
Dept. of
Earth Sciences
1979-'80
News
Letter

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
(Formerly Department of Geology and Department of Geophysics and Space Physics)

4 May 1978

Dear Alumni:

During the past year the Department of Earth and Space Sciences has started a number of programs related to the merger of the Department of Geology, Department of Geophysics and Space Physics, and the Program in Geochemistry that was formalized on January 1, 1977. Besides the Careers Day Program and an Earth and Space Sciences Conference during the year—programs that emphasized traditional interdisciplinary approaches and the future of the science—the following courses were offered or finalized: (1) a course in organic geochemistry taught by Professors Kaplan, Reed, and Schopf; (2) a course related to the tectonic evolution of California; (3) a course in palynology (D. Oltz); (4) a course in geophysical exploration taught by one of our space scientists, Professor McPherron; (5) a new course in remote sensing taught by a planetary scientist, Professor Hugh Kieffer; (6) a course on coal by Professor Orson Anderson; and (7) a course called "Evolution: Solar System, Earth and Life."

We have tried to bring students and faculty together in various ways, one of which was to provide a pleasant gathering place called the Common Room. This room is now furnished, decorated, and equipped with maps and a globe for ready use during discussions of such topics as plate tectonics. Some of you helped provide funds to furnish this room, and your help is greatly appreciated.

We have given the undergraduate students the option of taking a field course in geophysical exploration in lieu of the third quarter of geological field work prior to summer field. It is hoped that more of our students will take advantage of this option in the future. However, it seems that even geology students are hidebound traditionalists, and most of the undergraduates have opted to take three quarters of the geological field class rather than the geophysics option. As you recall from one of my earlier letters, all geology majors are now required to take a lecture course in geophysical exploration. Clearly, this important tool must be utilized more in the future by geologists; and we will continue to encourage our students to have at least a taste of the geophysics menu the Department offers.

Rather than my usual appeal to you for funds to finance various and sundry student programs, I will simply thank many of you for your support during the last four years. We are particularly indebted to Shell Oil for its long-term support, as well as to Chevron Oil Field Research, Cities Service, Exxon, Getty Oil, Standard Oil and Texaco. These companies have provided the Department with various types of aid that have helped us attract and support outstanding undergraduate and graduate students. The Department has exceptional programs in the fields of organic and inorganic geochemistry, plate tectonics and structural geology, field geology, planetary sciences and space sciences, paleobiology, and mineral resources, but these programs would be

blunted without excellent students. Thus, funds from industry, interviews and job offers from industry, and alumni support help make UCLA one of the top-ranked departments in the world.

This will be my last letter to you, as a new Chairman will soon be named. Many of you have provided me with advice and encouragement during the last four years, and I thank you for it. I have not been able to meet as many of you as I would have liked, but I hope that I have been able to tell at least a few of you of the growth of your Department and its hopes for the future. If you were here at UCLA now, I think that many of you would be surprised at how good our students are, how dedicated and professional both undergraduates and graduates are, how diversified the Department is, how accutely aware the faculty is regarding the training of students for present and future employment opportunities, and what an illustrious faculty we have. In short, if you were here, I think that you would be very proud of your alma mater and the people who make it great—namely, the students, faculty and a fine supporting nonacademic staff.

Sincerely,

Clarence A. Hall Jr.

Clarence A. Hall Jr., Chairman

CAH:vbj

EARTH & SPACE SCIENCES

UCLA

Acknowledgements

The editor--Ken Watson--thanks Julie Guenther for providing the artwork. He also thanks Karen McCurdy, George Lapins, Spring Verity, and all who supplied news, for their valuable assistance.

The department greatly appreciates the support of Chevron Oil Field Research Company, La Habra, California, who once again reproduced the Newsletter.

Some of you have kindly commented that you enjoy the Newsletter, particularly the section on Alumni News. In order that we may expand this section next year, please take a few minutes to complete the brief questionnaire accompaning this Newsletter.

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

February 24, 1981

Dear Alumni:

Here is your annual Newsletter for 1979-80, which will bring you up to date on activities within the Department, and of our far-flung former students. Remember that we would be happy to have you visit the Department. Any time would be fine, but an especially auspicious occasion might be for you to attend our bi-annual Careers Day, to be held on Thursday, November 12, 1981. As you may recall, it provides representatives from industry and governmental agencies with an opportunity to inform our faculty and students about the job challenges in the earth and space sciences; they also are urged to provide us with constructive criticism of our curriculum.

Other information not spelled out in the Newsletter includes the following: (1) Dave Stevenson resigned as of September 1, 1980, to accept a position at a lesser known, smaller school in Pasadena. He wrote "I will be Associate Professor of Planetary Science at Caltech. This was not an easy decision since I have found UCLA to be a congenial and stimulating place in which to work." We are most sorry to have lost Dave for he was an extremely interactive, productive planetologist.

(2) The pain of this loss was eased by the full time regularization of Margie Kivelson to the ladder faculty, and by the appointment of two new Rubey Assistant Professors, Paul Davis and Bill Newman. (See section dealing with Faculty News for their activities and interests.) In essence, our strengths in space science, crustal geophysics and planetary atmospheres/ geophysical mathematical modeling have been enhanced.

(3) Brad Johnson of McCulloch Oil Company resigned his temporary appointment as Lecturer and moved to San Francisco this fall (see Faculty News). As replacement, we have just appointed Larry Bonham of Chevron Oil Field Research Company. We wish Brad all the best in his new job, and are grateful for his past support; we very much appreciate Larry's help and look forward to a long and productive association.

(4) I am very sorry to inform you, if you hadn't heard already, that George Kennedy passed away on March 18, 1980. He was 60, and was suffering from mesothelioma, a form of pulmonary cancer. Those of us accustomed to George's brash, sometimes rash, but most commonly insightful and imaginitive research will sorely miss him. He kept us on our toes.

(5) After more than 33 years of service to the Department, Johnnie DeGrossé retired on August 31, 1980. His retirement is punctuated by visits to the Department for an occasional game of darts, and a triumphal appearance or two at Friday afternoon liquidus (our traditional end-of-the-week beer-bust, and the most popular sustained function undertaken by the faculty, staff and students).

(6) The Rubey Colloquium is alive and well. This is a series of E & SS lectures by visiting authorities on a specific earth or space science theme, and one of especially timely interest. Last winter Dick Perrine of the Environmental Science & Engineering program organized one dealing with energy--past, present and future (see section dealing with Rubey Colloquium 1980). Next fall Margie Kivelson will run one on the planets. (With all the new fly-by data on Jupiter and Saturn from Voyagers I and II, it should be an exciting symposium.

(7) Books produced as a consequence of the Rubey Colloquia are being published by Prentice-Hall (Englewood Cliffs, N.J.) as the Rubey Volumes. No. 1, "The Geotectonic Development of California" (1981, W.G. Ernst, editor, $31.95) has just appeared. I think it's very impressive. No. 2, "The Environment of the Deep Sea" (W.G. Ernst and James Morin, editors) is in press, and No. 3 on Energy is nearing manuscript completion. It's a lot of work, but I believe that this series will have a favorable impact on the earth and space sciences. Banzai!

(8) The PPRG, (see Newsletter write-up) otherwise known as Schopf's International Circus, had a very successful 18 month season at UCLA. Bill is now in hiding in Holland, and is putting the finishing touches on a book representing some of the proceedings of this all-star aggregation. To be published by Princeton Press, it is entitled "Origin and Evolution of Earth's Earliest Biosphere: an Interdisciplinary Study". One of the most exciting discoveries of the PPRG was filamentous algae from the North Pole locality, western Australia, of greater than 3.5 billion years age.

(9) As of 12 months ago, Clarence Hall was appointed Director of the White Mountain Research Station (see section on Faculty News). This unique, all-University facility has incredible potential for research in the physical and life sciences, but prior to Clarence's appointment, this outdoor laboratory had been underutilized and nearly given away. Those of you who know him will understand that the Scourge of Tick Canyon would soon put things in order, and he has!

(10) You won't believe this, but in addition to our Departmental picnics and assorted athletic events, we have begun having joint picnics with the USC Geology Department--these prior to the football game in November, and here before a winter basketball game at Pauley Pavilion. Thus far it's been a huge success, punctuated by cheers but no fistfights. I'm sure this 2 year old tradition will continue.

(11) Cord Durrell, a 25 year faculty member of our department, is now Professor Emeritus at UC Davis. He avidly reads the Newsletter and remains much interested in our alumni. You can keep in touch by writing him at the Geology Department of UC Davis.

Now for my annual exhortation about money (you knew it was coming, right?). Our various student support operations are funded principally by State and Foundation money, but important amounts of aid come through the UCLA Foundation. These are exclusively contributed funds from private donors like yourself, which help pay for Careers Day, expenses for invited industrial speakers, for student field expenses and mini-scholarships, and for group field trips.

Like everyone else, we simply do not have sufficient funds to cover our basic educational thrust. You can help by sending your tax deductible gift to "The UCLA Foundation, Earth and Space Sciences".

We certainly do appreciate help from our alumni--not just financial either. You can support your school by visiting and providing advice, sending us grad students, alerting us to employment opportunities and so forth. As you know, we have a good department, but it could be better. With your help, it will be.

Best regards,

Gary

W.G. Ernst

WGE/kmc

DONATIONS 1979-1980 *

Corporate Contributors

Chevron Oil Field Research Company
(newsletter publication)

Getty Oil Company
(unrestricted funds and two undergraduate scholarships)

National Association of Geology Teachers
(summer field course scholarships)

Shell Companies Foundation
(unrestricted funds; used for fellowships and other student support)

Individuals

Mr. Ted L. Bear

Mr. John M. Christie

Mr. Michael O. Garcia

Mr. Thomas and Mrs. Diane Hunter

Mr. George Lapins

Mr. Steven R. Lipshie

Mr. Robert G. Maynard
(and Sun Co. matching gift)

Mr. Floyd and Mrs. Janice Sabins
(and Chevron matching gift)

Mr. Rand B. Schaal

Mr. Parke D. Snavely, Jr.

* Does not include gifts received after June 30, 1980.

THE RUBEY COLLOQUIUM 1980

The theme of the colloquium was "Energy - An Overview". The colloquium was arranged by Richard L. Perrine, Professor of Engineering and Applied Science and Chairman of the Environmental Science and Engineering program, assisted by Donald G. Browne. The speakers and their topics were as follows:

Jan 7	Resources/Energy	C.J. Hitch; (former) Resources for the Future, Lawrence Berkeley Laboratory
9	Energy and People: Usage	V. Tschinkel; Florida Department of Environmental Regulation
14	Energy Resource Overview	E.T. Hayes; U.S. Bureau of Mines (retired)
	Petroleum/Gas Resources	M.K. Hubbert; U.S. Geological Survey (retired)
16	Oil Shales	A. Lewis; Lawrence Livermore Laboratory
	Tar Sands	G. Mossop; Alberta (Canada) Research Council
21	Coal Resources and Economics	G. Wood; U.S. Geological Survey
	Coal Exploitation: Environmental Impacts	W.R. Keefer; U.S. Geological Survey
23	Coal Gasification	J.G. Seay; Institute of Gas Technology
	Coal Liquifaction	A. Squires; Virginia Polytechnic Institute
28	"Wet" Geothermal	L.J.P. Muffler; U.S. Geological Survey
	"Dry" Geothermal	J. Tester; Los Alamos Scientific Laboratory
30	Nuclear Energy Systems	A.V. Nero, Jr.; Lawrence Berkeley Laboratory
	Nuclear Fuel Resources	S. Muessig; Getty Oil Company
Feb 4	Nuclear Fuel Cycle Alternatives	F. von Hippel; Princeton University
	Nuclear Waste Management	E.E. Angino; University of Kansas
6	Fusion Options	E. Teller; Lawrence Livermore Labs/Stanford
	Fusion-Engineering Realities	G.L. Kulcinski; University of Wisconsin, Madison
11	Ocean Thermal	R. Douglass; TRW, Inc.
	Wind	M.R. Gustavson; Lawrence Livermore Laboratory

Feb 13	Biomass--Plantation	G. Szego; Intertechnology Corporation
	Solar--Electric	E. Webber; Arizona Public Service Company
20	Solar--Low Temperature and Passive Uses	J. Veigel; Solar Energy Research Institute
	Biomass--Waste	D. Meadows; Dartmouth University
25	Water Constraints--Quantity	K. Kauffman; U.S. Bureau of Reclamation
	Water Constraints--Quality	J. Harte; Lawrence Berkeley Laboratory
27	Health Effects	L. Hamilton; Brookhaven National Laboratory
	Ecosystem Effects	H. Odum; University of Florida
Mar 3	Radiation	L.S. Myers Jr.; Laboratory of Nuclear Medicine and Radiation Biology
	Conservation	S. Rennie; Office of Conservation Policy, DOE
5	Benefits of "Hard" Technology Approach	P. Beckmann; University of Colorado
	Benefits of "Soft" Technology Approach	W.G. Berberet; Williamette University
10	The Federal Government's Role	J. Deutch; U.S. Department of Energy
12	One State's Dilemma	E. Herschler; Governor of Wyoming

Sixth UCLA Earth and Space Sciences Careers Day

Careers Day was held on November 15, 1979 with the theme "Careers for Graduates in Earth and Space Sciences". The event, which was well attended by students, alumni, friends, faculty, and staff, included a luncheon in the Student Union, a social hour in the Geology Building, and a dinner in the West Alumni Center. The speakers and panelists, who were representatives of industry and government, discussed in their talks such topics as: (a) new ideas and techniques in their field, (b) new requirements or demands being made on scientific personnel, and (c) the future of the field or opportunities within the field. The participants were the following:

Morning Speakers

Donald L. Zieglar
Chief Geologist
Exploration Department, Western Region
Chevron, U.S.A.
(San Francisco)

Douglas M. Morton
Chief
Western Environmental Geology Branch
U.S. Geological Survey
(Menlo Park)

Raymond A. Ergas
Geophysicist
Chevron Oil Field Research Company
(La Habra)

Joseph M. Straus
Space Science Laboratory
The Aerospace Corporation
(El Segundo)

William Buckovic
Union Energy Mining Division
(Casper)

Martin B. Goldhaber
Research Chemist
Office of Energy Resources
U.S. Gological Survey
(Denver)

Afternoon Panelists

These include the six morning speakers and the following four speakers:

Jay L. Smith
Consulting Engineering Geologist
(Long Beach)

Neil Stefanides
Vice President, Exploration
Union Geothermal Division
(Los Angeles)

Charles Morris
Geophysicist
Conservation Division
U.S. Geological Survey
(Los Angeles)

Merton Hill
Research Geologist (Paleontology)
Union Science and Technology Division
(Brea)

Evening Speaker

Arden L. Albee
Professor of Geology
Division of Geological and Planetary Sciences
and Chief Scientist
Jet Propulsion Laboratory
California Institue of Technology

"Opportunities and Challenges in Space Science"

THE PRECAMBRIAN PALEOBIOLOGY RESEARCH GROUP (PPRG)

In July, 1979, the PPRG, an interdisciplinary team of 22 geologists, biologists, and chemists, began carrying out research at UCLA dealing with Archean Earth history and the earliest records of life. The group was convened by J. William Schopf, Professor of Paleobiology, with the assistance of a grant which accompanied his prestigious Alan T. Waterman Award and a matching grant from NASA. The PPRG included the following:

Malcolm R. Walter	Bureau of Mineral Resources, Canberra, A.C.T., Australia
Udo Matzigkeit Manfred Schidlowski	Max-Planck-Institut für Chemie, Mainz, Federal Republic of Germany
Hans J. Hofmann	Université de Montréal, Quebec, Canada
David M. Raup	Field Museum of Natural HIstory, Chicago
Samuel Epstein	California Institute of Technology, Pasadena
James C.G. Walker	University of Michigan, Ann Arbor
Stanley L. Miller	University of California, San Diego
George Claypool	United States Geological Survey, Denver
Sherwood Chang David Des Marais	Ames Research Center, National Aeronautics and Space Administration
Howard Gest John M. Hayes Cornelis Klein Kim W. Wedeking	Indiana University, Bloomington
David J. Chapman Donald J. DePaolo W. Gary Ernst Issac R. Kaplan J. William Schopf David J. Stevenson Gary E. Strathearn	University of California, Los Angeles

The group made studies of the oldest known microfossils and stromatolites; the chemistry and isotopic composition of abiotic organic materials; the nature and distribution of Precambrian, carbonaceous, organic matter; and the geological and environmental evolution of the Archean-Proterozoic Earth.

