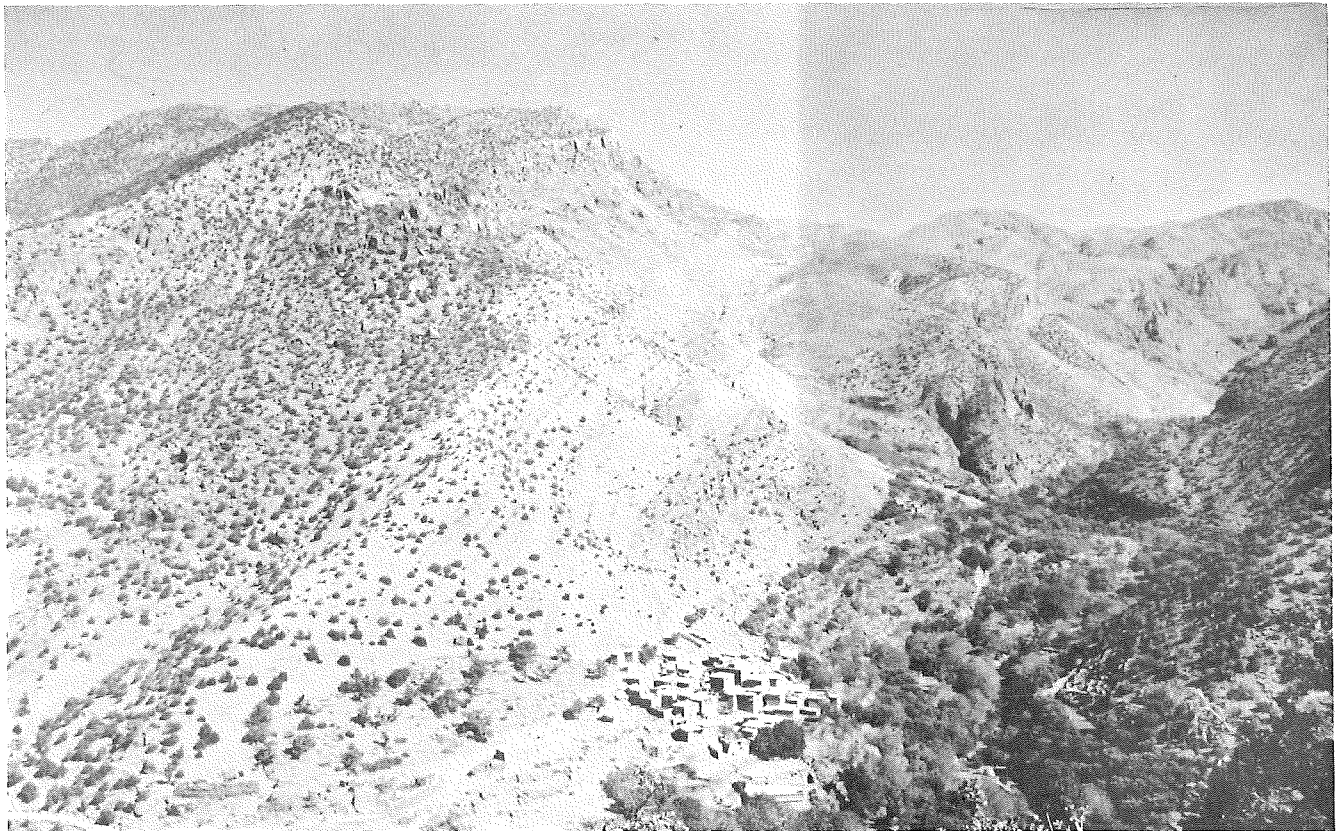


UCLA
DEPARTMENT
OF
GEOLOGY
newsletter
1975



THE COVER

Strokk Geysir, near the Great Geysir, Iceland. Geysir activity is one of the most spectacular manifestations of a geothermal area. Geysir eruptions are usually characterized by a series of intermittent staccato bursts which eject plumes, such as those indicated by the arrows. Sue Kieffer is developing a theory to explain the periodicity of the staccato bursts that may lead to an understanding of the subsurface temperatures in geothermal areas. Photo by graduate student, Carl Nelson.

The Atlas Mountains, Morocco, was the site of the 1975 International Field Conference on the Precambrian-Cambrian transitional strata. Clem Nelson took this photograph of the Precambrian-Cambrian succession in the southwestern Atlas Mountains during the conference.

ACKNOWLEDGMENTS

The compiler and editor of this newsletter for the past nine years, Helen Tappan Loeblich, gratefully acknowledges the assistance of the faculty, staff, students, and alumni who have supplied material included herein. After a lengthy search for a successor, I am pleased to note that the next newsletter will be edited by Sue Kieffer, who has offered to continue this departmental tradition. The newsletter was typed by Julie Knaack, the cover photographs enlarged by Lowell Weymouth from kodachrome slides, ink sketches were made by Helen Loeblich, and the cover drafting is by Julie Guenther.

The Department expresses its gratitude to Chevron Oil Field Research Company, La Habra, California, for again reproducing the Newsletter.



DEPARTMENT OF GEOLOGY
LOS ANGELES, CALIFORNIA 90024

February 1976

Dear Members of the UCLA Geology Alumni:

Again this year it is my pleasure to write to you as Chairman of the Geology Department. Since I wrote to you last year there have been a few changes and proposed changes within the Department that may be of interest to you.

(1) Enrollments have again increased over last year, to reach an all-time record for a Fall term this past autumn quarter. The Oceanography course is extremely popular, having enrollments of approximately 200 students each of the three quarters it is taught. Geology 1 (Physical Geology) continues to be a popular course, as does Principles of Paleontology, which more than fills the allotted room each time it is given. Our more experimental undergraduate courses, such as Clem Nelson's Geology of California class and my Natural History of Southern California class, have convinced some exceptional students who were majoring in chemistry, math, physics, or biology to transfer into the Geology Department. Within our major, enrollments are up about 20% in our "core" courses (e.g., mineralogy-petrology, field, structure, etc.).

(2) A course in geophysical exploration is now required of all majors in geology.

(3) Professors Carlisle, Kaplan, Reed and Watson are developing a new and innovative program or curriculum in nonrenewable natural resources.

(4) Careers Day 1975 was a big success this year and we are most appreciative for the funds that many of you sent to support UCLA Foundation (Geology Careers Day). We were still unable to meet our financial obligation, despite your contributions, and therefore charged a registration fee for government, industry, our faculty and staff participants. The students continue to participate free of charge. Because of the costs of Careers Day, as well as the massive amount of time and effort required to organize and put on this gathering, we have decided to hold Careers Day in the future on an alternate-year basis. We still need your support, both financially and, more importantly, individually. If you live

in the Los Angeles basin, please try to attend Careers Day. Our luncheon and dinner sessions are geared to allow participants to talk to students for a few hours in a relaxed atmosphere. This is one of the most important aspects of Careers Day from the point of view of the students, as they want to hear from practicing geologists. Professors are like parents to them and they don't pay nearly as much attention to us as they do to you! Talk to Ted Bear, Bob Blanc, Jerry O'Brien, Lowell Redwine, or some of the other alumni who attend regularly. Ask them what they think about our students, the departmental program, and the importance of this event to both.

(5) This coming year, or next, the Department will probably add a new faculty member in the area of crustal geophysics. We will build on our strength of structural geology-plate tectonics-geological physics and hope to have a leading center in this field. Our centers of excellence in geochemistry and organic geochemistry should continue to grow and we should be considered the premier school in those areas. We will continue to maintain our strength in field geology in both "soft rock" and "hard rock" areas, e.g. an undergraduate student has 1-1/2 years of field mapping and is exposed to the field-teaching of 10 or more instructors assigned to the regular academic year field program. I do not believe that any other school in the country has made such a strong commitment to field work, nor has as many faculty members involved in teaching a year-long field course.

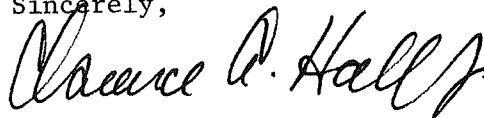
(6) Under consideration is a possible merger of the Department of Geology and the Department of Geophysics and Space Physics into one department, perhaps as a Department of Earth and Space Science. Negotiations are continuing and you will be informed of the results of these in the next Newsletter.

In reading over my letter to you of last year, I was struck by the financial note of gloom that was portrayed. Actually, nothing has changed to improve the situation this year except that the Administration has provided us a small sum to replace some of our 30-year old worn out petrographic microscopes. A quartz wedge now costs \$272! I will not regale you with our problems again; however, on behalf of the entire faculty, I wish to thank those of you who contributed to the UCLA Foundation (Geology) Fund. This money has been used to support both the needy and most worthy graduate students. Some graduate students are in a financially desperate situation and the money has, in a small way, helped them carry on with their research. Small sums for field expenses are not available to the Department for graduate student field research, nor are granting agencies available to supply this kind of money. Thus, you will

be glad to know that you have indeed, in a material way, helped those students who desperately need money for field supplies, maps, transportation, and subsistence in the field in connection with their thesis research.

Last year I made a special effort to see many of you at the national meetings of AAPG and the Geological Society of America, and also saw some of you at the west coast meetings of both the AAPG and GSA. It is my sincere hope that if you are in the Los Angeles area, i.e., if you live here or travel here, you will stop by and visit us. Come by the Departmental office, 3806 Geology Building, and let us know about you and chat a moment. We would really like you to remain a part of the UCLA family and we welcome your counsel.

Sincerely,

A handwritten signature in cursive script that reads "Clarence A. Hall Jr." The signature is written in dark ink and is positioned above the typed name.

Clarence A. Hall Jr.
Chairman



Potsdam Sandstone from woodcut in ^{HTL} Geol. NY. pl. 2. 1842

Another eventful year has passed. UCLA again showed an increase in enrollment, the 31,966 registered in the 1974 Fall Quarter being the largest yet in the University's history, and again the largest of all the nine UC campuses. In addition to the 20,612 undergraduates, the well over 11,000 graduate students placed UCLA third among state universities in enrollment of on-campus graduate students, being surpassed in numbers only by the University of Michigan and Ohio State University (UC Berkeley is ninth in graduate enrollment).

Enrollment in the Department of Geology also continues to increase, with 92 undergraduate majors and 60 enrolled graduate students during 1974-1975. According to a survey of geology departments in 71 U.S. universities made in fall 1974, this is about the 15th in number of undergraduate majors, and 11th in graduate student enrollment. The number of degrees awarded by the department also increased somewhat, with 21 B.S., 9 M.S. and 6 Ph.D. degrees having been completed during the year.

