We are proud to share the news that Thane McCulloh '49 has received the U.S. Geological Survey's highest honor. By Public Law 313, Congress established a special super-rank for "scientists of the highest caliber engaged in urgent research which, predictably, will have great impact on (a) the scientific and development programs of the Department of the Interior, (b) the economy of the nation, and (c) the defense, immediate and long-range, of the nation." The Geologic Division of the U.S.G.S. is limited to two PL-313 positions. Thane's appointment is possible at this time because of the retirement of Hal James, former Chief Geologist. Other recipients have included Bill Bradley and Jim Gilluly. Some indication of Thane's contribution in the national interest is given by his authoritative statement on "Oil and Gas" published in United States Mineral Resources, U.S.G.S. Professional Paper 820 (1973). His analysis (U.S.G.S. Prof. Paper 679-C, 1969) of the blowout on January 28, 1969, in the Santa Barbara Channel is acknowledged as a classic.

Distinction has also been won by Jack Vedder '48 who has been granted the Meritorious Service Award of the Department of the Interior in recognition of his outstanding contributions to the science of geology. Since 1968 Jack has been Deputy Chief, Office of Marine Geology, U.S.G.S. He is a recognized authority on the geology of California and the adjacent continental shelf. Following the Santa Barbara oil spill in 1969 he was given the scientific responsibility of organizing the critical summary report on the geology, petroleum development, and seismicity of the Santa Barbara Channel. In his Citation, the Secretary of the Interior recognizes Jack Vedder's outstanding achievement in the field of geology and as a science administrator of the programs of the Geological Survey: "Mr. Vedder's career with the Geological Survey is marked by important scientific contributions and highly successful administration of scientific programs".

Congratulations are also in order to Sherman Suter '74, one of 11 Geology students in the U.S. to win an NSF Fellowship for graduate study. Sherman graduated Summa Cum Laude and was elected to Phi Beta Kappa. After completing a project on structures associated with the Vincent Thrust in the San Gabriel Mountains, Sherman left for the U.S.G.S. Denver Office. He will spend the summer as a Field Assistant mapping Paleozoic rocks in Idaho. In the fall he starts graduate work at Stanford.

Allan Treiman '74 was awarded one of four Fellowships for 1st-year graduate students in Geology at Stanford. Sherman Suter was offered one of the others. Allan is a Chemistry major who took many of our Geology courses. This summer he works with Don Zenger on the origin of dolomites.

There appears to be a significant increase in the number of women students taking advanced courses in the department. There are four women in our junior class. Their prospects for employment are good, and we hope that more women will consider majoring in geology.
Don Zenger had an outstanding year. He was promoted to the rank of Full Professor and honored by election as a Wig Distinguished Professor. Don was President of the Pacific Section, Society of Economic Paleontologists and Mineralogists. He is an authority on dolomites, and spoke on the dolomite problem at Cal State University in San Diego, the Cordilleran Section of GSA at Las Vegas, and as an invited speaker at the GSA Penrose Conference on "Water and Carbonate Rocks" in Colorado. Despite these activities he found time to coach Pomona's Soccer Team, which he led to victory in the Western Region Championship, and to Sixth Place in the National Finals of the NAIA Tournament at St. Louis. This triumph was recognized in a Resolution of Commendation issued by the Claremont City Council.

Donald McIntyre was appointed to the newly created Minnie B. Cairns Professorship in Geology. This generous endowment will play an important part in financing the work of the department. Donald's activities included a talk on "Revolutions in Geologic Thought" to the West Coast Lazzeroni (History of Science). At the invitation of the Francis Bacon Foundation, he gave the first Francis Bacon Birthday Lecture, taking as his title "Conformable Instances are not to be neglected".

Alex Baird, as most alumni already know, is a member of the science team for NASA's Viking Program that is scheduled to land on Mars in 1976. If all goes well, Alex's team will determine the chemical composition of the Martian surface at the two landing sites. Alex's contribution is an outgrowth of work started at Pomona by Frank Seaver's generous gift of equipment for X-ray fluorescence in 1958. Alex Baird's publications on his Martian experiment have appeared in recent issues of *Earth and Planetary Science Letters*, *Geology*, and *Icarus*.

Mrs. Woodford is making a good recovery at home after two spells in Pomona Valley Hospital. Woody's activities as cook, housekeeper, and nurse, have hardly affected his geologic productivity. The February issue of the GSA Bulletin carries an important paper by Woody along with Alex and Kathy Baird and Doug Morton. This is a stimulating discussion of problems posed by the existence of the Transverse Ranges Province crossing the San Andreas Fault System. In the GSA Bulletin for November Woody had a historical note on Johannes Walther's Law of the Correlation of Facies. In press he has a discussion of the Poway Conglomerate and its significance as evidence for strike-slip faulting along the coast of Southern California. Woody continues his hard work as geologic editor for W. H. Freeman Company.

All members of the Faculty have been active as advisors to the City of Claremont in evaluating the Seismic Hazard. At a meeting of the City's Planning Commission, Woody pointed out that the location of the faults is uncertain, and with present knowledge cannot be used for city zoning. He also emphasized that the so-called Cienegas are not underlain by material prone to liquefaction.
The geology library, which as every alumnus knows is undoubtedly our greatest asset, remains of top quality very much through the continued support of the Seaver Institute. Our gratitude will be shared by future generations. An important modification to the library was made possible this year through generous gifts by Mr. and Mrs. Ronald D. Jeancon in memory of Colonel and Mrs. J. A. Jeancon, and by Mr. Frank Balzer in memory of his wife, Mrs. Mary Harris Balzer '17. As a result of these gifts we have been able to purchase additional shelving to accommodate the considerable growth of recent years and to plan for the future. Brian Ebersole, our part-time library assistant, performed a very special service in rearranging our books and periodicals to take advantage of the new stacks.

Through one of its many very generous gifts, the Seaver Institute has provided us with a much-used computer terminal, which we share with the Chemistry Department.