At the conclusion of the project in August, 1980, the PPRG held a Symposium at UCLA for the purpose of presenting results of these and other studies to interested members of the scientific community. The program for the Symposium was as follows:

SUNDAY, August 10

7:00 p.m. *Champagne Reception:* Buenos Ayres Room, Sunset Canyon Recreation Center, UCLA

MONDAY, August 11

Scientific Papers: Room 2276 Young Hall

9:00 a.m. *J.W. SCHOPF:* Welcome, logistics, etc.

9:10 a.m. *W.G. ERNST:* The Early Earth and the Archean rock record

9:25 --discussion

9:40 a.m. *S. CHANG, D. DES MARAIS, R. MACK, S. MILLER AND G. STRATHEARN:* Prebiotic organic syntheses and the origin of life

10:10 --discussion

10:25 a.m. *J.M. HAYES and K.W. WEDEKING:* Organic geochemistry of Precambrian carbon

11:00 --discussion

11:15 a.m. *H. GEST:* The origins of photosynthetic energy conversion

11:35 --discussion

11:50 a.m. *M. SCHIDLOWSKI:* Isotopic inferences of ancient biochemistries

12:15 --discussion

12:30 p.m. LUNCHEON AND INFORMAL PRESENTATIONS (3rd Floor, Geology Bldg.)

2:30 p.m. *M.R. WALTER:* Archean stromatolites: the history of the Earth's earliest benthos

3:00 --discussion

3:15 p.m. *J.W. SCHOPF:* Archean microfossils: new evidence of ancient microbes

3:45 --discussion

4:00 p.m. INFORMAL PRESENTATIONS

7:30 p.m. *Symposium Banquet:* UCLA Faculty Center

P. CLOUD: Pre-Phanerozoic biogeology -- the Azoic revisited

TUESDAY, August 12

10:00 a.m. *D. DE PAOLO:* Isotopic evidence bearing on the evolution of the crust and hydrosphere

10:25 --discussion

10:40 a.m. *J.C.G. WALKER:* Environmental evolution of the Archean-Proterozoic Earth

11:05 --discussion

11:25 a.m. *D.J. CHAPMAN:* Biochemical effects of the advent of oxygenic conditions

11:45 --discussion

12 Noon LUNCHEON AND INFORMAL PRESENTATIONS

2:00 p.m. *H.J. HOFMANN:* Early Proterozoic microfossils

2:30 --discussion

2:45 p.m. *J.W. SCHOPF:* Major benchmarks in early biological evolution

3:15 --discussion

3:30 p.m. *K.A. KVENVOLDEN:* Progress and problems

4:00 p.m. INFORMAL PRESENTATIONS

* * * * * * * * * *

Funding in support of the symposium was provided by the UCLA Golden Year Program; by the UCLA Divisions of Physical Sciences and of Continuing Education; and by the Princeton University Press which in 1981 will be publishing a book summarizing results of the PPRG research program.

LECTURE SERIES FOR 1979-1980

DEPARTMENT OF EARTH AND SPACE SCIENCES

DR. JOHN LUPTON, Researcher, Scripps Institution of Oceanography, UCSD, La Jolla, California. "Helium Isotope Geochemistry: Applications to Ocean Circulation and Mantle Degassing." September 27

DR. DONALD S. BURNETT, Professor, Div. Geological & Planetary Sciences, Caltech, Pasadena, California. "Chemical Limitations to a Useful Meteoritic ^{244}Pu Chronology." October 4

DR. MALCOLM A. GRANT, Researcher, Dept. Scientific & Industrial Research, Wellington, New Zealand. "Physical Processes in Geothermal Regions." October 5

DR. GEORGE R. RAMSAYER, Research Specialist, Exxon Production Research Co., Houston, Texas. "Seismic Stratigraphy: A Fundamental Research Tool." October 11

DR. RICHARD H. JAHNS, Professor, Dept. Geology, Stanford University, Stanford, California. "Growth and Preservation of Gem Crystals in Southern Californian Pegmatites." October 18

DR. ROBERT G. DOUGLAS, Professor of Geology, Dept. Geological Sciences, U.S.C., Los Angeles, California. "Cenozoic Paleo-Oceanography: A History of Climatic and Oceanic Changes." October 25

MR. GARY K. JACOBS, Graduate Student, Department of Geosciences, Penn State University, University Park, Pennsylvania. "Decarbonation Equilibria: Experimental and Theoretical Considerations for the System $CaO-Al_2O_3-SiO_2-H_2O-CO_2$." November 1

MR. GREG MERKEL, Graduate Student, Department of Geosciences, Penn State University, University Park, Pennsylvania. "Calculation of Alkali Feldspar Phase Equilibria." November 14

DR. J. CASEY MOORE, Associate Professor, Earth Sciences Board, U.C. Santa Cruz, California. "Progressive Accretion and Imbricate Thrusting in the Middle America Trench: Results from Leg 66, D.S.D.P." November 29

DR. JOHN C. CROWELL, Professor of Geology, Department of Geological Sciences, University of California, Santa Barbara, California. "The Geological Record of Long-Term Climatic Change." January 10

DR. B. CHARLOTTE SCHREIBER, Associate Professor, Department of Earth & Environmental Sciences, Queens College (The City University of New York) and the Lamont-Doherty Geological Observatory of Columbia University, New York. "The Broad Topic of Evaporite Deposition." January 17

DR. A. EUGENE FRITSCHE, Professor, Department of Geoscience, California State University, Northridge, California, "Miocene Paleogeography of California, with Emphasis on Examples from the Central Transverse Ranges." January 24

DR. ELI A. SILVER, Professor of Earth Sciences, Earth Sciences Board, University of California, Sant Cruz, California. "Collision Events and Ophiolite Emplacement in Eastern Indonesia." January 31

JIM QUICK, Ph.D. candidate, Division of Geological & Planetary Sciences, Caltech, Pasadena, California. "Petrogenesis of the Trinity Peridotite, Klamath Mountains, California." February 7

DR. LEWIS H. COHEN, Professor of Geology, Lawrence Berkeley Laboratory, University of California, Berkeley, California. "Nuclear Waste Disposal." February 14

DR. STANLEY M. AWRAMIK, Assistant Professor of Geology, Department of Geological Sciences, University of California, Santa Barbara, California. "A Paleomicrobiological Look at Very Early Phanerozoic Blue-Green Algal Mat Communitites." February 21

DR. PAUL T. ROBINSON, Associate Professor of Geology, Department of Earth Sciences, Univeristy of California, Riverside, California. "Deep Crustal Drilling in Eastern Iceland." February 28

DR. BRUCE FEGLEY, JR., Massachusetts Institute of Technology. "Volatile Element Fractionations in the Early Solar System." February 13

DR. PHILIP ENGLAND, Research Geophysicist, Department of Geodesy and Geophysics, Cambridge University, England. "Age-Dependence of Continental Heat Flow." February 14

DR. WILLIAM I. NEWMAN, Member, Institute for Advanced Study, Princeton, New Jersey. "Infrared Limb Darkening and the Structure of Planetary Atmospheres." March 4

DR. D.H. TARLING, Professor of Geophysics & Planetary Physics, University of Newcastle-upon-Tyne, England. "Continental Drift and Hydrocarbon Reserves." March 5

DR. ALLAN V. COX, Professor of Geophysics, Department of Geophysics, Stanford University, California. "Microplates in the Cordillera." March 6

DR. MALCOLM R. WALTER, Bureau of Mineral Resources, Geology and Geophysics, Canberra, Australia; visiting UCLA, Precambrian Paleobiology Research Group. "Morphological Evidence of Early Life, or, Has Bill Schopf Been Telling You the Truth?" March 13

MR. William H. McKinnon, Ph.D. Candidate, Division Geological & Planetary Sciences, Caltech, Pasadena, California "Tectonophysic Analyses of Large Impact Craters and Basins: Formation of Slump Terraces, Central Peaks, and Multiple Rings." March 25

DR. PAUL M. DAVIS, Postdoctoral Scholar, Department of Earth & Space Sciences, UCLA. "Geophysical Studies of Active Volcanoes: Etna and Kilauea." April 2

DR. JOSEPH KIRSCHVINK, Research Associate, Department of Geological & Geophysical Sciences, Princeton University, New Jersey "Biologic Geomagnetism: Do the Birds and Bees Know It All?" April 3

DR. ROBERT McLAUGHLIN, U.S. Geological Survey, Menlo Park, California, "Age and Structural Character of Franciscan Terranes in Northern California." April 3

DR. JAMES R. O'NEIL, U.S. Geological Survey, Menlo Park, California, "Isotopic Systematics in Mesozoic Granitoid Rocks of Central California." April 10

DR. RICHARD W. HURST, Professor, Department of Geology, California State University, Los Angeles, California. "Petrogenetic Evolution of the Conejo Volcanic Suite: An Assessment of Plate Margin Interactions." April 17

DR. VICTORIA R. TODD, U.S. Geological Survey, Scripps Institution of Oceanography, UC San Diego, California. "Structural Geology of the Eastern Penisular Ranges." April 24

DR. LI-ZHI FANG, Professor of Astrophysics, Director of the Space Physics Laboratory, Chinese University of Science and Technology. "On the Modes of SS433." April 24

DR. LEO F. LaPORTE, Professor of Geology, Earth Sciences Board, University of California, Santa Cruz, California. "Paleoecology of Hominid-Bearing Sediments of East Lake Turkana, Northern Kenya." May 1

DR. FRANCOIS BOUDIER, U.S. Geological Survey, Menlo Park, California. "Plastic Flow in Peridotites and Quartzites as Exemplified by Emplacement of the Lanzo Massif (Alps) and Semail Ophiolite (Oman)." May 8

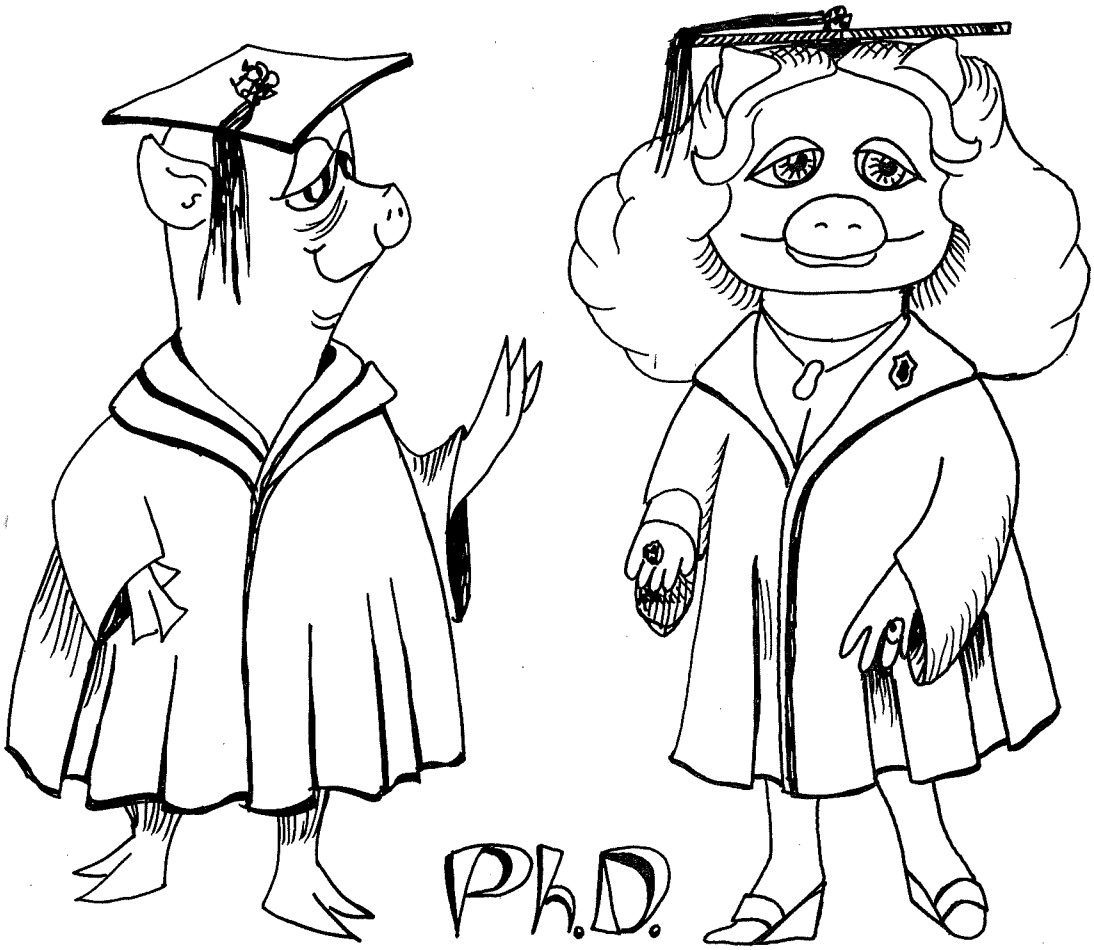
DR. WES HILDRETH, Geologist, U.S. Geological Survey, Menlo Park, California. "The 1912 Eruption in the Valley of Ten Thousand Smokes, Katmai, Alaska." May 8

DR. ALLEN B. THOMPSON, Visiting Professor from ETH--Zurich, Department Geological Sciences, Caltech, Pasadena, California. "Deep Rocks: 1500 Sq. Km. of Eclogite Facies Rocks from the Sesia Lanzo Zone of the Western Alps." May 15

DR. DONALD B. McINTYRE, Chairman, Department of Geology, Pomona College, Claremont, California. "Evolution of Plate Tectonic Theory." May 29

DR. IAN S. CARMICHAEL, Visiting Professor (UC Berkeley) Department of Earth and Space Sciences, UCLA. "On Igneous Petrology." June 5

PROFESSOR ROBERT C. NEWTON, Department Geophysical Sciences, University of Chicago, Illinois. "Charnockites and Crustal Evolution." June 13


Ph.D.

