

GEOLOGY DEPARTMENT - 1971



THE COVER

In contrast to last year's cover, representing work at UCLA on moon rocks, the current cover shows two of the wide-ranging aspects of down-to-earth research on fine-grained Paleozoic sediments.

The two upper illustrations are scanning electron micrographs (X 2000) of a distinctive acritarch genus from the Late Permian of western Australia. Acritarchs are fossil cysts of phytoplankton algae of unknown exact affinity. Marine phytoplankton were the important primary producers of the Paleozoic, and fluctuations in their abundance and diversity were suggested by Helen Tappan and Alfred Loeblich to have been a major evolutionary selection pressure for marine life through the food chains. Perhaps these pressures were the cause of the Permian-Triassic biologic crisis, as well as other periods of major evolution and extinction in the seas.

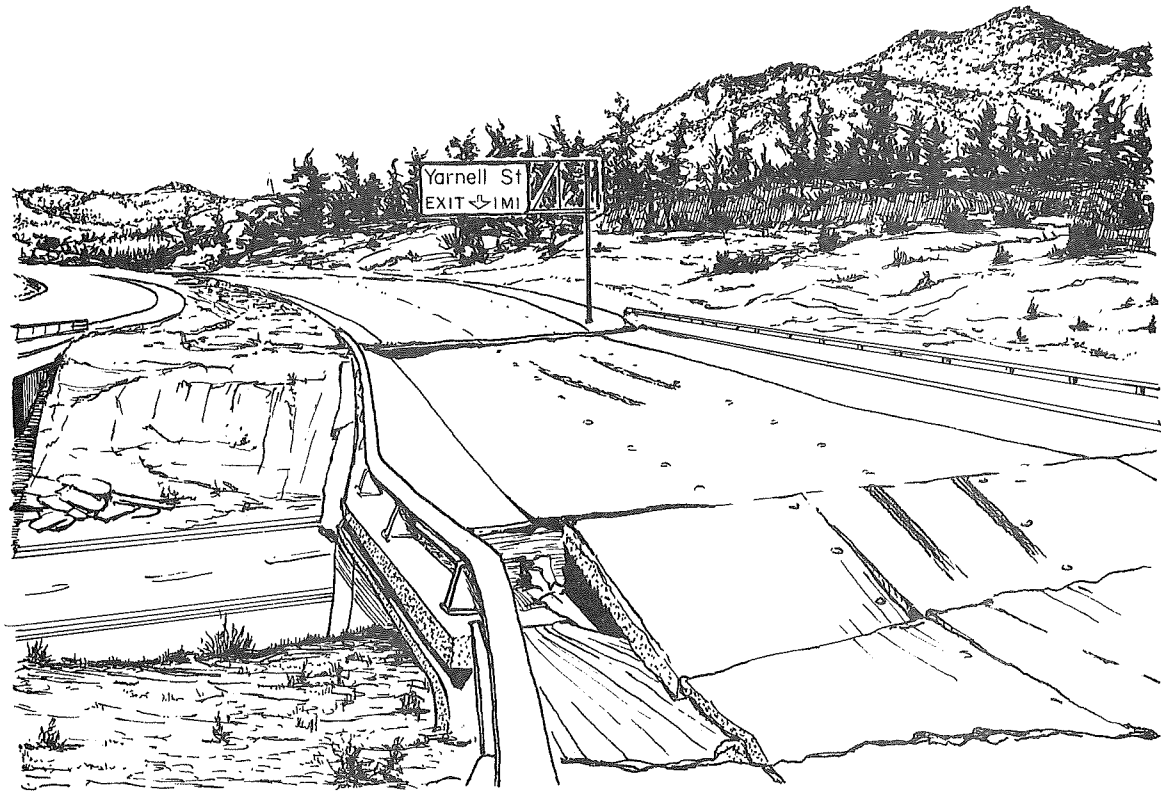
The large illustration, of an ultrathin section prepared by the ion bombardment technique, is of a Middle Cambrian slate from Nantlle, Caernarvon, North Wales. Muscovite and chlorite flakes surround a "large" grain of muscovite (about three microns thick). All grains have their basal planes approximately perpendicular to the plane of the electron micrograph. After the deformation that led to slaty cleavage, recrystallization has removed all effects of strain from the crystals. The transmission electron micrograph was taken by Prem Phakey for a joint study with Gerhard Oertel.

ACKNOWLEDGMENTS

We are grateful to Chevron Oil Field Research Company, La Habra, California, for reproducing the Newsletter. Cover illustrations were supplied by G. Oertel and H. Loeblich; cover drafting was by Jeanie Martinez. Other illustrations were by Julie Guenther and Vicki Doyle, who also did the typing. All who supplied data, news items, and other information are also gratefully acknowledged, as the Newsletter would not be possible without such assistance.

Helen Tappan Loeblich

Quiet "Halls of Ivy" may have aptly described the typical campus of a few decades ago, but times have changed. The last Newsletter reported on the various faculty projects related to lunar samples, and while nothing comparable in novelty to lunar exploration has occurred during the past year, things were jumping a bit on February 9. Although the University buildings showed no major structural damage from the earthquake, some loosened or cracked plaster required repairs, as did tile roofing on older buildings.



Buckle up for safety?

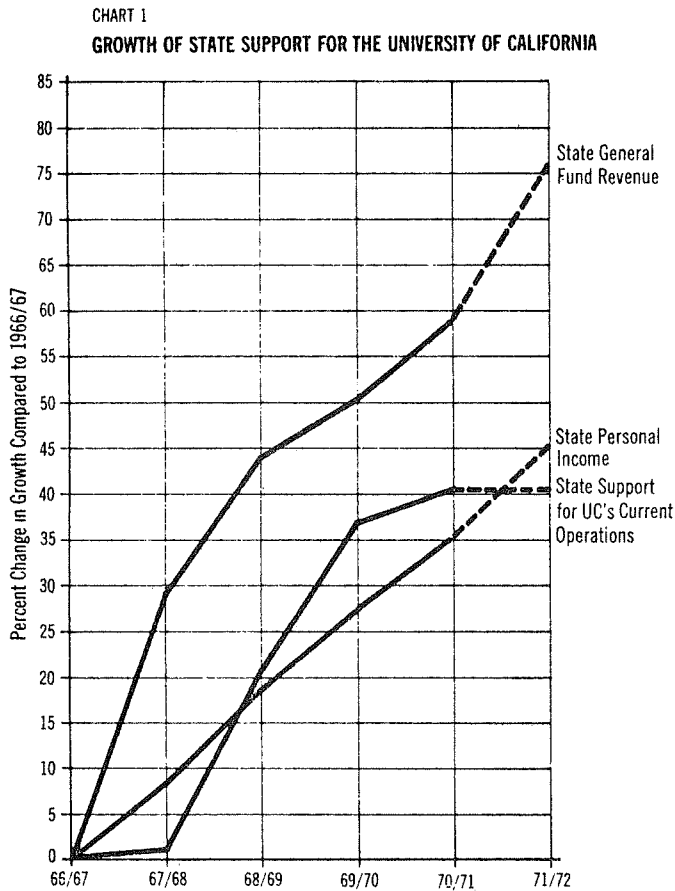
Shortly after 6:00 a.m. on February 9, 1971, a commuter, whose name may remain unknown, was traveling west on the new Foothill Freeway. As he approached the Roxford Street Bridge, his car began to weave. Ahead, the bridge surface seemed to heave about and the pavement broke and buckled. Too late, he slammed on the brakes--a tilted slab of paving above the east abutment of the bridge acted as a takeoff ramp. Some thirty-five feet west, the car left orbit and, wheels screeching, completed the record of a non-scheduled flight. Sketch from a photo by Richard B. Saul, California Division of Mines and Geology.

Libraries all over the campus were upset as thousands of volumes were dumped on the floors by the quake and its numerous aftershocks. The Research Library had only a month earlier moved some million or more volumes into a newly opened section, and about 150,000 of these fell helter-skelter into the stack aisles. Backs of some of the heavier books were broken in the tumble, and altogether more than a week was required by library staff and many student volunteers before order was restored.

Although the Earth History (Geology 2) class assignment for February 10 was to cover continental drift, sea-floor spreading, Gondwanaland, and related topics, there is no truth to the rumor that the earthquake was planned as an illustration of "Geology in Action."

Perhaps less earth-shaking but far more pleasant was the report of rating given UCLA and the Geology Department in particular in the 1969 Roose-Anderson Report, "A Rating of Graduate Programs," prepared for the American Council on Education. UCLA rating as a whole was tenth in the nation both in effectiveness of graduate programs (30 fields rated) and in quality

of graduate faculty, and three UCLA departments (Chemistry, Geology, and Linguistics) were rated as "distinguished." Ten departments of letters and sciences and one in engineering ranked among the top ten in the nation in their respective disciplines; Geology at UCLA tied for seventh place in the nation in quality of graduate faculty, and we placed eighth in rated effectiveness of the doctoral program.



In contrast to the upward trend of educational policy (or at least the image projected), the accompanying charts from the report of President Charles Hitch to the Regents are self-explanatory.

CHART 2
COMPARISON OF UC ENROLLMENT AND UC STATE SUPPORT

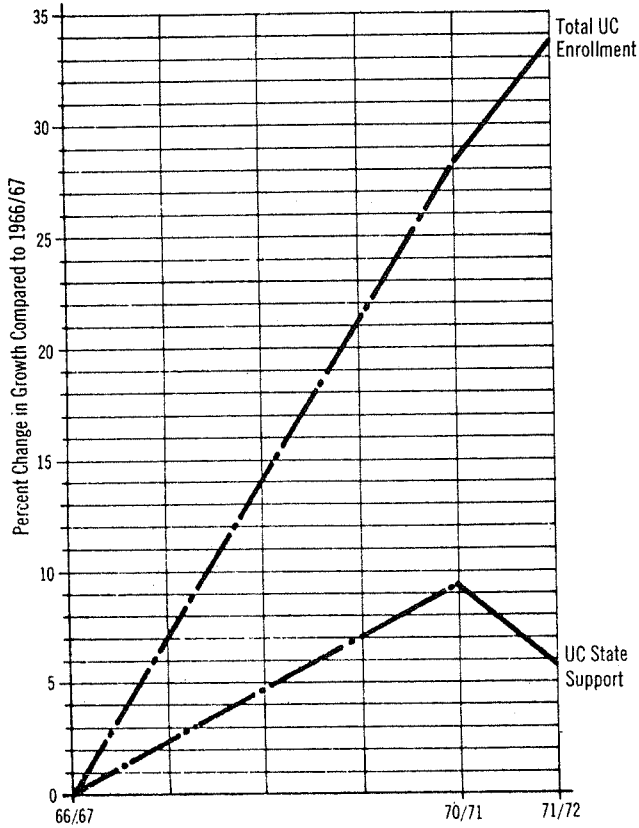


CHART 3
COMPARATIVE GROWTH OF ENROLLMENT, FACULTY POSITIONS AND SUPPORTING FUNDS, 1966/67 - 1971/72

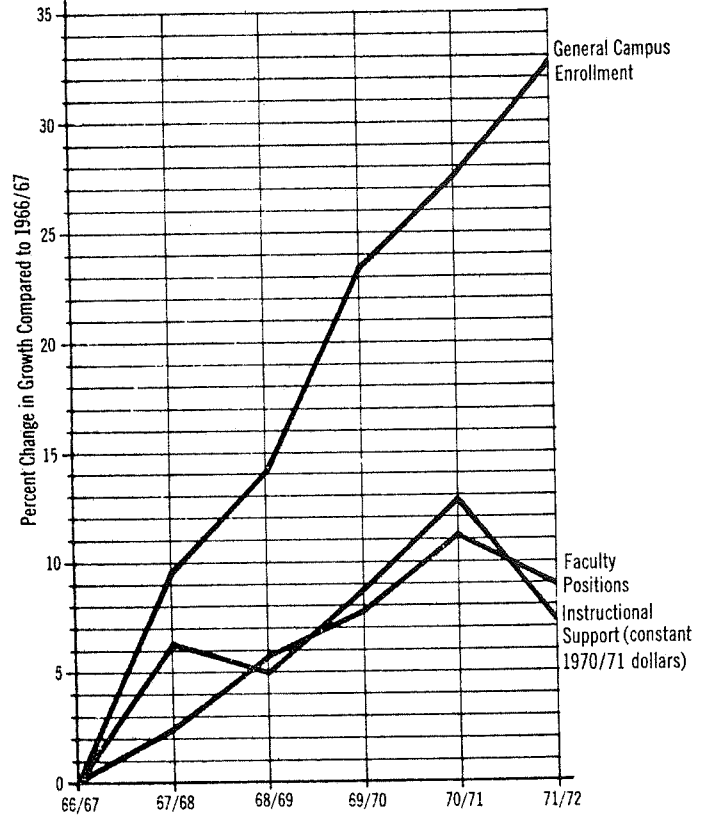
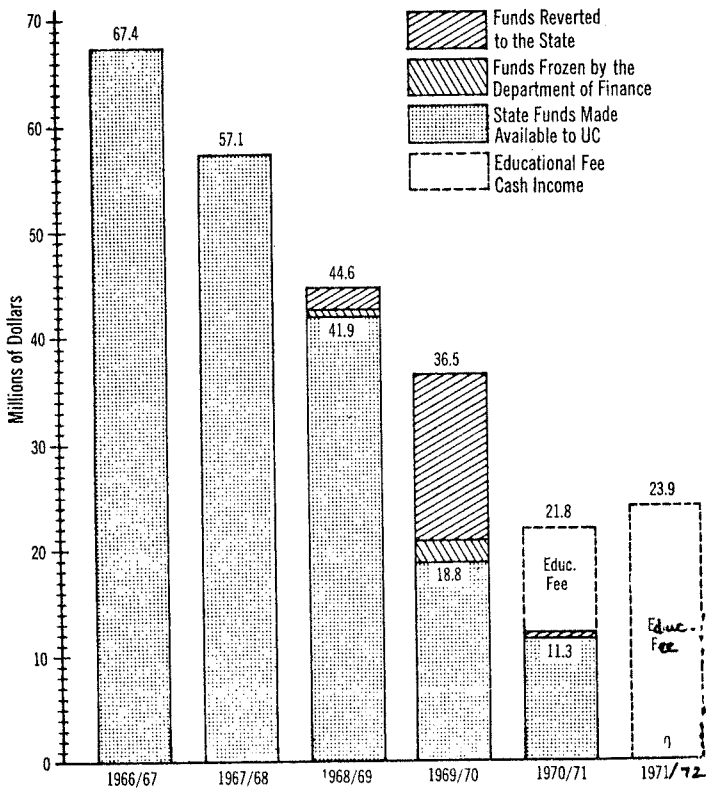


