THE GEOCHEMICAL NEWS

Number 8 October 1957

ANNUAL MEETING

The annual meeting of The Geochemical Society will be held at the Atlantic City Chalfonte-Haddon Hall Hotels November 4-7, in connection with the annual meeting of the Geological Society of America and associated societies. The annual business meeting of the Society is scheduled for 4:00 P.M. Wednesday, November 6, in the Rutland Room of Haddon Hall Hotel. This is a change over the time previously scheduled. The Council of the Society meets on November 3, 10:00 A.M. at the Haddon Hall Hotel.

SUMMARIES OF GEOLOGICAL AND GEOCHEMICAL RESEARCH

In 1954 Tom Barth and Michael Fleischer collaborated on a summary of research activity then current in the field of geochemistry. This was published in Geochimica and Cosmochimica Acta, Vol. 36, 152-54, 1954. Recently a number of other general reports have summarized research activities in various countries in the field of earth sciences.

In December 1956 the Canadian National Advisory Committee on Research in the Geological Sciences published its SIXTH ANNUAL REPORT. This is released by the Geological Survey of Canada and may be secured from them at a cost of 50 cents. In addition to reviewing the activities of the year 1955-56, it also contains a section dealing with Canadian research projects currently active or proposed in mineralogy, geochemistry, and petrology. Among these are listed a summary of modern physical and chemical analytical methods; geochemistry of Canadian rocks; standardization of nomenclature of metamorphic rocks, facies and phenomena; chemical studies of lavas and greywackes of the Keewatin Province; hornblende-andesine stability relations in metamorphic rocks; bedding foliation problems in Grenville limestones; and argon and radon leakage problems in minerals.

The National Science Foundation has issued its REPORT OF THE ADVISORY COMMITTEE ON MINERALS RESEARCH, released June 1956 and available through the National Science Foundation, Washington 25, D.C. The committee, of which James Boyd was chairman, was appointed to make recommendations concerning research in the fields of geology, geophysics, and geochemistry. The report recommends that a Minerals Research Institute be formed which should receive support from the mining industry and other private sources. Realizing that support of the Federal Government may be essential to initiating the project, the committee has recommended that the National Science Foundation consider appropriating up to $250,000, if necessary, for launching the Institute. The committee was also divided into three subcommittees, one on fundamental geochemical research, a second on fundamental geological research, and a third on fundamental geophysical research. Recommendations of the Subcommittee on Geochemical Research include five projects: 1) Study of low viscosity fluids in sediments and volcanic rocks, 2) Study of hydrothermal differentiation of igneous rocks, 3) Study of environment of ore deposition, 4) Isotopic studies bearing on ore deposition, 5) Study of intrusions with or without related ore deposits. Projects recommended by the Subcommittee on Fundamental Geological Research are outlined as follows:

I. Ore-forming processes
   - A. Metamorphic and metasomatic processes
   - B. Magmatic processes
   - C. Pegmatitic and hydrothermal processes
   - D. Sedimentary and diagenetic processes
   - E. Weathering and enrichment

II. Environment of ore deposition
   - A. Regional problems
   - B. Local problems

III. Special problems and techniques
   - A. Laboratory problems
   - B. Field problems

Another recent summary of research in the field of earth sciences appeared in Mining Engineering for February'57, pp. 218-221. In addition to summarizing the work of various government organizations including that of the U.S. Geological Survey and the Geological Survey of Canada, descriptions of research in various educational institutions are included, for example, University of Alaska, University of California, Colorado School of Mines, Columbia University, etc. Some data also are included on geological research in progress in Canadian universities, and a few European, Australian and Indian universities.

FOREIGN TRANSLATIONS OF GEOCHEMICAL ARTICLES

Most of the membership probably has received several lists of titles of translations from the Associated Technical Services, P.O. Box 271, East Orange, New Jersey, which list complete English translations of Russian technical articles. If you have not obtained their lists, they may be secured by writing directly to the company.

