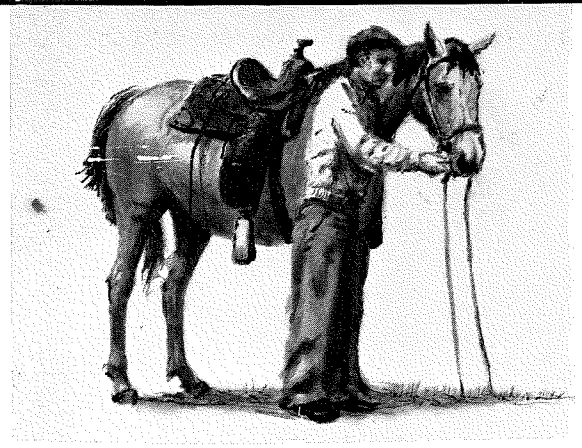
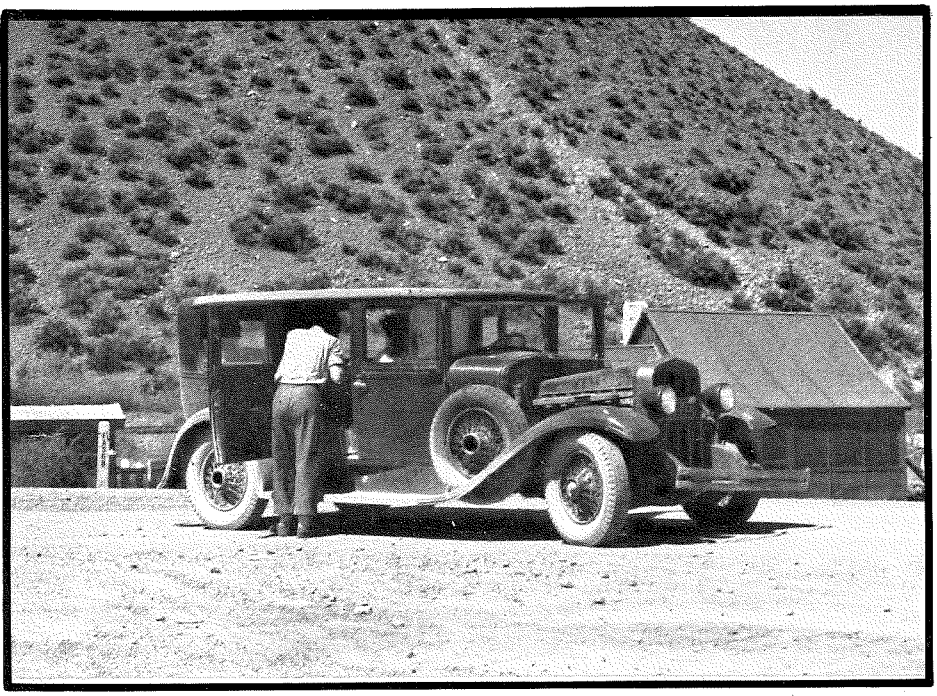
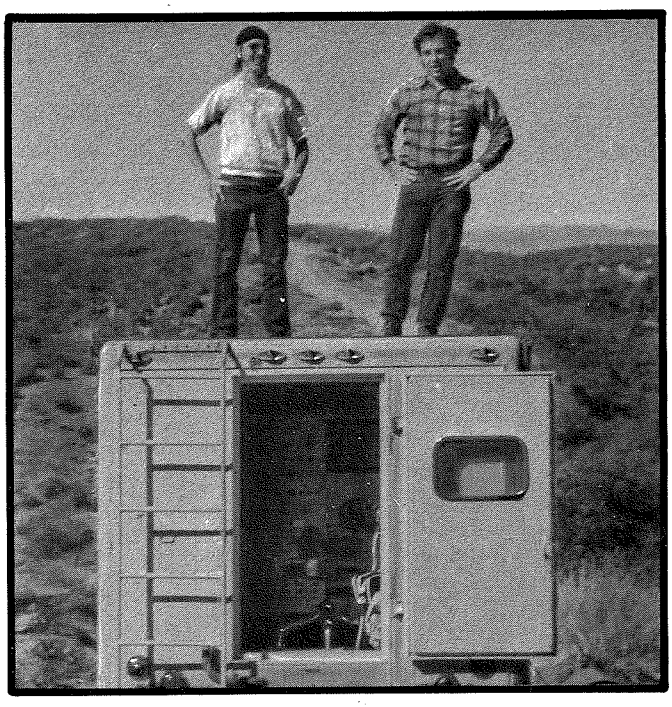
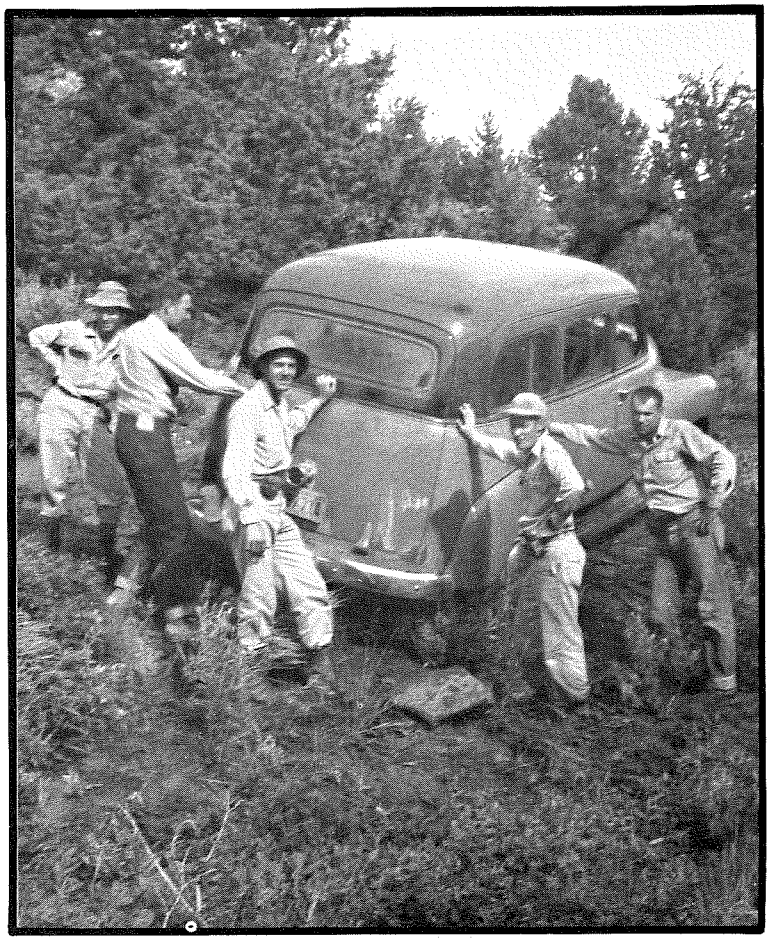


Ingersoll

Earth and Space Sciences Newsletter







1981-83

ACKNOWLEDGEMENTS

Professor K. D. Watson, Newsletter Editor for the past several years, has retired from official University activities as of June, 1983, In K. D. Watson's absence, decision-making for the Newsletter has become yet another chairmanly onus for Bill Kaula, who performs the duty with great alacrity, if not enthusiasm. Professor Dave Jackson, in assuming the role of departmental advisor for drafting and photography, fell into the senior editorship by default as supervisor for Vicki Doyle-Jones, the Newsletter's only remaining staff. In the Spring of 1983, Kathy Jackson, Ph.D. in English, and wife of Professor Dave Jackson, became a permanent (we hope) editor and staff writer. She seems to be undaunted by trivia, hours of research, and recalcitrant faculty (such as Dave Jackson and Bob Jones, last to append their contributions to the faculty section). Undergraduate Susan Smith (B.S., 1983) ran interference between the editors, patiently retyping their contributions and filling in missing details. Helen Day, Sue Luera, Gail Marshall, and Spring Verity all contributed lists of contributors and contributions; several stringers filled up the pages with good news: Sarah How, Ed Morelan, Brian Marshall, and Leslie Sadler. Takeo Susuki, unfailingly patient, was technical advisor for all photography, some of which was produced by Vicki Doyle-Jones, Terry O'Donnell, and Lowell Weymouth. Vicki did the typesetting, layout, and illustrations. Julie Guenther helped edit the manuscript. For contributions from the outside world, we extend our thanks and hopes for their continuation. We have tried to give credit where credit is due.

THE COVER

You've come a long way Baby! On display is approximately sixty years of geoscience field vehicles. Bill Rubey's field vehicle for reconnaissance mapping under the auspices of the USGS had four legs. Bill was issued an official U.S. government saddle, bridle and saddlebags for his field work. He had to supply the horse. The saddle was stored in the basement of the Geology Building until the late seventies, when it was refurbished and given to his grandchildren. Takeo Susuki provided the shot of an old Lincoln used for summer field in Nevada during the forties and also the picture of the class of '49 trying to extricate a University field vehicle from a precarious position. Dave Jackson's geophysical field vehicle is pictured beneath two illustrious alumni, Ray Ergas and Hal Uffelman. The most recent of the field vehicles should need no explanation.

CONTENTS

UNIVERSITY OF CALIFORNIA, LOS ANGELES

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO

SANTA BARBARA · SANTA CRUZ

DEPARTMENT OF EARTH AND SPACE SCIENCES
3806 GEOLOGY BUILDING
LOS ANGELES, CALIFORNIA 90024

Dear Alumni:

We were glad to see 76 alumni at our first Alumni Day last April 29. Following this letter is a state-of-the-department message given that day, which we hope brings you almost up-to-date on what's happening in UCLA Geosciences.

Since then we have had the greatest influx of graduate students in our experience -- 37, 4 of them in paleontology, 8 in soft rock, 2 in hard rock, 2 in structure, 2 in economic geology, 2 in organic geochemistry, 8 in space physics, and 9 in geophysics. We also have had the highest proportion of acceptances of offers of fellowships, over fifty percent. At the Department's graduation party on June 19 there were 22 in cap-and-gown, with about 100 family, friends, and faculty present. Ken Watson's retirement was honored by a faculty and staff party on June 18. His successor is Mark Barton, a 1981 Chicago Ph.D. who specializes in sulfide and fluoride ore genesis systems. We also have obtained a full-time appointment for Ray Ingersoll (Stanford, 1972), a sedimentologist expert in California Basin development. The main new curriculum development has been the summer field program in geophysics at Los Alamos, in which UCLA collaborated with other universities. The program was fully booked, and some applicants had to be left out.

Events for the coming year include:

January 26	Careers Day
January 27	Research Presentations to Affiliates
February 6-11	Course "Creative Concepts in Geologic Exploration" by Jack Elam
June 4	Research Presentations to Affiliates
October 3-5	Rubey Colloquium "Cenozoic Basin Development in Coastal California"
October 5	Alumni Day (followed by UCLA-Stanford game October 6)

We hope to see some of you at these events -- and many of you at Alumni Day!

Yours sincerely,

William M. Kaula
Chairman

WMK:vbj

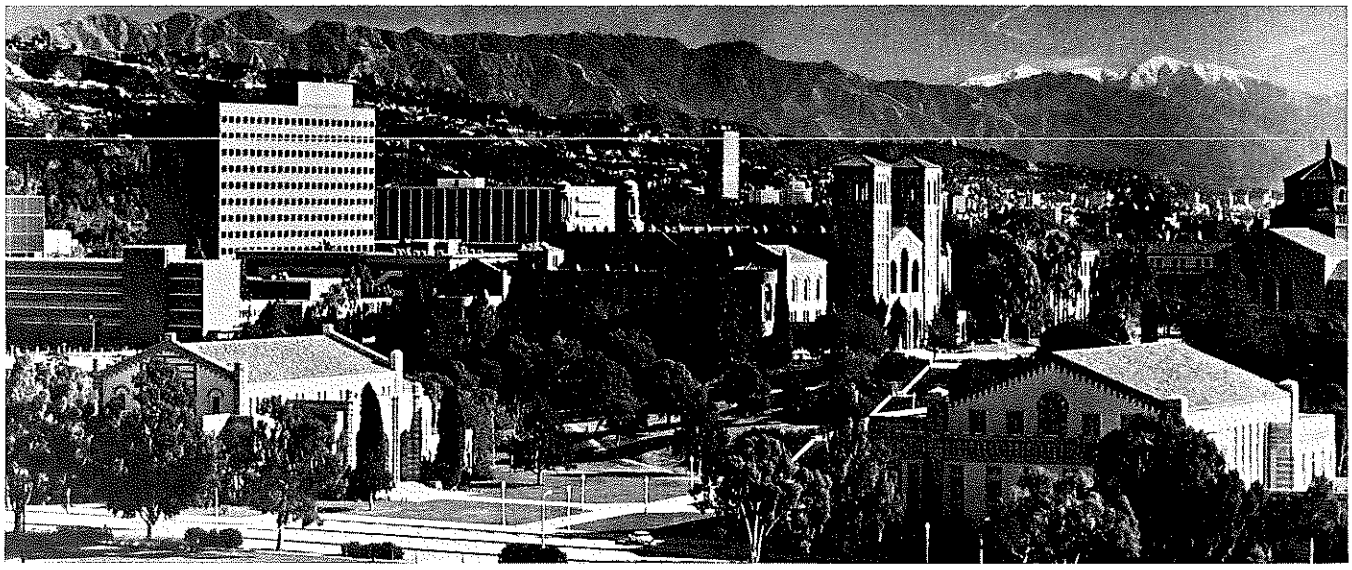
April 29, 1983
Geosciences Alumni Day

State of the Department Message

Welcome to Geosciences Alumni Day. I'm Bill Kaula, Chairman since last September, when it was decided a geophysicist should take the job for awhile. Also welcome to not-always-sunny California in this year of Great Climate Change. I'm a bit surprised that in the section of the reservation form "What or who would you like to see?" I'm the only one who put "Sunshine!" Before I start I'd like to express appreciation for those who helped make this occasion a success: our faculty and alumni co-chairs, Helen Loeblich and Ted Bear; our wise and diligent staff: George Lapins, Sue Luera, Vicki Doyle-Jones, Gail Marshall, and several others; and finally our expert advisers, like Joan Perkal, Doug Traxler, and the departmental vocaliser, Bill Schopf.

Ted Bear said I should give a "State of the Department" message. My wife says I should tell jokes. In my mood of these days, I find these two pieces of advice difficult to follow simultaneously. I'll heed mainly Ted's (since Gary Ernst is a hard act to follow in joke telling), but keep Gene's in mind.

"State of the Department"? By ordinary indicators, we're in excellent shape. By "we" I mean the Institute of Geophysics and Planetary Physics as well as the Department, since to the world outside UCLA they're hard to tell apart. The prime indicator is that according to a recent national survey of graduate education and research, the most comprehensive in thirteen years, we're number three in geosciences among all universities in the country for "faculty quality" and number one for "influence of publications". We also have 90 graduate students, 120 undergraduates, and $5.4 million of



support from non-State funds, nearly all federal government. Two interesting statistics this year are a fifty percent increase in the number of new students applying, and, for the first time, an acceptance percentage higher than 50 percent of graduate applicants offered financial aid. The former statistic may reflect in part poorer job opportunities, but the latter clearly indicates we have a better "image."

