The Geochemical News

NUMBER 36 APRIL 1963

SEMINAR ON GEOCHEMICAL PROSPECTING

Under sponsorship of the United Nations Economic Commission for Asia and the Far East (ECAFE), a seminar on Geochemical Prospecting Methods and Techniques will be held this coming August in Bangkok, Thailand. The seminar was proposed by the Subcommittee on Mineral Resources Development, one of the standing technical bodies of ECAFE.

At its fourth session held in Tokyo in April/May 1960, the Subcommittee felt that geochemical prospecting had assumed increasing importance in the search for mineral deposits in Asian countries, particularly those located in south and southeast Asia where normal prospecting methods had been hampered by deep rock weathering, thick soils, and jungle conditions. They stressed the climatic factors in geochemical prospecting and noted that most of the established methods have not been adequately tested under tropical conditions. In the belief that an exchange of views on geochemical prospecting techniques and a critical examination of methods applicable to tropical and semi-tropical conditions would greatly assist the countries of this area, the Subcommittee recommended the organization of this seminar.

Proposed Agenda

5 August, Monday — Opening of the Seminar (opening addresses, organization of the seminar, etc.)

Introductory lectures

a) Geochemics of the ore districts of the ECAFE region
b) Geochemical principles of weathering processes in tropical areas

6 August, Tuesday — General discussions of

a) General principles, with particular reference to problems involved in geochemical prospecting in tropical areas
b) Laboratory equipment and methods
c) Field techniques

7 August, Wednesday — General discussions (continued) on

d) Interpretation of geochemical data
e) Use of geochemical methods in mineral reconnaissance and detailed prospecting
f) Integration of geochemical prospecting with other methods

8 August, Thursday — Prospecting for specific mineral deposits

a) Prospecting for lead and zinc
b) Prospecting for copper

9 August, Friday	Prospecting for specific mineral deposits (continued) c) Prospecting for niobium/tantalium and similar deposits d) Prospecting for tungsten
10 August, Saturday	Prospecting for specific mineral deposits (continued) e) Prospecting for tin f) Prospecting for uranium
12 August, Monday	Prospecting for specific mineral deposits (continued) g) Prospecting for beryllium, lithium and other minerals in pegmatitic veins General discussions on miscellaneous other metals
13 August, Tuesday	Evaluation of the results of the seminar
14 August, Wednesday	Adoption of the report of the seminar

The members of ECAFE include most governments of Asia; namely, Afghanistan, Burma, Cambodia, Ceylon, China (Taiwan), Federation of Malaya, India, Indonesia, Iran, Japan, Korea (Republic of), Laos, Nepal. Pakistan, the Philippines, the Peoples Republic of Mongolia, Thailand, and Viet Nam (the Republic of). In addition, governments of Hong Kong, Singapore, North Borneo, Sarawak, and Brunei are associate members. The governments of Australia, France, New Zealand, the Netherlands, USA, UK, and USSR are also members of the Commission. All members of the United Nations as well as the Federal Republic of Germany may also send representatives to the meetings.

Dr. C. Y. Li, Deputy Chief of the Industries Division and Chief of the Mineral Resources Development Section of ECAFE, has provided the above information and wishes to inform members of The Geochemical Society that their views and suggestions on organization of the seminar will be most welcome (Dr. C.K. Li, United Nations Economic Commission for Asia and the Far East, Sala Santitham, Bangkok, Thailand).

ORGANIC GEOCHEMISTRY GROUP

Minutes of Annual Meeting

The annual business meeting of the Group was held at 1 p.m., November 11, 1962, in the Shamrock-Hilton Hotel. Paul Witherspoon, Chairman, presided.

The following officers were unanimously elected for 1962-1963:

Chairman:	John M. Hunt
Chairman Elect:	Raymond Siever
Editor:	William R. Hansen
Secretary:	J. R. Vallentyne

The secretary reported the following growth in membership during the past year. There now are members in 24 countries.

