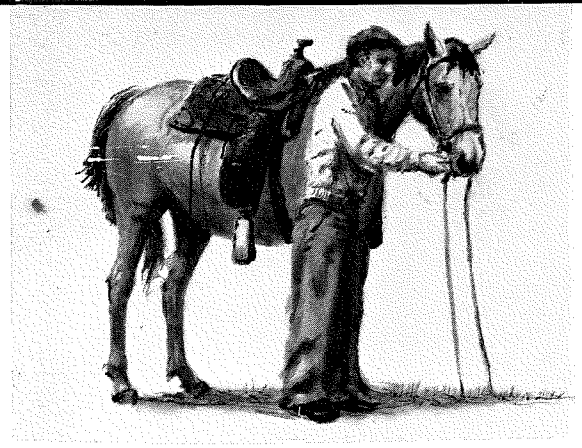

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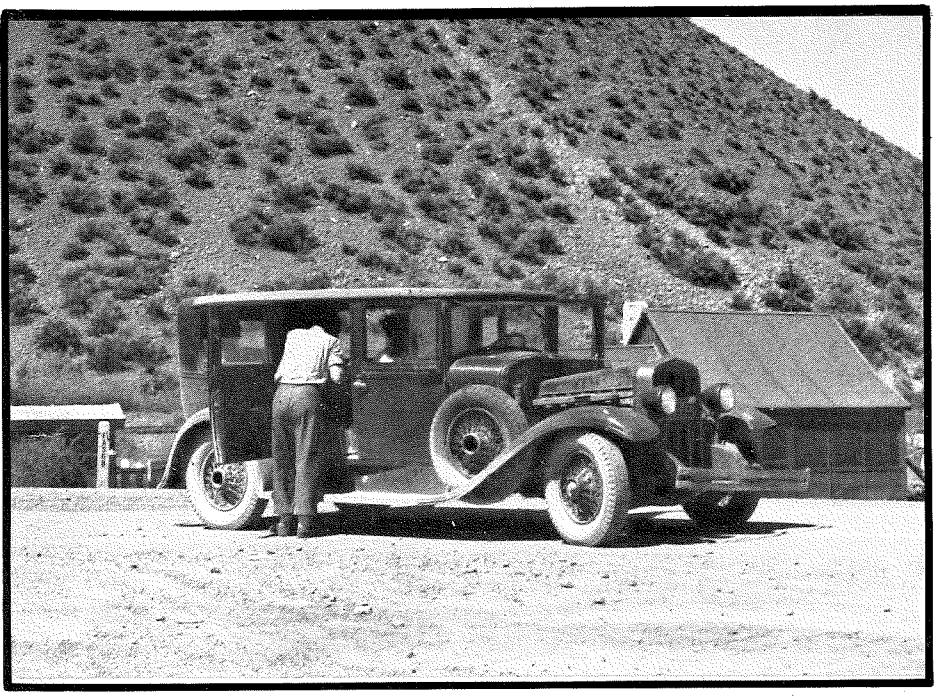
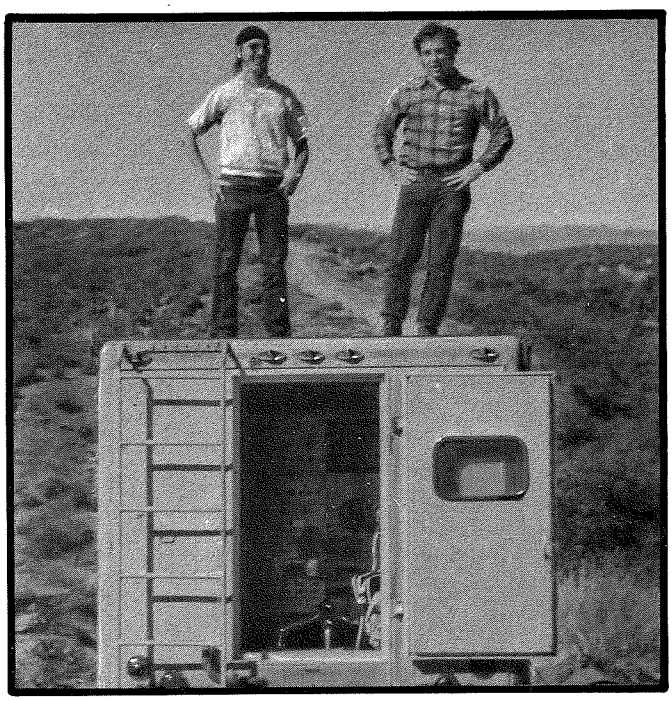
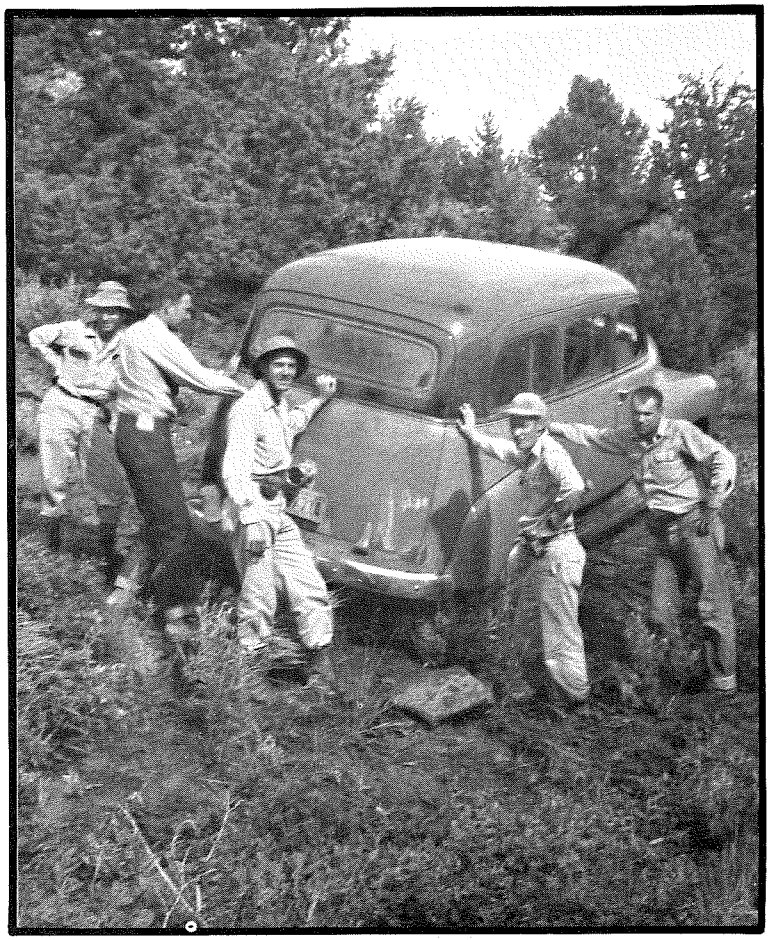
Earth and Space Sciences Newsletter







1981-83

Orson L. Anderson, Ph.D., University of Utah, Professor of Geophysics; Director, Institute of Geophysics and Planetary Physics, University of California.

In January 1982 Orson was invited to the Royal Society in London to speak on temperature in the earth's core. He also published papers on: volcanic tremors, the formation of kimberlite pipes, and high-temperature elastic constants of forsterite and periclase. During the past year, he established methods to measure mineral elasticity at temperatures above 1000 degrees C. These results have shown that it is now possible to sidestep the Gruneisen ratio at high pressure.

Orson faced unusual administrative chores as well. As Director of the U.C. Institute of Geophysics and Planetary Physics, he must rove between campuses at Berkeley, Los Angeles, San Diego, and Riverside, as well as the two national labs, LLNL and LANL. He chaired two systemwide planning groups, one leading to the establishment of the systemwide California Space Institute and the other to establish the California Energy Institute. When burdened by free time, Orson established the AGU standing committee on mineral physics, just approved in the spring of 1983.

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Peter Bird, Ph.D., Massachusetts Institute of Technology; Professor of Geophysics and Geology.

Peter continues to "thrive" on the editorial board of *Tectonophysics* and in Extension classrooms where he taught plate tectonics. In the Department, Peter teaches geology, oceanography, and courses on stress, including the stress of writing scientific papers which he taught as part of Bill Newman's special seminar series, "Preparing for the Real World." Peter's "boring and tedious lab work on hydration of clays is finally paying off" by suggesting that clays could "grease continental faults down to 10 km, reducing friction by 65 percent." This effect would explain the "softness" of continental crust. Peter's sabbatical greased his research: he'll soon have ready a working computer model on the Laramide orogeny and Rocky Mountains.

He reports on the good work of colleagues, including: Professors Tom Henyey (USC) and Peter Malin (UCSB) who are organizing a Southern California seismic reflection project (CALCRUST), and Professor Maureen Steiner (U. of Wyoming) whose paleomagnetic data show Tertiary tectonic rotation in Wyoming.

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Lawrence C. Bonham, Ph.D., Washington University; Lecturer in Petroleum Geology.

Larry combines teaching at UCLA with his work as Manager of the Geology Division at Chevron Oil Field Research Company in La Habra. Having worked at Chevron since 1950, he is well versed on the inner workings of the oil industry. He continues to produce publications in geochemistry, geological modeling, and structural geology.

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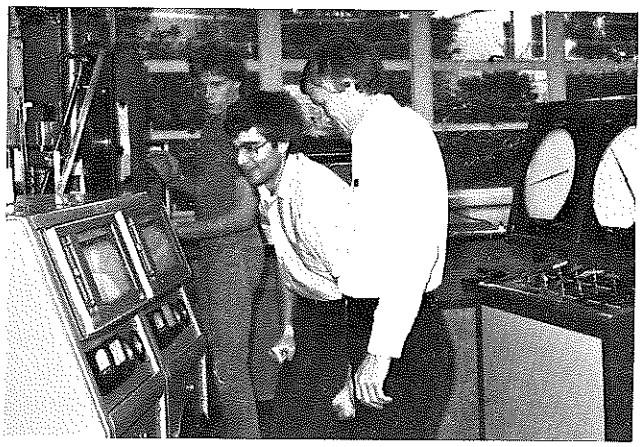
Arthur L. Boettcher, Ph.D., Pennsylvania State University; Professor of Geochemistry.

Not only does Art run well (long, daily runs and races with members of the Department, the Institute, and the general campus community keep him in enviable shape), so do his studies of

the structure and thermodynamics of silicate liquids at atmospheric and high pressures. When the lab can release him, Art has monitored intercollegiate athletics for the University Senate Committee in a project to keep mind and body equally healthy.



Big Science happening in the Boettcher lab.

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William M. Bruner, Ph.D., University of California, Los Angeles; Rubey Assistant Professor of Geology.

Bill has recently finished a paper on "Crack growth during the unroofing of crustal rocks: effects on thermoelastic behavior and near-surface stresses." He continues to work on constitutive laws describing the brittle deformation of rocks subject to simultaneous, large changes in temperature, pore pressure, and stress. This fall Bill himself will undergo change in temperature and stress when he migrates to the Geology Department at the University of Washington. We hope he's spared brittle deformation!

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Friedrich H. Busse, Dr. rer. nat., University of Munich; Professor of Geophysical Fluid Dynamics.

In the past year Fritz hosted two visiting theoreticians: Professor Geert Zimmerman of Gottingen and Dr. Helge Frick of Karlsruhe. This successful symbiosis also kept up his German: "Na ja, und...." Currently, Fritz and his student, Ed Bolton are doing experimental work with Dr. Aza Azouni from CNRS (France). The dynamics of planetary atmospheres and the dynamo within the earth's core have been major interests for Fritz. His most intriguing work has been the development of a model to explain band structure in the major planets. This structure results from strong zonal flows generated by convection in the deep atmosphere of Jupiter and Saturn. Fritz also taught classes in "Planetary Magnetism," "Geophysical Fluid Dynamics," and an "Introduction to Continuum Mechanics."

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Donald Carlisle, Ph.D., University of Wisconsin; Professor of Geology and Mineral Resources.

As usual, Don offered courses in mineral deposits, mineral resource economics, field methods, and geochemical exploration, description, and theory. In February 1982 he set up a short course on geochemical exploration, taught by Dr. Al Levinson (University of Calgary). The mining industry received it so well that Don, along with I. R. Kaplan, John Watterson of the USGS, and Wade Berry, plant physiologist ad UCLA, organized another short course in February 1983 and added a three-day colloquium as well. The program reviewed state-of-the-art biogeochemical exploration, with critical evaluation of case histories and papers. Roughly 30 speakers and over 100 participants attended from North America and overseas. Proceedings will be published as Rubey Volume No. 5.

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John M. Christie, Ph.D., University of Edinburgh; Professor of Geology.

This year much of John's time has been absorbed by graduate students seeking advice. Starting in Fall 1982, John became the Graduate Advisor responsible for admissions, review of files, and curricula. His teaching has continued nonetheless, with undergraduate "Structural Geology," "Evolution of the Solid Earth," a graduate class in "Structural Petrology," and "Continental Drift and Plate Tectonics." John and graduate student Philip Koch continued their work on deformed quartz aggregates. Another graduate student, Gilles Bussod, works with John on the mechanical properties of mantle rocks.

