The Geochemical News

NUMBER 48 October 1968

AGI EDUCATION GRANT

The American Geological Institute has received a grant of $418,900 from the National Science Foundation to continue the work of the Council on Education in the Geological Sciences through June 1970. The Council, whose chairman is William R. Muehlberger, of the University of Texas in Austin, is composed of scientists from colleges and universities, government, and industry. Its primary mission is to improve undergraduate geological education.

Five panels, each with five members, direct the bulk of Council activities. Panels are: Analysis of Skills (Robert Reeves of the U.S. Geological Survey, chairman); Curriculum Development (Robert Dott of the University of Wisconsin, chairman); Instructional Materials (George Rapp of the University of Minnesota, chairman); Introductory Course (John Bowen of Cuesta Junior College, San Luis Obispo, California, chairman); Professional Development (Robert Weimer of the Colorado School of Mines, chairman). Other work, such as compiling lists of materials and publishing a newsletter six times a year, is done by staff members in Washington.

XV COLLOQUIUM SPECTROSCOPICUM INTERNATIONALE

The XV Colloquium Spectroscopicum Internationale will be held in Madrid, Spain, May 26-30, 1969. One of the preferred subjects is "Geochemical and Cosmochemical Applications of Spectrochemical Analysis." Information may be obtained from Dr. J. M. Lopez de Azcona, Presidente General, XV Colloquium Spectroscopicum Internationale, Serrano, 119, Madrid 6, Spain.

Technical and tourist excursions	May 19-25
Scientific sessions	May 26-30
Technical and tourist excursions	May 30-June 6

General Subjects of the Reunion

X-ray fluorescence
Information and publications
Optical emission spectroscopy
Determination of the elements by mass spectroscopy
Determination of the elements by gamma ray spectroscopy
Determination of the elements by absorption spectroscopy
Other spectral techniques of determination of the elements

Preferred Subjects of the Reunion

Excitation circuits
Structural effect of spectral emission
Geochemical and cosmochemical applications of spectrochemical analysis
Increase of the sensitivity and spectral field of the photographic emulsion

INTERNATIONAL SYMPOSIUM ON PHASE TRANSFORMATIONS AND THE EARTH'S INTERIOR

Canberra, Australia
January 6-10, 1969

Preamble: The International Upper Mantle Project, since its inception in 1960, has focused scientific attention on the characteristics and behavior of the earth's upper mantle. This concentration of effort, coupled with rapid technological advances, has yielded a large amount of new and highly relevant data on the behavior of materials at the extremely high pressures and temperatures which exist in the earth's mantle. The aims of this symposium are:

To bring together workers in this field from various countries and with very different experimental and theoretical approaches.

To review the status of current knowledge and direction of investigations.

To compare and contrast data from different experimental and theoretical techniques.

To attempt an appraisal of the type of data and investigations still required in this aspect of upper mantle studies. This is particularly appropriate as the U.M.P. enters its final 1968-1970 stage.

Program: The program will cover the following aspects of phase transformations and their relevance in the earth's interior.

Solid-solid phase transformations and phase equilibria at high pressures, including experimental results obtained by both static and dynamic (shock-wave) methods.

Solid-liquid equilibria at high pressures; origin and fractionation of magmas in the upper mantle.

Phase transformations in petrology with particular reference to mineralogical variations in the upper mantle and to eclogite and granulite facies rocks.

Crystallography, thermodynamics, and physics of phase transformations; theoretical studies, equations of state of high pressure phases.

Phase transformations and their bearing on geophysical problems; e.g., seismic velocity distributions, seismic discontinuities, partial melting and seismic attenuation in the upper mantle, earthquake mechanisms, electrical conductivity of the mantle, tectonics.

Further details are available from Professor A. E. Ringwood, Department of Geophysics, Australian National University, Canberra, A.C.T., Australia.

INTERNATIONAL ASSOCIATION OF GEOCHEMISTRY AND COSMOCHEMISTRY (IAGC)

The Association was organized at UNESCO Headquarters in November 1965, and is now affiliated with the International Union of Geological Sciences. The objective of IAGC is international co-operation and advancement in geochemistry and cosmochemistry through symposia, meetings, publications, commissions and working groups.