CHART 4
CAPITAL OUTLAY APPROPRIATIONS



During the 1970-1971 academic year, undergraduates majoring in geology numbered about 46; of these 22 were enrolled in the 1971 summer field course. The number of bachelors degrees awarded more than doubled that of the previous year, with 20 graduating since the last Newsletter report. Graduate students enrolled, completing degrees, or in absentia while continuing work on theses or dissertations totaled about 65. As the University Regents have placed a limited quota of graduate students for the various campuses, the Department of Geology limitation for actively enrolled students is 52, hence acceptance of new graduate students requires that others complete their studies. Nine masters degrees have been awarded during the academic year 1970-1971 and three doctoral degrees. Five others have completed these requirements since the end of the academic year.

Recently much discussion has concerned the so-called over-production of scientists and of Ph. D.'s. In this regard, the following statistics for the UCLA Department of Geology may be of interest.

	B. S. Awarded	M. S. Awarded	Ph. D. Awarded
1962-1966	37	39	34
1967-1971	<u>62</u>	<u>30</u>	<u>30</u>
Total last 10 years	99	69	64

Thus, while the number of B. S. degrees has almost doubled in the last five years over the previous five, the numbers receiving masters and doctors degrees declined slightly.

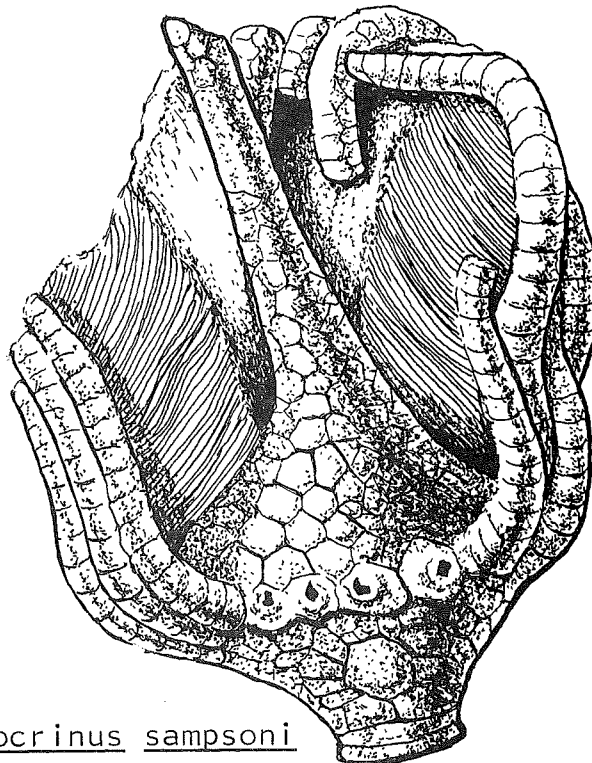
Data from the AGI, totaling all earth science departments in the U. S. show a similar rise in undergraduates but also a somewhat increased number of M. S. and Ph. D. degrees five years later.

	Seniors (B.S.)	M. S. Awarded	Ph. D. Awarded
1966	1776	1704	1341
1970	3142	2080	1408

Earth science teaching in secondary schools has supplied some increased demand for B. S. degrees, as it is one of the few areas where teachers are still in short supply. Some of the seniors from this past year have gone into this field.

The Department was pleased that one of the geology graduate students, Tom Fairchild, received a Faculty Prize for Distinguished Teaching Assistant for 1970-1971, one of five such awards for the entire UCLA campus. In addition, Tom received one of the eight NSF Summer Traineeships at UCLA for teaching assistants.

A new type of invited seminar program was begun during this past year, consisting of a Graduate Student Lectureship. Candidates are graduate students nominated by the faculty as having shown outstanding research capability. The recipient presents a formal seminar talk, receives a modest honorarium, and is guest at an after-seminar dinner with several members of the faculty and students. The first such award was made during the winter quarter to Herbert G. Adams, whose research talk concerned "Solid Inclusion Piezothermometry: Experimental Calibration of Quartz-Almandine and Sillimanite-Almandine." During the spring quarter the second Graduate Student Research Lecture was given by Bruce Haugh, who spoke on "Functional and Anatomical Interpretation of Ancient 'Spiny-skinned' Invertebrates."



Batocrinus sampsoni

SILVER LININGS

In spite of the much publicized reduction of state support for the University and the many attendant problems this involves at all levels, ranging from the removal of some 18 telephones from offices in geology to the loss of faculty positions, there are still some favorable indications of support of University and departmental aims, progress, and results.

For some years, Shell Oil Company has given a generous grant-in-aid to the Department, commonly used for one or two fellowships or other student-related expenses. Standard Oil of California gives an annual scholarship award for seniors in the Geology Department. A gift from the Ocean Exploration Division of Kennecott Exploration, Inc., was made for the purchase of books or a piece of equipment to be used for research related to marine geology; and Marathon Oil and Pan American Oil each made unrestricted grants to the Department. An anonymous donation for a Faculty Graduate Fellowship also was received for the year 1971-1972. These awards greatly help in offsetting the loss of University fellowships that resulted from the reduced state support and in allowing the continued support of outstanding students.

The Department was delighted to receive as a most welcome gift from Chevron Oil Field Research Company a 75-volt Phillips Transmission Electron Microscope. This is now installed on the fifth floor, adjacent to the departmental JEOLCO JSM-2 Scanning Electron Microscope, adding greatly to the research and teaching capabilities of the Department.

Also greatly appreciated was the gift from Visiting Professor Charles Curtis of thin sections of a large suite of rocks that he had systematically collected from the Skaergaard intrusion, East Greenland, while on an expedition there in 1966. These are of exceptional teaching value inasmuch as the intrusion is a particularly well-documented example of fractional crystallization of basaltic magma.

GEOLOGY-GEOPHYSICS LIBRARY

Dora Gerard, the former Librarian in Geology, retired in August, 1970, after 34 years at UCLA. Open house in her honor was held in the Library on August 14. The new librarian, John Hill, has been in charge since September, 1970. During September the first Serials Holding List of the Geology-Geophysics Library was published. Compiled over the previous year, publication of the 78-page volume was made possible by the Ralph

D. Reed Library Maintenance Fund. The Library also is one of 23 earth science libraries in North America that has cooperated in compiling a list of their holdings of geologic field trip guidebooks.

Because the Geology-Geophysics Library attained its full capacity of 60,000 volumes during the year, expansion of library stack space into an adjacent room has begun, as was originally planned some six years previously. This should provide sufficient stack space, assuming an acquisition rate of about 3,000 volumes annually through 1975. The general budgetary problems of the University are particularly difficult for the library, as the acquisitions budget during the past year was identical to that of the preceding year, although almost all subscription rates increased at rates from about a ten percent increase to a nearly doubled price. The proliferation of earth science journals in recent years has added to the difficulty.

The published tables of Academic Library Statistics for 1969/1970, issued by the Association of Research Libraries, show that the UCLA entire library holdings remain twelfth in size of U. S. libraries for the fourth year, with some 2,916,551 volumes (it passed the 3,000,000 mark in January). That it may not long retain this relative position is suggested by its position as twentieth in the number of volumes added during the year. In contrast, seven of the top ten libraries in total holdings were also among the top ten in acquisitions. Berkeley was in sixth position in current holdings but also was not among the top ten in current acquisitions.

GEOLOGICAL SOCIETY OF UCLA

All geology students, staff, and faculty belong to GSUCLA. This organization co-sponsors with the Geology Department the many afternoon talks by visiting specialists, as well as occasional noon talks, slideshows, etc.

The President of the society for 1970-71 reports that with all of the turmoil on campus, the GSUCLA activities this year nevertheless carried a distinctly traditional character--camaraderie and beer drinking. The first activity for the year was the annual welcoming picnic and beer party at the UCLA Recreation Center for the new graduate students, which was sprinkled with the flavor of the Los Angeles brush fires. The second event was a revival of the tours of local breweries. A very enjoyable Halloween costume party was held at the Schlitz Brown Bottle Room. The Friday afternoon "Phase Liquidus" get-together was revived from a slow death by transplanting to a more central

location; its activities were capped this year with a beer-tasting party. The GSUCLA's year closed with the annual pot-luck picnic for faculty, students, staff, and families at Pt. Mugu State Beach.

Instant Seminar, the weekly noon-time brown-bag confab, continued to provide a meeting ground for ideas, and once again the departmental group 'enjoyed' the general hilarity caused by the arrival of Santa Claus and his elves with their collection of carefully created gifts for selected "victims." Another of GSUCLA's means of informal communication is the field trip; this year there were two extracurricular field trips during the year. The first trip, to the Mojave Desert and Providence Mountains during New Year's vacation, was a combination of warm hearts and very cold weather. The weather was beautiful for the second trip, though, when departmental members enjoyed three days in the spectacular Inyo Mountains.

GSUCLA Officers for 1970-1971:

Ken Crawford, President
Bruce Haugh, Vice President
Vicki Doyle, Secretary
Sue Formiller, Treasurer
Barney Berger, Graduate Students Association Representative

The new officers for the coming year are:

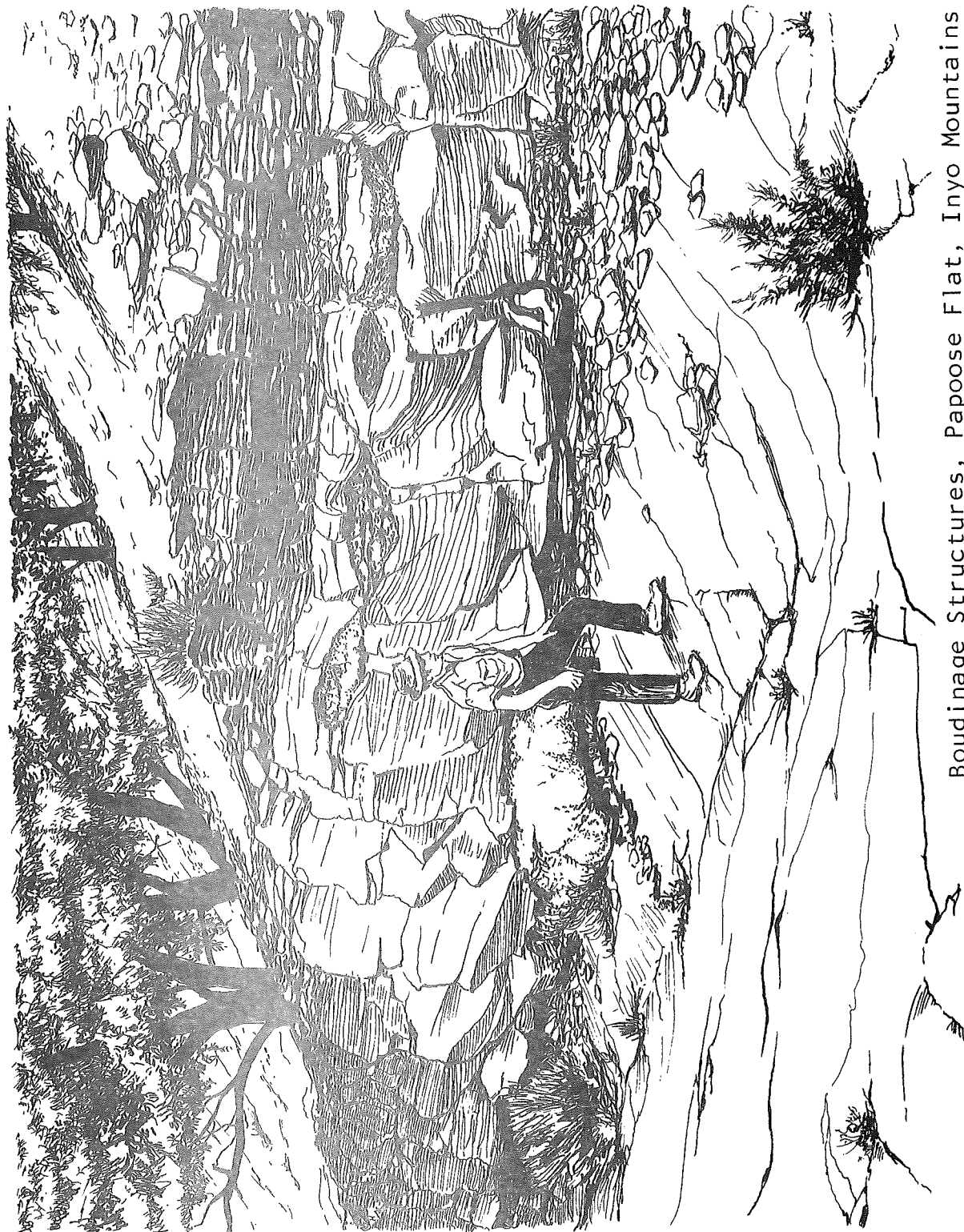
John Brady, President
Tom Fairchild, Vice-President
Gary Sherwood, Treasurer
Betty Recks, Secretary
Gerry Dollinger, Graduate Students Association Representative

LECTURE SERIES, 1970-1971

Lectures, generally held on Thursday afternoons, are sponsored jointly by the Department of Geology and the Geological Society of UCLA and are open to the public. The lectures, generally by visiting specialists, cover a wide variety of subjects. Those of the past academic year are listed in order of their presentation.