So somebody loves us. But, to quote the captain of the *Titanic*, we must look ahead. A certain Iceberg, known as "Jarvis" or "No. 13" has already loomed up. There are others more subtle.

I apologize in advance for emphasizing faculty recruitment and retention in this talk. But the nature of a department essentially depends upon its faculty. It is the faculty who determine what is taught. Once you appoint a faculty member, you can't tell him what to do. They are an extraordinarily resistant species, and will persist in their own ways despite such severe treatment as no promotion for several years. Hence we must talk about isotope geochemists, seismologists, and paleontologists as Terry Donahue talks about quarterbacks, linebackers, and nose guards.

Why are we number three and number one? Number three is an opinion poll of 177 geosciences faculty around the country: 31 petrologists, 29 geophysicists, 13 paleontogists, etc. Number one is an arcane analysis of scientific journals: how rigorously they are refereed, who publishes in them, etc. Obviously, we are well ahead in the "publish or perish" game. We also apparently come out well on the academic popularity poll because we're diverse. We have faculty who are high achievers in an extraordinary variety of fields: micropaleontology, organic geochemistry, Precambrian biology, isotope geochemistry, igneous petrology, tectonophysics, geophysical fluid dynamics, seismology, mineral physics, solar system dynamics, meteorites, and space plasmas. Hence the probability is greatly enhanced that any one of our 177 academic colleagues will, in examining the list, recognize at least three or four names as good guys. That's enough to swing the vote.

But to achieve this diversity in 30 faculty means that we're spread awfully thin. This thinness has led to most of us being gap-fillers rather than reinforcers. Consequently, it is easy for most of our faculty to feel intellectually lonely. A result is that one of the two main reasons that faculty leave us is to find more congenial associations. We do have an extraordinary rate of involuntary loss: an average of one faculty member per year to another university or research institution for the last twenty-five years. This rate is about six times those of our neighbors, the Physics and Chemistry Departments, over the same period.

The second main reason why we lose faculty is the desire for a more rural environment: quicker access to the countryside. This is understandable; a lot of people become geologists because they love the out-of-doors. In our case, this problem is compounded by our being stuck in the middle of some of the most outrageously overpriced real estate in the world. When I came to UCLA in 1963 as a not-too-high ranking professor, I got what seemed then a princely salary of $15,000/9 mos., which with summer pay came to $20K/yr. So within a year, we could buy a nice house in Santa Monica for $45K, 20% down, 30-year mortgage at 6%. Since then, the cost of living has tripled in the USA, the cost of real estate in Santa Monica has gone up

something like eightfold, and mortgage interest has gone to 13%. So to achieve the same standard of living I had in 1964, a faculty member buying his house since 1978 needs a university salary of $68K/9 mos. This is higher than the highest salary of any professor in the College of Letters and Science.

It can be argued that our high rating is helped by our high turnover rate; with the rising level of talent, we keep getting more productive young people. Thus, we probably wouldn't have our current young achiever in isotope geochemistry if his predecessor hadn't left us in 1975. But this young isotopist is in turn receiving offers from elsewhere, so I feel queasy about this theory.

It is perhaps logical that a geosciences department should not flourish in the third largest city in the country, since such a university inevitably tends to be more people-oriented than resource-oriented. An additional pressure, so help me, is the parking problem. The owners of the high-priced real estate around here, who include a lot of clever lawyers, object to students taking all the parking in front of their palaces. Hence a ceiling has been negotiated on the number of students. Hence there is a ceiling on the number of faculty. We have the lightest teaching load in the physical sciences, because of the hordes of would-be doctors and engineers taking physics, chemistry, and math courses. Hence despite our number-threeness, we are the only geoscience department among six in the UC system to decrease in the number of faculty in the last eight years. We also are one of only three among the top ten departments in the country to decrease in this same period. Who are the other two? Chicago and Columbia, multiversities in the other two biggest cities. Meanwhile, the geoscience faculty have increased at Caltech by 25%; at Stanford, by 22%; at Santa Barbara, by 67%. But in the UCLA conglomerate the geosciences seem to be a "cow."

This discussion is too much numerology and not enough qualitative substance. I know some of you feel that the Department has been distorted by the federally fostered emphasis on basic research. However, in actuality the only subject area in which we have declined in number of faculty in the last twenty-five years is paleontology. This is a characteristic shared with all the leading ten in geosciences except Yale and Berkeley; eight of us have two or less paleo faculty. Meanwhile, in absolute numbers we have held steady in sedimentology, increased moderately in structural geology and petrology, and greatly in geophysics, geochemistry, and space physics. But we are at a crossroads in the coming few years: several of our faculty in the areas of interest to industry are retiring. I can say that it is a firm faculty consensus that they should be replaced by new faculty in the same areas--not carbon copies, but people who can teach students things which make them valuable contributors to industry. Here we come to the problem of just what is valuable: certain basics, or current practice? Our Industrial Affiliates advisory committee says give them the right basics; practice they can learn after they're hired. But there can be differences of perception about what is "basic" and what is "applied." We are currently facing this problem in selecting a successor for Ken Watson, who unfortunately is compelled to retire early. We advertised for a mineral deposits and/or petrology specialist. We are pleased to get some excellent young applicants who have done work on the conditions pertaining to economically viable sulfide and fluoride deposits, and are making an offer to one of them.

Our next priority in faculty recruitment is a sedimentologist, not only to maintain the strength of our field programs, but also to keep UCLA at the forefront in earth sciences research. This duality of criteria in faculty appointments at UCLA is essential to our leadership. For training journeyman geologists, there are 70 geoscience faculty in the nine southern California campuses of the State College system (Fresno to San Diego) alone. (They must be pretty good, since 11 of the 70 are UCLA alumni).

There are areas where industry is plainly ahead in the "basics": most notably, the data processing techniques associated with large-scale seismic refraction surveys, etc. We have some excellent young faculty expert in time-series analysis, inversion procedures, etc., but they are not experienced in the large-scale sort of data manipulation now going on in industry. Hence our mounting of an Industrial Affiliates program is in part to catch up in this area, as well as to provide talents useful to industry, we hope, in other areas such as basin evolution and kerogen development.

Geophysical prospecting has been the main area of curriculum development in recent years. We now offer a three quarter sequence of courses, including a field exercise, for geology majors. It is interesting to compare the core requirements of twenty-five years ago with those of today. In 1957, all geology majors were required to take six quarters' worth of field work: three during the academic year, and three in the summer. Other upper-division requirements were one course each of petrology, structural geology, paleontology, and regional geology. In 1982, we still require the six quarters of field work, but one of them is now geophysics instead of geology. The upper division petrology requirement is now expanded to three quarters, and other classroom requirements are one quarter each of structural geology, paleontology, and geophysics.

The optional courses are a mixture of basic and applied. The latter include mineral deposits, economic geology, petroleum geology, remote sensing, and engineering geology. The last three of these are taught by adjunct faculty from industry, since we don't have regular faculty active as consultants in these areas: a consequence of a shift in orientation I'll comment on later.

The situation is, essentially, that we offer everything which was required twenty-five years ago; we have added some new requirements in geophysics and petrology; and we offer a broader array of options in all areas except sedimentology, which has remained the same, and paleontology, which has decreased.

At the graduate level, the main new development is the institution this year of an M.S. program in applied geophysics. But obviously in this area we would most benefit from interaction with industry, because modern data analysis techniques require lots of data and bigger computers. Another area we want to develop is remote sensing. But here we run into the problem that people who would make good faculty are scarce and already busy with ongoing research. We recently appointed Alex Goetz as a half-time adjunct, but he is currently feeling rather overwhelmed by program responsibilities at J.P.L.

I personally find a turn toward greater attention to resource problems philosophically agreeable. One of the two reasons I quit a career as an army officer in 1957 is that I wanted to do something more useful to society. I wound up doing research for NASA only

because no one would give me a job doing something useful.

I hope I've made it plain that despite our excellence and achievements in the eyes of the academic world, we need help to do a better job in meeting changing circumstances and to do the best for our students. What the Department can do has been greatly enhanced over the years; the only qualitative shift (rather than addition) has been from paleontology to organic geochemistry. A change which has significantly modified our image, however, is a shift of faculty interactions with those outside UCLA from industry to other academics and the federal government. You can see a lot more of us at an AGU or GSA meeting than at a SEG or AAPG. The appropriate balance in the orientation of our faculty to the rest of the world needs to be reconsidered, in my opinion.

If you were to start a new geosciences department, the last place you'd put it would be here in Westwood Village. However, what exists is an extraordinary creative institution which you can't just pick up and move, but which can do some valuable and useful things with the right help and advice, even if some of us seem stubbornly lodged in the ivory tower.

The ARC Report

In a survey entitled "An Assessment of Research-Doctorate Programs in the United States," which was based on responses from 5000 faculty members at 228 colleges and universities across the country, the Conference Board of Associated Research Councils named UCLA second among the Nation's public research universities and in the top five overall. In the overall university ranking of both public and private institutions, Berkeley placed first in a list that included Stanford, Harvard, Princeton, Yale, the University of Chicago, and MIT. This survey, released early this year by the *New York Times*, was the first of its kind in thirteen years. It was the the fourth in 25 years; in these four, UCLA Geosciences has progressed from fourteenth in 1959 to tenth in 1964 to seventh in 1969 to third in 1982.

The UCLA Department of Earth and Space Sciences did significantly better in the survey: we were ranked third in the nation for the "scholarly quality of faculty," first for "influence of publications," and fourth for "effectiveness of the program in educating research scientists." The first and last rankings were based on a survey of 177 geoscience faculty.

The Committee (made of the Conference Board of Associated Research Councils: American Council on Education, Social Science Research Council, the American Council of Learned Societies, and the National Research Council) was charged to consider 16 separate measures of quality, among which were: the size of the graduate faculty, the number of graduate students, the level of graduates' success in finding employment, the percentage of grant support, the quality of the library, and the number of faculty publications. The scholarly competence and achievements of the faculty members, the effectiveness of the programs in educating research scholars, and the improvement of the programs over the last five years were also considered.

Kicked Upstairs!

Two new Letters and Science Deans

bruin news michael mace, editor

Wearing the third hat: Teachers, researchers now deans

By Laura Carpini

Sitting in front of two geologic maps, casually discussing shifts in the Pyrenees Mountains, geology Professor Clarence Hall seems more like a kindly mountain ranger than an administrator.

Yet since he came to UCLA in 1956 he has headed the departments of geology, geophysics and space physics, and earth and space sciences, and has directed the University of California's White Mountain Research Station. And now he's the College of Letters & Science's new dean of Physical Sciences.

Scheduled to take his post officially in July, Hall said he is not certain how intensely he will be able to continue researching, and though he said he plans to teach at least one course next year he emphasized his first responsibility will be as dean.

"Trying to learn about the different departments and meeting their individual needs and goals will be the hardest aspect of the new position, but also the most enjoyable," said Hall, mentioning that opinions from the chairmen and other faculty members will be vital.

Writing, problem-solving skills on Hall's list for improvement

RICK FRAUS/Daily Bruin

Clarence Hall

Rigorous writing, problem-solving

Indicating his approval for the new, more concentrated scheme for Letters & Science breadth requirements, Hall said he believes in the benefits of a broad education and stressed the need for a more rigorous approach toward the development of writing skills.

"Our system of higher education has reached almost a crisis situation with student writing ability," Hall said. "The faculty should spend more time, particularly in the sciences, on criticizing student papers."

One of Hall's plans for alleviating deficient writing in the science majors is to make available senior problems courses that would center on expressing ideas verbally. In such courses the student would be asked to present his solutions to scientific problems orally, and more papers would be assigned than in the regular science classes.

Hall went on to suggest that, to better students' problem-solving skills, more opportunities be provided for undergraduates to join graduate research groups.

"It is a very important aspect of

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DANIEL HOROWITZ/Daily Bruin

William Schopf

Schopf hoping to topple walls between disciplines

By Susan Steade, *City Editor*

Though he is trained in physical science, the new dean of the Honors Division is not pushing science over humanities, or vice versa. The university's goal, he said, should be to teach students to think.

"It seems that throughout American education and throughout the world ... education is organized without a great deal of horizontal exchange," Dean J. William Schopf said in supporting a broader education. "But it happens that nature is not compartmentalized.

"You say how does one make any inroads? The way in part is to educate students at the undergraduate level ... to help them acquire the background, the knowledge. Teach them how to learn, essentially, and then if you're lucky you can teach them how to think."

Schopf said he concurs with fellow scientist David Saxon, departing president of the University of California, that all American education has failed to some extent. "UC in fact does a very creditable job (but) we don't do the job that you'd like to see," he said.

Broadening honors

But despite such strong statements on the educational system, Schopf contends he's not primarily an educational theorist but a

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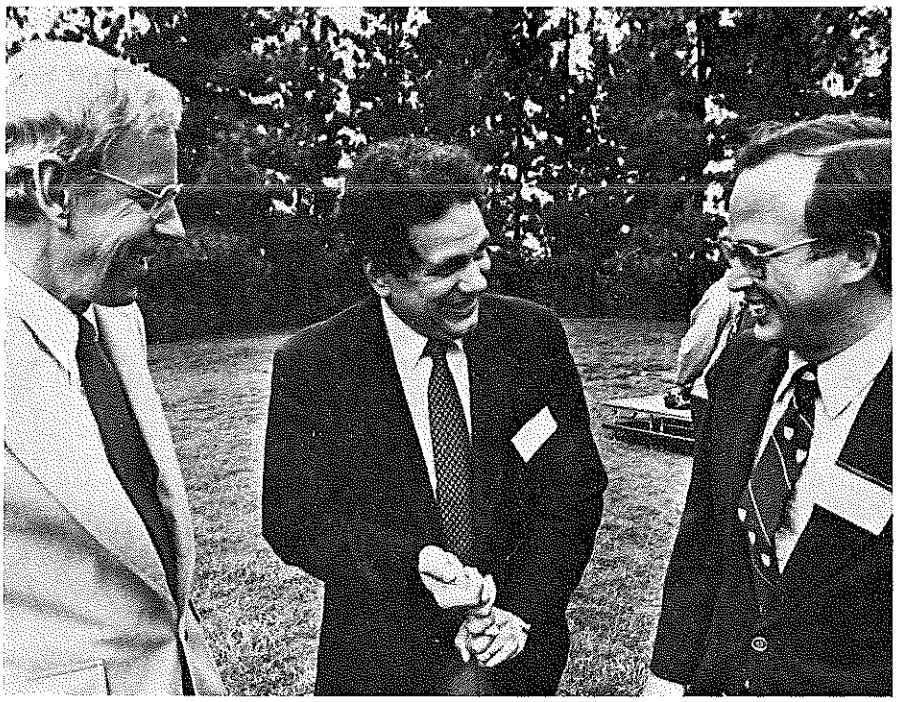


Two new faces in the College of Letters and Science Deanery, Clarence Hall and Bill Schopf, plot strategies with The Provost, Ray Orbach.