In the summer of 1981, John participated in the USGS Carmel Conference on the "Chemical Role of Water in Crustal Deformation" (at press time neither Arrowhead nor Sparkletts have had the sense to tap his expertise). As usual, John attended the December AGU. This summer he and Mrs. Christie plan a nongeological and well-deserved Hawaiian vacation.

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Paul J. Coleman, Ph.D., University of California, Los Angeles; Professor of Geophysics and Space Physics.

Paul continues to divide his time between Los Angeles, Los Alamos, and Washington, D.C. While on campus he continues work on problems in space physics. In New Mexico he serves as Assistant Director of the Los Alamos National Laboratory, managing the Los Alamos branch of the Institute of Geophysics and Planetary Physics and directing the Earth and Space Sciences Division of the Laboratory. In Washington, Paul serves as president of the Universities Space Research Association. Paul was a member of the organizing committee for the International School on Space (Plasma) Simulations which met in Kyoto, Japan, in Fall 1982; and along with Ian Kaplan and Don Carlisle, he also helped convene the February 1983 colloquium on biogeochemistry. Paul also emceed the ceremonial banquet at this colloquium. He continued to serve as a member of the joint U.S.-Italian advisory committee to advise NASA on the Space Shuttle-Tethered Subsatellite project. At their May 1983 meeting in Torino, Italy, they learned that President Reagan had sent a personal letter to Prime Minister Fanfani of Italy expressing support for this international cooperative project. He was one of the keynote speakers at this year's Lunar and Planetary Science Conference in Houston. The theme of the session was the return to the moon, and Paul discussed the scientific objectives for such an effort. Also during the year, Paul and colleagues completed preparations for the first session of a new summer field camp in geophysics, which began on June 27. It was based this year in Santa Fe, New Mexico, where the students explored the Rio Grande Rift.

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Paul M. Davis, Ph.D., University of Queensland; Assistant Professor of Geophysics.

Paul's magnetometer array on Mt. St. Helens is still generous with data. His 1000 km line between Utah and Texas has been equally informative with 20 stations continuously recording teleseisms across the Rio Grande Rift from December 1982 through January 1983. As a result, Paul infers asthenospheric upwarp beneath the Rift. In Fall 1982 Paul taught undergraduate "Applied Geophysics," with a major field trip to the Owens River Valley. Although their camp was snow-covered, the students valiantly studied the Valley's

depth through gravity work and explosions. After measuring magnetic fields on volcanic dikes, they ascertained Paul's emotional field by entirely concealing his VW camper in the equipment tent. Paul took it all in good spirits though: after coaching his children's soccer team, no stress can buckle him. In the winter quarter he taught the graduate "Introduction to Seismology" and continues to lead the seismic seminar with Dave Jackson.

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Michael J. DeNiro, Ph.D., California Institute of Technology; Assistant Professor of Geochemistry and Archaeological Sciences.

Michael's interests and contributions have been equally diverse this year. He serves on the campus and statewide Faculty Welfare Committee. Using stable isotopes, he has studied the paleoclimatology of a terrestrial section that contains the Cretaceous-Tertiary boundary and the "microclimate" of a philodendron flower. He participated in the SEPM Symposium on Organic Geochemistry in Bloomington, Indiana (October 1983), and is now organizing the Gordon Research Conference on Diet and Human Evolution to be held in February 1984. Since Dr. Krishnamurty visited his UCLA lab, Michael completed the exchange by studying stable isotope paleoclimatoloy in Ahmedabad, India. His stay included sidetrips to geologic and archaeological sites in Kashmir.

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Donald J. DePaolo, Ph.D., California Institute of Technology; Professor of Geochemistry and Geology.

This year Don's work was honored by the Prestigious Maclewane Award for young scientists, given at the spring AGU. The award ceremony was held in Baltimore on June 1, 1983, and Don's acceptance speech has been published in *EOS*. Don hopes fame will give him momentum to finish his monograph on neodymium isotopes this summer. In September he will attend a meeting in Peking with the bonus of a one-week field trip on Archean geology and geochemistry. Don has already developed a feel for China through his visitor from Academia Sinica, Huang Xuan.

Last fall Don taught the igneous petrology section of the new petrology series. Over forty students weathered the required field course to the Peninsular Ranges east of San Diego. Although the students looked at granites without running out of gas, their bus was less energetic: it gave up within sight of home--Wilshire and Westwood. Don's undergraduate class in geochemistry endured no such hardship this winter, but the field geology class of spring quarter faced rattlesnakes and eccentric characters in the mapping area of Tick Canyon.

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Wayne A. Dollase, Ph.D., Massachusetts Institute of Technology; Professor of Geology.

Neither teaching lower division courses in the major, a graduate course in crystallography or crystal chemistry, a mineraology seminar, nor summer field camp in the White Mountains have daunted Wayne's intractable good humor. "I've begun to microprobe the metamorphic minerals collected in the White Mountains. This has proved quite an experience. You might say that learning Bob Jones' 1001 Probe Rules tests your mettle before you can test your metal." Aaargh! Although Wayne's been "toiling since the Oligocene on some pyroxenes," he now has "something to show for it: published

studies of their Mössbauer spectroscopy and the spectroscopy of other minerals, too."

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W. Gary Ernst, Ph.D., Johns Hopkins University; Professor of Geology and Geophysics.

In the Fall of 1981, Gary's work again received recognition when the American Academy of Arts and Sciences elected him a Fellow. He joins some 2300 other scholars in this national honorary society.

Gary retired from chairing the Department in August 1982 after much work on curriculum and the recruitment and retention of staff and faculty. Throughout 1981-82 he developed proposals for endowed chairs, block-funding, and the fruitful symbiosis of an industrial associates group. While preserving excellence in the present faculty, he tried improving capability in softrock geology, then he and his family left to recuperate on a sabbatical leave at the University of Otago, Dunedin, New Zealand. He delighted in being the William Evans Visiting Professor in this "hotbed of petrology." His geologic research there was carefully centered in areas of good fishing, especially near Stewart Island (47 degrees South latitude). Perhaps rockfish will be the subject of an upcoming paper.

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Clarence A. Hall, Jr., Ph.D., Stanford University; Professor of Geology and Paleobiology; Director, White Mountain Research Station; and Now, Ladies and Gentlemen: Dean, Division of Physical Sciences.

This year Clarence has been especially busy changing hats for his many roles. As Director of the University's four high altitude stations near Bishop, California, he recently arranged support for any faculty or graduate students of the U.C. system doing summer research there. That financial coup led to another: the creation of summer research scholarships for two undergraduates distinguished in biological or physical sciences. The first winners of this university-wide competition began work this summer. Their high accomplishments are matched by the altitude of the lab, with stations at 14,000, 12,000, 10,000, and 5,000 feet.

In his own work, Clarence collaborated with Wayne Dollase and Gary Ernst to explore the geological history of the Mt. Barcroft pluton. Of special interest is the mineralogy along the pluton margin and a newly discovered thrust fault that bounds the southern margin. Along with Ray Ingersoll and Ted Reed, Clarence has gathered a hardy band of students to interpret the western Transverse Ranges. The question they hope to answer through stratigraphy and sedimentology is whether the Ranges have experienced 120 degrees of clockwise rotation or a simple translation and slivering in a NW direction approximately 17 mybp.

Clarence put on another hat in July 1983 when he assumed "deanly duties." Having endured a rigorous search and interview procedure, Clarence will now serve as UCLA's Dean of Physical Sciences for at least five years. Although we secretly (*secretly*? Ho Ho! *Blatantly*) hope he'll have a tender spot for the Institute and the Department, he must also provide for Atmospheric Sciences, Astronomy, Chemistry, Mathematical Sciences, and Physics. In addition to the chores of allocating funds, Clarence plans to renovate the physical sciences by setting up: (1) general and specific computer science courses available to all physical science students, (2) special courses on problems

current in the field in which seniors give verbal and written presentations, (3) more writing experience and criticism for all science students, (4) research groups in which gifted undergraduates join grad students, (5) interdisciplinary projects for scientists from physical and biological camps, and (6) other programs to foster a more collegial spirit as well as renewal among older faculty.

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Robert E. Holzer, Ph.D., University of Califoria, Berkeley; Professor Emeritus of Geophysics.

Although retired for nine years, Bob continues his work in magnetospheric physics on a grant from the NSF. The *Journal of Geophysical Research* has accepted two of his papers this year, and JPL employs his ex-student, Dr. James Slavin.

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Raymond V. Ingersoll, Ph.D., Stanford University; Adjunct Associate Professor of Geology.

Ray is our newest faculty arrival. He began the fall quarter of 1982 with a graduate seminar on the "Tectonics of Sedimentary Basins," which included two successful field trips to the Great Valley forearc basin and the Ridge basin. In the winter quarter, several students from that class joined Ray for informal sessions on sandstone petrology. Ray commuted to Caltech as a Visiting Professor for the winter quarter and to USC in the spring, where their grad students served as guinea pigs for us. Ray practiced "Sedimentation and Tectonics" on them and then offered it in perfected form at UCLA this spring. The course included five field trips to local Tertiary sedimentary basins. Ray also led a one-day field trip to the basal Great Valley Group in the Sacramento Valley in connection with the Pacific Section AAPG-SEPM meeting in Sacramento. This summer, Ray spent three weeks in Montana at the Indiana University field station; next summer, Steve Graham (Stanford) and he will lead a two-week graduate field seminar there.

Ray has papers on: California forearc evolution; New Mexico Cenozoic sedimentation and tectonics; flysch and molasse of Switzerland; sand/sandstone composition and tectonic setting; and petrographic methods of working with sandstone/sand all in the works or in press this year. We have also discovered that the modest gentleman didn't mention that he auditioned for and was accepted by the prestigious UCLA A cappella Choir.

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David D. Jackson, Ph.D., Massachusetts Institute of Technology; Professor of Geophysics.

Dave shouldered his normal load of classes in seismology, inverse theory, time-series analysis, and applied geophysics; but he's glad to be back at UCLA after spending 1981-82 at NASA's Goddard Space Flight Center as a Senior Research Associate. He made useful contacts and improved the accuracy of long baseline geodetic measurements while he was there. Dave and his associates Mitsuhiro Matsu'ura, Chi Ching Liu, Abe Cheng, Li-yu Sung, Philip Slack, and Peter Wu have been studying such data to understand the relationship between earthquakes, plate tectonics, and nonseismic slip. His suspicions about temperature effects and calibration errors have been borne out by the good work of Abe Cheng, and Chi-Ching Liu. Graduate student Calum Macdonald has helped Dave study the tilt data from Pinon Flat, California. Despite the complexity of inputs from

UCSD, UCSB, Columbia and Cambridge Universities, this ongoing project yields unprecedented agreement between measurements. A continuing research interest for Dave is inferring crustal seismic velocities from the travel times of both local and distant earthquakes; he and Li-yu Sung are embarking upon a two-year study of Southern California, funded by NSF.

In the good works department, Dave has interviewed scholars of the future at UCLA and the California Science Fair in the Museum of Science. He was inspired by the undergraduates competing for our Regents Scholarships and by the junior and senior high school scientists.

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Robert Jones, B.S., San Diego State University; Lecturer in Geology.

Bob reports that the little scanning electron microscope in his lab has been so upgraded by a new energy detector and computer that it now qualifies as a low-cost electron microprobe. Its capacities for chemical analysis will be especially helpful to the departmental petrologists. But the best news of all is the upcoming arrival of a new, state-of-the-art Cameca microprobe with four spectrometers, every conceivable type of computer gadget and whizbang. Bob spent several months testing and considering candidates from two companies and made his final decision with the help of Art Boettcher, Wayne Dollase, Gary Ernst, and John Wasson. The new facility has been made possible by grants from the NSF, the Stern Foundation, and the University of California.

Bob went to North Carolina State University (the weekend of the National Basketball championships) to help Skip Stoddard install a microprobe lab, and he apparently was an excuse for a gathering of dispersed UCLA clan: Alan Glazner, Warren Wegner, Skip Stoddard and families all live within driving range of North Carolina State.

Bob Jones, right, and a coterie of students: Paula Norris, Steve Lipshie, and Sorena Sorensen.

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Ian R. Kaplan, Ph.D., University of Southern California; Professor of Geology and Geochemistry; Vice Chairman of the Department of Earth and Space Sciences.

Ian warmed up for an exotic trip to China by speaking in Jerusalem and in Bergen, Norway (September 1981), and at the AAPG Convention in Anaheim, California (April 1982). He gave a short course on the "Geochemistry of Heavy Oils" in Edmonton, Alberta (June 1982). In September 1982 he journeyed to the People's Republic of China as an invited participant in the People-to-People Gas Technology Delegation. While in Beijing and Ching Du, Ian spoke on "Geochemical Exploration and Prospecting for Gas." In order to avoid an international incident, he gave equal time to Taiwan National University in the Republic of China (October 1982), where he addressed the "Kinetics and Pathways for the Maturation of Petroleum." Ian continues to teach "Geochemistry" and "Marine Geology." He shared the oceanography course with

Peter Bird, Bill Bruner, and Mike DeNiro.