Dr. Matt Walton, Environmental and Engineering Geologist, Denver, Colorado. "Is There Such a Thing as Environmental Science and Engineering?" October 22, 1970.

Miss Tanya Atwater, Department of Geophysics, Stanford University, "Implications of Plate Tectonics for the Cenozoic Tectonic Evolution of Western North America." November 24, 1970.



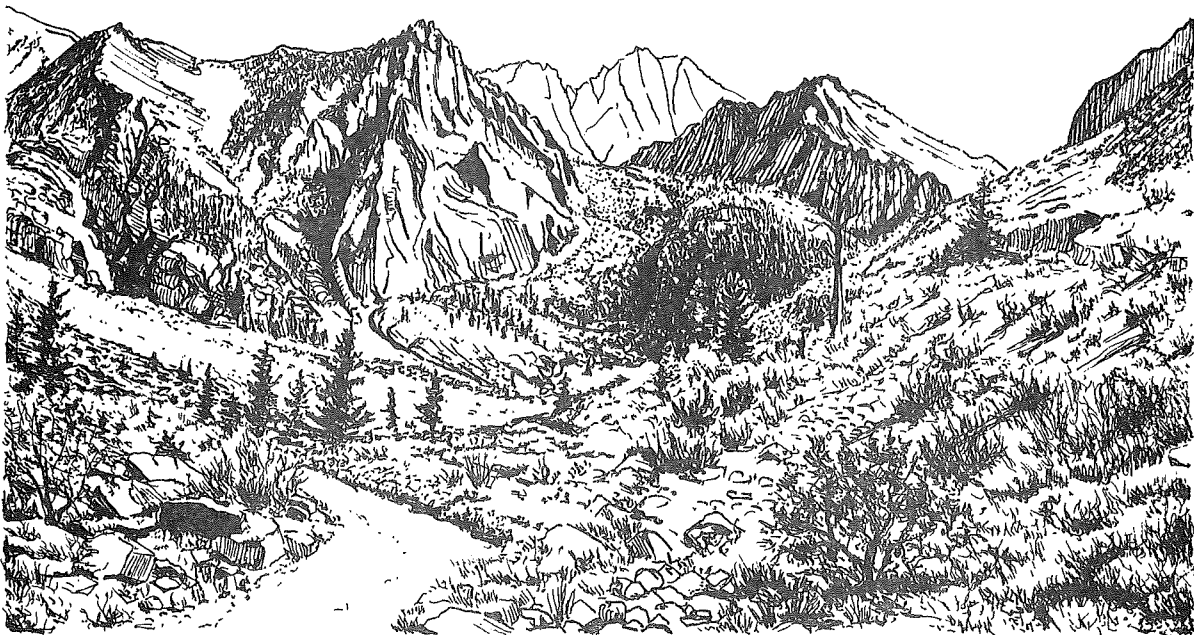
Boudinage Structures, Papoose Flat, Inyo Mountains

- Professor Richard L. Hay, Department of Geology and Geophysics, University of California, Berkeley. "Olduvai Gorge: the Evolution of a Semi-arid Basin." December 3, 1970
- Dr. Robert E. Zartman, Isotope Geology Branch, U. S. Geological Survey, Denver, Colorado. "Radiometric Age (Late Ordovician) of the Quincy, Cape Ann, and Peabody Granites from Eastern Massachusetts." December 8, 1970
- Professor Eugene M. Shoemaker, Division of Geological Sciences, California Institute of Technology, Pasadena. "A Worm's Eye View of the Lunar Garden." December 9, 1970
- Professor Charles D. Curtis, Department of Geology, University of Sheffield, England; Visiting Professor, UCLA. "Chemical Features of Some Ancient Clay Sediments." December 10, 1970
- Mr. Herbert G. Adams, Graduate Student Research Lecturer, Department of Geology, UCLA. "Solid Inclusion Piezothermometry: Experimental Calibration of Quartz-Almandine and Sillimanite-Almandine." January 28, 1971
- Dr. Arthur A. Meyerhoff, Managing Editor, American Association Petroleum Geologists. "Russian and Mainland Chinese Petroleum and Mineral Exploration Techniques." February 2, 1971
- Professor Preston E. Cloud, Department of Geology, University of California, Santa Barbara. "Precambrian Biogeology." February 4, 1971
- Mr. Robert P. Blanc, Minerals Exploration Operations Manager, Getty Oil Company. "Careers for Geologists in Mineral Exploration." (Discussion primarily for undergraduates and beginning graduate students) February 18, 1971
- Mr. Richard B. Saul, Geologist, California Division of Mines and Geology. "Early Impressions of the Late Quake." (Slides of the February 9 earthquake effects) February 19, 1971
- Professor Raymond Siever, Chairman, Department of Geological Sciences, Harvard University, Cambridge, Massachusetts. "Clay-water Reactions and the Composition of the Oceans." February 24, 1971
- Professor Harlan P. Banks, Professor of Botany, Division of Biological Sciences, Cornell University, Ithaca, New York. "Time of Evolution of Some Biocharacters of Land Plants," March 1, 1971; and "Stratigraphic Occurrence, Characteristics, and Rate of Early Evolution of Land Plants," March 2, 1971

- Mr. Russell H. Campbell and Mr. Robert F. Yerkes, U. S. Geological Survey, Menlo Park, California. "Structural Evolution of the Santa Monica Mountains, Los Angeles Basin Area." March 4, 1971
- Dr. Matt Walton, Regents Lecturer in Environmental Science and Engineering, UCLA. "The Scope and Practice of Environmental Geology." March 10, 1971
- Dr. Mason Hill, Research Associate, UCLA; Former Manager of Exploration, International Division, Atlantic-Richfield Company. "Careers for Geologists in the Petroleum Industry." (Discussion primarily for undergraduates and beginning graduate students) March 11, 1971
- Dr. Cyril Ponnampuruma, Chief, Chemical Evolution Branch, Exobiology Division, NASA-Ames Research Center, Moffett Field, California. "Chemical Evolution and the Origin of Life." April 1, 1971
- Dr. Roland E. Von Huene, Geologist, U. S. Geological Survey, Menlo Park, California "Plate Tectonics and Marine Geology of the Aleutian Trench Area." April 15, 1971
- Professor John C. Crowell, Department of Geology, University of California, Santa Barbara. "Ice Ages and Their Causes." April 22, 1971
- Professor Clifford A. Hopson, Department of Geology, University of California, Santa Barbara. "Andesitic Volcanism and Relationship to Plutons, Cascade Mountains, Washington." April 29, 1971
- Dr. E. W. Roedder, Geochemistry and Petrology Branch, U. S. Geological Survey, Washington, D. C. "Ancient Fluids in Crystal." April 30, 1971
- Dr. Robert Hessler, Oceanographer, Scripps Institution of Oceanography, University of California, San Diego. "The Structure of Deep-Sea Benthic Communities." May 6, 1971
- Dr. Thane H. McCulloh, Geologist, U. S. Geological Survey, Pomona College, California. "Oil-Well Blowouts: Mechanisms and Geological Implications." May 13, 1971
- Mr. David Weide, Museum Scientist, Department of Geology, UCLA. "Geologic and Geomorphic Problems of the Macedonian Neolithic." May 20, 1971
- Dr. Sutherland Brown, Department of Mines and Petroleum Resources, Victoria, British Columbia. "Geology of the Queen Charlotte Islands, Coastal British Columbia, and their Tectonic Setting." May 21, 1971

Professor Charles D. Curtis, Department of Geology, University of Sheffield, England; Visiting Professor, UCLA. "Slides of the Greenland Expedition." May 26, 1971

Mr. Bruce N. Haugh, Graduate Student Research Lecturer, Department of Geology, UCLA. "Functional and Anatomical Interpretation of Ancient 'Spiny-skinned Invertebrates.'" June 3, 1971



Looking up the south fork of Big Pine Creek, California

**“Research
is to
Teaching
what
Sin
is to
Confession:
without
the one,
you have
nothing
to say in the
other.”**

WILLIAM R. ALLEN
Professor of Economics

FACULTY NEWS

Clem Nelson completed his service as Chairman of the Department in 1970-1971, and Gary Ernst takes over the reins in September, 1971, after a year's sabbatical leave in Switzerland. In addition to Ernst, Clarence Hall and Ian Kaplan also were on leave during the past year. Gary Lane, Ron Shreve, John Rosenfeld, and John Christie will be on leave for all or part of the coming year. As reported in the last Newsletter, Dr. Douglas Rumble has officially been a member of our Department since 1969 but was on leave at Harvard University. He has now joined us in Los Angeles. We also reported last year that Dr. James Dieterich had been appointed to our Department to join us in 1971. We are sorry to announce that he has instead decided to remain with the U.S.G.S. in Menlo Park.

Visiting professors at UCLA during the past year include Dr. Charles Curtis, University of Sheffield, England; Dr. Prem Phakey, Monash University, Australia; Dr. James Stout, Harvard University; and Dr. John Suppe, Princeton University.

Ted L. Bear, B. A., UCLA. Lecturer in Geology

A geological consultant (Bear and Kistler), Ted annually teaches the course in Petroleum Geology. As of July 1, he is Secretary for the American Association of Petroleum Geologists.

Donald Carlisle, Ph. D., Wisconsin. Professor; Associate Dean, Graduate Division

During the 1970 field season, research on Vancouver Island was extended to include a study of Triassic and Early Jurassic stratigraphy of the whole southern coast of British Columbia. In cooperation with Takeo Susuki and NSF-URP students, some 19 sections have now been mapped structurally, measured, and collected. The geology of the Campbell River area is being completed for initial publication at a reduced scale by the Geological Survey of Canada.

In January an invited paper on low-grade metamorphism in the Karmutsen Group was given in Vancouver for a Geological Association of Canada symposium on metamorphism in the Canadian Cordillera.

Turning to the problems of fellowships and assistantships in the Graduate Division, which occupy much time during the academic year, 1970-71 has seen a further decimation of graduate student support in the face of rising fees. There were no new NSF Traineeships, only a fraction of the former number of NDEA Title IV Fellowships, and none of the previous University Fellowships. In this, however, UCLA is no worse off than other public universities, and fortunately we have been able thus far to maintain the Chancellor's Teaching Internship program at the traditional 50 for the campus, even though this has meant dipping heavily into the reserve fund. This will be increasingly difficult to maintain in the future.

The Graduate Advancement Program for minority masters and doctoral students also felt the impact of budget constraints, with only approximately 60 new outright fellowships being available for 1971-72 as compared with 240 new fellowships in the current year. Approximately 100 other students were supported by work-study grants related to degree programs. The emphasis in selection remains on scholastic promise and excellence. Two companies, one in mining, one in oil, have expressed interest in assisting in the support of minority graduate students in earth science or other physical sciences. Hopefully, we may soon see some developments in this area.

John M. Christie, Ph. D., Edinburgh. Professor

Work has continued at an ever increasing pace on transmission electron microscopy of the moon rocks (jointly with Dave Griggs of the Institute of Geophysics and Planetary Physics and collaborators at Case Western Reserve University and U. S. Steel Research Labs.) using the million-volt electron microscope at U. S. Steel Labs. In addition to numerous trips to sunny Cleveland and Pittsburgh, Christie visited Houston in January,

where he presented a paper at the Apollo 12 Lunar Science Conference on submicroscopic structures in the lunar minerals. He is scheduled to give papers on electron microscopy of deformed minerals at the A.G.U. Symposium on Petrologic Crystal Chemistry at Martha's Vineyard and at the Fifth International Materials Symposium on Structure and Properties of Materials, both in September. During the year, work progressed in the Rock Deformation Laboratory under the supervision of Griggs and Christie; Jim Blacic, Jan Tullis, and Terry Tullis received their Ph.D. degrees, all with distinction.