Hall

Continued from Page 10

one's education to learn how to solve problems, not just how to memorize facts," he stated.

In his course on the Natural History of Southern California, Hall teaches this method of practical problem-solving by taking students on as many as seven field trips a quarter.

In the computer age

"Historically, American education has been problem-oriented, innovative and imaginative," Hall said. "As educators we should provide the opportunity for students to recognize problems and aid them in the development of their ideas." Hall also stressed that the more time the science faculty devotes to problem-solving and writing, the better equipped graduates going into primary and secondary teaching will be.

One of his major goals is for the university to encourage the improvement of the teaching of science and math to minority students in elementary and high schools. "Minority students may be disadvantaged because of a lack of resources," he stated. Poorer students, Hall said, usually have less access to a home computer, which he said he considers a vital learning tool.

Hall also mentioned that university students, especially those in the physical sciences, should have the opportunity to take computer courses. Designing new classes aimed at training students in dealing with computer problems specific to their individual fields is another of Hall's innovations.

Besides his achievements in teaching and administration, Hall's research contributions have been extensive, ranging from showing the relationship of the San Gregorio-Hosgri fault to the San Andreas fault system, to developing a model of Western Central California Transverse Ranges.

When asked about outside interests, Hall smiled and said, "My work is both my inside and outside interest. I like what I do. Being out of doors, working with students and seeing and helping them learn — these are my greatest joys."

In speaking of Hall, colleague and personal friend William Schopf stated, "Clarence is an excellent, perceptive, innovative, imaginative and creative person, and I have little doubt he'll do a wonderful job in his new position."

Schopf

Continued from Page 10

teacher and researcher. He expects to hold his new post only for the five-year term, having no particular aspirations for an administrative career.

Schopf, 41, replaces Bradford Burns, who resigned to resume teaching Latin American studies full time.

"I have a commitment," the UCLA earth and space sciences professor said of his decision to accept the appointment early last month. "I feel strongly about the quality of education. ... It's a way I hope I can do something effective."

One of his ideas to better the Honors Division is a required core curriculum for honors students, adding science to what he calls an already rigorous program.

But, he said, "I'm not going to demolish anything." The 534-student honors program, though fledgling, is an "important step in the right direction," Schopf said. "It has under Dean Burns become an integral part of the university," he added.

'An excellent place'

And the university itself brought praise from Schopf. "I don't think people appreciate what UCLA is. This is an excellent place," he said, adding it ranks in the top five, along with Harvard, Princeton, Stanford and the University of California, Berkeley.

"It is a place where the best scholars in the nation should be attracted," Schopf said. He pointed out that UCLA competes nationally for the best graduates; why, he asked, shouldn't it also go after the best undergraduates in the country?

But Schopf said the biggest encouragement for students to enter the Honors Division is not offers of money or perquisites, but the praise of students who return to their high schools to tell how worthwhile the program is. And it will do even better, Schopf said, now that it has reached "critical mass in terms of students and faculty."

Schopf is no stranger to honors, having received them since his undergraduate years at Oberlin. He received his master's and doctoral degrees in biology at Harvard and went on to specialize in the origin and early evolution of life.

In 1968, Schopf became a UCLA faculty member. At about the same time he began working at the National Aeronautics and Space Administration, where he was principal investigator of lunar samples and, more recently, a member of the Space Program Advisory Council.

As a visiting professor, Schopf has visited the Soviet Union, the People's Republic of China and the Netherlands. He was a Guggenheim Fellow in 1973-74, and in 1977 received the Alumni Association's Distinguished Teaching Award. Also in 1977 he became one of the youngest scientists ever to win the National Science Foundation's Alan T. Waterman Award.

One of Schopf's most recent accolades is his nomination by an Academic Senate committee as the 1983-84 Faculty Research Lecturer.

Married and the father of a 12-year-old boy, Schopf enjoys tennis, skiing and "doing science" — which he calls fun, not work.

The Department History section grew from a series of photographs and questions that arose during preparations for Alumni Day 1983 and from a version sent to us by **Richard Haines (1931).** Kathy Jackson set out on what could well be a never-ending detective mission to flesh out his contribution. We uncovered delightful anecdotes and field lore (frequently as part of a Carlisle vs. Nelson challenge that should become a book of humorous tales all on its own), and we hope to start adding these to Newsletters each year.

Field experience seems to knit this group so much more closely than those in other campus disciplines, and adventures from days of yore bear retelling decades later. If you can recall any, substantiated or not, or remember something of the history that Kathy might have missed, we want to know; and anyone with information on the first Geology Major of 1927 or the exchange field program with Berkeley, please send it in. Pictures, news, history or hearsay, send them in or phone them in (213/206-8439), and we will print them in forthcoming Newsletters, with a by-line if you choose.

UCLA Geology Field Trip 1928. Photo by Richard Haines. Standing (left to right): Mac-?, Dr. A. R. Whitman; seated: "Frenchie" Dreyer, Sparky Wilson, Charles Barta, Northrup Ellis, Bill (?) Harrison (?), Dick Cuthbert.

ROCK OF AGES
A Selective History of Geology at UCLA
By Kathy Jackson

Although some in our Department study the origin of life, few know about the Department's own beginnings. The cosmology of that "small bang" will be secret no longer. Four informants with long memories--Joseph Murdoch (who passed away in 1973), Richard Haines, Takeo Susuki, and Clem Nelson were sources to help us unveil the Department's misty origins.

Joseph Murdoch joined the UCLA Geology faculty in the academic year 1928-29, and he retired thirty years later. He served as expert witness on our early history for *The Centennial Record of the University of California*, published in 1967. Alumnus Richard Haines (1931) helped compile a more casual ten-year history of Geology at UCLA in about 1930. The following description draws upon both accounts.

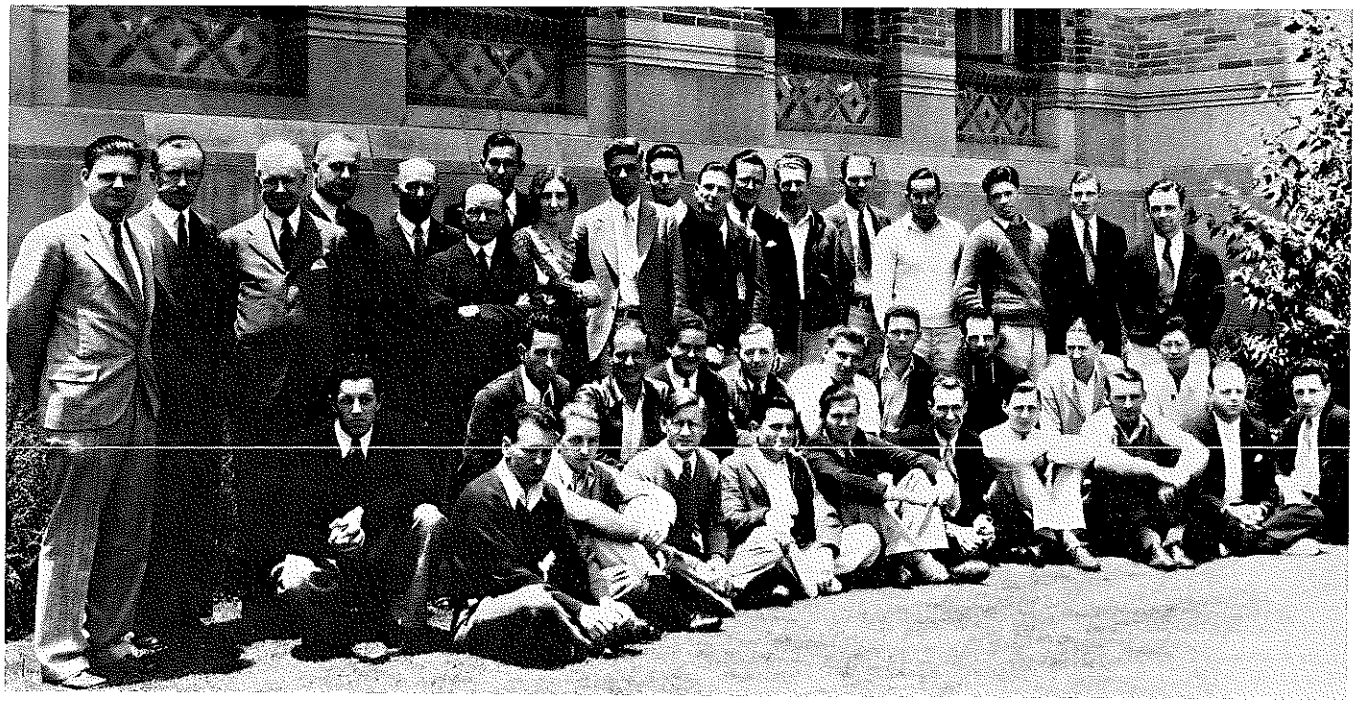
Geology offerings can be traced back to physical geography and physiography at the L.A. State Normal School before its 1919 incorporation into the University. That incorporation meant a renaming for the Vermont Avenue campus, now called the University's Southern Branch. The new University offered its first geology course in fall of 1920, and C. H. Robison served as *the* Geology faculty. In 1921-22 Dr. F. P. Vickery replaced him as instructor and the Department came to exist on its own. Dr. Vickery, who taught geology, mineralogy and crystallography, became an assistant professor in 1923-24, and joined forces with Dr. A. R. Whitman. The Geology Department boasted three faculty in 1924 when Dr. W. J. Miller was appointed chairman. He was quartered in Millspaugh Hall on Vermont Avenue, where the Geology and Geography Departments shared an

office and lecture rooms. The only room which geology could call its own resembled a mineralogy lab.

Until 1925 the Geology Department had no complete major since only freshman and sophomore years were available. To finish the degree, upper division students transferred, often to Berkeley. But by the spring of 1925, classes were sufficiently expanded to merit a major program. So too were the Geology quarters: now five rooms in a new building, North Hall. In the fall of 1926, Dr. C. H. Crickmay swelled the faculty ranks to four. Some turnover occurred, however, with Dr. R. T. Hill replacing the departing Dr. Vickery for the year of 1926-27 only. The Department could boast four faculty by fall 1927 when Dr. E. K. Soper joined in as associate professor. One year later Dr. Murdoch was added as the fifth instructor.

This pattern of growth at the beginning of the academic year repeated itself in fall of 1929 when everyone from the Vermont campus migrated to UCLA's present site: Westwood. The Geology Department expanded into thirteen rooms, including the whole upper floor of the Chemistry-Geology Building, now called Haines Hall. Richard Haines participated in this upward mobility, helping move all the laboratory rock and mineral specimens. During that fall he classified and catalogued all the rock samples for the petrology classes under Dr. A. R. Whitman

Physical expansion was matched by growth in curriculum and students. For example, in 1921-22, the geology syllabus listed five lower division courses, not including map reading. These classes were well attended, because they satisfied the University's science requirements and meshed well



Clarence Hall unearthed this photograph taken in 1933. Back row, left to right: R. W. Webb, Assistant; U. S. Grant, Assistant Prof.; E. K. Soper, Assoc. Prof.; W. J. Miller, Prof. and Chairman; A. R. Whitman, Assoc. Prof; Joseph Murdoch, Asst. Prof.; Students: D. E. Perry, Miss Josephine McArthur, H. H. Smith, Gordon McDonald, Lowell Redwine, Earl M. Irving, John Klecker, E. S. Pickett, L. A. Braden, Russell Simonson, George D. Bloomfield, J. W. McCloskey. Back row, seated, left to right: Frank J. Baudino, Stanley Mitchell, Ellsworth M. Curry, J. Robert Townsend, Roland Olaf Olson, Frank B. Herald, David H. Graham, ? Wilson, Hollis B. Page, Takeo Peter Takahashi. Front row, left to right: Charles Lechler, C. D. Redmond, Frederick M. Varney, Robert P. Bryson, Eugene Kelly, Oliver L. Paris, F. E. Arnoldy, Robert Jorns, Allen Theo. Lee, William P. Hall.

with engineering. About 400 students took the lower division classes of 1924-25, but enrollment swelled to almost 2000 by 1929-30. That meant about 1000 students per semester. The same pattern held true for upper division classes. Only "Field Geology" and two classes in "Economic Geology" were offered in 1923-24; in the next year only ten students took "Field Geology" and "Petrology." When the major was initiated in spring 1925, six upper division classes were available. Five years later that number had doubled, and 185 students were enrolled. By spring of 1927, our first geology major graduated with a UCLA A.B.

Another shot from the 1928 Field Trip. Standing, left to right: Charles Barta, Mac --?, Dr. A. R. Whitman, Dick Cuthbert, "Frenchie" Dreyer, Northrup Ellis. Kneeling: Sparky Willson, Bill Harrison.

So ends Richard Haines' description of the fledgling Geology Department. Richard graduated in 1931 when a geology background proved of little use.

Professor Murdoch's essay in the *Centennial Record* fills in the next information gap. He tells how the faculty and program grew through the 30's and 40's. According to the *Record*, Ulysses S. Grant replaced Crickmay in the spring of 1930 and Robert Webb joined the ranks in 1937. When James Gilluly, William C. Putnam and Cordell Durrell entered the fray in 1938-39, they brought petrology and optical mineralogy classes with them. Milton Bramlette joined the Department in fall 1940 to strengthen our stratigraphy and micropaleontology offerings. Summer field and classes in airplane photography, map reading, and topographic sketch mapping were added in 1942-43. During this period the Department also released into the world its first M.A. and Ph.D. students: Francis Dryer received an M.A. in 1935, and John Wiese recieved the Ph.D. in 1946, three months before John Crowell.