Voting members are designated in the Statutes as Member Organizations; their voting power and dues are determined by the numbers of geochemists they represent. Other (non-voting) corporate members may adhere by paying a single dues unit ($30) regardless of number of members. Individual dues are $3 per year and application blanks can be obtained from any of the officers. A newsletter will contain initially announcements, reports of activities and meetings of the Association, and notices of other meetings of geochemical interest. No technical journal is currently planned. The secretary would be pleased to receive comments and suggestions on these items.

Current Officers and Council Members

President	Professor Earl Ingerson, University of Texas, Austin, U.S.A.
Vice-President	Professor L.H. Ahrens, University of Cape Town, South Africa
Secretary	Professor Ken Sugawara, 9 of 7-Chome, Denenchofu, Otaku, Tokyo, Japan
Treasurer	Professor J. F. Lovering, Australian National University, Canberra, Australia
Councilors	Professor A.G.W. Cameron, U.S.A.; Professor Mario Fornaseri, Italy; Professor Marcel Roubault, France; Dr. R. C. Sinha, India; Professor A. I. Tugarinov, U.S.S.R.; Professor A. E. Vincent, U.K.; Professor K. H. Wedepohl, West Germany

A broad symposium on Origin and Distribution of the Elements was held in Paris in May 1967. A Proceedings Volume of some 700 pages, in press, may be purchased by members at the participants' special price of $10 from Pergamon Press, Oxford.

A symposium on Deep Prospecting for Ore Deposits was to be held at the Prague meeting with the International Geological Congress, August 19-28, 1968. Information on program and participation can be obtained from the convener, Professor A. I. Tugarinov, Vernadsky Institute of Geochemistry, Moscow; the chairman of the Local Committee and Associate Treasurer, Dr. Z. Pacal, Na Chodovci 2489, Sporilov II, Praha 4, Czechoslovakia; or the co-chairmen of the Sub-Committee for the Western Hemisphere, Dr. R. W. Boyle and Dr. L. W. Morley, Geological Survey of Canada, Ottawa. Prospective attendants and participants should register for the I.G.C. meetings.

Symposia on Hydrogeochemistry and Biogeochemistry will be held in Japan during the summer of 1970. The Secretary can supply additional information.

Working groups have been set up as follows: Geochemistry of Sediments, Extra-Terrestrial Chemistry, and Geochemical Nomenclature and Documentation; study groups: Isotope Geochemistry, and Applied Geochemistry (Prospecting and Biogeochemistry). Volunteers and nominations for any of these groups would be most welcome; write to the President of the Association.

GEOCHEMICAL JOURNAL

The address of the new publication, Geochemical Journal, was inadvertently omitted from the announcement in the last issue of The Geochemical News. It is: c/o Dr. Shinya Oana, Executive Editor, Department of Earth Sciences, Faculty of Science, Nagoya University, Chikusa, Nagoya, Japan.

BOOK REVIEWS

THE LOVOZERO ALKALI MASSIF, by K. A. Vlasov, M. V. Kuz'menko, and E. M. Es'kova. Translated by D. G. Fry and K. Syers, edited by S. I. Tomkieff and M. H. Battey. xvi + 627 pages, 257 figures, 201 tables. Hafner Publishing Co., New York, 1966. $39.50.

This book is a translation of the Russian work of the same title, originally published by the U.S.S.R. Academy of Sciences Press in 1959.

Any person at all familiar with Russian geological literature cannot help but be aware of the large amount of data on the geochemistry of alkalic rocks that Russian geochemists have produced. A great deal of this data comes from the study of the two alkalic intrusions of the Kola Peninsula, the Khibine and Lovozero massifs. Indeed, it could be argued that the eminent position of Soviet descriptive geochemistry is due in part to the impetus provided by the occurrence of these, the two largest bodies of alkalic rock known, within the boundaries of the Soviet Union.