Among those attending the GSA meeting at Dallas in November were Warren Addicott '51, Ray Alf, Robert Bean (Chairman of GSA's Section on Hydrology), Ed Beaumont '44, Wayne Burnham '51 (President of the Geochemical Society), Neville Carter '56 (President-Elect of the Tectonophysics Section of AGU), Don Doehring, who gave a paper on Yucatan, Eric Dowty '66, who gave a paper on lunar petrology, Mason Hill '26, Todd Hinkley, Steve Norwick '65, Dana Russell '27 (President of the American Geological Institute), and A. O. Woodford '13.

The AAPG meeting at San Diego in April was notable as a Pomona gathering. Amongst those in attendance were George Bellemin '35, Paul Dudley '25, John Forman '49, Frank Goodban '49, Rosi Grannell '62, Cliff Gray, Mason Hill '26, Dick Merriam '34, Manley Natland '28, John Shelton '35, Ed Sprotte '42, Howard Stark '48, Sherman Suter '74, Jim Taylor, A. O. Woodford '13, and Don Zenger.

As President of the Pacific Section, Society of Economic Paleontologists and Mineralogists, Don Zenger presided over the annual dinner and meeting of the Society held on April 25 at the Sheraton Harbor Island Hotel, San Diego. Don presented Honorary Membership in the Section to Manley Natland '28. In responding to this Award, Dr. Natland expressed his appreciation to Woody for his enthusiastic tutelage; Woody was present at the Session. The main speaker was John Shelton '35, who showed and discussed the film The San Andreas Fault, produced by Encyclopedia Britannica Films Inc. for whom John has acted as scientific advisor. John used the occasion to review the progress of current research on the San Andreas Fault and its bearing on earthquake prediction.
**Find a Falling Star**, latest work by H. H. Nininger ’17, has been well received. A review in *Sky and Telescope* extols Dr. Nininger’s contribution to the education of the scientific community regarding the enormous importance of studying meteorites. Proof of his prescience is that Skylab confirms his early estimate of the mass of cosmic particles entering the Earth’s atmosphere. One of many useful ideas arising from his consideration of meteorites is that blunt nose-shields, not conical shapes, are most suitable for re-entry vehicles. Dr. Nininger, ever-active, is working on another book.

Robert L. Keyes ’17, retired President of Aramco, has moved from Santa Barbara to Walnut Creek.

Charles Anderson ’24, retired from USGS, enjoys his association with students at UC Santa Cruz, and he gave a graduation talk to the Berkeley PhD’s. In February Andy received the Penrose Model from the Society of Economic Geologists at the meeting in Dallas. Andy was president of SEG in 1968. In the last months he has written biographical memoirs for Richard Joel Russell and William T. Pecora. He has a paper in press on the *Yavapai Series: a Greenstone Belt*.

Mason Hill ’26 married Marie Joanna Clark on January 26 at Chatsworth, California. Mase enjoys teaching geology to zoology students at UC Irvine. He was featured in the Current Topics Lecture Series at Cal State Long Beach, where he spoke on *Faulting in Southern California*, and he took part in the Penrose Conference on the Salton Sea Trough. Mase is a frequent and stimulating visitor to the Campus. He and Doug Morton are Associate Editors of GSA *Bulletin*.

Dana Russell ’27 had a busy year as President of the American Geological Institute during 1973. His responsible leadership in the profession is attested by his editorials in *Geotimes* on *Geoscientists and Public Policy* and *AGI in ’73*. Dana’s thoughtful concern as Acting Co-editor of GSA is evident from his *Geology* editorial on the cost of offprints, and his discussion in the *Bulletin* of the problem of reviewing papers based on classified data.

Rollin Eckis ’27 retired in September as Vice-Chairman of the Board of Atlantic-Richfield Company after 36 years of service. He and Caroline moved from Orange Grove Boulevard, Pasadena, to the valley of orange groves in Pauma Valley where Rollin mixes golf with growing citrus and avocados. He looks forward to renewed work on the Elsinore Fault Zone and other geologic and geomorphologic problems that were interrupted in 1930. Rollin’s senior thesis on Cucamonga fans, and a thorough later report on the Claremont geologic structure, took on additional interest in the review of the city’s Seismic Element. Rollin continues to give valued service as a Trustee of Pomona College, a Member of the Board of Overseers of the Huntington Library, and the Boards of Directors of Pacific Indemnity Company and the John Tracy Clinic.
Frank Rentchler '27 enjoys traveling since his retirement from teaching. Frank, who for many summers was Park Ranger in Yellowstone, was in the Park for the Centenary celebration.

Manley Natland '28 lectured on sedimentation to Chevron Oil Company geologists in Santa Barbara. His stage system for correlation of Magallanes Basin sediments will soon be published by GSA as *Memoir 139*. All the lithified coquina from the foundation of the ARCO building in Los Angeles has been processed in Italy; it can be purchased at Nat's home in Laguna Beach.

Roger Revelle '29, Director of the Center for Population Studies at Harvard, is President of the American Association for the Advancement of Science. As an editorial in *Science* (February 1) reminds us, AAAS should "devote more of its energies to broad problems that involve the whole of science, the relations of science to government, and indeed the relations of science to our society as a whole." Roger Revelle is uniquely qualified to lead the AAAS in tackling these broad issues. Roger's editorial *Will there be enough food?* (*Science*, June 14) challenges the scientific community to use its methods and insights to make possible a vast increase in food production throughout the world.

Roger is a member of the three-man nominating committee of the Ocean Affairs Board of the National Academy of Sciences. The Board is looking for persons concerned with the effects of man on the ocean environment. Particularly needed is broad experience in ocean policy, management, and national and international matters. Roger's experience as an oceanographer particularly qualifies him in guiding the Ocean Science Committee's contribution to the International Conference on the Law of the Sea.

Roger was featured in UCLA's series *The Next Billion Years: Our future in a cosmic perspective*. He is our only alumnus to have a college named for him, and so far he is the only one with a seamount named in his honor. At AMSOC's meeting in Mexico City last summer, Roger received his insignia as Laureate of the Albatross. *Science* (September 7) concluded that "this proves oceanographers, like blondes, have more fun". The award is not to be confused with the Albatross Medal of the Swedish Royal Society of Science and Letters, whose honorees include Roger Revelle.