There have been changes other than growth as well. President Hitch retired at the end of the academic year, being succeeded by President David S. Saxon, formerly Executive Vice Chancellor at UCLA and Provost of the University-wide system, as well as a former Professor of Physics. In the Geology Department, Clarence Hall remains Chairman, but John Rosenfeld will succeed Helen Loeblich as Vice Chairman and Graduate Advisor in January 1976, and Ron Shreve will become Vice Chairman and Undergraduate Advisor for the period April 1976 to January 1977 during Clem Nelson's sabbatical leave. Gerhard Oertel will be Counselor for the Applied Geophysics Curriculum.

The Department is extremely pleased that Dr. Floyd Sabins has been appointed a Regent's Professor for the Fall Quarter 1975. Regent's Professorships are awarded only to individuals in industry or government (not academia) who may provide otherwise unavailable enrichment to the Department and its teaching. Dr. Sabins is employed by Chevron Oil Field Research Corporation, where he has been working on Satellite Remote Sensing, and will present a course in Remote Sensing for Earth Science in Fall 1975.

For the last dozen or so years, Ted Bear (UCLA, 1940) has taught a course in Petroleum and Ground Water Geology at UCLA as a Lecturer in Geology, in addition to his work as a consultant (Bear & Kistler), and his duties as an officer of the American Association of Petroleum Geologists. He has found it impossible to continue to divide his efforts so greatly and will not teach for the present. Both his own expertise and that of the many visiting speakers he brought to his class added greatly to the breadth of our instructional program, and he will be missed. We are grateful to Ted for the many years he helped UCLA in the teaching program.

Fortunately for our students, another UCLA alumnus, Bradford K. Johnson (B.A. 1950, M.A. 1952, Ph.D. 1954), Chief Geologist, McCulloch Oil Company, Los Angeles, has agreed to teach the course in Petroleum Geology and we are pleased to welcome him back to the department in this new status as a Lecturer.

We also are pleased to have two new associates, Dr. C. Thomas Foster and Dr. Thomas E. Ronan, appointed to two-year positions as Acting Assistant Professors, effective July 1975. During 1975-1976, Foster will teach a seminar and Introductory Physical Geology, and Ronan will teach the Seminar in Paleontology and the undergraduate course in Oceanography.

We are sorry to note that after years on the UCLA Faculty, George Wetherill accepted a position as Director, Department of Terrestrial Magnetism, Carnegie Laboratories, in Washington, D.C. However, as he had been on the Carnegie Staff before coming west, they seem to have had a prior claim. At least, our efforts to entice him to stay in the Golden West weren't successful, and we wish him well in his new position, while regretting UCLA's loss.

The Department was saddened this past year by the death on December 31, 1974, of Professor David T. Griggs of the UCLA Institute of Geophysics and Planetary Physics. Although not formally a member of the Department of Geology, Dave had worked closely with our faculty and students, particularly in joint research with John Christie, and as a member of the advisory committees of many of the geology graduate students over the past years.

We also lost a long-time associate when Dr. Alexander Stoyanow, a Research Associate in the Department since 1960, passed away on November 18, 1974, at the age of 95.

As you are undoubtedly aware, the University has had to tighten its belt for a number of years, no mean feat when enrollment continues to expand. As the increased number of students and courses meant a need for additional class and laboratory room, internal space reorganization was the only answer. Just before the opening of the 1974 Fall Quarter, a Subduction Day was held, many of the rock and fossil collections being "subducted" to basement and attic areas so that former collection storage could be converted to classroom and laboratory use. To avoid the extensive moving costs that would be charged by Buildings and Grounds, a volunteer group of faculty, staff and students spent one Sunday as "Subductors", and faunal assemblages were transferred from one plate to another by the many "Spreading Centers." Almost 100 fossil storage and display cases were moved, reports were labelled and filed, rooms cleaned, waste rock dumped, and about 300 core boxes and boxes of samples were carried up narrow stairs to a roof storage area. The Chairman provided beer and soft drinks for the volunteer workers, whose efforts "saved" the Department many hundreds of unavailable dollars.

A special colloquium on Precambrian Life was held December 2-3 in the 5th floor Paleobiology Laboratory of Bill Schopf. Papers were contributed by Dr. S. W. Awramik, UC Santa Barbara, Dr. B. Bubela, Baas-Becking Geomicrobiological Laboratory, Canberra, Australia, Dr. A. Gustadt, Cal State Northridge, Dr. Paul Hoffman, Geological Survey of Canada, Dr. G. R. Licari, East Los Angeles College, and S. Van der Haar, USC, as well as by UCLans Bill Schopf, Bob Horodyski and Tom Fairchild. Other faculty, staff and students joined in the discussions.

Many honors came to the Department faculty, students and alumni during the year. Of course, the Bruin basketball team didn't do badly either, winning its 10th NCAA championship in 12 years, as a fitting send-off to retiring Coach John Wooden. Closer to home, the Department was particularly pleased and proud when Gary Ernst, Professor of Geology and Geophysics, and Department Chairman from 1971 to 1974, was elected to membership in the National Academy of Sciences, the only new member to be elected from UCLA this year. Gary also received a Guggenheim Fellowship for study of the interplay

between petrology and plate tectonics in the Western Alps during his sabbatical in 1975-1976. He will be headquartered at the Swiss Federal Institute in Zürich.

Bill Schopf, Professor of Geology and Geophysics, received the Schuchert Award of the Paleontological Society, an award presented annually to a Society member under 40 years of age for outstanding contributions to paleontology through distinguished research or teaching.

The Geology-Geophysics Library arranged a display honoring the late Professor William W. Rubey. His awards on display include the National Medal of Science presented by President Lyndon B. Johnson in 1965, the 34th Annual Penrose Medal of the Geological Society of America, which he received in 1964, honorary Doctor of Science degrees from Missouri (1953), Villanova (1959) and Yale (1960), and a Doctorate of Laws from UCLA awarded at the 50th Annual Commencement in June 1969. Other memorabilia relate to his 40-year career with the USGS, his 26 years as a member of the National Academy of Sciences, the AAPG Distinguished Lecturer Award, Department of the Interior Distinguished Service Award, and USGS Scroll of Honor in 1960, the year he joined the UCLA faculty. During his active career, Bill also served on the National Science Board of the National Research Council and was the first Director of the Lunar Science Institute, Houston.

At the request of the Library of Congress, personal papers of the late Professor Rubey have been donated to the Library's Manuscript Division. The Library of Congress asked for these papers as part of its effort to "acquire suitable collections of papers" of noted scientists who "in addition to research achievements, administered major scientific programs, advised Federal government, and acted as spokesman for the scientific community."

A new mineral, a barium fluoride, which occurs at the Carlin gold mine in Nevada, has been named in honor of Frank W. Dickson (B.A. 1950, Ph.D. 1955), Professor of Geochemistry, Department of Geology, Stanford University

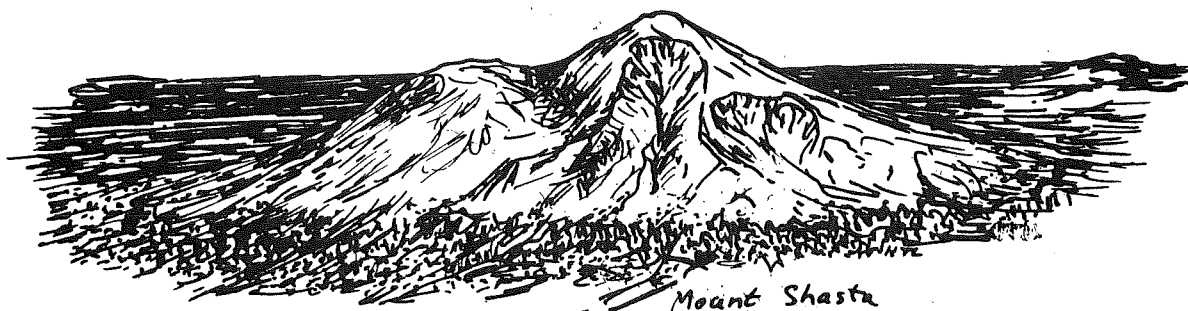
The Department has also learned that Morris Balderman (B.S. 1969, M.S. 1972) ranked first of the 33 taking the California State Geology Examination in January 1975 (only one third of those attempting it passed the exam).

Current geology students also have received recognition. Bernard Hallet (Ph.D., June 1975, and now on the faculty at Stanford) received an award as the Outstanding Ph.D. Student in the Physical Sciences at UCLA, consisting of a check and a bronze medal mounted on a display stand. Edward (Skip) Stoddard was one of six UCLA graduate students to receive the UCLA Faculty Prize for Distinguished Teaching Assistants for 1975. In addition to a monetary award of

\$200, this award also carries eligibility for the Chancellor's Dissertation Fellowship for a year, upon Advancement to Candidacy for the Ph.D. degree at UCLA.

Sigma Xi Grants in Aid of Research were received by graduate students Stephen Ehrenberg (\$150), Calvin Miller (\$175), David Miller (\$200) and Richard Redfern (\$100). Undergraduate Richard E. Lewis was the first recipient of the Joseph Murdoch Memorial Award, established last year, receiving \$100. He will have the Union Oil Co. of California Foundation Exploration Scholarship for 1975-1976. Undergraduates Steven Dumas, Karen Hochstrasser and Conrad McCarthy received Michael Lien--City Services Summer Field course scholarships for summer 1975, and Bob Shamlan and Conrad McCarthy received Summer Field Awards from the National Association of Geology Teachers. The summer field awards ranged from \$100 to \$200 in amount.

Thesis-related field expenses were partly supported from the Gulf Oil Foundation Departmental Assistance Grant for graduate students Chris Finch (\$150), Nurit Hildebrand (\$160), Steve Lipshie (\$200), Johnnie Moore (\$160), William Pelzmann (\$150), and Peter Lyttle (\$120). Similar thesis-related expenses were awarded as Shell Aids from the Shell Oil Foundation grant to the department to graduate students David Frishman (\$165), Tim Lincoln (\$225), and Molly Miller (\$380).



