The Geochemical News

Number 19 December 1959

ANNUAL MEETING

The Annual Meetings of the Geochemical Society were held in Pittsburgh, November 2-4, at the Penn-Sheraton Hotel, in conjunction with those of the Geological Society of America and allied societies. The council of the Geochemical Society met Monday morning, November 2, from 9:00-12:00. An official account of the meeting will be published in the next issue of the Geochemical News.

For those members of the Society who do not receive the program of the Geological Society of America, we are listing here the titles and speakers of the five geochemistry sessions.

Geochronology - Monday Morning, November 2

J. L. Kulp: Geological time scale
D. S. Miller: Colorado Plateau uranium-lead age problem
L. R. Stieff and T. W. Stern: New graphical and algebraic methods for the evaluation of discordant lead-uranium ages
L. F. Herzog, II: Geologic age determination by x-ray fluorescence analysis for rubidium and strontium
R. L. Armstrong: Potassium-argon dating of silicates using neutron activation for argon determination
J. M. Moore, S. R. Hart, C. C. Barnett, and P. M. Hurley: Potassium-argon ages in northern Manitoba
B. E. Sabels: Geochronology of Late Cenozoic volcanism, San Francisco Plateau, Arizona
T. W. Stern, L. R. Stieff, H. Klemic, and M. H. Delavaux: Lead-isotope age studies in Carbon County, Pennsylvania
H. Faul and H. Thomas: Argon ages of the great ash bed from the Ordovician of Alabama and of the bentonite marker in the Chattanooga shale from Tennessee
H. Baadsgaard, R. E. Folinsbee, and J. Lipson: Potassium-argon age of biotites from Cordilleran granites of central British Columbia
L. E. Long: Isotopic ages in the area of the City of New York
V. T. Allen, P. M. Hurley, H. W. Fairbairn, and W. H. Pinson: Age of Precambrian igneous rocks of Missouri

Organic Geochemistry - Monday Afternoon, November 2

R. G. Bader and J. B. Smith: Significance of adsorption isotherms for specific organic materials on sedimentary minerals
K. K. Turekian: Factors controlling the trace-element concentrations in recent and fossil molluscan shells
J. G. Palacas, F. Smith, and F. M. Swain: Occurrence of carbohydrates in bituminous sedimentary rocks
B. T. Brooks: Chemical aspects of the formation of petroleums and natural gas
B. Nagy, G. C. Gagnon, and R. D. Woolsey: Analyses of the organic components of the Athabasca oil sand in Alberta, Canada
I. A. Breger and J. C. Chandler: Extractibility of humic substances from coalified logs as a guide to temperatures in Colorado Plateau sediments
R. P. Sheldon: Geochemistry of uranium in phosphorites and black shales of the Phosphoria formation (Permian)

E. O. Strahl: Relationships between selected minerals, trace elements, and organic constituents of several black shales
H. L. Cannon: Biogeochemical relations in the Thompson district, Grand County, Utah

Phase Relations - Tuesday Morning, November 3

G. Kullerud and R. A. Yund: System Ni-S
R. A. Yund: System Ni-As-S
H. L. Barnes: System ZnS-H_2S-H_2O
L. A. Clark and G. Kullerud: FeS_2-NiS_2 phase relations
S. P. Clark, Jr., and G. Kullerud: Iron-rich portion of the system Fe-Ni-S
L. S. Walter: P-T stability conditions of some reactions in the system lime-magnesia, alumina-silica
A. C. Turnock: Stability range of iron chlorite
W. Schreyer and H. S. Yoder, Jr.: Stability of Mg-cordierite
S. Aramaki and Rustum Roy: Revision of the Al_2O_3-SiO_2 diagram
G. A. Chinner and J. R. Schairer: Join grossularite-pyrope at 1 atmosphere
D. M. Roy and R. Roy: Tridymite-cristobalite relations and stable solid solutions
J. MacChesney and A. Muan: Phase equilibria in the system iron oxide-titanium oxide at low oxygen pressures