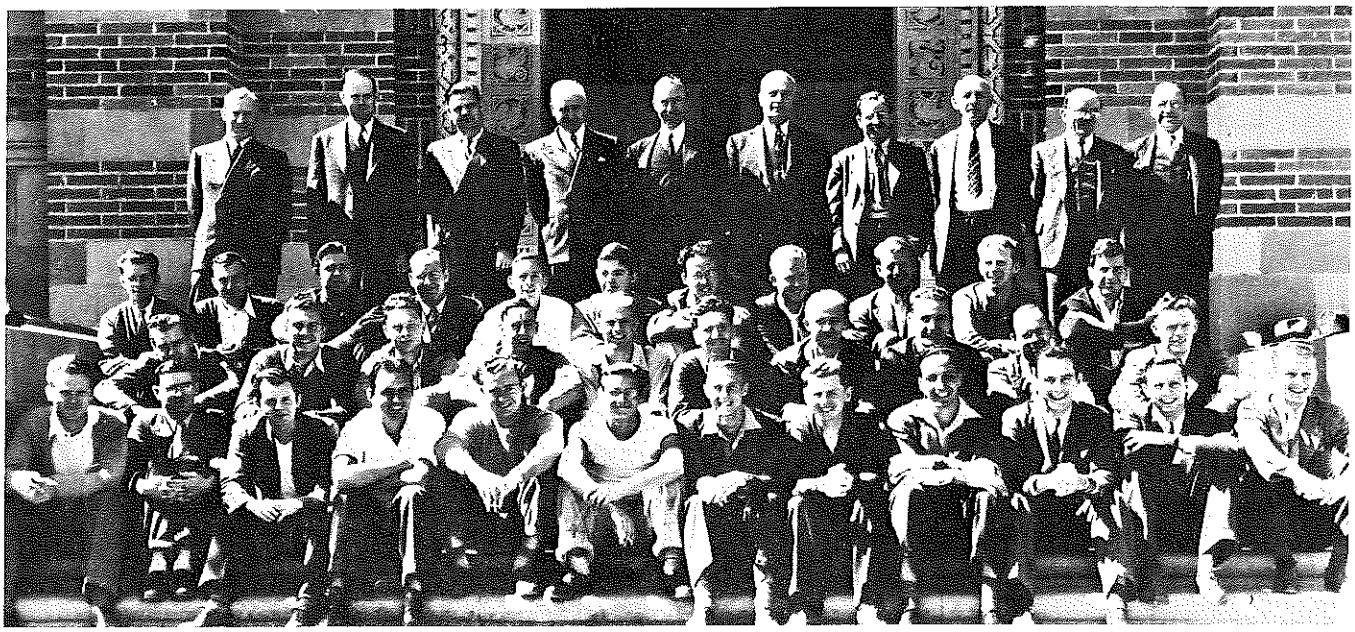
What resources were available to the students of the 30's and 40's? The library, orginally donated by students and staff, was expanded in 1938 by gifts from the Pacific Section of the American Association of Petroleum Geologists. In 1940 a windfall came to the library when Ralph Daniel Reed, the Chief Geologist of Texas Company, died. The petroleum geologists and friends of Reed donated his collection of 4000-7000 books to UCLA. They included books on travel, history, botany, zoology, and literature, as well as geology. After sorting and cataloguing by the Department, this collection made its way to room 300B of Haines Hall, renamed the Reed Geological Library. Until 1943 the Geology Department ran the library. After the war the University's main library gave the departments of Geology, Physics, and Meteorology one librarian, Georgia Catey (1947-51), to share. In 1947 the University Library assumed management of the Geology Library. In 1952 both the library and the Geology Department migrated to the present but smaller building, with a full-time librarian and one assistant as staff. That library was situated between the Chemistry and Geology wings. A library guide written by Geology Professor Cordell Durrell in August 1947 describes interesting items then in the library's collections. The

"Bibliography of North American Geology" and its predecessors, published by the U.S. Geological Survey from 1923 to 1973, indexed North American geology literature published from 1785 to 1970! During the more innocent 40's when students were fewer, library rules were looser too: "The use of books is not restricted to a definite period. It is expected that students will return books in a reasonable time..."

Takeo Susuki and Clem Nelson can help us reconstruct more recent history. Takeo came to the Department as a student in 1947. He remembers the quarters on the third floor of Haines Hall, with an attic extension for the graduate offices. During that period, both the Geology Library and Department office were staffed by one person, now retired: Marjorie Johansen. The library and office were situated together in a shared space so cramped that students could only study there when books from the collection were needed. Such was the scale of things then. The number of undergraduate and graduate students was so small in Takeo's student days that all were known to the faculty. In 1946-47, there were 38 graduate majors, with 11 B.A.'s awarded and 6 M.A. degrees.

After graduating, Takeo remembers the post-war atmosphere which made employment difficult for anyone of Japanese extraction. But the Geology administration ignored such backlash to give him his first job as museum technician. He's stayed the course, moving, along with the Department, in 1952 to the present building. After 34 years here, Takeo has seen growth change the Department's nature. Intimacy and

Doug Traxler contributed this photograph of an April 1941 bacchanalian celebration. Front row, left to right: Doug Traxler, Donald Bryant, Bud Wheeler, Holly Wagner, Bob Maynard, John Fredricks, Harry Hurd. Back row, left to right: John Handin, John Gates, John Truex, Bob Johnson, Bob McConville.



We were able to identify all but one of the faculty and only five students from this photograph taken about 1941. Top row, standing, faculty members Gilluly, Putnam, Webb, Soper, Grant, Miller, Durrell, Whitman, Murdoch, and ?.

The five students are Doug Traxler, seated below Gilluly; John Crowell sixth from the left in the second row; Cy Creasey, second from the right, third row; Tom Stevens, third left, second row, and Ted Bear, far right.

community are more difficult now, with a full-time faculty of 29, visiting lecturers, some 120 undergraduates, and 110 graduate students

The Geology Department's merger with Geophysics and Space Physics in January 1977 has also changed the "thing itself." Although the mathematical and theoretical aspects of geology would have developed anyway, independent of G&SP, the merger reenforced the nationwide trend. At the same time, the interdepartmental curriculum in geochemistry was merged into the new department. The geology and geophysics curricula have remained autonomous, but students now can pursue a greater variety of classes to prepare them for a more fluid job market. Moreover, geophysical field methods have become a strong part of the curriculum for geology students. Since the 1977 merger, a single undergraduate geophysics course has burgeoned into four (135, 136 A,B,&C) with practice in seismic, gravity, magnetic, and electromagnetic methods. How different from 1937-38 when the first geophysics course was listed in the Geology Department but cancelled due to scarcity of qualified instructors! Geophysics at UCLA was put on hold until the Institute of Geophysics was established in 1948.

In that year Clem Nelson arrived - just shy of his Ph.D. - to lecture on historical, regional, and field geology. He's had a box seat on the Department's field classes for 35 years, and, like Takeo, offers a special sense of Department history. Clem believes that field experience has been one of the Department's great strengths. In the early 50's it helped draw so many students that 65-70 took the required field courses at a time. Now enrollment has changed, because the other branches of the University as well as the state university offer competing geology programs. And jobs are fewer.

To lure today's student away from such competition, UCLA offers special field experiences. For example, a new

three-part petrology class has been set up this year to strengthen the syllabus. That has entailed cutting the field course back to winter and spring quarters only, with eight weeks of field and report activity in the summer. That cut has meant no cut in quality, however. As Clem is quick to point out, all field instructors have preserved field experience in "Structural Geology" and each of the three petrology classes.

Another special resource for today's students and faculty is the Organized Research Unit in the White Mountains. In 1950 this research station became an asset to the University system. UCLA faculty members like Ted Reed used the facility as a teen-aged student in the 50's, but no summer field program tapped its potential until 1978 (see article on Clarence Hall in the Faculty Section).

Where was summer field held before then? The privilege of deciding that fell to whoever directed the program as compensation for the work involved. Summer camp began in the academic year 1942-43 and has been "hosted" by such stalwarts as James Gilluly, John Crowell, Don Carlisle, Clem Nelson, Ken Watson, Gary Ernst and Clarence Hall. Sites have varied from central Nevada to the Coast and Inyo Ranges. Clarence, for example, did the Coast Ranges in 1959 and 1971, and central Nevada in 1958.

The participants in summer field camp, like its site, have also varied, especially the number of women students. Clem and Manager George Lapins remember hiring a special vehicle in summer 1962 for Kitty Horn, the one female student, who was required to live apart in a private home in Bishop. This segregation was perforce ended with her daily commute from Bishop to the field site. Kitty set another record in October 1971 as the first woman to receive a Ph.D. from the UCLA Geology Department: 44 years after the Department's first A.B. and 25 years after the first Ph.D. By comparison, in this academic year Earth and Space Sciences claims some 35 women undergraduates, and all meet the requirement of field research. Sleeping arrangements no longer present an insurmountable problem.

In fact the Department's field record is remarkably free of problems. Although Clem remembers cases of occasional hangovers, heat prostration, and altitude sickness, students at summer field have become informed while staying intact. Even the old collaboration with Berkeley (19 -) produced no injuries.

Another successful and accident-free project from the Department's past was run by Don Carlisle. Under National Science Foundation auspices from 1959 through 1971, Don took University of California undergraduates to Quadra and Vancouver Islands in British Columbia, Canada. They stayed a maximum of eight summer weeks and commanded a "navy of three small vessels." Despite the occasional black bear and rumors of forest fires, no one suffered injury. However, in 1962's camp, Don was tricked into eating a bird seed porridge and his tormentor, Bill Gustafson, was served up a fern sandwich in retaliation. Serious field work also got done. The British Columbia Department of Mines and Canadian Geological Survey under Dr. Jan Muller loaned Don equipment and produced a publication with his group: "The Geology and Mineral Deposits of the Alert-Cape Scott Map Area, Vancouver Island, British Columbia." For three years in the early 60's, Takeo Susuki (and his family) joined the project as a paleontological expert. This collaboration also produced several joint papers and

abstracts. In all, fifty-four students so enjoyed this field (and fishing) experience that most went on to graduate work. A partial list of famous "Vancouver Island graduates" includes: Wayne Zeck, Randy Schmuss, Ron Surdam, Ted Theodore, Bill Gustafson, Jim Imai, Jerry Lipps, Ken Stanley, Oliver Page, Eric Force, Sig Hiberg, Gary Raines, and Jim Quick. Kwame Asihene, Shingi Kuniyoshi, and Tim Lincoln did Ph.D's with Don on topics derived from these field studies but did not work on the islands.

In the sixty-three years since U.C.L.A. offered its first geology course, the numbers of faculty and classes have grown dramatically: from one class and a single professor to a total of 97 undergraduate and graduate classes taught by 29 full-time faculty. In 1981-82, 897 students took lower division classes and 657 took the upper division offerings. During this last year, the numbers read 821 students and 768 respectively, again not including the 500 tutorial. Some 347 enrollments occured for graduate classes in 1981-82, and 338 for this last year. Obviously a strong support system makes such numbers possible. One integral part of that network is Spring Verity, the students' advisor and "spiritual counselor." She arrived in September 1975 to help the Faculty Graduate Advisor with administrative chores. In January 1977 she inherited the same duties for undergraduates. These tasks include: sending out application forms, helping foreign students get visas and housing, showing how and when to fulfill requirements, keeping student records, publicizing student aids, and hounding forgetful faculty. With 45 undergraduate and 52 graduate classes to sort out, today's students would face a winter of discontent or even fall apart without Spring.

The Department is equally dependent upon its excellent library, headed since 1981 by the proficient Sarah How. The Geology and Geophysics Library moved to its present site on March 1, 1963. There it has blossomed into a collection which can support research for the following degrees:

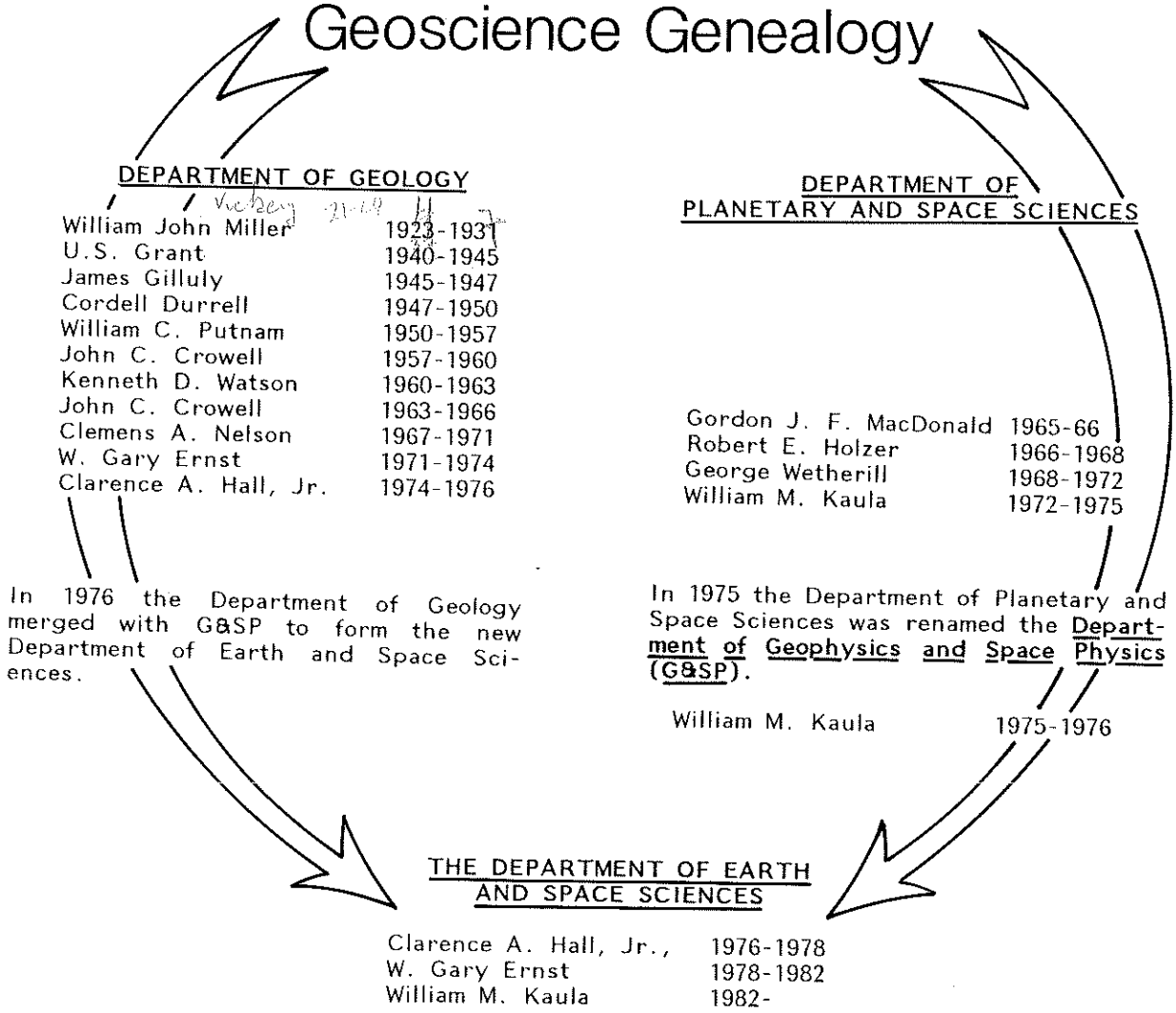
- B.S., M.S., and Ph.D. in Geology (with B.S. specializations in geology, engineering geology, paleobiology, and geochemistry and B.S. and M.S. specializations in nonrenewable natural resources.)
- B.S., M.S., and Ph.D. in Geophysics and Space Physics (with B.S. specializations in geophysics and space physics and applied geophysics.)
- M.S. and Ph.D. in Geochemistry.
- An M.S. specialization in applied geophysics is the most recent approved addition.

Approximately 40 technical staff (some on contract and others state supported) also keep the Department running. They include machinists, illustrators, draftsmen, engineers, and secretaries. Without this essential support (now bigger than the entire Department in years past), the Department could not perform its X-ray spectrometry, pole-figure goniometry, neutron activation, gas chromatography, mass spectrometry, transmission electron microscopy, hydrothermal and piston-cylinder pressure facilities, geophysical fluid dynamics, seismometry, magnetometry, and gravimetry. Nor could it administer the annual budget of $2.2 million from State funds and $5.4 million from mostly Federal grants. (These figures include the Institute's budget as well.)