The organic geochemistry division of the Geochemical Society selected Ian's work "Thermal alteration of Cretaceous black shale by diabase intrusions in the Eastern Atlantic" (1982) for its Best Paper award.

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William M. Kaula, M.S., Ohio State University; Professor of Geophysics; Chairman of the Department of Earth and Space Sciences.

Prior to taking over the department chairmanship, Bill chaired the UCLA Council on Academic Personnel, which reviews faculty appointments and promotions for the entire campus and which claimed at least fifteen hours of his time per week. Since undertaking the departmental chairmanship in September 1982, Bill has been juggling other responsibilities, such as chairing the Sciences Steering Committee for NASA's Geopotential Research Mission, and even some research. He is working on core formation with graduate student Steve Cooperman; on Kirkwood gaps with Dave Weintraub; Venus tectonics with Lynn Muradian; and mantle convection with Dave Williams and Evan Fishbein. Since no one will help him on satellite-to-satellite range rates, Bill pursues that problem with solitary determination.

In August 1982 he relieved UCLA pressures with a side trip to Leeds, England, for the meeting of the European Geophysical Society. This summer he served on the review committee of the Research School of Earth Sciences at the Australian National University, and attended the IUGG in Hamburg, Germany.

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Margaret Galland Kivelson, Ph.D., Harvard University; Professor of Space Physics.

Margy continues as a principal investigator for the magnetometer aspect of the NASA Galileo Mission to Jupiter. She herself went on another mission: a probe to the People's Republic of China. Under the auspices of the Committee on Scholarly Communication with the People's Republic of China, Margy visited the Department of Geophysics at Peking University and the Institute of Space Physics run by the Chinese Academy of Science. Margy lectured and worked with a former exchange visitor. In August she topped off her two quarter sabbatical with a trip to France.

Margy also served as an Overseer of Harvard University and a gadfly at UCLA to stimulate women's participation in academics. Her success as a woman scientist and her remarkable energy were recognized recently at Radcliffe, Margy's *alma mater*. On April 20, 1983, she received their Graduate Society Medal and spoke on why science, especially space physics, should attract women. Here at home she has been used as a success story to help publicize a private, $200 million fund drive for academic life.

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Alfred R. Loeblich, Jr., Ph.D., University of Chicago, Adjunct Professor of Paleontology and Geology, retired.

Although officially retired, Al dosen't know it, as he continues to advise UCLA students about their theses and dissertations and occasionally teaches a seminar. Research continues to be a more than full-time occupation for Al. He and Helen are revising the classification of Foraminifera under an NSF grant, and

they presented an early draft of this at the Paleontological Society Short Course on Foraminifera at the annual meeting in October 1982. They also continue to be active in field work, spending ten days in the field with the 17th European Micropaleontological Colloquium in Southern Germany and Austria in September 1981, about a month in Texas, Oklahoma in September 1982, and time in Czechoslovakia in September 1983. They also presented a paper at the AAPG-SEPM symposium on "Marine biotic productivity and its economic implications," in Calgary in June 1982. While at the 1982 GSA-PS annual meeting in New Orleans, Al and Helen were each awarded the 1982 Medal of the Paleontological Society (the citation by UCLA alumnus R. G. Douglas and Al and Helen's replies are published in the May 1983 *Journal of Paleontology*). Al also has been notified that he will receive Honorary Membership in the SEPM at its 1984 annual meeting. The Cushman Foundation for Foraminiferal Research, which meets annually with the GSA, presented both Al and Helen with the 1982 Joseph A. Cushman Award for excellence in foraminiferal research at the New Orleans meeting. Both were elected Honorary Members of the Board of Directors of the Foundation.

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Helen Tappan Loeblich, Ph.D., University of Chicago; Professor of Paleontology and Geology.

Helen and Al have purchased a word processor and are busily filling up its diskettes. When one 300+ manuscript composed directly on the word processor was sent to press, at the journal editor's request duplicate diskettes were mailed with the manuscript to be used in computer typesetting, reducing costs for the journal and incidentally saving Helen and Al a great amount of time in eventual proof-reading. Helen continues to teach courses in "Introductory Paleontology," "Micropaleontology," "Plant microfossils," and a Paleontology seminar. She lectured on "Extinctions" for the Sierra Club and was an invited speaker for a conference on "Large Body Impacts and Terrestrial Evolution" at Snowbird, Utah, in October 1981. In addition to the Paleontological Society Medal and the Joseph A. Cushman Award (see under Al Loeblich, above), she received the 1982 Woman of Science Award of the UCLA Medical Auxiliary and is the nominee for President-elect of the Paleontological Society for 1983-84.

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Robert L. McPherron, Ph.D., University of California, Berkeley; Professor of Space Physics and Geophysics.

Bob "works *all* the time" with the other computer savants of the Space Science Group. His computer system, based on a Hewlett Packard 1000 CPU, dominates the sixth floor, filling four rooms and infiltrating several others. Because of his expertise and vested interest, he also represents E&SS and the IGPP in University deliberations about computers.

When Bob wasn't serving on committees, he worked on predicting the level of geomagnetism for states of the solar wind and recently proved that the earth's magnetic field lines vibrate like guitar strings in response to a source beyond the magnetosphere (could it be Segovia?). Bob still teaches exploration geophysics and adds to its equipment. In May 1983 he took undergraduates, technicians, and volunteer grad students--plus a new drill trailer--to the Long Valley Caldera. It was a truly conspiratorial field trip that involved equipment from Sean Biehler at UC Riverside and students from UCSB and

UCLA. They used drilling, seismic refraction, resistivity studies and electrical sounding to locate the boundary of the caldera. Dave Jackson also suggested using a laser distance meter, which proved handy. Despite embarking on Friday the thirteenth, everyone survived the expedition and enjoyed the Bishop facilities at Clarence Hall's very own White Mountain Research Station.

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Paul M. Merifield, Ph.D., University of Colorado; Lecturer in Engineering and Environmental Geology.

Paul has been mapping Quaternary deposits and geomorphic surfaces in the Mojave Desert using Landsat and Seasat data. He is cooperating in this work with Diane Evans of JPL and Gary Raines of the USGS, Denver. Paul again taught ESS 139, "Environmental and Engineering Geology," and the Environmental Science and Engineering Problems course. He is Chairman of the L.A. County Engineering Geology Board. He presented papers at the International Symposium on Remote Sensing of the Environment in Ft. Worth and at the GSA Cordilleran Section meetings in Salt Lake City, Utah. In April 1983, Paul made an eastward pilgrimage and gave a paper on coal waste disposal at the Fourth International Ocean Disposal Symposium in Plymouth, England.

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Clemens A. Nelson, Ph.D., Universty of Minnesota; Professor of Geology.

As usual, Clem intruded the Inyo Range to study its block faulting, Cambrian trilobites, and granites. His teaching included an undergraduate class on geology of California with three field trips; the first half of summer field camp in the Inyo Mountains; a spring field course with Don DePaolo; and undergraduate classes in "Physical Geology" and "Earth History." He took an at-home sabbatical during the fall quarter, but did not "hide effectively enough." This summer he's on duty for six weeks of field and two weeks of report activity. For the first part of the camp, Clem will be working with Ted Reed and Ed Morelan, mapping at an altitude of 6000 feet east of Big Pine. For the second half he joins Gary Ernst at the White Mountain Research Station's Crooked Creek facility for mapping exercises at 10,500 feet. When he's finished playing mountain goat, Clem and Ruth Nelson unwound in China in September, an eighteen day trip the unfortunately did not help Clem match John Crowell's traveling record.

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William I. Newman, Ph.D., Cornell University; Assistant Professor of Planetary Physics.

Bill has tried smoothing the way of graduate students this year by organizing an informal seminar series to hone their writing and communication skills and help them over professional hurdles such as job interviews and conference preparation. The title of his seminar series was "Preparing for the Real World." Bill collaborated with Leon Knopoff in modeling repetitive cycles of large earthquakes, developing a model that includes creep, fracture-healing, and processes that generate microcracks. He also developed a model to explain the microphysics of anelastic creep. In geophysical fluid dynamics he has been investigating the properties of flows and their dependence on dimensionless parameters. More recently he has been involved in developing "maximum entropy" type methods for treating geophysical time series with "gaps" in the data. In application to

space and planetary physics, Bill has been developing a theory for "magnetic bubbles" that occur in the solar wind and for instabilities that can occur in the atmospheres of Jupiter and Saturn. Bill has also been involved in some dynamical problems pertinent to astrophysics, notably the evolution of elliptical and barred-spiral galaxies as well as radiative transfer problems in the torus of Io and the interstellar medium.

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

Although Gerhard measures strain, he creates none or "as little of a nuisance as is compatible with (his) mental makeup." He smoothed the Department's way somewhat this year by loaning it a small computer. Gerhard's current "line of work into which (his) students get dragged willy-nilly," is quantitative measurement of strain by determining the preferred orientation of phyllosilicate minerals or by any other method that comes in handy. He adds with typical understatement: "I also think about what the measured strains may mean geologically."

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Walter E. Reed, Ph.D., University of California, Berkeley; Associate Professor of Geology.

Ted pursues his interests in the provenance of sediments and their relation to tectonic setting. In fact, he pursued that interest to the most northerly, inhabited tip of the world: the island of Spitzbergen, 1000 miles north of Norway. Ted and two UCLA alumni, David Douglass (B.S., 1980) and Donald Lamar (Ph.D., 1961) worked at Spitzbergen for two and a half months from late June through September 1982. They mapped the Billefjorden Fault Zone in detail and believe its Devonian sediments yield little evidence for a supposed 2000 km movement. NSF will probably sponsor four more summer field trips to solidify this hypothesis.

Ted's graduate class in "Sedimentary Petrology" allowed him to practice for Spitzbergen while they mapped the Eocene succession along the proto-San Andreas Fault. Ted also taught the undergraduate "Introduction to Sedimentary Petrology and a lower-division class he fondly calls "Ain't Science Fun." Ted's own students are studying the Miocene sediments of the Topanga formation and their upper Cretaceous through Eocene sources.

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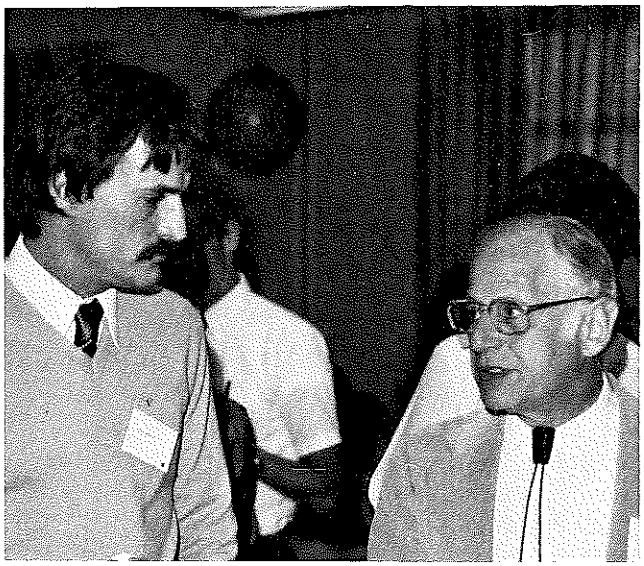
John L. Rosenfeld, Ph.D., Harvard University; Professor of Geology.

John has been working hard on a new, year-long petrology class for undergraduate majors. He taught the metamorphic section after Don DePaolo offered a quarter on igneous petrology and Ted Reed taught the sedimentary section. In the winter quarter, John worked with graduate students on metamorphic petrology and pursued an abiding interest in the cleavage of metamorphic rock and schistosity. John has used rotated garnets in schist to aid geological studies and define a major backfolding event in the western Appalachians during the Devonian near Brattleboro, Vermont, with colleagues from Boston College and Harvard University. John has two articles currently in press, one on rotated garnets in the *Vermont Geological Society Bulletin*, No. 32) and one on backfolding in the Alps and Appalachians in the *Encyclopedia of Structural Geology and Plate Tectonics*. John is also co-author with eleven others of "A crustal Profile of a Mountain Belt: COCORP Deep Seismic Reflection Profiling in the New England Appalachians," which was submitted to the *AAPG Bulletin*.

This year as a Member of the Faculty Academic Freedom Committee, John was empaneled in a major test case of academic freedom on campus. Its outcome remains uncertain. He also remains active in the American Association of University Professors and is President of the UCLA branch.



John Rosenfeld discusses Careers Day with alumnus Paul Mankiewicz.

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Christopher T. Russell, Ph.D., University of California, Los Angeles; Professor of Space Physics.