Most non-Russian-reading geochemists interested in alkalic rocks probably learned of the plan to translate THE LOVOZERO ALKALI MASSIF with considerable interest and anticipation. They will find this book a thorough and detailed description of the Massif, its mineralogy, and the geochemistry of individual elements in its alkalic rocks. The book is well printed, and the illustrations are excellent. One seldom has the feeling that he is reading a translation rather than an original. In short, the book is a very well produced and complete description of the Lovozero Alkali Massif.

However, many readers may expect something more. They may expect to find a chapter comparing the intrusives of the Kola Peninsula with ones of similar composition elsewhere in the world. They may expect that after having completed such a remarkable job of describing the Massif, the authors will be able to add considerable insight into the petrogenesis of alkalic rocks. These expectations are not realized. In their final chapter "The Genesis of the Massif," the authors discuss the probable chemical composition of the original parent magma, but they do not discuss and evaluate hypotheses that might explain the origin of such a parent magma in the first place. In my opinion, most readers with an interest in petrology will be disappointed with the final chapter.

In view of these detractions and its very high price, this book would appear to be more suitable for an institutional library than for the personal libraries of geochemists with only a general interest in alkalic rocks.

J. L. Powell
Oberlin College

GEOCHEMICAL PROSPECTING IN FENNOSCANDIA, edited by Aslak Kvalheim. 352 pages. John Wiley and Sons, Inc., New York, 1967. $12.50.

This symposium by nineteen Scandinavian authors belongs in the personal library of every geologist seriously involved in mineral exploration in glaciated terrain, and of every practitioner of geochemical methods of exploration for mineral deposits. It probably has certain messages of interest for most general inorganic geochemists, who should try to borrow a copy if possible. It would not seem to be particularly applicable as a text or as a teaching guide.

The first eight chapters review very briefly the rocks, ores, and surface geology of Norway, Sweden, and Finland, and summarize the history of geochemical exploration in those countries. The next thirteen chapters contain a series of case histories detailing the use of chemical analysis of glacial moraine, peat, and natural water as a method of locating buried ores. The final three chapters relate to some special problems of analytical chemistry. The case history section is by far the most significant part of the volume, and is what makes this book of permanent value to the specialist.

This reviewer found the following specific ideas and observations to be of particular interest:

Page 108: The content of boron and barium may distinguish the weathering products of metalliferous black shales from those of normal sulfide deposits.

Page 179: "Galena is so easily disintegrated that the finest till fraction yields the highest Pb values."

Page 104: Most known ore deposits give anomalies in glacial soil. Some deposits give only glacial fans made up of mineralized particles (microboulders), others give only hydromorphic anomalies, and still others give both types of anomalies.

Pages 116-118: The ash of peat overlying some ores in Finland contains high concentrations of Mo (up to 1000 ppm), Sb (to 4000 ppm) and Ag (to 250 ppm).

Pages 128, 164-168: Uranium in soil and peat bogs is closely related to radioactive spring water and to radon-rich soil air.

Pages 279-285: Fibers of asbestos in the fine fractions of glacial moraine can be used as a guide to bedrock occurrences of asbestos.

H. E. Hawkes
Washington, D.C.

"METEOR" RESEARCH RESULTS, Series A -- No. 2, Physical and chemical data according to the observations of the research vessel "METEOR" in the Indian Ocean 1964/65 by G. Dietrich, W. Duing, K. Grasshoff, and P. Koske. 5 pages, 149 tables. Gebruder Borntraeger, Berlin, 1966. DM 50.

The present volume (in German) is Number 2 of Series A of the results of the METEOR expedition to the Indian Ocean in the northeast monsoon season of the winter 1964-65. Series A, dealing with the general physics and chemistry of the sea, consists of: No. 1,the narrative of the expedition; No. 2, the present volume; and future volumes will contain vertical sections of temperature and salinity, and investigations of selected problems. Series B covers meteorology and aeronomy; Series C, geology and geophysics; and Series D, biology.

This volume presents only tabulated data and an explanation of the tables. The data include standard ocean station parameters: location, date and time, bottom depth, sample depths, wave observations, wind and weather, temperature, salinity, dynamic computations, and sound velocity. Chemical parameters reported are: oxygen, PO_4-P, total P, NO_2-N, NO_3-N, SiO_4-Si, pH, alkalinity, NH_3-N, fluoride, and calcium.

