



The Geochemical News

Number 62

August 1982

Meetings and Symposia

PLANETARY VOLATILES

October 9-12, 1982, at Alexandria, Minnesota. Sponsored by the Lunar and Planetary Institute, NASA. Convenors: Richard O'Connell and Robert O. Pepin. Three sessions are planned:

- 1) Initial and present volatile inventories in the earth, other planets, meteorites, and comets;
- 2) Observational evidence on the time history of volatile transfer among reservoirs;
- 3) Volatiles in planetary bodies, their mechanisms of transport, and their relation to thermal, chemical, geological, and biological evolution.

For further information write: Planetary Volatiles Conference, Lunar and Planetary Institute, 3303 NASA Road 1, Houston, TX 77058, or telephone [713] 486-2150.

GEOCHEMISTRY OF RADIONUCLIDE MIGRATION/RETARDATION

October 17, 1982, in Room 9 at the Superdome, New Orleans. Sponsored by the Geochemical Society. Convenors: Judith Moody and Thomas Wolery.

- 0830 - Role of geochemistry in high-level nuclear waste isolation. Judith B. Moody, Office of Nuclear Waste Isolation
- 0850 - Geochemical characterization of basalt-groundwater interaction for a nuclear waste repository at the Hanford site, Washington. M.J. Apted and P.E. Long, Basalt Waste Isolation Project
- 0910 - Hydrochemical site characterization activities for a potential radioactive waste repository, Paradox Basin, Utah. B.L. McCulley and L.M. Preslo, Woodland Clyde Consultants, and J.M. Sewell, Bendix Corporation
- 0930 - The origin of water in salt. O. P. Knauth, Arizona State University
- 0950 - Distribution and character of sorptive zeolites in the Yucca Mountain block, Nevada test site. D.E. Broxton, D.L. Bish, and D.T. Vaniman, Los Alamos National Laboratory
- 1010 - Discussion

- 1020 - Hydrogeochemical characterization of Precambrian crystalline rocks: methodology development and results from the Atomic Energy of Canada Ltd-NHRI Hydrogeology Research Program. D.J. Bottomley, J.D. Ross, and B.W. Graham, National Hydrology Research Institute, Canada.
- 1040 - Recent investigations of the major element, trace element, and isotopic geochemistry of deep granitic groundwaters at the Stripa test site, Sweden. D.K. Nordstrom and J. Ball, United States Geological Survey, P. Fritz, University of Waterloo, and R.J. Donahoe, Stanford University
- 1100 - Discussion
- 1105 - The use of uranium-series disequilibrium in identifying radionuclide migration in granitic plutons. M. Gascoyne, Whiteshell Nuclear Research Establishment
- 1125 - U + Th mineral assemblages and migration of U in the granitic rocks of the southern Appalachians. J.A. Speer, S.W. Becker and T.N. Solberg, Virginia Polytechnic Institute and State University
- 1145 - Contact metamorphism between quartz monzonite and limestone/argillite: a natural analog study for radionuclide migration. J.J. Papike, South Dakota School of Mines and P. Nabelek, State University of New York at Stony Brook
- 1205 - Discussion
- 1215 - Luncheon
- 1330 - Synroc: the relationship of wasteform durability to long term performance assessment. Virginia M. Oversby, Lawrence Livermore Laboratory
- 1350 - Mineralogic stability of a bentonite backfill in a bedded salt repository environment. J.L. Krumhansl, Sandia National Laboratories
- 1410 - Kinetics and compositional controls of the smectite to illite reaction. J. Hower and S.A. Altaner, University of Illinois, J.L. Aronson, Case Western Reserve University, and C.G. Whitney, United States Geological Survey
- 1430 - Discussion
- 1440 - Solubilities of actinide solids under oxic conditions. D. Rai and R.G. Strickert, Pacific Northwest Laboratory
- 1500 - Calculation of the thermodynamic behavior of actinides in model groundwaters to 200°C. R.J. Lemire and J. Paquette, Atomic Energy of Canada Ltd.
- 1520 - Discussion

- 1525 - The adsorption of uranium (VI) onto Goethite and the effect of carbonate, fluoride, and phosphate. V.S. Tripathi and G.A. Parks, Stanford University
- 1545 - The mobility of radium in groundwater. D. Langmuir, Colorado School of Mines, and A.C. Riese, Gulf Research and Development Company
- 1605 - Discussion
- 1610 - Validation of transport models using radionuclides occurring naturally in groundwater systems. F.J. Pearson, Jr., INTERA Environmental Consultants
- 1630 - Geochemical kinetics modeling: role in long-term predictions in nuclear waste isolation. T.J. Wolery, Lawrence Livermore Laboratory
- 1650 - Discussion until 1700

NINTH SYMPOSIUM ON GEOCHEMICAL CYCLES

October 17, 1982, at the Hyatt Regency Hotel, New Orleans. Sponsored by the National Science Foundation. Convenor: Bryan Gregor.