	USA	All Other Countries	Total
November, 1961	193	81	274
November, 1962	201	96	297

Current membership of The Geochemical Society is 2198, so the OGG represents about 14 per cent of the parent society.

Several East European memberships are being financed by OGG members on a personal basis because of currency restrictions in the countries concerned. In addition, $37.00 is available in a fund for prospective members. Steps are also being taken to see if currencies from these countries can be used in some manner.

Gordon Erdman reported at the end of the morning OGG technical session on the International Meeting of Organic Processes in Geochemistry held in Milan on September 10 to 12. This meeting was attended by 102 registrants (the final list may have reached 120) from 17 countries with a large contingent from the USA. Although there were no delegates from the USSR, those invited did submit abstracts of papers. Of particular note were the presence of registrants from Poland and Hungary, one registrant from Germany. Dr. Colombo did an excellent job of organizing the technical and social activities. The meeting facilities were very good with the simultaneous translations in English, French, and Italian, the three official languages of the meeting. Dr. Erdman discussed features of several of the papers, and noted that Dr. Colombo and Hobson are editing a Proceedings Volume of the meeting which will be published by Pergamon Press.

Gordon Hodgson reported on a meeting of The Geochemical Society of Japan held in Tokyo on October 10-12, 1962. The sessions, held at the headquarters of the Geological Survey of Japan, attracted about 150 participants. One day was devoted to volcanology, one day to isotope geology, and the third day to organic geochemistry with emphasis on analytical methods. The highlights of several of the key papers were noted.

Paul Witherspoon reported on the Soviet-USA Exchange program of petroleum geochemists. A team of six Americans (P. A. Witherspoon, J. M. Hunt, H. M. Smith, S. R. Silverman, N. P. Stevens and P. A. Dickey) embarked on September 20 on a four-week tour of Russian operations plus an extra week to attend the petroleum meeting in Budapest. Witherspoon noted the excellence of Russian operations and the courtesies extended, and pointed out that a full report on the activities of the team would soon be prepared. A Soviet team will make a similar four-week tour of the USA at a later date.

Dr. Harold Smith reported on plans he and Dr. Rossini have made for a Gordon Conference on the origin of petroleum to be held at the Tilton School, New Hampshire, August 19 to 23, 1963. Various prospective speakers and subjects were noted, as well as the fact that attendance will be limited to 100 participants.

Plans are underway for the OGG to sponsor a symposium on organic-inorganic interrelationships at the next meeting of The Geochemical Society. These plans have been submitted to and approved by the Council of the Society.

Paul Witherspoon noted that a meeting of the Executive Committee of OGG was held on November 10 and that there were no problems to report to the membership at this time. The new By-Laws, approved by mail ballot on May 1, 1962, solved outstanding problems, especially with respect to organization of branches outside the USA. It was recommended that reprints of papers or reports by OGG members be sent to the secretary for listing in Newsletters.

Gordon Erdman suggested that in future years a Group Luncheon be held followed by the Business Meeting. This would permit the membership to get together as a larger group and also provide more time for transaction of business. The suggestion met with general approval of those present and was referred to the new chairman.

A motion was made and seconded that a vote of appreciation be accorded Paul Witherspoon, rehiring chairman, and Irving Breger, retiring secretary, for their efforts on behalf of OGG. The motion was passed unanimously. The meeting was adjourned at 1:35 p.m.

Irving A. Breger, Secretary

GHANA REQUESTS SECOND GEOLOGISTS CONTINGENT

The Government of Ghana is expanding its geological exploration program with a request to the Peace Corps for another contingent of geologically-trained Volunteers.

This group is scheduled to work in such areas as prospecting, quantitative assessment of mineral deposits, underground water researches and geological mapping. The first group will begin work in Ghana in May. The second is expected to arrive overseas in the fall with training scheduled for June.