Dr. Charles D. Curtis, Visiting Assistant Professor of Geology, University of Sheffield, England

Charles was here for the entire year, teaching the sedimentology course (mostly concerned with recent sedimentation processes, especially of clays) and a graduate seminar on diagenesis in sediments. He spent many days in general geologic exploration in California and southern Nevada, in company with various faculty members, and participated in various formal trips, including the New Year's trip to the Mojave Desert and Providence Mountains and the spring Papoose Flat trip. He even joined the class field trips of the introductory paleontology course. He feels that he is returning to England with a little knowledge of the southwest, if not of the States "proper." Even during his short stay, he participated in several masters and doctoral committees in various stages and was much interested in seeing the American educational system at first hand.

During this time research on several interesting aspects of clay mineral crystal structure and grain fabric in a variety of rocks was undertaken in collaboration with Gerhard Oertel and visiting Professor Prem Phakey, which should produce some interesting papers. Other studies were made in collaboration with graduate students Chari Petrowski on carbon isotopes, with Bill Cornell on a clinoptilolite occurrence in marine shale, and with Richard LeFever on a computer simulation of chemical weathering processes.

Charles also comments that he much appreciated having the opportunity to persuade Ian Kaplan, Bill Schopf, Gerhard Oertel, and John Christie to look at some really interesting rocks (his!) for a change--with the use of their apparatus.

Wayne A. Dollase, Ph.D., M.I.T. Associate Professor

During the past year, Wayne has continued crystal structure studies of nepheline and related minerals. During the early part of 1971 he has been busy setting up a Mössbauer spectrometer. Publications have appeared in the American Mineralogist and in

Contributions to Mineralogy and Petrology. He participated in the annual meeting of the A.G.U. in Washington, D. C. during the spring and planned to spend much of the summer looking at ^{57}Fe environments in minerals and glasses.

W. Gary Ernst, Ph.D., Johns Hopkins. Professor of Geology and Geophysics; Chairman of Department beginning September, 1971

Ernst was on sabbatical leave in Switzerland from September 1970 through August 1971 to do research in the Pennine Nappes and along the Insubric Line. He also taught an igneous petrology course at the University of Basel and presented ten lectures at other European universities. In March he gave an invited talk at a Symposium on the Petrologic Implications of Plate Tectonics held at the Geophysical Laboratory of the Carnegie Institution of Washington.

Papers published during the year include "Element partitioning in blueschist tectonic inclusions from serpentinites, California Coast Ranges, and a discussion of blueschist tectonics," Sobolev Vol. II, p. 5-23, Nauka, Moscow, 1970; "Mössbauer, infrared, x-ray and optical study of cation ordering and dehydrogenation in natural and heat-treated sodic amphiboles," Amer. Min., vol. 55, p. 1226-2158 (with C. M. Wai) 1970; "Do mineral parageneses reflect unusually high-pressure conditions of Franciscan metamorphism?" Amer. Jour. Sci., vol. 270, p. 81-108, 1971; and "Petrologic Reconnaissance of Franciscan metagraywackes from the Diablo Range, central California Coast Ranges," Jour. Petrology, vol. 12, Part 2, p. 413-437, 1971.

Clarence A. Hall, Jr., Ph.D., Stanford. Professor

On sabbatical leave, Clarence was a Fulbright Research Scholar at the University of Modena, Italy, from September 1970 to May, 1971, working on cyclic shell growth-layering in modern bivalves from the Adriatic Sea. The same species were also studied from Miocene, Pliocene and Pleistocene rocks in the northern Appenines.

Closer to home, he is continuing his studies of the geology of the Coast Ranges near San Luis Obispo, California, emphasizing in particular the structural geology and volcanic history of the region.

Isaac R. Kaplan, Ph.D., University of Southern California, Professor of Geology and Geochemistry

A Guggenheim Foundation Fellowship enabled Ian to engage in research and travel to Japan, New Caledonia, New Zealand, and Australia, opening up new areas of study for him in the fields

of geochemistry of coral reefs and lagoons and in ore genesis. He was gone from September, 1970, to August, 1971, but in spite of a busy schedule, returned for a visit in January when he attended the Second Annual Lunar Science Conference in Houston.

During his long absence the laboratory staff carried on and were very productive. A total of four new baby girls were born to the busy research scientists.

Ian was selected to continue as principal investigator for study of lunar samples. Before leaving on sabbatical, studies on the Apollo 12 samples were completed, and since his return work is progressing on the Apollo 14 analyses. Professor Hitoshi Sakai (Institute of Thermal Spring Research, Okayama University, Japan), as visiting research scientist, is co-principal investigator on the lunar rock project and will measure the amount and isotopic ratio of carbon and sulfur in the lunar rocks hoping to discover what compounds are present.

Two other visiting research scientists are currently here: Dr. Zeev Aizenshtat (Department of Organic Chemistry, Hebrew University, Israel) is helping with the organic geochemistry studies, principally the process of degradation of organic compounds in sediments from the JOIDES Deep Sea Drilling Project and its relation to the time scale; and Dr. Israel Zak (Geology Department, Hebrew University, Israel) is studying rock and underground water interaction, mainly calcium and magnesium exchange, sulfur isotopes in sulfates, and trace elements in evaporites of marine origin.

Dr. Sam Ben-Yaakov was in charge of the laboratory during Ian's absence, working on instrument development and carbonate saturation measurement in the deep sea, and he taught two courses in the Department of Electrical Engineering.

Research under way includes studies on the formation and early diagenesis of sedimentary pyrite; iron sulfide equilibrium in the pore waters of marine sediments; the designing and building of a probe with a multi-channelled, digital recording system for in situ oceanographic study; trace element analyses of JOIDES cores; studies of carbonate in interstitial waters; and investigations into the inorganic and biochemical cycling of nitrogen compounds in marine sediments during early diagenesis.

Recent publications include: "Evidence of extraterrestrial amino acids and hydrocarbons in the Murchison Meteorite," *Nature*, vol. 228 (with Kvenvolden, Lawless, Pering, Peterson, Flores, Ponnampereuma, and Moore); "Interstitial water chemistry: Deep Sea Drilling Project, Leg 5" (with B. J. Presley and M. B. Goldhaber); and "Interstitial water chemistry: Deep Sea Drilling

Project, Leg 6" (with B. J. Presley); "Deep sea in situ calcium carbonate saturation," Jour. Geophysic. Res., vol. 76 (with S. Ben-Yaakov); and "An oceanographic instrumentation system for in situ application," Mar. Tech. Soc. Jour., vol. 5 (with S. Ben-Yaakov).

N. Gary Lane, Ph.D., University of Kansas. Professor

The past year was taken up in teaching the paleontology seminar, advanced paleontology, and the beginning "Principles of Paleontology" course, the latter with Bill Schopf. Highlights of this latter course included some original poetry in Schopf's lectures and the "baptism" by total immersion for both Lane and Schopf in the Pedersen's swimming pool during the field trip. "Spare time" was occupied as co-editor with Peter Vaughn, of the Department of Zoology, for the Journal of Paleontology. In October rousing send-offs were held for Lane's graduate student, John Grimmer, who is currently in Japan studying living crinoids while on a Japanese Ministry of Education Fellowship.

Gary will be on sabbatical leave during 1971-1972 and will be at Trinity College, Dublin, Ireland, for research on the Irish Lower Carboniferous crinoid faunas and some teaching in their paleontology and stratigraphy courses. Field work is planned in the Lower Carboniferous of Ireland and England. He leaves September 6 for Ireland, relinquishing his editorial duties to Clarence Hall. Much of the summer was spent in assisting with the completion of the crinoid volume, Part I, of the Treatise on Invertebrate Paleontology and in completing some research.

Helen Tappan Loeblich, Ph.D., University of Chicago. Professor

Courses taught during the past year included one on plant microfossils, the undergraduate Earth History, and a Colloquium for Paleontology and Sedimentology. Involvement in various symposia during the year resulted in a lack of progress on her textbook in micropaleontology.

Participating in the Penrose Conference on the Evolution of Marine Benthic Communities at the Asilomar on the Monterey Peninsula in December, 1970; attending a meeting of the JOIDES Paleontology-Stratigraphy Advisory Panel at the annual GSA meeting in Milwaukee (November); participating in the SEPM Research Symposium on the History of the Ocean Basins in Houston (April, 1971) with a joint contribution with A. R. Loeblich, Jr. on the History of Oceanic Plankton; a guest lecture at the Department of Geology, University of California Santa Barbara (May) on "Some Lesser Known Microplankton;" and presenting a paper on "Smaller

Protistan Evidence and Explanation of the Permo-Triassic Crisis," co-authored with A. R. Loeblich, Jr., at the International Conference on the Permo-Triassic, Calgary, Alberta, Canada (August 23-26, 1971) left little spare time. She also had working with her over the summer 'vacation' one of the 20 high school scholarship winners for biomedical research, a project of the Committee for Advance Science Training coordinated by the California Museum of Science and Industry. About a week's field work in the Wyoming Jurassic was squeezed in following the Calgary Permo-Triassic Conference in August.

Two graduate students have been supported by a grant to Helen from the American Chemical Society Petroleum Research Fund, which expires in August. Continuing support is being supplied by a National Science Foundation grant covering micro-paleontologic studies of phytoplankton productivity and ecologic succession. Studies by graduate students involve Late Devonian Acritarcha, Late Cretaceous silicoflagellates and archaeomonads, Mesozoic and Cenozoic foraminifera, and Late Cenozoic diatoms. Other current research (jointly with A. R. Loeblich) includes early Paleozoic acritarchs, Permo-Triassic and Jurassic organic phytoplankton, and continuing indices to calcareous nannoplankton.

Recent joint publications with Al Loeblich include: "Thysanoprobulus, a new acritarch genus from the Early Devonian (Late Gedinian) Haragan Formation of Oklahoma, U.S.A.," Proc. Biol. Soc. Washington 83, p. 261-266 (1970); "Geobiologic implications of fossil phytoplankton evolution and time-space distribution," Geol. Soc. America Spec. Paper 127, p. 247-340 (1971); "Two new Orthosphaeridium (Acritarcha) from the Middle and Upper Ordovician," Trans. Amer. Micr. Soc. 90, p. 182-188 (1971). In addition "Microplankton, ecological succession and evolution" appeared in the Proc. North Amer. Paleon. Conv., Part H, p. 1058-1103 (1971) and an article on "Foraminiferida" was published in the McGraw-Hill Encyclopedia of Science and Technology, Ed. 3, p. 467-475 (1971).

Paul M. Merifield, A.B., M.A., UCLA; Ph.D., University of Colorado; Partner, Lamar-Merifield, Geologists, Geophysicists. Lecturer in Geology.

In addition to teaching Engineering and Environmental Geology in the winter quarter as a lecturer in the Department of Geology, Paul has been serving as a member of the working committee for a newly proposed graduate program at UCLA in Environmental Science and Engineering.

Recent publications include "Paleotides and the geologic record," Chapter 5 and "Age and origin of the earth-moon system," Chapter 6 of Palaeogeophysics, Academic Press (1970); and "Geology of central San Clemente Island, California," Geol. Soc. America Bull., v. 82, no. 7 (1971).

Current research includes a study of the relation between microseismicity and fluid injection on the Whittier Fault of Southern California, under a contract from the U. S. Geological Survey National Center for Earthquake Research, and subsurface disposal of industrial and radioactive wastes.

Joseph Murdoch, Ph.D. Professor Emeritus

Clemens A. Nelson, Ph.D., University of Minnesota. Professor; Chairman of the Department through 1970-1971

Clem is looking forward to the end of his administrative chores and a return to geology, but he says he's not certain that he can remember how to use a Brunton! Undoubtedly he had the opportunity to brush up on this while teaching the 1971 Summer Field course in the Sierra White-Inyo region. He is currently involved with graduate students working in S.W. Utah and central Nevada and others working on diverse stratigraphic problems. A recently completed manuscript (to the G.S.A.) concerns "Forcible Emplacement of Birch Creek Pluton, White Mountains," and a manuscript on the Papoose Flat Pluton is in its final stages.

Gerhard Oertel, Dr. rer. nat., University of Bonn. Professor

Research interests concern mica and clay fabrics in slates, shales, and concretions and the disorder and long-range order in the structure of phyllosilicate minerals. Other research involves the interaction of diagenesis, compaction, and fabric (fissility) in clay sediments.

Graduate student T. K. Krishnan is working on a study of the structural style of the miogeosynclinal part of the Labrador trough near Schefferville, Quebec. Gerhard's geologic field studies in July of 1970 in the Labrador trough in Labrador and Quebec, Canada, were briefly interrupted for presentation of a talk at Schefferville, Quebec (July 26) on "Mud balls as strain gauges." A recent publication "Deformation of a slaty, lapillar tuff in the English Lake District: Reply," appeared in the Bull. Geol. Soc. America 82, p. 533-536 (1971).

Future research plans include the recording of more fabrics on an X-ray pole figure device and additional electron-microscopy of sedimentary structures jointly with Prem Phakey.

