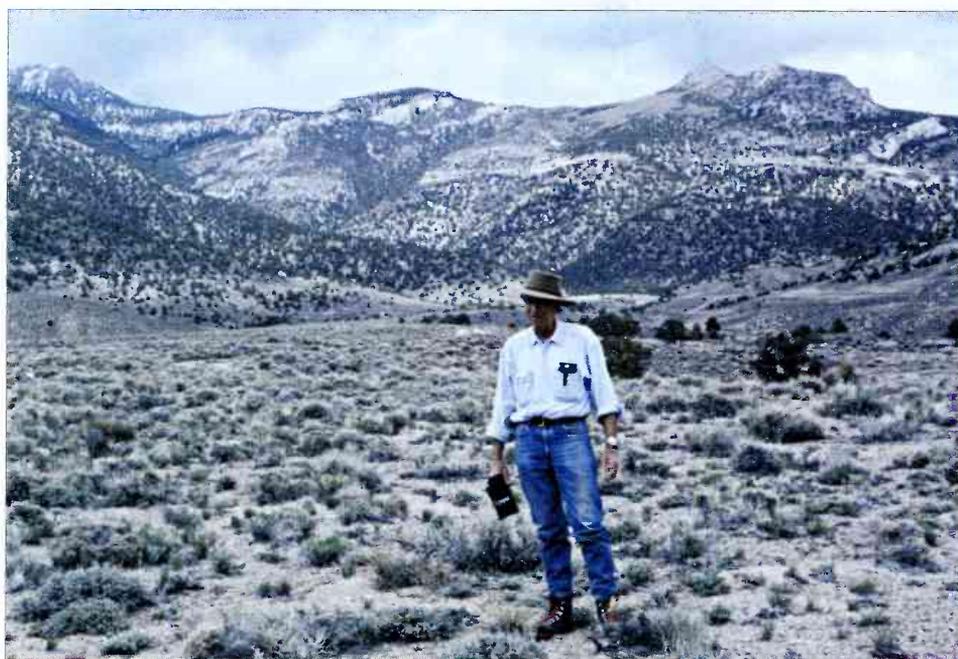


GEOSCIENCES

The Department of Geosciences

Spring 1999

Volume 4, Number 2



Peter Coney in the northern Snake Range detachment fault. (photo by Peter DeCelles)

Letter from the Chair

Joaquin Ruiz

Peter Coney's untimely death is the Department's sad news. In 1982 I read an ad in EOS describing a job opening at The University of Arizona. I had just finished my PhD dissertation on the origin of tin-rich rhyolites of the Sierra Madre Occidental in Mexico and had based many of my conclusions on Peter Coney's suspect terrane map of Mexico and his ideas of magmatism in the western US. I could barely wait to meet this scientist. His papers were imaginative and thought provoking. Of course, the papers reflected the man. After I got to know Peter, I was also struck by his humanity. Peter cared about people. He deeply cared for his students and was able to transmit to them his knowledge, his analysis and his calm. In fact, what made Peter such a remarkable individual was his genius combined with his humanity.

Peter left us with many legacies—a legacy of great thinking of how the Earth works, a legacy of great teaching, a legacy of how things are done in a collaborative spirit. This newsletter has a few sections dedicated to Peter and in fact our science article on sediment sources in North America through time, by Jonathan Patchett, is the kind of study that Peter would have enjoyed. I am pleased to announce that an endowment has been established by a generous alum creating a graduate fellowship in Peter Coney's name.

On the positive side, the Department continues to do well. In research and graduate education, recent polls in U.S. News and World Report rank our Department 7th in the country, up from 9th last time around. The Department ranked 4th in the subspecialties of Tectonics/Structural Geology and Sedimentology. NSF figures place us as the 4th best funded department in 1998. In

—cont'd p. 2

A Farewell to Peter Coney

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UA Geosciences
NEWSLETTER
Spring 1999



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Letter from the Chair cont'd

undergraduate research, our Department's tradition of excellence in teaching was again highlighted when Bob Butler was awarded the College of Science Distinguished Teaching Award and Michell Hall-Wallace obtained increased funding for the computer laboratory for undergraduate education. Our very active undergraduate club, Society of Earth Science Students, had a spectacular showing at the Tucson Gem and Mineral Show and a great field trip to northern Sonora, including a visit to the famous Cananea mine. Undergraduate and graduate students also enjoyed a

successful field trip led by George Davis and Susan Beck to study active tectonics.