Chris reports that he, Bob McPherron, and M. Ashour-Abdalla (IGPP) were selected in 1982 to be principal investigators on NASA's four-spacecraft OPEN Mission. OPEN is planned for the late 80's but not yet guaranteed. Bob will be the principal investigator for the magnetometer on the craft circling the earth's equator at twelve earth radii. Chris will be head honcho for the magnetometer on the polar plasma lab.

One "treasured" award that Chris will remember from 1982 was given at the San Francisco AGU meeting. He received special commendation for publishing fourteen papers, more than anyone else, in the blue section of the *Journal of Geophysical Research* (but what is their bluechip value??). Chris reports a new comet past Venus in another paper that has been submitted to *Nature*. We hope that Chris will have the honor of naming his discovery.

Chris has been part of the IGPP since 1969 and a familiar face around our Department, but he officially joined Earth and Space Sciences in December 1982. Congratulations on good taste! He enjoyed participating in seminars and teaching the graduate class, "Introduction to Space Plasmas" this spring quarter. This summer he went to Hamburg IUGG along with other faculty members.

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Floyd F. Sabins, Jr., Ph.D., Yale University; Senior Research Associate, Chevron Oil Field Research Co.; Lecturer in Geology and Remote Sensing.

This has been a most successful year for Floyd: he received the 1982 Alan Gordon Memorial Award for work in remote sensing and was appointed by the Secretary of Commerce to the Land Remote Sensing Advisory Committee. He will advise the administration on how government-sponsored remoted sensing could be transferred to private, commercial interests. Floyd continues to be an "Observer" on the NASA/JPL Shuttle Radar Team and has interpreted satellite radar maps from the Columbia Shuttle. The resulting maps of Indonesia show how satellite data and geologic exploration support one another.

At Chevron Research, Floyd's group has acquired an interactive digital image processor to handle satellite and other remote sensing data.

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J. William Schopf, Ph.D., Harvard University; Professor of Paleobiology; Vice-Chairman, Department of Earth and Space Sciences; and, Now, Ladies and Gentlemen: Dean, Division of Honors, College of Letters and Science (wonder if we'll have any faculty left when the "College" finishes gobbling up deans?).

Bill has a hectic schedule as professor, dean, member of editorial boards, and committee member for the National Academy of Sciences, UNESCO, and the International Council of Scientific Unions. In 1983 his work in Precambrian paleobiology earned him the Faculty Research Lectureship, the second in our Department to be so honored (Leon Knopoff was the first in 1972). The selection committee praised him for showing that evolution was physiological and biochemical, not morphological, for the first 85 percent of life's history. He was described as a "master teacher" (but has not as yet been discovered by the Emmy selection committee) who posed questions about "the origins of eukaryotic (i.e., nucleated) cells; the earliest photosynthesizers; later-evolving, oxygen-producing photosynthesis; and the earliest sexual reproduction...." The Faculty Research Lecture will be given on April 19, 1984.

For seven months this year, Bill hosted Cao Rui-ji from the Institute of Geology and Paleontology in Nanking. This completed a symbiotic exchange started when Bill did field work and visited scientific institutes in China in 1978, 81 and 82. Before Dr. Cao left in March, Bill took him to Mexico and the Bahamas to collect stromatolites (or so he said). In June Bill trekked off again to lead a Precambrian Paleobiology Research Group (P.P.R.G.) jaunt through Michigan, Minnesota, and Ontario. After that expedition, the British Broadcasting Corporation descended upon Bill's lab to film a series on the origin of life. That warmed Bill up for talks at the Origin of Life Conference in Mainz, Germany, the Botanical Society meetings in North Dakota, and an international symposium on fossil algae in Colorado, all held this summer.

Bill has been exempted from teaching for five years in order to oversee the Division of Honors of the College of Letters and Science. He will try to improve its recruitment and standards, especially for the most gifted students, and to initiate new programs designed to improve and enrich the undergraduate educational experience at UCLA.

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Gerald Schubert, Ph.D., University of California, Berkeley; Professor of Geophysics an Planetary Physics.

From September 1982 to June 1983 Jerry was on sabbatical leave at The Hebrew University of Jerusalem in Israel. With colleagues there, he deduced the mantle's viscosity from the opening of the Dead Sea Rift. He is and will continue to be an editor for the *Journal of Geophysical Research* until 1986. One perquisite of this sabbatical was a family trip to Egypt for New Year's Eve. Will he enter a second career as a shuttle diplomat? An editor of *JGR* would surely qualify.

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

Ron is still teaching 111A, "Elements of Field Geology." The course was moved to Winter Quarter this year, which turned our to be one of the wettest on record. Despite the fact that, as he optimistically put it to the class, the Rainbow Basin area is a desert

because "it never rains there," they were treated to a spectacular display of erosion and sediment transport the first weekend (and of the remarkable slipperiness of wet bentonite clays the next). They gave him an F in weather forecasting.

He has also been working on several research projects. One is a field and theoretical study of what governs the form, composition, and structure of large eskers and what they tell about the former ice sheets beneath which they formed, such as that the ice covering Maine about 12,700 years ago was about half as thick as generally believed. Another project, which he is working on with **Mark Cloos**, a UCLA Ph.D. now at the University of Texas, is a theoretical calculation of sediment subduction and mélange formation. The calculation gives, among other things, the conditions under which a mélange complex will form and the depth from which the exotic blocks (the "knockers") in it will come. A third project, which is the subject of graduate student Tom Drake's doctoral research, is an experimental and theoretical investigation of grain flow, the flow of bulk granular materials in which effects of the interstitial fluid are negligible. This project is being done with Peter Hall, a nuclear physicist at Caltech, who is doing theoretical calculations and computer modeling. Although crucial quantitative tests remain undone, the results so far support their modified kinetic theory on the dynamics of grain flow.

Ron has been doing the usual review of journal manuscripts and grant proposals and serving on committees, the most important being the Academic Senate Committee on Educational Policy. Another interesting task has been his service for the last five years on the jury to select the California Scientist of the Year. The jury generally consists of five or six leading academic scientists and one or two industrial ones drawn from all areas of science and mathematics (but mainly from physics, chemistry, and molecular and medical biology). The award carries with it a $5000 prize and is given for a clearly identifiable important scientific advance made within the last five years by a California scientist. Ron observes that the winners generally recognized an important problem early and then stayed with it for many years.

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Gerald Stummer, B.A., University Luetzkendorf; Lecturer in Geology; Spectroscopist.

Gerry has almost completed the XRF analysis of twelve samples received from the USGS and Association of Exploration Geochemists in Denver, Colorado. When the preferred values are finally established, sample portions will be sent to universities as primary standards.

As usual, Gerry offered "Advanced Techniques in Geological Research" and lectured on XRF spectrometry in Chemistry 184. Postdocs and students in the E&SS sedimentology class made use of Gerry's skill in spectrometry and X-ray diffraction.

Gerry now has vested interest in one UCLA student: his daughter, Cynthia, can occasionally be seen wandering about the halls in Geology. She began her junior year in biology here in the Fall of 1982. After her B.S. she has her eye on oceanography.

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Takeo Susuki, D.Sc., Tohoku University; Lecturer in Geology; Senior Museum Scientist.

Takeo helped any members of the Department plagued by photographic

problems and offered his usual spring course in photography. He also supplied aid and comfort to those with fossil collections, his area of expertise, and taught Paleontology 210 with emphasis on the paleontology and stratigraphy of the Tertiary of the Pacific coastal states. He continues to maintain the fossil collections beginning with the Pleistocene and adds to them from his own summer collecting trips in Montana, Wyoming, and South Dakota.

The Susukis travelled to Japan, and Tak was invited to visit the Seikan Tunnel from the Hokkaido side, which, when complete, will be the world's longest--a complete loop of central Hokkaido from the Japan Sea on the West to the Sea of Okhotsk on the East. Takeo also toured northern Honshu and the Japanese Alps and practised his photographic skills on some incredible scenery. He continues to be active in L.A.'s Japanese sister-city program and is a member of the Board of Directors of the Westside "Y."

We found that Takeo was one of the Department's best resources in planning Alumni Day festivities, a task he took on with devotion and enthusiasm, spending hours locating his buddies from the classes of '46 on; then he was hounded for photographs to use and memories to write in the "Department History" section of this Newsletter. A personal thanks from the Editors for his endless patience.

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John T. Wasson, Ph.D., Massachusetts Institute of Technology; Professor of Geochemistry and Chemistry.

John and his student, Jeff Grossman, continue to work on chondrules, the mm-sized grains produced in the solar nebula by very short-lived heating events that melt preexisting nebular solids. Chondrules populate the meteorites known, cleverly enough, as "chondrites." John and Greg Kallemeyn recently reviewed the formation of the carbonaceous chondrites.

John and Frank Kyte continue to investigate noble metals in clay layers at paleontological boundaries associated with mass extinctions. John just returned from a visit to China during which contacts were established with Chinese investigators working on the Cretaceous-Tertiary and Permo-Triassic boundaries.

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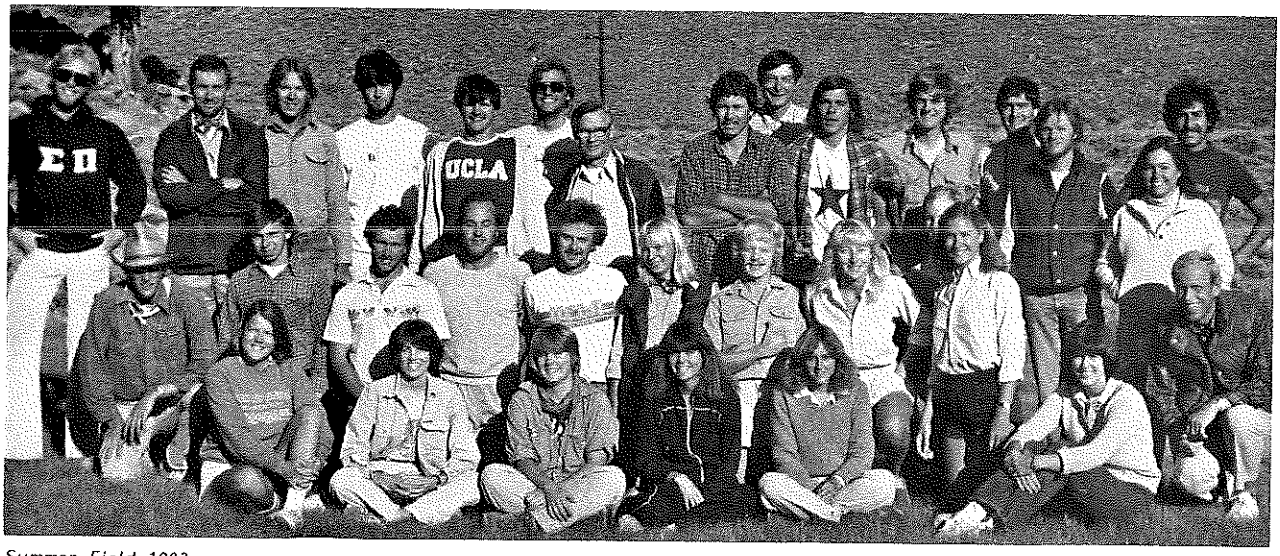
Kenneth D. Watson, Ph.D., Princeton University; Professor of Geology.

During the 1981-82 and 1982-83 academic years, Ken taught undergraduate courses in petrology, exploration and mining geology, and field geology. He also joined seminars dealing with Precambrian gold deposits (with Don Carlisle), skarn deposits, and Mississippi Valley type lead-zinc deposits.

During the summers of 1981 and 1982, Ken migrated to Canada. There he worked on gold deposits associated with Archean banded iron formation in the Superior Province of the Canadian Shield; an exoskarn tin deposit in the Cassiar Mountains, Yukon Territory; and a diorite-model porphyry gold deposit in the Quesnel Trough, British Columbia.

The news for the summer of 1983 is Ken's retirment after 33 years with the Department. At a year-ending dinner on June 18, Ken was honored by colleagues and friends with a toast and roast. All of us will miss this gentleman of Science who has served the Department in so many capacities.



Summer Field 1982

New Degrees

SEPTEMBER 1981

Bachelor of Science

Christine Louise Bathker
Kelly K. Busse
Mark David Feldman
Janet Lee Hirsch
Glenn Leslie Locke
Henry Bard Wevich
Henry Kwok Hin Wong

Master of Science

Marvin M. Katz

"Geology and Geochemistry of the Southern Part of the Cima Volcanic Field" (Professor Boettcher).

Doctor of Philosophy

Mark Peter Cloos

"Studies in Franciscan Geology. Part I: The Origin of the Central Mélange Belt. Part 2: Metamorphism and Deformation of the Shale Matrix of the Mélanges. Part 3: Controls and Mechanisms for Dewatering Subducted Sediments" (Professor Ernst).

Richard P. Ditteon

"Daily Temperature Variations on Mars" (Professors Newman and H. Kieffer).

Allen Glazner

"Cenozoic Evolution of the Mojave Block and Adjacent Areas" (Professor Boettcher).