This young West African nation is undertaking a comprehensive assessment of its natural resources. However, it has few trained geologists to do the job alone. Peace Corps Volunteers will fill the gap by supplying needed technical skills. The Department of Geological Survey in Ghana will provide back-up support with its modern mineralogical and chemical laboratories, a modern geochemical laboratory, and is now installing a mineral processing laboratory.

The Volunteers will be supervised by a prominent American geologist.

"Volunteer geologists in Ghana will have unusual opportunities to use their professional training," according to Jules Pagano, Director of the Peace Corps' Professional and Technical Division. "They will do hard, useful work. They will learn at first-hand the problems which face geologists in the developing nations, and they will keep in constant touch with the people of the host nation as part of the working set-up," he added.

"Furthermore, Peace Corps geology service may launch a returning Volunteer into a professional career in industry, in government, or into a graduate school, with a greater understanding of another country, the United States and himself. He will have inside knowledge of African natural resources and he will have contributed his special talents to developing those resources and making an impact on the country's economic productivity," Pagano said. "He will also have a well-deserved reward, his special sense of a difficult task well-accomplished."

Qualifications for the Ghana project include a B.S. in Geology. A graduate degree or practical experience are highly desirable. Volunteers must be American citizens, preferably single.

Volunteers receive $75 a month for every month of service. The total readjustment allowance of $1800 is paid at the end of the two-year tour. They also receive allowances to cover food, clothing, housing and other incidentals. Medical care and transportation are also provided.

Training will be given at major U.S. institutions. Here Volunteers will take courses in area studies, host country language, history and culture of that country along with discussions of American history and world affairs. Volunteers will also receive instruction in specific technical skills, with particular emphasis on Ghana's geological problems.

Questionnaires should be submitted now for early consideration. They are available at local Post Offices or by writing to Mr. Jules Pagano, Professional and Technical Division, Peace Corps, Washington 25, D.C.

14TH ANNUAL MID-AMERICA SPECTROSCOPY SYMPOSIUM

This symposium is sponsored by the Society for Applied Spectroscopy and will be held at the Sheraton-Chicago Hotel in Chicago from May 20-23, 1963. The program bears many titles of interest to the geochemist and is reproduced in full below. Additional details may be obtained by writing to Mr. John E. Murphy, Society for Applied Spectroscopy, Borg-Warner Corporation, Wolf and Algonquin Road, Des Plaines, Illinois.

May 20, Morning Session: ELECTRON MICROPROBE ANALYSIS

Microprobe analysis of minerals and segregates, I. Adler

Industrial applications of microprobe analysis, B.R. Banerjee and N.S. Blake

Application of the electron microprobe to the operation of an industrial plant, W.W. Welbon and R.J. Debeer

Use of a multichannel analyzer for electron probe microanalysis, L.S. Birks and A. Batt

The development and use of a semi-micro x-ray fluorescence attachment, W.J. Wittig

May 20, Afternoon Session: X-RAY SPECTROSCOPY IN PROCESS CONTROL

Process stream analysis by x-ray spectroscopy, R.H. Munch

Auxiliary equipment for x-ray process control installations, J.W. Kemp

X-ray fluorescence applied to on-stream analysis, W.R. Kiley

A digital computer for optical and x-ray quantometers, W.E. Fowler and A.J. Hartwick

The use of digital techniques to aid in the phase analysis of Portland cement by x-ray diffraction, G.J.C. Frohnsdorff and P.H. Harris

May 20, Morning Session: INFRARED - RAMAN SPECTROSCOPY

Raman sources other than mercury arcs, E.R. Lippincott

Gas maser spectroscopy in the infrared, W.L. Faust, R.A. McFarlane, C.K.N. Patel, and C.G.B. Garrett

The infrared and Raman spectra of xenon compounds, H.H. Claussen, J.R. Malm, and C. Shernick

The infrared determination of oil in phosphorus, A. Davis, H.M. Joseph, and L.E. Tufts

May 20, Afternoon Session: INFRARED - RAMAN SPECTROSCOPY

Infrared analysis in biomedical research, D.S. Erley

The use of thin-layer chromatography with infrared spectroscopy, J.G. Grasselli and M.K. Snavely