Isabel Fothergill Smith lives in Mt. San Antonio Gardens, a retirement home near Claremont. She enjoys the stimulus of other residents, all of whom have led active lives.

Merrill Fellows '32 retired in 1972 after 32 years with Southern California Gas Company. He fills in his spare time with Real Estate sales, traveling, and reading.
Stanton Hill '33 has completed a catalog of the Hoover Collection of rare books on the history of science in the Honnold Library. Stan has given slide talks on the history of geology to the Mineralogical Society of Southern California, the Sigma Xi at CSU Fullerton, and to the geology department at Pomona. Stan's review of Werner's *Short Classification and Description of the Various Rocks* was published in the *Journal of Geological Education*.

Louis Simon '35, who is actively involved in the study of plate tectonics and southern California off-shore geology, had lunch with our geology majors and told them about his work with Texaco.

John Shelton '35 has retired from the Encyclopedia Britannica Film Project to concentrate on tennis and the marketing of his superb geologic photographs. He is in demand as a speaker, particularly on his recent San Andreas film.

Ward Smith is Consulting Professor in the Department of Applied Earth Sciences at Stanford. In March he enjoyed a sight-seeing visit to Patagonia, and in April he visited borate deposits in North Argentina. Ward found the Tincalayu borax deposit there different from the Kramer borax deposit in California and the Kirka deposit in Turkey, which he visited in 1972.

Ray Alf was inducted into the NAIA Track and Field Hall of Fame on May 25, in Arkadelphia, Arkansas. Ray's track accomplishments were outstanding. He tied the US record in the 400 meter dash, held the junior AAU record in the 200 yard dash, and ran a 9.6 hundred-yard dash. He was clocked at 30 seconds flat in the 300 yard dash, which at the time (1929) was listed as a world record. Though retired, Ray continues to conduct groups of interested people through his famous museum on the Webb School Campus.

Edgar H. Bailey directed a ten-week field course in Applied Economic Geology at the Ravandj lead mine, Iran, for graduate geologists and mining engineers from Turkey, Iran, and Pakistan. Later he spent 6 weeks in Oman evaluating its mineral potential for the Sultan; the magnificent ophiolites contain Cyprus-type copper deposits. In May he attended the First International Conference on Mercury, in Barcelona, Spain, and the related field-trip to the Almaden mine. Although he reports that it is difficult to find time to pursue his studies of California Coast Range geology, he is co-author of two maps of the Collyear Springs Quadrangle, California, published by the USGS on the scale of 1:48,000.

Gus McClintock '36 retired after 25 years with Sinclair Oil, Richfield, and ARCO. He is now selling railroad hardware and fuel-injection equipment.

Robert Reed '38 enjoyed an interesting assignment for the Algerian railroads. Bob reported on the engineering geology of a complexly folded and faulted area of the Atlas Mountains.
Wally Wilson '40 sent us a copy of his pamphlet on *The Energy Crisis* published by Continental Illinois National Bank. Energy problems are important in the financing of major projects, and Wally's Division of Energy and Mineral Resources covers the whole area including coal, petroleum, and metals.

Mel Swinney '40 is Manager of Energy Resources Research and Development for Southern California Edison Company. Mel spoke at the Pomona Men's Club Luncheon on *Sources of Energy*.

Bob Bean '42 finished a year as Chairman of the Hydrology Division of GSA. He consults in California and Brazil, and teaches hydrology at Cal State Northridge and Cal State Los Angeles.

Martha Ryder Smith '42 is completing her PhD thesis on ERTS Imagery. Looking at large-scale structures in Utah, Nevada, and part of California, she sees concentric curves, which may be "latitudes of rotation" of sub-continental blocks. She finds this plate tectonic view a fascinating one.

Franklin Olmsted '42 visited the Geology Department with his wife, Jean, and daughter, Ann. Although based in Menlo Park, Franklin spends much of the time searching for geothermal power sources in northern Nevada. He is completing a report for the USGS on the first two years of a reconnaissance of several geothermal areas. His *Geophysical Studies in the Yuma area* has been published by the USGS as *Professional Paper 726-D*. Last summer the Olmsteds enjoyed a week in London and a three-week tour of Europe.

Robert Coiner '44 was in Claremont for the 30th Class Reunion. He is farming in Idaho but finds that rising cost of fodder makes it increasingly difficult to raise beef cattle. While on a trip to Texas and New Mexico recently, Bob saw Donald Van Sickle '44. Don has recovered from cataract operations and is again playing championship golf.

Ed Beaumont '44 is riding the top of the wave of exploration for coal in the Four Corners region. He was one of the first to specialize in the coal resources of the region. Although the coal is sub-bituminous, the beds are very thick; extensive drilling reveals an average thickness of about 10 ft. Ed has been appointed Adjunct Professor in the Geology Department at the University of New Mexico, and will teach a Coal Geology Seminar in the fall.

Jerry Winterer '45 is actively engaged in research in the central Pacific, where he took part in his third JOIDES drilling expedition last fall. Before returning in September for a close look at turbidite fan sediments around the Line Islands, Jerry will spend a week or two in the Roberts Mountains of central Nevada, trying to bring to a close work he began nearly 20 years ago. As co-chief
scientist on board the GLOMAR Challenger for Leg 17, Jerry was the author of the Introduction and Cruise Synthesis in Initial Reports of the Deep Sea Drilling Project volume 17, published last summer. Richard Jarrard '69, one of the participating scientists, contributed an article on Paleomagnetism of Leg 17 Sediment Cores. Rich is about finished with his doctoral work at Scripps, where Jerry is Department Chairman. Both participated in the Penrose Conference on Hot Spots and Linear Seamount Chains. Jerry's discussion on Sedimentary Facies and Plate Tectonics of the Equatorial Pacific was published in the AAPG Bulletin in March.