DEGREES AWARDED 1979 - 1980

DEPARTMENT OF EARTH AND SPACE SCIENCES

Doctor of Philosophy

Apted, Michael John

Rare Earth Element Partitioning Between Garnet and Andesitic Melt: Implications for the Genesis of Orogenic Andesites.
Professor Boettcher

Booth, Michael Cameron

Carbonate Formation on Mars.
Professor H. Kieffer

Clauer, Calvin Robert, Jr.

The Formation of the Extraterrestrial Partial Ring Current.
Professor McPherron

Croft, Steven Kent

Impact Craters from Centimeters to Megameters.
Professor Kaula

Cuong, Pham Giem

Thermal Convection and Magnetic Field Generation in Rotating Spherical Shells.
Professor Busse

Damassa, Sarah Pierce

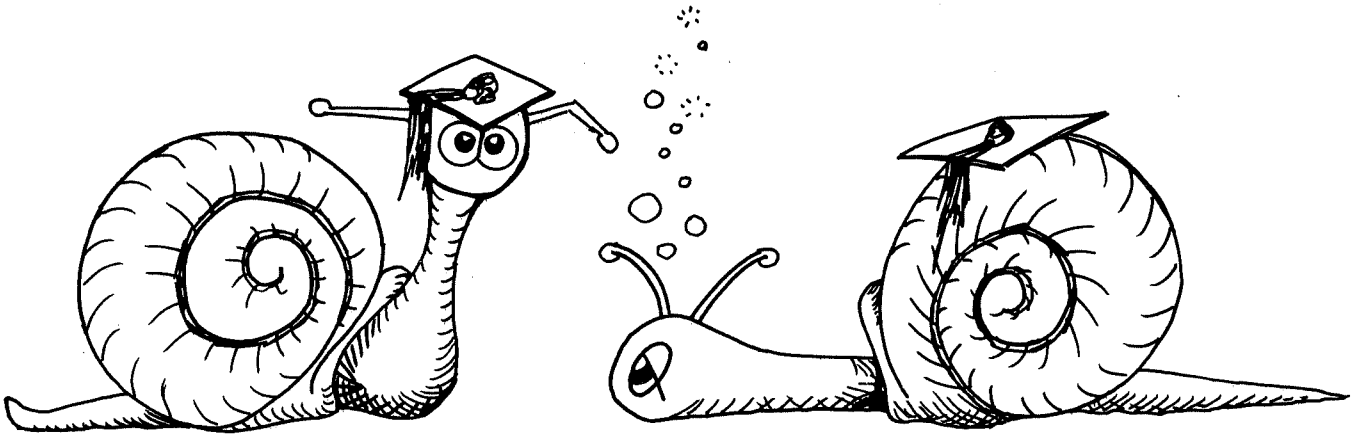
Early Tertiary Dinoflagellates from the Coastal Belt of the Franciscan Complex, Northern California,
Professor H. Loeblich

Finch, Christian Charles

Paleoecology and Stratigraphy of a Paleocene Foraminiferal Assemblage from the Simi Valley, Ventura County, California.
Professor H. Loeblich

Frishman, David

High- and Low-Temperature Mineral Assemblages in the Josephine Peridotite, Del Norte County, California: Implications for Mineral Geothermometers and Geobarometers Applied to Alpine-type Harzburgites.
Professor Watson



MASTERS OF SCIENCE

Heikes, Kenneth Eugene

An Experimental Study of Convection in a Rotating Layer.
Professor Busse

Juda, Peter John

Shock Induced Melting I. Experimental High Pressure Melting Temperatures for Tin, Zinc, and Pyrite and High Pressure Melting Laws II. Jetting for Low Velocity Oblique Impacts and the Formation of Silicate Melt.
Professor S. Kieffer

Liu, Kon-Kee

Geochemistry of Inorganic Nitrogen Compounds in Two Marine Environments; The Santa Barbara Basin and the Ocean off Peru.
Professor Kaplan

Singer, Howard Joseph

Magnetospheric Pulsations: Model and Observations of Standing Alfven Wave Resonances.
Professor Kivelson

Waychunas, Glenn Alfred

Mossbauer, X-ray, Optical and Chemical Study of Cation Arrangements and Defect Association in $Fm\bar{3}m$ Solid Solutions in the System Periclase-Wustite-Lithium Ferrite.
Professor Dollase

Master of Science
(Thesis Plan)

Bloeser, Bonnie

Structurally Complex Microfossils from Shales of the Late Precambrian Kwegunt Formation (Walcott Member, Chuar Group) of the Eastern Grand Canyon, Arizona.
Professor Schopf

Cameron, Jeri Lynn

The Lucky Five Pluton in the Southern California Batholith: a History of Emplacement and Solidification Under Stress.
Professor Oertel

Duncan, John Leslie, Jr.

Benthonic Foraminifera from the Mohnian (Upper Miocene) of Newport Bay, Orange County, California.
Professor H. Loeblich

Mankiewicz, Carol

Biogeochemistry of Recent Marine Sediments: Effects of the Epibenthic Holothurian Parastichopus parvimensis.

Professor Reed

Walsh, Timothy John

Texture-Wave Energy Relations and Mineralogy-Organic Carbon Relations in Intertidal Sediments within a closed system. San Miguel Island, California.

Professor Reed

Young, Jean T.

Pliocene-Pleistocene Foraminifera from Timms Point, San Pedro and Bathhouse Beach, Santa Barbara, California.

Professor H. Loeblich

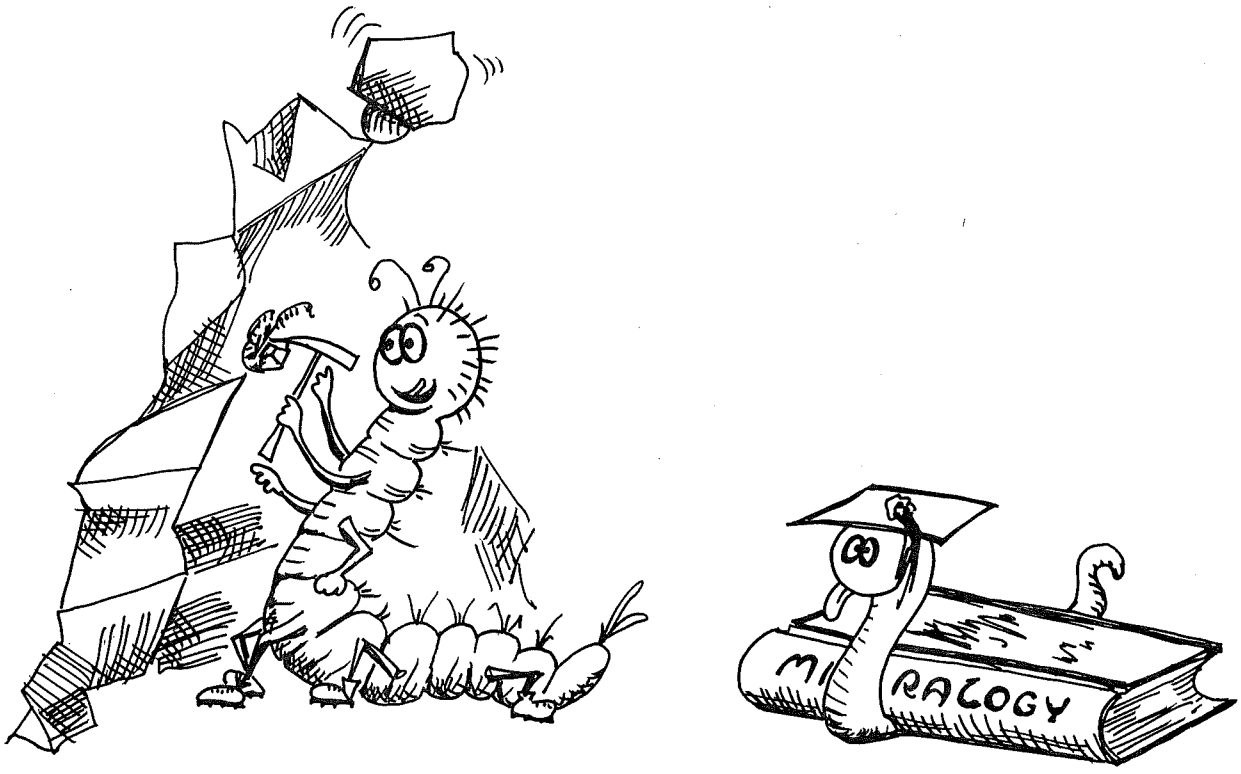
Yudovin, Susan Mary

Texture and Mineralogy of Heavy Mineral Enriched Beach Sand. Dockweiler State Beach, Southern California.

Professor Reed

Master of Science
(Comprehensive Examination Plan)

Hirt, William H.
Mullen, Patrick Richard
Myhrvold, Nathan Paul (Departmental Scholar)
Rydelek, Paul Anthony



BACHELOR OF SCIENCE

Bachelor of Science

Bargatze, Lee Frost
Bennett, Vickie Carol
Bhuta, Lila Mary
Brockman, Patricia Setsuko
Chu, Chirk Chi
Cullen, Karen Marie
Emch, Mark Andrew
Gerard, Matthew George
Goodman, Dean
Haddad, Robert Irwin
Heiserman, Judith Ann
Hollingsworth, Robert Alan
King, Jeffrey Robert
Klimberg, David Max
Lachmar, William Chris
Lacy, Kevin Vernon
Larson, Robert Alan
Mackowski, Mark Gregory
Maloney, Timothy Ryan
Milford, John Calverley
Parsons, Jeffrey Charles
Peterson, Russell Lee
Quinn, John Murray
Reinen, Elizabeth Helen
Savaso, Judith Ann
Slater, Dudley Richard
Tarnoff, Steven Ray
Tenpo, Alvin Shuji
Vertelney, Reed Philip
Watry, Stephen Matthew
Watterson, Brian Andrew
Zepeda, Ricardo L.
Zinner, Ronald Eric

TEACHING ASSISTANTS 1979-1980

Robert Anderhalt
Donna Anderson
Bruce Bilodeau
Patricia Breslin
William Carlson
Mark Cloos
Anita Crews
Leonard Ford
Allen Glazner
Erdem Idiz
Tim Ingwell
Carl Jacobson
Philip Koch
Frank Kyte
Michael McCurry
Carl Mendelson
Donald Musselwhite
Bruce Nelson
Paula Norris
Albert Nyberg
Alison Ord
Wayne Sawka
Gary Strathearn
Patricia Swain
Steven Swanson
Rachel Tabachnick
Wayne Zeck
Charles Zimmerman

Rubey Fellowship

Robert Luth

NSF Fellowships

Allen Glazner
Brian Marshall
Carl Mendelson
Sorena Sorensen

Shell Fellowships

Richard Hazen
Gary Strathearn
Patricia Swain
Rachel Tabachnick

University Grants

William Carlson
Mark Cloos
Evan Fishbein
Leonard Ford
Steven Fritts
Allen Glazner
Carl Jacobson
Peter Jenden
Philip Koch
Brian Marshall
Michael McCurry
Bruce Nelson
Paula Norris
Albert Nyberg
Alison Ord
Melissa Perkal
Salvatore Ragucci
Sorena Sorensen
Gary Strathearn
Charles Zimmerman

UNDERGRADUATE SCHOLARSHIPS 1979-1980

Getty Oil Company Scholarships

Dorothy Bame

Lee Bargatze

Summer Field Scholarships

Mark Feldman

Robert Hollingsworth

John Milford

Judy Savaso

Kathy Williams

ALUMNI

ALUMNI NEWS

GERALD J. ABRAMS (B.S., 1976) has completed a thesis on Geology and Ore Deposits of the Union District, Southern Shoshone Mountains, Nye County, Nevada for the M.S. at the University of Nevada, Reno.

HERB ADAMS (Ph.D., 1971) is a Professor at California State University, Northridge where he is involved with engineering geology and computer applications in earth sciences.

BENJAMIN AKPATI (M.S., 1966) who received his Ph.D. degree at the University of Pittsburgh, is now Professor and Chief Research Officer in the Nigerian Institute of Oceanography and Marine Resources, Lagos, Nigeria.

ROBERT ANDERHALT (M.S., 1976; Ph.D., soon) has been appointed an Assistant Professor in the Department of Geology at Bowling Green State University in Bowling Green, Ohio.

MICK APTED (Ph.D., 1980) is now a postdoctoral student at Stanford.

C.W. ARTHUR (Ph.D., 1976) was appointed a CIRES scholar working with NOAA in Boulder, Colorado. She has become a stunt pilot. Carlene is now a Research Assistant with Microcomputer Sales Co. at Huntsville, Alabama.

J.N. BARFIELD (Ph.D., 1972) left his position with NOAA in Boulder, Colorado to establish a company making filmstrips of scientific subjects.

JAMES M. BARKER (B.S., 1969) recently published a paper in Economic Geology on borate deposits in Sonora, Mexico.

TED L. BEAR (B.A., 1940) has become a trustee of the UCLA Foundation. In 1979 he received the University Service Award from the UCLA Alumni Association.

STANLEY S. BEUS (Ph.D., 1963) is Professor of Geology at Northern Arizona University, Flagstaff. He recently retired as co-editor of the Journal of Paleontology after six years of editing for the Society of Economic Paleontologists and Mineralogists. In 1979, he edited a guidebook on "Carboniferous Stratigraphy of the Grand Canyon Country".

HARVEY BLATT (Ph.D., 1963) is Professor of Geology, School of Geology and Geophysics, University of Oklahoma, Norman. The second edition of his book - Origin of Sedimentary Rocks - appeared in November, 1979 and he is completing Introduction to Sedimentary Petrology and Petrology: Igneous, Sedimentary, and Metamorphic. The latter will be an undergraduate text, co-authored by Professor E.G. Ehlers of Ohio State University. His daughters are now attending University of California - one at Berkeley, one at Santa Cruz, and one at San Diego. He notes that there is an "increasingly decreasing" number of his old teachers remaining at UCLA.

CHARLES W. BLOUNT (Ph.D., 1965) is Associate Professor and Chairman, Department of Geology, Idaho State University, Pocatello. He is doing research for the Department of Energy with Leigh Price of the USGS. The studies include: solubility of methane in saline waters and formation waters; maturation of petroleum; solubility of petroleum in methane. The focus of their research is the geopressured geothermal waters in deep test wells of the Louisiana-Texas Gulf Coast. He writes that "Pocatello is at the margin of the Snake River Plain and the mountains of the Eastern Idaho Basin and Range. Besides fascinating and complex geology, it is a wonderland with deep snow in the winter. I helped found the Pocatello Nordic Skiing Association and have been its past president".

ROBERT M. BRUMBAUGH (B.A., 1956) is a Systems Engineer with Ocean Minerals Company of Lockheed Missiles and Space Company, Mountain View, California. He transferred into Ocean Systems in 1978 and he has gone to sea on the Glomar Explorer to check out the mining system designed to recover Ni-Cu-Co-bearing manganese nodules from about 15,000 feet depth in the mid-Pacific. He has completed 30 units in Electrical Engineering at UCLA and San Jose State University. His daughter entered UCLA as a freshman in fall 1979.

M.N. CAAN (Ph.D., 1978) has left the field of Space Physics to form a company specializing in child safety products.