FACULTY NEWS, 1974-1975

DONALD CARLISLE, Ph.D., Wisconsin. Professor of Geology

Resigned from position as Associate Dean Graduate Division in June 1974 and returned to full-time teaching and research in Geology. Most of this year was spent in instructional activities. Don initiated a new course, Earth Science and Society, with emphasis on resources and geological hazards and with a new seminar format in place of a laboratory; this has been accepted very well in spite of initial qualms on the part of the students. The course is described as "An inquiry into the alternatives, opportunities and constraints imposed upon the activities and aspirations of mankind by geological processes and by the characteristics of earth materials. Topics covered include recognition of geological phenomena, mineral and environmental depletion and conservation, geological hazards, geological discoveries and humanistic implications."

He also reorganized the offering in mineral deposits, subdividing this into one course emphasizing chalcophile elements--mainly sulfide deposits--and a second emphasizing siderophile and lithophile elements. The summer of 1974 was spent as an NSF faculty research participant attached to the Kennecott Exploration Services Department research unit, providing the opportunity to be brought up to date in several areas related to instruction and also to collect fourteen new mineral deposit suites for the working collections. With Ken Watson's course on mining geology and the seminar in mineral deposits, we now offer four courses in this area, three of these with substantial laboratories. During summer 1975 he expects to see mineral deposits in northern California, British Columbia, the Canadian Arctic and possibly one or more of the Kuroko deposits in Japan.

Canadian Geological Survey Paper 74-8, "Geology and mineral deposits of Alert Bay-Cape Scott map area, Vancouver Island, B.C.," co-authored with J. E. Muller and K. E. Northcote, appeared during the year. Areal research on northeastern Vancouver Island has been completed and the Bute Inlet paper will be completed this summer (1975). Some new aspects of compositional variations in metamorphosed pillow basalts were presented by Shingi Kuniyoshi and a revised paper on the subject is in preparation. Additional work on trace metals is proposed. Initial research has been done on some unusual volcanogenic sulfide deposits in the insular belt and doctoral dissertation research on metamorphic redistribution of trace metals has been started by Tim Lincoln.

With geological overtones perhaps, Edith's research (Public Health, UCLA) on silicon as an essential element for higher animals is going very well, thanks in very considerable measure to the help of Bob Jones in our departmental microprobe facility.

JOHN M. CHRISTIE, Ph.D., Edinburgh. Professor of Geology

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WAYNE A. DOLLASE, Ph.D., Massachusetts Institute of Technology.
Professor of Geology.

"Another year of teaching mineralogy/crystallography related courses, helping edit the American Mineralogist, serving on every committee known to man or otherwise, bedeviling various and sundry graduate students concerning their research, and dabbling a bit in my own research seems to have passed, as it is wont to do. I managed to attend an AGU meeting in the City by the Bay, had papers appear in the American Mineralogist and Acta Crystallographica, enjoyed myself in a newly devised seminar/course on the mineralogy/crystallography of our friends, the feldspars, extracted an NSF grant from the Feds to study the relationship of Mössbauer spectroscopy to the crystal structure of minerals and completed the installation, testing and calibration of a Mössbauer spectrometer laboratory within the confines of the Geology Department (2d floor or Hall of Science, to be exact)."

Wayne added that he looked forward "to a summer of R & R (research and racquet ball)!"

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W. GARY ERNST, Ph.D., Johns Hopkins. Professor of Geology and Geophysics.

Gary writes that "I was the recipient of extreme good fortune this past year, having obtained a Guggenheim Foundation fellowship for sabbatical study next year in Zürich, and having been elected to the National Academy of Science.

"I have finally finished(?) a textbook on petrologic phase equilibria, which is now in review. I am now thoroughly involved in two NSF-supported scientific cooperative projects: one deals with Ligurian ophiolites, in collaboration with petrologists from Genoa and the USGS (I spent 5 weeks in the Franco-Italian Alps last August-September); the other concerns petrology and plate tectonics of eastern Taiwan, where I am working with many geologists from the Republic of China, as well as John Suppe (Princeton), and J. G. Liou (Stanford). We were all in Taiwan this past March."

In addition to teaching assorted courses in the department, Gary lectured over the past school year to: the AIPG, Los Angeles; CSU Fullerton; UC Santa Barbara; the USGS, Menlo Park; Univ. of Arizona (2); Exxon Production Research, Houston (2); Rice Univ.; Univ. of Tokyo; The Mining Research Service Organization of Taiwan;

the Geological Society of China; CSU Fresno; and Cal Lutheran College. In addition, he attended the western national AGU meeting in San Francisco (he is President of VG&P Section), and the GSA Cordilleran meeting in Los Angeles, presenting a paper that was co-authored with Clarence Hall.

Publications in the past year were:

Ernst, W.G., 1974, Metamorphism and ancient continental margins: p. 909-919, in C. A. Burk and C. L. Drake (eds.), The geology of continental margins: Springer-Verlag, New York.

_____, 1975, Systematics of large-scale tectonics and age progressions in Alpine and Circumpacific blueschist belts: Tectonophysics, v. 26, p. 229-246.

_____ (ed.), 1975, Metamorphism and plate tectonic regimes: Dowden, Hutchinson and Ross, Stroudsburg, PA.

_____ (ed.), 1975, Subduction zone metamorphism: Dowden, Hutchinson and Ross, Stroudsburg, PA.

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CLARENCE A. HALL, Ph.D., Stanford University. Professor of Geology; Chairman of Department.

Clarence has completed the geologic mapping of the Cayucos-San Luis Obispo area (includes all or part of the Cayucos, Morro Bay North, Lopez Mountain, Atascadero, and San Luis Obispo quadrangles). The map is now in press and will appear as a USGS Miscellaneous Field Studies Map. Currently, he is compiling a tectonic map of western San Luis Obispo based on his work in the area. He will be mapping the San Simeon region during the summer of 1975.

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ISAAC R. KAPLAN, Ph.D., University of Southern California. Professor of Geology and Geophysics.

This last year, Ian attended the Second International Meeting on Biogeochemistry held in Burlington, Ontario, Canada. He has also been an active participant in the Exobiology Panel of the NAS Space Science Board, discussing problems of earth contamination from samples returned from other planets and evaluation of the data to be retrieved by the Viking Biology Experiment on Mars.

The laboratory has experienced quite a turnover in personnel during the year and several new students and post-doctoral fellows are expected this summer.

An effort is being made to establish UCLA as a center of excellence in the field of Organic Geochemistry. In collaboration with Dr. W. E. Reed, three new contracts were recently awarded to these investigators from the USGS, Bureau of Land Management, and NOAA. These studies are proposed to: (1) fingerprint the oil seeps off southern California, (2) undertake baseline studies on hydrocarbon content of sediment on southern California borderland, and (3) undertake baseline studies on hydrocarbon sediments from Gulf of Alaska, Bering Sea and Beaufort Sea.

Publications during the year include:

- "Thermal alteration experiments on organic matter in Recent marine sediment--I. Pigments." Geochim. et Cosmochim. Acta 39, 173-185 (with R. Ikan, Z. Aizenshtat and M. J. Baedecker).
- "Thermal alteration experiments on organic matter in Recent marine sediment--II. Isoprenoids." Geochim. et Cosmochim. Acta 39, 186-194 (with R. Ikan and M. J. Baedecker).
- "Thermal alteration experiments on organic matter in Recent marine sediment--III. Aliphatic and steroidal alcohols." Geochim. et Cosmochim. Acta 39, 195-203 (with R. Ikan and M. J. Baedecker).
- "Light element geochemistry of the Apollo 16 site." Geochim. et Cosmochim. Acta 39, 137-162 (with J. F. Kerridge).
- "Controls and consequences of sulfate reduction rates in Recent marine sediments." Soil Sciences 119, 42-55 (with M. B. Goldhaber).
- "Stable isotopes as a guide to biogeochemical processes." Proc. Roy. Soc. London B-189, 183-221.
- "Apparent dissociation constants of hydrogen sulfide in chloride solutions." Mar. Chem. 3, 83-104 (with M. B. Goldhaber).

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SUSAN WERNER KIEFFER, Ph.D., California Institute of Technology.
Assistant Professor.

Sue continued work in shock-wave physics, presenting a paper in October at the Lunar Regolith Conference in Houston (to appear shortly in The Moon). She states "I couldn't resist giving it the title, 'From Regolith to Rock by Shock,' wondering if it would pass the editors. During the early part of this last year, I worked on the problem of the origin of chondrules, small spherical particles which are found in the ancient chondritic meteorites." A paper, "Droplet Chondrules," appeared in the August 5 issue of Science. Together with Professor Tom Ahrens at Cal Tech, Sue gave a cooperative seminar on High Pressure Geophysics and Impact Processes, which met alternately at UCLA and CIT on Wednesday evenings; all were very pleased with this first attempt at a joint course.

The year was highlighted by a field trip to the Mexican Volcanic Axis in January. Dr. Robert Dietz (from NOAA) and Sue joined two Mexican colleagues, an astronomer, Lucrecia Maupome, and a geophysicist, Roman Alvarez, for a field trip to Tepexitl--a crater near Puebla which they suspected might be a meteorite impact crater. "Tepexitl turned out to be a phreatic explosion crater, but it was such a beautiful area and we saw so many other interesting geologic features in the Volcano Axis that the trip was not at all disappointing. A paper on our observations at Tepexitl has been submitted to Meteoritics. This trip led to the topic of "Explosive Volcanism" for the Astrogeology Seminar this year and to my continuing interest in the processes of explosive volcanism.

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ALFRED R. LOEBLICH JR., Ph.D., University of Chicago. Adjunct Professor of Geology

During 1974-1975, Al taught a course in plant microfossils (mostly phytoplankton), and a seminar in paleontology. He continued his research on Devonian microplankton jointly with Dr. E. Reed Wicander, a post-doc under Al's American Chemical Society PRF Grant. A large manuscript was completed and is in press in Paläontographica on the microplankton of the Lower Devonian Haragan and Bois d'Arc Formations of Oklahoma, and another on the Antrim Shale of Indiana is nearly complete. Field collections were made for a study of Ordovician phytoplankton, and for a study of Cretaceous dinoflagellates (by graduate student Steve Lee), both projects being supported by a grant from NSF. Publications appearing during the year include "Recent advances in the classification of the Foraminifera," in Foraminifera, v. 1, p. 1-53, Academic Press, London and New York, 1974 (jointly with Helen Tappan); and "New Early Devonian (Late Gedinnian) microphytoplankton: Demorhethium lappaceum n. g., n. sp., from the Bois d'Arc Formation of Oklahoma, U.S.A.," Neues Jahrbuch Geol. Paläont., Mh., Jg., 1974, p. 707-711 (Jointly co-authored by E. Reed Wicander).