Tom Moran was in Algeria to study the feasibility of building a new Port for the export of petroleum.

George Clark '46 was asked by a joint committee of all the Boards of Trustees of the Claremont Colleges to be Director of the new Seaver Computer Center, which includes two separate computer systems, the IBM 360 in Millikan, and a PDP-10 that supports a network of terminals from Palm Springs to Newport Beach. George's administrative skill and technical knowledge have placed computing in Claremont on a sound financial basis.

Jack Schoellhamer '42 and Jack Vedder '48 are playing leading roles in the USGS study of the continental shelf in preparation for Federal leasing for petroleum exploration. Their report on the geology of California's continental borderland is scheduled for publication in September. Jack and Diane Vedder spent a wonderful five-week vacation in the Philippines, where most of their time was devoted to diving and shell collecting. Jack Vedder is joint author of Recent Earthquake Activity in the Santa Barbara Channel Region published in the Bulletin of the Seismological Society of America last October. A network of seismograph stations surrounding the Santa Barbara Channel was established in late 1969. During the first two years of operation, 107 earthquakes were located. Distribution of epicenters shows an east-west trend apparently related to off-shore faults.

Jim Taylor severed long-term connections with Shell Oil to join the Branch of Oil and Gas Resources of USGS in Menlo Park. Jim works closely with Schoellhamer and Vedder in the off-shore exploration. As a petrologist, Jim studies the rocks encountered in the dredge and dart-core program.

Louis Simon '35 and Frank Goodban '49 are directing the off-shore work for Texaco. Although John Forman '49 has been moved from California to Denver, he is again concentrating on the California off-shore work because of the upcoming bids. When Ivan Colburn '51 led a field trip inspecting Cretaceous sections in the Santa Monica Mountains and Simi Hills, John came from Denver to be one of the crowd of 250 geologists. The field trip was sponsored by the Pacific Section of SEPM, of which Don Zenger is President.
Jack Schoellhamer '42 and Bob Yerkes '50 are co-authors of a Preliminary Geology Map of the Unincorporated Part of the Topanga Quadrangle, a companion to their map of the Malibu Beach Quadrangle, put on open file by the USGS in 1971.

Cliff Gray heads the Los Angeles Office of the California Division of Mines and Geology.

Howard Stark '48 has left his position as Chief Geologist for Argo Petroleum to be an independent consultant in Ventura.

Don Seely '49 continues to work for Exxon Production Research and is much involved in teaching structural geology. His ideas on oceanic trenches have had a gratifying reception. Don presented his work at Oregon State University, USC, UC Santa Barbara, Stanford, University of Washington, at the AGU National Meeting, and at the Annual Meeting of the Indonesian Petroleum Association in Jakarta. While in the East Indies, Don lectured at the University of Gadja Mada on wrench faults associated with oblique plate convergence. Don is principal author of a paper entitled Trench Slope Model to be published this fall in a book on Continental Margins. Last summer Don spent some time mapping in SE Alaska.

Homer Simmons '49 had a four-week vacation in Greece, Italy, Spain, and Portugal, where he lay on the beach and enjoyed local wine and excellent food.

Dick Lounsbury has been appointed Chairman of the Department of Geology at Memphis State. The department has begun a four-year study of sources of aggregate for the Tennessee Department of Transportation. Dick hopes that his new microseismic equipment will enable him to locate faults in the Memphis area, and clarify the confusion over the New Madrid Fault.

Wayne Burnham '51 has been appointed Head of the Department of Geosciences at Pennsylvania State University. Wayne is currently President of the Geochemical Society. He is co-author of a paper in GSA Bulletin on Crystallization and Fractionation Trends in the System Andesite-Water-CO₂-Oxygen at Pressures to 10Kb.

Earl Pampeyan '51 is mapping the geology of the Montara Mountain and San Mateo Quadrangles, along with some special mapping along the San Andreas fault, for the Engineering Geology Branch of USGS. Since January he has been in charge of an AEC-sponsored project and is responsible for preparing a geologic environmental map of coastal California. The map includes off-shore as well as on-shore data on faults and other geologic problems of concern to the siting of nuclear reactors.
Ivan Colburn '51 is co-author of *Cretaceous Stratigraphy of the Santa Monica Mountains and Simi Hills* published by the Pacific Section of SEPM. Like many geology alumni, Ivan is concerned about the resumption of drilling off-shore. In a letter featured by the *Los Angeles Times* on November 3, he argues that there was nothing wrong with the equipment on the drilling rig where the Santa Barbara Channel oil spill occurred: "The problem was an error in human judgment". Ivan contends that resumption of off-shore oil drilling in California should await the establishment of priorities with respect to how the energy should be used in this generation and future ones.

Warren Addicott '51 is with the USGS at Menlo Park and serves as Consulting Professor of Geology at Stanford. He spent two months making a stratigraphic reconnaissance of Neogene basins on the Mediterranean coast of Spain. This work is part of a cooperative program between the USGS and the Spanish Government. Warren is co-author of *Lower and Middle Tertiary Stratigraphic Units of the San Emigdio and Western Tehachapi Mountains*, published as USGS Bulletin 1372-H. He was a member of the Review Committee for the GSA Cordilleran Section's Meeting in Las Vegas in March, and is Secretary of the Paleontological Society.

Willis Burnham '51 transferred from Hawaii to Menlo Park where he is now in charge of the USGS Groundwater Branch in the Western Region. He and Rose visited the Geology Department on their way to Menlo Park. Willis was in New Orleans for the 2nd International Symposium on Underground Waste Management and Artificial Recharge.

Ed Heath '52 now works for Woodward, McNeill and Associates, Consulting Engineers and Geologists, with an office in Anaheim.