JERI LYNN CAMERON (M.S., 1980) has moved to Dallas, Texas to become an exploration geologist in the Frontier Division of ARCO. This is a new division which is actively searching for petroleum reserves in areas not previously explored intensively by ARCO (e.g. in New Mexico, Arizona, west Texas).

DWIGHT L. CAREY (M.S., 1976) is Manager, Environmental Affairs for Republic Geothermal, Inc., Santa Fe Springs, California. He is completing the final report required for the doctoral degree in Environmental Science and Engineering at UCLA. Dwight was married last year.

C.R. CARRIGAN (Ph.D., 1977) returned from Cambridge, England after two and one half years of postdoctoral studies and worked at UCLA on convection experiments in Professor Busse's laboratory. In July he moved to Albuquerque, New Mexico to work at Sandia Corporation.

MARK CINQUE (B.S., 1976) completed the M.S. degree at University of Nevada, Reno in 1979 and has been working as an exploration geologist for Pathfinder Mines - a subsidiary of General Electric.

ROBERT L. COUNTRYMAN (M.S., 1977) is working for Gulf Minerals Co. in Bakersfield, California.

CYRUS CREASEY (B.A., 1938; M.A., 1941; Ph.D., 1949) of the USGS, Menlo Park, California is Vice-President of the Society of Economic Geologists.

S.C. CROFT (Ph.D. 1979) is now a postdoctoral student at the Lunar and Planetology Institute, Houston, Texas

SARAH P. DAMASSA (Ph.D., 1979) is now a consultant in palynology in Winchester, Massachusetts. She has done studies for the USGS recently.

FRANK DENISON (B.S., 1973) is a geologist with Kovacs-Byer and Associates of Studio City, California. He now has California registration both as a geologist and engineering geologist. He is collecting photographs documenting geologic hazards in the Santa Monica Mountains related to the winter storms of 1978 and 1980.

JOHN DUNCAN (M.S., 1979) is now employed by Gulf Research and Development Co. in Houston, Texas.

JAMES J. EIDEL (M.A., 1963) is Exploration Manager (Eastern North America) for Hanna Mining Co. He is serving as Chairman of the Research Committee, Society of Economic Geologists; a member of the Continental Scientific Drilling Committee (NRC/NSF); and Secretary of the Land Committee of the Missouri Mining Industry Council. He presented a report on "The SEG Research Questionnaire - Your Opportunity to Increase Exploration Efficiency" at an AIME meeting in Las Vegas and is now organizing The Cameron Symposium on Unconventional Mineral Resources for an AIME meeting to be held in Dallas in 1982.

RAY ERGAS (Ph.D., soon) is, according to Dave Jackson, "monopolizing the computer at Chevron Oil Field Research Co. in La Habra, California with runs of up to 100 hours. One lengthy run involved transposing a matrix. Why so long? It was a big matrix - 75 tapes worth of data."

CARL A. EVANS (B.S., 1969) is Exploration Manager for Aminoil Inc. of Huntington Beach, California. Previously he had been a geologist for Texaco (1969-79) and for Getty Oil International (1979-80), both in Los Angeles. He writes that he is trying to remain in the oil industry without moving to Houston.

FRANK A. EXUM (B.A., 1956; M.A., 1957) is Area Exploration Supervisor, Marathon Oil Co., Casper, Wyoming. He is First Vice-President of the Wyoming Geological Association.

ED FALL (B.S., 1976) is an Engineering Geologist for Geotechnical Consultants, Inc., Burbank, California.

SCOTT B. FENTON (B.S., 1976) is a geologist with Phillips Petroleum Co., Eastern Region, in Houston, Texas. In 1980 he received the M.S. degree at San Diego State University with a thesis - "Geology of the Bonanza King Formation (Cambrian) at the Desert Range, Clark County, Nevada" - a study of the stratigraphy, paleontology, and environment of deposition.

ALFRED P. FERNANDEZ (B.A., 1957; M.A., 1959) is Dean of Instruction at Ventura College, Ventura California.

CHRISTIAN FINCH (Ph.D., 1980) is employed by The Texas Company in Houston.

DAVID FRISHMAN (Ph.D., 1980) resigned from his position with Pathfinder Mines Corporation, where he had been employed for the past two years, to accept a position with the U.S. Geological Survey Uranium-Thorium Branch in Golden, Colorado. Dave's work with the USGS will be primarily to assess the uranium potential of the Upper Peninsula of Michigan.

ROGER F. GANS (Ph.D., 1969) is Associate Professor of Mech. & Aero Sciences, University of Rochester, New York. Roger is conducting research in physical/dynamical properties of liquid-liquid and liquid-gas interfaces. He visited California in April, 1980 to speak at JPL and was a guest investigator in the geophysical fluid dynamics program at Woods Hole during the summer of 1980.

MICHAEL O. GARCIA (Ph.D., 1976) is an Assistant Professor in the Geology and Geophysics Department, University of Hawaii, Honolulu. Mike's research projects include a study of the petrology of Mauna Kea Volcano, Hawaii (NSF funded); volatiles in volcanic rocks (NSF funded); origin of linear island chains (Hawaiian Emperor Line) (funded by Office of Naval Research). He is on the Editorial Board of the Journal of Volcanology and Geothermal Research and is Co-editor of the Gordon A. Macdonald Special Volume, Bulletin Volcanologique. Mike writes "Why aren't more former students making donations?"

M. CHARLES GILBERT (Ph.D., 1965) is a Professor in the Department of Geological Sciences, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. He continues to serve as Secretary of the Mineralogical Society of America and according to Gary Ernst, he is running the organization with a male fish (editor - I think Gary meant "mailed fist").

HARRY W. GREEN (A.B., 1963; M.S. 1967; Ph.D., 1968) is a professor in the Department of Geology and Geophysics at University of California, Davis. He participated in a Penrose conference on pressure solution in May, 1980. Harry has published recently on non-hydrostatic thermodynamics; trace elements in the fluid phase of the mantle; and ultrastructure of fusulinid tests (with Professor Jere Lipps, Ph.D., UCLA, 1966).

DAVID GROSS (B.A., 1953; M.A., 1957) resides in Walnut Creek, California.

DONALD W. HAGEN (B.A., 1953; M.A., 1957) is a Special Projects Geologist, Texaco Canada Resources Ltd. He continues to generate oil and gas plays in Alberta and British Columbia.

ALLEN W. HATHEWAY (A.B., 1961) is Vice President and Chief Geologist, Haley and Aldrich, Inc., Cambridge, Massachusetts. He received a Ph.D. in Geological Engineering at the University of Arizona in 1971. He is the 1980 Chairman of the Engineering Geology Division, G.S.A.; member of organizing NAS sub-committee on U.S. National Committee for Engineering Geology; 1980 graduate, U.S. Army War College, Carlisle Barracks, Pennsylvania; Lt. Col. Corps of Engineers, U.S. Army Reserve; and Adjunct Associate Professor of Geology, Boston University. Allen is now serving as Co-editor of Engineering Geology Review, GSA, on Geology in the Siting of Nuclear Power Plants and as Editor of Association of Engineering Geologists Bulletin Series - Geology of the Cities of the World. Allen spent several months in 1979 making volcanic hazards and seismic risk studies of the region about the volcano Cotopaxi (the World's highest active volcano) in the central Equadorian Andes in cooperation with Professor Minard Hall of Escuela Politechnia, Quito. He also worked in Singapore mapping geology for one dam and two reservoirs and evaluating seismic risks. He comments "For a university department that largely eschews involvement in applied geology, you have produced a significant proportion of alumni who have become well established in these fields."

HUGH C. HEARD (Ph.D., 1962) is Group Leader, Experimental Rock Mechanics, Lawrence Livermore National Laboratory, California.

JAMES R. HERRING (B.S., 1968) is a geochemist with the USGS in Denver, Colorado. He received his Ph.D. from Scripps Institution of Oceanography in 1977. Jim is active in several research fields of geochemistry. His most recent fascination is the geochemistry of naturally burning coal-products evolved and alterations produced, especially in clinker, the baked rock that overlies the burning coal. Jim also notes that even though his specialty is low-temperature and aqueous geochemistry his new interests are taking him into low P-high T fields, i.e. one atmosphere and up to 1700° C. This makes him wish that he had listened just a bit harder when Gary Ernst lectured about such low P-high T minerals as cordierite (indialite) and mullite. These minerals and others are the very ones that occur in the highly baked clinker.

NURIT HILDEBRAND-MITTLEFELDT (Ph.D., 1978) is employed by the Nature Reserve Authority, Tel-Aviv, Israel. She published the second and last part of her thesis.

MERTON E. HILL, III (Ph.D., 1975) is a Research Geologist (Paleontology) at the Union Science and Technology Division, Brea, California. He was a panelist at the Sixth UCLA Earth and Space Sciences Careers Day held in November 1979.

BILL HOLMAN (Ph.D., 1976) was with the Conservation Division of the USGS but now works for the Department of Energy's Geothermal Loan Guarantee Office in Oakland, California.

KENNETH J. HSU (Ph.D., 1954) of the Geologisches Institut, ETH, Zurich, Switzerland has been appointed an Honorary Fellow of the Geological Society of America.

CHARLES W. JENNINGS (B.A., 1950; M.A., 1951) is Senior Geologist, California Division of Mines and Geology, San Francisco. He is now Manager of the new Regional Geologic Maps of California program. He is the supervisor and principal author of the 1:250,000 scale California Geologic Atlas, the 1:750,000 scale Fault Map of California (1975), and the 1:750,000 scale Geologic Map of California (1977).

STAN KAYE (Ph.D., 1979) was with Lockheed Research Laboratories in Palo Alto, California, where he was analyzing data from the SCATHA satellite. He is now a research scientist in the Plasma Physics Laboratory of Princeton University, Princeton, New Jersey.

PHIL KERN (Ph.D., 1968) is Professor of Geology at San Diego State University.

T.K. KRISHNAN (Ph.D., 1976) recently resigned from his position with the Iron Ore Company of Canada in Schefferville, Quebec and accepted an academic position at the Alberta Institute of Technology in Edmonton, Alberta. There T.K. will teach Structural Geology, Economic Geology, and Mining.

DALE S. KUNITOMI (B.S., 1967) is an exploration geologist, Pauley Petroleum Inc. (the Pauley Pavilion benefactor), Los Angeles.

DONALD H. KUPFER (B.A., 1942) is Professor of Structural Geology, Lousiana State University, Baton Rouge. He planned to retire in December, 1980. He is engaged as a consultant on internal structure of salt domes and their use for storage of petroleum, radioactive waste, etc.

EDWIN L. LARSON (B.A., 1953; M.A., 1957) and Ph.D., University of Colorado, 1960, is a Professor of Geology, University of Colorado, Boulder. His research specialization at present is rock magnetism.

P. TIM LATIOLAIT (B.S., 1975) is an Engineering Geologist with Geotechnical Consultants, Inc., Santa Ana, California. He recently left his position as engineering geologist with Geolabs - Westlake Village after three and one half years. Tim's work involves geotechnical investigations for residential hillside development and public works.

H.J. LEVIN (B.A., 1955) is an optometrist, practicing in the San Fernando Valley, California.

BETH LINCOLN (Ph.D., soon) and TIM LINCOLN (Ph.D., 1978) now hold a shared academic position at the University of Wisconsin, Superior, Wisconsin. They have two young children - Sam and Mike.

KENNETH H. LISTER (B.S., 1967; M.S., 1970) received a Ph.D. degree at University of Kansas in 1974. He is now a geologist with Pennzoil in Houston, Texas and is engaged in petroleum exploration in southern Louisiana.

JIM MANISKAS (B.S., 1952) oversees foundation engineering geology for LeRoy Crandell and Associates, Los Angeles. He is an avid mineral collector. Jim was one of a group invited to the Peoples Republic of China for the purpose of observing engineering geology practices there.

CAROL MANKIEWICZ (B.S., 1975; M.S., 1980) is a geologist with the USGS in Los Angeles. Her current work is evaluating the Pacific Outer Continental Shelf oil and gas reserves.

DAVID MANKIEWICZ (B.S., 1971) received the M.S. degree at University of Wyoming, Laramie, in 1974 and is completing a Ph.D. program there. He is a Senior Geologist with Amoco in Denver, Colorado.

PAUL MANKIEWICZ (B.S., 1971: M.S., 1975) is completing his Ph.D. program. He is Coordinator of Environmental Chemical Studies at Science Applications, Inc., La Jolla, California.

PETER MARSH (B.A., 1958) is a mining and geological consultant in Pocatello, Idaho. He was District Mining Engineer for the USGS Conservation Division in Idaho in 1975-76. Much of his recent work has been with Guatemalan mining companies, in the course of which he has sponsored one Ph.D. and two M.S. theses on ophiolites in Central America. He has converted Central America's only copper mine to an open pit operation and has served as Vice-President of the Guatemalan Geologic Society. He is a member of GSA, AIME, AAPG, APGS, AISE, and SEPM. Peter is interested in hearing from other alumni.

ROBERT F. MARTIN, JR. (B.A., 1958) is an independent insurance broker residing in Westlake Village, California. He has the Chartered Life Underwriter designation (CLU) from Bryn Mawr, Pennsylvania and is a Lifetime Member of the Million Dollar Round Table.

CONRAD J. McCARTHY (B.S., 1975, Applied Geophysics) completed his Ph.D. at the University of Washington in March, 1980. He is now a Research Engineer at the Bellaire Research Center of Shell Development Company in Houston, Texas. At Shell his current project title is "Production Geophysics".

MARY McNEIL (M.S., 1963) has recently published a book - "Brazil's Uranium/ Thorium Deposits" (Miller Freeman Publications Inc., San Francisco).

CALVIN MILLER AND MOLLY MILLER (Ph.D.s, 1977) are Assistant Professors of Geology at Vanderbilt University, Nashville, Tennessee. Molly is investigating controls of trace fossil distribution; she is studying shallow water traces in New York and also depositional environments of coal-bearing rocks and the Chattanooga Shale in Tennessee. She has published on the paleoenvironmental distribution of trace fossils and in 1980, was elected Vice-Chairman of the Trace Fossil Research Group of the Society of Economic Paleontologists and Mineralogists. Calvin is studying the mineralogy, geochemistry, structural and metamorphic setting, origin, and significance of peraluminous granites. His investigation includes field work in the Old Woman Mountains, California and the Blue Ridge, North Carolina (the latter with Skip Stoddard). He has published on the origin of monzonites and on the mineralogy and distribution of peraluminous granites. Their newest addition - Zachary Fritz Miller, born 4/10/80 - joins his sister Spring, born 4/24/78.

DAVE MILLER (Ph.D., 1978) is with the Western Environmental Geology Branch of the USGS, Menlo Park, California. He is presently studying the Mesozoic tectonics of northwestern Utah and the Mesozoic tectonics and plutonic history of the eastern Mojave Desert. He has also been involved in several short projects including mapping the trace of the Imperial Fault following the 1979 earthquake. Dave was co-organizer of the USGS conference on the tectonics of the Mojave and Sonoran Deserts held in November, 1980.

RICK MILLER (Ph.D., 1975) is Professor of Geology at San Diego State Univeristy.

DAVID MITTLEFELDT (Ph.D., 1978) is at Univeristy of the Negev, Israel.