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HELEN TAPPAN LOEBLICH, Ph.D., University of Chicago. Professor; Vice Chairman of Department.

During the past year, Helen was a member of the Steering Committee (representing UCLA) that planned the All University Faculty Conference for 1975. The Conference was held at U.C. Davis between the Winter and Spring Quarters, and covered the topics, "The entering undergraduate student: changes and educational implications." As Councilor for Paleontology for the Society of Economic

Paleontologists and Mineralogists, she attended the GSA-PS meetings in Miami, Florida as SEPM representative to the PS Council, and the AAPG-SEPM meeting in Dallas. She designed a "50th Anniversary Commemorative Stamp" for the SEPM, printed in color and distributed as seals by the Society (as the U.S. Post Office indicated that it is restricted to centennial and bicentennial commemoratives). In late summer, Helen was one of 4 invited keynote speakers for Benthonics '75, the First International Conference on Continental Margin Benthonic Foraminifera, held at Halifax, Nova Scotia; she opened the conference with an overview of foraminiferal systematics and the species concept. Invited lectures were given at USC on Phytoplankton Microfossils, and at Scripps Institution of Oceanography on "Microplankton evolution and cycles in the ocean." She continued to serve as a member of the JOIDES Paleontology-Biostratigraphy advisory panel, and on the editorial boards of *Palaeogeography*, *Palaeoclimatology*, *Palaeoecology*; and of *Paleobiology*; as West Coast Correspondent for *Micropaleontology*, and Honorary Collaborator of the *Revista Española Micropaleontología*.

Duties as departmental graduate advisor occupied much of her time, but this will be relinquished to John Rosenfeld in January 1976, when she will have completed her three years. During the past year, Merton Hill completed his Ph.D. under her direction, his dissertation on "Albian-Cenomanian (Lower Cretaceous) calcareous nannofossils from Texas and Oklahoma" having been supported by her NSF grants (both field collection and laboratory studies). An NSF Grant supported RA, Steve Lee, who began his dissertation studies of mid-Cretaceous dinoflagellates of Kansas and Texas, and Don Bing is working on a master's thesis on Cretaceous dinoflagellates under her direction.

During the year, publications included a chapter on "Molecular oxygen and evolution," in Molecular Oxygen in Biology, Topics in Molecular Oxygen Research, p. 81-135, North-Holland Publ. Co., Amsterdam (1974), and "Recent advances in the classification of the Foraminiferida," Foraminifera, v. 1, p. 1-53 (1974), co-authored with A. R. Loeblich Jr. The paper presented at Benthonics '75 is in press, as are articles on Plankton and Protista for the Encyclopedia of Paleontology, in the Journal of Paleontology on some organic-walled phytoplankton, and in the GSA Bulletin on the possible red-algal (bangiophycidae) affinities of certain Precambrian microorganisms, with resulting implications as to the antiquity of the eukaryotes.

* * *

DOUGLAS M. LORENZ, Ph.D., Northwestern University. Assistant Professor.

Work has continued on taxonomic statistical analysis of cheilostome bryozoans, and on skeletal structural adaptations of erect Paleozoic bryozoa. Graduate student, Ken Kettenring, completed a master's thesis under Doug's direction, on "The Paleoenvironments and Paleoecology of an Ordovician Brachiopod Community in Southern Nevada and Eastern California," and Molly Miller is continuing a study of trace fossils as environmental indicators for a Ph.D. dissertation under his direction, comparing modern biogenic structures of the California coast to the ichnofossils of the Tully (Devonian) of New York, and the Lower Cretaceous Muddy Sandstone of the Wind River Basin.

* * *

PAUL M. MERIFIELD, Ph.D., University of Colorado. Lecturer in Geology; Partner, Lamar-Merifield.

During the year, Paul taught Geology 139, 111C (with Clem Nelson) and Environmental Science and Engineering 400 (with R. L. Perrine). The latter is a problems course involving water quality monitoring in the Sierra Nevada wilderness areas. He continued to serve as Graduate Advisor and Chairman of the Admissions Committee for the Environmental Science and Engineering Program, which now has about 40 students.

An invited paper on "Active and inactive faults viewed from Skylab" was presented at the NASA-sponsored Earth Resources Symposium in Houston, June 1975. At the Cordilleran Section Meeting of the GSA, in Los Angeles, Paul co-authored a paper with D. L. Lamar and co-chaired the Environmental Geology Session. He was invited to participate in NASA's Active Microwave Workshop, which attempted to better define the role of radar in future earth resources programs; proceedings of the workshop are in press. He also co-authored the Seismic Safety Element for the County of Santa Barbara, as well as a number of technical reports describing the results of work performed under contracts with the U. S. Geological Survey and NASA to apply Skylab and ERTS imagery to the fault tectonics and earthquake hazards of southern California.

* * *

CLEMENS A. NELSON, Ph.D., University of Minnesota. Professor.

Clem taught two quarters of Introductory Geology in addition to his Geology of California (Geol 10), and the spring quarter of the Field course (with Paul Merifield). During the summer he taught the summer field course (22 students) in the eastern Sierra-White-Inyo Mountain area, with the assistance of graduate student, Johnnie Moore. A manuscript was completed for Elements of Physical Geology, co-authored by James Zumberge (Univ. of Nebraska) to be published by Wiley. Clem also made plans for a two-week trip to the Anti-Atlas Mountains in Morocco in October, to attend the International Field Conference on the Precambrian-Cambrian transition strata. He notes that "our group is still searching for the best place to drive the golden spike for a world-wide standard. We will do the same in South Australia during the 1976 International Geological Congress in Australia, and I am looking forward to that 'junket' while on sabbatical leave. As you can gather from all this travel, I am struggling to keep up (but failing) with the Crowells and Ernsts."

* * *

GERHARD OERTEL, Dr. rer. nat., University of Bonn. Professor.

* * *

WALTER E. REED, Ph.D., University of California Berkeley.
Assistant Professor.

* * *

JOHN L. ROSENFELD, Ph.D., Harvard University. Professor.

John spent part of the summer continuing geologic mapping along Connecticut River in southern Vermont. Much of the rest of his time, outside of teaching, was spent in completing two manuscripts (with Herb Adams and Lew Cohen) on their work using the birefringent haloes around inclusions in garnet to determine the pressures and temperatures of crystallization (July-August issue of the American Mineralogist). A summary of this work was presented at a NATO Conference dealing with metamorphism at Chiareggio, Italy. Lew and John have been tooling up for application of the same method to garnet included in diamond (accomplished successfully on July 17, 1975) to gain evidence independent of chemical arguments as to the high-pressure origin of at least some diamond (the experiments suggest pressures over 60 Kbar). John has been applying some of the ideas gained from the inclusion work to the origin of porosity in rocks, especially to shallow granitic plutons, where it appears

that differential expansion of minerals on cooling may provide a very healthy assist to development of permeability for the convective oxygen isotope exchange with meteoric waters demonstrated by Hugh Taylor (Caltech). This work has some possible overtones for geothermal energy. A manuscript on this subject at present is being revised.

Extracurricularly, John has been helping his wife with geological advice in her full-time efforts to make sure that the Santa Monica Mountains will still be around for future generations. Partly as a result of these efforts, a bill for comprehensive planning in the Santa Monicas is now going through the California legislature with strong bipartisan support.

* * *

J. WILLIAM SCHOPF, Ph.D., Harvard University. Professor of Geology and Geophysics.

Bill was on sabbatical leave from July 1974 to June 1975 and was a U. S. National Academy of Sciences Exchange Scientist with the National Academy of the USSR from February to July, presenting lectures in Moscow, at the Institutes of Biochemistry, Geology and Paleontology, in the Institute of Geology and Geophysics at Novosibirsk, the Institute of Precambrian Geology and Geochronology at Leningrad, and at the XII International Botanical Congress in Leningrad, at the International Conference on Evolutionary Biology at Liblice, Czechoslovakia, and the NATO Advanced Study Institute on the Early History of the Earth at the University of Leicester, England. In addition to the above conferences, Bill attended the International Seminar on Problems of the Origin of Life in Moscow, a conference on Environments of Jovian planets at the University of Maryland, and the GSA meeting in Miami Beach, and sponsored a Colloquium on Precambrian Life at UCLA in December, which drew attendees from a number of other California universities.

Bill received the Charles Schuchert Award of the Paleontological Society in November 1974 and published "Paleobiology of the Precambrian: the age of blue-green algae," Evol. Biol. 7 (1974), Plenum Press; "Precambrian paleobiology: problems and perspectives," Ann. Rev. Earth Planetary Sci. 3, 1975; "The age of microscopic life," Endeavor 34 (1975). Bill's research and travel is supported by grants from NASA and NSF. He is a member of the editorial board for Geology of the UC Press, and of the editorial boards for Precambrian Research and Evolutionary Theory, and Associate Editor for Origins of Life and Paleobiology.

* * *

RONALD L. SHREVE, Ph.D., California Institute of Technology.
Professor of Geology and Geophysics.

Ron taught Field Geology as usual in the fall and a new course, Theoretical Geomorphology, in the winter. In Field Geology the venerable Sepulveda Summit Area was abandoned in favor of Tapia Park in Malibu Canyon, which though 25 minutes more distant has such civilized amenities as shade and water. Also, in response to student suggestions the Rainbow Basin exercise was lengthened to two weekends, and the area of mapping slightly enlarged to the west to include some of the more interesting (!) problems in the central part of the Basin. Although no cakes were baked this year, Saturday-night hijinks were nevertheless up to their usual par. And, of course, Rosita's and the El Rancho Chinese Cafe provided their customary ethnic fare. In Theoretical Geomorphology, Ron and the class looked at the evolution of geomorphic thinking from G. K. Gilbert to W. M. Davis to R. E. Horton as exemplified by the theories of river profiles, soil creep, and channel networks.

Three of Ron's grad students finished during the year. Bernard Hallet completed his Ph.D. dissertation on "Nature and effects of chemical processes at the base of temperate glaciers." He then took off for several months in Europe and the Himalayas before returning to an appointment in the fall as Assistant Professor of Geology at Stanford. Steve Lipshire finished his M.S. thesis on "Surficial and engineering geology of the Mammoth Creek area, Mono County, California," which was co-directed by Professor Merifield, and is now working on a Ph.D. dissertation under Professor Oertel. Dave Wilson finished his M.S. thesis on "Geophysical investigation of Deep Spring Valley, California," under the direction of Ron and Professor Jackson of Planetary and Space Sciences, and is now working for Union Oil Company in Bakersfield.