Infrared spectra of pesticides recorded at microgram levels, W.W. Morris, Jr. and E.O. Haenni

The characterization of saturated aliphatic esters in the 15-40 micron region, J.J. Lucier and F.F. Bentley

May 21, Morning Session: INFRARED - RAMAN SPECTROSCOPY

The Urey-Bradley potential function, K. Nakamoto

Applications of normal coordinate treatments, S. Sundaram

The Urey-Bradley force constants of trigonal bipyramidal XY_5-type molecules, R.A. Condrate and K. Nakamoto

Normal coordinate treatments of 1,2-dilalo alkenes, R. Krupp

May 21, Afternoon Session: INFRARED - RAMAN SPECTROSCOPY

Title to be announced later, M.V. Evans

Examples of Fermi resonance and coupling involving N-D vibrations, Brother Columba Curran

Raman spectral studies of aqueous solutions of selenic acid, G.E. Walrafen

May 21, Morning Session: X-RAY EMISSION SPECTROSCOPY

Practical methods of solving absorption and enhancement problems in x-ray emission spectroscopy, E.L. Gunn

X-ray fluorescence control analysis in the manufacture of magnetic alloys, J.P. Kapetan

X-ray spectrometric analysis of alloyed copper, T.J. Cullen

X-ray spectroscopy in biology and medicine: Microtechniques and instrumental sensitivity, J.C. Mathies and P.K. Lund

Assay of iodine content of thyroid extraction by x-ray absorption edge analysis, D.E. Flick

May 21, Afternoon Session: X-RAY EMISSION SPECTROSCOPY

Recent progress in soft x-ray spectroscopy in the wavelength region 13-150 angstroms, J.E. Holliday

May 21, PANEL DISCUSSION

Panelists: I. Adler, U. S. Geological Survey, Washington 25, D. C.; L. S. Birks, U. S. Naval Research Laboratory, Washington 25, D. C.; V. E. Buhrke, Picker X-ray Corp., San Francisco, Calif.; E. L. Gunn, Humble Oil and Refining Co., Baytown, Texas.

May 22, Morning Session: FLAME EMISSION SPECTROSCOPY

Physiochemical processes in flame spectroscopy, W.D. Cooke

Flame photometry: An investigation of some of the factors that affect the emissivity of metals when solutions of their chelates in organic solvents are aspirated into a flame, H.C. Eshelman and J. Armentor

Mutual interference effects of certain group III-A ions with calcium in flame photometry, M.E. Doty and W.G. Schrenk

Flame photometric detection of toxic volatile compounds, R.S. Bramen and W.A. Loseke

May 22, Afternoon Session: FLAME EMISSION SPECTROSCOPY

New developments in practice and technique of flame spectroscopy, J.A. Dean

Some spectrophotometric observations of hydrogen arc-jets, R.L. Fox

Characterization of chemical species in plasmas, E. Raisen, R.A. Carrigan, V. Raziunas, and E.L. Grove

May 22, Morning Session: NMR SPECTROSCOPY

An empirical approach to the interpretation of NMR spectra, R. Bible

Proton magnetic resonance spectra of substituted pyridines and the effect of of protonation, C. Bell, R.S. Egan, and L. Bauer

Hydrogen -deuterium exchanges in organic molecules by NMR spectroscopy, R. Mattoon and R. Kriese

May 22, Afternoon Session: EPR SPECTROSCOPY

Electron spin (paramagnetic) resonance spectroscopy in biological systems, J. Heise

Electron spin resonance spectra of gamma radiolysis products of solid acetonitrile, D. Dunbar, D. Hale, L. Harrah, R. Rondeau, and S. Zakanycz

May 22, Morning Session: VISIBLE-ULTRAVIOLET SPECTROSCOPY

What we don't know about electronic spectra, D.S. McClure

The indirect spectrophotometric determination of metals in their metal oxides by the reduction of the nitrite ion, H.F. Combs and E.L. Grove