GORDON J. MOIR (Ph.D., 1974) is a Research Specialist, Exxon Production Research Co., Houston, Texas. He has accepted an assignment to work on a heavy-oil exploration project in Colombia, South America and will relocate in Bogota (c/o International Petroleum Colombia Ltd.) for 12-18 months beginning January, 1981.

JOHNNIE N. MOORE (M.S., 1973; Ph.D., 1976) is in the Department of Geology, University of Montana, Missoula, Montana. He is continuing his research on depositional environments of Precambrian rocks in California and Nevada and has started an investigation, supported by the Environmental Protection Agency, of sedimentation in Flathead Lake, Montana. He is also studying the origin of the copper and silver in the Precambrian carbonates of the Belt Supergroup. Johnnie is a member of the AAPG Stratigraphic Correlation Committee of North America - Montana Fold Belt. He has published on correlations between Paleozoic meta-sedimentary rocks in the east-central Sierra Nevada and Great Basin formations and on the effects of changing water levels on a lacustrine delta complex, Flathead Lake, Montana.

MARCIA NELSON (B.S., 1976) was promoted to the position of Science Sequence Coordinator for the Voyager Project at the Jet Propulsion Laboratory in December 1979. She participated in developing all of the science sequences executed by the Voyager spacecraft in the encounter with Saturn. In particular, she planned the Titan encounter. Marcia writes - "After this job, I'm returning to school to do graduate work."

WARREN J. NOKLEBERG (B.A., 1961) is with the Branch of Alaskan Geology, USGS, Menlo Park, California. He is continuing work in the western Brooks Range and eastern Alaska Range, Alaska and is starting a new project in Kings River area, central Sierra Nevada, California. Warren has published USGS Professional Papers and an article in Economic Geology on Paleozoic and Mesozoic deformations, Central Sierra Nevada, California; stratigraphy and structure of the Strawberry Mine roof pendant, Central Sierra Nevada, California; stratiform zinc-lead deposits in the Drenchwater Creek area, northwestern Brooks Range, Alaska; and geology, petrology, and geochemistry of zoned tungsten bearing skarns, Strawberry Mine roof pendant, Central Sierra Nevada, California.

JIM NORMAN (B.S., 1974) is now Manager, Exploration Department of American Borate Company and is based in Las Vegas, Nevada. He is currently working on geostatistics with Stanford, bringing the Billie colemanite-probertite ore body in Death Valley into full production, and doing hydrology studies in the Amargosa Valley. Jim has just finished a paper on the Billie Mine for the South Coast Geological Society's fall field trip.

JEROME J. O'BRIEN (B.A., 1932) moved recently from Westwood in Los Angeles to San Antonio, Texas. He has a degree in Petroleum Engineering from University of Southern California. At present he is Chairman of the Board of McFarland Energy Inc. and President of Colonial Production Co. He is a member of AAPG, AIPG, Society of Petroleum Evaluation Engineers, Texas Independent Producers and Royalty Owners (Past President and Director), California Independent Producers Association (Past President and Director), and Western Oil and Gas Association (Director). He received the 1980 Man of the Year Award of the Texas Independent Producers Association.

A. THOMAS OVENSHINE (Ph. D., 1965) has recently been promoted from Chief, Branch of Alaskan Geology to Chief, Office of Mineral Resources, USGS, Reston, Virginia. Tom is one of the UCLA group that joined the Survey after finishing in the mid-60's who are now occupying administrative posts of considerable responsibility. These include:

DOUGLAS M. MORTON (Ph.D., 1966) - successively Chief, Branch of Western Environmental Geology and Chief, Office of Environmental Geology, Reston, Virginia.

WILLIAM V. SLITER (B.A., 1958; Ph.D., 1966) - Chief, Branch of Paleontology and Stratigraphy, Washington, D.C.

JOSEPH I. ZIONY (B.A., 1956; M.A., 1959; Ph.D., 1966) - Regional Geologist, Western Region, in the Office of the Chief Geologist, Menlo Park, California.

LEONARD A. PALMER (Ph.D., 1967) is a Professor in the Department of Earth Sciences at Portland State University, Portland, Oregon. He is studying the eruptions of Mt. St. Helens and in the course of his investigation, descended into its crater.

RONALD L. PARSLEY (B.A., 1960) received his M.S. degree in 1963 and his Ph.D. degree in 1967 from the University of Cincinnati. He is now Professor of Geology at Tulane University in New Orleans, Louisiana. He has published on Pleurocystitids, Paracrinoids, and various other "cystoid" groups and also on the surface features of Mars (Mariner 6 and 7). Since 1975, he has been a river pilot, two or three times a summer, on the Colorado River from Lee's Ferry, Arizona to Lake Mead.

ROBERT H. PASCHALL (B.A., 1938) "retired" two years ago from his employment with the State of California and is now a consultant in the valuation of oil, gas, and mining properties. As a consultant, he has worked in eight states and the District of Columbia for private and governmental clients. Bob received a $1000 cash award from the American Society of Appraisers for his article on "Valuation of Mineral Producing Properties".

PAUL PATCHICK (B.A., 1953) is with Batelle in Columbus, Ohio where he is Project Manager of a program involving disposal of nuclear waste in salt mines. Those who have seen Pat's magnificent mineral collection will think it appropriate that one of his sons is named "Dana".

KENNETH E. PETERS (Ph.D., 1978, Geochemistry) is a Research Geochemist with Chevron Oil Field Research Co., La Habra, California. His research includes: pyrolysis of organic matter, stable isotopes of carbon and hydrogen during thermal maturation of organic matter, vitrinite reflectance, oil: oil and oil: source rock correlations. He published recently, with B. Rohrback and I.R. Kaplan, in Advances in Organic Geochemistry, 1979 on "Laboratory-simulated thermal maturation of sapropelic and humic sediments - proto-kerogen. Ken was married in August 1980 to Vanessa E. Browne and honeymooned in Hawaii.

JOE POLOVINA (M.S., soon) is employed as a geologist with the U.S. Treasury Department (Internal Revenue Service) in Los Angeles.

B.J. PRESLEY (Ph.D., 1969) is Associate Professor of Oceanography, Texas Agricultural and Mechanical University, College Station, Texas. He is working on trace metal behavior during river transport to the ocean and during early diagenesis of sediments. He is also studying the geology and chemistry of the Orca basin, an unique anoxic hypersaline basin which he discovered in the Gulf of Mexico. He has published in Geochemica Acta; Water, Air, and Soil Pollution; Geophysical Research Letters; and in the book - Biochemistry of Estuaries (John Wiley and Sons).

DICK PROCTOR (M.A., 1958) is President of the Association of Engineering Geologists.

BURLEIGH J. PUTNAM (B.S., 1968; M.S., 1974) is Assistant Professor in the Department of Aerospace Studies, Loyola Marymount University, Los Angeles. Burleigh is a Captain in the U.S. Air Force and is serving at present as an instructor in the Air Force ROTC at Loyola Marymount. He arrived at LMU in August after serving three years in Germany (1975-78) and a year in Korea (1978-79). He completed an M.S. program in Human Resource Management (similar to an MBA) from the University of Utah in 1979.

MICHAEL RABINOWITZ (Ph.D., 1974, Geochemistry) is an Associate in Psychiatry at Harvard Medical School, Boston and a Staff Scientist at Children's Hospital Medical Center. He is conducting research on behavioral and developmental disorders associated with low-level lead exposure in children and on other health related trace-metal topics. Mike has published recently in Metabolism on "Chromium status of normal and diabetic men" and in the American Journal of Clinical Nutrition on "Effects of food and fasting on lead absorption". He writes that he is enjoying New England.

RICK REDFERN (M.S., 1977) has joined Homestake Mining Company. He is based in Lead doing exploration in the southern Black Hills, South Dakota. He writes that he has a nice old house in beautiful country.

JOE RITCHEY (B.A., 1965; M.S., 1968) completed his Ph.D. in volcanology at the University of Oregon. He is now a geologist with the U.S. Bureau of Mines, Western Field Operations Center in Spokane, Washington.

JOHN RUNDLE (Ph.D., 1976) is performing miracles at Sandia Corporation in Albuquerque, New Mexico, according to Dave Jackson. "One such miracle is to continue output of basic research in an applied research environment."

EDWARD L. RUSSELL (A.B., 1943) retired in 1979 from the Economic Department of Standard Oil Company of California in San Francisco.

MARK SANDSTROM (M.S., 1977, Geochemistry) is now working toward a Ph.D. degree in the Research School of Earth Sciences, Australian National University, Canberra, Australia. He is investigating the organic geochemistry of phosphorites.

RAND SCHALL (M.S., 1976) is a Scientist with Lockheed at NASA Johnson Space Center, Houston, Texas. Rand is Co-investigator on a NASA research grant for experimental shock metamorphism, 1978, '79, '80 and served as Associate Editor of the Proceedings of the Lunar and Planetary Science Conference (Pergamon Press) 1978, '79, '80. His most notable recent papers, among 26 papers and abstracts, deal with shock metamorphism of lunar and terrestrial basalts, shock metamorphism of granulated lunar basalt, and experimental shock metamorphism of lunar soil. Rand writes that he is a student pilot and still a competitive swimmer (Class "A" in AAU).

ROBERTA SCORE (B.S., 1978) is a Research Assistant at the Lunar Curatorial Laboratory at the Johnson Space Center, Houston, Texas. She has worked in the Antarctic Meteorite Lab doing curatorial work and independent research.

RON SHMERLING (M.S., 1975) is Principal Geologist for Geolabs - Westlake Village, California.

HOWARD SINGER (Ph.D., 1980) has an appointment at Boston University and Air Force Geophysical Laboratory and continues to work on magnetic pulsations.

KENNETH O. STANLEY (M.A., 1966) is an Associate Professor in the Department of Mineralogy and Petrology, Ohio State University. He has been elected an officer for the North-Central Section of the Geological Society of America.

ROBERT S. TUCKER (B.S., 1978) graduated with the M.S. degree in Geology from San Diego State University in 1980 and is now employed as a geologist with Amoco Production Company, Denver Region, Northern Division.

ROLAND VON HUENE (B.A., 1953; Ph.D., 1960) is with the USGS in Menlo Park, California. He published recently on the Deep Sea Drilling Project Mid-America Trench transect off Guatemala.

TIM WALSH (B.S., 1975) is with the Coal Branch of the Washington Department of Natural Resources, Olympia, Washington.

ED WARNER (M.S., 1971) is Rocky Mountain Exploration Manager, Energetics, Inc., Englewood, Colorado. He writes that, as Exploration Manager, his position is "more business than geology but you can be sure that under the money-oriented exterior burns a hard-rock heart and an ever present love of geology." Ed and Joyce have two children, Michael, one year old and Erin, four. Ed spent a week in May floating down the San Juan River from Bluff to Lake Powell. He visited many Indian ruins, the Mule Ear kimberlite diatreme, and some Pennsylvanian algal mounds.

PAUL WARREN (Ph.D., 1979) has been a postdoctoral student since December 1979 at the Institute of Meteoritics, University of New Mexico, Albuquerque.

GLENN WAYCHUNAS (Ph.D., 1980) who is working as a Research Associate at Stanford, completed his thesis and, according to his research supervisor - Professor Dollase - "turned it in along with a lemon custard pie. The pie was easier to digest than the 456 page thesis."

G.D. WEBSTER (Ph.D., 1966) is Professor of Geology at Washington State University, Pullman, Washington. He is continuing research on crinoids and late Paleozoic conodonts. He is also mapping and doing sedimentologic studies on late Cenozoic sediments in southeastern Washington.

BYRON G. WEISSBERG (Ph.D. 1964) is with the Chemistry Division, D.S.I.R., New Zealand. Recently, a new mineral--a thallium antimony sulphide-- was discovered in the Carlin gold deposit, Nevada, by Frank W. Dickson, Ph.D., 1956, who until last year was Professor of Geochemistry, Department of Geology, Stanford University. This was named weissbergite in recognition of Byron Weissberg's contributions to the geochemistry of epithermal hydrothermal processes. During the last few years, Frank Dickson and his colleagues have discovered several new or rare thallium-bearing minerals in the Carlin deposit. A new mineral also found there--a barium fluoride analagous to fluorite--has been named frankdicksonite in recognition of his contributions in the fields of geology and geochemistry of low-temperature ore deposits.

PAUL WEISSMAN (Ph.D., 1978) is a member of the Technical Staff, Jet Propulsion Laboratory, Pasadena, California. He is involved with research on the dynamics of comets and, in collaboration with Hugh Kieffer, thermal modelling of comets. Paul is Science Coordinator for the NIMS experiment on the Galileo Project. He writes that Bill Smythe (Ph.D., 1979) is working with him on the Galileo Project and that other ESS graduates at JPL include Greg Vane, Dave Thompson, Mike Kobrick, Gary Ransford, and Larry Pleskot.

JEAN T. YOUNG (M.S., 1979) now works for ARCO in Houston, Texas (after trips to Dallas for a month-long course in reservoir engineering, mud logging, and electric well logging; a field trip to Utah; and a trip to Midland, Texas to study carbonate sediments).

DAVE YUEN (Ph.D., 1978) is Assistant Professor of Geology at Arizona State University, Tempe, Arizona. He recently moved from the University of Toronto where he was a NATO Postdoctoral Fellow. His current research centers around mantle rheology and the responses of the earth to anelasticity. Dave continues to collaborate with Professor Schubert on problems in tectonophysics.

NEW FACULTY

PAUL M. DAVIS, Ph.D., University of Queensland, Rubey Assistant Professor of Geophysics

Paul, who was a Postdoctoral Scholar in the Department of Earth and Space Sciences, UCLA, joined the Faculty in July, 1980. Paul's research interests are in the application of geophysical techniques to understand fundamental processes in tectonics. This has included: studies of magmatism at Kilauea, Mt. Etna and Mt. St. Helens; the stresses and strains associated with eruptions; the method of magma ascent and magma storage as determined from seismology; and studies of stress on the San Andreas Fault by measuring the changes in the Earth's magnetic field due to piezomagnetic changes in the crust.

His present teaching interests are in applied exploration geophysics with emphasis in seismology. To date he has conducted field trips for his students to two mines to search for undiscovered extensions of the mineralized zones using geophysical methods.

WILLIAM I. NEWMAN, Ph.D., Cornell University, Rubey Assistant Professor of Planetary Physics

Bill, who also joined the department in July, 1980, came from the Institute for Advanced Study, Princeton, New Jersey. In continuing collaboration with Carl Sagan of Cornell University, he is analyzing data from the Voyager spacecraft in order to understand better the structure, dynamics and composition of the atmospheres of Jupiter and Saturn. Together with Leon Knopoff, Bill is modelling the dynamic fusion of cracks resulting in earthquakes and the similarity of such events to geophysical turbulence. As a third area of interest, he is pursuing problems in inverse theory, a class of data analysis methods especially powerful in applications to geophysical exploration and to remote sensing. Bill's teaching activities are presently in solid earth geophysics, planetary atmospheres and surfaces, and space physics.

FACULTY NEWS

ORSON L. ANDERSON, Ph.D., University of Utah, Professor of Geophysics

Orson is Director of the Institue of Geophysics and Planetary Physics Systemwide, University of California. He served as Chairman of President Saxon's Scientific Advisory Committee on the Los Alamos Scientific Laboratory and the Lawence Livermore Laboratory.