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Dr. George V. Chilingar of the University of Southern California has been active in preparing English summaries of numerous Russian articles in geochemistry. Examples of his work have been published in various journals, including amongst others "Geothermal Gradients in U.S.S.R.: A Summary", The Compass of Sigma Gamma Epsilon, 34, No. 2, 160-62, 1957; "Reviews and Summaries of Articles in Geochemistry of Russian Literature", ibid., pp. 163-67. This series of summaries includes the following reviews:

Distribution of titanium in the deposits of Okhotsk Sea, by E.A. Ostroumov. Geokhimiya, No. 1, 90-95. 1956.
Uranium determination in stone and iron meteorites, by I.E. Starik and M.M. Shats.
The isotopic composition of uranium in meteorites, by K.A. Petrzhak, I.H. Semeniushkin and M.A. Bak.
On regularities in the distribution of earths in some minerals, by E.E. Vainstein, A.I. Tugarinov and N.V. Turanskaia.
Formation and dissolution of autunite, by W. Shcherbina and L. Ignatova.
Application of the method of microradiography, using liquid emulsions for the examination of the content and the distribution of radioelements in rocks, by V.I. Baranov and G. Tleubergenova.
Neutron well logging in prospecting for commercial boron concentrations, by V.F. Ivanova and V.K. Khristianov.
On the geochemistry of carbon dioxide in granite intrusions, by N.I. Khitarov and E.V. Rengarten.
Regularities in the composition of meteoritic matter and classification of meteorites, by A.A. Yavnel.

Dr. Chilingar has also forwarded to The Geochemical News English summaries of papers that have appeared in the Russian journal Geokhimiya, Supplement to No. 4, 1956, and Supplement to No. 7, 1956. The contents of No. 4 include:

Isotope ration S^{32}/S^{34} in sulphides, by A.P. Vinogradov, M.S. Chupakhin and V.A. Grinenko.
Uranium binding by humic acids and melanoidines, by S.M. Manskaia, T.V. Drozdova and M.P. Iemelianova.
Some experiments dealing with the artificial nasturan synthesis, by G.B. Naumov and K.I. Tobelko.
Zirconium and hafnium distribution in zircons of granitoids and metasomatites, by A.I. Tugarinov, E.E. Vainstein and I.O. Shevaleevski.
On the joint migration of matters in solid and liquid phases, by Ia. I. Olshanski.
On thermal effects on heating curves of disthene and andalusite, by V.S. Sobolev and A.I. Tsvetkov.
On the distribution of titanium in granites, by L.V. Dmitriev and E.B. Znamenski.
Pb, Zn, and Cu distribution in various classes and fractions of the diluvium in the region of two deposits in central Kazakhstan, by I.I. Ginsburg and K.M. Mukanov.
The fluor content in thermal springs, by A.A. Alekseev.
On the problem of the geochemistry of iodine of underground waters in the Steppe region of Crimea, by M.N. Poliakova.
Galvanic sulphide dissolution and the halo of heavy metal dissimination, by G.B. Sveshnikov and S.L. Dobytshin.

The contents of No. 7 are:

Dependence of the component activity on the acidity of solution and the sequence of reactions in post-magmatic processes, by D.S. Korzhinsky.
Distribution of uranium in the granitoid complex of the Sussamyr batholite (central Tian-Shan), by L.V. Tausson, B. I. Zlobin and L.L. Leonova.
On the composition of uranvanadates, by Yu. V. Morachevsky and L.I. Belaieva.
Distribution of sulphureous iron and hydrogen sulphide in sediments of deep-water depressions of the northwestern part of the Pacific Ocean, by E.A. Ostroumov and V.V. Shilov.
On the metamorphism and the time of granite formation according to data of isotopic analyses of lead, by K.K. Zhirov and S.I. Zykov.
The genesis of some lead deposits according to the data obtained by isotopic analysis, by K.K. Zhirov and S.I. Zykov.
On the origin of inert gases in stone meteorites, by E.K. Gerling and L. Levsky.
Isotopic lead composition of some rocks and of galena connected with them, by A.V. Rabinovich, G.R. Rik and N.N. Golubchina.