The Geosciences Advisory Board met again this year in conjunction with GeoDaze and effected some significant changes in its membership. Cycling off as Chair is Steve May. We thank him for his efforts in getting our Advisory Board up and running. Will Wilkinson was elected as the new Chair. Will brings his expertise in exploration geology for Phelps Dodge, an important company with direct ties to Arizona. One of the issues the Board discussed was the upcoming University Capital Campaign and how the Department should start its own campaign to endow scholarships,

fellowships and capital equipment. It is our intent to begin a fundraising campaign early next year.

An obvious trend in this newsletter, and one that gives me great pleasure, is the increase in the size of the Alumni News section. It is wonderful to get photos and news from all of you. It gives all of us here great pride to hear that our alumni are doing well, and we're happy to know that this newsletter helps in keeping in touch. I wish you all a good summer.

News Around the Department

Bob Butler Receives College of Science Distinguished Teaching Award



In recognition of his outstanding classroom teaching, Bob Butler has been awarded the College of Science Distinguished Teaching Award. Bob consistently receives superb evaluations from students for his commitment both to a quality education and to the students themselves. A formidable education innovator within the department, Bob has driven much of the department's curriculum development and has also achieved NSF funding for educational efforts.

Something I reflect on occasionally is the special culture and sense of community which our department possesses regarding our teaching functions. This is a department in which all faculty take their teaching seriously and the department staff (in my case primarily Norm Meader and Jo Ann Overs) provide major assistance which allows us to teach well. There are many excellent instructors in this department from whom I have learned much about teaching. Primary examples for me are Pete Kresan, Randy Richardson, George Gehrels, Michelle Hall-Wallace, and Julie Libarkin. It is particularly noteworthy that faculty and students who put major effort into their teaching are recognized within our

department and are valued for that effort. I'm not sure I feel "distinguished" in your company but I will accept this award in part as a representative of a department which certainly deserves recognition for superior teaching. —Bob Butler

Junior Ed Program Draws 5,000 Kids



The Society of Earth Science Students (SESS) presented its popular Junior Education Program in conjunction with the Tucson Gem and Mineral Show this February. Kids begin the program in an exhibit area where they touch rocks, minerals, fossils, and dinosaur bones. They look at specimens through a microscope, tackle an interactive geosciences computer program, check out a 3-D map of Arizona and compare their height to that of a

dinosaur. Kids then fill each cup of an egg carton with a mineral or fossil donated by rock and mining companies. Once the carton is full, each child is teamed up with a UA student who helps identify the minerals and discusses their characteristics, value and possible uses. "Kids tend to be fascinated with colorful and sparkling things and with dinosaurs," says Pete Kresan, faculty advisor to SESS. "It's a hook, but we try to go a lot deeper than the hook." Almost 5,000 kids were hooked this year!

CLUE Gets Face Lift

Visualizing geologic features in three dimensions is one of the greatest challenges for beginning geoscientists. Michelle Hall-Wallace, Robert Butler and Peter Kresan were recently funded by the Learning Technologies Partnership at UA to help students improve their visualization skills through a number of methods. Students in their introductory courses will explore topographic geologic maps using software that shows the relationship between the two dimensional map and the three dimensional world. Students at all levels will learn to manipulate and create digital maps using GIS, which allows the user to create custom maps on demand using large databases of information. The team recently developed a GIS-based activity that investigates the impact of groundwater withdrawal in the Tucson Basin over the past 50 years. They are working on others related to mineral exploration, plate tectonics, and seismic and volcanic hazards.

The grant provides \$21,000 to upgrade the Internet connections in classrooms and purchase six new computers for the Computer Lab for Undergraduate Education (CLUB). They are seeking additional funds to upgrade the remaining computers in the CLUB lab over the next year.



In Memory of



Peter J. Coney

Peter J. Coney, 69, who retired in July 1998, died of lymphoma February 20 here in Tucson.

Peter was highly respected in his field as a keen and original thinker who trailblazed a number of important concepts (core complexes, "suspect" terranes, the accidents of plate interactions, etc.). "We have indeed lost a giant among us," commented Professor Greg Davis of USC upon learning of Coney's death.

Raised in Maine, Peter earned a master's degree in geology from the University of Maine and a geological engineering degree from L'Ecole National Supérieure du Pétrole in France, where he carried out geologic field investigations in the French Alps. Fluent both

in French and Spanish, Peter then fulfilled military obligations by working in an American Friends Service Committee-United Nations project in community development in rural El Salvador, Central America.