Dr. Prem Parkash Phakey, Department of Physics, Monash University, Clayton, Victoria, Australia. Visiting Associate Professor

Prem was here for about eight months, from December 15, 1970, until August 30, 1971, following which he is to spend a year in P. B. Price's Physics Lab at UC Berkeley. During the

winter quarter he taught a course in "Advances in Technical Geology Research," involving electron diffraction and techniques of transmission electron microscopy. A seminar in mineralogy during the spring quarter concerned structural defects in crystals and elementary dislocation theory. Prem's research studies during his stay at UCLA were on the deformation of olivine (in collaboration with John Christie and Dave Griggs of the Institute of Geophysics); on the shock effects in rock-forming minerals from the Ries Crater together with Christie, Ed Chao, and Odette James; on electron microscopy of slate with Gerhard Oertel; and on the electron microscopy of various sediments with Charles Curtis.

Willis Parkison Popenoe, Ph.D. Professor Emeritus

Although officially "retired," Parky gets in about 25 hours a week at the office and lab, spending the remainder of his waking hours feeding cats and doing sundry other domestic chores. Most of his "professional" time during this past year has been spent in assembling and preparing Later Cretaceous gastropod material for description and hopefully for publication. In line with what seems to be a useful approach to this study, he is compiling information on generic groups comprising sequences of apparently related species generally ranging through most of later Cretaceous time. One such study on the Perissitys-Cophocara succession was presented at the March meeting of the Paleontological Society at Riverside. As Lou Saul has been studying a related generic group, a joint paper on their studies is envisaged, to include erection of a new Cretaceous gastropod family. He also reports that a study of a later Tertiary molluscan fauna from the Philippines now has progressed to the point where the end is visible. "Even the weariest river winds somewhere safe to sea."

Field work during the past year has been virtually nil, although following a post-Christmas month visiting his son and daughter-in-law in Lexington, Kentucky, he drove back to California to see a part of the country that he had previously missed, through Mobile, New Orleans, and Houston. He also planned to spend the latter part of June at Redding, California "for a short boiling-out process."

John L. Rosenfeld, Ph.D., Harvard. Professor

Primary concerns during the past year have been with teaching duties and work on solid inclusion piezothermometry, the latter in collaboration with Lewis Cohen at UC Riverside and graduate student Herb Adams. Preliminary results were presented at the G.S.A. meeting in Milwaukee by Adams. A generous grant from the National Science Foundation should

permit this to be expanded into quite an extensive project. They plan to explore the almandine-quartz curves out to 10 kb and to work also on the diamond problem using inclusions of garnet, chrome-spinel, olivine and any others available.

Additionally, John is working up some of the rotated garnet material, collected in 1963 from the region just south of the Gotthard Massif in the Central Alps, and he comments "Suffice it to say that my data do not fit the kinematics of any of the existing interpretations with which I am familiar." A joint study with Hugh Taylor (Caltech) concerns pressure-temperature conditions in the same region of the Alps and involves the use of both chemical and physical petrologic methods. An invited lecture on "Solid Inclusion Piezothermometry" was given March 2 at the University of Southern California.

William B. Rubey, D.Sc., Missouri, Villanova, Yale; LL.D., California. Professor Emeritus of Geology and Geophysics

"Advanced Topics in Geology," the graduate seminar taught by Bill Rubey in the winter quarter of 1971, had a capacity attendance. Students choose subjects for their discussion papers and have considerable leeway within the framework of the general seminar topic. The talks and papers ranged from "Problems in Precambrian Paleobiology" to "Circumpacific Paired Metamorphic Belts" to "Paleozoic Glaciation of the Southern Hemisphere" and "Electromagnetic Remote Sensing of the Earth."

In the spring of 1970 NASA authorized the Lunar Science Institute, of which Bill was then director, to establish a Lunar Sample Review Board to advise the NASA Science and Applications director on the scientific merit of proposed investigations of lunar materials and on the scientific goals and objectives of the Lunar Sample Program. Bill is co-chairman of this board, which to date has reviewed upward of 400 proposals during its frequent meetings.

He was a participant in summer 1970 of a study group convened by the Space Science Board of the National Academy of Sciences to make a study on priorities in space science and earth observations. The study, requested by NASA, was to determine criteria for relative priorities and recommend levels of effort and support to be allocated to NASA programs in lunar and planetary exploration, astronomy, gravitational solar-terrestrial physics, the environmental science portion of space applications and life sciences during the period 1971-1980. The recommendations were based on possible contributions to basic knowledge and social benefit and on estimated total available funding. Results of this study appeared as "Priorities for Space Research, 1971-1980," published by the National Academy of Sciences.

Bill has accepted a NASA appointment to the Geology Panel of the Earth Resources Survey Disciplines Program. The panel reviews proposals in connection with Earth Resources Technology Satellites (ERTS) and Skylab Earth Resources Experiment Package (EREP).

Although Bill Rubey resigned from the directorship of the Lunar Science Institute, and his successor took over on March 1, 1971, he remains a member of the Board of Trustees of Universities Space Research Association (USRA), the consortium of universities responsible for the operation of the Lunar Science Institute. He was official delegate from UCLA to the annual meeting of the council of member institutions of USRA at the Lunar Science Institute in April.

Douglas Rumble, Ph.D., Harvard. Assistant Professor

Originally appointed to our staff in July, 1969, Doug has been on leave for the past two years. Now on campus, his research interests include the electron microprobe analysis of metamorphic mineral assemblages, field studies of sedimentology, stratigraphy, structure, and petrology of metamorphic rocks, theoretical metamorphic petrology, and central New England regional geology.

J. William Schopf, Ph.D., Harvard. Associate Professor

Courses taught during the past year include a new course in Principles of Paleobiology, Paleobotany, and Principles of Paleontology (jointly with Gary Lane). Bill was selected as Visiting Lecturer in the Visiting Biologists Program (1970-1971) of the American Institute of Biological Sciences. He lectured on "Evolution and Geologic Distribution of Blue-Green Algae," at the Eastern Canada Biostratigraphy Seminar on Precambrian Fossils, Sudbury, Ontario, October, 1970. Lectures on Precambrian Life and Evolution were given for the Department of Geology and Biology, University of California San Diego (November, 1970); Department of Botany, University of California Berkeley (November, 1970); Department of Biology, University of California Riverside (January, 1971), for the Sigma Xi club at San Fernando Valley State College (March, 1971); the Departments of Geology and Biology, State University of New York at Binghamton (March, 1971); at Cornell University, Ithaca, New York (March, 1971); University of California Davis (May, 1971); and at the Fourth Conference on the Origins of Life, an Interdisciplinary Communications Program of the Smithsonian Institution, held in April at Belmont, Maryland.

Other meetings attended included the annual meeting of the Botanical Society of America (Bloomington, Indiana, August, 1970); the GSA in Milwaukee (November), and Botanical Society of America

(Edmonton, Alberta, June, 1971). At the latter, five papers were presented by Schopf and graduate students working under his direction. Their research is in part supported by a NASA grant (for micropaleontological studies of lunar samples), and one from the NSF for morphological and geochemical studies of primitive microorganisms.

Recent publications include "Micropaleontological studies of Apollo 11 lunar samples," *Geochim. Cosmochim. Acta*, Suppl. I, vol. 2, p. 1933-1934 (1970); "Extractable organic matter in Precambrian cherts," *Geochim. Cosmochim. Acta* 34, p. 659-675 (with J. W. Smith and I. R. Kaplan; 1970); "Precambrian microorganisms and evolutionary events prior to the origin of vascular plants," *Biol. Rev. (Cambridge Philos. Soc.)* 45, p. 319-352 (1970); "Organically preserved Precambrian microorganisms," *Proc. North Amer. Paleon. Convention*, Part H, p. 1013-1057 (1971); "Microfossils," in *A Search for Carbon and its Compounds in Lunar Samples from Mare Tranquillitatis*, NASA Spec. Publ. 257, p. 12-15, 110-117 (1970); and "Biogenecity and significance of the oldest known stromatolites," *Jour. Paleon.* 45, p. 477-485 (with D. Z. Oehler, R. J. Horodyski and K. A. Kvenvolden; 1971).

One other very important production (September 20, 1970) was christened James Christopher Schopf!

Ronald L. Shreve, Ph.D., California Institute of Technology.
Professor of Geology and Geophysics

In addition to teaching, much time was spent on work of the Graduate Council, where Ron was instrumental in the liberalization of the foreign-language requirement. He presented some eight public lectures during the year, of which five concerned statistical geomorphology, two involved avalanches that slide on air, and one concerned glaciology. Ron's research is in the fields of glaciology and geomorphology; in the latter field he had good success in explaining some of the puzzling features of the relationship between mainstream length and area of drainage basins, and he presented a report on this at the Milwaukee meeting of the GSA. Further progress was made in understanding the statistical distributions of link lengths and in increasingly better documented deviations from topological randomness in channel networks.

Research in glaciology included a continuation of his studies on regelation of ice. A new project is aimed at understanding the flow of water within and beneath glaciers, with particular emphasis on improving the glaciological and glacial geological interpretation of eskers and related results of subglacial fluvial and lacustrine deposition and erosion.

During the coming year (1971-1972) Ron will be on leave at Harvard and M.I.T., where he will give a series of lectures on theoretical geomorphology and will work with John Southard on a combined theoretical, experimental, and field study of esker mechanics.

James H. Stout, Ph.D., Harvard University. Acting Assistant Professor

Jim was an Acting Assistant Professor in the fall quarter and post-doctoral fellow during the remainder of the year. He taught the summer field course, together with Clem Nelson. His research has involved the completion of work on the regional metamorphic rocks in the Alaska Range, where he spent the summer doing field work. He joins the University of Minnesota as an Assistant Professor in 1972.

John Suppe, Ph.D., Yale University. Acting Assistant Professor

John was an NSF Post-doctoral Fellow for two years (1969-1971) while continuing his research on California Mesozoic tectonics and particularly Franciscan geology of northern California. During the fall quarter he taught the Geology 111A (field geology) course, together with Ron Shreve. An invited lecture on "Franciscan Tectonics," was given December 8 at the University of Southern California.

A recent publication, "Offset of Late Mesozoic Basement Terrains by the San Andreas Fault System," appeared in the Geol. Soc. America Bull. 81, p. 3253-3258 (1970). He is moving in August (1971) to be an Assistant Professor of Structural Geology at Princeton University.

Kenneth D. Watson, Ph.D., Princeton University. Professor; Vice Chairman and Graduate Advisor

Ken attended a field conference in September sponsored by the Society of Economic Geologists on lead-zinc deposits of the Kootenay Arc, northeast Washington and adjacent British Columbia, and participated in a Geological Society of America Penrose Conference on Ultramafic Xenoliths in Basaltic and Kimberlitic Rocks held at Saguaro Lake, Arizona in December. In collaboration with Douglas M. Morton (Ph.D., 1966, UCLA) of the California Division of Mines and Geology, an article was prepared for the Catalog of Ultramafic Xenolith Localities in the Western United States, assembled for this Penrose Conference.

Most of the summer (1970) was spent on field investigation of base metal deposits, chiefly in the Canadian Shield. During the academic year, research was continued on the alkalic igneous rocks and associated carbonatite deposits occurring near Mountain Pass, California.

RESEARCH ASSOCIATE

Dr. Mason L. Hill, Research Associate, states that he is enjoying his contacts at UCLA, doing some geological committee chores and some governmental and industrial consulting. He attended the GSA meeting in Milwaukee in November and talked at the annual meeting of the Pacific Section of the American Institute of Professional Geologists at Bakersfield. He also attended the AAPG meeting in Houston and the GSA Cordilleran Section meeting in Riverside, presenting a paper on transform faults. A recent publication, "A test of New Global Tectonics," appeared in the Bull. Amer. Assoc. Petr. Geol., June 1971, and replies to various "discussions" of this paper are in press. Also in press is a paper on the "Newport-Inglewood Zone and Mesozoic Subduction, California," in the GSA Bull. A seminar type discussion was held with geology students at UCLA to discuss the prospects for employment in the petroleum industry.

MUSEUM NEWS

During 1970-1971 Jerry Kopel was a member of the museum staff, acting as curator of rock and mineral collections. Jerry received his B.A. in geology from UCLA in 1968 and his M.A. in geology from San Diego State in 1970. In June, 1971, he accepted a position with the Peace Corps in Ecuador, with an assignment as a university instructor of geology.

David Weide continued work on his dissertation and completed a monograph on the geomorphology of central Macedonia. During the summer of 1971 both he and his wife will again work in Europe. Dave's project this year is a study of the Pleistocene geology and Paleolithic archaeological sites of the Isle River, southwest France. His wife, Margaret, will continue their Yugoslavian work at Kragujevac.

LouElla Saul is continuing her study of pelecypods and gastropods from the type Chico Formation, presenting a paper on a gastropod lineage at the Cordilleran GSA meeting in Riverside. She states that she also attempts to answer such public inquiries as "Is the fossil brain (in reality a Leptoria brain coral) that we found on the way to the Golan Heights in Jordan 1000 or 2000 years old?"

GRADUATE STUDENTS, 1970-1971

Herbert G. Adams, B.A., Pomona; M.S., UCLA; completed Ph.D. 1971.
Stephen P. Alpert, B.S., UCLA.
Donald Asquith, B.S., Caltech; M.S., University of Kansas.