On the action of hydrothermal sulphide solutions upon the cobalt and nickel arsenides, by R.P. Rafalsky.
Mineral peculiarities of uranium in the oxidation zone of the Shinkolobve deposit, by V.I. Gerasimovsky.

Dr. Chilingar also has published the following summaries of Russian articles:

Siderite geochemical facies of seas and saline waters in general as oil-producing, by G.I. Teodorovich. Bull. Amer. Assoc. Petroleum Geologists, 39, No. 5, 762-64, 1955.
Review of Soviet literature on petroleum source-rocks. Ibid., pp. 764-68.
Chemical composition of hydrocarbons of dispersed organic matter in sedimentary rocks, by Iu. N. Petrova and I.P. Karpova. Ibid., No. 7, 1418-19.
Physical-chemical characteristics of basins and sediments of Taman Peninsula, by V.G. Savich. Ibid., No. 8, 1668-69.
Soviet classification of carbonate rocks and chemically precipitated $CaCO_3$: A review. Ibid., No. 9, 1886-89.
Distribution of petroleum and natural gas in oil deposits of Aspheron Peninsula in relation to lithology of enclosing rocks, by Sh. F. Mekhtiev and G.P. Tamrazyan. Ibid., No. 10, 2094-96.
Is $O^{18}:O^{16}$ ratio in carbonate rocks an accurate geologic thermometer? Brief review of Russian literature. Ibid., No. 11, 2349-50.

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The editor of The Geochemical News has available the following articles which may be of interest to mineralogists dealing with the Russian literature: 1) A Russian vocabulary list of miscellaneous geological and mineralogical terms of some 500 items, and 2) translations of

Materials in connection with the optics and chemical composition of the magnesia-ferrous micas, by I.A. Ostrovsky and V.P. Petrov. Akad. Nauk S.S.S.R., Inst. Geol. Nauk Tr. 36, Petrog. Ser. No. 11, 1-32, 1940.
The thermomagnetic investigations of biotite, by M.K. Belshterli and A.A. Turtzeo. Ibid., Tr. 44, Petrog. Ser. No. 14, 1940.
On the chemical constitution and classification of micas, by D.P. Serdiutchenko. Ibid., 59, No. 3, 545-48, 1948.
On the crystallochemical role of titanium in micas, by D.P. Serdiutchenko. Ibid., No. 4, 739-42.
Intergrowth of garnet with muscovite, by I.V. Belkov. Ibid., 64, No. 2, 241-43, 1949.
Mineralogy of granite pegmatites of the Korosten plutone in Volhynia and study of ferrous biotites, by E.Z. Buryanova. Mem. Socs. Russe Min., 69, No. 4, 519-40, 1940.
A new vanadium-bearing variety of oellacherite, by S.V. Kultiassov and R.P. Dubinkina. Ibid., 75, No. 3 187-92, 1946.
Shilkinite and muscovite, by P.N. Tchirvinskii. Ibid., 77, No. 3, 246-9, 1948.
Micas of the U.S.S.R. P.M. Tatarinov, ed. Moscow, Leningrad, 1937.
Mama-Vitim-Chuisky deposits of mica, Vitim-Lena region of Siberia, by D.T. Misharev. Trans. United Geol. Prosp. Serv. U.S.S.R., 154, 1932.
On the interrelations of biotites and muscovites in pegmatite veins, by D.P. Grigoriev. Bull. Soc. Nat., Moscow, 17, No. 4-5, 14-30, 1936.

Copies of the word list and of these translations may be secured by writing the editor. The items will be furnished at cost of the reproduction, which will vary with the length of the article.

