600, whereas additional income probably will not exceed \$100, it is clear that the Treasury will close the year with a deficit of about \$1300-\$1500. Although this deficit is not quite so large as was anticipated in the 1964 Treasurer's report (\$2,000), it is large enough to require immediate remedial action by Council.

About the only sound course open to Council is to recommend an increase in annual dues, the amount of increase depending upon the long-range programs of the Society. An increase of 50¢, 10¢ of which would go to AGI, would permit the Treasury to break just about even for two or three years, provided no new programs are undertaken and the membership is conscientious in payment of dues. Incidentally, only about 80 percent of the members have paid their 1965 dues to date, and it is doubtful that more than an additional five percent will have paid by the end of the year.

It is of interest to the incumbent Treasurer, as his term in office draws to a close, to compare the financial condition of the Society at the end with that at the beginning, and to evaluate the major factors responsible for the change. The total assets of the Society in November, 1961, exclusive of a few small items of office equipment amounted to about \$5,052; it is estimated that on December 31, 1965, the total assets will be about \$16,500. Approximately \$8,470 of the \$11,450 increment was derived as overhead on NSF grants which no longer will accrue to the Society. The balance of \$2,980 was derived from dues (\$1,650) and royalties plus interest (\$1,330).

On the basis of this breakdown, one might gain the impression that the Society enjoys fiscal good health. However, it must be realized that this increase in assets accumulated over a period of four years, the first two of which were free of the \$1,250 annual obligation to the Executive Editor of Geochimica et Cosmochimica Acta.

Finally, I want to say that my service to the Geochemical Society has been a rewarding experience, and I want to thank the Councils with whom I have served for making my task as light as possible. Good luck!

C. Wayne Burnham, Treasurer

COMMITTEE REPORTS

Auditing: The Auditing Committee has examined the accounts of the Treasurer of the Geochemical Society for the period January 1, 1964 to December 31, 1964 and has verified the accuracy of the amounts as shown in his report.

May 10, 1965

John D. Ridge
Robert F. Schmalz
Thomas F. Bates, Chairman

Program: The program committee had excellent cooperation with George Switzer of MSA and Lincoln Page of SEG in arranging the annual meeting program, and strongly recommends that the program chairman meet with representatives of MSA and SEG one-half day in advance of the GSA scheduled program meeting in New York in the latter part of July. Also recommended is extending the annual meetings to four days instead of three and a GSA vice president for programming to improve coordination of the annual meeting programs.

Tellers: The tellers committee reported the following results of the election:

President:	J. R. Goldsmith
Vice President:	P. M. Hurley
Treasurer:	R. M. Honea
Councilors:	P. B. Barton
	P. W. Gast
Officer incumbent:	Secretary E. C. T. Chao

The committee tabulated 175 suggested nominations for future officers or councilors of the Geochemical Society which will be forwarded to the 1966 Nominating Committee. Twenty-four ballots were not counted: 9 - illegible, 6 - unsigned, 8 - blank, and 1 - xerox copy.

George Edwards

REPORTS OF THE EDITORS:

The Geochemical News: It would appear that since last year the amount of material submitted for inclusion in The Geochemical News has decreased still further. One issue was published which consisted largely of reports of officers and other official business. Since that time the editor has acquired only enough items of probable interest to members of the Society for about four pages of the News.

In view of this situation consideration has been given to ways to increase the service which The Geochemical News may provide. Five such possibilities are herewith suggested. A column of "Personals", in which promotions, honors, changes in job, etc. would be reported, may be of interest. Reports of meetings which usually have inadequate coverage, such as the International Lunar Geological Field Conference held during August of this year in Oregon, seem likely to be of interest and would serve the useful purpose of providing a lead article for the News. Another suggestion is to provide a listing of research projects currently being investigated in geochemistry; this might prove to be too large an item to publish, or might need to be severely limited in size. Because of this, complete coverage would not be attempted, rather only those projects submitted voluntarily or after one solicitation would be reported. The last two items are a list of new members and a list without obituaries of deceased members. Other suggestions are welcome.

Paul L. Cloke, Editor
The Geochemical News

Book Translations: This report gives the status of several book translations.

Already published or otherwise available:

Korzhinskii, D. S., PHYSICO-CHEMICAL BASIS OF THE ANALYSIS OF THE PARAGENESIS OF MINERALS. Consultants Bureau, New York, 1959.

Vinogradov, A. P., THE GEOCHEMISTRY OF RARE AND DISPERSED CHEMICAL ELEMENTS IN SOILS. Consultants Bureau, New York, 1959.

Ginzburg, I. I., PRINCIPLES OF GEOCHEMICAL PROSPECTING. Pergamon Press, London, 1960.

Beus, A. A., MINERALOGY AND GEOCHEMISTRY OF BERYLLIUM. W. H. Freeman & Co., San Francisco, 1962.

Abdulaev, Kh. M., DIKES AND POST-MAGMATIC MINERALIZATION. (microfilm) American Geological Institute, Washington, 1957.

Sindeeva, N. D., MINERALOGY AND TYPES OF DEPOSITS OF SELENIUM AND TELLURIUM. Interscience Publishers, New York, 1964.