Ron continued his research in theoretical glaciology and geomorphology during the year and was involved with Professors Griggs, Jackson, and Knopoff in a paper on "Earthquake prediction: modeling the anomalous V_p/V_s source region." He lectured on river profiles and graded streams at the Universities of Washington and Minnesota, served on the Editorial Board of Earth Surface Processes, a new journal of geomorphology published in England, on the AGU committees on Glaciers and on Erosion and Sedimentation, and on the GSA Subcommittee on the Penrose Medal Award. He also worked as a consultant to the U.S.G.S. on the Mount Baker avalanche hazard and to Kern County on the San Joaquin Nuclear Project.

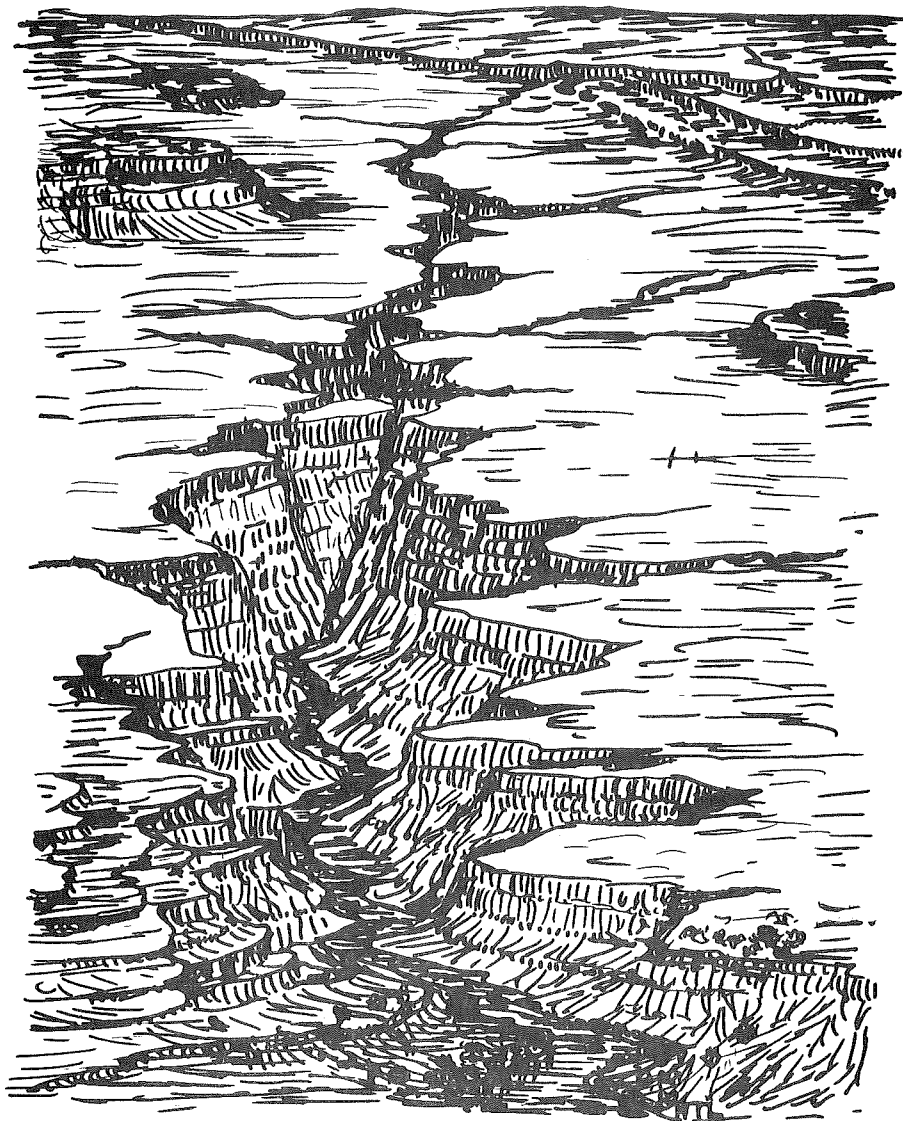
* * *

KENNETH D. WATSON, Ph.D., Princeton University. Professor.

Ken spent most of the summer 1974 investigating some volcanogenic stratiform massive sulfide deposits and gold deposits in the Superior Structural Province of the Canadian Shield. Brief visits were made to mineral deposits in the Logan Mountains, Northwest Territories; the Klondike Plateau and Dawson Range, Yukon Territory; and the Alaska Range.

Research continued during the year on kimberlites of the Canadian Shield and carbonatite alkalic rock relationships at Mountain Pass, California.

* * *



MUSEUM ACTIVITIES

LOUELLA SAUL, Senior Museum Scientist

An interesting diversion from what has become the usual yearly addition of hundreds of type specimens to the collections came by way of the Los Angeles County Sanitation Department, Biology Laboratory. Having checked with other reference collections in the Los Angeles area, they ended up here with the more difficult shells dredged in their monitoring of the ecologic impact of the sewer outfalls. One minute clam appears to belong to a genus not previously reported from the Pacific.

Publication of "Described or figured West Coast species of Cymbophora" was a continuation of the description of the Cretaceous Chico Creek fauna. Now only 86% more of the fauna needs description. The paper given at the GSA Cordilleran Section meeting on the trigoniid genus Yaadia will eventually reduce that by another 1/2%. LouElla states that "Yaadia is not my fault. The name was proposed by C. H. Crickmay while he was professing at UCLA. His Yaadia was the only one here then, but we presently have the world's best supply."

* * *

TAKEO SUSUKI, Senior Museum Scientist

In addition to his curatorial duties, Takeo will teach a course in paleontologic photographic techniques during the fall quarter 1975.

* * *

GLENN WAYCHUNAS, Museum Curator

Glenn became the curator of Rocks and Minerals on May 1, 1975, succeeding Dave Frishman in this post. He is also in charge of field equipment, kodachrome slide collections for teaching, and the map collection that is housed in the Geology Library.

GEOLOGY CAREERS DAY

For the third year, a Careers and Alumni Day was held by the Department on November 14, 1974, the theme this year being "New Directions in Geology." As before, this Careers Day provided an excellent educational experience for Geology students (and faculty) and allowed valuable interaction between students and practicing geologists.

Following registration and coffee in the Geology Museum, participants met in the Student Union Building for an Introduction by Chairman Clarence Hall, and talks by practicing geologists. First of these was Robert Chuoke, Geophysicist, Shell Oil Company, who discussed some of the rapid changes in geophysical technology, showed examples of their use (and indicated the needed interaction between geologists and geophysicists) in areas from the glacial till-covered Michigan Basin to the steeply dipping Gulf Coast Jurassic with its deep mobile salt; and the techniques of mapping with seismology in West Africa, where salts and carbonates are interbedded with clastics, to the California offshore where the water may give multiple reflections.

Earl Brabb, U. S. Geological Survey, then discussed the Survey Environmental Geology program, especially with regard to earthquake hazards, landslides, etc., and the changes this requires in land use planning, especially at the county level. John Wilson, Kennecott Exploration, discussed the continued major importance of strong field mapping training for the mineral exploration industry, even though exploration in this industry is in transition from a surface to subsurface orientation. Problems concerning the industry involve the recognition of mineral deposits at depth, and the techniques required for their extraction, as well as an attempt to determine their origin--for example, why some regions such as southern Arizona and southwestern New Mexico are particularly rich in porphyry copper deposits.

Lunch in the Student Union's Men's Lounge allowed students and visitors the opportunity for introductions and informal discussion. Guided tours of selected departmental laboratories and facilities followed lunch before the formal sessions resumed.

In the afternoon session, Jim Niehaus, Cities Service Oil Co., discussed aspects of petroleum exploration in northwest Alaska, a frontier area for which little prior data were available. Floyd Sabins, Chevron Oil Field Research Co., then talked about Remote Sensing from ERTS (Earth Resources Technology Satellite) and the overlay technique for using ERTS imagery for geological reconnaissance of large and remote areas, as well as for other uses, such as agricultural forecasting. The final speaker, Richard Doell,

U. S. Geological Survey, discussed Program Planning in the northern Great Plains coal mining. Not only are capital, energy requirements, population density, and food considered, but also the effects of the various methods of extraction on such features of the environment as the highly important shallow water aquifers.

The day concluded with a Happy Hour and banquet, featuring as dinner speaker, John Kilkenny, Union Oil Company, and President-Elect of the AAPG. He discussed the future of geothermal energy and potential areas where this method of energy production may prove economic as well as the many problems involved, such as the highly corrosive brines and the silica deposition associated with these hot waters.

* * *

GEOLOGY ALUMNI FUND

Tax deductible contributions (checks payable to "UCLA Foundation--Geology") have supported our Geology Careers Day, student tuition scholarships, thesis field expense, and other inadequately funded but valuable aspects of the Departmental program. We hope you will continue to support these departmental efforts.

Contributors 1974-1975

H. Axelrod	C. Hall	J. O'Brien
M. Balderman	Hardwick	G. Quick
J. Barron	W. S. Harris	J. C. Roth
Ted Bear	G. Heller	J. W. Schopf
L. M. Braren	D. P. Johns	N. W. Schultz
Glen Brown	Johnson	P. Snavely, Jr.
Donald Carlisle	I. R. Kaplan	H. Sullwold, Jr.
J. Charles	P. S. Kistler	Waingrow
X. Colazas	G. Lapins	Waldron
R. Daum Family Trust	V. Lapins	J. Warme
V. Doyle	J. G. Liou	K. Watson
A. L. Ehhreich	Lowery	D. Weide
W. G. Ernst	J. McGill	E. Wellbaum
D. Ettner	H. G. McNeill	R. Winchell
T. Fairchild	P. Merifield	H. Woodard
J. Guenther	C. A. Nelson	

American Mineralogist	Getty Oil Company
California Earth Science Corp.	Kennecott Exploration
Chevron Oil Field Research	National Assoc. Geology Teachers
Dames & Moore	Pauley Petroleum Company
Gemological Institute	Phillips Petroleum Company
Geological Society UCLA	Welex

THE GEOLOGICAL SOCIETY OF UCLA (GSUCLA)

Members of this society include all geology students, faculty, and staff. The Society elects student officers to organize various geological and social gatherings. GSUCLA co-sponsors the numerous lectures given by visiting specialists and the "Phase Liquidus" informal discussions following the talks. Phase Liquidus also aptly closes each week with a Friday afternoon hour of relaxation.