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Abstracts of two contributions from the Czechoslovakian journal Geochemical Information have been received from the abstractor, Henry Faul:

JARCHOVSKY, T.: Contribution to a thermodynamic discussion of metamorphosis of pyrite into pyrrhotite.
During the study of natural processes we are often interested in the conditions (particularly temp. and press.) under which a certain reaction can proceed. If we have the necessary data, we begin with the change of free energy which accompanies the chemical reaction. It follows from experimental data that the equilibrium temperature for the change from pyrite to pyrrhotite at 1 at. is 600-680°C (Wunderlich, 1953). (Kullerud says the + is 680 °C.) With increasing pressure the limit of stability of pyrite will increase even further (sic). On the basis of calculations the author assumes that the metamorphism of pyrite under natural conditions takes place in a medium of solutions (is not affected by pressure of the overburden) with a minute concentration of sulfur (of the order of 0.1 to .01%). This dilution lowers the equilibrium temperature of pyrite and pyrrhotite by 200-300°C. Alkalis and alkali sulfides may act as solvents for the sulfur in these dilute solutions. The dissolution of sulfur in these solutions is accompanied by negative values of free energy change even at normal (sic) temperatures. The solution so formed is removed by temperature and pressure gradients from the slate complex, which is an open system.

VRABKA, F.: Results of the Institute for Ore Research in Kutna Hora on the application of metallometric methods in investigating polymetallic deposits.

Geochemical prospecting methods, which form a significant segment of applied geochemistry, are based on one of three fundamental directions erected by Vernadsky and Fersman. During their application to the non-ferrous metal exploration under our circumstances, the best success was obtained by taking soil samples untouched by cultivation, as far as possible, and in profiles geometrically related to the accurately known geodetic net. Samples are taken by means of pedologic rods, cylindrical in cross-section, forged to a point. Samples weighing about 10 g. are ground in mechanically driven basalt mortars in the laboratory, then analysed spectroscopically with polarographic or colorimetric control of the spectroscopically detected anomalies. For the sake of convenience, the analytical results are treated with the aid of gaussian curves.

FESTSCHRIFT FOR DR. FRANZ ANGEL

Professor Franz Angel, former director of the Mineralogical-Petrological Institute of the University of Graz, was honored upon the occasion of his 70th birthday by the publication of a Festschrift entitled "Mineralogische, petrographische, geologische and lagerstättenkundliche Beiträge aus dem Ostalpenraum." Dr. Angel, who was born on January 1, 1887, in Linz, Austria, has been living in Graz since 1905 and is noted, amongst other things, for his outstanding petrographic investigations of the eastern Alps. The Festschrift has the following table of contents: (All of the contributors are former pupils of Professor Angel.)

Blümel, O.: Über Sandstine der Umgebung von Graz.
Brandl, W.: Neue Augensteinfunde auf dem Trenchtling bei Vordernberg.
Clar, E.: Zur Entstehungsfrage der ostalpinen Spatmagnesite.
Exner, C.: Sedimentkeile und Mylonite im altkristallinen Glimmerschiefer der Kreuzeckgruppe.
Felser, K., and Kahler, F. and G.: Dolomite im Oberkarbon und Unterperm der Karnischen Alpen.
Friedrich, O.: Die Erzlagerstätten der Kreuzeckgruppe.
Hanselmayer, J.: Die Chonetenschiefer vom Frauenkogel bei Gösting (Beiträge zur Sedimentpetrographie der Grazer Ungebung) Beiträge erschienen, I-IX.
Heritsch, H.: Die Gesteine am Eingang zur Gailschlucht westlich Mauthen-ein Beispiel zu Angels Floitit-Umsetzung.
Koritnig, S.: Über Gymnit (Deweylith) von Fleims und Kraubath.
Krajicek, E.: Ein neues Beryllvorkommen von der Pack.
Meixner, H.: Nickelmineralisation und Stoffwechselbeziehungen zwischen Serpentingestein und Eisenspatlagerstätten am Beispiel des Antigorits von Griessorhof bei Hirt.
Metz, K.: Fragen zur Tiefengliederung und tektonischen Entwicklung in alpinotypen Faltengebirgen.
Neuwirth, E.: Fire-clay von Zwein bei St. Veit an der Glan.
Paulitsch, P.: Die optische Achsenebene als Ebene der Deformation im Einkorn und Gefüge von Calcit.
Robitsch, J.: Überschiebungen, Gesteinsumwandlung und Minerale um St. Redegund bei Graz.
Schaider, F.: Die "petrochemischen Hornblendeformeln" von Angel und ihre Anwendung bei ostalpinen Amphiboliten.
Senarclens, G.: Zum Spätglacial der mittleren Ferwallgruppe.
Thurner, A.: Das Murauer Paläozoikum-ene Schubmasse.
Trojer, F.: Zur Kenntnis des Kraubather Chromits.