John C. Ayers
The University of Michigan

BASALTS: THE POLDERVAART TREATISE ON ROCKS OF BASALTIC COMPOSITION, Vols. I, II, edited by H. H. Hess and the late Arie Poldervaart. Vol. I, 482 pages, Vol. II, 379 pages. Interscience Publishers, New York, 1968. Vol. I, $22.00. Vol. II, $22.00.

This pair of books doubtlessly deserves its jacket description as "the first comprehensive work on the most widespread of all igneous rocks." Sired by twenty-one authors in twenty separate papers,the bi-monograph encompasses discussions of most significant features of rocks of basaltic composition: the form and structure of both extrusive and intrusive types; their mineralogy, petrography, geochemistry (major and trace elements as well as isotopes); their experimental petrology including effects of high pressure, and of water and oxygen pressures; their crystallization; their metamorphism; the differentiation of basaltic magma; and the origin of basaltic magma. More specialized papers deal with the position of basaltic magmas in island arcs, layering in mafic-ultramafic plutons; basaltic andesites; spilites; and eclogites.

This work represents the most complete, modern, authoritative collection of data on basaltic rocks available. Yet, as in all compendia of this type produced by numerous writers each working in a sharply circumscribed field, gaps appear. A few might be noted here (others also are present): discussion of gravitative effects in basalt flows; origin of the ophitic texture; discussion of the zeolites of basalt vesicles; the paragenesis of serpentinization vs formation of iddingsite after olivines; geology of the gabbroic bodies in complex batholiths; significance and origin of small-scale petrologic variations in gabbros ("auto-injection structures"). Nevertheless, for petrologists consultation of these volumes will be indispensible for many years to come.

E. Wm. Heinrich
The University of Michigan

A GUIDE TO THE MINERALS OF SWITZERLAND, by M. Weibel. vi + 123 pages, 24 color plates and 15 maps. Interscience Publishers, New York, 1966. $6.50.

This book should serve as a reliable guide for collectors and students of the minerals occurring in Switzerland. Since the author has studied in considerable detail many of the localities described and as he has close contacts with private and professional collectors, considerable new and fundamental information has been incorporated in the text.

In Chapter I the various types of occurrences and the distribution of the Swiss minerals are discussed in a general manner. The classification of these minerals as to chemical composition, and their habits, associations, and distribution are treated in Chapter II. The series of twenty-four superb color plates is a very attractive feature of this chapter. The various mineral-bearing districts and famous localities are listed in Chapter III. The material in Chapter IV includes "Practical Hints to the Collector," a "List of Museums," 15 Regional Maps, and a "Glossary of Foreign Language Terms." There are two indexes--Minerals and Localities.

Edward H. Kraus
The University of Michigan

GEOLOGY ILLUSTRATED, by John S. Shelton. 434 pages, 382 illustrations. W. H. Freeman and Company, San Francisco, 1966. $10.00.

This beautifully illustrated book does an admirable job of providing a basic treatment of the field of geology for the "educated layman"; at the same time it provides the geologist-reader with many fine pictures and line drawings of geologic features. The text which accompanies and ties together the illustrations is, in general, good; the reviewer was able to catch the author in only a couple of relatively minor questions of fact and interpretation, even with a careful reading of the text. Both the publisher and the author are to be congratulated for a book almost free of typesetting errors; the only noticeable one this reviewer found being in the spelling of the single word "around."

The author is to be commended for providing the profession with a book that is both factually sound and well written, one which at the same time beautifully illustrates classic geologic areas and the effects of the various geologic processes. The presentation of the idea of geologic time and the complex history of a region through a pictorial presentation of the sequence of the area around the Grand Canyon serves to illustrate both many geologic principles and the interpretative aspects of historical geology. This reviewer found himself, because of the many truly magnificent photographs, occasionally complaining mentally because a few of the other photographs were merely "good"!

Donald F. Eschman
The University of Michigan

ULTRAMAFIC AND RELATED ROCKS, edited by P. J. Wyllie. xx + 464 pages, 119 figures, 51 tables. John Wiley and Sons, Inc., New York, 1967. $22.50.