Don Wilhelms '52, with the USGS in Menlo Park, visited the department in November and gave a fascinating talk on *Geologic Mapping of the Moon and Mars*. He and Alex Baird went on to a meeting on *The Geology of Mars* held at the Jet Propulsion Laboratory, where Don gave a paper entitled *Craters and Ringed Basins*. In view of the great interest in the geology of the Moon and Mars, it is worthwhile noting some of Don's publications on planetary geology: *Two Former Faces of the Moon and Geological Provinces of the Near Side of the Moon* (both in *Icarus*, 1971); *Geologic Mapping of the Second Planet*, an Interagency Report prepared for NASA; *Summary of Lunar Stratigraphy*, USGS PP 599-F; *Geologic Map of the Near Side of the Moon*, USGS 1-703; *Preliminary Mariner 9 Report on the Geology of Mars*, *Icarus* 1972; and *Comparison of Martian and Lunar Multiringed Circular Basins*, *Jour. of Geophys. Res.* 78 (1973) 4084. Don spoke on *Lunar Geology is Basin and Mare Geology* in April at the Meeting of GSA's Rocky Mountain Section in Flagstaff.

Andy Foraker '52 is in private law practice in Chico. Some of his work is in geothermal development.

Cortez Hoskins '53 is a research geologist with Union Oil in La Habra.
Wallace Platt is a mining and exploration geologist registered in California and Arizona. He is also a building contractor in Tucson.

Grant Robbins '54 moved to Albuquerque, New Mexico, where he is Vice-President for Finance of General Recreation, Inc., a leading manufacturer of equipment for active outdoor sportsmen.

Neville Carter '56 is President-Elect of the Tectonophysics Section of AGU, and Barry Raleigh '56 is Section Secretary. They were both editors of Flow and Fracture of Rocks published by the American Geophysical Union as Geophysical Monograph 16 in honor of David Griggs. Neville is Professor at the Department of Earth and Space Sciences, State University of New York at Stony Brook. He was co-author of two papers in the Griggs Volume: Seismic Velocity Anisotropy Calculated for Ultramafic Minerals and Aggregates, and Seismic Anisotropy, Flow, and Constitution of the Upper Mantle. Neville is an Associate Editor of the Journal of Geophysical Research, and is a reviewer for the Journal of Petrology.

Barry is Chief, Earthquake Tectonics Branch at the USGS National Center for Earthquake Research in Menlo Park. His work on earthquake prediction and control has earned him a busy place on the lecture-tour circuit. We were fortunate that he included Pomona on one of his trips. In a special issue of Tectonophysics devoted to mechanisms of plate tectonics, Barry has a paper on Mechanisms of high-temperature, solid-state flow in minerals and ceramics and their bearing on the creep behavior of the Mantle. He was co-author of Man-made earthquakes in the Basin and Range Province, contributed to the Symposium in honor of Chester Longwell at the GSA meeting in Las Vegas in March. He was also co-author of what is already recognized as a classic of earthquake research: Seismicity in the Rangely, Colorado, area: 1962-1970, published in the Bulletin of the Seismological Society of America, October 1973. The Earthquake Information Bulletin for July-August 1973 contains an article entitled Man-made earthquakes at Denver and Rangely, Colorado, describing the work of Barry and his colleagues: "The potential benefits to Californians and to the rest of the nation are so great that such studies as the Rangely experiment to provide a greater understanding of earthquake mechanisms will continue for some years to come".

Stan Madsen '57 is head of the Hongkong Office of Fugro Corporation.

Pete Newman '57 has an article on Scawtite from Java in the Mineralogical Record for September-October 1973. The very rare mineral had previously been found mostly in thermally metamorphosed limestone. This new occurrence is at the bottom of an oilwell drilled 6000 ft. beneath the Java Sea, in a vertical veinlet in horizontally banded gneiss. Pete met Don Zenger at the AAPG-SEPM meeting in San Antonio, Texas.
Tom Wright '57 is well known as an authority on Hawaiian Volcanism. Those who argue whether the Hawaiian Chain is to be explained in terms of a propagating fracture or movement over a hot spot must rely on careful petrological descriptions, such as Tom's Xenoliths in the Honolulu Volcanic Series, Hawaii, published in the Journal of Petrology, 1970. This paper is referred to in an editorial essay on the origin of the Hawaiian Chain, published in Nature, March 29, 1974.

Bob Tilling '58 took over from Tom as "baby-sitter" at the Hawaiian Volcano Observatory. He has been monitoring the eruption of Mauna Ulu on Kilauea's east rift zone. Periodic overflows of Mauna Ulu's lava lake have greatly increased the height and overall size of the volcanic shield in recent months. Bob's paper Boulder Batholith, Montana: A Product of two Contemporaneous but Chemically Distinct Magma Series appeared in GSA Bulletin, December 1973.

Pat Muffler '58, with the USGS in Menlo Park, is an authority on geothermal systems. Pat was co-author of Present-day deposition of lepidolite from thermal waters in Yellowstone National Park, in American Mineralogist 1973; Resistivity, self-potential, and induced-polarization surveys of a vapor-dominated geothermal system, in Geophysics 1973, describing the mud volcano area of Yellowstone; and Geothermal energy, a chapter in Man's Finite Earth, published by Burgess Publishing Company.


Gerhard Oertel returned from Sabbatical Leave in Britain and Germany. While in Britain, Gerhard and Irmgard visited Donald McIntyre's mother in Edinburgh, and Ann's parents at Moffat - near Lapworth's famous graptolite locality. Gerhard teaches from the beginning to the post-doctoral level, and his research involves cooperation with workers in several countries. Some of his recent papers are: Texture of a Slate from North Wales, in Texture 1972; Clay-Ironstone Concretion Preserving Fabrics due to Progressive Compaction, in GSA Bulletin 1972; A Transmission Electron Microscope and X-Ray Diffraction Study of Muscovite and Chlorite, in Mineralogical Magazine 1973; and Unfolding of an Antiform by the Reversal of Observed Strains, in GSA Bulletin 1974.