Morris Balderman, B.S., UCLA.
John Barron, B.S., UCLA.
Katherine J. Barrows, B.A., 1963; completed Ph.D., 1971.
Byron R. Berger, A.B., Occidental College.
Patrick E. Biliter, B.S., Ohio State University.
James D. Blacic, B.A., Ph.D., UCLA.
Jan Blacic, B.S., M.S., UCLA.
John Brady, B.A., Harvard.
Terry Chriss, B.S., M.S., UCLA.
John Connor, B.A., UCLA.
William C. Cornell, B.S., M.S., Univ. Rhode Island.
Kenneth Crawford, B.A., Fresno State College; M.S., UC Davis.
Gerald Dollinger, B.S.; M.S., Univ. Wisconsin.
Terrence J. Donovan, B.S., M.A., M.S., UC Riverside.
Thomas Fairchild, B.S., Stanford.
Ahmed Ali Fouda, B.S., Cairo University.
W. Phelps Freeborn, B.S., Caltech; M.S., Univ. Massachusetts.
David Frishman, B.A., Univ. Pennsylvania.
Orlando Gonzales Correa, B.S., Univ. Nacional Colombia; M.S., UCLA.
Keith Gordinier, B.S., UC Santa Barbara.
John Grimmer, B.S., Univ. Wisconsin; M.S., Univ. Southern Illinois.
Eugene B. Grudewicz, A.B., San Diego State College.
Bernard Hallet, B.S., UCLA.
Bruce N. Haugh, B.S., Univ. Wisconsin.
Merton E. Hill, B.S., Univ. Redlands.
Robert J. Horodyski, B.S., M.S., Massachusetts Inst. Technology.
Edward Hoylman, B.S., Univ. Hawaii.
Richard Hurst, B.S., SUNY Stony Brook.
Jeffrey Johnson, B.S., San Fernando Valley State College; M.S.,
UCLA.
William Krebs, B.S., UCLA.
Thekky K. Krishnan, B.Sc., Presidency College., Madras; M.Sc.,
Univ. Madras, India.
Shingi Kuniyoshi, B.S., Kyushu University, Japan; M.S., UCLA.
Chin-Nan Lee-Hu, B.S., National Taiwan University; M.S., UCLA.
Richard D. Le Fever, A. B., Occidental College; M.S., UCLA.
Kenneth H. Lister, B.S., M.S., UCLA.
Gerald R. Licari, A.B., M.A., UC Berkeley; Ph.D., UCLA.
Lidia D. Lustig, B.S., Univ. Buenos Aires; completed M.S., UCLA
David McCoard, B.A., Univ. of the Pacific; M.S., UCLA.
John McCormick, B.S., Pennsylvania State University.
Maria Mann, Dipl. Geol., Univ. Cluj., Rumania.
Gordon J. Moir, B.S., Univ. Capetown.
Jack Mount, B.S., Cal State College L.A.
Irving R. Neder, B.S., M.S., UCLA.
Dorothy J. Oehler, B.S., UCLA.
John H. Oehler, B.S., UCLA.
Charles R. Parker, B.S., Reed College; M.D., Cornell.
Robert L. Post, B.S., Massachusetts Inst. Technology.
Burleigh Putnam, B.S., UCLA.

Elizabeth Recks, B.S., Massachusetts Inst. Technology.
Lowell E. Redwine, A.B., M.A., UCLA.
Carlos Rodriguez, Geolog., Univ. Centrale Venezuela.
Gary D. Rosenberg, B.S., Univ. Wisconsin.
Ronald R. Schmidt, B.S., Univ. Illinois; Ph.D., UCLA.
Michel P. Semet, Min. Eng.; Ing. Geolog., Univ. Louvain,
Belgium.
Gary I. Sherwood, B.S., UCLA.
Robert E. Sweeney, B.S., UCLA.
Siang Swie Tan, Sardjana, Bandung Inst. Technol.
Mark W. Tippetts, B.S., Univ. Northern Illinois; M.S., Univ.
West Virginia.
Edward M. Warner, B.S., Univ. Colorado; M.S., UCLA.
E. Reed Wicander, B.S., San Diego State College.
Richard Wisehart, B.S., M.S., UCLA.

GRADUATE TEACHING ASSISTANTS 1970-1971

Stephen Alpert
John Barron
Byron R. Berger
Kenneth Crawford, Regents Intern Fellow
Gerald L. Dollinger
Thomas Fairchild
David Frishman
Bruce Haugh, Research Assistant, summer 1970
Richard Hurst
John McCormick
Gordon Moir
Elizabeth Recks, Chancellors Teaching Fellow
Gary Sherwood

GRADUATE FELLOWSHIPS AND RESEARCH ASSISTANTSHIPS 1970-1971

Morris Balderman, NSF Traineeship
John Brady, NSF Fellow
William C. Cornell, American Chemical Society Fellow
Phelps Freeborn, NSF Fellow
Keith Gordinier, Chancellors Teaching Fellow
Eugene B. Grudewicz, Post-Graduate Research (Inst. Geophysics)
Bernard Hallet, Chancellors Teaching Fellow
Robert Horodyski, NSF Traineeship; Research Assistant, summer
1970, 1971
Lidia Lustig, Shell Fellowship
Dorothy Oehler, NSF Traineeship; Research Assistant, summer 1970,
1971
John Oehler, NDEA Title IV Fellow; Research Assistant, summer
1970, 1971

Robert L. Post, Research Assistant (Institute of Geophysics)
Carlos Rodriguez, Texaco Scholarship
Gary Rosenberg, NDEA Title IV Fellow
Robert E. Sweeney, Post-Graduate Research
Edward M. Warner, Shell Fellowship
E. Reed Wicander, American Chemical Society Fellow

UNDERGRADUATE SCHOLARSHIPS, 1970-1971

Mary Lynn Landes, Standard Oil Co. of California Scholarship
Paul Mankiewicz, Standard Oil Co. of California Scholarship

GRADUATE TEACHING ASSISTANTS FOR 1971-1972

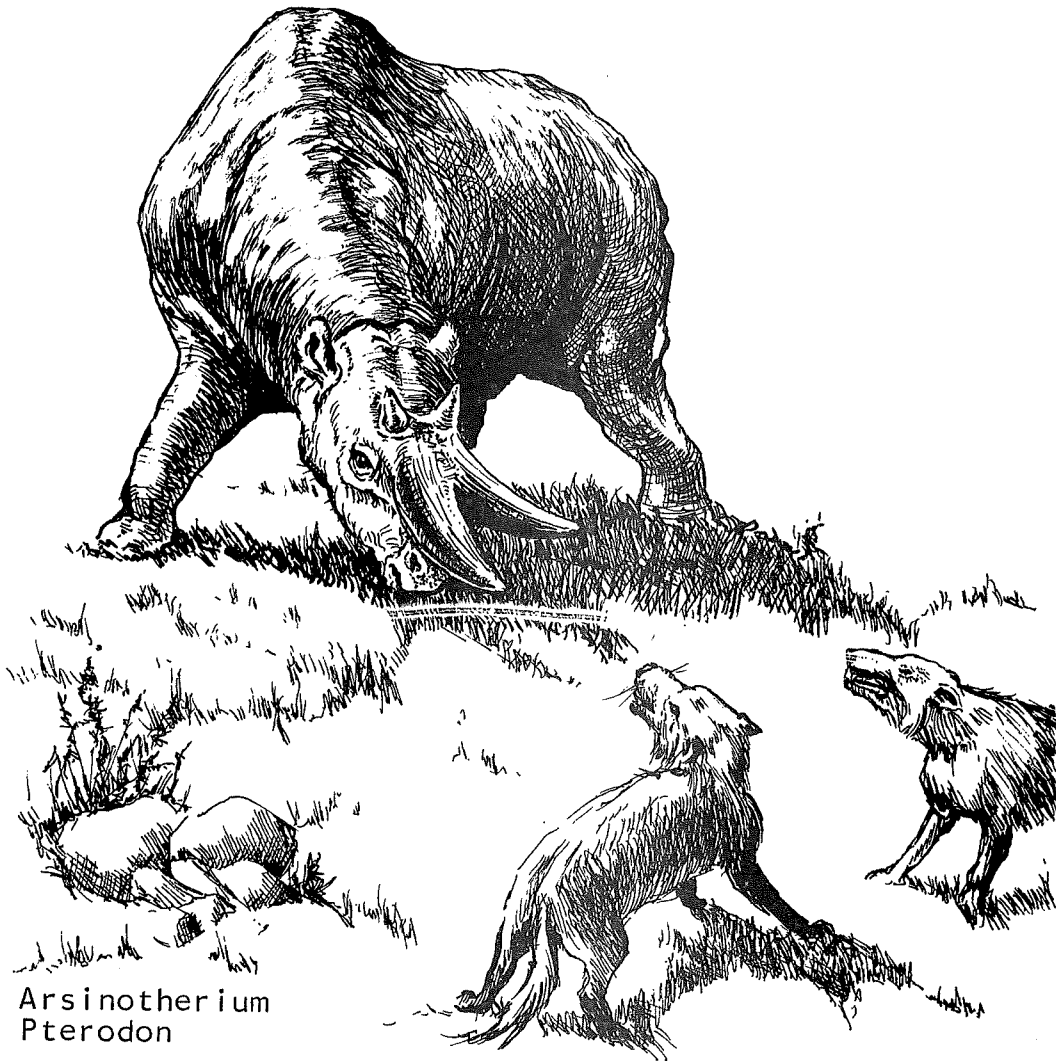
Stephen Alpert
Roy Budnick, B.S., Northern Illinois University
Thomas Fairchild
W. Phelps Freeborn
David Frishman
Keith Gordinier, Chancellors Fellow
Bernard Hallet, Regents Graduate Intern Fellow
Bruce Haugh
Richard Hurst
John McCormick
Gordon Moir
Elizabeth Recks, Chancellors Fellow
Gary Sherwood
Edward F. Stoddard III, B.S., Amherst College

GRADUATE FELLOWSHIPS AND RESEARCH ASSISTANTSHIPS 1971-1972

Morris Balderman, NDEA Title IV Fellowship
John Barron, Post-Graduate Research
John Brady, NSF Fellowship
Michael Garcia, B.A., Humboldt State College, Chancellors Advancement Intern Fellowship
Robert Horodyski, NSF Traineeship
Terence Kato, B.S., M.S., University of California, Davis, Shell-Faculty Fellowship
Dorothy Oehler, NSF Traineeship
John Oehler, NDEA Title IV Fellowship
Frank Spear, B.S., Amherst College, NDEA Title IV Fellowship and Shell Fellowship
Barrie Dayl Wall, B.A., Cal State Long Beach, NDEA Title IV Fellowship
E. Reed Wicander, Research Assistant

UNDERGRADUATE SCHOLARSHIPS 1971-1972

David A. Gardner, Standard Oil Company of California Scholarship
James E. Quick, Standard Oil Company of California Scholarship



Arsinotherium
Pterodon

"Field reports and maps will be due at 8:00 Monday."

NEW ALUMNI, 1970-1971

For those obtaining advanced degrees during the academic year, the thesis or dissertation title is given and present position or address noted.

Bachelor of Science, 1970-1971

Briglio, Samuel Anthony
Eastwood, Alan Charles
Engel, Linda Skidell
Frank, Ronald Engel
Groff, John Kenneth Jr.
Hallet, Bernard
Herbst, Chester George Jr.
Hine, Elmer Theodore
Johnson, Ernst Waldemar
Knaup, Thomas Wesley
Krebs, William Nelson
Landes, Mary Lynn
Meyers, John Cameron
Nahabedian, Marc Aram
Neill, William Marshall
Renison, William Thomas
Smith, Gerald Lewis
Stark, Michael Paul
Willott, John Anderson
Wolff, Michael

Master of Science

Blacic, Jan Marie

"New Microorganisms from the Bitter Springs Formation, Late Precambrian of the North-Central Amadeus Basin, Australia." 1971.

Chriss, Terry Michael

"Glacial Marine Sedimentation, Ross Sea, Antarctica." 1971.
Teaching at East Los Angeles College.

Correa, Orlando Gonzales

"Significance of Statistical Parameters in the Environmental Interpretation of Beach Sediments." 1970. Working with Texaco in Colombia, S. A.

Johnson, Jeffery

M.S. by examination. Working in Engineering Department on earthquakes while awaiting army induction.

LeFever, Richard David

"Sedimentology of the Cretaceous El Gallo Formation, Baja California." 1971. Continuing graduate work at UCLA.

Lister, Kenneth Henry

"Paleoecology of Insect-Bearing Miocene Beds in Calico Mountains, California." 1970. Graduate work for Ph.D. at SUNY, Stony Brook.

McCoard, David

"Structure of the Last Chance Thrust in the Last Chance Range, California." 1970. Has been teaching at San Fernando Valley State College.

Warner, Edward Mark

"Petrology and Structural Geology of Igneous and Metamorphic Rocks West Side of Eureka Valley, Inyo Mountains, California." 1971. With Shell Oil Company, New Orleans, Louisiana.

Wisehart, Richard McGhee

"Paleoenvironmental Analysis of the Bear Lake Formation, Alaska Peninsula, Alaska." 1971. Geologist, Department of Forestry, U. S. Department of the Interior.