GSUCLA presides at the regular Tuesday noon "Instant Seminar," a tradition by which the proponents of the various facets of the earth sciences explain their interests to the rest of the Department. Two speakers talk at each meeting, having been selected the previous week when their names were drawn from a sample bag.

Other traditions include the series of student-faculty softball games, held at assorted picnics, field trips, etc., and a field trip to one or more parts of California.

GSUCLA officers elected for 1975-76 are:

President - Dave Miller

Vice President - Warren Thomas

Treasurer - Norm Kettenring

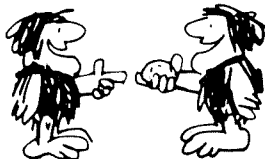
Secretary - Warren Wegner

GSA Representative - Steve Lipshie

EARLY OILER

WHAT'S THE
ROCK FOR?

THIS ISN'T
A ROCK, IT'S
A COMPUTER



WHAT CAN
IT DO?

IT CAN TELL
ME WHERE TO
DRILL FOR OIL



HOW?

WHEN IT'S
STANDING ON END,
THAT'S WHERE TO
DRILL



WHO PUTS IT
ON END?



I DO, STUPID.
I'M THE
GEOLOGIST.



(From the Standard Oiler)

LECTURE SERIES, 1974-1975

The lecture series is sponsored jointly by the Department of Geology and the Geological Society of UCLA. Lectures are open to the public and most are advertised in the University Weekly Calendar which is distributed to other institutions and companies in the area, as well as on the campus. When notice of visitors to the department is too short for such formal notification, the departmental bulletin boards are utilized. The lectures cover a wide variety of topics and many of the current trends and new ideas in geology; they are a broadening experience for students, faculty, and colleagues in the Los Angeles area. Lectures presented during the past academic year are listed chronologically.

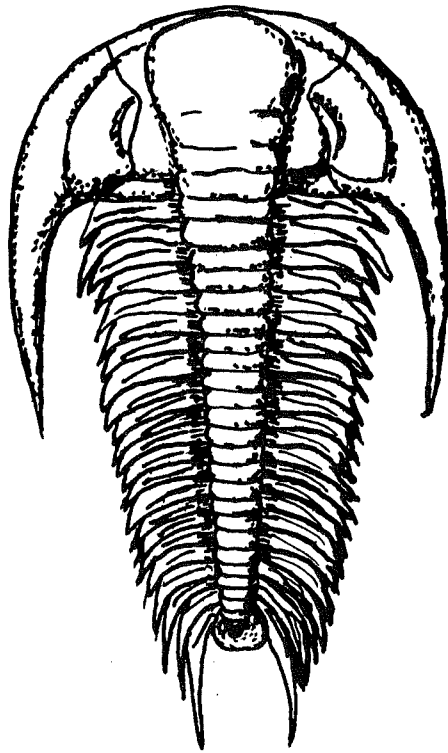
- Dr. Yotaro Seki, Department of Foundation Engineering, Saitama University, Urawa, Japan, "The role of CO₂ in low-grade metamorphism," September 19, 1974.
- Dr. Claire Patterson, Senior Research Associate, Department of Geology, California Institute of Technology, Pasadena, California, "New determinations of the natural levels of lead in people and implications regarding lead pollution," October 3, 1974.
- Mr. Hunter Yarborough, Houston, Texas, "Plate tectonics," October 8, 1974.
- Mr. Ross Taylor, Professorial Fellow, Australian National University, Canberra, Australia, "Geochemical Evolution of the Moon," October 10, 1974.
- Dr. Ian Gass, Professor, Department of Earth Sciences, The Open University, Great Britain, "Within-plate magnetism: causes and consequences," October 15, 1974.
- Dr. Brian Daily, Department of Geology, University of Adelaide, South Australia, "The Precambrian-Cambrian boundary, a world view," October 24, 1974.
- Dr. Glenn Buckley, Senior Research Geologist, EXXON Production Research Company, Houston, Texas, "Thermal evolution of convergent margin basins," November 4, 1974.
- Dr. R. C. Surdam, Professor of Geology, University of Wyoming, Laramie, Wyoming, "Depositional environment of oil shale, Eocene Green River Formation," November 11, 1974.
- Mr. Earl Brabb, Research Geologist, San Francisco Bay and Environment Resources Planning Study, U. S. Geological Survey, Menlo Park, California, "Part-time and career opportunities with the U.S.G.S.," November 15, 1975.

- Mr. Daniel Bernoulli, AAPG Distinguished Lecturer, Professor of Geology and Paleontology, Basel University, Switzerland, "New views on Alpine Tethys evolution based on JOIDES results," November 21, 1974.
- Dr. Les La Fountain, Research Associate, Department of Geology, University of North Carolina, "The effect of anisotropy of the coefficient of sliding friction in schistose rocks," December 4, 1974. "Structural analysis, Front Range, Colorado," December 5, 1974.
- Dr. Perry Ehlig, Professor of Geology, California State University Los Angeles, "The Pelona Schist," December 5, 1974.
- Mr. Tony MacNavin, New South Wales Geological Survey, Australia, "Precious opal and the Great Artesian Basin," December 13, 1974.
- Professor Klaus Keil, Department of Geology and Institute of Meteoritics, University of New Mexico, Albuquerque, New Mexico, "Meteoritic and lunar chondrules: origin, synthesis, and implications," January 7, 1975.
- Mr. Timothy Cross, Department of Geology, University of Southern California, "Cenozoic igneous activity in the western United States and its relation to plate interaction," January 8, 1975.
- Dr. Satish K. Srivastava, Chevron Oil Field Research Company, La Habra Laboratory, La Habra, California, "Angiosperm pollen evolution in the Cretaceous period," January 9, 1975.
- Dr. William F. Brace, Professor of Geology and Geophysics, Department of Earth and Planetary Sciences, Massachusetts Institute of Technology, "The morphology of cracks and pores in rocks: significance for petrology and geophysics," January 13, 1975.
- Mr. Scott Baldrige, California Institute of Technology, Pasadena, "Petrology of Italian potassic volcanics," January 16, 1975.
- Mr. George A. Jackson, Environmental Engineering Sciences, Keck Laboratory, California Institute of Technology, Pasadena, "A chemical look at the interaction of trace metals and chelators with phytoplankton," January 21, 1975.
- Mr. Steven Murray, Department of Geological Sciences, University of Southern California, Los Angeles, "Recent accumulation of sediments and metals in the southern California borderland," January 22, 1975.
- Dr. Eugene M. Shoemaker, California Institute of Technology and U. S. Geological Survey, "Magnetostratigraphy: a powerful new tool for stratigraphic correlation," January 23, 1975.

- Dr. George Tunell, Professor of Geology, University of California, Santa Barbara, "The operational basis and mathematical derivation of the Gibbs differential equation," January 27, 1975.
- Dr. Clarence Allen, Professor of Geophysics, Seismological Laboratory, California Institute of Technology, Pasadena, "Geological criteria for evaluating seismicity," January 30, 1975.
- Dr. Thomas E. Ronan, Bodega Bay Marine Laboratory, California, "Structural, functional, paleoecological aspects of a marine soft-sediment community," February 3, 1975.
- Dr. John Crowell, Professor of Geology, Department of Geological Sciences, University of California, Santa Barbara, "The plate-tectonic mobility of southern California since the Late Mesozoic," February 6, 1975.
- Dr. Roy Schroeder, Department of Geology, Yale University, New Haven, Connecticut, "Diagenesis of threonine and its significance for amino acid racemization studies," February 7, 1975.
- Dr. Lee Silver, Professor of Geology, Department of Geological Sciences, California Institute of Technology, Pasadena, California, "Early Mesozoic history of southwest North America," February 13, 1975.
- Dr. Yaakov Bentor, Professor of Geology, Hebrew University, Jerusalem, Israel; Fairchild Visiting Professor, California Institute of Technology, Pasadena, "Combustion metamorphism, a new petrogenetic concept," February 25, 1975.
- Dr. Jim Hawkins, Professor of Geology, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California, "Igneous petrology and tectonic features of Tonga, Fiji, Samoa regions," February 27, 1975.
- Dr. John Holloway, Department of Geology, Arizona State University, Tempe, Arizona, "CO₂ and the evolution of granitic magmas," March 6, 1975.
- Dr. John Warne, Professor of Geology, Rice University, Houston, Texas, "Structural framework and depositional history of the High Atlas Mountains, Morocco," March 31, 1975.
- Professor Art Boettcher, Department of Geosciences, The Pennsylvania State University, University Park, Pennsylvania, "Melting in a hydrous mantle," April 1, 1975.
- Dr. Cliff Hopson, Professor of Geological Sciences, University of California, Santa Barbara, "The record of Late Jurassic seafloor spreading in the California Coast Ranges," April 10, 1975.

Professor Keith Runcorn, Head, School of Physics, University of Newcastle upon Tyne, England, "Mechanism of continental drift and plate motions," April 24, 1975.

Professor Dennis S. Wood, Department of Geology, University of Illinois, Urbana, Illinois, "Pre-Mesozoic plate tectonics? a consideration of Precambrian evidence from the North Atlantic region and Africa," April 30, 1975.