Orson's research interests include: mineral physics; elastic properties and phase transitions in rocks and rock-forming minerals; environmental geology; energy resources; physical properties of planet interiors.

G. PETER BIRD, Ph.D., Massachusetts Institute of Technology, Assistant Professor of Geophysics and Geology

Peter taught Introduction to Oceanography, Stress in the Lithosphere, and Seminar in Seismology. He obtained an Instructional Improvement Grant to upgrade the demonstrations in Oceanography.

Peter developed a hybrid analytical/finite-element technique to solve for the steady states of "delamination"-type upper mantle convection and applied it to show that the process is feasible (in fact, almost unstable once started); designed and constructed a model tank to represent the upper mantle down to 375 km (including a more rigid lithosphere) to study plume erosion and the onset of delamination; measured friction and phase boundaries of montmorillonite, which is an important natural "grease" in faults of California. Peter spoke at California Institute of Technology Seismological Laboratory on Continental Delamination and he served as Tectonophysics Section Chairman and helped to organize the 1979 and 1980 meetings of the American Geophysical Union.

Peter's graduate students - John Baumgardner is learning finite elements and will soon be simulating tectonic deformation of California in the computer; Corky Searls developed an elegant solution for stress and jointing in a cooling pluton, but found, alas, it was already in print ("RE-search"); and Alison Ord is using topography, earthquakes, and volcanic dikes to solve for the tectonic stress level in the Aleutian subduction zone.

ARTHUR L. BOETTCHER, Ph.D., Pennsylvania State University, Professor of Geochemistry and Geophysics

Art taught a new course with Orson Anderson on Geochemistry and Geophysics of Planetary Interiors, a seminar in Petrology on Precambrian Igneous Events, and Field Geology in which the "death march" in the Cima Area in the Mojave Desert has become a departmental legend. Art's active research program includes the following projects: (1) oxygen-hydrogen isotopic geochemistry of deep-seated hydrous mineral (2) melting of silicates and structures of liquids at high pressures (3) stability of iron-rich orthopyroxenes -- geobarometry (4) solubility of gaseous components in high-pressure silicate liquids (5) volcanic history of the Mojave Desert (6) chemical activities of H_2O and CO_2 in high-pressure fluids.

Art continues to give many guest lectures. During the year, Dr. Claude Herzberg of the Lunar and Planetary Institute and Dr. James O'Neil of the USGS, Menlo Park were visiting scientists in Art's laboratory.

FRIEDRICH H. BUSSE, Dr. rer. nat., University of Munich, Professor of Geophysical Fluid Dynamics

In addition to teaching several graduate courses in geophysics Fritz carried out numerical computations of spherical dynamics in order to explain the origin of the geomagnetic field (with P.G. Cuong). He also investigated proof of the non-existence of Eddington-Sweet circulations in stars; the large aspect ratio of double layer convection with applications to the earth's mantle; and baroclinic instabilities in the atmosphere and in stars.

Fritz was an invited lecturer at the Astrophysics Workshop in Erice, Sicily in June, 1979 and at the Enrico Fermi Summer School in Varenza, Italy in July, 1979. He was a Visiting Scientist at Kernforschungs Zentrum, Karlsruhe, West Germany during June and July, 1979. He gave seminars at Bochum, Munich, Würzburg, and Freiburg in Germany and at Caltech, UC San Diego, and UC Santa Cruz.

Visiting Professors in Fritz's group were Ian Walton from the Department of Mathematics of Imperial College, London and U. Miller and Dr. Oertel from Karlsruhe, Germany. Two students completed their Ph.D. degrees under Fritz's guidance - K.E. Heikes (An experimental study of convection in a rotating layer) and P.G. Cuong (Thermal convection and magnetic field generation in rotating spherical shells).

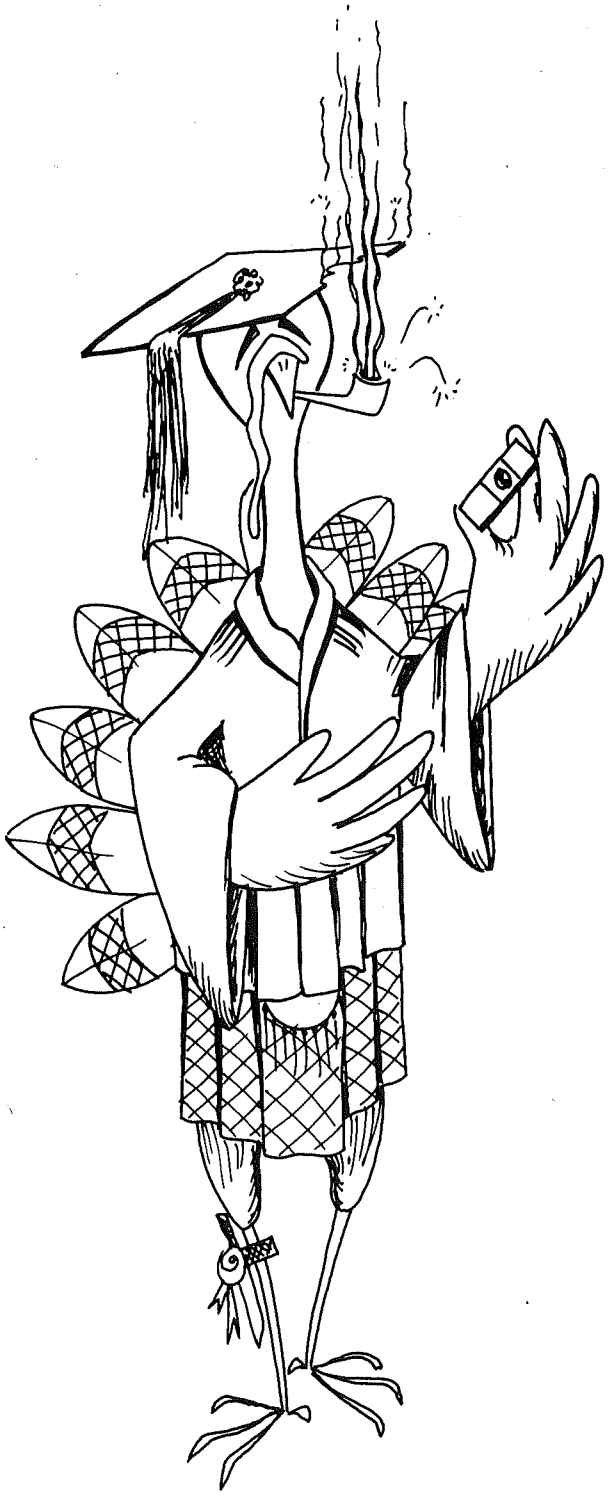
DONALD CARLISLE, Ph.D., University of Wisconsin, Professor of Geology and Mineral Resources

Don writes that he "has forgotten what he did in 1979-80 but vividly remembers all the things he didn't do."

He instituted a new course on field methods in mineral resource evaluation, working on copper, gold, and iron properties. This course was done in part in conjunction with one of Bob McPherron's applied geophysics classes. A graduate seminar on porphyry copper deposits was held jointly with Ken Watson and another on resource economics with Professor Conn in the planning curriculum on "north campus". The undergraduate course in mineral deposits was given in Spring quarter.

A new research project on uranium and thorium occurrences in quartz pebble conglomerate and pelitic facies of the Kingston Peak Formation in California was initiated with the help of graduate students Dick Kettler and Steve Swanson. The work was financed by D.O.E./Bendix and continued through all of 1980. Another smaller project on uranium in contemporaneous peat bogs was begun with D.O.E. support. Lesser activity continues in volcanic uranium occurrences including joint supervision of Karen Hochstrasser's thesis in northwest Nevada. A second report on calcrete uranium (possible variations on the models presented earlier) appeared in January 1980. Another was completed with Paul Merifield, Ted Reed and graduate students Erdem Idiz and Bob Anderhalt on uranium and sedimentary facies in Kern Lake.

Don was fortunate to have another opportunity to visit the colorful Canadian Arctic briefly in August 1979 and quartz pebble conglomerate uranium occurrences in Wyoming. In December he spent three weeks in central and northern Chile on a U.N. Development Project one again on the trail of non-pedogenic calcrete. And he returned to Botswana in Africa briefly once again in the summer of 1980.



In addition to the graduate students mentioned above and also Joe Polovina completing an M.S. thesis on the Bagdad Chase gold deposit and Debbie Walther (J.D., Stanford, 1978) working in the area of law and mineral deposits, Don is happy to have another Ph.D. student from Ghana - Yaw Ntiamoah-Agyakwa, M.Sc., Western Ontario University, 1974 - and a colleague of Kwame Asihene (Ph.D., 1970) at the University of Kumasi.

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

John continues research on the geology and structural analysis of metamorphic rocks in southern California and other areas; studies of the deformation of quartz and other minerals; transmission electron microscopy of minerals; interpretation of microscopic structures, textures, and preferred orientations of minerals.

PAUL J. COLEMAN, Ph.D., University of California, Los Angeles, Professor of Geophysics and Space Physics

Paul's research interests include: physics of plasmas in space; magnetic fields of stars and planetary bodies; cosmic rays.

MICHAEL J. DeNIRO, Ph.D., California Institite of Technology, Assistant Professor of Geochemistry

Mike joined the faculty in 1979 and taught Introduction to Oceanography and Current Research in Geochemistry. He continued research in stable isotope biogeochemistry in Professor Sam Epstein's laboratory at Caltech while awaiting construction of his laboratory at UCLA.

Mike was visited by Dr. Sergei Belyaev, Institute of Biochemistry and Physiology of Microorganisms, Academy of Sciences, U.S.S.R.

DONALD J. DePAOLO, Ph.D., California Institute of Technology, Assistant Professor of Geochemistry and Geology

Don continues his investigations of isotope geochemistry, Nd, Sr and Pb isotopes as radiogenic tracers of crustal and mantle evolution; lunar chronology and differentiation; thermodynamics of magmas.

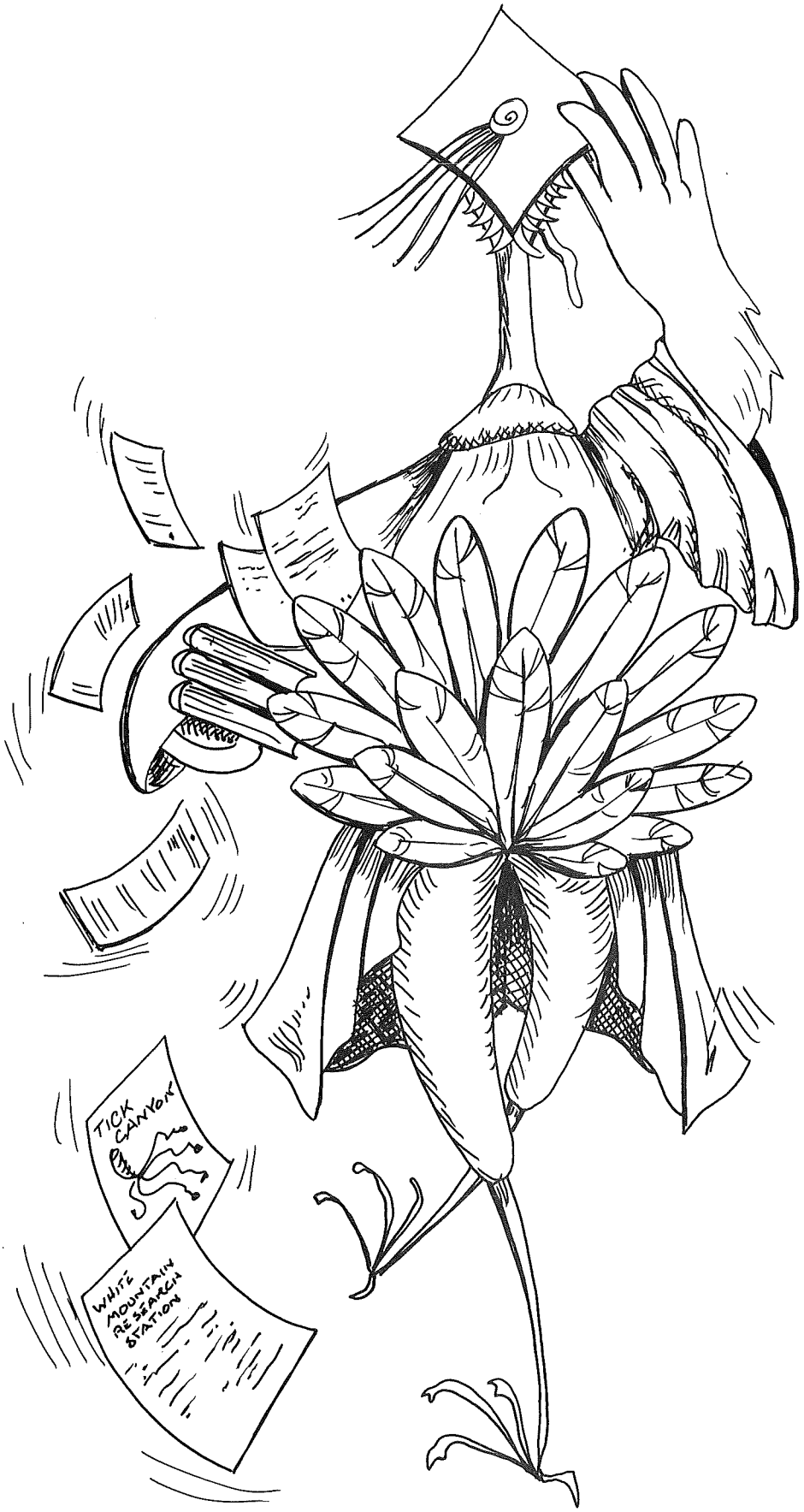
WAYNE A. DOLLASE, Ph.D., Massachusetts Institute of Technology, Professor of Geology

Wayne has taught part of the Summer Field course with W.G. Ernst and also two quarters of the required courses in Mineralogy and Optical Crystallography. Wayne's research has included a Mössbauer spectroscopic study of iron oxides in manganese nodules, with T. Mellin, Scripps Institution of Oceanography; Mössbauer spectroscopic investigation of impregnated zeolite catalysts - with B. DeJong; and optimum interatomic distance model calculation on crystal structures and point defect environments in crystals.

Wayne has initiated field study of the contact metamorphic relations between the Barcroft granodiorite and the Eocambrian formations of the White Mountains.

W. GARY ERNST, Ph.D., Johns Hopkins University, Professor of Geology and Geophysics and Chairman of the Department

Gary has taught part of summer field, with Wayne Dollase, a course in Evolution: solar system, earth, and life with Dave Stevenson and Bill Schopf, and a graduate course in petrologic phase equilibria.


TICK CANYON
WHITE MOUNTAIN RESEARCH STATION

In his research, Gary has finished his petrologic reconnaissance of the Franciscan Complex of the Nacimiento block and is now narrowed (?) down to four ongoing projects: (1) igneous and metamorphic petrology of the White Mountain area, with Wayne Dollase (2) igneous and metamorphic petrology of the Marble Mountains Wilderness area, Klamath Mountains (with assorted USGS folk) (3) igneous and metamorphic petrology of the Central Mountain Range, Taiwan (with J.G. Liou, Stanford, and John Suppe, Princeton, and (4) petrogenesis of eclogites and lherzolites from the Western and Ligurian Alps (with G.B. Piccardo and Giulio Ottonello).