John Olmsted '59 lectures all around the San Francisco Bay area on Ecology and specifically on the Pygmy Forest in Mendocino County. He uses color slides from the large collection he assembled for use in schools throughout the State. He and Priscilla reside in Glen Ellen, California, with their two sons, Erik, aged 6, and Alden, aged 3. John established a conservation park of 60 acres on Jug Handle Creek in northern California. His work was featured in a recent issue of the Sierra Club Bulletin.
Art Sylvester '59 has finished 2 wonderful years as Associate Director of the Education Abroad Program of the University of California, in Bergen, Norway. He and his family plan to tour through Europe for about five weeks after a NATO Advanced Study Institute in Reykjavik, Iceland. Art returns to UC Santa Barbara as Associate Professor of Geology in the fall. He made the most of his time in Norway; mapping imbricate thrusts in the Inner Bergen Arc, studying magnificent stretched quartzite pebbles only a 30-minute walk from his front door, and monitoring volcanic activity on Jan Mayen in the north Atlantic. The U.S. Department of Commerce's *Earthquake Information Bulletin*, May-June 1973, contains an article on *Earthquakes Beneath the Sea* in which Art deals with the seismicity of the Santa Barbara Channel. He reports that geodimeter lines 20 to 70 km across the channel, measured by laser beams to a precision of one part in $10^{-7}$ to $10^{-8}$, are the longest lines ever measured over water. He will keep busy when he returns to Santa Barbara.

Walt Gulick '60 leaves Corvallis and heads for the Big Sky country this summer. He will teach philosophy at Eastern Montana College in Billings. A recent trip exploring lava tubes in the Bend area helped Walt to take a vacation from philosophy and get back to the rocks.

John Wickham '60, Assistant Professor of Geology at the University of Oklahoma, received an NSF Grant to support his analysis of tectonic history and strain distribution in crustal rocks. John combines computer models of deformational processes with field work in the Appalachians.

Bill Quaide works for NASA as Chief of the Planetary Science and Applications Branch, Ames Research Center, Moffett Field. He gave the Banquet Address on *Geology from Space* at the meeting of the National Association of Geology Teachers at Merritt College, Oakland, in April.

Norman Hyne '61, Head of the Earth Sciences Department, University of Tulsa, enjoyed rafting down the Grand Canyon in June and down the San Juan River over the Easter break. Norm will give a one-month short course at ARCO in Dallas. He has an NSF Grant to study fresh-water sedimentation in the Catatumbo Delta, Lake Maracaibo, Venezuela. He is planning an oceanographic cruise into Lake Maracaibo aboard the R/V Eastward for next February, when he will be cruise leader.

Herb Adams '61 is Assistant Professor of Geology at Cal State Northridge, where he teaches Engineering Geology, Environmental Geology, and Computer Applications. Herb has a paper in press with John Rosenfeld (UCLA) and Lew Cohen (UCR) on *Solid-Inclusion Piezo-Thermometry*. Having finished building a house in Topanga, Herb looks forward to a summer of research and relaxation.
Doug Sprague '62 is Plant Engineer with Pryor-Giggey Company in Santa Fe Springs. He is responsible for the design and construction of equipment used to process material in the manufacture of specialty refractories.

Rosi Grannell '62 is Associate Professor of Geology at California State University at Long Beach. At the March meeting of the GSA Cordilleran Section in Las Vegas, she presented a paper on A Regional Gravity Survey of the Fish Creek Mountains and Surrounding Area, North-Central Nevada. Other papers presented in Las Vegas included: Spectacular Scarps of the Frontal Fault System, Eastern San Gabriel Mountains, by Doug Morton and Bob Yerkes '50; Hydrologic Reconnaissance of Geothermal Areas in Black Rock Desert and Carson Desert, Nevada, by Frank Olmsted '42, Comparison of Granitic Inclusions in the Orocopia and Pelona Schists, by Doug Morton; Shonkinite-Syenite Plutons, Mountain Pass, San Bernardino County, by Doug Morton, Alex Baird '54, and Ken Watson; and Dolomite Dikes in the Upper Wyman Formation (Precambrian), northeastern Inyo Mountains, by Don Zenger. Don was co-Chairman of the first session on sedimentology.

Ed Welday has resigned his position as Marine Biologist with the State Division of Mines and Geology to work for the California Lands Division. He and Bunny have moved to Lakewood.

Jim Kelley '63 is a member of the Advisory Panel on Information Handling for the Deep Sea Drilling Project. In the May 1974 issue of AGU Transactions, EOS, Jim Kelley reviews Methods in Computational Physics, vol. 13: Geophysics. It is a sign of the times that this volume costs $44. Jim says we should buy it.

Jim Williams '64 is still at Citrus College, where he teaches Astronomy and Physical Oceanography. Last summer Jim went to Canada and revisited the Columbia Ice Field where he worked some years ago.

Prue Beckh '64 is a cataloger at the New York Medical College Library. In June she attended the Medical Library Association convention in San Antonio.

Bob Drake '65 has just completed his PhD at UC Berkeley. He will give a paper on the chronology of Cenozoic igneous and tectonic events in the central Chilean Andes at the volcanological meetings in Santiago in September. He is currently doing post-doctoral research in the K-Ar laboratory at Berkeley. His wife Pam participates in a flourishing import business dealing in Indian folk-art from Peru. Daughter Kimberly, now almost two, is a continual challenge.

Steve Norwick '65 resigned his position at Central Michigan University and set out to join the Chilean Geologic Survey. No one met him when he arrived, because all correspondence had failed to get through. After a day or two Steve found the Survey staff who had hired him. They turned out to be wonderful people, many of whom, incidentally, have PhD's from Berkeley. Steve's assignment was to
study the regional geology between Valdiva and Conception to provide a base for Cr and Ni exploration and to fill a large blank on the map. The area is beautiful, both scenically and as one of the few supposedly simple subduction zones on Earth. While there Steve met W. S. Pitcher, from Liverpool, who is working in Peru on Mesozoic Plutonism. Two weeks later the military revolution occurred, and Steve fled with his wife and two children, the youngest, Sara, then only a month old. Steve found employment in Boston with Stone and Webster Engineering Corporation, the fourth largest engineering firm in the country. The Boston Office alone has 5,000 people. Steve's group studies the foundations for large buildings, and particularly for nuclear power plants and oil refineries. He likes his work and finds his colleagues hard-working and very interesting people. Steve has renewed his interest in the mineralogy of fault gouge, and is delighted that a major industry needs to understand faults and joints.