Given such resources and its faculty strength, U.C.L.A. recently received national recognition in the geosciences.

The Institute, the Department of Earth and Space Sciences itself, and especially the graduate programs have been rated third nationally in the quality of our faculty. A Federally supported survey by the Conference Board of the Associated Research Councils assigned this status after a two-year study of 228 public and private American universities. The same council rated Geoscience first in the influence of its publications on topics that range from paleobiology to space plasmas and earthquake prediction. At sixty-three years of age, we are much younger than many of the ranking universities and may well be proud of our accomplishments. Special recognition should be given to the chairmen who guided this development. Departmental records and U.C.L.A. catalogues give the line of succession as follows:

Geoscience Genealogy



Next year the Newsletter will include a history of geophysics, geochemistry, and planetary physics at U.C.L.A. We will also describe activities of more staff members. Please stay tuned!

The following is a list of those who have contributed to the financial support of the Department of Earth and Space Sciences.

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UCLA is in a unique position geographically, situated in a desirable area for visitors which is also a common point of departure for trips to all quadrants. The area has the attraction of many fine schools within easy commuting distance and thus has a constant stream of distinguished visitors who are willing to give talks on their way hither and yon.

As can be seen from the following entries, we have geosciences lectures two, and sometimes even three, four, or more times a week during the school year. This will be the first time the Newsletter has listed those offered by the Institute of Geophysics in addition to those sponsored by the Department of Earth and Space Sciences.

E&SS lectures, generally given on Thursday afternoons, are held in Room 3656 Geology or Room 3853 Slichter Hall, provide coffee and cookies for the listeners and have a post-lecture question and answer session. This adjourns to a more informal "phase liquidus" mixer in Room 3680. The speaker and interested department members often continue discussions over dinner in Westwood Village. E&SS Lectures are open to the general public. The Geophysics Lectures, generally held on Tuesday afternoons, follow the same format, also provide cookies and coffee, and are open to the general public.

The Earth and Space Sciences lectures offered between the fall quarter of 1981 and the spring quarter of 1983 are given first; those for the same timespan from the Institute follow.

EARTH AND SPACE SCIENCE LECTURE SERIES
Fall 1981 Through Spring 1983

October 1, 1981, **Dr. Don L. Anderson,** Professor, Division of Geological & Planetary Sciences, California Institute of Technology, Pasadena, California: "Geophysical and Geochemical Constraints on the Evolution of the Mantle."

October 8, 1981, **Dr. David Yuen,** Assistant Professor, Department of Geology, Arizona State University, Tempe, Arizona: "Polar Wandering During the Cenozoic: Forced Responses of Rotating, Layered, Viscoelastic Earth."

October 15, 1981, **Dr. Bjorn O. Mysen,** Senior Scientist, Geophysical Laboratory, Carnegie Institution of Washington, D.C.: "The Structure of Silicate Melts: Implications for Chemical and Physical Properties of Natural Magma."

October 22, 1981, **Dr. Lynn Sykes,** Visiting Researcher, Division of Geological & Planetary Sciences, California Institute of Technology, Pasadena, California (Sr. Scientist, Lamont-Doherty Geological Observatory, Columbia University, New York): "Variations in the Style of Subduction: Caribbean and Aleutian Arcs."

October 29, 1981, **Dr. Steve Kirby,** Researcher, U. S. Geological Survey, Menlo Park, California: "Chemical Roles of H_2O in Crustal Deformation."

November 5, 1981, **Dr. Howard Wilshire,** Research Scientist, U. S. Geological Survey, Menlo Park, California: "Desertification of the United States."

November 6, 1981, **Dr. Anthony Del Genio,** Research Scientist, NASA Goddard Institute for Space Studies, New York City: "Imaging and Polarimetry from the Pioneer Venus Orbiter."

November 12, 1981, **CAREERS DAY 1981,** see article, page 28).

November 19, 1981, **Dr. Donn S. Gorsline,** Professor, Department of Geological Sciences, University of Southern California, Los Angeles, California: "Processes of Sediment Transport and Deposition in Active Margin Basins."

November 25, 1981, **Dr. Hans Ramberg,** Professor, University of Uppsala, Sweden: "Experimental and Theoretical Tectonics."

December 3, 1981, **Dr. Richard P. George,** Recruiter, EXXON Production Research, Houston, Texas: "A Thermal-Mechanical Model of Rifting with Implications for Outer Highs on Passive Continental Margins."

December 3, 1981, **Dr. Ken Hsü,** Professor, Geologisches Institut, ETH, Zurich, Switzerland: "Impact of Terminal Cretaceous Event on the Ocean Environment and on Biological Evolution."

December 3, 1981, **Dr. Dale Russell,** Visiting Lecturer, U.C. Berkeley (Paleobiology Division, National Museum of Natural Sciences, Ottawa, Ontario, Canada): "If the Dinosaurs Had Not Become Extinct...."

January 7, 1982, **Dr. Michael Sheridan,** Professor, Department of Geology, Arizona State University, Tempe, Arizona: "A General Model for Eruptive Behavior at Vesuvius."

January 14, 1982, **Dr. Charles G. Sammis,** Associate Professor, Department of Geological Sciences, University Southern California, Los Angeles, California: "The Release of Radon and Other Gases from Stressed Rock and the Generation of Fault Gouge."

January 21, 1981, **Dr. Susan Kieffer,** Researcher, Branch of Experimental Geochemistry and Mineralogy, U. S. Geological Survey, Flagstaff, Arizona: "Dynamics of the Lateral Blast of Mount St. Helens, May 18, 1980."

January 28, 1982, **Dr. Miriam Kastner,** Associate Professor, Geological Research, Scripps Institution of Oceanography, University of California, San Diego, California: "The Origin of Dolomite."

February 4, 1982, **Dr. Walter Alvarez,** Associate Professor, Department of Geology and Geophysics, University of California, Berkeley, California: "Terminal Cretaceous Extinctions."

February 11, 1982, **Dr. Elizabeth L. Miller,** Assistant Professor, Stanford University, Stanford, California: Tertiary Extensional Tectonics, Snake Range and Vicinity, East-Central Nevada."

February 18, 1982, **Dr. Bradford Hager,** Assistant Professor, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California: "Flow and Stress in Subduction Zones."

February 25, 1982, **Dr. Eric G. Frost,** Assistant Professor, Department of Geological Sciences, San Diego State University: "Structural Style of Detachment Faulting in Western Arizona and Eastern California."

February 25, 1982, **Dr. Gerard DeMaison,** AAPG Distinguished Lecturer, Chevron Overseas Petroleum Inc.: "Environments of Source Bed Deposition and Stratigraphy."

March 4, 1982, **Dr. Arthur J. Boucot,** Professor, Department of Geology, Oregon State University, Corvallis, Oregon: "The Reliability of Previously Proposed Paleozoic Paleogeographies."

March 10, 1982, **Dr. Leonard Margolen,** Staff Scientist and Group Leader, Geoanalysis Group, Los Alamos National

Laboratory, New Mexico: "Theoretical Models of Rock Fracture: Comparison with Experiment."

March 11, 1982, **Dr. David Curtis,** Research Scientist, Los Alamos Scientific Laboratory, New Mexico: "Geochemistry of Nuclear Products: Study of the Oklo Natural Reactors."

March 18, 1982, **Dr. Tanya Atwater,** Professor, Department of Geological Sciences, University of California, Santa Barbara, California: "Mid-Ocean Ridge Picture Show."

March 19, 1982, **Dr. Alan D. Edgar,** Professor, Department of Earth Sciences, Monash University, Clayton, Victoria, Australia: "The Origin of Leucite Hills Lavas, Wyoming, USA."

April 8, 1982, **Dr. Robert T. Gregory,** Assistant Professor, Department of Geology, Arizona State University, Tempe, Arizona: "Oxygen Isotope Systematics in the Samail Ophiolite, Oman."

April 15, 1982, **Dr. David Pollard,** Researcher, U. S. Geological Survey, Menlo Park, California: "Cracks in Rocks that Split, Twist and Turn Inside Out: Applications to Volcanic Tremors, Formation of Joints, and Solution Surfaces in Rocks."

April 15, 1982, **Dr. Ken C. MacDonald,** Associate Professor, Department of Geological Sciences, University of California, Santa Barbara: "Geological Observations in an Active Hydrothermal Field on the East Pacific Rise."

April 22, 1982, **Dr. Marcia McNutt,** Researcher, U. S. Geological Survey, Menlo Park, California: "Gravity Anomalies in Northern California: More Evidence for Shallow Underthrusting and Upwelling Asthenosphere."

April 29, 1982, **Dr. Peter Ward,** Associate Professor, Department of Geology, University of California, Davis: "Nautilus and the Evolutionary History of the Chambered Cephalopods."

May 6, 1982, **Dr. Douglas S. Coombs,** Visiting Professor from New Zealand at the Department of Geological Sciences, University of California, Santa Barbara, California: "Terranes and Structural Evolution of the South Island of New Zealand."

May 13, 1982, **Dr. Gordon Haxel,** Researcher, U. S. Geological Survey, Menlo Park, California: "Early Tertiary Orogenesis in South-Central Arizona."

May 14, 1982, **Dr. Warren Hamilton,** Researcher, U. S. Geological Survey, Denver, Colorado: "Subduction Mechanism and the Tectonics of Convergent Plate Margins."

May 20, 1982, **Dr. James K. Crouch,** Senior Exploration Geologist, Ogle Petroleum, Inc., Santa Barbara, California: "Tectonic Evolution of the California Continental Borderland."

May 27, 1982, **Dr. Bob Chriss,** Researcher, U. S. Geological Survey, Menlo Park, California: "Eocene Hydrothermal Systems in the Idaho Batholith Region."

June 3, 1982, **Dr. Devendra Lal,** Professor, Scripps Institution of Oceanography (Director, Physical Research Laboratory, Ahmedabad, India): "The Origins of Venusian ^{36}Ar."

June 10, 1982, **Dr. Robert Powell,** Researcher, U. S. Geological Survey, Menlo Park, California: "Prebatholithic Terranes in the Transverse Ranges, Southern California: Constraints on Palinspastic Reconstructions Along Cenozoic Strike-Slip Faults."

June 10, 1982, **Dr. Jack Elam,** Consulting Geologist, Midland, Texas: "A Fourth Structural Style."

July 19, 1982, **Dr. Alexander F. H. Goetz,** Senior Research Scientist and Manager of Geological Applications Research, Jet Propulsion Laboratory, Pasadena, California: "Geologic Remote Sensing."

September 30, 1982, **Dr. Thomas Ahrens,** Professor, Division of Geological and Planetary Science, California Intitute of Technology, Pasadena, California: "Impact Mechanics of the Cretaceous-Tertiary Extinction Bolide."

October 7, 1982, **Dr. Edward M. Stolper,** Professor, Division of Geological and Planetary Science, Caltech: "Water in Silicate Glasses."

October 14, 1982, **W. M. Kaula,** Professor and Chairman, Department of Earth and Space Sciences, UCLA: "The World Turns in an Almost Gregorian Way."

November 4, 1982, **Dr. Edward L. Winterer,** Scripps Institution of Oceanography, La Jolla, California: "Ribbon Radiolarite: Paleooceanography and Tectonic Significance."

November 11, 1982, **Dr. Bruce Carter,** Pasadena City College, Physical Science Department: "Probable Pliocene Inception of Strike Slip Displacement on the Garlock Fault, California."

November 18, 1982, **Dr. Bernard Minster,** S-Cube Corp., La Jolla, California: "Three-dimensional Crust and Upper Mantle Structure Beneath NTS."

December 2, 1982, **Dr. Paul Weissman,** Space Researcher, Jet Propulsion Laboratory, Pasadena, California: "Thermal Modeling of Halley's Comet."

December 9, 1982, **Dr. Michael DeNiro,** Department of Earth and Space Sciences, UCLA: "Stable Isotopic Composition of Fossil Plants from Peru: Implications for Archaeology and Geochemistry."

January 6, 1983, **Dr. Jean-Marc Luck,** Visiting Professor, Department of Geological Sciences, University of California, Santa Barbara, California: "Development and Implications of the Re-Os Radiochronometer."

January 13, 1983 **Dr. David J. Stevenson,** Assoc. Professor, Division of Geological and Planetary Sciences, Caltech: "Formation, Evolution and Structure of Icy Satellites."

January 20, 1983, **Dr. John R. Holloway,** Professor, Department of Geology, Arizona State University, Tempe, Arizona: "Ch_4, CO_2, and H_2O in the Earth's Upper Crust: Implications for Low-temperature Metamorphism and Natural Gas."

January 27, 1983, **Dr. J. D. O'Keefe,** Div. Chief, TRW Defense & Space Systems Group, Redondo Beach, California: "Impact Mechanics of Extinction-producing Bolides."

February 3, 1983, **Dr. David Howell,** Senior Scientist, U.S. Geological Survey, Menlo Park, California: "Structural and Stratigraphic Evolution of Southern California."

February 17, 1983, **Dr. D. L. Jones,** Senior Scientist, U.S. Geological Survey, Menlo Park, California: "Accretionary Tectonics of Western North America."

February 24, 1983, **Dr. A. Harris,** Scientist, Jet Propulsion Laboratory, Pasadena, California: "Rotations of Planets and Asteroids."

March 3, 1983, **Dr. William A. Clemens,** Professor, Department of Paleontology, University of California, Berkeley, California: "Biotic Changes During the Cretaceous-Tertiary Transition, Evidence from the Terrestrial Fossil Record."

March 10, 1983, **Dr. A. J. Irving,** Associate Professor, Department of Geological Sciences, University of Washington, Seattle, Washington: "Mantle Xenoliths and the Evolution of Alkalic Basalt Magmas."

March 17, 1983, **Dr. Ian S. Carmichael,** Professor, Department of Geology and Geophysics, University of California, Berkeley, California: "Evolution of the Western Mexican Volcanic Belt."

March 24, 1983, **Dr. Gordon Brown,** Associate Professor, Department of Geology, Stanford University, Stanford, California: "Applications of Synchrotron Radiation in the Earth Sciences."

March 31, 1983, **Dr. Douglas G. Brookins,** Professor, Department of Geology, University of New Mexico, Albuquerque, New Mexico: "Geochemical Studies of the Oklo Natural Reactor, Gabon: Implications for Radioactive Waste Disposal."

April 6, 1983, **Dr. Rachel M. Haymon,** Assistant Research Geochemist, Marine Science Institute, University of California, Santa Barbara, California: "Hydrothermal Deposition at Spreading Centers: The East Pacific Rise at 21° North and the Semail Ophiolite."

April 11, 1983, **Dr. David R. Janecky,** Research Associate, Department of Geology and Geophysics, University of Minnesota, Minneapolis, Minnesota: "Rock water Interactions/Economic Geology."

April 13, 1983, **Dr. Mark N. Barton,** Research Fellow, Geophysical Laboratory, Carnegie Institution of Washington, D.C.: "Geochemistry of F1 Skarns and Granites/Economic Geology."