MEMORIALS

Since The Geochemical News first began to appear, several members of the Geochemical Society have passed away.

George Davis Louderback
by
Adolf Pabst

George Davis Louderback, a charter member of the Geochemical Society, was born in San Francisco, on April 6, 1874, and died in Berkeley, California, on January 27, 1957. With the exception of an interval of six years from 1900 to 1906 when he was Professor of Geology and Mineralogy at the University of Nevada, he was associated with the University of California as a student and faculty member from the time of his entry as a freshman in 1892 to this year. Though he was largely occupied with administrative activities during much of his career, he managed to maintain an active interest in many aspects of geology. At one time or another he specialized in structural geology, stratigraphy, petroleum geology, and seismology. But he was also active in work on minerals and mineral resources

at a time when the term geochemistry had not yet become fashionable. During the first world war and immediately thereafter he was in charge of investigations of the mineral resources of California for the State Defense Council. For many years he conducted graduate seminars and laboratory courses in igneous, metamorphic and sedimentary petrology, indoctrinating numerous students who became active contributors to these fields. It was in one of these seminars, over 30 years ago, that the writer of these lines was introduced to Grubenmann-Niggli. This was the period when the first parts of Goldschmidt's Geochemische Verteilungsgesetze were appearing and he recalls vividly with what eagerness they were welcomed.

One of the high points in Professor Louderback's career was his discovery of the rare mineral benitoite, $BaTiSi_3O_9$, which is found in only one locality, in San Benito County, California. His definitive description of this beautiful mineral, which at one time was mined as a gem material, appeared about two and one-half years after announcement of the discovery under the title "Benitoite, its paragensis and mode of occurrence", Univ. Calif. Publ., Bull. Dept. Geol., vol. 5, No. 23, 331-380, 1909. The new mineral was studied by all of the methods then available, particular care being taken to establish the crystal class, $D_{3h} - 6m2$, by means of etch figures. Twenty years later V.M. Goldschmidt said that this was the best description of a new mineral that had ever been published.

Austin Flint Rogers
by
R.M. Denning

On March 10, 1957, Professor Austin Flint Rogers, one of America's outstanding mineralogists, died at the home of his daughter in Berkeley, California, where he had made his home since he left the Stanford campus in 1950.

Professor Rogers, the son of Benjamin Franklin and Julietta Leabo Rogers, was born on August 15, 1877, in Lathrop, Missouri. His interest in the field which was to become his life work was aroused by his chemistry teacher during his high school days in Kansas City. His study of minerals led him first to the Missouri School of Mines, then to the University of Kansas, where he received his A.B. degree in 1899 and his M.A. degree in 1900. From 1898 until 1900 he served as Assistant Geologist, Geological Survey of Kansas, and later in 1903 and again in 1908. He was also Assistant in Mineralogy at the University of Kansas from 1898 to 1900. After receiving his Ph.D. degree in 1902 at Columbia University, he served on the staff as tutor in mineralogy for three more years. In 1902 he married Carolyn Howe. Leaving Columbia University in 1905, he and his wife moved to the Stanford campus, where he had joined the teaching staff of Stanford University as Assistant Professor. Dr. Rogers became an Associate Professor in 1910 and Professor in 1919.