Technical Sessions, Burgundy Ballroom A

- 0900 - Organic chemistry of nitrogen in marine sediments: a stable nitrogen isotope perspective. S.A. Macko, Carnegie Institution of Washington
- 1000 - Coffee
- 1030 - Strontium isotope ratios in Late Proterozoic carbonates: evidence for a "mantle" event about 900 Ma ago. J. Veizer, University of Ottawa; W. Compston, Australian National University; N. Clauer, Université L. Pasteur (Strasbourg), and M. Schidlowski, Max-Planck institut für Chemie (Mainz)
- 1130 - Recent carbon isotope measurements on midoceanic basalts, geothermal emanations, and the sedimentary reservoir. D.J. Des Marais, Ames Research Center
- 1230 - Luncheon
- 1400 - Levels of atmospheric oxygen between 2.9 and 1.5 b.y.B.P. H.D. Holland, Harvard University
- 1500 - The global carbonate-silicate cycle through time, and its relation to atmospheric carbon dioxide levels. R.A. Berner, Yale University; R.M. Garrels, University of South Florida, and A.C. Lasaga, Pennsylvania State University
- 1600 - Diagenesis and the sedimentary cycle. F.T. Mackenzie, University of Hawaii

1700 - The other side of cycling: where erosion occurred. W.W. Hay, Joint Oceanographic Institutions, Incorporated

Speakers' Reception, Rampart Room

1800 - Refreshments

GEOCHEMICAL SOCIETY AWARDS CEREMONY AND PRESIDENTIAL ADDRESS

October 19, 1982, Ballroom D, Hyatt Regency Hotel, New Orleans, 10:30 a.m.

Awards

Best Paper, Organic Geochemistry:

B.R. Simoneit, S. Brenner, K.E. Peters, and I.R. Kaplan - Thermal alteration of Cretaceous black shale by diabase intrusions in the eastern Atlantic: effects on bitumen and kerogen. *Geochimica et Cosmochimica Acta* 45, 1581-1602, (1981)

Clarke Medal:

P. Jonathan Patchett, Max-Planck Institut für Chemie, Postfach 3060, D-6500 Mainz, Federal German Republic

Treibs Award:

John M. Hunt, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543

Goldschmidt Medal*:

Konrad B. Krauskopf, Department of Geology, Stanford University, Stanford, California 94305

Presidential Address

The Past is the Key to the Future. Bruce R. Doe, MS 981, United States Geological Survey, Reston, Virginia 22092

A new major frontier of geological research, which was initiated in the 1970's, involves predicting the future through study of the present and past, rather than trying to understand the past, often using what one knows about the present. Like most scientific frontiers, this one began from practical considerations--environmental concerns. The lack of formal recognition of this frontier results from fragmentation among many Federal agencies and highly-focused mission-oriented programs (e.g. earthquake predictions, CO₂, nuclear energy safety, etc.). Most programs aim to predict only the next 50-100 years,

*With an Honorarium provided by Lester W. Strock and family

but much longer periods of the past need to be studied to do this. Nuclear waste storage has sometimes been considered in terms of the next million years, a period of time permitting significant and broad geologic changes. Decreasing public interest in environmental concerns relegates many questions from the realm of applied research back to that of basic research. Most of these questions are so fascinating, however, that the frontier is still worth pursuing. Such questions include whether a phenomenon will or will not happen and the rates at which it can develop (e.g. how fast do rifts form, how fast can a caldera event begin, and how quickly can a glacial maximum arrive?). Common elements of all studies include the historic record, trends in the Quaternary, analogues in various periods of the geologic time scale, and allowances for phenomena never experienced before. Other examples of studies include the Cretaceous as a period of climatic extreme, an especially interesting time period; establishing paleocloudiness, a particularly challenging research area; acid rain as a possible new phenomenon. Geochemistry has much to contribute to this new frontier science.