April 14, 1983, **Dr. J. Casey Moore,** Professor, Department of Geology, University of California, Santa Cruz, California: "Cretaceous-Tertiary History of the Kodiak Islands, Alaska: Implications of Ridge-trench Interactions in More Southerly Latitudes."

April 20, 1983, **Robert A. Zierenberg,** Doctoral Candidate, Department of Geology and Geophysics, University of Wisconsin, Madison, Wisconsin: "Hydrothermal Ores/Economic Geology."

April 21, 1983, **Dr. John C. Eichelberger,** Researcher, Sandia Laboratories, Albuquerque, New Mexico: "The Role of Water in Silicic Volcanism."

April 28, 1983, **Dr. Richard V. Fisher,** Professor, Department of Geology, University of California, Santa Barbara, California: "Flow Transformations."

May 5, 1983, **Dr. George Herbig,** Professor, Department of Astronomy, University of California, Santa Cruz, California: "Recent Results on H•H Objects."

May 6, 1983, **Dr. Glen R. Stewart,** Researcher, NASA Ames Research Center, Moffett Field, California: "Collision-induced Transport and Instabilities in Saturn's Rings."

May 12, 1983, **Dr. K. C. Condie,** Professor, New Mexico Institute of Mining and Technology, Socorro, New Mexico: "Precambrian Evolutionary Stages."

May 19, 1983, **Dr. Michael Fuller,** Professor, Department of Geological Sciences, University of California, Santa Barbara, California: "Recent Research in Rock Magnetism and Paleomagnetism."

May 26, 1983, **Dr. Bruce M. Crowe,** Researcher, Geological Research Group, Los Alamos National Laboratory, New Mexico: "A Belt of Late-Cenozoic Basaltic Volcanism in the Southcentral Great Basin: (A) Geology and Tectonic Setting."

and

Dr. David T. Vaniman, Researcher, Geological Research Group, Los Alamos National Laboratory, New Mexico: "A Belt of Late-Cenozoic Basaltic Volcanism in the Southcentral Great Basin: (B) Petrologic Variation."

June 2, 1983, **Dr. Peter Cobbold,** Visiting Professor from Rennes, at John Hopkins University: "The Interpretation of Strain Patterns in Rocks."

June 9, 1983, **Dr. Pamela Clark,** Visiting Researcher at Jet Propulsion Laboratory, Pasadena, California: "Geochemical Classification of Planetary Surfaces."

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The 1983 Sigma Xi Lecture Series
THE PHYSICAL AND BIOLOGICAL RECORD OF MASSIVE ACCRETIONARY EVENTS ON THE EARTH

Presented by
The UCLA Committee on Public Lectures
and
The UCLA Chapter of Sigma Xi

Wednesday, January 26, 1983, **John T. Wasson and Frank T. Kyte,** Institute of Geophysics and Planetary Physics, UCLA: "Noble Metals in Sediments; Geologic Markers of Large Accretionary Events."

Wednesday, February 9, 1983, **William A. Clemens,** Professor, Department of Paleontology, U. C. Berkeley: Terminal Cretaceous Extinctions: A Paleontological Viewpoint."

Wednesday, March 2, 1983, **Eugene N. Shoemaker,** Professor, Geological Sciences, California Institute of Technology and Scientist, Astrogeology Branch, U.S. Geological Survey Flagstaff, Arizona: "Astronomical and Geological Evidence Regarding the Impact of Asteroids and Comets onto the Earth."

INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS LECTURE SERIES
Fall 1981 Through Spring 1983

September 29, 1981, **Dr. Imke de Pater,** Research Associate, Lunar and Planetary Laboratory, University of Arizona: "Radio Emission from Jupiter: Including Movies of the 21 cm Radiation."

October 6, 1981, **Dr. Alan H. Cook,** Visiting Profesor, IGPP, Jackson Professor of Natural Philosophy and Head of the Physics Department, Cambridge University: "Metallic Hydrogen and the Interiors of Jupiter and Saturn."

October 13, 1981, **Dr. Steven R. Bohlen,** Post-graduate Research Geophysicist, IGPP: "How Thick was the Precambrian Crust?"

October 20, 1981, **Dr. James W. Dungey,** Visiting Professor, IGPP; Professor of Physics, Blackett Laboratory, Imperial College: "Landau Damping, Reconnection and Both at Once."

November 3, 1981, **Dr. Jan Smit,** Research Scientist, University of Amsterdam: "Evidence for a Cometary Impact at the End of the Cretaceous."

November 10, 1981, **Dr. Walter M. Fitch,** Professor, Department of Phy-

siological Chemistry, University of Wisconsin Medical School: "Optimal Sequence Alignments: Biological and Geological Similarities."

November 12, 1981, **Dr. W. I. Axford,** Director, Max-Planck Institute, Lindau: "Cosmic Rays."

November 17, 1981, **Dr. Frank Spera,** Department of Geological and Geophysical Sciences, Princeton University; Visiting Assistant Research Geophysicist, IGPP; Visiting Assistant Professor, E&SS: "Silicic Magma Chambers: Chemical and Convective Processes."

November 24, 1981, **Dr. Gregor Morfill,** Research Scientist, Max-Planck Institute für Kernphysik, Heidelberg, Germany: "Chemical Fractionation During the Formation of the Solar System."

December 1, 1981, **Dr. James Quick,** Geologist, U.S. Geological Survey: "Constraints from Field Geology on the Depth of Origin of Oceanic Basalts."

January 19, 1982, **Kristian Meisling,** Graduate Student, Division of Geological and Planetary Sciences, California Institute of Technology: "Slip Rate, Offset, and History of the Cleghorn Fault, a Left-lateral Offshoot from the San Andreas Fault in the Western San Bernardino Mountains."

January 26, 1982, **Dr. William Newman,** Assistant Professor, Earth and Space Sciences, UCLA: "Crack-fusion Dynamics: Elements of a Nonlinear Model for Large Earthquakes."

February 2, 1982, **Dr. Robert L. McPherron,** IGPP & E&SS, UCLA: "The Use of Linear Prediction Filters in Predicting Geomagnetic Activity."

February 9, 1982, **Dr. David E. Thompson,** Planetology Section, Jet Propulsion Laboratory: "An Analog for Catastrophic Flooding on Mars: Outbursts of Glacier-dammed Lakes in the St. Elias Mountains, Yukon."

February 16, 1982, **Dr. James W. Hawkins,** Professor of Geology, Scripps Institution of Oceanography: "Ophiolites, Island Arcs, and Back-arc Basins: Some Insights from the Jungle of Luzon."

February 23, 1982, Dr. Barclay Kamb, Professor of Geology and Geophysics, California Institute of Technology: "Waves of Accelerated Motion in a Glacier Approaching Surge."

March 2, 1982, **Dr. John R. Watterson,** Project Chief, Biological Methods Research, Branch of Exploration Research, U.S. Geological Survey: "Exploration Microbiology."

March 9, 1982, **Dr. Gerald North,** Goddard Space Flight Center: "A Simple Climate Model Resolving the Continents and the Seasons: Application to the Milankovitch Theory of the Ice Ages."

March 9, 1982, **Dr. Maha Ashour-Abdalla,** Associate Research Geophysicist, IGPP: "The Plasma Physics of Auroral Field Lines."

March 10, 1982, **Dr. Leonard G. Margolin,** Staff Scientist and Deputy Leader, Geoanalysis Group, Los Alamos National Laboratory: "Theoretical Models of Rock Fractures: Comparison with Experiment."

March 16, 1982, **Dr. Alfred Kroner,** Professor, Johann Gutenberg Universitat, Mainz, on leave at Stanford University: "New Facts Regarding Archean Crustal Evolution."

March 18, 1982, **Dr. James Walker,** Professor, Space Physics Research Laboratory, Department of Atmospheric and Oceanic Science, University of

Michigan: "The Earliest Atmosphere of the Earth."

April 13, 1982, **Dr. John Kerridge,** Research Geochemist, IGPP, UCLA: "What are Nitrogen Isotopes Telling Us About the Early Solar System?"

April 20, 1982, **Dr. David Walker,** Sherman Fairchild Distinguished Scholar, California Institute of Technology and Professor of Geology, Columbia University: "Mixing and Soret Fractionation in Mid-Ocean Ridge Basalts."

April 21, 1982, **Dr. David Gubbins,** Department of Earth Sciences, University of Cambridge: "Physical Constraint to Aid Analysis of the Geomagnetic Secular Variation."

April 27, 1982, **Dr. Robert Eganhouse,** Postgraduate Research Geophysicist, IGPP, UCLA: "Petroleum Hydrocarbons: Their Input to the Oceans from the Land and Their Fate in the Sediments."

May 4, 1982, **Dr. Peter K. Haff,** Senior Research Associate, W. K. Kellogg Radiation Laboratory, California Institute of Technology: "Sand Grains, Corn Flakes, and Rock Slides: The Fluid-like Motion of Lumpy Mechanical Systems."

May 7, 1982, **Dr. Andrew P. Ingersoll,** Professor, Department of Geological and Planetary Sciences. California Institute of Technology, Pasadena, California: "A Theory of Long-Lived Vortices in Planetary Atmospheres with an Introductory Polemic on Space Program Cuts."

May 11, 1982, **Dr. Jonathan E. Ericson,** Associate Professor of Anthropology, Harvard University: "Archeobiogeochemistry Using Alkaline-earth Ratios and Carbon and Strontium Isotopes."

May 12, 1982, **Dr. Tobias Owen,** Professor, Department of Earth and Space Science, State University of New York at Stony Brook: "The Composition and Origin of Planetary Atmospheres."

May 18, 1982, **Dr. Yan Kagan,** Associate Research Geophysicist, IGPP, UCLA: "Scale-invariance of the Earthquake Process."

May 25, 1982, **Dr. Paul Davis,** Assistant Professor of Geophysics, E&SS: "Observations of Geomagnetic Field Changes in Tectonic Regions and Their Relation to Stress Changes in the Crust."

May 28, 1982, **Dr. John Caldwell,** Professor, Department of Earth and Space Sciences, State University of New York at Stony Brook: "An Infrared Aurora on Jupiter."

May 28, 1982, **Dr. Benoit Mandelbrot,** IBM Fellow, Thomas J. Watson Research Center, Yorktown Heights, New York: "Geometric Scaling in Geophysics: Fractals."

June 3, 1982, **Dr. Devendra Lal,** Professor, Scripps Institute of Oceanography, and Director, Physical Research Laboratory, Ahmedabad, India: "The Origin of Venusian ^{36}Ar."

June 8, 1982, **Dr. David Pieri,** Member, Technical Staff, JPL, Earth and Space Sciences Division: "Sulfur Volcanism on Io and Related Topics."

September 28, 1982, **Dr. Keith Runcorn,** Professor and Head, School of Physics, University of Newcastle upon Tyne: "Lunar Paleomagnetism and Polar Wandering."

October 6, 1982, **Dr. Atsuhiro Nishida,** Institute for Space and Aeronautical Sciences, University of Tokyo: "Cosmic-ray Modulation in the Heliosphere:

Numerical Simulation of the Forbush Decrease."

October 13, 1982, **Dr. J. William Schopf,** E&SS and IGPP, UCLA: "Observations on Science in China."

October 19, 1982, **Dr. Leona Libby,** Professor, Environmental Science and Engineering, UCLA: "Solar *Anti*-neutrinos."

October 26, 1982, **Dr. Yehoshua Kolodny,** Professor, Department of Geology, Hebrew University of Jerusalem: "Lake Lisan: The Pleistocene Precursor of the Dead Sea."

November 2, 1982, **Professor Claude Froidevaux,** Physics Department, University of Paris (Orsay): "Lithospheric Stresses Caused by Mantle Heterogeneities: Application to Ocean-Continent Deep Structures and to Orogenesis."

November 9, 1982, **Dr. Umberto DeAngelis,** Associate Professor of Astrophysics, Instituto di Fisica Sperimentale, University of Naples: "Charged Fluids: Hydrogen-helium Mixtures and Jupiter's Interior."

November 23, 1982, **Dr. John Wasson,** Professor, IGPP, E&SS, and Chemistry-Biochem., UCLA: "New Studies Relevant to the Origin of Meteoritic Chondrules."

November 30, 1982, **Professor Robert Rosner,** Center for Astrophysics, Harvard College Observatory: "MHD Instabilities and Coronal Heating."

Januarv 11, 1983, **Dr. Fritz Busse,** Professor, IGPP, E&SS, and Mathematics, UCLA: "Preferred Breaks of Spherical Symmetry with Applications to the Earth's Mantle and the Universe."

January 18, 1983, **Professor George L. Siscoe,** Department of Atmospheric Sciences, UCLA: "Did the Magnetic Pole Visit the Orient During the Sung-Yuan Dynasty?"

January 25, 1983, **Dr. Guy Masters,** Research Seismologist, Scripps Institution of Oceanography: "Understanding Low-Frequency Seismology."

February 1, 1983, **Dr. Janet Luhmann,** Associate Research Geophysicist, IGPP, UCLA: "Can the Auroral Electrojet Modify the Weather?"

February 8, 1983, **Dr. Pieter Meyers,** Conservation Center, Los Angeles Museum of Art: "Application of Physical Sciences in an Art Museum Laboratory."

February 15, 1983, **Dr. Mark H. Thiemens,** Assistant Professor of Chemistry, University of California, San Diego: "Novel Isotope Effect in Oxygen and Implications for the Evolution of the Solar System."

February 18, 1983, **Dr. O. H. Bauer and Dr. H. Junginger,** Max-Planck Institute für Physik und Astrophysik; Institut für Extraterrestrische Physik: "Geomagnetic Micropulsations and ULF Waves Measured with the Electron Beam Experiment on GEOS-2."

February 22, 1983, **Dr. Louis J. Lanzerotti,** Scientist, Bell Laboratories: "Effects of Magnetosphere Ions on the Moons of Jupiter and Saturn."

March 1, 1983, **Professor Philip Marcus,** Department of Mathematics, Massachusetts Institute of Technology: "The Red Spot of Jupiter."

March 2, 1983, **Professor Hannes Alfven,** Department of Electrical Engineering and Computer Science, University of California, San Diego: "Paradigm Transition to Space Plasma Physics."

March 3, 1983, **Professor Hannes Alfven,** Department of Electrical Engineering and Computer Science, University of California, San Diego: "Consequences of the Paradigm Transition in Space Plasma Physics for the Evolutionary History of the Solar System."

March 8, 1983, **Professor Frank M. Richter,** Department of Geophysical Scences, University of Chicago: "Models for the Early Thermal and Chemical Evolution of the Earth."

March 15, 1983, **Professor James D. Murray,** Mathematical Institute, Oxford University; Visiting Professor, Caltech: "Development of Biological Pattern and Form."

April 5, 1983, **Professor Friedemann Freund,** Mineralogisches Institut der Universität Koln; on sabbatical at the Department of Physics, University of Arizona: "Why and How H_2O and CO_2 Molecules Dissolve in Dense Oxides and Silicates."