Gary writes that his research travel (other than to the GSA in San Diego and the AGU in Toronto) was all in California where he kept his nose to the grindstone. He says that it is "exhilirating to have finally extracted myself from the Franciscan, and to move on to other things."

Gary gave lectures at California State University, Los Angeles; UC San Diego, Geophysical Laboratory; UC Riverside, University of Nevada, Carnegie Institution of Washington Trustees, and Stanford. He served on several committees of the National Academy of Sciences (Office of Earth Sciences, U.S. National Committee on Geochemistry, U.S. National Committee on Geology, N.R.C. Assembly of Math and Physical Sciences). He also served on a Visiting Committee to UC Santa Cruz (whew!).

Gary reports that J. Fred Muggs drank coffee incessantly in his "lunch bunch" room and that he "visited the heat labs on at least two occasions (I was looking for a pair of pliers the first time and, on the other occasion was lost."

Among Gary's graduate students - Warren Thomas finished his Ph.D. and became a post-doctoral student with Gary; Hank Westrich finished his postdoc and took a research position at Sandia Corporation in Albuquerque; Jim Quick finished his Ph.D. at Caltech and began a post-doc with Gary; and Bill Carlson completed his Ph.D. dissertation and has accepted an academic position at University of Texas, Austin.

CLARENCE A. HALL JR., Ph.D., Stanford University, Professor of Geology and Paleobiology

Clarence taught: Principles of Paleontology, jointly with Bill Schopf, and Field geology--Tick Canyon, jointly with Don DePaolo.

During the summer of 1979 the field work in the Santa Maria basin area was completed. The following publications have resulted from this work: Geologic map of parts of the Sisquoic, Foxen Canyon, Zaca Lake, Los Olivos, and Figueroa Mountain quadrangles, Santa Barbara County, California, scale 1:24,000, U.S. Geol. Surv. Misc. Field Studies Map MF, 1980 (in press); Pre-Monterey subcrop and structure contour maps, western San Luis Obispo and northern Santa Barbara counties, California, scale 1:62,500, U.S. Geol. Surv. Misc. Field Studies Map, MF, 1981 (in press); San Luis Obispo Transform fault and middle Miocene rotation of the western Transverse Ranges Microplate, California, Journal of Geophysical Research, 1980 (in press). A colored geologic map of the San Luis Obispo-San Simeon region was printed in 1979 (U.S. Geol. Surv. Misc. Investigations Series, Map 1-1097, scale of 1:48,000 (C.A. Hall, W.G. Ernst, S.W. Prior, and J.H. Wiese)

During the Spring quarter of 1980, Clarence was on sabbatical leave in southern France working on the geology along the North Pyrenean fault. He is making a strip map (in concert with two French geologists) along this major left-slip fault along which Spain collided with France and the southwestern part of Europe. This work follows the study of lherzolite along the fault (Significance of Lherzolite at the Etang de Lherz, Central Pyrenees, southern France (C.A. Hall and V.C. Bennett) in Earth and Planetary Science Letters, v. 45, p. 349-354, 1979.)

Clarence received an NSF grant to study the North Pyrenean fault of southern France.

He served as a member of the President's Advisory Committee for the Institute of Geophysics and Planetary Physics; and member-at-large of the UCLA Academic Senate's Committee on Committees.

In February, 1980, Clarence was appointed by the Regents of the University of California as Director of the White Mountain Research Station. This half-time appointment to the Systemwide facility includes the direction of research and teaching at the high-altitude research facilities in the White-Inyo Range of eastern California. The station includes the 4th, 10, and 21st highest high-altitude research laboratories in the world. Research conducted at the facilities includes: astronomy, archaeology, botany, physiology, geology, and engineering.

Student Donna Anderson is finishing her work towards a Master's Degree. She has been studying the provenance of the Oligocene Sespe and Lospe formations in western San Luis Obispo and Santa Barbara Counties.

ROBERT E. HOLZER, Ph.D., University of California, Berkeley, Professor Emeritus of Geophysics.

Bob's research activities during the past academic year have been devoted to a study of the auroral magnetic indices as quantitative measures of the supply of electromagnetic energy to the earth's magnetosphere by the solar wind. This energy supply is responsible for magnetic storms, auroral displays, etc. Bob has also been interested in bow shock waves produced by the interaction of the solar wind with the inner planets including the significant differences between the planets with and without appreciable magnetic moments. James Slavin, a student in ESS, has been working on this problem as a thesis project.

Bob gave papers at the AGU meetings in San Francisco and Toronto. He utilized his trip east in May and June to visit his elder son and his family in the Washington area. Bob continues to serve on the Board of Governors of the Faculty Center.

DAVID D. JACKSON, Ph.D., Massachusetts Institute of Technology, Associate Professor of Geophysics

Dave taught Geophysical Exploration, Introduction to Planetary and Space Sciences (The Solid Earth), and seminars in Seismology and Time Series Analysis. His research projects include: (1) reanalysis of the "Palmdale Bulge", showing systematic errors in data and casting doubt on the existence of the bulge (with Wook B. Lee, Chi-Ching Liu, Pat Mullen, and Abe Chang) (2) analysis of travel times of seismic waves from local earthquakes in Southern California, providing a map of variations of P-velocity in the

crust (with Ray Ergas) (3) seismic and geodetic studies of the Imperial Valley, California (with Wook B. Lee) (4) Analysis of magnetometer data for Southern California showing the importance of having vector field data to understand magnetic inductance (with Bob McPherron, Paul Davis, and Corky Searls) (5) experimental design of crustal deformation observatory at Pinon Flat (near Palm Desert), California to test methods for measuring crustal strain rates on the order of 10^{-7}/year.

Dave lectured on Inverse Problems at a symposium on Ill-Posed Problems at University of Delaware and on the "Palmdale Bulge" at Stanford University and at NASA/Goddard Space Flight Center, Greenbelt, Maryland. He served on a panel on "Crustal Movements Measurements" - a joint subcommittee of the U.S National Committee on Seismology and Geodesy, National Academy of Sciences. Professor Crisan Demetrescu from Bucharest, Romania visited Dave's laboratory to study earthquake prediction. He and Dave completed a study - "Secular variation model for geomagnetic variations in Southern California"

Dave's Ph.D. student - Craig Searls is observing magnetic field variations to detect earthquake precursory effects; Ray Ergas studied velocity variations in Southern California; Pat Mullen is developing an improved algorithm for seismic ray tracing in the presence of nasty two dimensional velocity variations; Chi-Ching Liu and Abe Chang are studying systematic and random errors in geodetic observations.

BRADFORD K. JOHNSON, Ph.D., University of California, Los Angeles, Lecturer in Geology

Brad taught the course in Petroleum Geology in spring quarter 1980. Subsequently he resigned as Chief Geologist of McCulloch Oil Corp. in Los Angeles and moved to San Francisco to become Vice President and Manager of Exploration for Highlands Energy Corporation.

ROBERT E. JONES, B.S., San Diego State University, Lecturer in Geology

Bob taught the electron-microprobe class during the winter quarter. In January a new low cost scanning electron microscope was installed - "squeezed into the back room. The instrument is performing well; it has been used to take pictures of synthetic run products and microfossils at magnifications up to 20,000 times."

In early December Victoria and Bob went to Hawaii to visit Mike Garcia and to enjoy the tropical islands. During Summer 1979 Victoria and Bob worked as camp manager/cooks for the second half of the summer field course which was taught by Profs. Ernst and Dollase. Bob writes: "Cooking for 35 hungry geologists can be interesting - camp was at Barcroft Station in the White Mountains, California at 12,500 feet."

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

During the year Ian was involved in teaching Introduction to Oceanography and Isotope Geology. During this period, Brian Rohrback, Kon-Kee Liu and Paul Doose completed their theses and graduated with a Ph.D. The laboratory was well supported with grants and contracts from NSF, NASA, NOAA, DOE and BLM. Ian attended several national meetings and continued his service as a member of the US-French Commission on the AMOCO-CADIZ oil spill, which met both in the USA and France. He was kept particularly busy participating in the joint PPRG project which Bill Schopf directed, as much of the collaborative research was conducted in his laboratory.

WILLIAM M. KAULA, D. Sc., Ohio State University, Professor of Geophysics

Bill taught graduate courses in continuum mechanics, origin of the solar system, classical mechanics, and a seminar on the earth's interior. Bill's research since Spring 1979 has been mainly on mantle convection models consistent with plate tectonics and the gravity field. He has also investigated gravitational kinetic theory of planetesimals; early thermal evolution; and the topography and gravity of Venus. From May to August 1979 Bill was on sabbatical leave at Australian National University, Canberra. He spoke at the IUGG symposium on Geophysical and Geothermal Evolution of the Earth at London, Ontario and at the annual meeting of the American Astronomical Society in Los Angeles on Geodynamics from Satellites. He also spoke at the AGU on Mantle Convection and to L&PSC on Evolution of Venus. Bill served on the NASA/OAST Committee on Geodynamics and Geology; the NASA/LPI Basaltic Volcanism Project; the NAS/NRC Committee on Geodesy; the AGU Publications Committee; and the NASA Pioneer Venus Radar Altimeter Team. Ph.D. students working with Bill's guidance investigated multi-ring basins (S.C. Croft), heating of the moon by accretion (G.A. Rumford), gravitational kinetic theory of planetesimals (G.R. Stewart), mantle convection (E.F. Fishbein), early thermal evolution (S.A. Cooperman), and statistical analysis of gravity, etc. (Kirk Hayward).

MARGARET GALLAND KIVELSON, Ph.D., Harvard University, Professor of Space Physics (Vice Chairman of the Department)

Margaret writes: "Work continues on a magnetometer for the Galileo mission (orbiter to Jupiter). We have survived for another year despite problems with the Shuttle Transportation System which has fallen behind schedule but is needed for the Galileo launch. The new target date for launch is February 1984 with arrival at Jupiter in mid-1986. In the interim I have been speculating on the effects which would be observable if Jupiter's moon Io has an intrinsic magnetic field".

Margaret is halfway through her six year term as an Overseer of Harvard College. She is serving on five committees.

Dr. Zu-Yin Pu of Peking University in the People's Republic of China arrived in November 1979 to spend two years with their group. Dr. Zhuang, also from Peking preceded Dr. Pu by a few months. He is working with Dr. Chris Russell.

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

Al taught a seminar in Paleontology and the laboratory in a graduate course in Micropaleontology during the year.

Al is working with Helen on reclassification of the Foraminifera, with the aid of a three-year NSF grant. He has various articles in press concerning suprageneric revisions and classification in the "Taxonomy and Classification of Living Organisms" (McGraw-Hill Book Company), and in the Journal of Foraminiferal Research and the Bulletin of Zoological Nomenclature.

Al and Helen attended the 16th European Micropaleontological Colloquium, by invitation, held in Yugoslavia in September 1979 and also the Cretaceous-Tertiary Boundary Event Symposium at the University of Copenhagen. They spent ten days in Poland as guests of the Academy of Sciences in Warsaw and Cracow.

Al serves on the Information Handling Panel for Deep Sea Drilling and has attended meetings of the panel at Scripps.

Visitors to Al and Helen's laboratoies were Carol Allison (University of Alaska), John Barron (USGS, Menlo Park), Robert Douglas (USC), Rhodes Fairbridge (Columbia University), Phil Halicki (Columbia University), Merton Hill (Union, Brea), and Hans Hofmann (University of Montreal).

HELEN TAPPAN LOEBLICH, Ph.D., University of Chicago, Professor of Paleontology and Geology

Helen taught undergraduate courses in Earth History and Principles of Paleontology and graduate courses in Micropaleontology and Advanced Paleontology.

Helen's book - "Paleobiology of the Plant Protists" (xxiii, 1028 pages, 571 figures) was published by W.H. Freeman, San Francisco in October 1980. Since completing this book, she has returned to her research on the animal microfossils and she has a joint NSF grant with Al Loeblich for reclassification of the Foraminifera. Articles on "Protista" and "Plankton" were published in the Encyclopedia of Paleontology and a paper was published in the Proceedings of the Cretaceous Tertiary Boundary Symposium, The University of Copenhagen.

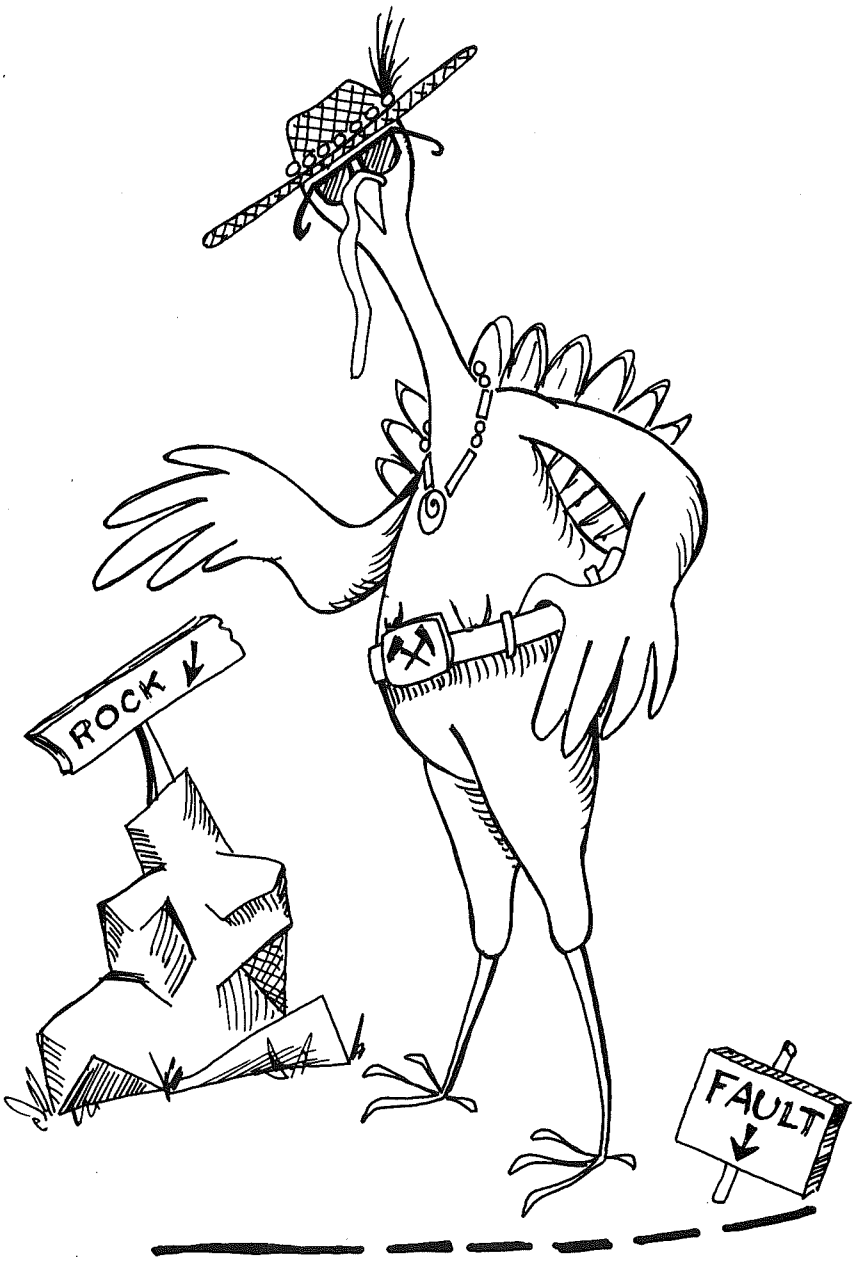
Helen was an invited attendee to the 16th European Micropaleontological Colloquium, a field conference in Yugoslavia in September 1979, collecting a large number of samples for study of the foraminifera and calcareous algae from Permian, Jurassic, Cretaceous, and early Cenozoic of Slovenia and Croatia and visiting some of the classical karst areas as well. She then went to Denmark to the Cretaceous-Tertiary Boundary Event Symposium at the University of Copenhagen, as one of four invited speakers, where she talked on "Protistan evolution and extinction at the Cretaceous-Tertiary boundary." Helen and Al spent two days in the field before the symposium, at Stevns Klint on the Danish coast, and in southwest Sweden and two days after the symposium in the Jutland area of Denmark. They then went to Poland as guests of Professors Pozaryski and Pozaryska in Warsaw (Academy of Sciences and University of Warsaw) and in Cracow (Jagellonian University). They spent some time in the field in Poland (Vistula River Valley) and visited the famous Wieliczka salt mines where they collected some foraminiferal samples from Miocene clays interbedded with salt deposits. This is a classical locality described more than a century ago.