Two-Year Term for Geochemical Society President

Many societies have terms for presidents that extend beyond one year. The terms for presidents of the American Geophysical Union, U.S. National Committee on Geochemistry, and Meteoritical Society are all two years. George Wetherill has commented that it was difficult to work with the Geochemical Society when he was president of the International Association of Geochemistry and Cosmochemistry (a four-year term) because at one year the terms of the Geochemical Society presidents were insufficient to accomplish anything in this increasingly complex world. George also said that he found when he was president of the Geochemical Society that even if one develops a clear idea while vice president of what one wants to do as president, accomplishing that in one year is very difficult. This view is shared by Bruce Doe, the current president, whose term is being squeezed even more than he anticipated by the pressure of events outside the Society. The experience of John Winter (past chairman of the Organic Geochemistry Division) has been similar to Wetherill's and Doe's.

In view of these considerations, the Council at its meeting of 31 May 1981 voted in favor of the following Motion:

Beginning with terms starting at the Annual Meeting of the Society in 1983 in conjunction with the Geological Society of America's annual meeting, the terms of President and Vice President shall be for two years each. The President shall give a Presidential Address at the end of the term in the second year.

It should be noted that the starting date is in 1983 so the Motion does not apply to the current president or vice president. As passage of the Motion involves a change in the Constitution of the Society, it must be ratified by the membership. Members are therefore requested to vote on the issue, using the ballot form on page 9. Ballots must be received at the address indicated on the form before 1 March 1983.

Councilors from outside North America

In the last issue of The Geochemical News (No. 61, March, 1982), we reported that councilors from outside North America are being provided a round-trip airplane ticket once a year to attend a council meeting. They have been urged to present talks to interested organizations before and after the council meeting. Such organizations must provide travel expenses from the site of the council meeting, accommodation and board, and an honorarium.

Titles of talks by Werner Schreyer were given in No. 61 of The Geochemical News. He will visit the Geophysical Laboratory to give a talk on the evening of October 12; will visit the U.S. Geological Survey on October 14, and will give a talk at the University of Chicago on October 15. He reports he has been contacted by more institutions than he can accommodate this year so is already making plans for 1983!

Professor Y. Kolodny will also attend the next council meeting (tentatively scheduled for October 17), and we now have the titles of talks that he is prepared to give around that date. They are: 1) Geochemistry and origin of phosphorites; 2) Oxygen isotopes in phosphates - recent use and prospects; 3) Combustion metamorphism and the "Mottled Zone" in Israel; 4) Geochemistry of cherts - deep sea and shallow sea; 5) Lake Lisan: the Pleistocene precursor of the Dead Sea. If interested please write to Prof. Kolodny at the Department of Geology, Hebrew University, Jerusalem, Israel, and send a copy of correspondence to Prof. H.P. Taylor (who is coordinating Prof. Kolodny's visit) at the Division of Geological/Planetary Sciences, California Institute of Technology, Pasadena, CA 91125. (Tel. (213) 356-3868)

Professors Schreyer and Kolodny have both also submitted abstracts to the GSA annual meeting in New Orleans. Prof. Matsuo has informed us that he unfortunately will not be able to attend a council meeting this year.

World Data Base for Igneous Petrology

International Geological Correlation Program Project 163, whose assignment is to design and assist in the development of a world data base for igneous petrology, held its 1981 meeting at Magma House, Volcano National Park, Hawaii, during 19-22 December 1981, with members from Brazil, India, Italy, Japan, Portugal, Spain, the United Kingdom, and the United States in attendance. Technical sessions included a symposium on applications of large electronic bases to common petrological problems and two seminars, one on long-range plans for the structure and management of the base being developed by the Project, the other on data-capture experience within the Project. At the business meeting, summaries of national group activities were presented by O.A.S. Santos of Brazil, K.V. Subbarao of India, R. Cristofolini of Italy, O. Wadatsumi of Japan, J. Brandle of Spain, M. Le Bas of the United Kingdom, and F. Chayes of the United States. There was extensive opportunity for informal discussion, both at unprogrammed evening sessions and during field excursions led by F. Mutschler, who also handled all local arrangements. The last excursion, to the surprise of most, involved attendance at the very pleasant staff Christmas party of the Volcano Observatory. Further information on the results of this meeting

can be obtained from Dr. Felix Chayes, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D.C.