Kenneth Norman Kettenring, Jr.

"The Trace Metal Stratigraphy and Recent Sedimentary History of Anthrogenous Particulates on the San Pedro Shelf, California" (Professor Reed).

Carl Victor Mendelson

"Studies in Micropaleontology: Proterozoic Microfossils, Ordovician Microphytoplankton, and Recent Agglutinated Foraminifera" (Professor Al Loeblich).

Alison Ord

"Flow Stresses from Microstructures of Mylonitic Rocks" (Professor Christie).

Glen Robert Stewart

"A Gravitational Kinetic Theory for Planetesimals" (Professor Kaula).

JUNE 1982

Bachelor of Science

Paul James Elliott
Andrew Irvin James
David Keyhyun Kim
Ian Whitcombe Moxon
Thomas Nakaki
Erich Charles Parker
Sandra Jo Redfearn
Steven Michael Richardson
Barry Martin Temple
Jeffrey Gregg Zukin

Masters of Science

Steven Grant Fritts

"Suitability of Landsat Multispectral Scanner and Return Beam Vidicon Stereo Imagery for Reconnaissance Engineering Geologic Mapping" (Professor Nelson).

Boyd Steven Getz

"Benthic Foraminiferal Biostratigraphy and Paleoecology of the Lower Luisian Leisure World Locality, Orange County, California" (Professor H. Loeblich).

Richard Mark Kettler

"Radioactive Mineralization in the Conglomerates and Pyritic Schists of the Kingston Peak Formation, Panamint Mountains, California" (Professor Carlisle).

William Joseph Pickthorn

"Stable Isotope and Fluid Inclusion Study of the Port Valdez Gold District, Southern Alaska" (Professor Watson).

Daniel B. Rosenblatt (by comprehensive examination).

David Andrew Weintraub (by comprehensive examination).

David Richard Williams (by comprehensive examination).

Daniel Winterhalter (by comprehensive examination).

Doctor of Philosophy

Richard Charles Elphic

"A Study of Magnetic Flux Ropes in the Venus Ionosphere" (Professor McPherron).

SEPTEMBER 1982

Bachelor of Science

Christopher Ray Garrity
David Emmanuel Harnish
William Wesley Hildreth
Christopher W. Hollister
John Henry Hoobs
Daniel Joshua Malvin
Rani Hathaway Pettis
Charles Toral Roberts
Robert William Smith
Peter Gerhard Tilke

Master of Science

Lisa Fellows Armstong

"Metamorphic Mineral Paragenesis in Mesozoic and Paleogene Rocks, Southern East-West Cross-Island Highway, Taiwan" (Professor Ernst).

Doctor of Philosophy

Kevin Brian Quest

"Tearing at the Dayside Magnetopause" (Professors Coroniti and Kivelson).

Wayne Anthony Zeck

"Strain in a Pair of Multilayered En Echelon Folds" (Professor Oertel).

DECEMBER 1982

Bachelor of Science

Vincent John Carnegie
Teresa Marie Conway
Scot Paul Farquhar
Steve Craig Freeman
Lawrence Robert Greene
Andrew Edward Seutter III
Paul Roberts Sones

Master of Science

Patricia Anne Breslin

"Geology and Geochemistry of a Young Cinder Cone in the Cima Volcanic Field, Easter Mojave Desert, California" (Professor Boettcher).

Larry Craig Knauer

"Geology of the Emerson Lake Quadrangle, San Bernardino County, California" (Professor Watson).

Li-yu Sung (by comprehensive examination).

Doctor of Philosophy

Gregory William Kallemeyn

"Elemental Fractionations Among Carbonaceous Chondrites: Implications for Their Classification and Nebular Formation" (Professor Wasson).

MARCH 1983

Bachelor of Science

Anna Valetta Buising
Virginia Hathleen Hamer
Brien Andrew Laird
David L. Parmelee, Jr.

Master of Science

Chang Chen

"Structural Comparison Between the Santa Monica and the Santa Ana Mountains, Southern California: A Strain Evaluation Approach" (Professor Oertel).

Doctor of Philosophy

Masato Nagata

"Bifurcations in Nonlinear Problems of Hydrodynamic Instability of Plane Parallel Shear Flows" (Professor Busse).

JUNE 1983

Bachelor of Science

Mindy Fox
Dieter Karl Letsch
Sean O'Meara McGoey
James Allen Noblet
Frances Raiken
Leslie Anne Sadler
Susan Elizabeth Smith

DECEMBER 1981

Bachelor of Science

Philip Anthony Buchiarelli
Michael Bond Childs
Katrin Hafner

Master of Science

Ching-Chan Cheng (by comprehensive examination).

Evan T. Fishbein (by comprehensive examination).

Wayne Nicholas Sawka

"Petrology of the Tinemaha Granodiorite" (Professor Ernst).

Doctor of Philosophy

Philip Russel Christensen

"The Nature of the Martian Surface as Derived from Thermophysical Properties" (Professors Shreve and H. Kieffer).

Henry Ira Halpern

"An Investigation of Mineral-Kerogen Interactions and Their Relation to Petroleum Genesis" (Professor Kaplan).

David Thomas Sandwell

"Thermal Isostasy: Spreading Ridges, Fracture Zones, and Thermal Swells" (Professor Schubert).

MARCH 1982

Bachelor of Science

Douglas Litz Hill
Ellen Sue Unher

Master of Science

Edward Warner Bolton (by comprehensive examination).

Chun Chiu Or (by comprehensive examination).

Steven Carl Swanson

"Sedimentology and Provenance of the South Park Member of the Kingston Peak Formation, Panamint Range, California" (Professor Carlisle).

Doctor of Philosophy

Robert Paul Eganhouse, Jr.

"Organic Matter in Municipal Wastes and Storm Runoff: Characterization and Budget of the Coastal Waters of Southern California" (Professor Kaplan).

Leonard Neal Ford, Jr.

"Palynology of the Grayson Formation (Lower Cenomanian) of Texas, U.S.A." (Professor H. Loeblich).

Albert Victor Nyberg, Jr.

"Contributions to Micropaleontology: Proterozoic Stromatolitic Chert and Shale-Facies Microfossil Assemblages from the Western United States and the Soviet Union: Morphology and Relationships of the Cretaceous Foraminifer *Colomia* Cushman and Bermudez" (Professor Schopf).

James Arthur Slavin

"Bow Shock Studies of Mercury, Venus, Earth, and Mars with Applications to the Solar-Planetary Interaction Problem" (Professor Holzer).

Master of Science

Susan Molly Green

"Seismotectonic Study of the San Andreas, Mission Creek, and Banning Fault Systems" (Professors Ernst and Jackson).

Clare Philomena Marshall

"Cation Arrangement in Iron-Zinc-Chromium Spinel Oxides" (Professor Dollase).

Doctor of Philosophy

Garland Langhorne Farmer

"The Origin of Mesozoic and Tertiary Granite in the Western U.S. and Implications for Pre-Mesozoic Crustal Structure" (Professor DePaolo).

Jeffrey N. Grossman

"A Chemical and Petrographic Study of Chondrules from the Chainpur (LL3.4) and Semarkova (LL3.0) Chrondrites" (Professor Wasson).

Frank Thomas Kyte

"Analyses of Extraterrestrial Materials in Terrestrial Sediments" (Professor Wasson).

A WORD FROM THE UNDERGRADUATES
By Leslie A. Sadler, ESSSO President

The undergads are not lost in the shuffle in the UCLA Department of Earth and Space Sciences. The undergraduate class is a very significant part of the Department's success. There is a positive interaction between faculty, grad students, and undergrads alike; and this interaction provides a strong basis for an environment in which students learn from each other as well as from faculty.

Undergraduate spirit livens up the Departmental activities. One of the activities this past year was the five-day Fall Field Trip to the western Sierra Nevada led by graduate students Clare and Brian Marshall, co-authors of the superb guidebook to the area. The Department supplied funds to help subsidize this trip.

The annual get-acquainted Fall Picnic, sponsored by the Earth and Space Sciences Student Organization (ESSSO), was a smashing success. One hundred and twenty-five faculty, staff, and students attended this hotdog, beer, and softball event at the Sunset Canyon Recreation Center.

Christmas season brought with it the Department Christmas party. This was the traditional night of entertainment and laughter as students portrayed their professors in many humorous skits. (Chairman Kaula stole the show when he appeared in a Santa Claus suit.)

Undergrads organized the Spring Field Trip this year, a three-day trip to the eastern Mojave Desert led by Dr. Boettcher. Several unsuccessful attempts were made to acquire partial funding for this trip from various campus resources. As a result, the trip was funded primarily by the participants, with some minor assistance from the Department and ESSSO funds.

A most important day for students this year was Career's Day. Undergrads and grads made use of the excellent opportunity to get acquainted with people in industry, to hear about the current direction of industry, and to prepare for a career.

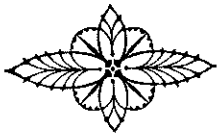
One activity that is never missed in the Department each year is the traditional Undergrad vs. Grad Softball Game. Unfortunately, it was a little too traditional, for again the graduate team beat the undergraduate team. Who was at the pitcher's mound?? None other than Dr. Clem Nelson--whom did you expect?

Perhaps the most joyous activity in the Department is the annual Graduation Brunch. This year over a hundred guests joined the graduating class to celebrate. As in previous years, the Brunch was organized and put on by the undergraduate students who had earned their degrees throughout the year.

Undergrads bring fresh and new ideas to the Department. This year a Department Logo Contest was held (with input from faculty, staff, students, and alumni), and the winner was undergraduate Pat Gates. Shirts imprinted with the new logo will soon be available from ESSSO.

The perpetual existence of the famous *Weekly Intrusion* is also due to the combined efforts of the Undergraduate class. It may only materialize twice a month, but it neverthelss maintains its image.

Yes, indeed, the undergrads are visible in the Earth and Space Sciences Department. However, rumor has it that thirty-five new graduate students will be stalking the halls next year. Look out undergrads!



NEWS OF E&SS GRADUATE STUDENTS

By A. Edward Morelan
ESSSO President

Graduate student life at the UCLA Department of Earth and Space Sciences can be compared to a juggling act. While expected to maintain excellence in their classes, graduate students must also pursue their master's or doctoral research topics. A typical third tenpin of the juggling act is gainful employment — a teaching or research assistantship or some other support.*

This picture of post-graduate education allows little room for extracurricular activities, but grad students find the time to organize and participate in various departmental activities. Coordinating departmental field trips, orchestrating the annual Christmas party and quarterly picnics, and participating in intramural sports are a few of these activities.

The upcoming academic year promises continuating excellence in the Thursday afternoon lecture series. Organized by a panel of graduate students, weekly one-hour lectures are delivered by individuals at the forefront of geoscience research. The panel for the upcoming year will be chaired by Gilles Bussod in conjunction with Evan Fishbein, Jeffrey Johnson, David Weintraub, and David Shirley.

* Editor's note: We asked Spring Verity, departmental Counselor, for some numbers to indicate what support our graduate students can expect. We have 114 students and a total fellowship allocation of $39,000 from the Graduate Division. There are also nine tuition waivers and 15 TA-ships available. Reg fees are currently $471 per quarter; out-of-state students pay an additional $1120 per quarter in nonresident tuition. (Ten imported students therefore could easily use up our fellowships on their tuition alone.) In addition we have approximately 40 RA-ships to award. The hope is to award a financial package of one-quarter fellowship ($2200) and two quarters TA-ship (about $700/month, taxable) to 15 new and

The Department of Earth and Space Sciences also participates in the activities of the university-wide Graduate Student Association (GSA). Our departmental representatives for the coming year will be Lee Bargatze and Gilles Bussod. The GSA is partly funded by fees from the graduate students' registration, and a percentage of this assessment is available to each department to subsidize grad-student-related activities. A meeting open to all E&SS graduate students was held during the Spring Quarter this past year to determine how these should be used. The tentative decision was to distribute them to individual graduate students on the basis of financial need. Details of supply and demand for these funds should be resolved early in the 1983-84 academic year.

The Earth and Space Science Student Organization (ESSSO) promotes interaction between faculty members and all levels of the E&SS student body. This is accomplished via such activities as the departmental field trips and picnics. ESSSO is managed by a committee of two undergraduates and two graduate students; the committee for the 1983-84 academic year consists of undergraduates Jane Sutherland and Laurie Holbrook and graduates Ed Bolton and Simon Peacock. Funding for this organization comes from departmental support and sales of field trip guidebooks and departmental T-shirts and patches.

Although a large percentage of a graduate student's time is devoted to academics, we nevertheles manage some fun together and with other members of the university community.

DEPARTMENTAL FIELD TRIPS

Announcing a special bargain for all those interested in geology, from the novice to the most expert, sand-encrusted veteran: The Department of Earth and Space Sciences and the Earth and Space Sciences Student Organization still have on sale guidebooks from departmental field trips. The sale price includes no van, however. Guidebooks available include:

No. 7. Aspects of the Geology Between Los Angeles and San Diego, Kent Colbath, Fall 1980.