Translated and edited, but not yet published:

Krasnikov, V. I. (ed.), GEOCHEMICAL PROSPECTING FOR ORE DEPOSITS IN THE U.S.S.R., Pergamon Press, New York.

Ermakov, N. P., INVESTIGATIONS OF MINERAL-FORMING SOLUTIONS (plus two supplements). Pergamon Press, New York.

Vlasov, K. A., et al., LOVOZERO ALKALIC MASSIF. Oliver and Boyd, London.

Vershorskaya, et al., GALLIUM: ITS GEOCHEMISTRY AND MINERALOGY. GENETIC TYPES OF DEPOSITS AND GEOCHEMICAL PROBLEMS. American Geological Institute, Washington.

Ivanov, V. V., et al., THALLIUM: ITS GEOCHEMISTRY AND MINERALOGY. GENETIC TYPES OF DEPOSITS, AND GEOCHEMICAL PROVINCES. American Geological Institute, Washington.

Beus, A. A., GEOCHEMISTRY OF BERYLLIUM AND GENETIC TYPES OF BERYLLIUM DEPOSITS. W. H. Freeman & Co., San Francisco.

Strakhov, N. M. (ed.), TYPES OF DOLOMITE ROCK AND THEIR GENESIS. American Geological Institute, Washington.

Translation complete, but manuscripts still in editors' hands:

Andreev, P. F., et al., TRANSFORMATIONS OF PETROLEUM IN NATURE. American Geological Institute, Washington.

Ozerova, PRIMARY DISPERSION HALOS OF MERCURY. American Geological Institute, Washington.

In translation:

Manskaya and Drozdova, GEOCHEMISTRY OF ORGANIC MATERIALS. Pergamon Press, New York or London.

Enough funds remain for translation of one more medium-sized volume. The Committee had decided to do Vlasov's GEOCHEMISTRY AND MINERALOGY OF RARE ELEMENTS; we have discovered that it is being translated in Israel. Suggestions for another volume, or volumes totalling not over 400 pages, would be welcome.

November 2, 1965

Earl Ingerson
Book Translations Editor

Geochemistry International: Production of the first volume of Geochemistry International (including translations of Geokhimiya for 1964) is nearly completed, and work has already started on the 1965 volume under the direction of P. Toulmin. A grant for the 1965 volume was received from NSF in June. Under the new grant, the American Geological Institute has assumed the duties of grantee and the Geochemical Society has restricted its activities to the aspects of the publication program that require scientific judgment in geochemistry. A memorandum of agreement with AGI clearly specified the role of both organizations.

Sales of Geochemistry International and back issues of Geochemistry have amounted to \$10,604.35 through September 30, \$9,269.73 being for the current volume, a new high. Only \$14.10 has been realized for copies of translations not printed. Subscriptions for 400 copies have been received so far; this is a decrease of about 100 copies from sales of the 1963 volume of Geochemistry. How many of these are really lost subscribers is not certain because the many changes in this translation program have confused many subscribers who presumably will ultimately purchase copies.

Many production problems have arisen during the preparation of the first volume of selected translations. Hopefully, factors relating number of pages of non-English original material and pages of English composed in the new format are now in hand, and the product should be appearing more clearly and consistently in the future. Selection of material and availability of high-quality translators remain as problems. Handling all of these items within a fixed budget is one of the reasons that the 1965 grant was rewritten to separate the editorial management from the editing, and compensate each separately.

My own inadequacies have become more apparent to all during the past year, and the 1964 volume would not have been completed without the assistance of P. Toulmin, D. R. Wones, T. A. Rafter, C. W. Burnham, and many others. The various organizations associated with this project have all performed most satisfactorily. I thank all of these individuals and organizations.

As this is my last report, I would also like to thank the Society for this opportunity to serve them in this capacity. During the years I have been involved with the project the Council has helped me to define and divide properly the various responsibilities involved, and we have progressed from a one-man volunteer operation to a more appropriate role as scientific consultants to a geological publishing organization. Henceforth, the Society's principal task will be the quality of the journal. In my opinion the journal already serves geochemistry as an important means of communication. Geochemistry International has great possibilities for future usefulness because it covers a wide range of topics and languages and is widely available at nominal cost. Although not all of the problems concerning the future of Geochemistry International are solved, the prospects of a happy future for it are good, and I wish it and its new Editor well.

D. B. Stewart
Journal Translations Editor

Work has begun under a National Science Foundation grant to the American Geological Institute in support of Geochemistry International, Volume 2. Translations of several selected articles and of Geokhimiya 1965, No. 1, are in hand, and the first number of Volume 2 may appear before next year.

Under the new arrangement with the American Geological Institute, the Geochemical Society has relinquished its status as grantee and serves as subcontractor to AGI, who are recipients of the grant. Because of the structure of the Grant budget, we have not completely achieved the goal of turning over all bookkeeping functions to AGI, but this problem may be solved by slight modification of next year's grant request.

Paid subscriptions for the 1964 volume now stand at 403; 143 subscribers to Geochemistry 1963 have not renewed their subscriptions. The overall renewal rate is thus 74%; as might be expected, individual subscribers, who last year made up 14% of the subscription list, had a lower renewal rate (64%).

Selection of articles from sources other than Geokhimiya has been found in the past to be the most demanding part of the entire operation (D. B. Stewart, oral comm., repeatedly), and my brief experience suggests that little change is to be expected in this regard. Cooperation of all in suggesting and evaluating articles for translation will be greatly appreciated.