Stable Isotopes in the Study of Clastic Sediments

A growing number of workers are applying stable isotope analyses in their studies of clastic sediments or economic deposits associated with these sedimentary rocks. A recent research conference held by SEPM covered the broader field of stable isotopes in sedimentological research for a small number of geochemists. It would be appropriate and timely to sponsor a symposium at the upcoming Geological Society of America meeting to be held in Indianapolis (1983) for the larger geological community. Anyone interested should contact Dr. Nelson Shaffer, Indiana Geological Survey, 611 North Walnut Grove, Bloomington, Indiana 47405. (Tel. (812) 335-2687.)

Obituary

Lester W. Strock, 1906-1982

Lester Strock was one of those men whom chance leads to eminence in unforeseen careers. By training and inclination a crystal chemist, Strock went in 1933 to Göttingen for postgraduate studies with V.M. Goldschmidt, only to find his famous mentor converted to geochemistry, which at that time was largely concerned with the terrestrial abundances and distribution of the elements. Determination of the major rock-forming elements had long been done satisfactorily by the classic "wet" technique of silicate analysis, but adequate methods for minor and trace elements had still to be developed. A promising line, already being followed up in Göttingen by Claus Peters, was carbon-arc emission spectroscopy. This semi-quantitative technique served Goldschmidt and Peters in their early work on elements such as germanium and gallium whose variance often reached beyond the wide precision limits of the method. But for general application to trace-element analysis, and for the realization of its potential for assay work, the emission spectroscope was not precise enough.



Strock was soon caught up in the new enthusiasm for geochemistry, and he rapidly took the lead in the effort to turn the emission spectroscope into a refined quantitative analytical instrument. His principal contributions were the so-called stepped filter (a device which achieved the necessary improvement in calibration) and the addition of powdered carbon to ensure uniform and complete burning of the sample. These and other improvements brought by Strock to carbon-arc spectroscopy made it the indispen-

sable analytical base for all subsequent work by Goldschmidt and his collaborators on rare and trace element distributions both in Gottingen and, later on, in Oslo.

After brief stays in London (where he wrote a manual on Carlson arc cathode layer spectroscopy for Hilger, the British instrument maker) and in the United States, Strock rejoined Goldschmidt in Oslo where he had meantime settled so as to avoid the Nazi pogrom against Jews. There, at the Geological Museum, Strock arranged the laboratory which would continue to serve Goldschmidt until, plagued by ill health and further threats of Nazi persecution, he left Norway via Sweden for England in 1942. Strock returned in 1938 to the United States, where in a small laboratory in Saratoga Springs, New York, he turned his talent to the search for strategic metals, and eventually to the assaying of beryllium for the Manhattan project. At the same time he produced carbon electrodes commercially, an activity which at the end of the war was organized as Saratoga Laboratories (later Strock Laboratories, Inc.). In 1952 he joined the Sylvania Electric Company to study lattice defects and trace elements in tungsten filaments: a return to his first love, crystal chemistry. This work later brought him to Danvers, Massachusetts, within easy reach of Harvard and MIT, at both of which he held guest appointments for a time. After retiring from Sylvania he remained in Massachusetts until 1978, then returned to his old home of Saratoga Springs.

Lester Strock seems to have loved science for its own sake, staying aloof from the lures of self-aggrandizement and monetary wealth (he died a man of comfortable but moderate estate). He was generous in acknowledging the part played by others in the development of his art, and from his modest resources he made handsome gifts to the two sciences he loved best, spectroscopy and geochemistry. We remember him each year with the presentation of the Strock Honorarium which accompanies the medal commemorating his old collaborator and friend, Victor Goldschmidt.

Elections and Assignments

NEW OFFICERS

Councilors: A.T. Anderson and J. Holloway

Vice President: H.L. Barnes

Organic Geochemistry Division Chairman: J.E. Zumberge

Organic Geochemistry Division Secretary: Cindy Lee

NEW COMMITTEE CHAIRMEN

Goldschmidt Award Committee: P. Busek

Clarke Award Committee: K. Muehlenbachs

Nominations Committee: M. Goldhaber

B A L L O T

Beginning with terms starting at the Annual Meeting of the Society in 1983 in conjunction with the Geological Society of American's annual meeting, the terms of President and Vice President shall be for two years each. The President shall give a Presidential Address at the end of the term in the second year.

Check One

F O R

A G A I N S T

Send Ballots to Dr. Taro Takahashi, Lamont-Doherty Geological Observatory, Palisades, New York 10964, in time to arrive before 1 March 1983. Be sure to have your name on the outside of the envelope so that membership can be verified before Ballots are opened.

Printed and distributed for the Geochemical Society by the Department of Geological Sciences, Wright State University, Dayton, Ohio 45435.