No. 11. Guidebook to the Mojave Desert Region, Allen F. Glazner and Bruce J. Bilodeau with sections by Art Boettcher, Carl Jacobson, Larry Knauer, Bob Luth, Alison Ord, and Gary Strathearn.

No. 12. Guidebook to the Eastern Sierra Nevada, Owens Valley, White-Inyo Range, Clem Nelson with sections by Bruce Bilodeau, Erdem Idiz, Wayne Sawka, and Wayne Zeck.

No. 13. Geologic Guidebook to the Western Sierra Nevada, Brian D. and Clare P. Marshall.

about 20 continuing students, supplying a monthly salary of approximately $700/month for 9 months to our best students. Some of the remaining students may receive partial support, some no support at all.

Not mentioning daily expenses such as food and transportation, students pay an average of $700 per month for an apartment, most often shared with one or two other students. If this dosen't sound like slim pickings, consider that quite a few of the students are married and have families to support.

Steve Lipshie's popular work on the Long Valley - Mono Craters region (No. 5) is currently not available, even after a second printing. Interested parties should contact Steve in the Department to arrange reproduced copies.

Each guidebook describes the stops made in chronological order for trips of typically four to five days. Any intrepid geologist who starts from the E&SS loading dock with guidebook in hand and odometer in view *will* learn more about roads, geology, and history. Significant stops in one exemplary guidebook--Clem's--include: the Manzanar Relocation Camp, two antecedent streams in one precedent-setting view, and Wayne Zeck's thesis fold from the Poleta Folds. Highlights from the guide to the Western Sierra Nevada (the Marshalls' Plan) range from descriptions of mines, historical sites, stratigraphy, economic and Cenozoic geology, to cartoons of tectonic history.

This last spring undergrads organized a three-day departmental trip to the eastern Mojave Desert led by Dr. Boettcher. Since no funding for this trip came from campus resources, participants paid for it with minor assistance from the Department and ESSSO funds. No guidebook was printed, depriving us of a state-of-the-Art publication.

Prices for guidebooks may vary but generally run around $6.00 per copy. Those wishing to purchase them should write to the Department for more information.

A newly established tradition is the Graduation Brunch. This one, the fifth in the series, was held on June 19, 1983, in honor of students who graduated in Fall 1982, Winter 1983, Spring 1983, or who would graduate after summer field 1983. Brunch preceded University Commencement ceremonies, held at 3:00 p.m. that afternoon. Pictured are: 1. Scott Warner, 2. Linda Tandy, 3. Jeff Knott, 4. Kirk von Zupp, 5. Paul Sones, 6. Scott Farquhar, 7. Steve Freeman, 8. Prof. John Christie, 9. Prof. Wayne Dollase, 10. Prof. Bill Kaula, 11. Frances Raiken, 12. Dieter Letsch, 13. Earl LaPensee, 14. Alex Schroeder, 15. Prof. Art Boettcher, 16. Jim Noblet, 17. Prof. Ian Kaplan, 18. Joy Chen, 19. Don Murphy, 20. Prof. Clem Nelson, 21. Ginny Hamer, 22. Prof. Ken Watson, 23. Leslie Sadler, 24. Anna Buising, 25. Mindy Fox, 26. Spring Verity, Departmental Counselor, and 27. Sue Smith.

Alumni Day 1983

Long before the grand party on April 29th, a small group including Ted Bear, Bill Kaula, Helen Loeblich, Joe Straus, and J. D. Traxler agreed that it was a fine idea, got together, and pulled more willing helpers into the fold. By the second meeting, Chuck Knox and Mindy Broffman from Letters and Science Alumni and Development had vowed financial and moral support. Joanie Perkal, from the College of Letters and Science Dean's Council, who fell for the Geosciences atmosphere years ago when her daughter Melissa was a student here, added funds and enthusiasm to the fray, donating the services of the nationally known music group, UCLA's own "Bearly Bluegrass." Ted volunteered to buy a round or two of drinks for every alum and friend who attended the party and threw coach Terry Donahue into the bargin as entertainment for football fanatics in that illustrious crowd. He also produced Bobby Dearborn, the best bar-b-que chef in town (Chancellor Young will use the services of no other), who brought a mountain of roast beef and fancy trimmings.

The Department ordered an elegant luncheon from the faculty center, labs and offices were thrown open for afternoon meanderings, and phase liquidus was beefed up with hors d'oeuvres and wine.

The invitees got into the spirit, contributing generously to help defray the cost of dinners for students, who turned out in droves (as might be expected for a $3.00 roast beef dinner!). Some sent money even though they were not able to attend. Those who contributed to Alumni Day are:

The Contributors

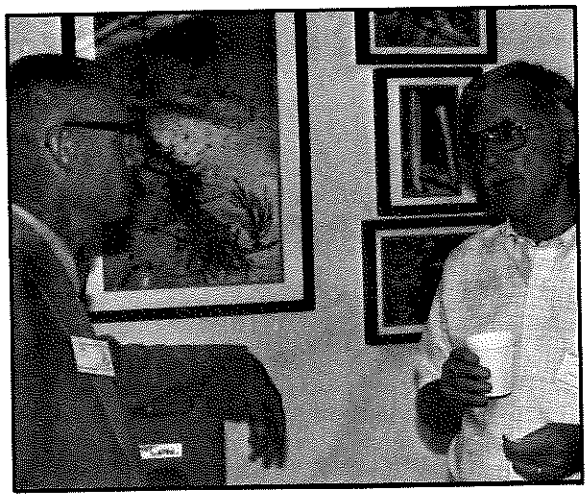
R. S. Ballentyne
F. Barker
J. D. Barry
T. L. Bear
W. Bruner
A. Canut
T. Donlon
S. Dumas
M. Garcia
C. Gray
F. Hantsch
R. Horodyski
E. Hudson
D. D. Jackson
R. E. Jones
V. Jones (for Roy Copp)
I. R. Kaplan
W. M. Kaula
E. Kiessling
J. Kingsley
J. Kingston
P. Kistler
A. Loeblich
J. Maniskas
R. Meade
P. Merifield
W. Neill
C. A. Nelson
G. Oertel
L. Pleskot
N. Rousselot (unable to attend)
R. Saul
J. W. Schopf
R. Smart (unable to attend)
P. Snavely Jr.
H. H. Sullwold
J. D. Traxler
J. A. Treiman
R. Tucker (unable to attend)
J. Van Amringe
K. D. Watson

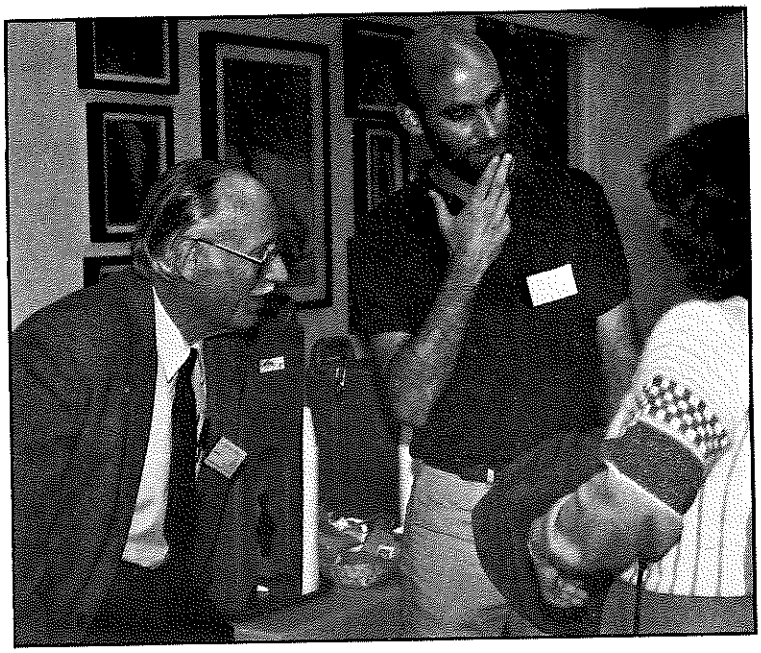
If picture is worth a thousand words, we offer the following pages to make the biggest and best Newsletter yet assembled. Because we were not positive which names go with which faces, the photos have been left uncaptioned, but the following guest list should help you identify long-lost friends. Alumni are marked with an (A) following their names, faculty with an (F), graduate students with a (GS), undergraduates (UG), and staff with an (S).

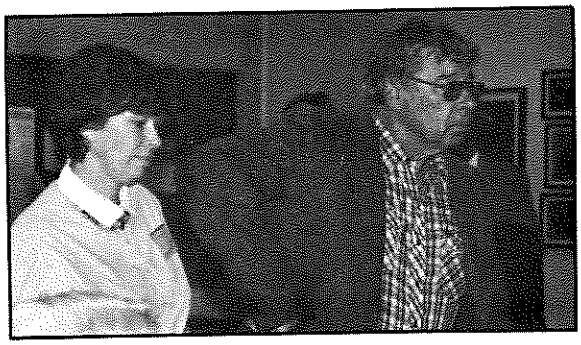
Those Present

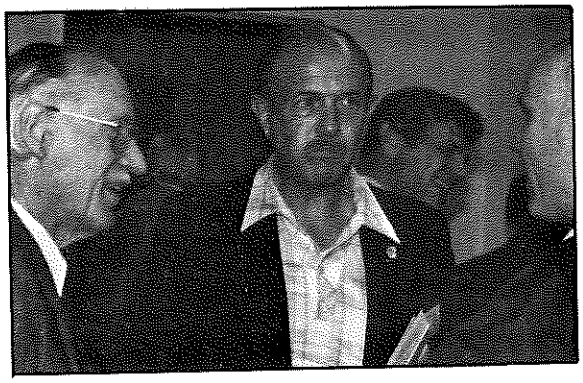
Gerard and Carol Abrams (A)
Tom Adame (A)
Flint Agee (A)
Yaw N. Agyakwa & Family (GS)
Lynn Andrews (UG)
Ken Arnestad (A)
Aza Azouni (S)
R. S. Ballantyne (A)
Lee Bargatze (GS)
Francis J. Barker (A)
Kitty Barrows (A)
James Dale Barry (A)
Ted Bear and Family (A)
Rainer Berger (F)
Cy Bird (A)
Bonnie Bloeser-Cooper (A)
Mr. & Mrs. Art Boettcher (F)
Ed Bolton (GS)
Mindy Broffman (S)
Bill Bruner (A & F)
Robert S. and Joanna Burns (A)
William Ross Cabeen (A)
A. Louis (Lou) Canut (A)
Dwight L. Carey and family (A)
Mr. & Mrs. Don Carlisle (A)
Dick Carlsberg (A)
Diane Clemens (UG)
George Cleveland (A)
Mr. & Mrs. Xenophon C. Colazas (A)
Patricia Colville (A)
Robert L. Cooney (A)
Jack Cooper (A)
Earl Cooper (A)
Stephen A. Cooperman (GS)
Roy Copp (A!)
Flint Cyre (A)
Jon Dashkin (UG)
Marie-Jose Deutsch (A)
Brian S. Dicker (A)
Marcelle Dicker (A)
Mr. & Mrs. Wayne Dollase (F)
Thomas W. DonLon (A)
Paul Doose (A)
Tom Drake (GS)
Kay Dudek (A)
Stevan Dumas (A)
Mr. and Mrs. Jack G. Elam (A)
Stan Eschner (A)
Edward and Theresa Fall (A)
Lang Farmer (A)
Evan Fishbein (GS)
Mindy Fox (UG)
Toni Frank (S)
Eugene Fritsche (A)
Mike Garcia (A)
Renee Gibson (S)
Cliff Gray (A)
Jeff Grossman (GS)
Dave Grover (A)
Clarence A. Hall (F)
Virginia Hamer (A)
Brooks Hanson (GS)
Fred and Phyllis Hantsch (A)
Robert F. Harodul
Annette Henderson
Glenn B. Hieshima (UG)
Merton and Annlia Hill (A)
Bob Hill (A)
Robert J. Hindle (A)
Laurie L. Holbrook (UG)
Robert Hollingsworth (A)
Bob Horodyski (A)
Sarah How (S)
Ed Hudson (A)
Mr. & Mrs. Dave Jackson (F)
Brad Johnson (A)
Roberta Johnson (GS)
Vicki & Bob Jones (S&F)
Mr. & Mrs. Ian Kaplan (F)
Mr. & Mrs. William Kaula (F)
Dick Kettler (A)
Ed Kiessling (A)
John Kingsley (A)
Jack Kingston (A)