Dr. Rogers was active in a number of professional organizations: charter member and fellow of the Mineralogical Society of America and president in 1927; Associate Editor of the American Mineralogist; fellow of the Geological Society of America and vice-president in 1926 and 1935; member of the Mineralogical Society of Great Britain and Ireland; member of the Société Française de Mineralogie et Cristalographie; and fellow of the American Academy of Arts and Sciences.

Professor Rogers was an outstanding and uncompromising teacher. His refusal to accept second best work and his ability at the same time to offer encouragement to his students was an outstanding trait. Among his graduate students, whose careers he followed with pride and interest, are Edgar H. Bailey with the Minerals Deposits Branch of the USGS in Menlo Park, California; J.D.H. Donnay, Johns Hopkins University; Paul F. Kerr, Columbia University; Ira Klein, Engineering Geology Branch of the USGS, Sacramento, California; Edward W. Nuffield, University of Toronto; Lloyd W. Staples, University of Oregon; and George Switzer, U.S. National Museum.

Professor Rogers' bibliography includes papers on a variety of mineralogical subjects. Particularly noteworthy are his papers on geometrical crystallography (symmetry, graphical methods, nomenclature), mineral paragenesis, the mineralogy of fossil bone, and descriptions of new minerals. His earlier works include paleontological papers. His book OPTICAL MINERALOGY, co-authored with Paul F. Kerr, is a widely used standard text and reference on optical determinative mineralogy. His INTRODUCTION TO THE STUDY OF MINERALS is outstanding, particularly in that it provides a treatment of the 32 crystal classes suitable for beginning students. It is one of the few textbooks of its time to include a brief discussion of the metamict state.

Professor Rogers was an enthusiastic and discriminating collector of minerals. On a trip to Europe in 1938, he visited many classic mineral localities from which he brought many specimens to Stanford. Adding to the University collection gave him much satisfaction. Although he formally became Emeritus Professor in 1942, because of the World War II emergency Professor Rogers continued to teach for some months. Retirement gave him the opportunity to continue his research. Having been interested in jade for a number of years, he continued this study and often was invited to speak on the subject to various California groups. In 1950 his Alma Mater, the University of Kansas, bestowed on him the Erasmus Haworth Distinguished Alumni Award.

Professor and Mrs. Rogers remained in their campus home after his retirement until her death. Besides his daughter Genevieve, a son, Donald H. Rogers, and three grandchildren survive.

S. James Shand
by
J. E. Richey

Samuel James Shand, whose family came from Shetland, was born in Edinburgh in 1882. He died at Broughty Ferry near Dundee in the early spring of 1957, after a winter perhaps not so much of illness as of exasperation with inaction. A full life had brought him much of pleasure and enjoyment in his friends and his geological work, which began and may be said to have ended at Dundee. As a student there he studied chemistry, excelling in silicate analysis, but was "perverted", as his professor (Sir) James Walker used to say, by the petrological microscope. Still, chemistry and petrology both shaped his career, which had its beginning in research on the curious pseudoleucite syenite, borolanite, from Assynt in the North West Highlands of Scotland, which he carried out at Munster under Professor Karl Busz in 1905-06. The famous alkaline rocks indeed started two lines of thought and investigation which Shand pursued throughout his life. One was that a ruling principle of petrological classification is the composition of magma and its degree of saturation respective to silica; and the other, that the development of feldspathoid minerals is dependent upon desilication of granite magma by its reaction with limestone, following upon Daly's hypothesis of 1910. The final outcome of the first conception was his well-known textbook ERUPTIVE ROCKS, first published in 1927. His search for the association of rocks containing feldspathoids with bodies of limestone took him to many places in many countries, notably to many occurrences of foyaite in South Africa. Over the years the theory was much contested, but no cause ever had a more doughty or endearing exponent, for Shand could argue relentlessly and with unfailing good humour.