David Pollard '65 has accepted a position as research geophysicist with the Earthquake Tectonics Branch of the USGS in Menlo Park. David and Virginia are excited about returning to California, and David eagerly looks forward to his new job. He will work on aspects of the geothermal energy program, in particular the feasibility of extracting heat from hot dry rock by circulating water through hydraulic fractures. The close analogy between sheet intrusions and hydraulic fractures make the project particularly interesting for David. Perhaps some day he will know enough about the intrusion process to induce intrusions into the upper crust, bringing heat and economic minerals within our grasp! David has been asked to teach a course at Stanford, and he hopes also to work with graduate students. He wants to keep teaching insofar as time permits. David published three recent papers in Tectonophysics: Mechanics of growth of some laccolithic intrusions in the Henry Mountains, Utah: Field Observations, Gilbert's Model, physical properties, and flow of the magma (July 1973); Bending and failure of over-burden layers and fill formation (July 1973); and Derivation and evaluation of a mechanical model for sheet intrusions (October 1973).

Todd Hinkley, still working at Cal Tech on the geochemistry of trace elements, is co-author with C. Patterson of Concentrations of Metals in a Soil Moisture Film, in Nature PS, December 17/24 1973. The metals chosen are K Rb Cs Ca Sr Ba, and the study site is near the northern border of Yosemite National Park.

Bob Michael '66 resigned his position with Chevron Oil's Uranium Department to work for the Bureau of Land Management. He spends the summer at a BLM Training Program in Phoenix, where he will learn about public-land law, mining law, etc. He looks forward to seeing Zsolt Rosta '67, who lives in Gila Bend. We enjoyed seeing Bob when he paid a brief visit to the department a few months ago.

Eric Dowty '66 teaches Crystal Chemistry and Mineralogy at Princeton. Eric is particularly interested in the crystal chemistry and spectral properties of titanium-bearing minerals, especially garnets and pyroxenes, and crystal chemical aspects of sector zoning. Amongst his recent publications are: Crystal-

Carmen Fimiani ’66 completed his MBA at Stanford in June 1973, and now works for Hamiltaire Properties in the San Bernardino Mountains. The Fimiani’s first child, Alexandra, was born on November 4, 1973. Carmen shares with Alex Baird a great interest in the controversy over the issue whether the Lake Arrowhead Dam poses a seismic hazard.

Don Doehring is at the University of Massachusetts, Amherst, a member of a department with 21 geologists and 5 geographers. He serves as Director of the Graduate Studies Program which has 78 graduate students. On a recent visit to Claremont, Don reported that Steve Norwick ’65 had offered jobs with Stone and Webster to five of his graduate students.

At GSA’s November meeting in Dallas, Don gave a paper on Hydrogeology and Waterborne Disease on the Developing Yucatan Peninsula; infectious hepatitis is endemic in Yucatan. At the same meeting, Eric Dowty ’66 gave a paper at and presided over the session on Lunar and Meteoric Studies. John Christie presided over the session on Structural Analysis, and Malcolm McKenna presided over the Symposium: Vertebrate Paleontology is a Discipline in Geochronology.

Gene Pearson ’67 teaches sedimentary petrology at the University of the Pacific in Stockton, California. Gene continues to work on interbedded carbonate-clastic units of the Casper Formation in the Laramie area. During the summer he plans at least one float-trip down the Colorado River and two weeks of backpacking in the Wind River Mountains.

Arwen Lee Harriss was born September 20, 1973, daughter and first child of Mr. and Mrs. Ray Harriss (Mary Taylor ’67). The Harriss family have moved to Casper, Wyoming, where Ray works in uranium prospecting. A visit from Gene Pearson ’67 brought them news from California.

Richard Jarrard ’69 is completing his PhD at Scripps. His thesis is on Motion of the Pacific Plate with respect to the Magnetic Pole, Sedimentary Equator, and Hot Spots. He says this title leaves him lots of room for arm waving. Rich is author of an important paper on paleomagnetic results, published in Joides Deep Sea Drilling Program, vol. 22 (1974) 369-375. Rich attended the Penrose Conference on Linear Island Chains. He enjoyed this much more than GSA and AGU annual meetings; less hectic, more discussion, and held in a forest next to the beach in Monterey.
Cal Miller '69 and his wife Molly have completed their first year at UCLA. Molly works on trace fossils; Cal has started a study of some unusually alkaline granitic rocks in the San Bernardino Mountains and Mojave Desert, a project suggested by Alex Baird. Cal is a Teaching Assistant in mineralogy.

This summer Dave Vaniman '69 is a Teaching Assistant for the Humboldt State Field Camp in the White Mountains, below Westgard Pass. Dave is working towards a PhD in geology at UC Santa Cruz.

Mark Liggett '69 is still with Argus Exploration Company, a research subsidiary of Cyprus Mines Corporation. His primary emphasis is on applications of new and experimental remote-sensing techniques to regional geologic and structural mapping in mineral exploration. Argus has recently completed a two-year study for NASA. In November Mark gave a talk on Satellite Mapping of the Earth's Surface to the Geology Department.

Eric Sundquist '70 wrote from the R/V Melville, a Scripps ship, underway from Tokyo to Honolulu. After completing his orals at Harvard, Eric decided to take a year's leave of absence in order to work on an NSF-funded chemical survey of the oceans run primarily by geochemists from Woods Hole, Scripps, and Lamont. The cruise is taking him from the Aleutians as far south as the ship can dodge the icebergs. Eric is interested in studying the morphological effects of dissolution on forams and coccoliths in order to define dissolution facies related to carbonate compensation depth in modern and fossil sediments. He is getting good advice from fellow scientists on board ship.

Wayne Pierpoint '70 plans to enroll in the Masters' Program in Geology at Cal State Northridge. Wayne has been back at Pomona getting ready for his courses in the fall.