GRADUATE FELLOWSHIPS AND ASSISTANTSHIPS

1974-1975

John Cottrell, TA
Thomas Fairchild, TA
Chris Finch, TA
Michael Garcia, TA (Chancellor's Teaching Fellow)
Merton Hill, Post-graduate research, NSF
Sara Jacobson, TA, Shell Fellow
Peter Juda, TA (Chancellor's Teaching Fellow)
Terence Kato, TA
Thekkey Krishnan, TA
Daphne LaPointe, TA
Stephen Lee, Post-graduate research, NSF
Timothy Lincoln, TA, Shell Fellow
Steven Lipshie, TA, Post-graduate research, NSF
Peter Lyttle, TA
Calvin Miller, TA
David Miller, Chancellor's Fellow
Molly Miller, TA
Johnnie Moore, Shell Fellow, Post-graduate research, NSF
Roland Mora, TA
Margaret Saunders, TA
Ronald Shmerling, TA
Frank Spear, TA, Post-graduate research, NSF
Edward Stoddard, TA, Shell Fellow
Warren Thomas, TA (Chancellor's Teaching Fellow)
David Thompson, TA
Barrie Wall, TA
Warren Wegner, TA, Shell Fellow
Beth Zigmont, Regent's Fellow

GRADUATE FELLOWSHIPS AND ASSISTANTSHIPS

1975-1976

William Bruner, NSF Fellow
William Carlson, NSF Fellow, Shell Fellow
G. Kent Colbath, RA, NSF
Brian Donnelly, TA
Stephen Ehrenberg, TA
Chris Finch, TA
Michael Garcia, TA (Graduate Advancement Fellow)
Nurit Hildebrand, TA
Carl Jacobson, Chancellor's Fellow, Gulf Fellow
Sara Jacobson, TA
Peter Juda, TA (Chancellor's Teaching Fellow)
Kenneth Kettenring, TA
Cherylene Lee, Graduate Advancement Fellow)
Stephen Lee, RA NSF
Timothy Lincoln, TA
Beth Zigmont Lincoln, Regent's Teaching Fellow
Steven Lipshie, Chancellor's Dissertation Fellow
Calvin Miller, TA
David Miller, TA (Chancellor's Teaching Fellow)
Molly Miller, TA
Johnnie Moore, TA
Roland Mora, AGI Fellow, Graduate Advancement Fellow
Carl Nelson, RA NSF, Shell Fellow
Albert Nyberg, TA
Margaret Saunders, TA
Edward Stoddard, Chancellor's Dissertation Fellow
Warren Thomas, TA (Chancellor's Teaching Fellow)
Warren Wegner, TA

NEW ALUMNI, 1974-1975

Bachelor of Science

Richard Stephen Balogh, 1975	Michael John Kratovil, 1975
Edward John Carpenter, 1974	Gregory Ellsworth McNew, 1975
Don Cocek, 1974	Lawrence Albert Pierson, Jr, 1975
Thomas Lealand Davis, 1975	William Robert Rohtert, 1975
Marion Miller Fisher, 1974	Cassius C. Smith, 1974
Arthur Nate Geier, 1974	Thomas C. Tarnowski, 1974
Charles E. Gordon, 1974	Carol Ann Tosaya, 1975
Stuart Alan Gordon, 1975	Bruce Eugene Van Patten, 1975
Richard Bruce Greenwood, 1974	Michael Vrabel, 1974
Mark D. Howland, 1974	Glenmore Fred Wong, 1974
Howel Jason Karabel, 1974	

Master of ScienceBachman, Steven Bruce

Depositional and structural history of the Waucobi Lake bed deposits, Owens Valley, California. 1974.

Berger, Byron Roland

Petrogenesis of the Green Acres gabbro, Riverside County, California. 1975.

Gardner, David Allison

Hydrogeologic investigation of the Montecito ground water basin, Santa Barbara County. 1974.

Lipshie, Steven Ross

Surficial and engineering geology of the Mammoth Creek area, Mono County, California. 1974.

Mankiewicz, Paul Joseph

An organic geochemical investigation of a glacial sequence at Searles Lake, California. 1975.

Pausé, Paul

By comprehensive examination. 1975.

Prior, Scott William

Geology and biostratigraphy of a portion of western San Luis Obispo County, California. 1974.

Shmerling, Ronald

By comprehensive examination. 1975.

Wilson, David Vernon

Geophysical investigation of the subsurface structure of Deep Springs Valley, California. 1975.

Doctor of Philosophy

Alpert, Stephen Paul

Trace fossils of the Precambrian-Cambrian succession, White-Inyo Mountains, California. 1974.

Crawford, Kenneth Edgar

The geology of the Franciscan tectonic assemblage near Mount Hamilton, California. 1975.

Hallet, Bernard

The nature and effect of chemical processes at the base of temperate glaciers. 1975.

Hill, Merton H.

Albian-Cenomanian (Lower Cretaceous) calcareous nannofossils from Texas and Oklahoma. 1975.

Hurst, Richard W.

Geochronologic studies in the Precambrian of Canada:
I. The Archean of coastal Labrador; II. The Sudbury basin, Sudbury, Ontario. 1975.

Miller, Richard H.

Silurian conodont biostratigraphy of the southwestern Great Basin. 1975.

ALUMNI NEWS

Few news items have been received from alumni this year, but some information concerning former students has been supplied by faculty and others, and at least some updated addresses have been received. Keep us informed of job changes and new addresses, and send in other items of interest to your former UCLA associates at the same time!

Alvin Almgren, B.A., 1944. Address: 2916 Charles Avenue, Fullerton, CA 92635.

Howard T. Anderson, B.A., 1941. Address: 4465 Ninth Street, Riverside, CA 92501.

Kenneth Arnestad, M.A., 1950. Address: 1416 Buena Vista Street, Burbank, CA 91505.

Richard S. Ballantyne, Jr., B.A., 1939. Address: 3460 Grayburn Road, Pasadena, CA 91107.

Francis J. Barker, B.A., 1940. Address: 1780 Ramiro, San Marino, CA 91108.

James M. Barker, B.S., 1969. Formerly employed with Moore and Taber (1972-73), Jim is now a geological coordinator for Tenneco Mining Inc., P.O. Box 68, Lathrop Wells, Nevada 89020. He is working in a program of borate exploration, development, and production in the Furnace Creek area near Death Valley. In April they conducted a tour of the Borano open pit mine of Tenneco for a group of geology students from UCLA and UCB.

Byron R. Berger, M.S., 1975. Since 1971, Barney has been exploration geologist for Continental Oil Company, Reno, Nevada. He has been engaged in exploration for disseminated gold deposits and for porphyry copper deposits. Home address: 4240 Rewana Way, Reno, Nevada 89502.

Charles Blount, Ph.D., 1965, is present Chairman and Associate Professor of the Department of Geology, Idaho State University, Pocatello, Idaho, moving there in January 1975 from the University of Georgia. Lately he has been setting up a geochemistry laboratory for hydrothermal studies at I.S.U. and will continue field and laboratory studies on barite and epithermal ore deposits. His most recent paper is "Synthesis of barite, celestite, anglesite, witherite and strontianite from aqueous solutions," *American Mineralogist* 59, 1209.

Colver R. Briggs, B.A., 1937. Address: 642 Meadowlane Road, Dearborn, Michigan 48124.

Charles F. Briscoe, B.S., 1932. Consultant. Address: 1801 North Country Lane, Pasadena, CA 91107, phone (213) 794-3304. We recently received his address, with a request for the Newsletter, which he had missed.

Jean Paul Chauvel, M.A., 1958, is a District Exploration Geologist for the Union Oil Company of California, 2700 F Street, Bakersfield, CA 93301. He recently transferred from Alaska to Bakersfield.

William (Bill) C. Cornell, Ph.D., 1972, was recently promoted to Associate Professor, effective 9/1/75, and has accepted position of Department Chairman for 1975-76 academic year in the Department of Geological Sciences, The University of Texas at El Paso, El Paso, TX 79968. He is currently president of El Paso Geological Society and Vice-President of UTEP Sigma Xi Club. At the AAPG-SEPM Meeting in Dallas he presented the paper, "Neogene silicoflagellate biostratigraphy of the Back Bay section, Newport Beach, California." Over Memorial Day he was visited by UCLA grads Gwen (Jensen) and Jeff Heller (Cities Service, Denver).

Robert Countryman, current graduate student on leave-of-absence, (B.S., 1973, CSU Northridge), is working with other UCLA geologists Jim Barker, Jim Norman, Tom Troutman and Mike Vediner for Tenneco Mining Inc., P.O. Box 68, Lathrop Wells, Nevada 89020. Bob is investigating some stratigraphic and mineralogic aspects of the borate deposits for his M.S. thesis.

S. Cyrus Creasey, B.A., 1939; M.A., 1941; Ph.D., 1949. U. S. Geological Survey, 345 Middlefield Road, Menlo Park, CA 94025.

Richard H. Daum, B.A., 1937. Address: 1200 West 8th Street, Los Angeles, CA 90017.

George H. Davis, M.A., 1940. U.S. Geological Survey, National Center, Reston, VA 22092.

Kenneth L. Edwards, B.A., 1935. Address: 5953 Highwood Road, Castro Valley, CA 94546.

Frank A. Exum, B.A., 1956; M.A., 1957, is Senior Geologist, Marathon Oil Company, P.O. Box 120, Casper WY 82601. He is co-editor of the Wyoming Geological Association 1975 Guidebook and Vice President of the Wyoming Section AIPG. Two of his papers were selected by AAPG for inclusion in their reprint series. Home address: 1244 Granada Avenue, Casper, WY 82601.

Harold L. Fothergill, B.A., 1941. Union Oil Company, P.O. Box 7600, Los Angeles, CA 90051.

A. Eugene Fritsche, A.B. 1958, Ph.D. 1969, is Associate Professor of Geology, Department of Geosciences, California State University, Northridge, California 91324. He was recently elected President of the Pacific Section SEPM, and will hold office until December 1976. At the March 1975 GSA Cordilleran Section meeting in Los Angeles, he presented "Middle Tertiary correlations southwest of the San Andreas fault, northern Santa Barbara and Ventura Counties, California." Home address: 17605 Cantara Street, Northridge, CA 91324.

Edward B. Fritz, B.A., 1936. Address: Apartado Postal 31-396, Guadalajara 5, Jalisco, Mexico.

Bruce N. Haugh, Ph.D., 1973. Bruce's article on the "Water vascular system of the Crinoidea Camerata" was selected as the outstanding paper published in the Journal of Paleontology during 1973. An award was made at the Dallas, Texas meeting of the AAPG-SEPM in April 1975. Bruce is presently teaching in the Department of Earth and Planetary Science, Erindale College, University of Toronto, Mississauga, Ontario L5L 1C6, Canada.

Paul L. Hayes, B.A., 1940. Address: 1223 Maplewood Street, Anaheim, CA 92805.

Richard H. Hopper, B.A., 1935, M.A., 1936 (Ph.D. Caltech, 1939), is Vice President of American Overseas Petroleum Ltd., 380 Madison Avenue, New York, NY 10017. His most recent paper is "Fifty years of exploring for oil in Indonesia," Oil Life-stream of Progress, Caltex, volume 24, no. 3, 1974.

Frank C. Horacek, B.A., 1953, is District Geologist - Oil and Gas Division of J. M. Huber Corporation, 385 Denver Club Building, Denver, CO 80202. He directs oil and gas exploration for Huber's Rocky Mountain district in Denver. Home address: 7037 South Madison Way, Littleton, CO 80122.

Roland T. Hull, M.A., 1943. Address: 6155 West 78th Street, Los Angeles, CA 90045.