Absorption in chromium (VI) oxide, J. Anysas

May 22, Afternoon Session: VISIBLE-ULTRAVIOLET SPECTROSCOPY

Properties of broad optical bands associated with imperfections, J.J. Markham

The optical spectrum of $HI_3 \cdot 2C_6H_5CONH_2$: A model of the starch-iodine complex, M.B. Robin

May 23, Morning Session: ARC-SPARK EMISSION SPECTROSCOPY

The RF discharge at atmospheric pressure and its use as an excitation source in analytical spectroscopy, R. Mavrodineanu and R.C. Hughes

Spectrographic determination of trace impurities in high purity gold, A.J. Lincoln and J.C. Kohler

Spectroscopy in astronomy, R. Johnson

An application of the Stallwood jet DC-arc to the analysis of air contamination in inert gases, W.A. Loseke and E.L. Grove

May 23, Afternoon Session: ARC-SPARK EMISSION SPECTROSCOPY

Controlled atmosphere spectroscopy, W.A. Gordon

May 23: PANEL DISCUSSION

Panelists: J.F. Woodruff, Moderator, Armco Steel Corp., Middletown, Ohio; J. A. Norris, Oak Ridge National Laboratory, Oak Ridge, Tenn.; A. Goldblatt, Angstrom, Inc., Chicago, Ill.; H. Plagge, Universal Oil Products Co., Des Plaines, Ill.; J.R. Churchill, Aluminum Co. of America, New Kensington, Pa.

May 23, Morning Session: GAS CHROMATOGRAPHY

High temperature gas chromatographic separation of inorganic compounds, R.S. Juvet, Jr. and F. Tivin

Application of gas chromatography to phosphorous containing compounds, A. Davis, A. Roaldi, J.G. Michalovic and H.M. Joseph

Some experiments in gas chromatography, H.A. Szymanski

Factors affecting the efficiency of gas chromatography of steroids, M.D. Whittier, L. Mikkelson and N. Armstrong

Recent advances in preparative chromatography, K.P. Dimick

May 23, Afternoon Session: GAS CHROMATOGRAPHY

Recent advances in column theory, D. DeFord

An application of gas chromatography to solid state physics: Determination of the gases evolved when colored potassium chloride dissolves, F. Phelps

Studies on the detection of narcotics in human urine by gas liquid chromatography, J. Ressner

A broad range ionization detector, W. Barbour and D.R. Rushneck

BOOK REVIEWS

SLOVAR' PO GIDROGEOLOGII I INZHENERNOI GEOLOGII (DICTIONARY FOR GROUND WATER AND ENGINEERING GEOLOGY), by A.A. Makkaveev, compiler, and O.K. Lange, editor. In Russian. 186 pages. State Scientific-Technical Publisher of Petroleum and Mineral Fuel Literature, Moscow, 1961; Telberg Book Co., 544 Sixth Ave., New York 11, N.Y. $2.80.

Most of the terms in this dictionary are in the fields of ground water geology, engineering geology, and geomorphology. Occasionally a geochemical term is defined, especially if it relates to the geochemistry of ground water. The definitions are excellent and very complete, including in several instances extensive tables showing the different usages by different authors.

Paul L. Cloke

KARTA PODZEMNIKH MINERAL'NIKH VOD SSSR (MAP OF UNDERGROUND MINERAL WATERS OF THE USSR), by V.V. Ivanov, A. M. Ovchinnikov, L. A. Varotzkii. State Scientific-Technical Publisher of Literature in Geology and Conservation of Mineral Resources, Moscow, 1960; Telberg Book Co., 544 Sixth Ave., New York 11, N.Y. $9.80.