The volume is a presentation of varied studies in the specialized field of ultramafic petrology. In editing this excellent collection, Wyllie has arranged the material to give detailed information, as well as general access to the field, to specialists, non-specialists, and students. Instead of the usual juxtaposition of varied topics and approaches of varied authors, Wyllie has grouped the contributions into chapters of two to six papers which fall under a specific problem or group of problems. Three chapters each deal with the major defined types of mafic and ultra-mafic rocks: 1. stratiform and zoned intrusive complexes; 2. alpine ultra-mafic complexes; and 3. kimberlites, associated alkalic mafica and carbonatites, and nodules. A single chapter presents geochemical information about all these types, and two chapters (the first and last) contain definitions, mineral facies and chemical data, mineral paragenesis, and theories of mantle composition. A review of ultramafic petrogenetic theories provides a unifying conclusion.

The papers present diversified approaches to the rocks and problems involved. Topics range from field description through structural methods and experimental deformation of the materials to genetic theorizing. Each chapter is introduced by Wyllie, who has attempted to delineate the major problems involved in each group, and to indicate related problems and approaches in other chapters and in the literature. In the last chapter review, Wyllie presents a key to the petrogenetic theories extant and indicates their occurrence in this volume. The reader is referred to authors who have formulated important theories not represented in the book. Sometimes the transitions from one author to another are disturbing (e.g., from D. M. Ragan's clear presentation to M. J. O'Hara's complex, over-loaded sentences), but this is not a serious problem for the reader to overcome nor is it a grave lack in the editing.

Above all, the good referencing and illuminating introductions make this book useful: the specialist can easily find important information, and the interested novice has a good framework from which he can expand his knowledge. Gaps in the material can easily be filled by using the truly "comprehensive bibliography" at the end of the book.

Jane E. Pike
Flagstaff, Arizona

AN INTRODUCTION TO THE ROCK FORMING MINERALS, by W. A. Deer, R. A. Howie, and J. Zussman. xi + 528 pages, 183 figures, 1 plate, 50 tables. John Wiley and Sons, Inc., New York, 1966. $11.00.

The five-volume work on THE ROCK FORMING MINERALS, by Deer, Howie, and Zussman (1962-1963) has been received very enthusiastically by earth scientists, whether students, teachers, or those engaged in research. The condensed version will be most welcome by students and others for whom the cost of the five-volume work is prohibitive; all minerals discussed in the five volumes are covered and in addition, several other minerals have been added.

AN INTRODUCTION TO THE ROCK FORMING MINERALS is divided into five sections. The first four cover the silicates and the fifth the non-silicates, corresponding to the order of the five volumes of the larger work.

The mineral descriptions, accompanied by orientation diagrams, are based primarily upon optical properties. Following each description of major minerals or groups are sections on structure, chemistry, optical and physical properties, distinguishing features, and paragenesis. Pertinent phase diagrams are presented for the important mineral groups. A limited number of well-chosen chemical analyses is given for many more important minerals and series: fourteen analyses of pyroxenes, eighteen of amphiboles, fourteen of alkali feldspars, eight of plagioclase feldspars. Crystal structures of important minerals are illustrated, often schematically. Curves of optical properties of isomorphous series are included. Selected references are given for many minerals. The appendix illustrates two examples of the calculation of a chemical formula from the analysis.

While research workers will have need for the more detailed information available in the earlier published volumes, the price of AN INTRODUCTION TO THE ROCK FORMING MINERALS will appeal to many students and university staff members who cannot afford the larger work for their private libraries. The authors and publishers are to be congratulated on the preparation of a very useful reference on the rock forming minerals at a realistic price.

R. M. Denning*
The University of Michigan

*Deceased

LAYERED IGNEOUS ROCKS, by the late L. R. Wager and G. M. Brown. 588 pages, 291 illustrations (including 3 full-color plates, and 13 fold-out maps and tables). W. H. Freeman and Co., San Francisco, 1967. $26.00.