Officers of the Society and many people at Scripta Technica and AGI have already been most helpful during my brief tenure; my special thanks are due to Dave Stewart, who has given graciously and largely of his time to inform and advise me.

Priestley Toulmin, III
Journal Translations Editor

Nov. 5, 1965

COUNCIL ACTIONS

Dues: A raise in dues was recommended by the Treasurer. After discussion of the need and the amount to be raised and having considered possible drop-out by foreign members due to possible difficulty of obtaining foreign exchange, John Adams moved that the membership dues be increased to \$5.00, seconded by Fyfe. The motion passed. The reasons for increase of dues should be brought to the attention of the membership through The Geochemical News.

The Treasurer also requested comments concerning handling of accounts. The Council authorizes the Treasurer to move funds from the checking account to the savings account at the Treasurer's discretion.

Organic Geochemistry Group: Sol Silverman representing the Organic Geochemistry Group requested that this group be renamed Organic Geochemistry Division. Permission for the name change was granted by the Council. The Organic Geochemistry Group shall be known as the Organic Geochemistry Division.

Newly elected officers for the Organic Geochemistry Division for 1965-1966 are:

Chairman:	J. Gordon Erdman
Chairman-elect:	Richard Bader
Secretary-treasurer:	Warren Meinschein

Program Committee: The Council expressed appreciation for Leon Silver's services as chairman of the Program Committee.

Education Committee: Kurt E. Lowe reported on the history of trying to get four manuscripts in the education series sponsored by the Geochemical Society published. These are:

"The geochemical application of Eh-pH diagrams" by Paul L. Cloke

"Geochemical weathering of rocks: source of raw materials for good living" by W. D. Keller

"The ocean as a chemical buffer system" by John W. Winchester

"Radioactive heat production and the chemical composition of the earth" by John W. Winchester

After long delays, Robert E. Boyer, editor of the Journal of Geological Education has offered prompt publication and any number of reprints desired at cost. The cost per page published will be \$20.00 and the estimate of cost per manuscript published will be about \$250.00. At present, there is no estimate for the number of reprints needed; neither is there the way to distribute them.

Hawkes moved that the Council endorse in principle that the chairman of the Education Committee carry out this project for the publication of a continuous series of educational papers sponsored by the Geochemical Society. The motion was seconded by Silverman and approved.

The usefulness and quality of this educational series were discussed by Fyfe, Lowe, Burnham, and Thompson. Hawkes moved that the Treasurer be authorized to make available up to \$2500.00 for the publication of the four papers after they have been brought up to date within the year of 1966. The motion was seconded by Burnham and passed.

Burnham commented that distribution of these papers can be done by AGI, and can be advertised in GeoTimes. Wayne also commented that the Treasurer as well as the staff of The Geochemical News can be responsible for distributing the reprints of these four papers or subsequent papers. The choice was left for the chairman of the Education Committee. The name of the series and the format of the cover will be investigated by Kurt Lowe and his committee subject to approval by the Executive Committee. Council expressed its appreciation to Kurt Lowe and gave assurance that this will be a continuous effort.

Nominating Committee: The Council voted on the names provided by the Nominating Committee and the choice was:

Vice President:	E. F. Osborn
Councilors:	W. S. Broecker
	Karl K. Turekian

It was discovered later that W. S. Broecker will not accept the nomination. G. Ernst was suggested to replace Broecker.

Adams called attention to the Council that the Executive Editor for Geochimica et Cosmochimica Acta should also be up for election. An ad hoc nominating committee was appointed by President Julian Goldsmith to consist of John Adams, Reynolds Denning, Julian Goldsmith, and E. C. T. Chao. It will nominate a candidate for the Executive Editor as soon as possible.

Liaison's Committee on Public Health Problem: John Adams reported that many of the subjects of interest involving geochemical data to the public health people are highly controversial. Effect of radioactive fallout and the high Pb content in the atmosphere are examples. The operational aspect of the committee relates to sponsoring symposia dealing with such controversial subjects. The subject was discussed and the serious nature of involving the Society's sponsorship in such controversial arguments was recognized. The role, and the cautious steps that the Liaison's Committee should take, was left to be resolved by the chairman of the Liaison's Committee and the Executive Committee.

Journal Translations Editor: Priestley Toulmin has succeeded Dave Stewart as Editor for Journal Translation, beginning with the preparation of the 1965 volume of Geochemistry International.

Appointments: Appointments recommended by the Council were:

Program Committee:

Chairman, Paul Damon; Peter Wyllie; G. Ernst

Standards Committee:

Chairman, F. Flanagan; Dick Robie

Nominating Committee:

Chairman, George Wetherill; Denis Shaw

AGI Representative: Ray Siever

The Teller's Committee will be appointed by the President; the Auditing Committee will be recommended by the Treasurer. Otherwise, committees are to remain as they were in 1965.

E. C. T. Chao, Secretary

DUES

The treasurer urgently requests that members pay their dues.

Perhaps the small cost of membership in the Society gives the impression that this is not a very important bill, so that the payment of it can be postponed to a more convenient time. From the Society's point of view this is not true. Moreover, in a discouragingly large number of instances it seems that the more convenient time never arrives. Please!