General Geochemistry - Tuesday Afternoon, November 3

M. Fleischer and E. C. T. Chao: Some problems in the estimation of abundances of elements in the earth's crust
E. C. T. Chao and M. Fleischer: Abundance of zirconium in igneous rocks
O. A. Schaeffer et al.: Chlorine-36 radioactivity in rain
R. Pliler and J. A. S. Adams: Distribution of thorium and uranium in a Pennsylvanian weathering profile
B. J. Skinner: Effect of manganese on the sphalerite geothermometer
A. D. Weeks and D. H. Eargle: Deposition of uranium at Palangana salt dome, Duval County, Texas
D. Tilles: Natural variations in isotopic-abundance ratios of silicon
L. S. Walter and S. Merrin: High temperature portion of the three-phase solid-liquid-vapor equilibrium curve of the system NaCl-H_2O
J. Green: Geochemical implications of lunar degassing
V. Stubican and R. Roy: Isomorphous substitution and infrared spectra of clays
G. V. Middleton: Chemical composition of sandstones

Carbonates: Techniques - Wednesday Afternoon, November 4

D. L. Graf, A. J. Eardley, and N. F. Shimp: Dolomite formation in Lake Bonneville, Utah
P. E. Rosenberg: Subsolidus relations on the join $CaMg(CO_3)_2$-$CaFe(CO_3)_2$ of the system $CaCO_3$-$MgCO_3$-$FeCO_3$
J. R. Goldsmith and D. L. Graf: Subsolidus relations in the system $CaCO_3$-$MgCO_3$-$MnCO_3$
U. M. Oxburgh, R. E. Segnit, and H. D. Holland: Coprecipitation of strontium with calcium carbonate from aqueous solutions
R. M. Garrels, M. E. Thompson, and R. Siever: Solubility of carbonates in sea water: control by carbonate complexes
R. E. Segnit, U. M. Oxburgh, and H. D. Holland: Solubility of calcite in water between 100°C and 200°C

E. J. Zeller, D. F. Saunders, and F. R. Siegel: Laboratory precipitation of dolomitic carbonate
T. E. Sternberg, A. G. Fischer, and H. D. Holland: Strontium content of calcites from the Steinplatte reef complex, Austria
W. H. Pinson, Jr., and C. C. Schnetzler: Chemical and physical studies of tektites
F. Dachille, S. Merrin, and R. Roy: Successful application of shear in synthesizing high-pressure forms of several phases
C. H. Wayman: Measurement of dissociation pressures in hydrous minerals by thermistors
P. B. Barton, Jr., and P. Toulmin, III: Electrum-tarnish method for determining the chemical potential of sulfur in laboratory sulfide systems

NATIONAL SCIENCE FOUNDATION GRANT

Grant NSF-G10050 in the sum of $18,500 has been granted to The Geochemical Society for the support of "Translation of Five Russian Monographs on Earth Sciences" under the direction of Earl Ingerson, Translation Editor, for a period of approximately one year.

SYMPOSIUM ON STANDARD SAMPLES

J. Frank Schairer, President, announces that the Geochemical Society will hold a symposium on standard or reference samples for correlating geochemical data at the 1960 International Geological Congress meeting in Copenhagen. The purpose of the symposium is (1) to review available standards or reference samples that can be used by geochemists, (2) to determine geochemists' needs for reference or standard samples, and (3) to discuss problems of collecting, storing and distributing samples.

The Standards Committee of the Geochemical Society is currently working on the problem of obtaining geochemical standards for the Society. As you can appreciate this is a large job and the committee needs all the information and help that it can get. The committee would like to know from the membership what it considers important in the field of reference samples. To do this it was decided to invite representatives from various countries or from large geochemical groups to attend the symposium. The invitation is not of a formal character but it is open to any interested groups. Plans are being made to have one or two formal papers describing the objectives of the Standards Committee with a review of known geochemical standards and a review paper describing the usefulness of two standard rock samples known as G-1 and W-1. Following the formal papers the representatives will be asked to give a short 10 minute talk describing their problems and suggestions. This will then be followed by general discussions.