Amongst Doug Morton's recent publications are: Geology of Parts of the Azusa and Mount Wilson Quadrangles, California Division of Mines and Geology Special Report 105 (1973); and Some Features Produced by the Earthquake of 21 February, 1973, near Point Mugu, in California Geology, December 1973. Doug, now with the USGS, maintains his relationship with the department, working informally with students and giving us much useful information on local geology.

Bob Jenkins (HMC '71) is working towards his PhD at Colorado School of Mines. His thesis is mainly concerned with mineral paragenesis in the Inexco Mines, Jamestown District, Boulder County, Colorado. He aims at relating chemistry of the ores to the nature of the local intrusive rocks, and to alteration patterns in the country rocks. Barbara Lowe '63 is also working on a thesis in this mine. Bob is expanding on Barbara's earlier work, and the two are mapping a portion of the district jointly.
Jeff Dunn '71 was married to Jan Lyle, on May 18, 1974. They met in the Tetons, where Jeff spent three months as Ranger-Naturalist last summer. In Jackson Hole, Jeff ran in to Rod Stevens '73, who was doing summer work for Texaco, studying the Frontier Formation over Wyoming and parts of Utah. Because Jeff needed a field assistant while doing his thesis research on the stratigraphy of the Hite Bed, on the western flank of the Monument Upwarp, he offered the job to Rod, who was glad to accept it. The completion of Jeff's field work was delayed by an unusual accident in the wilds of Utah. He was driving along a recent mining road not knowing that everything but the hard-packed surface had collapsed into an underlying adit. The spectacular photograph of Jeff's truck entering the gates of Hell graced our bulletin board for some time before we realized how bad it was for business. Jeff expects to complete his Master's Degree at Tucson in the fall, and hopes to enter Northwestern University in January to work for a PhD in sedimentary petrology.

Tom Doe '71 completed his MA at Madison, Wisconsin. Tom studied primary structures in the Navajo Sandstone. He will stay on at Madison to work for a PhD on rock mechanics.

Don Bing '72 is doing graduate work at UCLA and visits Claremont from time to time.

Bruce Loeffler (HMC '72) enjoyed a successful year at MIT, where he is specializing in geochemistry under Professor Roger G. Burns, an authority on mineralogical applications of crystal field theory. Bruce has been fortunate in taking a petrology class under H. W. Fairbairn, and a two-semester course on metamorphism taught by J. B. Thompson of Harvard. He has passed the General Examination, which was an oral defense of two thesis proposals: 1. Determination of mineral electronic structure; and 2. Rates and mechanisms of metasomatic and metamorphic processes. His thesis research will involve molecular orbital calculations to determine intervalence charge transfer transitions, such as those responsible for the pleochroism of glaucophane. Bruce will have a paper in the Proceedings of the Fifth Lunar Science Conference. Another project has been a study of an emerald-green orthoclase from Broken Hill, Australia. It has a high Pb content, which has also been found in the blue microcline amazonite; so the color may be due to defect structure caused by the substitution of Pb for K. Last summer Bruce participated in Indiana University's Summer Field Program in Montana. This summer he is working as a field geologist for a U.S. engineering firm in Iran. As he says, "It's a pretty far cry from the electronic structure of minerals, but a very pleasant change for the summer".

Steve Bushnell '72 visited Claremont at Christmas and brought us news of the Geology Department at Harvard. Steve holds a Teaching Fellowship in Structural Geology, and much enjoys working with Dr. Haller. In the fall he will be back in Cambridge, and he looks forward to Eric Sundquist's return from the Pacific. In the meantime Steve is working for a Peruvian Mining Company 14,000 ft up in the Andes. He is mapping the geology and mineralogy on the lower levels of a zoned enargite deposit.
Bill Wadsworth is Chairman of the Geology Department at Whittier College. We see him quite often as he comes to Claremont to use the Geology library.

Carol Venolia '73 has had a part-time job for a social-science research firm studying drinking problems of urban American Indians while "playing student" at the Southern California Institute of Architecture, where she did research on the relationship between biology and architecture. Carol deserves credit for surviving in Los Angeles as "a student and working girl without a car". Rah! On April Fools' Day, Carol threw all this aside to travel just about everywhere through the U.S. In Massachusetts she found "an even weirder school than SCI-ARC", the Conway School of Landscape Design. Carol hopes to be one of the 12 students when classes resume in the fall.

This summer both Warren Thomas '73 and Roland Mora '73 take time off from UCLA to map oil-shale country for oil companies. Warren has a four-year Chancellor's Intern Fellowship at UCLA.

Ann Meloy '73 and Jim Kauahikaua '73 are both graduate students at the University of Hawaii. Ann is concentrating in geochemistry-petrology, Jim in geophysics. Jim's summer job is with a geophysical team prospecting for geothermal sources on the Big Island.

Rod Stevens '73 left in May for a four-month tour of Europe. In the fall he starts graduate work at the University of Massachusetts at Amherst. Don Doehring reports that Rod has received a Teaching Assistantship.

Paul Delaney (CMC '73) was the first student at one of the other Claremont Colleges to complete all requirements for a geology major at Pomona. After graduation, Paul stayed on in the department to pursue special studies in several areas, ranging from field mapping in the San Gabriel Mountains to bringing up-to-date Rollin Eckis' original work on the configuration of the basement surface in the Claremont area. In the fall he joins Sherman Suter and Allan Treiman at Stanford.

Sherman Suter '74 writes from Malad City, Idaho, to report on his work as a field assistant with the USGS. He is with Lucien Platt mapping a thick Upper Paleozoic section. Another assistant, a girl from UC Santa Cruz, was kidnapped by an escaped convict, who took her and her jeep half-way across the State at 120 mph before freeing her. On days off Sherman has toured some of the surrounding areas, including the Red Rocks Pass overflow of Lake Bonneville. After mid-August, Sherman will be working with Warren Hobbs along the Salmon River on the eastern edge of the Sawtooths. It should be cooler and prettier.