It seems worth commenting that a member of the Society receives far more for his dues than a subscription to The Geochemical News. One of the more significant benefits is the reduction in the subscription price of Geochimica et Cosmochimica Acta from \$21.50 to \$10.00. Another important benefit is the additional space for geochemical topics in the program for the Annual Meetings of the GSA and associated societies which the existence and size of The Geochemical Society provides. At the 1965 Annual Meetings there were 14 sessions for contributed papers in the fields of economic geology, mineralogy, petrology, vulcanology, and geochemistry. In all of these sessions (as well as in some other categories) at least some of the papers were of a geochemical nature. Out of this total of 14 sessions four were entitled "Geochemistry" or "Organic Geochemistry".

In addition to these fairly direct advantages there are others that are less obvious. For instance, there are probably more papers given by title at the Annual Meetings than would otherwise be the case. This means that it is easier for a geochemist to get his name into print, even if only on an abstract, and thus to become well known. The existence of the Society must surely have made the study of geochemical problems better known, and in this way increased the demand and employment opportunities for geochemists. Such influences as these may lead to promotions and salary increases in the long term.

The educational series of papers to be published in The Journal of Geological Education should lead to further benefits to the profession. These are intended to increase the knowledge of geochemistry among geologists and others, and to be of aid in presenting geochemical topics at an elementary or introductory level. Thus, a beginning student will have a better opportunity to learn about the field, and hopefully more good students will acquire an interest in geochemistry and geology. An increased awareness of geochemistry among former elementary geology students should help the discipline.

BOOK REVIEWS

1/

SELENIUM: GEOBOTANY, BIOCHEMISTRY, TOXICITY, AND NUTRITION, by Irene Rosenfeld and Orville A. Beath. 411 pages, 49 figures, 68 tables. Academic Press, New York and London, 1964. \$15.00.

In 1949 Trelease and Beath wrote a book called SELENIUM: ITS GEOLOGICAL OCCURRENCE AND ITS BIOLOGICAL EFFECTS IN RELATION TO BOTANY, CHEMISTRY, AGRICULTURE, NUTRITION, AND MEDICINE. This book provided an excellent critical review of the voluminous literature prior to 1949 on selenium in sedimentary rocks, soils, and natural waters, on its uptake by plants and on its toxic effect on animals.

The present work, by Rosenfeld and Beath, is in part a condensation of the 1949 volume but with additional material contained in several new chapters.

One of these new chapters, "Selenium in Nutrition," summarizes the role of selenium as a possibly essential element in the diet. The title of this chapter could, incidentally, be a suitable title for the book.

In another new chapter, "Biochemistry of Selenium," the discussion is devoted to "biological systems dealing with (a) selenium and sulfur antagonisms, (b) effects of selenium compounds on cell growth and cell division, (c) reduction of selenium compounds, (d) biological selenium activation and transmethylation, (e) effects of selenium on enzymes, and (f) biosynthesis of selenocompounds."

In general the clarity and precision of the 1949 volume have suffered by the condensation, and the many diverse fields of study are not all well presented. The chapter, "Geological Distribution of Selenium," for example, is poorly written and contains technical errors.

The authors have, however, made an excellent contribution to the literature of selenium especially in regard to nutrition and biochemistry, and they have given the reader extensive bibliographies for individual research.

Hubert Lakin

1/ Approved by the Director, U. S. Geological Survey

INTRODUCTORY GEOLOGY, A PROGRAMMED TEXT, by Dennis P. Cox and Helen R. Cox. 268 pages. W. H. Freeman & Company, San Francisco, 1965. \$2.75.

This is a significant book in that it provides elementary geology with its first programmed text. The material is organized in a way that parallels the coverage used in most elementary courses in physical geology. The text coverage is quite complete and the repetition of questions related to the more basic ideas, such as relative dating, helps to get these principles across to the student.

Many instructors should find the book useful. Its use in conjunction with a modern text in elementary geology will free them from the boring repetition of definitions and will at the same time get rid of much of the confusion in the laboratory regarding strike and dip or contours, to cite only two examples. The instructor could then use his time in lecture for a discussion of the basic problems and concepts which make geology so interesting to both the scientist and the liberal arts student.

Donald F. Eschman

REPORT AVAILABLE

Recently the Air Force Cambridge Research Laboratories printed a chart and report compiled as a guide and visual aid to students and professional investigators of crystallography. Both the report and wall size (22 x 34 inches) copies of the chart in color are currently being distributed without charge as a service to those who may find them of use in teaching, studying, or research.

A scheme for presenting and interpreting the 230 space groups has been developed. The scheme is based on the addition of symmetry operations to translation operations in conformance with the symmetry requirements of the seven crystal systems. The stepwise development from crystal systems to space groups is traced in the report and centerfold chart. Complete notes on deciphering the space group symbols and for correlating the Schoenflies and the International systems of abbreviations are included as appendices.

The report, "Guide to the Interpretation of Space Group Symbols" AFCRL-65-279, (1965), Physical Science Research Papers, No. 98, is available from: Clearinghouse for Federal Scientific and Technical Information (CFSTI), Sills Building, 5285 Port Royal Road, Springfield, Virginia 22151.