Before starting his PhD work, Peter and his wife Darlene next lived in Zion National Park, where Peter was a ranger. Here he created the cross section showing the relationship between Bryce, Zion and the Grand Canyon. Park visitors who buy maps showing how the geology of these famous regions correlate go home with a piece of Peter's work.

Peter obtained his PhD degree from the University of New Mexico where, the story goes, he told his advisor he wanted to understand the Cordillera from Alaska to the tip of South America. Indeed Coney studied first-hand the geology of the Peruvian Andes, northern Alaska, the Tasman Orogen of Australia, and the Pyrenees of Spain as well as his home turf in the Southwestern United States. Through these experiences he developed an intuition for geological processes that allowed him to develop fundamental concepts of how the Earth works.

Peter's first faculty position was at Middlebury College in Vermont. There he was so popular, colleagues say, that years later when his name was mentioned in a speech by UA colleague George Davis, the audience broke into applause. Peter had the power to do that. Peter joined the UA Geosciences Department in December 1975 where he became the cornerstone of an influential group in tectonics. William Dickinson later joined this group to form what had to be one of the most powerful tectonic programs in the world.

Peter Coney recently received a College of Science Career Distinguished Teaching Award. Nominating letters from colleagues cited Peter's unique perspective on the mountain systems of the world and his highly effective teaching style combining inspiration and encouragement with high expectations

and challenges to students. He possessed a childlike ability to seek unconventional solutions to classic geologic problems. Peter would often claim that he knew little of petrology, or detailed structural geologic analysis, or geophysics. Then, in the next breath, he would pose a question to a specialist in one of those fields which cut to the heart of a fundamental unanswered problem. It was well understood that Peter did not do this as some sort of exercise in intellectual bullying. Anyone who knew Peter would tell you that such an act would be very unlike this gentle person. Instead, those penetrating questions were evidence of a driving intellectual curiosity supported by an unusual command of the geological and geophysical literature.

But Peter Coney was not only an extraordinary thinker and an important contributor to geological research. In addition to his science, he taught very popular courses and was an unparalleled mentor to his graduate students. One of the traits Coney's colleagues and students most admired him for was his gentle, supportive yet challenging teaching style. Peter had an extraordinary ability to inspire students with a drive to unravel the Earth's puzzles presented by the geologic record in mountain systems. Alumni of the Geosciences Department who worked on the legendary "Coney Project"—students' independent and in-depth studies of a chosen geologic area—often say it was one of their most valuable educational experiences and a definite asset in their professional careers, citing him as "a great educator and an extraordinary role model." Peter Coney was without question one of the best educators in the geological sciences.

Peter is survived by his wife Darlene, their son Michel and their daughter Marian.



Peter and Darlene (photo by David Richards).

To Peter Coney the teacher
who turned science into art and made an art out of science,
who sought truth in every student,
who taught his students to care for details without losing the mountain
behind the rocks,
who gave us knowledge and broadened our understanding.
To the geologist, a cornerstone of his field, *primus inter pares*.
To the pilgrim of the mountains
who revealed their architecture both in rigorous concept and serene aesthetics,
who, based on facts simple and tangible, made a creed of "if it happened,
it is possible".
To the philosopher and the scientist.
To the keen and sharp mind; to the boundless spirit.
To the kind and understanding person, humble and modest.
To the artist, to Peter Coney.

—Elena Shoshitaisvili and Sergio Castro-Reino

Peter Coney: An Appreciation

These reminiscences are excerpted from a memory book put together by PhD candidate Elena Shoshitaishvili to be presented to Peter's family.

Peter was a paradox in some ways. As capable of soaring flights of fresh intellectual imagination as any scientist in the world, and just as quick as anyone alive to abandon worn out theories, he could also be stubborn as a mule once an idea had become firmly embedded in his unique brain. Those two facets of his scientific style were but flip sides of the same coin. Blessed with an innate confidence in his own judgment, Peter saw no sense in continued allegiance to concepts that failed his personal test of validity, nor any reason to back off from his own ideas in the face of criticism. His brand of geoscience was in some ways a solitary effort, yet he never lacked for followers and his sphere of intellectual influence was always a widening circle, like the ripples on a pond into which a stone is cast. —William Dickinson