Doctor of Philosophy

Blacic, James Donald

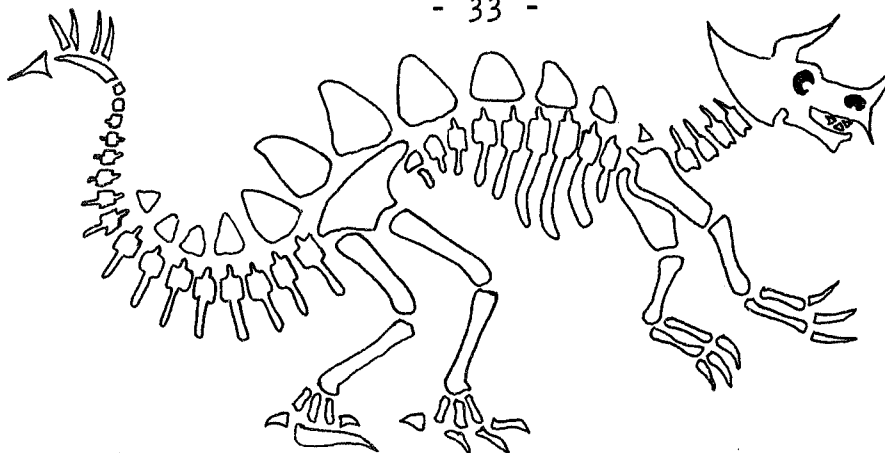
"Hydrolytic Weakening of Quartz and Olivine." 1971. Now teaching at University of Washington, Seattle.

Licari, Gerald Richard

"Paleontology and Paleoecology of the Proterozoic Beck Springs Dolomite of Eastern California." 1971. Teaches at East Los Angeles College.

Schmidt, Ronald Roy

"Planktonic Foraminifera from the Lower Tertiary of California." 1970. Now teaching at the Geologisch Instituut, Oude Gracht 320, Utrecht, Netherlands.



ALUMNI NEWS

Our thanks to those who have supplied us with news of their doings and whereabouts for this year's Newsletter; their replies are given below in alphabetical order.

You will find the usual form attached as the last page, to be completed and returned to us for next year's edition. We also ask that you encourage any of your associates and friends who are UCLAans and were not included here to write us.

William L. Adams, M.A., 1956.

Division Exploration Manager, AMOCO Production Company, Box 1410, Fort Worth, Texas 76101. Promoted to "Exploration Operations Manager" and transferred to Tulsa, Oklahoma, on April 1, 1970. In August of 1970, he was promoted to Division Exploration Manager and transferred to Fort Worth. He completed the University of Virginia, Graduate School of Business, Advanced Management School during June and July of 1970.

Stephen P. Alpert, B.S., 1969.

Steve is a teaching assistant while doing graduate studies in paleontology and stratigraphy at UCLA. His short paper on "Sub-Recent Mollusks from Marina del Rey, Venice, California" will be submitted shortly to Contributions in Science of the L. A. County Museum of Natural History.

James D. Blacic, B.A., 1964; Ph.D., 1971.

Assistant Professor in the Department of Geological Sciences, University of Washington, Seattle 98105. His research interests are in experimental tectonophysics.

Charles Blount, Ph.D., 1965.

Assistant Professor in the Department of Geology, University of Georgia. He is undertaking research in "Solubility studies of barite and witherite" and "Trace element analysis," both supported by NSF grants.

Elwood B. Bredell, Jr., B.A., 1957.

Senior Geologist with Pan American Petroleum Corporation, Security Life Building, Denver, Colorado 80202. Woody was recently transferred to the Alaskan Exploration Group. Home address: 7369 S. Tamarac Court, Englewood, Colorado 80110.

A. Louis Canut, B.A., 1954.

President, Sage Oil Company, Inc., 3243 Wilshire Blvd., Los Angeles, California 90010. He was elected president March 1, 1971. Home address: 3947 Marshall Way, Long Beach, California 90807.

Paul E. Carlton, B.A., 1950.

Division Exploration Manager, North American Exploration and Production Division, Getty Oil Company, P. O. Box 1404, Houston, Texas 77001. He was promoted to his present position in September of 1969, having formerly been District Exploration Manager, New Orleans District. Home address: 13702 Pinerock, Houston, Texas 77024.

Jean Paul Chauvel, M.A., 1958.

District Exploration Geologist, Northern Alaskan District, Union Oil Company of California, 909 West Ninth Avenue, Anchorage, Alaska 99501.

Gerald G. Cooper, B.A., 1951.

Division Geologist, Mobil Oil Corporation, 612 South Flower, Los Angeles, California; recently transferred from the same position in Mobil's Midland Texas office. Prior to that he was District Geologist in Wichita Falls, Texas, and Worland, Wyoming, and spent ten years as an exploration geologist in Casper, Wyoming, and Billings, Montana. Home address: 24119 Hatteras Street, Woodland Hills, California.

Clyde B. Cotton, B.A., 1948.

District Geologist, Getty Oil Company, Box 476, Anchorage, Alaska 99501. He was promoted from Staff Geologist in Houston, Texas, to District Geologist in Anchorage, Alaska, in July, 1969.

Jack T. Eagen, B.A., 1955.

He was recently promoted to Vice-President (also is Senior Engineering Geologist) of Moore and Taber Consulting Engineers and Geologists, 23011 Ventura Blvd., Woodland Hills, California 91364. Home address: 1157 El Monte Drive, Thousand Oaks, California 91360.

William B. Ellis, B.A., 1950.

Regional Geologist, Central Region, Monsanto Company, 3545 NW 58th Street, Suite 500, Oklahoma City, Oklahoma 73112. He writes that "at age 49 I am the father of a new baby boy--Now that's an activity or something."

Frank A. Exum, B.A., 1956; M.A., 1957.

Senior Geologist, Marathon Oil Company, P. O. Box 120, Casper, Wyoming 82601. Transferred to Casper from Denver in June of 1971, he is currently working on the Upper Cretaceous of the Powder River Basin. Home address: 1244 Granada Avenue, Casper, Wyoming 82601.

Richard E. Faggioli, M.A., 1953.

Manager, Public Affairs Department, Environmental Conservation, Standard Oil Company (New Jersey), 30 Rockefeller Plaza, New York, New York 10020. Formerly had been in the Washington, D. C. office.

Pow-foong Fan, Ph.D., 1965.

Associate Professor of Geology, Department of Geosciences and Hawaii Institute of Geophysics, University of Hawaii, Honolulu, Hawaii 96822. He writes that his current research interests are "Mineralogy of deep-sea sediments from the South-Central Pacific Basin," "Clay mineralogy of Hawaiian marine sediments," and "The relationship between the Bouguer anomalies and geology of the Far East."

Donald L. Fernow, M.A., 1960.

Senior financial analyst (mineral fuels), Janney Montgomery Scott, Inc., 30 Broad Street, New York, New York 10005. Received the B.A. and M.B.A. degrees from the University of Chicago. His most recent publication, "Mineral Fuel Areas" appeared in McGraw-Hill Encyclopedia of Science and Technology, Vol. 8, 1971 edition. Fernow is a member of the Oil Committee Financial Analysts Federation (FAF), AIME, API, and Oil Analysts Group, New York. Home address: 10 Half Mile Road, Darien, Connecticut 06820.

A. Eugene Fritsche, A.B., 1958; Ph.D., 1969.

Associate Professor of Geology, Department of Geology, San Fernando Valley State College, Northridge, California 91324. He is serving as Acting Chairman of the Department of Geology for the 1970-1971 academic year while continuing research on Middle Tertiary stratigraphy and paleontology of the California Coast Ranges. He presented two papers at the 1971 Cordilleran Section

G.S.A. Meeting, "Oligocene and Miocene stratigraphy in eastern Santa Barbara and western Ventura Counties, California" and "Miocene paleogeography of the central Sierra Madre of north-eastern Santa Barbara County, California." Home address: 17605 Cantara Street, Northridge, California 91324.

Joe Galbreath, B.A., 1958.

Manager, Product Support, Rocket Research Corporation, York Center, Redmond, Washington 98052. He is the Chairman of the Public Affairs Committee of the American Institute of Aeronautics and Astronautics, Pacific Northwest Section. Home address: 1439 Eighth Place East, Edmonds, Washington 98020.

Harold B. Goldman, B.A., 1949; M.A., 1964.

Goldman writes that he left the State of California service after 16 years and in August of 1970 opened practice as a self-employed consulting geologist specializing in economic geology, environmental and mining geology. He had been Program Officer for the California Division of Mines and Geology, Manager of the Geologic Hazards Program, and their mineral commodity specialist on construction materials. He is active in and for several years was editor for the Association of Engineering Geologists. He feels his two most noteworthy publications to be the Division of Mines and Geology Bulletin 180 "Sand and gravel in California" and "Geologic and engineering aspects of San Francisco Bay fill," Special Report 97 of the Division of Mines and Geology. Home address: 406 Marietta Drive, San Francisco, California 94127.

Harry W. Green, A.B., 1963; M.S., 1967; Ph.D., 1968.

Assistant Professor, Department of Geology, University of California, Davis, California 95616. He left Case Western Reserve University in Cleveland, Ohio, to assume his current post at Davis in September of 1970. He is currently employing transmission electron microscopy in the study of meteorites and deformed rocks and is also building a high pressure - high temperature rock deformation laboratory. His most recent publications are: Syntectonic annealing recrystallization of fine-grained quartz aggregates: in P. Paulitsch [ed.] Experimental and Natural Rock Deformation, Springer-Verlag, 1970 (with D. T. Griggs and J. M. Christie); Diffusional flow in polycrystalline materials: Jour. Appl. Phys. 41, p. 3899-3902 (1970); and High voltage (800 KV) electron petrography of unequilibrated stoney meteorites--Allende and Parnalle: p. 490 in C. J. Arceneaux [ed.] 28th Annual Proceedings, Electron Microscopy Society of America, Claitor's Publishing Div., Baton Rouge, La. (with S. V. Radcliffe and A. H. Heuer). Home address: 1517 Anderson Road, Davis, California 95616.

Warren Hamilton, A.B., 1945; Ph.D., 1951.

U. S. Geological Survey, Denver, Colorado 80225. He is currently working on a 1:5,000,000 tectonic map of Indonesia and surrounding regions, interpreting the geologic history in terms of plate tectonics.

Allen W. Hatheway, A.B., 1961.

Geological Engineer, LeRoy Crandall and Associates, 711 North Alvarado Street, Los Angeles, California 90026. Since leaving UCLA, he has served as an artillery officer in the Army, worked for the U. S. Bureau of Mines, the Arizona Highway Department, Bear Creek Mining Company, Texas Gulf Sulphur Company, New Jersey Zinc Company, and as a research associate with the Lunar and Planetary Laboratory of the University of Arizona, where he successfully defended his Ph.D. dissertation, "Lava tubes and collapse depressions," on May 7, 1971. Now a Registered Geologist in the State of California, he is studying the engineering characteristics of the Pliocene siltstone in the downtown area of Los Angeles and is carrying out computer applications in soil mechanics for the company. He also delivered three papers at the GSA Cordilleran meeting in Riverside in March of 1971. Home address: 1440 Ardmore Avenue, Glendale, California 91202.

Lawrence F. Hurst, B.A., 1961.

Home address: 2616-F Grant Avenue, Redondo Beach, California 90278.

Stephen E. Jacobs, B.S., 1971.

Graduate student, University of Nebraska, Lincoln, Nebraska 68508.

Ernest Waldeman Johnson, B.S., 1971.

Teaching in high school at Barstow, California

Gordon S. Jones, B.S., 1959.

Assistant Professor of Naval Science, UCLA. After leaving UCLA he received a Masters Certificate in ocean engineering from the U. S. Naval Postgraduate School in Monterey, California. Having spent his last tour of duty here at UCLA, he is soon to be transferred to the Naval War College in Newport, Rhode Island. Gordon's brother, Bob Jones, is the Geology Department's spectroscopist in charge of the electron microprobe. Home address: 11201 Chimineas Street, Northridge, California 91324.

Henry E. Kane, Ph.D., 1965.

Professor of Geology, Ball State University, Muncie, Indiana 47306. Promoted to full professor in 1970, his research concerns Late Cenozoic geomorphology of the Kentucky River Basin. He presented "Stream terraces along a part of the Central Kentucky and Red Rivers, Kentucky" at the North-Central GSA meeting in Lincoln Nebraska. Home address: 2605 Redding Road, Muncie, Indiana 47304.

William Nelson Krebs, B.S., 1970.

Graduate student at the University of California, Davis.

Mary Lynn Landes, B.S., 1971.

She is doing graduate work at the University of California, Riverside.

Ernest P. Ledterman, B.A., 1939.

District Traffic Manager, Pacific Telephone Company, 4640 Jewell Street, San Diego, California 92109. He writes that "I have spent most of the time since graduation with Pacific Telephone (geology jobs were hard to come by in 1939!)," doing a variety of jobs but mostly in traffic engineering and as a district manager. He has spent the last eight years in San Diego and has just recently moved his office from downtown San Diego to Pacific Beach. Home address: 5867 Soledad Mountain Road, La Jolla, California 92037.

Robert K. Linn, B.A., 1955.

Manager, New Almaden Mine (Division of New Idria Mining and Chemical Company); member AGI, AIME; publication on "New Idria Mining District" section of the volume "Ore Deposits, United States" 1933-1967. Home address: 1129 Corvallis Drive, San Jose, California 95120.

Jere H. Lipps, B.A., 1962; Ph.D., 1966.