ION EXCHANGE COLUMN

News from the National Academy of Sciences and
National Research Council

Academy Survey of U.S. Chemistry: A committee of the National Academy of Sciences--National Research Council has recommended a substantial broadening in the base of support for chemistry from both private and public sources. After extensive study the Committee concluded that, when measured against the opportunities for significant advances in understanding and the increasing evidence of chemistry's vital contribution to the health, wealth, and safety of the nation, basic chemical research is at present severely undersupported.

Chemistry has outgrown its present resources of private and public support, the report asserts, with the result that many talented research scientists--and especially younger investigators in universities--do not have access to the funds needed to pursue their ideas effectively.

The survey shows that Federal agencies are now granting a smaller percentage--and a decreasing percentage--of requests for funds from chemists than from scientists in other fields, because of budgetary restrictions, even though there is impressive evidence of the high quality of research proposals received in chemistry.

Discussing this trend, which works particularly against young scientists during the formative stages of their careers, the Committee states:

"We cannot evaluate what is lost when a research project is not begun, or when a career is dwarfed; but we suspect that America is losing much in originality, in discovery, and in the training of students."

"The thorough analysis of federal support for chemical research in institutions of higher learning indicates that it is not as well supported as is research in other natural sciences, if qualified requests for funds and the training of scientific personnel are proper yardsticks.

"The explanation may be that chemistry, while essential to the missions of virtually all federal agencies, is not at the focal point of the mission of any one of them. Thus, agency support for chemistry per se is insufficient relative to the opportunities and needs described in this report.

"In view of the present low level of funding, we consider the recommendations of the report concerning future funding of chemical research as well justified and conservative."

Pesticides: A public symposium on Scientific Aspects of Pest Control will be held here January 31-February 3, 1966, to review advances in pest control and in the understanding of its consequences for man and nature. The symposium is intended to provide for an exchange of informed views on problems encountered in balancing, on the one hand, the need to protect the nation's supply of food and fiber from the ravages of pests and, on the other, the maintenance of necessary safeguards to human health and the preservation of a viable environment for plant and animal life.

Those desiring further information on the program may write the Agricultural Board, National Academy of Sciences--National Research Council, 2101 Constitution Avenue, Washington, D. C. 20418.

Symposium on Time and Stratigraphic Problems in the Evolution of Man (Oct. 16, 1965):* William T. Pecora, Director of the U.S. Geological Survey, declared that effective means of obtaining world-wide correlations based on various modern dating techniques would be of the highest importance to geophysics. He declared that experimental dating and geochemistry, tied in with geology, must be done as teamwork or more problems would be created than are solved.

Fission-track dating methods were described by Dr. R. L. Fleischer, who said that the existence of natural radiation-damage tracks in solids is one of the oldest methods of dating. He described laboratory experimentation with such objects as volcanic pumice, estimated to be about two million years old; tektites found near the sites of Java man which are thought to have landed on the earth about 700,000 years ago; and an obsidian knife thought to be about 4,000 years old.

*News Report, NAS and NRC, vol. xv, No. 8, Oct., 1965.

Symposium on Ocean Engineering (Oct. 21, 1965): Invited papers by leading ocean engineers examined the present state of development and promise of new technologies looking toward manned exploration of the depths of the seas and effective utilization of the rich oceanic resources of food and minerals. (A related item appeared in the Bulletin of the Houston Geol. Soc., No. 8, No. 3, 1965, as follows: A race to understand and utilize the huge resources in the oceans is under way. In this race for knowledge of the earth's inner space, like that for the outer space just a few years ago, the Russians are ahead of us. Reports in the U.S. Congressional record indicate that the Soviet Union as of today is the World Leader in Oceanography. At the close of World War II Russians converted many of their ships into oceanographic vessels and built new ones).

Martian Exploration: The recommended program of Martian exploration is designed to test the hypothesis--to date based only on a single case: the earth--that the origin of living organization is a probable event in the evolution of all planetary environments whose histories resemble ours. Its aims, in summary form, are:

- (1) determination of the physical and chemical conditions of the Martian surface as a potential environment for life.
- (2) determination of whether or not life is or has been present on Mars.
- (3) characterization of that life, if present, and
- (4) investigation of the pattern of chemical evolution, in the absence of life.

News From Universities

University of California: A three-day conference on exobiology, co-sponsored by the National Aeronautics and Space Administration and University of California Extension, will be held April 4-6, 1966, at NASA Ames Research Center, Moffett Field, California.

The meeting is designed to further the exchange of current data and theory on the origin and evolution of life and the search for extraterrestrial life. It is intended for scientists, engineers, and researchers engaged directly or indirectly in studies on exobiology, the origin of life, and the problems of life detection.

The program has been formulated to provide the chemical, physical, and biological background for study of the origin of life, and to cover such topics as the scientific basis for belief in the existence of extraterrestrial life, the major problems involved in the search for it, and the instrumentation for life detection missions.

A brochure giving full program details may be obtained from Letters and Science Extension, University of California, 2223 Fulton Street, Berkeley, California 94720.

Carnegie Institute of Technology: A new graduate program in Earth and Astronomical Sciences started in the College of Engineering and Science at Carnegie Tech last fall.

Masters and doctoral programs will be initiated in the earth sciences and will include geology, geophysics, geochemistry, and oceanography. Research activities in those fields will be developed.