In the event that a representative cannot attend the symposium, the Standards Committee would like to have, in writing, suggestions and comments that can be used to guide the committee's work. These written suggestions should be sent to the Chairman, A. Van Valkenburg, National Bureau of Standards, Washington 25, D. C., not later than June 1, 1960. It is also requested that representatives inform the Chairman of the Standards Committee of their intentions to attend the symposium so that adequate arrangements can be made.

SURPLUS REPRINTS

Mrs. Esther W. Claffy of the U. S. Naval Research Laboratory, Washington 25, D. C., has for disposal some hundred miscellaneous reprints on subjects of geochemical and mineralogical interest, which are available free for postage costs only, presumably on a first-come, first-served basis. She has sent to the Geochemical News a 4-page list of available separates, of which the titles listed below are but a sampling. If you are interested in acquiring these or possibly other reprints in these fields, please write directly to Mrs. Claffy.

FOSTER, M. D. (1951), Importance of exchangeable magnesium and cation-exchange capacity in the study of montmorillonitic clays. Amer. Mineral. 36.

HARKINS, W. D. (1946), The neutron, the intermediate or compound nucleus, and the atomic bomb. Science 103.

LAUSEN, C. (1928), Hydrous sulfates formed under fumerolic conditions at the United Verde Mine. Amer. Mineral. 13.

MARKS, G. W., and JONES, B. M. (1948), Method for spectrochemical determination of Be, Cd, Zn and In in ore samples. U.S. Bur. Mines, Rpt. Invest. 4363.

MURATA, K. J. (1946), Significance of internal structure in gelatinizing silicate minerals. U.S. Geol. Surv. Bull. 950.

PIGNATARO, N. (1948), L'analisi polarografica in mineralogia. Rendicont. d. Soc. Mineral. Italiana (Pavia).

RANKAMA, K. (1946), Geochemical differentiation in the earth's crust. Bull. Comm. Geol. Finlande, No. 137.

ROBINSON, W. O. (1939), Method and procedure of soil analysis used in the Division of Soil Chemistry and Physics. U.S. Dept. Agric. Misc. Publ. 369.

SLATER, C. S. (1937), Trace elements in soils from erosion experiment stations, with supplementary data on other soils. U.S. Dept. Agric. Tech. Bull. 552.

SPEDDING, F. H. et al. (1946), Rapid separation of rare earths employing ion exchange. U.S. Atomic Energy Comm., MDDC 411.

DIAMOND SYNTHESIS

The General Electric Research Laboratory of Schenectady, New York, has now been permitted to make public details on the process for synthesizing diamond first announced by the Laboratory in 1955.

The essential breakthrough that enabled the scientists to transform carbon into diamonds was the use of a molten metal catalyst which acted as a thin film between the carbon and the growing diamond crystal. The molten catalytic film and the development of new superpressure and high-temperature apparatus made possible the long-sought transformation from carbon to diamond.

Carbon and a catalyst metal are placed in a pressure cell and are subjected simultaneously to pressures ranging from 800,000 to 1,800,000 pounds per square inch and temperatures ranging from 2200°F to 4400°F. The nature of the starting material used to supply the carbon has some effect on the kind and number of the diamonds formed. The best results are obtained with substantially pure graphite. Other carbonaceous material, such as carbon black, sugar charcoal, or carburizing compound, may be used as the source of carbon, but graphite is preferred. The catalyst metal can be chromium, manganese, iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, or platinum. Tantalum is particularly effective for inducing the growth of small diamond crystals, although under some circumstances it may not be as active as the other catalysts. New diamond can form whether diamond seed crystals are present or not, and the diamond can grow at very high rates. The formation of man-made industrial diamonds (80 mesh and finer) is completed

within a few minutes.