April 12, 1983, **Professor Joseph A. Burns,** Department of Astronomy and Department of Theoretical and Applied Mechanics, Cornell University: "Tenuous Planetary Rings."

April 19, 1983, **Professor S. V. Venkateswaran,** Department of Atmospheric Sciences, UCLA: "Cosmology Confronts Particle Physics."

April 26, 1983, **Dr. Ian Hutcheon,** Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California: "Aluminum-26 in the Early Solar System: Heat Source, Chronometer, or Enigma?"

May 5, 1983, **Professor George Herbig,** Department of Astronomy, University of California, Santa Cruz: "Recent Results on Herbig-Haro Objects."

May 10, 1983, **Dr. Rainer Berger,** Professor of Geography, Geophysics, and Anthropology; Chairman, Archaeology Program, UCLA: "The Chemistry, Geophysics, and Dendrochronology of Sir Geoffrey Chaucer."

May 17, 1983, **Professor Hugh P. Taylor,** Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California: "Oxygen Isotope Studes of Subaerial and Submarine Spreading Centers and the Origin of Low-^{18}O Magmas."

May 24, 1983, **Professor Heinz Lowenstam,** Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California: "Problems in the Evolution of Biomineralization."

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FALL 1981
HITCHCOCK FOUNDATION LECTURE

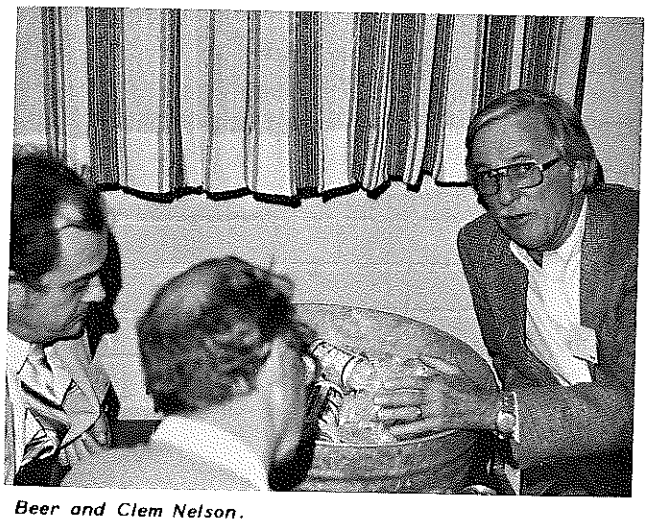
October 27, 1981, STANLEY KEITH RUNCORN, F.R.S, **(Professor and Head,** School of Physics, University of Newcastle upon Tyne): "The Earth's Rotation: Evidence from Paleontology, Astronomy, and Physics." Sponsored by the IGPP and the UCLA Committee on Public Lectures.

Careers Day, April 7, 1983

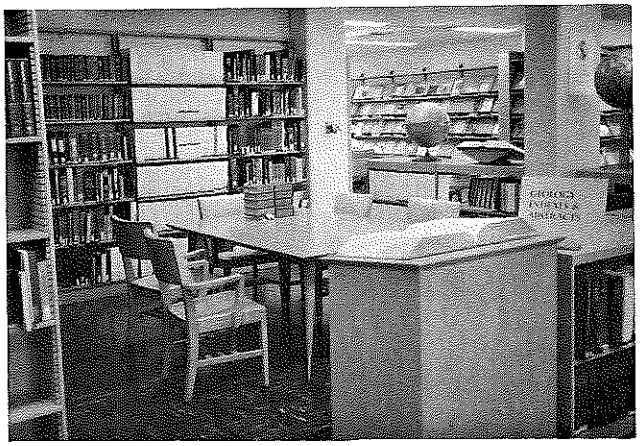
One hundred and three undergraduates, graduate students, staff and alumni attended this day-long series of talks and discussions of what newcomers could expect upon entering the geoscience industry. There were nine speakers (more than half of them UCLA alumni), a roundtable discussion, and a dinner-time lecture. Vice Chancellor Albert Barber from UCLA gave the welcoming speech and opening talk, "A View of the University as a Future Career," which was followed by four pre-lunch talks of half an hour each. Tom Anderson, Senior Geologist from the California Divison of Mines and Geology, spoke on "A Career in Mineral Exploration: A Geologist's Perspective;" Pat Colville, Supervisor of Analytical Services for Cyprus Industrial Minerals Research gave a "Woman's View of the Mineral Exploration World;" Joe Straus from Aerospace Corporation told of "Career Opportunities for Geophysicists/Space Scientists in the Aerospace Industry;" and Monte Ray, Engineering Geologist with Robert Stone & Associates, discussed "The Role of a Geologist in the Civil Engineering World."

Following a luncheon in the Faculty Center, talks were resumed when an ebullient Bonnie Bloeser, Exploration Petroleum Geologist from Texaco and recent UCLA grad, told the audience how "You, Too, Can Be An Eternal Optimist," telling of her experiences on exploration rigs off the Alaskan Coast. Two more recent UCLA grads, Marvin Katz, now a Development Geologist with Getty Oil, told the audience "How We Get Oil Out of the Ground;" and Ken Peters from Chevron explained why "The Petroleum Industry Geochemist Has all the Answers." The last talk of the afternoon was given by Geoff Howarth, Exploration Logging, Inc., who discussed "Well Site Geology Today."

An hour-long roundtable discussion followed. All then adjourned to the Geology building for liquid refreshment and excellent hors d'oeuvres. The Faculty Center served a prime rib dinner to all participants, following which, W. C. (Rusty) Reise, Project Geochemist from Anaconda Minerals, discussed "The Future of the Minerals Industry, or The Games You Never Learned in School," as the evening speaker. His talk was humorous, well documented, and flavored with many interesting slides of mineral deposits and the trials and tribulations of field working geologists. There was ample opportunity to exchange opinions and ask questions, and even Clem Nelson wasn't able to deplete the beer supply by the end of the day.



Beer and Clem Nelson.



There have been several changes in the Library staff since the last Newsletter. Sarah E. How was appointed Head of the Geology-Geophysics Library to replace Nancy J. Pruett, Librarian from 1977 to 1981, who left to become reference librarian at Sandia National Laboratories. Public Services Assistant Jim O'Donnell left in May 1982 to become Science Reference Librarian and Bibliographer at Trinity University in San Antonio, Texas. Mike Hernandez replaced Isgouhi Kassakhian as Technical Services Assistant in December, 1982; and Steve Takata joined the Library as Public Services Assistant in May, 1983.

Sarah had worked in reference and bibliographic instruction services at the University of Illinois, Chicago, before she came to UCLA in January of 1981. She holds a B.A. in English (magna cum laude) from the University of Pennsylvania and a M.A. in Library Science from the University of Chicago. Sarah's previous experience includes stints as Program Officer for the Association of College and Research Libraries, as editorial assistant for *The Journal of Geology*, freelance editor, and library assistant at the Princeton University Geology Library.

The Department has had unbelievably good luck with librarians starting with Gera Freeman, who set up the current library, then Dora Gerard, Nancy Pruett and other library staff. There were always worries that we could never be lucky enough to replace these outstanding people, but our luck has continued: Sarah, our latest windfall, is more than competent, her enthusiasm is infectious, and the Library still has the same congenial, almost uninstitutional atmosphere. Unfortunately, though, with our increased size it can never return to the informal style of the 40's that Kathy Jackson mentions in her History of the Department: "The use of books is not restricted to a definite period. It is expected that students will return books in a reasonable time...."

Our new Head Librarian offers the following short essay on the Geology-Geophysics Library:

GEOLOGY-GEOPHYSICS LIBRARY AND WILLIAM C. PUTNAM MAP ROOM AN OVERVIEW

The Geology-Geophysics Library is one of the country's largest geoscience collections, consisting of over 85,000 bound volumes and 2,000 current serial subscriptions selected primarily to meet the research and instructional needs of faculty, research staff, and students in the Department of Earth and Space Sciences and the Institute of Geophysics and Planetary Physics. The Library is also used by others at UCLA and is a regional resource for companies and individuals throughout Southern California.

During the fall, winter, and spring quarters, the Library is open from 8:00 a.m. to 10:00 p.m. Monday through Thursday, 8:00-5:00 Friday, 1:00-5:00 Saturday, and 1:00-10:00 Sunday. Summer and intersession hours are generally 9:00 to 5:00 Monday through Friday and 1:00-5:00 Saturday, but may vary during academic or administrative

holidays. Users may call 825-8301 for a recorded message of current hours of service in all Library units.

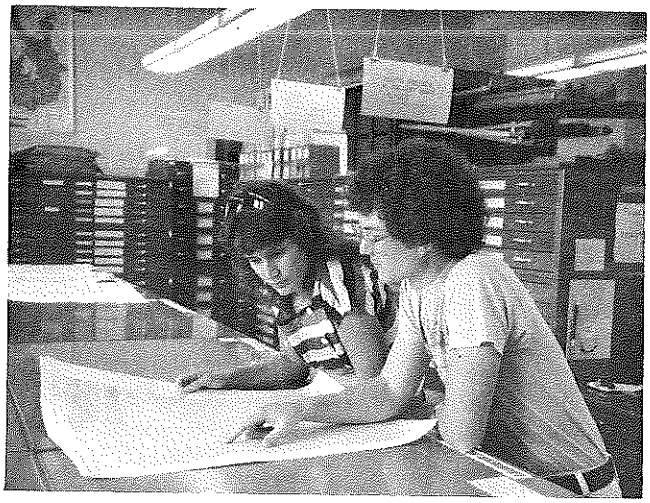
The Collection

Subjects collected include geology, mineralogy, petrology, geochemistry, sedimentology, marine geology, paleontology, stratigraphy, geophysics, economic geology, planetary geology, and environmental geology. To support instruction, some materials in mathematics and computer sciences, physics, biology, and oceanography in their geological and geophysical applications are also collected. A special fund established in honor of William C. Putnam, Professor of Geology from 1938 to 1963, enables the Library to purchase some atlases and books on geomorphology that it might not otherwise be able to afford.

The Library maintains one archival and one circulating copy of each thesis and dissertation completed by students in the Department of Earth and Space Science and its predecessors. An extensive collection of United States Geological Survey Open File Reports on microfiche is housed near two microfiche readers, one especially suited for viewing or tracing the maps that frequently appear in this series. The Library's extensive holdings of guidebooks have been contributed to the Union List of Geologic Field Trip Guidebooks of North America (published by the Geoscience Information Society).

Maps and the Map Room

The Library's collection of atlases and maps with significant explanatory texts complements the holdings in the William C. Putnam Map Room, which opens off the Library across from the circulation desk. The Map Room has about 100,000 maps primarily in sheet form - geologic maps, including all the major USGS geologic map series, and topographic maps of California and Nevada. Since 1979, USGS maps have been received free through a Federal depository arrangement with the Library.



Reference Collections and Services

A strong reference collection brings together abstracting and indexing services needed to enhance access to papers in journals, as well as separate subject or regional bibliographies, general and subject encyclopedias, handbooks, biographical directories, English and foreign language dictionaries, and glossaries of scientific terminology. A complete set of the *Bibiography and Index of Geology* and its predecessors, *Geophysical Abstracts*, and *Mineralogical Abstracts* are among those frequently consulted. Other valuable, but less-used abstracting and indexing services such as the *Bulletin Signaletique* sections of geosciences interest and *Referativnyi Zhurnal*: *Geologiya* and *Geofizika* are shelved in the book stacks upstairs.

Computerized literature searches of scientific bibliographic databases such as Geo-Ref (the online counterpart of the *Bibliography and Index of Geology*) and INSPEC (corresponds to *Physics Abstracts*) are available from the libra-

rian. A computer search often can help a researcher compile a bibliography more quickly, comprehensively, and precisely than manual searches through corresponding printed indexes. It greatly facilitates access to the journal literature.

Help with general questions about library procedures and policies, the location of specific materials, or tracking down an elusive item is available whenever the library is open, although for more difficult questions full-time staff should be consulted between 9:00 a.m. and 5:00 p.m. weekdays. Extensive consultation, assistance, or instruction in using reference tools is available from the librarian by appointment for individuals, groups, or classes.

Developments in Library Automation

ORION, the UCLA Library's state-of-the-art online information system, is used in the Geology-Geophysics Library for reference service because of its sophisticated searching capabilities and up-to-the-minute information about the status of items on order or being processed, as well as those acquired for any UCLA library since 1980.

The *UCLA Serials List* (microfiche) and two catalogs, *ORION on Fiche: Subjects* and *ORION on Fiche: Names/Titles* are produced from the ORION database, as is a weekly *Geology-Geophysics Library Current Serials List*. Records for most monographs published in 1981 and after will be found only on *ORION on Fiche*. To be certain about the holdings of the Geology-Geophysics collection, it is necessary to use these new tools together with the card catalog.

Additional Resources

Geosciences research often draws from work done in another field of inquiry - physics, chemistry, evolutionary biology, applied mathematics, to name a few. Thus, despite the strong Geology-Geophysics Library collection, its users frequent other UCLA libraries in the course of their research, among them the Engineering and Mathematical Science Library, the Chemistry and the Physics Libraries, the Water Resources Center Archive, and the Public Affairs Service of the University Research Library. In selecting materials, the Geology-Geophysics Library cooperates with other libraries on campus both to minimize expensive duplication and to ensure that items needed by our users are available to them.

If materials needed by members of E&SS or IGPP are not in the Geology-Geophysics Library or another UCLA library, the Library will try to borrow such items through its interlibrary loan service.

Staff

The Library staff consists of Sarah E. How; Steve Takata, Public Services Assistant; Mike Hernandez, Technical Services Assistant; and a corps of six to eight student assistants. The Map Room Research Assistant is Ellen Saltz, a graduate student in the Department.

"Highlighting Alumni" and "Featuring Faculty" are new sections in the Newsletter. Henceforth we will try to select two different alumni and a faculty member for each issue to give recognition for special deeds or activities. The first batch, Ted Bear, Takeo Susuki, and the Loeblichs, although infinitely deserving, were not chosen without Editor's prejudices. Suggestions from readers will be welcomed in future issues; and should any individual feel that he or she has done something praiseworthy, self nominations will be most welcome.

Ted Bear
By Kathy Jackson

Given his name, it was almost ordained that alumnus Ted Bear would become a "golden Bruin": a well-established graduate who has given generously to the Department. That generosity has extended to such activites as Career and Alumni Days, and such groups as the Industrial Affiliates.

Ted helped plan the first Careers Day in 1973 to give undergraduates, graduates, and staff an overview of the jobs available in industry, government, and academics. For several years he and his partner, Phil Kistler, subsidized the cocktail parties at which career representatives plied their wares. His beer and wine made job prospects for many considerably brighter!