Press Releases At The 1965 GSA Meeting

The oldest known structurally preserved fossils, found primarily in iron formations, are so small that they can be seen only with an electron microscope. These rodlike and spherical forms have been found in Australian and Canadian rocks ranging in age from 1 billion to 2 billion years. But Professor Barghoorn and J. W. Schopf of Harvard appeared at the Geological Society of America meeting with electron micrographs that revealed some rodlike organic structures in some South African rocks 3 billion years old.

A young, active oceanic ridge has been discovered southwest of Vancouver Island. The ocean floor in this area is spreading at the rate of more than half an inch per year, says F. J. Vine of Cambridge University.

Five carbonate minerals are being formed today by dripping water in Carlsbad Caverns, New Mexico. They are calcite, aragonite, hydromagnesite, dolomite, and huntite. (They were described at the recent meeting of the Geological Society of America in Kansas City by John Thrailkill, Department of Geology, University of Kentucky, and Paul S. Boyer of the Department of Geology, Rice University.)

"Giant dessication stripes" similar to mud cracks have been found in Nevada, so says James T. Neal of Terrestrial Sciences Laboratory, Air Force Cambridge Research Laboratories. These stripes range in length from 40 to 400 miles.

A special microscope for remote operation on soft-landing lunar and planetary spacecraft will permit examination, by television, of lunar and planetary rock particles. Its operation has been described by Alden A. Loomis of Pasadena, California.

Fumaroles near recent lava flows at Santiaguito, Guatemala, reach a temperature as high as 1043°F--the hottest known in Central America. (Ask Richard E. Stoiber of Dartmouth College, who reported on them at the Geological Society of America meeting.)

Rock types on the moon could be identified by a robot mass spectrometer on the moon's surface, according to Werner Deuser of State College, Pennsylvania.

The Antarctic ice cap may have been in existence for as long as 11 million years, according to geologists of the University of Minnesota.

Statistically, we can expect an earth-comet collision about once in every ten million years, say R. H. Nafziger and F. Dacheille of Pennsylvania State University. Some of the collisions could form basins of large size or change somewhat the length of the day.

Ice floes from ice-age glaciers deposited pebbles in deep-sea sediments. Distribution of these pebbles has been used to date periods of cold climate and determine rates of sedimentation in the deep sea. This project of the Lamont Geological Observatory was reported on at the Geological Society of America meeting by J. R. Conolly and Maurice Ewing.

Widespread evidence, in rocks half a billion years old, of muds, sand, and pebbles deposited by strong tides suggests that tides may have been greater in the past than now. These rocks may indicate that the moon was closer to the earth, says Alonzo D. Jacka of Texas Technological College, Lubbock.

Southeastern United States had a desert climate 20 million years ago, according to David Alt of the University of Montana. He believes the dry climate is due to an upwelling of cold water off the east coast.

Large avalanches and landslides are lubricated with layers of compressed air, says Ronald Shreve of UCLA. This explains the low friction that allows large volumes of rock to move at high speeds down gentle slopes and even uphill.

Hydrous iron oxides are being deposited today in the Red Sea, say geologists from the U. S. Geological Survey and Woods Hole Oceanographic Institution. They are produced by chemical reactions between normal Red Sea water and hot brines coming from underlying rocks in rift valley depressions.

News from 1965 AAAS Meetings*

Remote Sensing of Environment (Arranged by James P. Latham, Florida Atlantic University): Both earth sciences and space sciences are benefiting from rapid advances in the application of remote sensors to the analysis of the geographic and geological aspects of planetary surfaces. The uses of aerial photography in the visual, near-ultraviolet, and near-infrared ranges are being refined and supplemented with imagery secured by radar, passive microwave, and infrared scanners. Satellites and other spacecraft now supplement aircraft and other platforms for the accumulation of data.

Primary Productivity and Mineral Cycling in Natural Ecosystems (Arranged by Stanley P. Gessel, University of Washington): Although considerable progress has been made in securing quantitative information on productivity of natural ecosystems and cycling of essential elements within the systems, the problems involved are thorny. Data on total production in forest ecosystems are most difficult to secure; vigorous efforts to develop mathematical approaches and models for productivity estimation are therefore under way. Mineral cycling research techniques must be geared to the ecosystems under study, with instrumentation to detect the movement of elements and to monitor those environmental factors which determine the state of the ecosystem.

Recent Developments in the Study of Energy Transfer (Arranged by George C. Pimentel, University of California, Berkeley, and Harmon W. Brown, Varian Associates, Palo Alto): Energy transfer within and between molecules is currently under active and fruitful study by a wide variety of techniques. With lasers, nuclear magnetic resonance, electron spin resonance, infrared fluorescence, electronic fluorescence, solid-state (exciton) spectra, acoustic measurements, time-resolved spectroscopy, and flash photolysis, the chemist is learning in intimate detail the course of chemical changes. In the following papers, leading investigators in this frontier area will describe the range of attacks they are using.

* From AAAS Bulletin, Nov., 1965

Suggestions for Research

Marine Geochemistry: Dr. Ronald K. Sorem and Donald W. Gunn, of Washington State University, suggested at the GSA meeting that careful sampling near presently-known undersea volcanoes may reveal modern counterparts of the ancient Washington deposits of manganese nodules.