After receiving the Ph. D. degree at Munster, Shand returned to Scotland, first to a lectureship in geology at Dundee and St. Andrew's and in 1907 as Assistant in the Royal Scottish Museum in Edinburgh, where he arranged and described a vast mineral collection left by Professor Heddle of St. Andrew's. In 1911 he was appointed to the Chair of Geology at Stellenbosch, and in that quiet part of South Africa very much of his work was accomplished. There, in addition to his own research, he built up a very active department and its former students now occupy many high positions in the geological world. Still, as he said, "There wasn't really enough for me to do, so I took to writing books." In addition to his petrological textbook, three smaller volumes were, and remain, of great service in setting out geology "without jargon", as he named one of them.

During World War I Shand, on leave of absence from his Chair, was commissioned in the Royal Engineers for duty in Mesopotamia. Later he worked in the Iranian oilfield, and in 1919, from an examination of bore-cuttings of the reservoir limestones, he established the vital point that they were the equivalent of the Asmari Limestone of the type-locality.

In 1937 Shand finally left South Africa to join the professorial staff at Columbia University, New York, and there both for personal associations and research he left a mark which will be long remembered. But he had great sorrow in the loss of his wife in 1947, and so he resigned his post and returned to his native Scotland in 1950. There, at Dundee, came inspiration to write his last book GEOLOGY FOR CHEMISTS, in the hope that at Dundee geology and chemistry might in combination find a place in the curriculum.

Shand received many honours in recognition of his services as teacher and research worker, and for his unsurpassed lucidity of style in his writings. After his initial Ph. D. degree from Munster University, he took the D. Sc. at St. Andrew's University. He was awarded the Drafer Memorial Medal by the Geological Society of South Africa of which he had served as President, and in London, the Lyell Medal of the Geological Society, preceded at Columbia University by the conferring of the title of Professor Emeritus. Among the many societies to which Shand was elected may be mentioned the Royal Society of Edinburgh, where he spent much time during his latter years. He was a Founder Member of the Geochemical Society, to which this all too brief memorial of an outstanding geologist and great friend of so many is addressed.

NOTICE

The editor urgently requests that the membership take note of the following: If you desire to have your copies of The Geochemical News sent to a new address, please send the notice of the address change directly to the Secretary, John C. Maxwell, Dept. of Geology, Princeton University, Princeton, N. J. **Do** not send the notice of change to the editor, as this will only delay your receiving the journal at the new address.

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CALENDAR OF FORTHCOMING MEETINGS

Nov.

4-6 GSA Ann. Mtg.; Atlantic City, N.J. Geochem., MSA and PS Ann. Mtgs. in conjunction.
4-6 Unclassified Mtg. on Role of Analytical Chemistry in Nuclear Technology; Gatlinburg, Tenn.
6-8 Gulf Coast Association of Geological Societies 7th Ann. Mtg., Roosevelt Hotel, New Orleans, La.
7-8 AAPG, Pacific Sect.; Los Angeles, Calif.
7-8 SEGp, Pacific Coast Sect.; Ambassador Hotel, Los Angeles, Calif.
8-9 AIME, Central Appalachian Sect., West Virginia Mining Inst., Joint Mtg.; Greenbrier Hotel, White Sulphur Springs, W. Va.
11-13 Nat'l Academy of Sciences; New York City.
11-14 Soc. for Exploration Geophysicists, Ann. Mtg.; Dallas, Tex.
11-14 SEGp, 27th Ann. Mtg.; Statler-Hilton Hotel, Dallas, Tex.
18-Dec. 9 9th Pacific Science Congress, Pacific Sci. Assoc.; Chulalongkorn Univ., Bangkok, Thailand.

Dec.