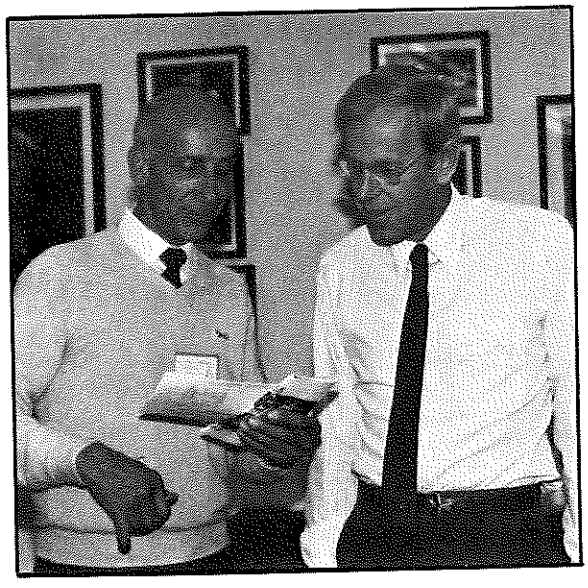
Phil Kistler (A)
Shinichi Kitada (A)
Julie Knaack (S)
Jeffrey Knott (UG)
Charles and Teresa Knox (S)
Susie Kraemer (A)
Frank Kyte (GS)
George Lapins (S)
Robert A. Larson (A)
Tim Latiolait (A)
Bill Leslie (UG)
Dieter Letsch (UG)
Steve Lipshie (GS)
Helen & Al Loeblich (F&F)
John S. Loofbourow, Jr. (A)
Sue Luera (S)
Lidia Lustig (A)
Mr. & Mrs. Bob Luth (GS)
Robert Macdonald (A)
James M., Agnes, & Peter Maniskas (A)
Paul Mankewicz (A)
Mr. & Mrs. Albert Marshall (S)
Brian & Clare Marshall (GS)
Mitsuhiro Matsu'ura (S)
Ritsuko S. Matsu'ura (GS)
Karen McBride (UG)
Marlene McCauley (GS)
Kaye R. McCown (A)
Mr. & Mrs. Bob McPherron (F)
Robert Meade (A)
Mr. & Mrs. Paul Merifield (A&F)
Eugene D. (Don) Michael (A)
Ed Morelan (GS)
Donald Dean Murphy (A)
Don Musselwhite (G)
Mark and Susan Nahabedian (A)
Joe and Rodney Nahama (A)
Irving R. Neder (A)
Bill Neill (A)
Clem and Ruth Nelson (F)
Bruce Nelson (GS)
Lynne Newton (S)
R. S. Noble (A)
Paula Norris (GS)
Albert Nyberg (A)
Mr. Terry O'Donnell (S)
Gerhard Oertel (F)
Jim Padick (A)
Larry and Charlie Parmelee (A)
Bob Paul (A)
Simon Peacock (GS)
Joan and Melissa Perkal (A&S)
Larry Pleskot (A)
Joe Polovina (A)
Sam Robertson (A)
Veronique Robigou (GS)
Leonard Robin (A)
Mark Robinson (A)
Mr. & Mrs. John Rosenfeld (F)
Aristidis S. Roubanis (A)
Leslie Anne Sadler (UG)
LouElla & Dick Saul (A&S and A)
Mr. & Mrs. Bill Schopf (F)
Edward W. Scott (A)
Richard Scott (A)
Oralynn Self (UG)
David Shirley (GS)
Alex Shroeder (UG)
Richard Slade (A)
Ken Smith (A)
Susan Smith (UG)
Mr. and Mrs. Parke J. Snavely, Jr.(A)
Sorena Sorensen (GS)
Carol Starcevic (S)
Gary Strathearn (GS)
Joe Strauss (A)
Harold H. Sullwold (A)
Takeo Susuki (A,S&F)
Robert & Darlene Sweeney (A)
Steven S. Sznyter (A)
Elizabeth Thomas (A)
John Tompkins
J. D. Traxler (A)
Jerry & Nina Treiman (A)
John H. (Jack) Van Amringe (A)
Fred Vanderberg
Bruce Van Patten (A)
Spring Verity (S)
Kirk Von Zup (A)
Holly Clyde Wagner (A)
John Wasson (F)
Mr. & Mrs.Ken Watson (F)
David Weintraub (GS)
David Williams (GS)
Stuart Wolpert (S)
Glenmore Wong (A)
Robert I. Zweigler (A)