Mineralogy: Dr. Mason in his Geochemical Society presidential address stressed the need for more research to establish the conditions under which rare minerals in meteorites are formed. This work would help to elucidate the physicochemical conditions in planetary space.

An Ignored Work of F. W. Clarke

This year is the 42nd anniversary of the 5th edition of the celebrated "Data of Geochemistry", and of another important but forgotten work devoted to "The evolution and disintegration of matter". (U.S. Geol. Survey, Prof. Paper 132-D, p.51-86). We re-discovered this paper entirely by chance, and a check in our available literature has shown that it has been overlooked by all standard books, except that of Fersman.

It is clear that Clarke had still in mind in 1924 his paper of 1889 on "The relative abundance of the chemical elements". The impression, gained from his subsequent work (in the "Data" theoretical views on genesis of elements are quite entirely lacking), that he had discarded these early ideas, is therefore inaccurate. In fact, this paper may be considered as an introductory chapter to the regretted TREATISE OF GEOCHEMISTRY.

It will be very instructive for all geochemists to examine the numerous questions that Clarke raises in this 1924 paper, and to consider the answers that time has given to them.

J. Jedwab,
Université Libre de Bruxelles

PERSONALS

To improve the service to the membership and to increase interest in the News it is intended to start a "PERSONALS" column. All members who wish to report promotions, changes of employment, interesting personal experiences (especially of a geochemical nature), misfortunes (or recoveries from same), etc. are requested to send a brief note of these to the Editor of the News. Changes of address will also be reported, but in a separate section, so these need not be contributed to this column.

The first few "personals" follow:

WILLIAM T. PECORA was elected to the National Academy of Sciences last April and was recently appointed as the new Director of the U. S. Geological Survey. Dr. Pecora has been a research scientist with the Survey since 1939. He was also elected a Fellow in the American Academy of Arts and Sciences in 1965.

SIR EDWARD BULLARD of the University of Cambridge, England, who developed techniques for measuring the outward flow through the ocean floor of the earth's interior heat, received the National Academy of Science's Alexander Agassiz Medal, given for original contribution in oceanography. He was recognized for significant investigations of the earth from its surface to its core.

JOSEPH H. MACKIN who holds the William Stamps Farish Chair of Geology at the University of Texas, assumed the chairmanship of the Division of Earth Sciences on July 1. Professor Mackin was named Chairman-designate of the Division by President Seitz on February 18, 1964.

WILLIAM W. RUBEY, Department of Geology and Institute of Geophysics, University of California, Los Angeles was elected a councilor of the National Academy of Sciences last April. He will serve a three year term from July 1, 1965.

JAMES M. HARRISON, Deputy to Deputy Minister of Mines and Technical Surveys, Ottawa, Canada, and former Director, Geological Survey of Canada, was elected a foreign associate of the National Academy of Sciences in 1965. Dr. Harrison has made notable contributions to the understanding of the geology of the Canadian shield, particularly in working out the relation of ore deposits to complex Precambrian structures.

RESEARCH IN PROGRESS

As an additional service it is intended to publish a list, in several parts, and periodically updated as notification is received, of research projects in progress by members of the Society. Members who wish to make use of this service are requested to submit descriptive titles of their studies (without abstracts) to the Editor of The Geochemical News. Depending upon response, it may not be possible to publish all titles received in which case those which seem to be of less general interest will not be published.

Research in Progress:

M. L. KEITH, N. SUHR, and E. F. Cruft, Penn. State Univ. Geochemistry of stream sediment in an effort to locate ore bodies.

M. A. Rogers, Univ. of Minn. Geochemistry of carbohydrates of Devonian dark shales.

F. M. SWAIN, Univ. of Minn. Relationship of residual hydrocarbons, carbohydrates, amino acids and other organic substances to stratigraphic environments (Paleozoic).

EUGENE G. WILLIAMS, RUSSELL R. DUTCHER, and DAVID REIDENOVER, Penn. State Univ. Quantitative relationships between paleotopography and the geochemistry and petrography of coals.

Research just completed:

JAMES L. CARTER, Rice Univ. The origin of olivine bombs and related inclusions in basalts.

ROBERT C. HARRISS, Rice Univ. Geochemical and mineralogical studies on the weathering of granitic rocks.

STEPHEN H. STOW, Rice Univ. A radiometric and chemical study of the binary Fitzwilliam granite of New Hampshire.

CALENDAR

Jan.

- 16-21 Amer. Chem. Soc. Winter Meeting, Phoenix, Ariz.
- 24-26 Conf. Economic Geology, Amherst, Mass.
(H. C. Durgin, Draper Hall, Univ. Mass., Amherst, 01003).
- 31-
Feb. 3 Symposium on Scientific Aspects of Pest Control, Washington, D. C.
(Agricultural Board, National Acad. of Sci., Natl. Res. Council,
2101 Constitution Ave., Washington, D. C.).

Feb.