2-3 ASTM Committee on Cement; Fortin de las Flores, Mexico.
8-11 Am. Inst. of Chemical Engrs.; Ann. Mtg.; Chicago.
9-13 ASTM Committee on Soils for Engineering Purposes; Mexico City.
17-19 Conf. on Nuclear Sizes and Density Distribution (NSF); Stanford, Calif.
19-21 Am. Physical Soc.; Stanford, Calif.
26-31 Am. Assn. for the Advancement of Science, Nat'l Mtg.; Indianapolis, Ind.

Feb.

3-4 AIME, Soc. Petroleum Engineers, 4th Ann. Joint Mtg., Rocky Mt. Petroleum Sects.; Cosmopolitan Hotel, Denver, Colo.
10-13 AAPG, Ann. Mtg.; Biltmore Hotel, Los Angeles, Calif.
17-21 1958 Nuclear Congress; Chicago, Ill.

Apr.

17-18 AIME, Soc. Petroleum Engineers, Gas Technology Symposium, La.-Ark., Miss. and E. Texas Sects.; Shreveport, La.
27-30 AAPG, Rocky Mtn. Sect., 8th Ann. Conv.; Industrial Bldg., Natrona County Fairgrounds, Casper Wyo.

THE ION-EXCHANGE COLUMN

F.A. Williams will be departing from Nigeria in August for the U.K. before proceeding to Canada to attend the Sixth Commonwealth Mining and Metallurgical Congress. He will be visiting Washington D.C. in October before returning to Nigeria.

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Shinya Oana, Secretary of the Geochemical Society of Japan, has been invited to visit the Geochronometric Laboratory of Yale University. He has been planning to arrive in the middle of September of 1957 and to remain there for a ten-months period.

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Chuzo Kato, Assistant Professor in the Department of Chemistry of Waseda University, Tokyo, is spending the 1957-58 academic year at the University of Michigan, Ann Arbor, Michigan, on a fellowship; studying in the fields of chemistry and mineralogy.

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Recently announcements have appeared in several trade journals of plans to mine the guano deposits of Bat Cave, which lies in the Grand Canyon of the Colorado River 600 feet above the river. These unique deposits, which were discovered in 1930, are said to be the only commercial guano deposits in North America. Reserves are estimated to be 100,000 tons.' Not only is this an extraordinary deposit in its geology, but its commercial exploitation will require special techniques. The world's longest single-span aerial freight tramway will be constructed from the mouth of the cave to the rim of the canyon, 2,300 feet higher and 9,400 feet across the gorge. The initial phase of construction of the tramway involved the stringing of 11,500 feet of 1/8-inch cable by helicopter. The powdery guano will be sucked up by a gigantic "vacuum cleaner" through a 10-inch pipe.

This form of guano can be used as a natural state organic fertilizer, containg 10-16% of nitrogen with considerable potash and phosphate. The deposit has long been known but attempts to exploit it have heretofore been unsuccessful. All of which merely points out that you don't have to be batty to end up in the dumps, but it helps.

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Further contributions to "Sand in the Gears of Learning Department." Our first effort brough a response from a Pacific Coast source who has contributed the following items:

"A col is like a sink, only higher and narrower."
"A contour line never runs upstream or downstream--it just runs along."
"Stream capture is when one stream moves its bed and gets into bed with another stream."
"A glacial kettle is when a glacier melts, forming pots."
"An aeolian deposit is a deposit made by little aeolians at the bottom of the sea."

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What with the extraordinary congestion of football weekend traffic added to the "normal" automotive crowding, many of us in the United States are actively concerned with the pedestrian problem of remaining intact in a world of mobile metal. A visit to Rio de Janeiro, Brazil, has the effect of reducing concern about the traffic dangers in the United States. In this city a pedestrian has few rights, if any, and in fact if the driver of an automobile that has struck a pedestrian can remain out of the clutches of the law for 24 hours, he is essentially free from any consequences. Al of this vital legal information as well as some interesting geological experiences were accumulated by the editor on a trip to Brazil during August and September.

See you at the meetings.

E. Wm. Heinrich
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