This year Ted helped promote the Department's first Alumni Day. In late November 1982 he met with Chairman Bill Kaula and Helen Loeblich to plan a faculty center lunch for alumni with afternoon tours of the Department and an evening barbecue at the Sunset Canyon Recreation Center. Again Ted paid for all the beer and wine so important in lubricating somewhat rusty friendships. Ted had also handwritten a letter to all departmental alums living in California, which was then xeroxed and sent out as a personal invitation. Those he hadn't reached by mail, he and Doug Traxler cornered on the phone. One draw for many alums was a speech by UCLA's football coach, Terry Donahue. Ted arranged that, thinking that our Rose Bowl success would appeal to many alumni who might not otherwise come. His efforts paid off handsomely. Alum Jack Elam (B.A., 1943; M.A., 1948) and his wife came all the way from Midland, Texas. In all some 230 guests enjoyed the dinner and music at Sunset Canyon, and even more toured the labs during the day. Ted led a small contingent over to the third floor of the old Chemistry Building (now Haines) where many geology alums had studied till 1952. They all missed the sulfur smell so common in their student days! That one deficiency in no way marred a successful and rain-free day of reunions and renewed commitment. Several alumni sent donations to the Department, subsidizing everything from student dinners for that evening to summer field camp. Ted is satisfied that the alumni program set a good precedent for the future: strong ties between the Department and its well-trained students of all ages.

Ted has also been active in strengthening bonds between industry and the Department of Earth and Space Sciences. He serves on the Advisory Committee of the Industrial Affiliates: a group of companies who donate $15,000 annually to the Department. In return, they have special access to our seminars, conferences, library, fossil collections, and faculty.

Ted has given not only money but also time to the Department. From 1957-1973, he taught "Petroleum Geology: techniques of oil finding" in what might be called an "adjunct alum" post.

Both undergraduates and graduates took this class in applied geologic techniques. (If Ted ever teaches it again, his youngest child, who is another budding geologist, may enroll. Will they bear up under the familial strain?)

Ted's experience with his own geologic consulting firm, Bear and Kistler, gave his teaching great currency. The firm itself is itself a UCLA product: Ted left the Geology Department in 1941 after undergraduate and graduate work with Cord Durell, and Phil Kistler graduated in 1939. (Ted's two older children and wife, Dixie, are UCLA alumni as well.) In 1957 Ted and Phil established their office in Los Angeles--although their work takes them around the world. For thirty years they have been consultants to Atlantic Oil Company, now the fourth largest gas producer in California. The most successful California oil fields with which they've been associated include: Castaic Junction, Rosedale, Grimes, Pleito Creek, Edison, Sand Hill, Bellevue, Woodland, Tisdale, Sutter City, Conway Ranch, Todhunters Lake, Winchester, and Anaheim. Abroad Ted and Phil have consulted for governments as well as oil companies. They have worked for Turkey, South Africa, and Algeria, as well as companies in France, Indonesia, Angola, Nigeria, Libya, and the Spanish Sahara. Ted still enjoys field work, a pleasure he traces back to UCLA Professors Cord Durrell and James Gilluly.

His professional expertise has been recognized recently by an Honorary Life Membership in the Pacific Section of the American Association of Petroleum Geologists. (That same group helped start our departmental library. How appropriate that it now includes another UCLA donor.) The American Association of Petroleum Geologists has also selected Ted as its national president beginning July 1, 1984. The UCLA Department of Earth and Space Sciences cannot elect Ted to any such post, but it does pay special tribute to his durable commitment and generosity.

Takeo Susuki

The Geology Class of '49 produced a distinguished group of alumni: there are presidents, vice-presidents, and managers of some of the largest and most powerful corporations in the world who left these hallowed halls in that magic year. One of the 49er's never left the halls, and in his own unassuming way, does as much for the Department as his classmates from the post-war years.

Perusing the master computer list of over 2000 UCLA Geoscience alumni, Takeo Susuki knew at least a third of those listed and even managed to remember and find some the computer had lost. When Alumni Day came, he wandered through the festivities, hiding behind his camera or joining in conversations that retraced the years. His friends, the oil company executives, the corporate giants, department heads, branch chiefs, and the newer faces - those who have taken his classes, asked his advice, or have just been his "buddies" during the past thirty years - were there in droves.

Takeo was born in Oxnard, California, not far from the State mental hospital, he wryly adds. His parents were farmers, and neither father nor mother had any formal education. In true Japanese fashion they placed education in high regard and saw to it that their three children did well at Ventura High School. With the draft hanging over his head in the late 30's, Tak decided to enlist for a three-year stint and was in basic training at Fort Warren, Wyoming, when the Japanese

attacked Pearl Harbor. All the Japanese American servicemen in his training battalion were rounded up and sent to Camp Barkley, near Abilene, Texas, where they were kept under military guard for three months. Takeo worked in the salvage yard in Camp Barkley until it was decided he really wasn't dangerous. He then joined the "442's," the much decorated Japanese American combat team, whose bravery at Monte Casino and elsewhere became legendary. Takeo served for 49 months, spending two years overseas.

After the war, Takeo returned to California and settled in Long Beach to be near a pretty dietician named Marian. Armed with the GI Bill, he decided to attend Long Beach City College, married Marian, and gobbled up all the basic courses Long Beach had to offer. The next step was to find the least expensive university. It was to be UCLA; and because he liked being out of doors, he chose geology for his field of study. Somewhere along the line he came under the influence of Professor Willis Parkison Popenoe.

After graduation Takeo set out to find his first real job. Time after time he ran into management types who claimed willingness to hire the young Japanese, but who said that the men in the field wouldn't work with him. Cordell Durell, then Chairman of the Geology Department, found out that the student was walking the streets, becoming more and more despondent. He and Parky Popenoe created the position of Museum Tech for Takeo. At the same time, Takeo entered graduate school as Parky Popenoe's student. He finished his Master's in 1951, but never gave up the position as Museum Curator.

Parky had hoped Takeo would work on Cretaceous fossils, but the struggling young student wasn't able to afford trips to the Los Banos area (western side of the Great Central Valley) where the type localities for the Cretaceous could be found. Topanga Canyon, with its rich, varied, and well-preserved fossils, was an easy daily drive from UCLA; and it was this area Takeo chose for his thesis locality. Now a bustling thoroughfare between the San Fernando Valley and the Pacific side of the Santa Monica Mountains, Topanga in the early fifties was a quiet little backwater with a few homes, cabins, and a country store.

Takeo set about collecting as many fossils as possible from the type Topanga locality to establish a big fauna and draw conclusions about its paleoenvironment. Enlarging on this field work for his Ph.D., he attempted to deduce whether migration patterns or the parallel evolution of several families of Southeast Asian and Pacific critters was the cause of their similar appearance.

He is currently finishing off a paper that will cover the type Topanga formation fossils. He hopes it will be a guide that both layman and scientist will find well illustrated and useful. It will be published by the L.A. County Museum. He claims that "at least it will keep them on the right side of the names" when they collect and identify fossils. What they may have difficulty doing despite his well-prepared locality maps, is collecting the fossils themselves. The Type Topanga Formation localities on Old Topanga Canyon are now well-known sites, much picked over and in need of extensive digging.

Over the years Takeo has helped a steady stream of geologists with questions pertaining to fossils. He began teaching a formal paleo-stratig class to fill what he sees as a need for a background in Tertiary stratigraphy, the most dominant West Coast succession. He points out that most of the oil-bear-

ing West Coast rocks are in the Tertiary; and familiarity with their names, fossil content, and ages proves useful in oil company research. Over the years Takeo has seen the Department change its emphasis from a basic, broad geology curriculum to more specialized education; and he feels very strongly that undergraduates still need this broad base, no matter who they are or what they are studying. Specialization is fine on the graduate level, he claims, but he sees the heights members of the Class of '49 have attained with UCLA's undergradute education and thinks sometimes the old ways are best.

One of his abiding interests has been photography, a discipline taught to him by the late Professor Alexander Stoyanov and nurtured by Professors Clarence Hall and Clem Nelson. Stoy told Takeo that a paleontologist must also be a photographer, and he gave him an ancient copy camera. Takeo still uses that camera to this day. He learned all the subtleties of three-dimensional specimen photography, picked up some tips, bought a few more cameras (now numbering over a dozen), and was pushed into illustrative photowork by his three eager sons and Vicki Doyle-Jones. (She had been one of the first students in his series of classes, "Photography for Thesis Preparation," which some say was the "most practical class" of their university career. The class covers everything from three-dimensional photography to slide preparation, color work, and graphics).

Takeo is famous for never turning away anyone seeking help. On a rare occasion if he feels a request is out of line, he may grumble half-heartedly, but he always does it. His reputation has spread through decades of students, and they come back to visit "The Ogre" whenever they are in town. For his part, he always manages to know where old students are and what they are doing. He takes an almost fatherly pride in their achievements, especially when they become presidents of corporations.

His love of field work still drags him on summer collecting trips--east as far as Michigan, north to Ontario. He and Marian purchased a jade claim in Wyoming, and they travel there each summer, picking up fossils as they go. Official funding for field work ended more than fifteen years ago, but Takeo continues to hunt for fossils with or without support. He generally looks for Cretaceous specimens, but has been known to pick up trilobites from the House Range from sheer love of trilobites.

As he nears retirement age, Takeo dreams of opening a photo store with his youngest son, Mark, who is working his way through graduate school as a photographer. Asked if he has any dreams or wishes for the Department, he will answer that he has always dreamed of a public-spirited geology museum. He can picture it: somewhere in the courtyard between Chemistry and Geology, a place where youngsters and the tax-payers could learn what we are trying to do in this institution of higher learning. Perhaps when the palmy days return there will be a Takeo Susuki Memorial Museum. For the while, we can only mention him in a small, hometown Newsletter.

The Loeblichs
By Kathy Jackson

This year the Department gives warm recognition to its binary star system: Helen Tappan Loeblich and Alfred R. Loeblich, Jr. Helen and Al's long relationship with one another and with microfossils has borne special fruit recently in several prestigious awards. At a New Orleans meeting of the Geological Society of America, the Paleontological Society honored Helen and Al together. Although eighteen medals had been awarded in the Society's history, never before were two handed out at once. Why this break with tradition? The Society felt bound to recognize the Loeblichs as a single "institution" whose happy partnership has strengthened the achievement of each. The presentation on October 19, 1982, was made by Robert G. Douglas, one of Helen's first Ph.D. students and now Chairman of Geology at U.S.C. In response, Helen and Al spoke separately, and all three talks were printed in the *Journal of Paleontology*, Volume 57, May 1983. By habit, Helen did a bit of research before her talk, discovering that the recipients of the Society's medal all came from only eight universities. This clustering reflects the scarcity of doctoral programs in the earth sciences when the past awardees were in graduate school.

At the same meeting in New Orleans, Helen and Al also received from the Cushman Foundation their Joseph A. Cushman Award for Excellence in Foraminiferal Research. This was presented by UCLA graduate Jere Lipps, another of Helen's early Ph.D. students and now the Chair of Geology at UC Davis. The citation for this award was published this year in the *Journal of Foraminiferal Research*, Vol. 13, 1983. To date only five such awards have been presented.

1982 was really a bumper crop year for the Loeblichs. Eight months before the New Orleans bonanza, Helen had been singled out by the Medical Center Auxiliary for the UCLA's Woman of Science Award. On February 25, 1982 Dean Sherman Mellinkoff presented her with a 14 carat gold medal bearing a golden Bruin imprint. This award pays tribute to 46 years of excellent research on foraminifera, food chains, and plant protists. Helen has produced more than 175 papers, jointly authored the two-volumes on the Foraminiferida for the *Treatise on Invertebrate Paleontology* (1964), and wrote a new, classic book on *The Paleobiology of Plant Protists* (1980). Because she started publishing before her marriage in June 1939, she has continued using her maiden name as a convenience in separating her work from Al's.

How did their partnership begin? They met at the University of Oklahoma, and after graduating and completing master's degrees there, began doctoral studies at the Univeristy of Chicago under Carey Croneis. Then Al taught at Tulane University (1940) before World War II. When Al went into the army, Helen took his place that semester and the next year. Then Helen worked for the USGS in California for a short time and was rehired in 1946 to study foraminifera from the northern Alaskan Naval Petroleum Reserve. Since she had a lab and library at home, she was able to continue research and raise children in tandem. (Of four children, one daughter became an entomologist, and their son now directs the Marine Science Program at the University of Houston, continuing the Loeblich science dynasty.) While Helen was at the USGS, Al worked for the National Museum in Washington, D.C. and trav-

eled the world on collecting missions. By 1958, Helen was working part-time at UCLA (full time by 1968) and Al was employed by Chevron Oil Field Research Company. In 1972 Al joined Helen as an Adjunct Professor here.

Although Helen plans to retire at seventy years of age, (unless university regulations change), she and Al have not yet slowed down. They still work late nights and feel that "stamina breeds stamina." That formula must work, for they plan a collecting trip in Czechoslovakia this September, they continue teaching, and both serve as honorary directors of the Joseph A. Cushman Foundation which publishes a foraminifera journal. An additional interest concerns food chains and extinctions, including how the accumulation of biomass in land forests affects marine organisms. All this in addition to playing with their nine grandchildren!

The Loeblichs are still happily ensconced at U.C.L.A. They now have a display writer, three or four of their own microscopes, a scanning electron microscope, an excellent library, and ample specimens right here. They've never taken a sabbatical away because their own shared lab cannot be improved upon. Although they maintain separate desks, the Loeblichs have now worked together in one office for eleven years with little dissension. The secret of their success? A compatible division of labor: Al specializes in overviews and skepticism, Helen in details. They also cite humor as a key to successful partnership, both scientific and personal. Few can talk with them for very long without laughing. An example of that wit comes from Helen's acceptance speech when she described the Woman of Science Medal as "the only award for which she felt truly more qualified than Al." (Al enjoys recounting this line to others.) They also have the ability to see the humor of obstacles. For example, in recalling the sexism Helen experienced early in her career, both smiled wryly. At that time women were not considered to be breadwinners. Today Helen encourages young women scientists to combat any remnants of such "unexpressed or unrecognized prejudice" through the excellence of their work. Helen has followed this advice to become a star in her own right within a very unusual binary system. The department expects them both to shine for quite some time, and is proud to have stars of such magnitude.

Tribute to K. D. Watson

By W. Gary Ernst

Ken Watson allegedly retired on July 1, 1983. The event was marked by a

K. D. Watson, the jolly vagabond, summer 1943.

"This is Your Life" faculty-staff banquet and expose on June 18, replete with pictures of Ken at various stages in his career--both at UCLA and in the Canadian bush. The example shown here was taken forty years ago when Ken was selling cough drops to unsuspecting Eskimos.

Unaccustomed as he is to such public festivities, Ken nevertheless managed to spin out a 20 minute oration which kept all present in stitches. In the process, he handed over his Halloween claws to Wayne Dollase (just the thing for passing out final exams), and presented the Department with the K. D. Watson salad bowl, a large wooden ceremonial tureen capable of holding enough rabbit food to feed the Russian army. The highlight of the evening came as Ken predicted the naming of one or more campus buildings for Dean Clarence (Hall Hall?) whom he described as being on a spectaclar trajectory (up or down was left in doubt).

Since this gala party, Ken has been stalking the wily ore deposit in the northern boondocks, and over the summer the "retiree" has not been much in evidence in these hallowed halls (so what else is new?). We look forward to his return with the beginning of classes and to a long-delayed tidying up of his office.