This map, published in Russian with the legend in English, is accompanied by an explanatory text of fifty-nine pages in Russian. The map delineates areas of significantly different chemical compositions of ground water by broad categories. Because of the association of certain compositions with specific geologic settings (e.g., hydrogen sulfide with volcanics), the "provinces" are determined in part by geologic and tectonic factors. The type and content of various gases and ions are indicated by colors or symbols corresponding to ranges of concentration. Two hundred and eighty-six wells and springs are shown on the map and described in the text; this description includes the pH, biologically active microcomponents (e.g., trace of H_2S), and temperature in addition to the characteristics mentioned above.

Paul L. Cloke

THE APPLICATION OF ORGANIC BASES IN ANALYTICAL CHEMISTRY, by E.A. Ostroumov. Translated from Russian by D.A. Paterson. 159 pages. Pergamon Press, 122 E. 55th St., New York 22, N.Y., 1962.

The author has presented extremely useful methods for the quantitative separation and determination of a number of metals of particular interest to the geochemist. Many of these metals which are usually precipitated in a voluminous, gelatinous form frequently requiring re-precipitation to free them of contamination, can now be precipitated in a compact, sometimes crystalline form. In this form they can be easily filtered and washed. The formation of these precipitates is accomplished in most cases by the use of the organic base pyridine. The author describes how, by combining the complexing and basic properties of pyridine, separations can be made which are either difficult or impossible by previously reported procedures.

The book is well written in understandable detail. Adequate attention is given to background information and the procedures are supported with adequate analytical data. The information is well organized into six chapters. The first three deal with the separation of metals using pyridine alone, in the presence of its salts, and in the presence of hydrogen sulfide. Chapters IV and V deal with the separation of metals with other organic bases, namely alpha-picoline and hexamethylenetetramine, with Chapter VI being a summary chapter.

This book should be of considerable interest to everyone involved in analytical separation of metals.

M.L. Dunton

ADVANCED INORGANIC CHEMISTRY--A COMPREHENSIVE TEXT, by F.A. Cotton and G. Wilkinson. 959 + xv pages. John Wiley and Sons, Inc., New York, 1962. $14.50.

Considering the cost of books today and both the quality and quantity of "Advanced Inorganic Chemistry," one can only conclude that here is a real bargain -- the first-class, modern, and truly comprehensive account of the chemistry of all of the elements and their compounds plus general discussions of structural chemistry.

The book is divided into three parts: 1) general theory (Chapters 1-4) -- electronic structure of atoms, ionic compounds, nature of chemical bonds; 2) chemistry of the nontransitional elements (Chapters 5-23); 3) chemistry of the transition elements. There also are included an appendix (with six parts),

a general reference list, and an index. The alphabetical list of elements covers the inside front cover and facing page, and the periodic table is on the inside back cover with a list of useful constants on the page facing it.

The purpose of the book is to provide a textbook at an advanced level, incorporating many of the new developments in inorganic chemistry, "particularly the more recent theoretical advances in the interpretation of bonding and reactivity in inorganic compounds." The latest information and theories in crystal chemistry, general valence theory, and, especially, ligand field theory -- all are discussed. The intellectual and factual density of the book is high.

E. Wm. Heinrich

HYPERCONJUGATION, by M.J.S. Dewar. vi + 184 pages, 30 illustrations, 32 tables. Modern Concepts in Chemistry Series, The Ronald Press Company, New York, 1962.

This book is a very significant contribution to organic chemistry. The author clearly defines and treats the concept of hyperconjugation, the delocalization of electrons over three or more atoms by resonance interactions between a pi bond and a sigma bond. Dewar surveys the various physical and chemical behaviors in which hyperconjugation supposedly exerts important influences. This evidence is then examined very critically in the hope of dispelling current misconceptions and stimulating further research. This book should create renewed interest in the concept of hyperconjugation, and subsequent study may result in complete elucidation of the topic.

Dewar first discusses the concepts of localized bonds and resonance in terms of current theory. He points out that the localized bond picture is not accurate. Valence electrons are never completely localized in definite bonds, not even in saturated molecules. But, nevertheless, many have attempted to retain this picture because of its usefulness in calculating or predicting various molecular properties with an accuracy sufficient for many purposes. Where the localized bond concept is not applicable, a correction factor -- i.e., resonance -- has been introduced. Thus, resonance, like the localized bond, is an arbitrary concept, not a real phenomenon.