This is really two volumes in one, and, in contrast to the Poldervaart monograph on basaltic rocks which is one volume in two, is cheap at about half the price of the latter. The first half of the book deals exclusively with the Skaergaard intrusion of east Greenland in exhaustive (and exhausting) detail: its geology, mineralogy, petrology, geochemistry, differentiation and origin. Unfortunately there appears nowhere a succinct summary of the various stages of the complex genetic history.

Part II, entitled "Examples of various types of layered intrusions," has chapters dealing with the Rhum, Scotland, complex (3 chapters); the Stillwater; the Bushveld; other types of basic layered intrusions (10 examples); layering in granites, syenites, and foidal syenites (Greenland examples only); an additional list of layered or fractionated intrusions (29 additional occurrences, both mafic and non-mafic); differentiated sills; and a concluding chapter on some generalizations on layered intrusions.

The book represents a prodigious effort that is highly successful. Part II, together with the papers of the Symposium on Layered Intrusions (Mineral. Soc. Am., Spec. Paper No. 1, 1-134, 1963) and the recent English translation of the monograph on the Lovozero Massif (THE LOVOZERO ALKALI MASSIF, see p. 4) has made available a wealth of information on these interesting and economically significant layered rock complexes. There is one major omission; layering in extrusive igneous rocks is not even mentioned. Neither is there cited the extraordinary example of floated leucite crystals described in the "headed dike" of the Highwood Mountains, Montana, by B. F. Buie (Bull. Geol. Soc. Am., 52, 1753-1808, 1941).

E. Wm. Heinrich
The University of Michigan

MORPHOLOGY OF THE EARTH: A STUDY AND SYNTHESIS OF WORLD SCENERY, by Lester C. King. Second edition, xiii + 726 pages. Hafner Publishing Co., New York, 1967. $18.75.

In this second edition of a not-too-old work dealing with the development of the earth's surface features,one finds both strengths and weaknesses of the original book preserved. The material discussed ranges widely, from pediplanes to paleomagnetism, from caliche to convective overturn in the mantle. The book contains a truly fantastic amount of information -- certainly a "strength" to be mentioned in a review.

Nearly any student of geology knows that Lester King accepts as a basic premise the idea of continental drift, arguing further that the earth's surface features must be explained in terms of such drift. The complete acceptance of drift as fact many geologists still consider premature, and the failure to discuss both sides of the issue, or in this case the failure to consider the development of the landscape features without calling on drifting continents, many readers will consider a major weakness.

An equally grave weakness in the King analysis is the failure to acknowledge that the earth's surface is ever-changing; in a real sense King fails to accept this basic tenet of Hutton. To King, landscapes remain almost unchanged through tens of millions of years, even though exposed at the surface. It is a shame that such a tome as this, so full of exciting ideas bearing on the major issues facing the tectono-physicist and yet basically devoted to the origin of landscape and thus to geomorphology, should almost completely ignore one of the more exciting, relatively recent innovations to that field. This "new approach," the concept of dynamic equilibrium, explains nearly all landforms as real, live features even now being shaped.

Another unfortunate thing about the book, of a totally different sort, is that some of the references cited in the text are not included in the bibliography. Despite these weaknesses, King's is a valuable book. It can be said, however, that those who accept continental drift as fact will be more firmly convinced, those who do not "believe" will be unswayed, and the vast middle group who are "not yet sure" will likely remain that way.

Donald F. Eschman
The University of Michigan

PERSONALS

It may be an inspiration to members of the Society that DEAN EMERITUS EDWARD H. KRAUS, at the age of 94, is still active and interested in his profession, as evidenced by his contributing a book review to this issue of the News. We are honored.

DR. FRANCIS BIRCH, of Harvard University, is one of twelve recipients of the 1967 National Medal of Science.

ELBURT F. OSBORN, of Pennsylvania State University, was recently elected to the National Academy of Engineering for his contributions in ceramic, slag, mineral, and steel technologies.

ION EXCHANGE COLUMN

News from the National Academy of Sciences

The NRC Committee on Nuclear Science has published a set of short guides to chemical and counting problems for radioactivity standards in common use or expected to be available.