- 3-4 Amer. Chem. Soc., 1st Middle Atlantic Regional Meeting
Philadelphia, Pa. (Philadelphia Section Office ACS, 212 Harrison
Lab., 34th and Spruce Sts., Philadelphia, Pa. 19104).
- 10-12 Geol. Soc. of America, NE Sec., Ann. Mtg., Philadelphia, Pa.
(H. A. Meyerhoff, Geol. Dept., Univ. Pa., Philadelphia, Pa. 19104).
- 21-25 Anal. Chem. & Appl. Spectroscopy, Pittsburgh, Pa. (R. E. Hein,
Mellon Inst., 4400 Fifth Ave, Pittsburgh, Pa. 15213).
- 27-
Mar. 3 Soc. Econ. Geol. and AIME, Ann. Joint Mtg., New York, N. Y.

March

- 4-5 Intl. symposium on stratiform deposits of Mississippi Valley
type, Field trip. New York, N. Y. (SEG, Unesco, IUGS & AIME).
(E. Walter, Unesco, 7 Place de Fontenoy, Paris 7^e, or
C. H. Behre, Jr. of Behre, Dolbear & Co., 11 Broadway, N. Y. 10004).
- 22-31 Amer. Chem. Soc., 151st Natl. Mtg., Pittsburgh, Pa.
- 28-30 Conf. on Great Lakes research, Grover Hermann Hall, Ill. Inst.
Tech., Chicago, Ill. (B. M. McComac, IIT Research Institute
Chicago 60616).

April

- 8-9 Geol. Soc. Amer., Cordilleran section. Ann. Mtg. Reno, Nev.
(Bates McKee, Geol. Dept., Univ. of Wash., Seattle 98105).
- 12-14 Symp. remote sensing of environment, Univ. of Mich., Ann Arbor,
Mich. (D. C. Parker, Univ. Mich., Willow Run Laboratories,
Box 618, Ann Arbor 48107).
- 13-16 Geol. Soc. Amer., SE Sec., Regional Mtg., Athens, Ga.
(R. M. Allen, Louisiana Polytechnic, Ruston, La.).
- 17-23 Symp. Computers & Operations Research in Mineral Industries
Penn. State Univ., University Park, Pa. (Conference Center,
The Penn. State Univ., Univ. Park, 16802).
- 19-22 Amer. Geophys. Union, Spring Mtg., Washington, D. C.
(Robert C. Fournier, U.S. Geol. Survey, 345 Middlefield Rd.,
Menlo Park, Calif. 94025).

April

25-27 Organic Geochem. Div. and Amer. Oil Chem. Soc., Joint Symposium, Los Angeles, Calif. (Dr. B. Nagy and D. W. E. Robinson).

May

1-5 Electrochemical Soc., Cleveland, Ohio. (The Electrochem. Soc., 30 E. 42nd St., New York, N. Y. 10017).

6-8 Inst. Lake Superior Geol., MSA & SEG tech. sessions, Field trip. Sault Ste. Marie, Mich. (abstract deadline, Mar. 1) (Dr. A. K. Snelgrove, Dept. Geol. & Geol. Engr., Mich. Tech. Univ., Houghton, Mich. 49931).

June

6-19 The American Univ. 7th Summer Conf., Stratigraphy and Structure of the Appalachians. Appl. deadline, Mar. 14 (Dr. M. F. Norton, Dept. Earth Sciences, The Amer. Univ., Washington, D. C. 20016).

20-24 Intl. clay conf. Field trips. Hebrew Univ., Jerusalem, Israel (Intl. clay conf., Geol. Survey of Israel, 30 Malkei Israel St., Jerusalem).

20-24 Intl. Conf. on Crystal growth, Boston, Mass.

July

12-21 Intl. Union of Crystallography, Moscow, USSR

Aug.

30-
Sept. 4 Intl. Mineralogical Assn. Gen. Congress, Field trips, Cambridge Univ., England (T. F. W. Barth, Oslo Univ., Oslo, Norway).

11-13 Geol. Assn. Canada & Min. Assn. Canada, Joint Mtg. Halifax, Nova Scotia; (J. P. Nowlan, P. O. 1087, Halifax).

11-16 Amer. Chem. Soc. 152nd Natl. Mtg., New York, N. Y.

Oct.

10-13 Clay Minerals Soc. Mtg., Mellon Inst., Pittsburgh, Pa. (Dr. J. Iannicelli, Huber, Ga. 31040).

Nov.

12-13 Soc. Econ. Geologists, Symposium, Stanford Univ., Palo Alto, Calif. (J. O. Kalliokoski, Geol. Dept., Princeton, Univ. Princeton, N. J.).

14-16 Geol. Soc. America, Ann. Mtg., San Francisco, Calif.

SAND-IN-THE-GEARS-OF-LEARNING

Passing comment from the corridor: "The only difference between geologists and prisoners is that prisoners don't like their work."

Definition of a geophysicist*: A geophysicist is a person who passes as an exacting expert on the basis of being able to turn out with prolific fortitude infinite strings of incomprehensible formulae calculated with micrometric precision from vague assumptions which are based upon debatable figures taken from inconclusive experiments carried out with instruments of problematic accuracy by persons of doubtful reliability and questionable mentality for the avowed purpose of annoying and confounding a hopeless chimerical group of fanatics known as geologists who are themselves the lunatic fringe surrounding the hard working mining operator.

* Quarterly News Bull. Geol. Soc. So. Africa, vol. 7.

From a student paper: A (shale) would normally rest uncomfortably on the sandstone.

Paul L. Cloke
Editor

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