Of particular significance is the discovery that the shape of the diamond crystal varies according to the temperature of formation. Cubes predominate at the low end of the critical temperature range; mixed cubes, cubo-octa-hedra, and do-decahedra at the intermediate point; and octahedra at the upper limits of the range. Color is also found to be governed by the temperature of formation, varying from black at low temperatures through dark green, light green, and yellow to white at the highest temperatures.

Several devices were invented by the scientists for sustaining the ultra-high pressures and temperatures required to change carbon into diamond. One very successful device, called the "belt", makes use of conical, Carboloy cemented-carbide pistons that push into each end of a specially doughnut or "belt" shaped Carboloy cemented-carbide chamber. The conical piston has much greater strength than the usual cylindrical piston of high-pressure equipment. Both chamber and pistons receive support on all sides from a doughnut-shaped structure consisting of several stressed binding rings, from which this device takes its name.

A very important feature of the "belt" is its pressure sealing technique. In this technique, conical gaskets of pyrophyllite, a naturally occurring form of aluminum silicate, are used for the dual purpose of holding pressure and yet allowing motion through compression and flow. A unique characteristic of pyrophyllite is that its melting point is raised from 2400^{o}F to 4800^{o}F by pressure. Pyrophyllite is also used to hold the sample, which consists of the graphite and the metal catalyst. The high temperature is obtained by the passage of electrical current through the sample. The pyrophyllite, in addition to transmitting the pressure of the converging pistons, serves as a thermal and electrical insulation, enabling the pistons to remain comparatively cool, thus increasing their effective strength and extending their useful life.

BOOK REVIEWS

GÉOLOGIE DE L'URANIUM, by Marcel Roubault, with the collaboration of Georges Jurain and a preface by Francis Perrin. 462 pages, 205 figures, 2 color plates and 9 tables. Masson et Cie, 120 Blvd. Saint-Germain, Paris 6^{e}, 1958. Price: 6000 francs.

This is the first general book on uranium geology that has appeared which is not in English, and pointedly illustrates the intensive and determined effort that the French have made to insure that their country become self-supporting with respect to supplies of fissionable material. Dr. Roubault is Professor at the Faculty of Science of the University of Nancy, Director of the National School of Geology and Mining, and President of the Committee of Mines of the Atomic Energy Commission. He has been an outstanding worker in the field of the geology and mineralogy of uranium and is already well known for his publications on many facets of this subject.

The book is excellent both in text and illustrations, and it is arranged as follows: descriptions of the chief uranium minerals; radioactivity and methods of prospecting for radioactive minerals; a general section on uranium and thorium deposits; and descriptions of the principal uranium deposits of the world. Two color plates of secondary uranium minerals are ones that have been reproduced previously in other French monographs on uranium. The section on mineral descriptions is relatively brief and in some respects incomplete. For example, there is no description of coffinite. The final part, which comprises most of the book, 312 pages, is arranged geographically, the order being 1) western and central Europe, 2) eastern and northern Europe, 3) the American Continent, 4) Africa (Southern Hemisphere), 5) other regions of Africa, 6) Asia and Australia. Under each of these geographic divisions (or subdivisions thereof) the deposits are described under a genetic arrangement as, for example, pegmatitic deposits, hydrothermal vein deposits, sedimentary deposits. The descriptions are mineralogical and geological in character, and there is little attempt to present evidence on the genesis of some of the controversial deposits such as those of Blind River. However, there is a discussion on the theories of origin of the Witwatersrand deposits.

The descriptions are particularly detailed in sections dealing with France and the Belgian Congo.

The book is a noteworthy addition to libraries of economic geology texts and both geologists and mineralogists will benefit by becoming familiar with it.

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MAN'S JOURNEY THROUGH TIME, by L. S. Palmer. 184 pp, 5 figures. The Philosophical Library, Inc., 15 E. 40 St., New York 16, N. Y, 1959. Price: $10.00.