The problem of hyperconjugation is to decide whether or not this resonance description holds for molecules in which a saturated group is attached to an unsaturated one. The available experimental evidence bearing on this subject is reviewed in some detail. The topics covered include light absorption, ionization potentials, magnetic resonance spectroscopy, heat of formation, stereochemistry, dipole moments, and evidence from reaction rates.

Enough background is provided in each topic discussion so that the reader without specialized knowledge can still follow the arguments.

C.B. Koons

ROCK FORMING MINERALS, VOL. III, SHEET SILICATES, by W.A. Deer, R.A. Howie, and J. Zussman. 270 + x pages, 44 tables, 58 figures. John Wiley and Sons, Inc., New York. $15.50.

This is the second to appear of a five-volume series. The first book (Vol. I) dealt with the ortho- and ring silicates. Volume II, which is not yet released, is on the chain silicates. This volume continues the same high standard represented by Volume I. Each of the mineral groups is treated in general, first, under such topics as structure, chemistry, and paragenesis, and then the major individual species are described not only under these same headings but also under optical and physical properties and distinguishing features. The sections on paragenesis (which include experimental results) are particularly strong and modern.

Species and groups described are: Mica Group -- muscovite, paragonite, glauconite, phlogopite, biotite, lepidolite, zinnwaldite, margarite, clintonite, and xanthophyllite; stilpnomeland; pyrophyllite; talc; chlorite; septechlorite; serpentine; Clay Minerals -- kaolinite group, illite, montmorillonite group, vermiculite; apophyllite; and prehnite.

This book belongs in the library of every mineralogist.

E. Wm. Heinrich

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CALENDAR

April 17-20	AGU, Ann. Mtg., Washington, D.C.
April 28-May 2	Amer. Ceramic Society, Ann. Mtg., Pittsburgh, Pa.
May 27-June 8	Internat. Sedimentological Congress, Amsterdam and Antwerp.
June 17-20	Canadian Soil Science Soc., Ann. Mtg., Banff, Alberta.
June 19-26	World Petrol. Congress, Frankfurt am Main, Germany. Write: Dr. G. Brendel, Glockengiesserwall 2/4, Hamburg, Germany.

ION EXCHANGE COLUMN

A symposium of "The Natural Radiation Environment" will be held April 11-13, 1963, at William March Rice University, Houston, Texas. The symposium is concerned with the instrumentation and available data on the external radiation environment. Professor John A.S. Adams may be contacted for further information (c/o Department of Geology, Rice University, P.O. Box 1892, Houston 1, Texas).

The American Vacuum Society announces that its Tenth Annual Symposium will be held at the Statler-Hilton in Boston, October 16-18, 1963. The meetings will feature exhibits of high vacuum equipment and instruments. Papers involving high vacuum and its application are invited, and abstracts (100 words or less) should be submitted to Dr. George H. Bancroft, 398 Kilbourn Road, Rochester 18, New York.

As part of the Sixth International Sedimentological Congress in the Netherlands and Belgium a symposium on sedimentology and ore genesis will be held on May 31st, at the Geological Laboratory, Technical University, Mijnbouwstraat 20, Delft, The Netherlands.

Registration charges for the whole Congress are 110.- Gld. and 15.- Gld. for the symposium only.

Those interested in registering may write to Dr. C. Kruit, Secretary, Sixth International Sedimentological Congress, c/o Koniklijke/Shell Explor. and Prod. Laborat., Volmerlaan 6, Rijswijk (Z.H.), The Netherlands.

A detailed program will be sent to all registered participants after April 1st. For information regarding this program, write to Professor G.C. Amstutz, Department of Mineralogy, University, Tübingen, Germany.