Sometimes Peter would let me do something knowing that it was wrong. I guess he wanted me to learn from my experience. The best example of it is the ugly green maps of North America hanging on the walls of Peter's lab. The last time I saw Peter, we were talking about something, and he looked at the maps, so I asked, "Peter, why did you let me color them into such ugly colors?" He laughed and said, "To color maps the way that they talk to you, Elena, is an art." —Elena Shoshitaishvili

Peter would often describe a person as "civilized." It was a simple term that he used, but one he chose carefully; it encapsulated a person's character and a quality encompassing the highest standards



(photo by George Davis)

of humanity. Our conversations always had a strong impact on me and always left me feeling more "civilized," for Peter had a way of moving the people with whom he spoke. Most of all, Peter was a civilized man, an individual who embodied the very best in human qualities and civility. His being has enriched us all. —Roy Johnson

In order to understand Peter you have to know that he was brought up as a traditional Quaker. Quakers are taught to only speak, in a meeting for example, when they feel moved. They are supposed to be succinct and not repeat themselves. So this one trip I took down to Hermosillo with Peter, I made up my mind: I wasn't going to speak until he spoke. We were halfway down to Hermosillo before he said anything! —Paul Damon

It was in teaching that Peter's real nature and calling lay. Many students who passed through the University of Arizona, and experienced Peter's courses on Orogenic Belts, will never forget the inspirational experience that they enjoyed. All of his colleagues hear this memory regularly, even from geologists who were students here ten or twenty years ago. Peter rejoiced (no other word applies) in the inspired transmission of understanding, whether from himself to a class, to an individual, or from others to himself. He was doubly appreciative of students who took what he gave them and moved beyond it to new thoughts and ideas. He rejoiced equally when students or colleagues conveyed new understanding to him. As in the research domain, his praise and gratitude to someone from whom he felt he had learned something, or to a student who had developed exceptional insight, was very uplifting. —Jonathan Patchett

Peter's papers were imaginative and thought provoking. Of course, the papers reflected the man—imagination, intuition, genius. —Joquin Ruiz

Cordilleran tectonics and North America plate motion

Peter J. Coney

American Journal of Science Vol. 272 Summer, 1972

Cordilleran Benioff Zones

Peter J. Coney, Steven J. Reynolds

Nature Vol. 270 1977

Mesozoic-Cenozoic Cordilleran plate tectonics

Peter J. Coney

Geological Society of America, Memoir 152 1978

Geological development of metamorphic core complexes

George H. Davis, Peter J. Coney

Geology Vol. 7 1979

Cordilleran suspect terranes

Peter J. Coney, David L. Jones, James W. H. Monger

Nature Vol. 288 27 November 1980



The growth of Western North America

David L. Jones, Allan Cox, Peter J. Coney, Myrl Beck

Scientific American Vol. 247 27 November 1982

Tectonostratigraphic terranes and mineral resource distributions in Mexico

M. F. Campa, Peter J. Coney

Canadian Journal of Earth Science Vol. 20 1983

Cordilleran metamorphic core complexes: Cenozoic extensional relics of Mesozoic compression

Peter J. Coney, Tekla A. Harms

Geology Vol. 12 1984

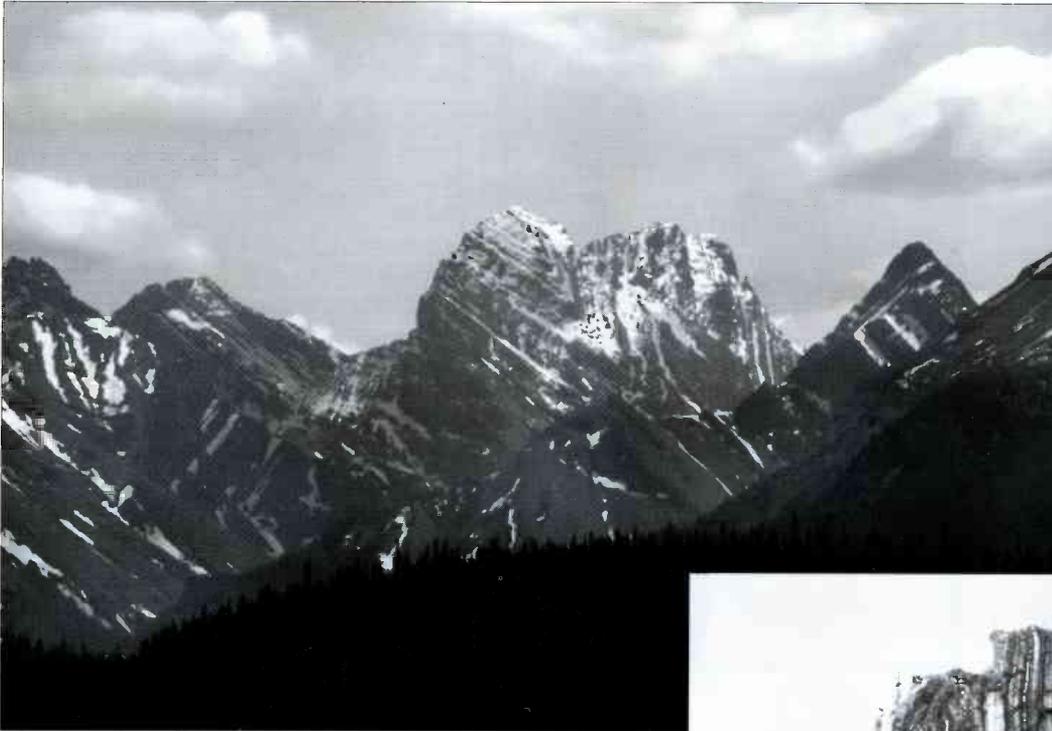
The Lachlan belt of eastern Australia and Circum-Pacific tectonic evolution