Helen gave lectures at University of Copenhagen, San Diego State University, and to the Association of Women Geoscientists at Caltech. She served as President-Elect of the Association of Academic Women at UCLA, taking office as President in May 1980 and she continues to serve on the Council of the Geological Society of America, attending Council meetings in San Diego, Boulder, and Atlanta.

Two of Helen's graduate students - Sarah Damassa and Christian Finch - completed Ph.D. degrees during 1979-80 and two others - John Duncan and Jean Young - completed M.S. degrees.

ROBERT L. McPHERRON, Ph.D., University of California, Berkeley, Professor of Space Physics and Geophysics

Bob writes that during the 79-80 academic year his teaching activities were concerned with development of the exploration geophysics program. "I acquired additional equipment, added new topics and improved field trips in M136B and expanded the data acquisition activities of ESS 169 in Ivanpah Valley.


ROCK
FAULT

My research activities included work in studies of ultra low frequency waves in space, the characteristics of magnetospheric substorms, magnetic precursors of earthquakes, the geology of Ivanpah Valley, and new instrumentation for exploration geophysics. My service activities included membership in a National Academy committee on data management and computing, a NASA group on computer communications, as well as the department computing coordinator and geophysical equipment curator."

PAUL M. MERIFIELD, Ph.D., University of Colorado, Lecturer in Engineering and Environmental Geology

Paul continues to teach "Engineering and Environmental Geology" in the Spring and the Environmental Science and Engineering Problems Course each quarter. Disposal of radioactive wastes in remote desert areas was a recent problem studied.

His research projects include water well monitoring for earthquake prediction and Quaternary movement on the Elsinore fault. These projects are funded by the USGS Earthquake Hazard Reduction Program. A NASA-funded study involves the application of satellite imagery to planning major engineering projects.

Paul served on the Proposal Review Panel on the Non-renewable Resources Program of NASA Headquarters. He also is Chairman, Los Angeles County, Engineering Geology Review and Appeals Board. Paul was visited by a group of Japanese scientists in November who are also monitoring water wells to predict earthquakes.

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

Clem tells us that during the 1979-80 academic year, "I taught the usual set of courses: Field geology for entering graduate students; Elementary geology; Geology of California; and the Summer Field Camp. I also continued work on the Precambrian-Cambrian transition in eastern California-western Nevada, and in connection with that research, attended the International Field Conference on the Precambrian-Cambrian transition in the Mackenzie Mountains, Northwest Territories, Canada. I attended the GSA meetings in San Diego and managed to squeeze in combined geology-tourist type trips to the Rocky Mountains in Idaho, Utah, Colorado, and New Mexico, and to parts of the Colorado Plateau. Even with that travel, I am yearly falling farther behind John Crowell in the travel department."

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

In addition to his usual courses (Field Geology, Intermediate Structural Geology, and Seminar in Structural Geology), Gerhard taught a course (Advanced Structural Geology) in which a small research project was successfully done by the students. They measured the strain in a tuff containing accretionary lapilli ("This was possible because only two students signed up for the course"). Gerhard says "A few research projects were finished and written up, a few were started, and others stayed somewhere between these stages. Fabrics and the estimate of strain were the topics. An NSF grant, reasonably generous, was received."

Among Gerhard's students, Jeri Cameron finished her M.S. thesis on a pluton near San Diego, Elizabeth Horton Thomas reported on preferred orientation of clay in a Pleistocene till at the GSA meeting in Atlanta, Steve Lipshie is co-author of a paper in press, and Wayne Zeck gathered data galore.

WILLIS P. POPENOE, Ph.D., California Institute of Technology, Emeritus Professor of Geology

Parky has substituted research in his office for collecting trips for awhile in order to write up the field work of previous years. The first contribution is a paper, now being completed, on some apporhaid gastropods of the Pacific Coast Cretaceous. Most of his time for awhile will be devoted to similar studies, principally the detailed description of the faunas of the Turonian beds which have not heretofore been treated as a unit. Parky's activities outside paleontology "... are directed toward house-and-garden work, my two cats, and the irreducible minimum allotted to relaxing for a few minutes each day in my platform rocker, keeping up with the world's progress."

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

Ted's research interests include: sedimentology; geochemistry of sediments and organic matter; origin of petroleum; and environmental geochemistry.

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

John writes: "Mostly I've worked on the Alpine study mentioned in the last Newsletter and continued mapping in the Connecticut Valley in both Vermont and Connecticut during field season. Bill Carlson (principal author) and I have submitted a paper entitled Optical Determination of Topotactic Aragonite-Calcite Growth Kinetics: Metamorphic Implications to the Journal of Geology. Pleasing features of the restrictions developed in that paper are the way they fit into Mark Cloos' new theory for the development of melanges in the blue schist terrain of the Franciscan and the way the restrictions seem to discriminate against other theories for those strange rocks. It was nice to see both Bill and Carl Jacobson go off to good teaching jobs at Texas (Austin) and Iowa State respectively. I had a very pleasant visit with Bernard and Amy Hallet when I was in the Bay area to give talks on my Alpine work at Berkeley and Stanford."

FLOYD F. SABINS, JR., Ph.D., Yale University, Lecturer in Geology and Remote Sensing

Floyd taught "Remote Sensing for Earth Scientists" at California State University, Long Beach and at UCLA in ESS where the enrollment (44) was the largest in the five years it has been offered. The Geography Department at UCLA invited Floyd to teach an advanced course in Spring 1980.

Floyd tells us that NASA has provided microwave scatterometer flights over the lineament in Bristol Dry Lake and that preliminary analysis of these data is providing an understanding for this somewhat enigmatic feature. Floyd published a paper in the Bulletin of the A.A.P.G., with co-authors from Jet Propulsion Laboratory, on an analysis of Seasat Radar image of the San Andreas Fault near the Salton Sea. He was invited to present a paper in Fall 1979 on "Oil Occurrence and Plate Tectonics as Viewed on Landsat Images" at the World Petroleum Congress in Bucharest, Romania. Floyd writes "This was my first trip behind the iron curtain and was most interesting. A highlight was a one-day field trip through the Carpathian Mountains." Floyd continues to serve on the Space and Terrestrial Applications Advisory Committee of NASA and also on the Microwave and Radar Imaging Team for the Space Shuttle at JPL. He is also an instructor in the AAPG Petroleum Exploration School

Karen Hochstrasser is pursuing an M.S. in the use of remote sensing for mineral exploration with Floyd's guidance and Ron Wasowski of the Geography Department is working on a Ph.D. project using radar images to analyze urban features.

J. WILLIAM SCHOPF, Ph.D., Harvard University, Professor of Paleobiology

Bill taught a course in Evolution: solar system, earth, and life with Dave Stevenson and Gary Ernst and a course in Principles of Paleontology with Clarence Hall. He also had a graduate course in Paleobiology.

Much of Bill's effort during the year was devoted to organizing the Precambrian Paleobiology Research Group (PPRG) and carrying out research with this inter-disciplinary team of 22 geologists, biologists, and chemists. The membership of the PPRG and their activities are described in some detail elsewhere in this Newsletter.

GERALD SCHUBERT, Ph.D., University of California, Berkeley, Professor of Geophysics and Planetary Physics

Gerry is writing a book with D.L. Turcotte on Geodynamics, to be published by Wiley. He continues his research on thermal history of the earth and planets, temperature and flow in the earth's mantle, the atmosphere of Venus, and thermal convection in geothermal systems.

Gerry attended the Dead Sea Rift Symposium in Jerusalem in September 1979. This was sponsored by the Inter-Union Commission of Geodynamics as part of an International Symposium on Rift Zones of the Earth. He also attended the meeting of the International Union of Geodesy and Geophysics in Canberra, Australia in December, where he gave several talks.

During the year, Gerry received a NASA Group Achievement Award for Participation in the Pioneer Venus Orbiter Science Team.

Dr. Tilman Spohn from West Germany and Dr. James Dein were post-docs in his laboratory. Two of Gerry's graduate students - David Sandwell and Curt Covey - were advanced to candidacy for the Ph.D. during the year.

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

Ron taught Field Geology in Fall 1979 and a new course on "Theoretical Geomorphology" in Spring 1980. The new course explores the mathematical development of a theory of fluvial geomorphology.

Ron's research was devoted entirely to theoretical fluvial geomorphology. Ron served on the NASA Lunar and Planetary Review Panel and on the Editorial Boards of Geology and Journal of Geophysical Research.

Ron's graduate student, Bill Bruner finished his dissertation on "Effects of time-dependent crack growth on the unroofing and unloading behavior of rocks" in late Spring and then began a post-doc with Ron to continue his research in this field.

DAVID J. STEVENSON, Ph.D., Cornell University, Assistant Professor of Planetary Physics

Dave taught Fundamentals of Earth Science, which he found "easier - even enjoyable - the second time round": Evolution: Solar System, Earth, Life

(with Gary Ernst and Bill Schopf); a graduate course on Condensed Matter Physics of Planetary Interiors (with Tom Ahrens of Caltech); and Seminar in Planetology.

Dave did research on a wide variety of topics including: formation and evolution of the earth's core, layered convection in the mantle, thermodynamics of liquid iron at high pressures, early evolution of the Moon, structure of the Galilean satellites, differentiation and magnetic field generation in Saturn, and differentiation in crystallizing white dwarfs.

Dave was an invited lecturer at a Conference on Dense Plasmas in Paris. He attended the Division of Planetary Sciences meeting in St. Louis where he gave a paper on major planets, the IUGG meeting in Canberra, Australia where he presented three papers and was co-author of a fourth, the Lunar and Planetary Science Conference in Houston where he gave two papers, and the AGU meeting in Toronto where he gave a paper on mantle layering. Dave also gave seminars at Caltech, NASA Ames Research Center, and Cornell.

Dave helped to guide Rick Ditteon (one of Hugh Kieffer's former students) in his work on the Viking IR data and he also interacted with several students, especially Bob Abelson (Monte Carlo simulation of iron at high pressures), Steve Cooperman and David Shirley.

GERHARD STUMMER, B.S., University of Luetzkendorf, Lecturer in Geology

Gerry instructed some members of the Precambrian Paleobiology Research Group in X-ray diffractometry of organic compounds extracted from rocks; taught a visiting researcher from the Peoples Republic of China in X-ray spectrometry and micro-sample preparation of meteorites; and instructed graduate students and postdocs in X-ray diffractometry, X-ray spectrometry, and special sample preparation. Gerry continues to participate in the instruction of students in Chemistry 184 (Chemical instrumentation).

Gerry perfected new fusion techniques for sample preparation for X-ray spectrometry which result in about 50% savings in time. Again this year Gerry received a number of rock samples from the USGS for analysis. He is participating with many laboratories, the world over, in the collective establishment of their elemental composition. When finally preferred values are established, these samples are made available to universities and other institutions as primary standards.

Gerry has found it challenging to keep our three aging X-ray diffraction units in good working condition.

TAKEO SUSUKI, D.Sc., Tohoku University, Lecturer in Geology, Senior Museum Scientist

Takeo taught Advanced Techniques in Geological Research (Photographic Techniques) in Spring 1980. Since nine students were enrolled, it was necessary to divide the class into two sections because of limitations of equipment and facilities. Takeo continues to be active in Community Service. In February he campaigns for the Westside Family YMCA in their sustaining membership drive and in April he arranges a wine-tasting benefit to aid cancer research, March of Dimes, and a scholarship fund.

In January, Dr. Kiyotaka Chinzei of the Geological Institute, Tokyo University was his guest, enroute home after spending six months in Germany.

JOHN T. WASSON, Ph.D., Massachusetts Institute of Technology, Professor of Geochemistry and Chemistry

During the past year John taught Origin and Evolution of the Solar System, Chemical Instrumentation, and was in charge of the graduate course - Current Research in Geochemistry. In collaboration with his students and postdocs John published papers reporting the characterization of new pristine nonmare lunar rocks, the crystallization of the lunar magma ocean, the classification of 60 new meteorites, the variation in the compositions of Fe-Ni metal in unequilibrated chondritic meteorites, volatile abundances in individual chondrules from an unequilibrated chondrite, and the condensation of volatile elements from the solar nebula prior to the formation of the iron meteorites. With George Wetherill he wrote a paper reviewing the evidence regarding the formation locations of asteroids and meteorites.

John visited the Natural History Museum in Vienna and Max-Planck Institutes in Mainz and Heidelberg before attending the Meteoritical Society meeting in Heidelberg in September 1979. He attended the Conference on the Lunar Highlands Crust in Houston in October 1979 and the Lunar and Planetary Science Conference in Houston in March 1980. During the first three weeks of June 1980 he was on a lecture tour in Guangzhou, Guisjang, and Beijing, China, as a guest of the Academia Sinica.

John served as President of the Meteoritical Society. His laboratory was visited by Dr. Herbert Palme of the Max-Planck Institute, Mainz and by Dr. Kim Esbeusen, Technical University of Denmark, Copenhagen.

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

Ken taught courses in petrology and mineral deposits, including a seminar on porphyry copper deposits with Don Carlisle.

During the summer he visited stratiform massive sulphide deposits and gold deposits of possible volcanogenic exhalite origin in the Superior Structural Province of the Canadian Shield. He also visited contact metasomatic tungsten deposits in the Selwyn Mountains, Northwest Territories and contact metasomatic tungsten-tin deposits in the Cassiar Mountains, Yukon Territory.

NANCY J. PRUETT, B.A. (Geology), M.L.S., M.B.A., Head Librarian of the Geology-Geophysics Library is President of the Geoscience Information Society, an organization associated with the Geological Society of America.

Newsletter Editors
Department of Earth & Space Sciences
University of California
Los Angeles, CA 90024

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