Associate Professor, Department of Geology, and Acting Chairman, Institute of Ecology, University of California, Davis 95616. He was a participant in the GSA Penrose Conference, held at Monterey in December, concerning marine paleoecology and presented a paper on "Evolution in the Pelagic Realm" at the November, 1970, session of the GSA in Milwaukee. He also organized an all-day symposium on "California Plankton, Biostratigraphy, and Paleoecology" for the Cordilleran Section, Geological Society of America and Paleontological Society, held at U.C. Riverside in March. He participated in the Symposium on the History of Ocean Basins at the SEPM-AAPG meeting in Houston in March, where he spoke on Pacific Ocean Circulation.

William Lumsden, B.A., 1958, Ph.D., 1964.

Professor, Department of Geology, California State College, Long Beach. He spent the last year as a Leverhulm Fellow for Great Britain at the University of Aberdeen, Scotland. He writes that he is still busy completing a manuscript on the south White Pine Range, Nevada, and his research interests concern Great Basin tectonics. Lumsden was one of 20 Americans participating in an AGI sponsored field study in Spain, his particular interest being in the Cantabrian Mountains of northwest Spain. Home address: 1620 Skyline Drive, Fullerton, California 92631.

Thane H. McCulloh, Ph.D., 1952.

Director of the School of Earth Sciences and Chairman of the Department of Geology, University of Minnesota, Minneapolis, Minnesota 55455.

Richard McCullough, M.A., 1957.

Vice-President, Frio-Tex Oil & Gas Company and Suburban Natural Gas Processing Company, 2120 Alamo National Building, San Antonio, Texas 78205. He was promoted September 1, 1969, from Manager of Exploration to Vice-President. Home address: 207 West Hathaway, San Antonio, Texas 78209.

Edward M. Mackevett, Jr., A.B., 1947.

Geologist, Alaskan Branch, U.S.G.S., 345 Middlefield Road, Menlo Park, California 94025. He received a M.S. degree from Caltech in 1950 and did some additional graduate studies at Stanford during the 1950's. Most of his career has involved geologic studies in Alaska, generally related to ore deposits, his main area of geologic interest being the southern Wrangell Mountains, which contain the famous Kennicott copper mines, the southwestern Alaska mercury province, and portions of southeastern Alaska including the Bohm Mountain uranium-thorium area, Glacier Bay National Monument, and the Haines-Porcupine District.

Thomas L. MacLeod, B.A., 1949.

Research and Development Engineer, Lockheed-California Company, Box 551, Burbank, California. His work concerns marine geology applicable to antisubmarine warfare, as well as oceanography dealing with the same subject. Home address: 301 Bellino Drive, Pacific Palisades, California 90272.

Jerrold L. McNey, B.A., 1962.

Supervisor, Environmental Studies Group, Southern California Edison Company, 2244 Walnut Grove, P. O. Box 800, Rosemead,

California 91770. Both a Registered Geologist and Registered Engineering Geologist, his work relates to the effect of the coastal thermal discharges upon the marine environment. Home address: 604 West Valley View, Fullerton, California 92632.

Kenneth Marder, B.A., 1958.

He is on an educational leave from McDonnell Douglas Corp. working on a law (JD) degree at Southwestern University. Home address: 2601 Roscomare Road, Los Angeles, California 90024.

Julio Olaechea Martinez, M.A., 1960.

Production Geologist, Petr6leos del Per6, Talara, Per6, South America. He also received the degree Ingeniero Ge6logo from the Universidad Nacional de San Marcos de Lima - Per6.

Richard H. Miller, M.A., 1967.

Part-time Instructor teaching Physical Geology in the Department of Geology, San Fernando Valley State College.

Arthur Mirsky, A.B., 1950.

Chairman, Department of Geology, Indiana University-Purdue University, 925 West Michigan Street, Indianapolis, Indiana 46202. He received his M.S. from the University of Arizona in 1955 and his Ph.D. from Ohio State University in 1960. Recently promoted to Associate Professor, he writes that "I came to Indianapolis in 1967 to start a baccalaureate program in geology at what used to be an extension of Indiana University. We now have an approved A.B. degree program in geology, with 28 majors and our first five graduating seniors will receive their geology A.B. in June of 1971." He is also the Asst. Editor for the Journal of Geological Education (of the National Association of Geology Teachers).

Anthony E. L. Morris, B.A., 1942; M A., 1960.

Partner; Hazzard, Morris & Associates, International Petroleum & Mineral Consultants, 515 Petroleum Building, 714 West Olympic Blvd., Los Angeles, California 90015. Formerly was Vice-President with Pauley Petroleum, Inc., then spent five years as an independent petroleum consultant, and in 1970 he formed a partnership with Dr. John C. Hazzard and Stanley G. Wissler. Associate Editor of the A.A.P.G. Bulletin since 1963, a member of the A.A.P.G. Publication Committee, he gave a feature talk "Tectonics and Stratigraphy of the Dead Sea Region" at the 1971 A.A.P.G. Annual Convention in Houston, Texas. He writes that he frequently sees Don Macpherson ('41), President

of International Petroleum Consultants, in Santa Monica and that he crosses tracks with Dave Moore and Roger Haeger whenever he is in Denver. Home address: 3114 Club Drive, Los Angeles, California 90064.

Michael A. Murphy, B.A., 1950; Ph.D., 1954.

Professor of Geology and Chairman, Department of Geological Sciences, University of California, Riverside, California 92507. He writes that he is still working with Lower Cretaceous Ammonites and Silurian-Devonian stratigraphy. He is the local chairman of the Cordilleran Section of the G.S.A.

William M. Neill, B.S., 1971

Graduate work at Stanford University.

Deane Oberste-Lehn, B.A., 1956.

Teaching Assistant, School of Earth Sciences, Stanford University, with courses in Engineering Geology and Groundwater Resources. Formerly on the Research Staff of the Rand Corporation, she is now a Consultant for Rand and several other research organizations in Southern California and is a Registered Geologist in the State of California. She completed her M.S. in Geology, 1970, at Stanford with a thesis on "Passive Microwave Study of Geologic Materials in a Volcanic Province." A publication on "Phenomena and properties of geologic materials affecting microwaves," appeared as Stanford Remote Sensing Laboratory Technical Report #70-10 (1970). Address: P. O. Box 4706, Stanford, California 94305.

Bobby Joe Presley, Ph.D., 1969.

Post-doctoral fellow at UCLA working in Geochemistry during 1970, now Assistant Professor in the Department of Oceanography at Texas A & M University.

Sterling Pryer, B.A., 1958.

Teaches science at Hale Junior High School in Canoga Park, California. Taught evening geology courses at Pierce Jr. College in the fall, 1970, semester.

Rafael A. Reyes-Garcés, M.S., 1967.

Exploration Geologist, Texas Petroleum Company, Apdo. Aereo 36-22, Bogota, Colombia, South America. He is working in western Colombia.

Page Richardson, B.A., 1949.

Division Geologist, North American Exploration and Production Division, Getty Oil Company, P. O. Box 1404, Houston, Texas 77001. Promoted to present position October 1970; was formerly District Geologist, Midland District Office, Getty Oil Company. Home address: 637 S. Ripple Creek, Houston, Texas 77027.

B. Brick Robinson, B.A., 1954; M.A., 1956.

Staff Production Geologist, Shell Oil Company, P. O. Box 127, Metairie, Louisiana 70004. Recently transferred from Shell Development Company, Houston, where his research was aimed at applying geology to reservoir simulation computer programs. A Registered Geologist, State of California, his current work involves development of offshore fields. Home address: 3620 Mimosa Ct., New Orleans, Louisiana.

Jim Craig Roth, B.A., 1956; M.A., 1959.

Senior Staff Geologist, Occidental Petroleum Company, 5000 Stockdale Highway, Bakersfield, California. Exploration representative in charge of Australia, Asia, and Oceania. Home address: 6424 Tevis Drive, Bakersfield, California.

W. R. Van Schmus, Ph.D., 1964.

Department of Geology, University of Kansas, Lawrence, Kansas 66044. Promoted to Associate Professor of Geology in August of 1970.

Arsen A. Shahnazarian, B.A., 1961.

Engineer, Standard Oil Company of California, Western Operations, Inc., P. O. Box 5355, Oildale, California 93308.

Richard J. Smith, Jr., B.A., 1956.

Senior Reservoir Engineer, Long Beach Oil Development Company, 925 Harbor Plaza (P. O. Box 1330), Long Beach, Calif., 90801. Home address: 5341 Richmond Avenue, Garden Grove, California 92645.

Frank Stebelski, B.A., 1959.

Programmer/Analyst with Systems Development Corporation, 2500 Colorado Avenue, Santa Monica, California. Home Address: 4193 Mildred Avenue, Los Angeles, California 90066.

James B. Taylor, M.A., 1963.

Vice-President and Exploration Manager, Occidental of Trinidad, Inc., 172 Frederic Street (First Floor), Port-of-Spain, Trinidad, W.I. He had been the Senior Staff Geologist for Latin American-Caribbean Exploration of Occidental in Bakersfield, California, but since his promotion, effective December 1, 1970, he will be supervising the "Oxy" office in Trinidad, established to operate on recently acquired concessions of the northern Trinidad offshore area.

Jan Tullis, Ph.D., 1971

Research Associate, Department of Geological Sciences, Brown University, Providence, Rhode Island 02912.

Terry Tullis, Ph.D., 1971.

Assistant Professor of Geology, Department of Geological Sciences, Brown University, Providence, Rhode Island 02912.

James W. Valentine, M.A., 1954; Ph.D., 1958.

Department of Geology, University of California, Davis 95616. Jim received the SEPM award in Houston, 1971, for the outstanding paper to appear in the Journal of Paleontology during 1969. The prize-winning paper was on "Niche diversity and niche size patterns in marine fossils."

Eugene B. Waggoner, B.A., 1937; M.A., 1939.

President, Woodward, Clyde & Associates, Consulting Soil and Foundation Engineers and Engineering Geologists, Bank of America Center, Room 2600, San Francisco, California 94104. Promoted to President of firm in January of 1967. Home address: 3828 Happy Valley Road, Lafayette, California 94549.

Ray Waldbaum, B.A., 1966.

Assistant Engineering Geologist, Los Angeles County Engineer, 108 West Second Street, Los Angeles, California. He received a M.S. in Geology from San Diego State College in 1970. He writes that his current passion is desert motorcycle racing. Home address: 1825 Park Drive, Los Angeles, California.

Edward M. Warner, M.S., 1971.

Now working for Shell Oil Company in New Orleans. Home address: 5300 Houma Blvd., Apt. 121, Metairie, Louisiana 70002.

John Anderson Willott, B.S., 1971.

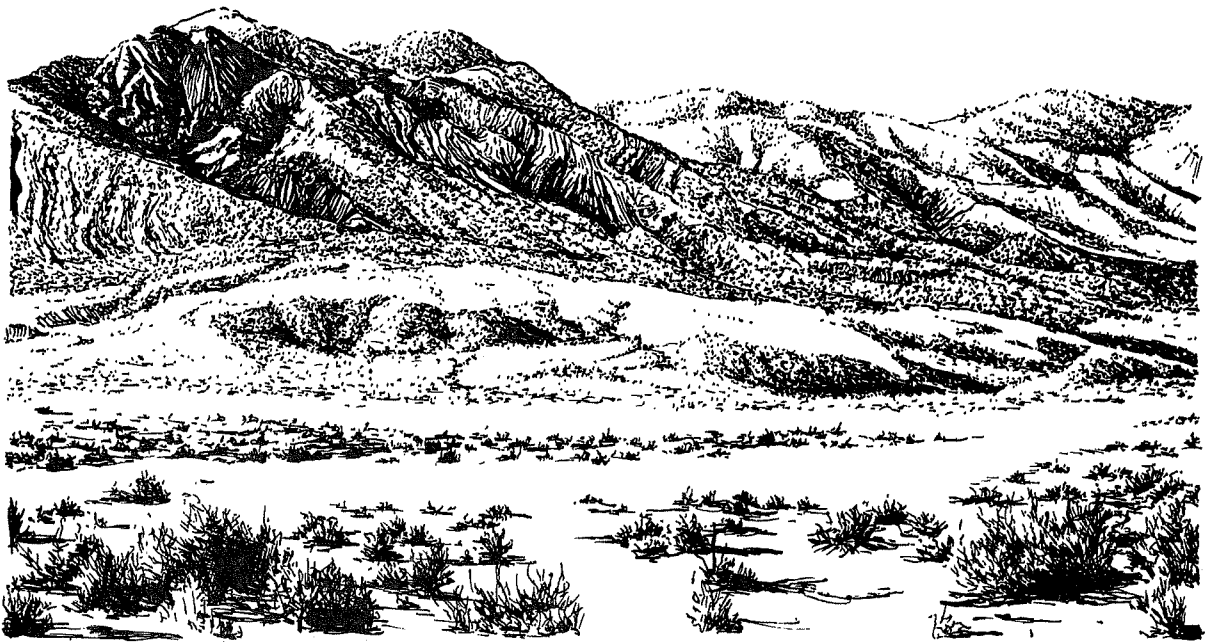
Doing graduate studies at the University of California,
Santa Barbara.

Gilbert M. Wilson, B.A., 1937.

808 Novelda Road, Alhambra, California 91801.

Robert A. Zeller, Jr., Ph.D., 1958.

Killed in an airplane accident in Arizona in January of
1970.



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Professor Helen Tappan Loeblich
Department of Geology
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.