This is a review of a book on anthropochronology, written by a retired physicist and reviewed by a mineralogist in a newsletter primarily for geochemists. Nevertheless, this conglomeration only serves to point out that the volume is of considerable interest to all scientists who are curious about man's past. It is a first attempt to demonstrate quantitatively the changes in man with time. Professor Palmer has attempted to show by simple and graphic methods how the human race developed since mid-Miocene time into the major genera and species that are now generally recognized. In presenting this account he reviews both the anatomical and the cultural evidence in man's development. Part IV of the book, which deals with the time factor, is a review of the various dating methods that are available to anthropologists, and discusses such things as orogenic rhythms and continental drift, radioactive dating methods (in which incidentally pegmatite is listed as a mineral), glacial fluctuations, and the dating of alluvial lake and cave deposits.

Chapter V, the conclusion, is an attempt to delineate, largely in graphic form, the changes that have occurred in man with time, and to summarize man's physical and cultural development and the trends in his evolution. The book is not only clearly and concisely written, but is well illustrated and offers a fascinating picture of what is known, what can be deduced, and what can be inferred from man's fossil record.

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CONCISE DICTIONARY OF SCIENCE, by Frank Gaynor. 546 pp. Philosophical Library, Inc., 15 E. 40 St., New York 16, N. Y. 1959. Price: $10.00.

The introduction to this dictionary states "The growth of science and the increasing emergence of new subdivisions of older branches of science, such as virology, enzymology, cytogenetics, radiochemistry, high energy physics, have been paralleled by a corresponding extension of scientific terminology, every advance bringing with it new terms or extensions of the meanings of old terms." The purpose of this modern scientific dictionary is to provide professionals and layman workers with a general reference work defining many of these new terms. A brief run-through indicates that chemical terms are well represented, and some mineralogical and crystallographic terms also are included. Mineralogical and geological terms in general, however, are not well represented. An interesting definition is that given for calcite, "A natural crystal of calcium carbonate with unique properties with respect to the polarization of light."

The author is editor of the Encyclopedia of Atomic Energy.

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TECHNOLOGY OF COLUMBIUM (NIOBIUM), edited by B. W. Gonser and E. M. Sherwood. John Wiley and Sons, Inc., New York, N. Y. 120 pp. 1958. Price: $7.00.

This volume contains the papers presented at the symposium on niobium of the Electrothermics and Metallurgy Division of the Electrochemical Society, which was held May 15 and 16, 1958, in Washington, D. C. The symposium stems from a suggestion of I. E. Campbell of the Battelle Memorial Institute and included papers covering a review of the properties of niobium, the supply situation, extractive processes, metallurgy, analysis, effects of gases, studies of alloys, and related

subjects. The volume is very timely, inasmuch as there is a rapidly increasing interest in this technologically significant metal.

Pure columbium is ductile and has good cold workability, so that it can be stamped, drawn, and rolled as well as machined and welded. It melts at 2468°C and has a density below that of nickel, cobalt, and molybdenum. Its resistance to weathering, general corrosion, and most acids is very good. These properties permit it to be considered for certain aircraft applications. Although niobium does not have a low nuclear cross section, it far surpasses most of the elements presently used in nuclear reactors with respect to strength at high temperatures. Thus it appears to have potentialities for power reactors operating at high temperatures as a structural or cladding material. The addition of niobium to uranium also aids in stabilizing gamma uranium at room temperatures, thus causing the metal to be of interest in connection with fuel for reactors. All of these and other potential uses for niobium indicate that it offers great promise as an element for widespread future use.