The guide is intended for those who have found radioactive tracers convenient for solving problems in the sciences and industry but "are unfamiliar with the chemical behavior or nuclear decay of the substance." Even specialization in the field, the report says, does not prevent occasional lapses that lead to losses of the radionuclide during storage, dilution, chemical separation, and deposition, or to erroneous radioactivity measurements. The precautions are suggested in the hope of preventing such errors. Guides are presented separately for each element.

User's Guides for Radioactivity Standards was prepared by three members of the committee's Subcommittee on the Use of Radioactivity Standards: Bernd Kahn, National Center for Radiological Health; Gregory R. Choppin, Florida State University; and John G. V. Taylor, Atomic Energy of Canada, Ltd.

December 1967

News from New Zealand Geochemical Group Newsletter

"Deposition of Native Lead from a Drillhole Flow of Hot Brine"

Attention has been drawn to an exciting Russian contribution to our knowledge of ore-forming liquids. In the Transactions of the Institution of Mining and Metallurgy, Section B, 76, p. B 175, August 1967, Prof. C. F. Davison in further contributed remarks to a paper by Beales and Jackson on "Precipitation of Lead-Zinc Ores...." (Ib. 75, B 287, 1966) discusses a paper by L. M. Levedev (Dokl. Akad. Nauk SSSR, 174, 197-200, 1967) on "Contemporary Deposits of Native Lead from the Thermal Brines of Cheleken." It appears that four bores are discharging hot water (temp. 80°C), with a mineral content mainly of sodium-calcium chlorides (170 g/l) and with an average lead content of 10 ppm. The total amount of lead discharged is 300 tons/year. The water is depositing native lead in the drillhole pipe; within two years 2.5 tons of lead were collected from a 10 m length of discharge pipe at the surface. The heat is associated with a high geothermal gradient, but there is no recent volcanism within hundreds of kilometres. The brine is derived from Miocene evaporites only a few metres thick, but the inference is that if such a small evaporite source can give a brine discharge carrying annually 300 tons of lead, brines from a major evaporite basin could produce mineralisation on a very large scale.

November 1967

Other recent issues of this Newsletter include abstracts and reports of meetings of geochemical interest, e.g., Symposia on Trace Elements and Petrogenesis and on Mineralisation.

CHANGES OF ADDRESS

The new addresses of members, as presently on record, are given below. Please report any errors promptly to Dr. Russell Honea, Treasurer, Department of Geological Sciences, University of Colorado, Boulder, Colo. 80304, U.S.A.

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CALENDAR

October

11-12 AIPG ann. mtg., San Francisco, Calif. (A.F. Brunton, American Institute of Professional Geologists, Box 836, Golden, Colorado 80402)

14-17 Clay Minerals Society, ann. mtg., Indiana University, Bloomington (J. B. Droste, Geology Dept., Indiana University, Bloomington 47401)

18-19 Symposium on Primitive Earth, Oxford, Ohio (A. D. Baldwin, Dept. of Geology, Miami University, Oxford, Ohio 45056)

24-25 Mid-West Ground-Water Conf., University of Missouri, Columbia (R. D. Knight, Missouri Geological Survey, Buehler Park, Rolla, Mo. 65401)

30-Nov. 1 SAS-ACS Pacific Conference on Chemistry and Spectroscopy, Disneyland Hotel, Anaheim, California

November

4-8 Symposium on Nuclear Techniques in prospecting and development of mineral resources, Lima, Peru (J. H. Kane, Division of Technical Information, Atomic Energy Commission, Washington, D.C. 20545)

7-9 Remote Sensing for Geology and Hydrology, NASA Manned Spacecraft Center, Houston (Dr. J. L. Snyder, Am. Geol. Inst., 1444 N St. NW, Washington, D.C. 20005)

7-9 Application of Resonance Spectroscopy in Mineralogy, NASA Manned Spacecraft Center, Houston (Dr. J. L. Snyder, Am. Geol. Inst., 1444 N St. NW, Washington, D.C. 20005)

11-13 Geological Society of America, ann. mtg., Mexico City (GSA headquarters, Box 1719, Boulder, Colorado 80302)

11-13 Soc. Econ. Geologists, ann. mtg., Mexico City (Robert A. Laurence, Box 1549, Knoxville, Tennessee 37901)

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