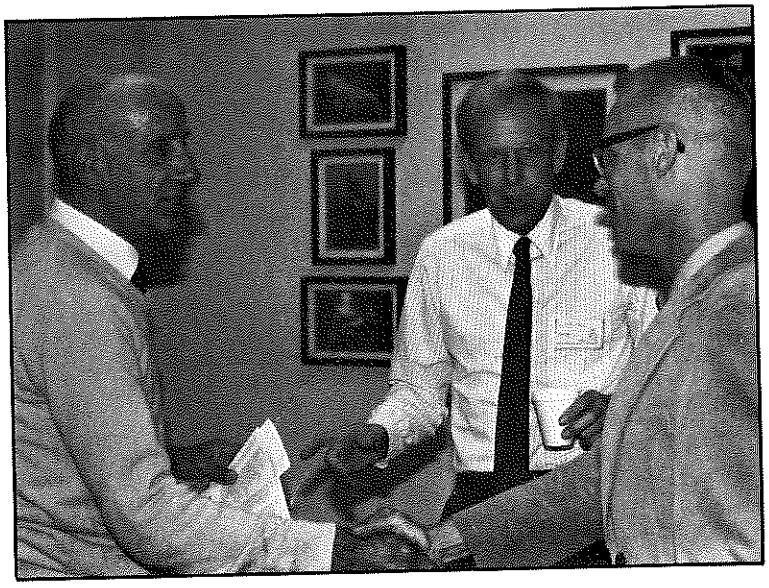


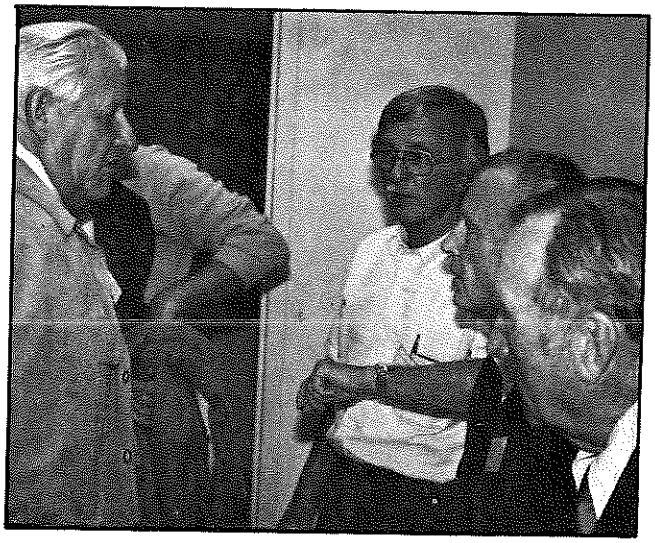


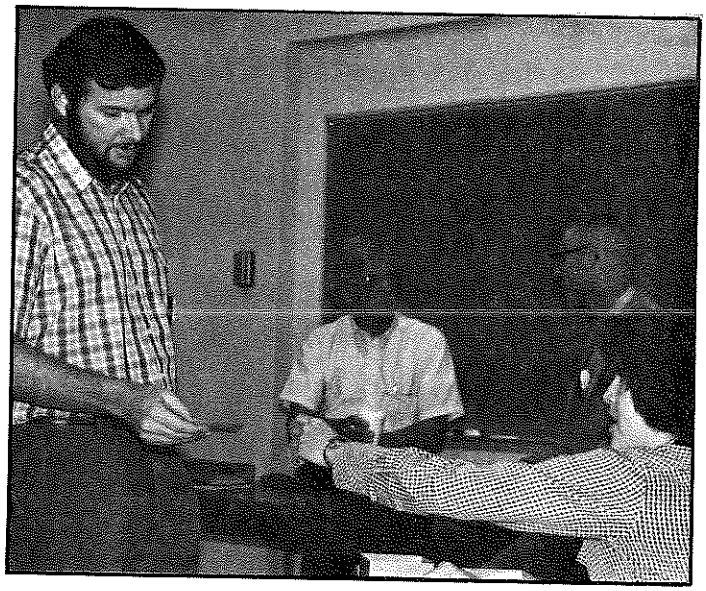


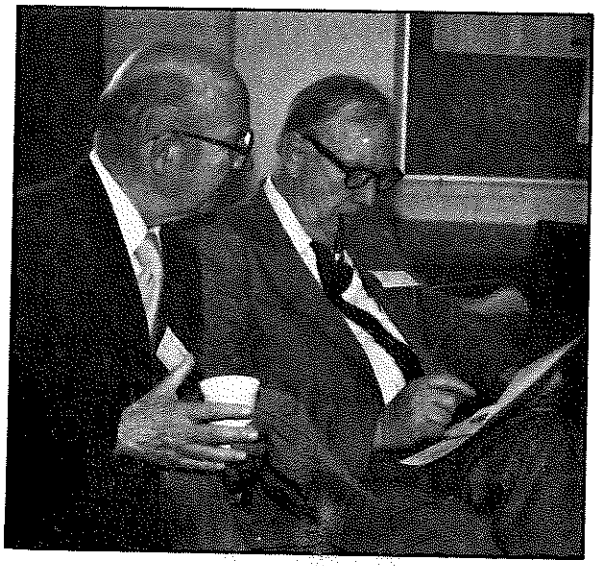


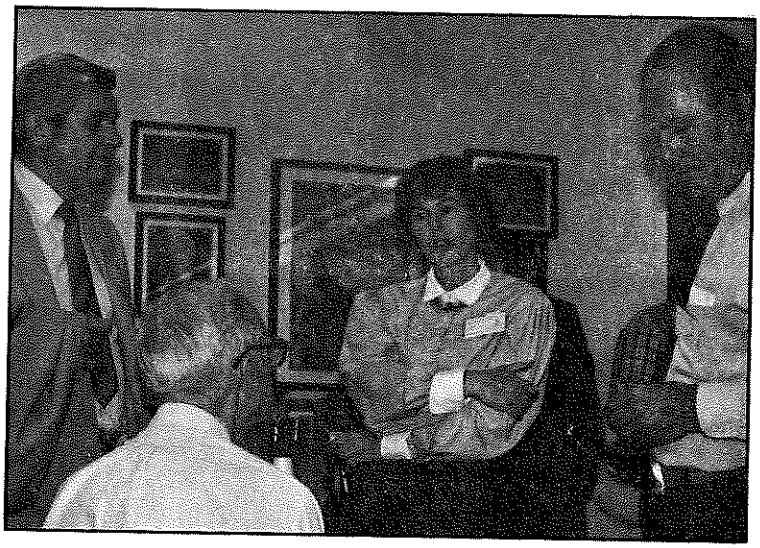


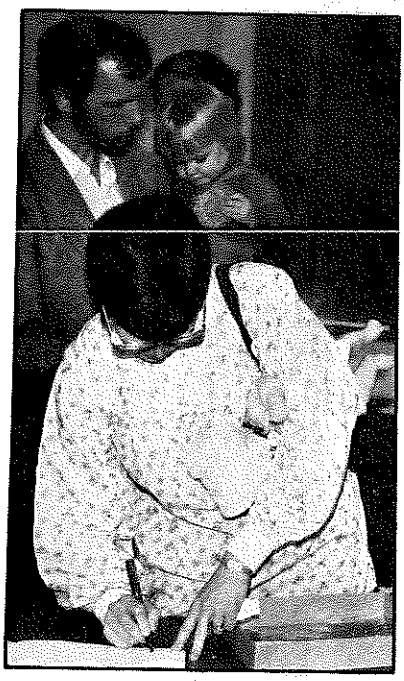


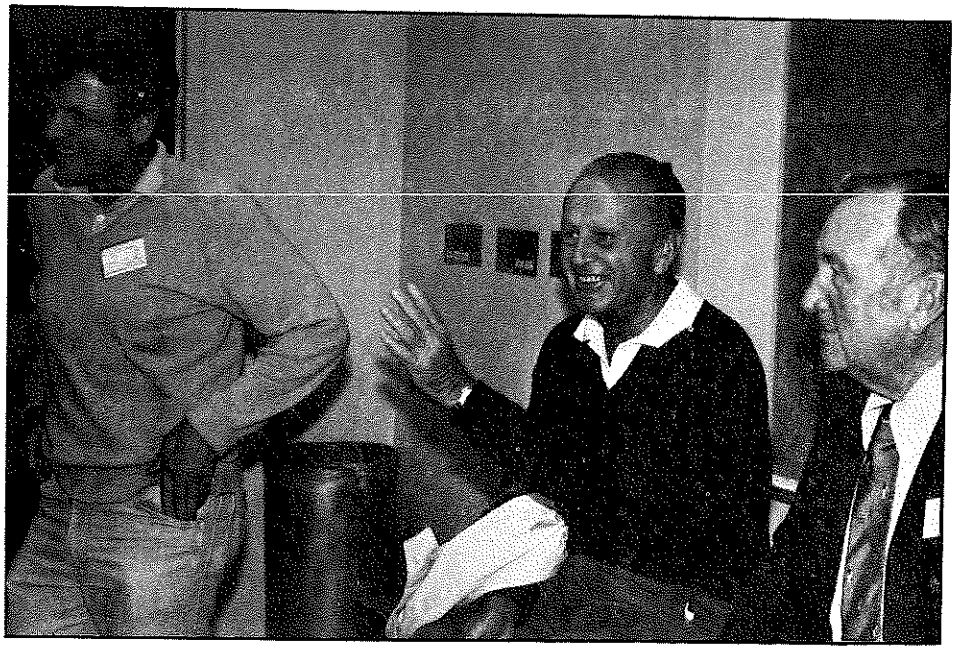


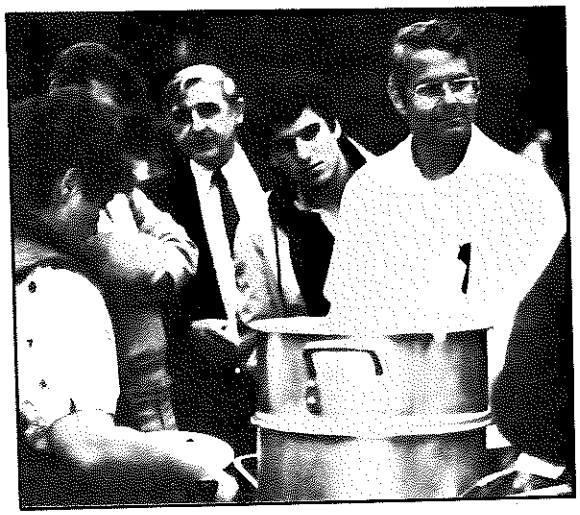


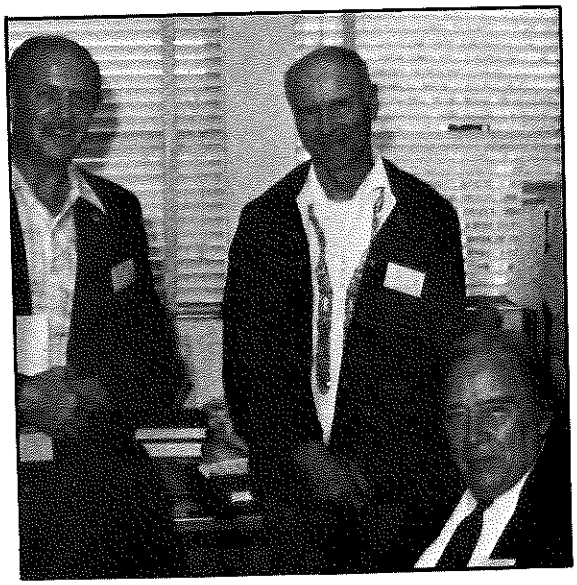


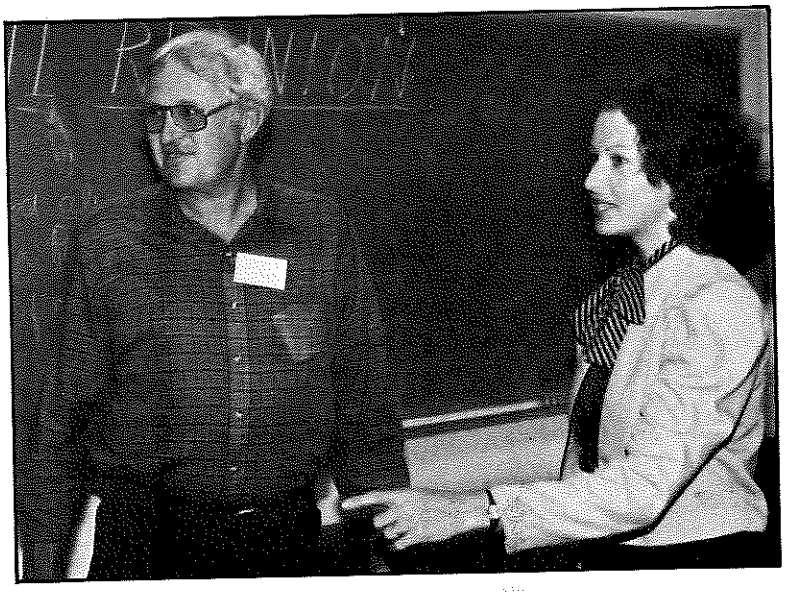


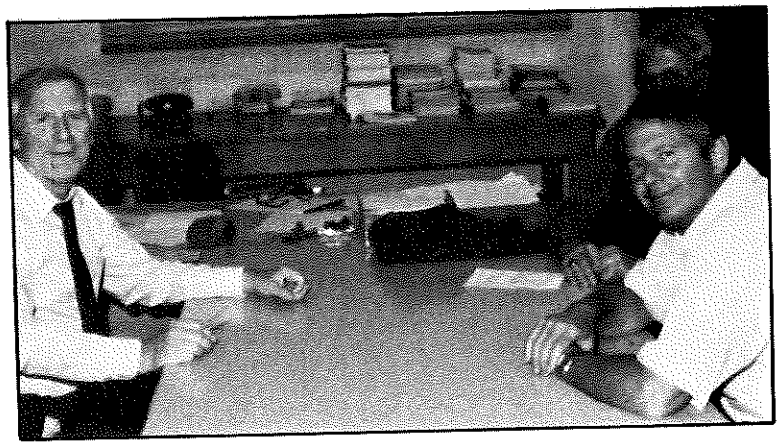


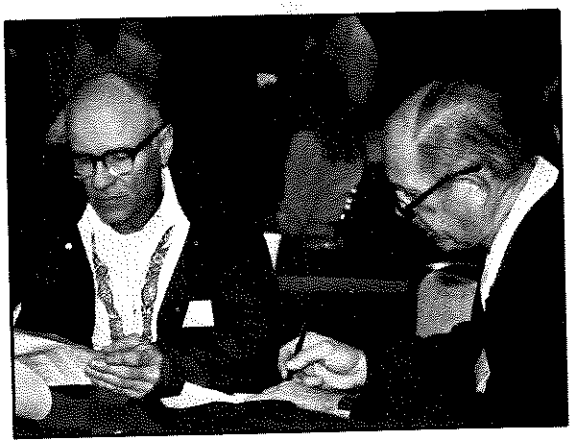


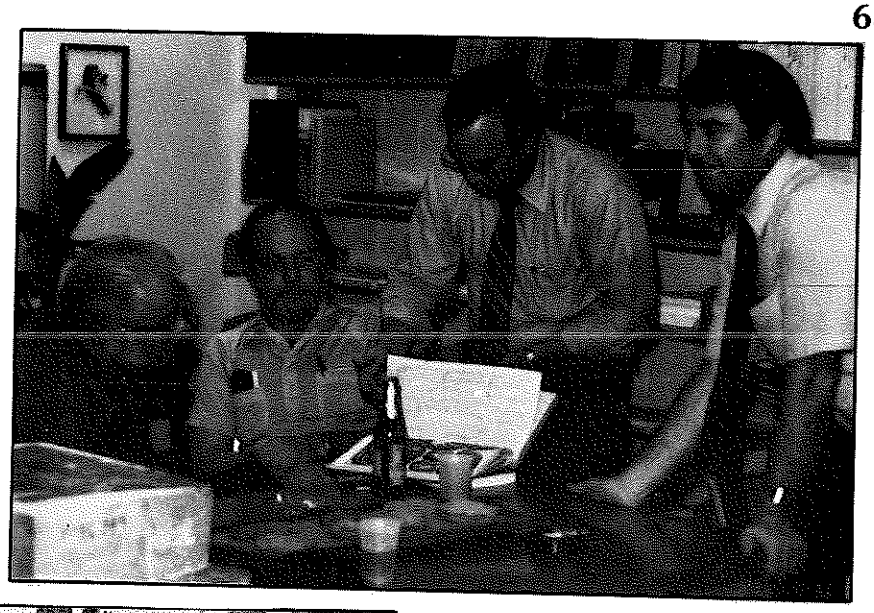


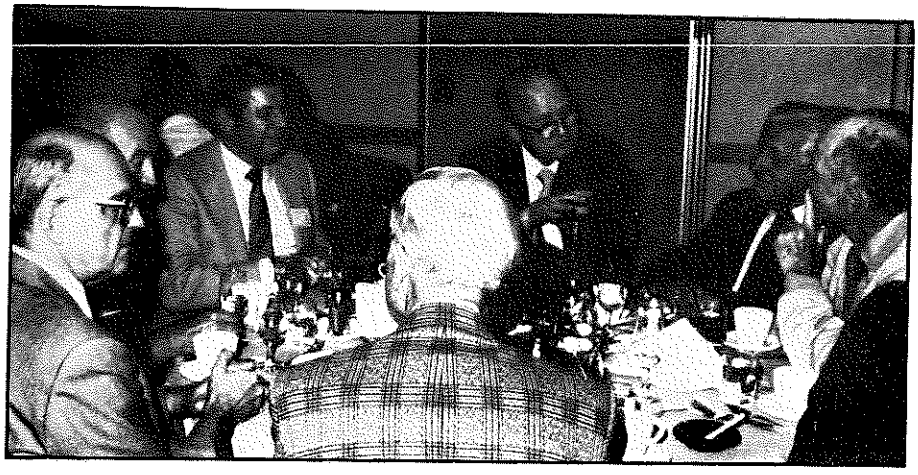


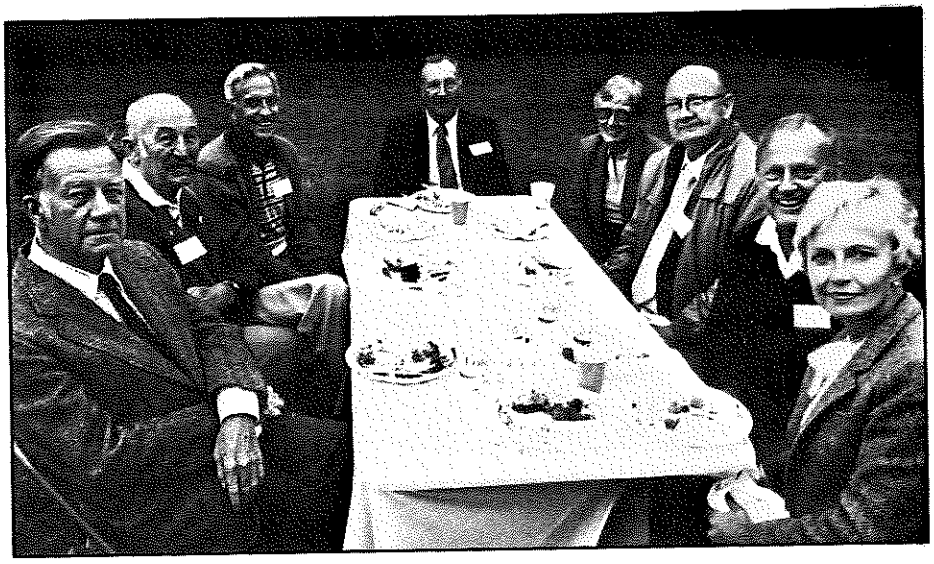


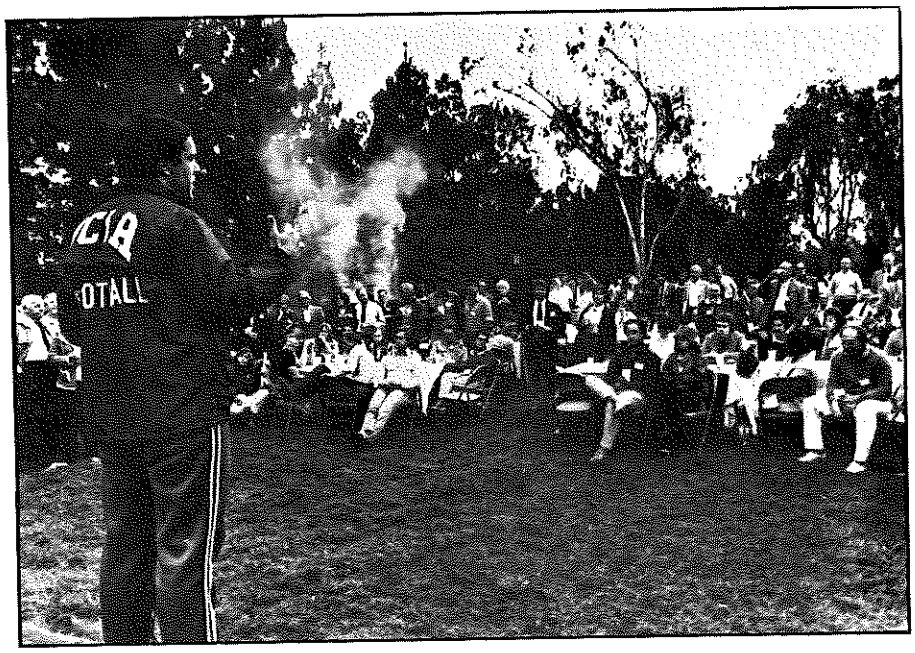








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