With the discovery of abundant niobium as pyrochlore in carbonatites in Norway, East Africa, Brazil and Canada, ample supplies of the element now are assurred. This volume is an excellent review of our present stage of knowledge on the occurrence, chemistry, and metallurgy of niobium. Of particular interest to members of the Geochemical Society will be the following papers: "The element columbium and its compounds" by Darnell and Yntema; "Sources of columbium" by Higbie; "Recent developments in separating tantalum and niobium by solvent extraction" by Tews and May; and "Analysis for certain metallic impurities in niobium".

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PROSPECTING AND MINING FOR URANIUM IN AUSTRALIA; Notes for the Guidance of Prospectors. Australian Atomic Energy Commission and Department of National Development, Coogee, New South Wales, 1957. 128 pages + 14 color plates. No price given.

This pamphlet, which was first prepared for general distribution in 1948 in order to encourage the search for radioactive mineral deposits in Australia, was revised in 1951, reprinted in 1952, and again revised in this new edition of April 1957. Quoting from the preface, "It was information contained in that pamphlet that led to the discovery of uranium minerals by Mr. Jack White at Rum Jungle toward the end of 1949." The new pamphlet in every way comes up to the standards that the previous editions have set. It is, as before, designed for the layman prospector, giving general information on the physical properties of minerals, describing briefly the uranium- and thorium-bearing minerals, and listing the various chemical and physical tests for radioactive species.

The geological section presents general notes on mineral deposits and describes a number of typical occurrences of both uranium and thorium minerals. The part called Notes on Prospecting Procedures includes information on both mineralogical and geological factors useful in aiding discovery of concentrations of radioactive species.

The final chapter lists services available to prospectors in Australia. The four appendixes are entitled "Rewards for the discovery of uranium-bearing ore deposits", "Sale of uranium-bearing ores and concentrates", "Extracts from the Atomic Energy Act No. 31 of 1953", and "Mining laws governing prospecting and mining for uranium." The book concludes with 14 first-class color plates showing important radioactive species, most of them from Australian localities. It is noteworthy that the Australians have tenaciously clung to the designation "absite" for the thorian variety of brannerite. This variety has the doubtful distinction of being the only mineral ever named on the basis of the instrument of its discovery, namely the AirBorne Scintillometer.

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PUBLICATIONS RECEIVED

Photostat copies of any of the publications listed below, with the exception of the trade journals which are not kept on file, may be obtained by any reader who wishes to pay for the cost of their reproduction. Cost of the negative is 50 cents per page; cost of the positive is 90 cents per page. A check made out to E. Wm. Heinrich, Editor, Geochemical News, Department of Mineralogy, University of Michigan, Ann Arbor, Michigan, must accompany the order.

ALDERMAN, A. R. Aspects of carbonate sedimentation. Jour. Geol. Soc. Australia, 6, Pt. 1, pp. 1-10, 1959.

ALDERMAN, A. R. and L. W. PARKIN. Outline of the geology of South Australia. In "Introducing South Australia", ed. R. J. Best, pp. 51-59, 1958.

AMSTUTZ, G. C. Spilitic rocks and mineral deposits. Bull. Univ. Missouri School Mines Metal., Tech. Ser. 96, 11 pp., 1958.

AMSTUTZ, G. C. and R. CHICO. Sand size fractions of South-Peruvian barchans and a brief review of the genetic grain shape function. Bull. Ver. Schweizer. Petrol.-Geol. u. Ing., 24 (67), pp. 47-52, 1 Fig., 1958.

ANDERS, E. The record in the meteorites. II. On the presence of aluminum-26 in meteorites and tektites. Enrico Fermi Inst. for Nuclear Studies, Chicago, III., 1959. 22 pp.

BARNES, T. A. and E. A. RUDD. The mineral resources of South Australia. In "Introducing South Australia", ed. R. J. Best, pp. 60-70, 1958.

GALBRAITH, F. W., and D. J. BRENNAN. Minerals of Arizona, 3d ed. rev. Univ. Arizona Press, Tucson, 1959.

KUNO, H. Origin of Cenozoic petrographic provinces of Japan and surrounding areas. Bull. Volcanologique, Ser. II, T. XX, pp. 37-76, 1959.