Denver, Colorado, will host the Sixth Annual Spectroscopy Conference on August 12 and 13, 1963. The meeting will be held in the Albany Hotel and is sponsored by the Rocky Mountain Section of the Society of Applied Spectroscopy. It follows the Annual Denver Research Institute X-Ray Conference to be held August 7th, 8th, and 9th.

The program will feature technical papers on laser microprobes and other phases of spectroscopy as well as three individual symposia as follows: (1) Optical emission spectroscopy, (2) Applications of gas chromatography, and (3) Techniques of geologic and mineralogic analysis. Mr. Robert E. Michaelis of the National Bureau of Standards will speak at the Banquet on Monday evening, August 12th. Titles and abstracts of technical papers in all fields of spectroscopy should be submitted as soon as possible to Mr. Fred Ward, U.S. Geological Survey, Building 25, Federal Center, Denver 25, Colorado.

An exhibit of non-commercial crystallographic apparatus sponsored by the Commission on Crystallographic Apparatus will be held during the Sixth General Assembly of the International Union of Crystallography at Palazzi dei Congressi EUR in Rome, Italy.

Research equipment such as models, teaching aids, optical devices, goniometer heads and similar devices not available from commercial sources will be welcome. Each exhibit must not exceed 80 x 60 x 40 cm in size and 20 kg in weight. Electrical outlets requiring European male plugs supplying 125 V, 50 cycles will be provided but no water or gas will be available. Exhibitors will be required to prepare their own labels and signs. Those wishing space (for which there is no charge) to display their apparatus are requested to write immediately to either Dr. Vladimiro Scatturin, Istituto di Chimica Generale, Universita Degli Studi, Bari, Italy, or to William Parrish, c/o Philips Laboratories, Irvington-on-Hudson, New York, U.S.A. to obtain a copy to the rules and regulations and an application form. The latter must be completed and received by Dr. Scatturin no latter than July 15th to be considered.

The 12th Clay Minerals Conference will be held in Atlanta, Georgia, September 30 through October 4, 1963. Technical sessions will be held in the Atlanta Biltmore Hotel on September 30th, October 1st and 2nd. Field trips to kaolin and attapulgite areas are planned for October 3rd and 4th.

The local chairman of the Conference is Dr. W.E. Moody, School of Ceramic Engineering, Georgia Institute of Technology, Atlanta 13, Georgia. Instructions regarding submission of papers will appear in a future issue of The Geochemical News.

Sand-in-the-Gears-of-Learning Department

From the Professor:

"If they can make penicillin out of moldy bread, I can surely make something out of you."

From the Student:

" ..... only part of the fossil may be present or none at all due to shrinking seas."

From the Literature:

"Study of 20 analyses shows that the index of refraction is directly dependent upon the increase of ferrocity."

William C. Kelly
Editor

Department of Geology and Mineralogy
The University of Michigan
Ann Arbor, Michigan

GEOCHEMISTRY

A Translation of

ГЕОХИМИЯ

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No. 3, 1962

Published by

The Geochemical Society

TRANSLATED AND PRODUCED BY *scripta technica, inc.*

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R.M. Carr: Synthesis fields of some aluminium silicates—further studies

Knut S. Heier and John J.W. Rogers: Radiometric determination of thorium, uranium and potassium in basalts and in two magmatic differentiation series.

Reiner Goguel: Die chemische Zusammensetzung der in den Mineralen einiger Granite und ihrer Pegmatite eingeschlossenen Gase und Flussigkeiten

R.D. Cherry: The determination of thorium and uranium in geological samples by an alpha-counting technique

W. Gentner, H.J. Lippolt and O.A. Schaeffer: Argonbestimmungen an Kaliumminera-lien—XI Die Kalium-Argon-Alter der Gläser des Nördlinger Rieses und der böhmisch-mährischen Tektite

J.L. Mortensen and R.B. Schwendinger: Electrophoretic and spectroscopic character-ization of high molecular weight components of soil organic matter.

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