Darrel L. Kirkpatrick, B.A., 1942. Address: 32 Wetherly Driver, Bakersfield, CA 93309.

Donald H. Kupfer, M.A., 1942. Address: 5984 Hibiscus Drive, Baton Rouge, LA 70808.

John S. Loofbourow, Jr., B.A., 1939; M.A., 1951. Address: 3154 Kirkham Drive, Glendale, CA 91206.

Josephine McArthur, B.A., 1935. Address: 70 North Cove Road, Box 585, Old Saybrook, Connecticut 06475.

Thane H. McCulloh, Ph.D., 1952. Thane is a research geologist for the Office of Energy Resources and Marine Geology, USGS, c/o Department of Oceanography, University of Washington, Seattle, Washington 98195. He has been recently promoted to PL 313 supergrade and transferred in July 1973 from Washington, D.C., to Seattle, Washington, and from management to research. He was awarded one of four USGS PL 313 positions.

John T. McGill, B.A., 1943; M.A., 1948; Ph.D., 1951, is a geologist with the Engineering Geology Branch, USGS, Denver Federal Center, Denver, Colorado 80225. He writes that in August 1974, after 10 very demanding years of administrative work as Chief, Engineering Geology Branch, he was able to return to project research, although Denver continues to be his headquarters. He is now completing some long-delayed reports on landslides and geology of the Pacific Palisades area, Los Angeles, as part of a congressionally authorized study directed by the Corps of Engineers. His future research probably will be in the general field of slope stability. Home address: 11705 West 24th Pl. Cir., Lakewood, CO 80215.

Paul McGovney, B.A., 1938. Address: Box 399, Twain Harte, CA 95383.

Mary McNeil, M.A., 1963. Now staff geologist, ERDA, Grand Junction, Colorado 81501. Mary is involved in a big uranium project there and visited UCLA in May to interview prospective employees.

Robert F. Martin, Jr., B.A., 1958, works as an insurance agent for New York Life Insurance Company. He is a member of the Los Angeles Insurance and Trust Council and life member of the Million Dollar Round Table. He also is studying to complete his C.L.U. designation. Home address: 2801 West 6th Street, Los Angeles, CA 90057.

Manley Natland, Ph.D., 1952. Address: 333 Weymouth Place, Laguna Beach, CA 92651.

James C. Norman, B.S., 1974, is working for Tenneco, Inc. in the Furnace Creek area near Death Valley. He is employed in a program of borate exploration, development and production, and in April conducted a tour of the Borano open pit mine of Tenneco for a group of geology students from UCLA and UCB.

Garnet W. Oliver, B.A., 1938; M.A., 1940. Address: 3236 South Oneida Way, Denver, CO 80222.

William F. Prather, B.A., 1936. Address: 10582 Ohio Avenue, Los Angeles, CA 90024. Deceased September 7, 1974.

B. J. Presley, Ph.D., 1969, was promoted to Associate Professor in the Department of Oceanography, Texas A and M University, College Station, TX 77843. He held the position of Program Manager for the Environmental Quality Program of the NSF and IDOE office from July 1974 to September 1975. He is very anxious to return to teaching and to his own research this fall, which is funded by NSF, ONR and the Bureau of Land Management. Several publications have appeared on the effects of pollutants on marine organisms.

Carter E. Ruby, B.A., 1943. Address: 612 South Flower Street, Los Angeles, CA 90051.

David C. Salter, B.A., 1957. David was recently promoted to Coordinator of Technical Systems, Mene Grande Oil Company, Apartado 709, Caracas 101, Venezuela. He is in charge of developing technical programs for exploration and production geology, geophysics, and reservoir engineering.

Edward W. Scott, B.A., 1932, retired December 1, 1974, after 41 years with Union Oil Company as Manager of Exploration Research. His present position is as geologist with the USGS, 345 Middlefield Road, Menlo Park, CA 94025. Home address: 22323 Bahl Street, Cupertino, CA 95014.

Frank S. Simons, B.A., 1940. Address: USGS, Denver Federal Center, Denver, CO 80225.

Russell R. Simonson, B.A., 1934; M.A., 1936. Address: 1605 Glorietta Avenue, Glendale, CA 91208.

Parke D. Snavely, Jr., A.B., 1941; M.A., 1951. Address: 11825 Larnel Place, Los Altos, CA 94022.

Rayman Sturdevant, A.B., 1939. Address: 1134 Weber Way, Sacramento, CA 95822.

Harold H. Sullwold, Jr., B.A., 1939; M.A., 1940; Ph.D., 1959.
Address: Carpinteria Professional Center, 5565 Carpinteria Avenue, Carpinteria, CA 93013.

Warren C. Thompson, B.A., 1943. Address: 830 Day Creek Road, Monterey, CA 93940.

Thomas W. Troutman, B.S., 1974, is working in borate exploration in the Death Valley area for Tenneco Mining Inc., P.O. Box 68, Lathrop Wells, Nevada 89020.

William Randall Van Schmus, Ph.D., 1964, was recently promoted to full Professor (effective Fall 1975), Department of Geology, University of Kansas, Lawrence, Kansas 66045. He spent the spring 1975 semester (on sabbatical leave) at Department of Geology, Imperial College, London, England, working on broader aspects of early Proterozoic mobile belts. Several papers are in press, in GSA Bulletin and Canadian Journal of Earth Sciences dealing with past several years' work on the geology and chronology of Precambrian rocks in the Great Lakes area. Home address: 813 West 27th Terrace, Lawrence, Kansas 66044.

Michael E. Vediner, B.S., 1973, is working for Tenneco, Inc., in the Death Valley borate exploration, Tenneco Mining Inc., P.O. Box 68, Lathrop Wells, Nevada 89020.

Holly C. Wagner, M.A., 1947. Address: 1135 Lisa Lane, Los Altos, CA 94022.

John E. Warme, Ph.D., 1966, has been promoted to Professor of Geology at Rice University, P.O. Box 1892, Houston, Texas 77001. John spent his recent sabbatical leave catching up on papers due for publication and lecturing in Kansas, Utah, California, and New York. During the summer he studied the deepwater facies development in the Upper Mesozoic and Tertiary in the northeastern Mediterranean area (Austria, Yugoslavia, Greece, Italy, and France). Two papers were presented on coral reefs and basinal limestones of Morocco at the International Sedimentological Congress, Nice, France, and other papers were presented at the GSA Symposium on "Communities" and the SEPM (Pacific Section) on the Paleogene. Both have since been published with co-authors.

Byron K. Webb, B.A., 1931, died July 5, 1974. We were notified by Edward Scott.

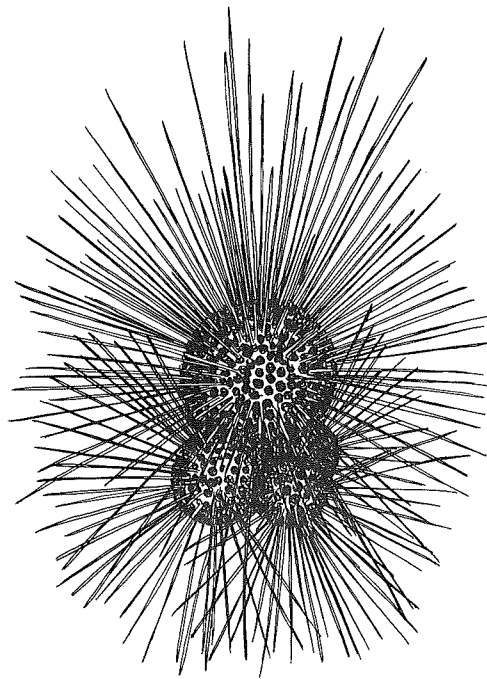
Edward L. Wheatfill, M.A., 1958. Address: 5318 Wardlow Road, Long Beach, CA 90808.

John H. Wiese, A.B., 1940; M.A., 1941; Ph.D., 1947. John is a self-employed clam digger, surf fisherman and part-time geologist since his retirement from ARCO in 1973 after 25 years. He was a Visiting Professor of Geology at S.M.U. in 1970-1973. He is now trying to build a consulting practice in San Luis Obispo, specializing in engineering geology. Home address: 1595 Los Osos Valley Road, #16-C, Los Osos, CA 93402. He writes that he hopes we all "appreciate what a heroic job of mapping Clarence Hall is doing here in San Luis Obispo County . . . a giant step forward."

James Jerome (Jerry) Williams, B.A., 1955; M.A., 1957. Is now an independent consulting geologist and technical coordinator of ERICO Inc. (Exploration Research International), an independent geological consulting firm. Formerly Vice President and Exploration Manager of Occidental Petroleum's United Kingdom Subsidiaries, he resigned in January 1976, in order to join ERICO. He is Chairman of the Petroleum Exploration Society of Great Britain for 1976, a society of 750 active members, and published an article on the Piper Oil Field of the North Sea in the September 1975 Bulletin AAPG. Present address (office): c/o ERICO Inc., Tannery Lane, Send, Woking, Surrey, England GU 23. Home address: 1 Constable Close, London NW 11, England.

Gordon A. Young, B.A., 1943. Manager of Exploration, Mene Grande Oil Company, Apartado 709, Caracas 101, Venezuela. Gordon was promoted to Manager of Exploration in 1969 and assigned to Special Projects in 1973. He reached official retirement age in May 1975, but has continued working, being reassigned as Manager of Exploration in 1975. He was President of the Asociacion Venezolana de Geologia, Minería y Petróleo from 1974-1976, and recently received the Venezuelan Government award "Francisco de Miranda" for his work dedicated to science and to the nation, and for relevant merits. An article in the Mene Grande Oil Company publication "El Disco Anaranjado" noted that he first arrived in Caracas in 1947 and has remained there ever since, first working as a micropaleontologist, then in regional geology, and finally moving into management. Hobbies include Venezuelan folklore, folk

dancing, and sailboating, but he becomes thoroughly engrossed in these as well as in geology, having taught folk dancing at the Venezuelan-American Center. As a boating enthusiast, he served as Commodore of the Sailboat Fleet at Puerto Azul Club and as Secretary of the Venezuelan Federation of Nautical Sports.



Geology Newsletter Editor
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University of California
Los Angeles, California 90024

Name _____

Address _____

UCLA degree and date _____

Present position, company or institution, address

Recently transferred? promoted? retired?

Professional and other activities (degrees from other schools?
current work, research studies, awards, etc.)

Publications, offices in professional societies?

Other information, news of other alumni, etc.