KUNO, H., K. YAMASAKI, C. IIDA and K. NAGASHIMA. Differentiation of Hawaiian magmas. Jap. Jour. Geol. Geog., 28 (4), 179-218, 1957.

HILL, V. G. and R. ROY. Silica structure studies. VI. On tridymites. Trans. British Ceramic Soc., 57 (8), 496-510, 1958.

MASON, B. Metamorphic zones in the southern Alps of New Zealand. Amer. Mus. Novitates, 1815, 8 pp., 1956.

NOE-NYGAARD, A. Comparaison entre les roches grenues appartenant a deux orogénies Précambriennes voisines du Groënland. Publ. C.N.R.S., Colloque 68, pp. 61-75, Paris, 1955.

NOE-NYGAARD, A. Some liparite dykes from Raudhellar in Mórsárdalur, Iceland. Meddelelser fra Dansk Geologisk Forening, 13 (2), 118-123, 1956.

POULSEN, A. O. Navneliste til kart over Gruver og Malmforekomster I Nord-Norge. Text to accompany geological map showing locations of mines and ore deposits of Norway, scale 1:1,000,000. 29 pp.

ROMARIZ, C. Estudo petrográfico de alguns calcarenitos do Liássico superior de Peniche. Fac. Ciencias de Lisboa, 2a, Ser. C, Vol. 7, Fasc. 1, pp. 13-52, 1959.

ROMARIZ, C. Notas petrográficas sobre rochas sedimentares Portuguesas. Bol. Soc. Geol. Portugal, 12, f. III, pp. 49-57, 1958.

SAHINEN, U. M. and F. A. CROWLEY. Summary of Montana mineral resources. Mont. Bur. Mines Geol., Bull. 11, 54 pp., 1959.

SARCIA, J. A. and J. A. SARCIA. Les gites d'uranium du Nord-Limousin. I. Caractéristiques générales de la province uranifére du Nord-Limousin. Sciences de la Terre, Nancy, 4, 241-250, 1958. II. La mine Henriette. Ibid., pp. 251-306.

SCHLEICHER, J. A. Germanium in Kansas coals. Geol. Surv. Kansas, Bull. 134, Pt. 4, 161-179, 1959.

TAN, L. P. The sulfur-melnikovite deposits of the Szehuangtzeping area, Taipeihsien, Taiwan. Proc. Geol. Soc. China, No. 2, pp. 123-144 + 4 Pl., 1959.

TUDDENHAM, W. M. and R. J. P. LYON. Relation of infrared spectra and chemical analysis for some chlorites and related minerals. Analyt. Chem., 31, 377-380, 1959.

YEN, T. P. Soda-amphibole-quartz schist from Taiwan. Proc. Geol. Soc. China, No. 2, 153-156, 1959.

PROCEEDINGS OF THE ACADEMY OF SCIENCES OF THE USSR, Geochemistry Section. Vols. 122 and 123, Nos. 1-6, Sept.-Dec., 1958. D. S. Korzhinskii: Hydrothermal acid-alkaline differentiation. R. V. Teis, T. S. Gromova and S. N. Kochetkova: The isotopic composition of natural phosphates. M. A. Dobrzhanskaia and T. I. Pshenina: Some data on the content and distribution of iron in the Black Sea.

RESEARCH FOR INDUSTRY. Stanford Research Institute. Vol. II, No. 5, Sept.-Oct., 1959.

JOURNAL, STANFORD RESEARCH INSTITUTE. 3d Quarter, 1959, Vol. 3.

TIN AND ITS USES. Quart. Jour., The Tin Research Institute. Summer 1959, No. 47. Of possible interest to the members of The Geochemical Society will be article II, "Organo-tin compounds as wood preservatives."

GEOLOGICAL SOCIETY OF LVOV, Mineralogical Papers, No. 12, 495 pp., 1958. All the articles are in Russian with English abstracts. Contains 33 articles, 8 mineralogical notes, and 5 miscellaneous communications, all in Russian with English abstracts. The subjects of the articles are highly varied, ranging from crystallographic studies of such minerals as monazite, staurolite, optically anisotropic diamonds; the composition and significance of inclusions in minerals, the paragenesis of phlogopite deposits, mica corundum nodules; mineralogical descriptions of diopsidic aegirine, cummingtonite, piedmontite, chlorites, celestite, palygorskite, etc.

CALENDAR

Dec.	
12-13	Oklahoma Acad. of Science, Earth Science Sec., Ann. Mtg., Weatherford, Okla.
12-14	Am. Nuclear Soc., Hot Laboratories Div., San Francisco, Calif.
28-29	"Mechanisms of Interfacial Reaction", Am. Chem. Soc., Baltimore, Maryland.
Jan.	
11-13	First Internat. Symposium on Arctic Geology, spons. by Alberta Soc. of Petrol. Geologists., Calgary, Alta., Canada.
Feb.	
14-18	AIME, Ann. Mtg., New York, with SEcG.

ION EXCHANGE COLUMN

In connection with the announcement of the award of the Potts Medal to Dr. George W. Morey (Geochemical News, No. 18), it should be noted that Dr. Morey retired from the Geophysical Laboratory over two years ago and is a member of the staff of the U. S. Geological Survey.

Dr. Samuel S. Goldich has left his position at the University of Minnesota and is now with the Geochemistry and Petrology Branch of the U. S. Geological Survey, Washington 25, D. C.

Mr. Stanley R. Hart, of the Department of Geology, Massachusetts Institute of Technology, Cambridge 39, Mass., has informed the Editor that he has recently finished translating the Russian paper "On the mechanism of losses of radiogenic argon in micas" by Kh. I. Amirkanov, S. B. Brandt, E. I. Bartnitskii, S. A. Gasanov, and V. S. Gurvich, Trans. Acad. of Sciences, USSR, Geological Ser., 1959, No. 3, and that it is available to interested parties. Unfortunately the copy that he supplied the Geochemical News is ditto reproduction and cannot be duplicated, so if you are interested in this article, please write to him directly.

Professor Carl W. Correns of the Sedimentpetrographisches Institute, Göttingen, Germany, has announced that the Symposium on Geochemistry scheduled for August 21-22 in Göttingen and organized by the Commission on Geochemistry of the International Union of Pure and Applied Chemistry had to be postponed. Professor Tom Barth issued the following statement: "My first and unpleasant duty is to inform you that the Geochemical Symposium in Göttingen will be postponed until next year. The reason is that we received authorization for this meeting so late that no satisfactory arrangements can be made."

The recent announcement by the American Potash and Chemical Corporation of the discovery of an extensive deposit of high-grade pollucite in pegmatites at Bikita, in Southern Rhodesia, points up the continuing increased interest in the rare metal cesium, particularly in such applications as glass and ceramics manufacturing, in welding rod fluxes, and in its potential use in an ion propulsion engine for space travel.

Once regarded as an exceedingly rare mineral, pollucite now has been found in mineable amounts in at least three pegmatite districts of the world. A relatively large deposit was encountered years ago in the Varutrask pegmatite of northern Sweden, and the story is that the mining engineers mistakenly identified the massive pollucite as quartz. As a result it was mined out, crushed, and utilized for road material across the swampy muskeg. When a mineralogist noted veinlets of alteration in the supposed "quartz" it was checked microscopically and its identity as pollucite was determined, so all of the roads had to be scraped up.

In North America a very large deposit has been found in the Montgary pegmatite at Bernic Lake in the southeastern Manitoba pegmatite district. The pollucite-bearing orebody was first found in drill holes in which it ranges in thickness from 4 - 39 feet.

In addition to being obtained from pollucite, much cesium has been obtained as a by-product to lithium recovery from lepidolite.

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