Peter J. Coney

Tectonophysics Vol. 214 1992

North American Continental Surface Dominated by Caledonian-Appalachian Detritus for 300 Million Years

Jonathan Patchett



Upper left: Folded miogeoclinal sedimentary rocks in the Rocky Mountains of Alberta. Upper right: Bill Dickinson deciding not to take a sample from disrupted stratigraphy in the Ouachita sequence of Arkansas/Oklahoma. Bottom: Graduate student Carmala Garzione and Gerry Ross of the GSC collecting from turbidite units in Yukon.

A team of the Department's researchers have discovered that sediments from the Caledonian-Appalachian mountain system were deposited over the entire North American continent 450 million years ago, and dominated the sedimentary system until 150 million years ago. The dominance of this sediment was only terminated when a new mountain system, the western Cordillera, appeared and in turn became the major source. The findings were presented in *Science* on 29 January 1999. It is the first time geologists have documented with geochemistry the origins of sediment at the scale of a whole continent. The group of researchers include Jonathan Patchett, supported by former graduate students James Gleason (PhD '94), Nevine Boghossian (MS '94) and Carmala Garzione (MS '96), former undergraduates Michelle Roth (BS '97) and Bret Canale (BS '96), and with the active collaboration of faculty Bill Dickinson, George Gehrels and Joaquín Ruiz. Gerry Ross of the Geological Survey of Canada is also a key member of the group.

The river-borne sediments deposited over North America for 300 million years came from the Caledonian Mountains that formed in Greenland and the Appalachian Mountains

that formed in the eastern United States during Ordovician time 450 million years ago.

Patchett and co-workers used the naturally occurring, long-lived radioactive isotope Samarium-147, that decays to Neodymium-143 to find the

origin of shales created by the compaction of the sediments over time. They studied sedimentary rocks from all parts of North America, from Texas to far northern Canada. They found shale formed from sediment that was eroded from the same mountains across North America from 450 million years ago right up to the Jurassic period of the Mesozoic era, 150 million years ago

Before the Caledonian-Appalachian mountains existed, as far back as 600 million

years ago, at the end of the Precambrian era, sedimentary deposits around North America were regional deposits. Sedimentary rocks in the Canadian Arctic and also Alberta clearly had been eroded from the ancient rocks of the Canadian shield. These rocks date from between 3 billion to 2.5 billion years old, and from between 2.0 billion to 1.7 billion years old. By contrast, sedimentary rocks in the eastern and southern United States formed

—cont'd p. 7

N. American Continental Surface cont'd

from the younger continental crust present under most of the Great Plains. The pre-450 million years picture is regionalized, according to the findings. The sedimentary material was eroded from rocks in the hinterland, much as the Mississippi River carries material down from the Mississippi Basin today. But, suddenly, at 450 million years, everything changes. All the sedimentary rock has the same Nd isotopic signature, and it appears to

come from the distant Paleozoic mountains. This material was reworked, perhaps over and over again in some regions, for 300 million years.

At 150 million years ago, there is another rapid change, well known from Cordilleran studies of many groups. The Cordillera begins to grow across western North America, and new and different kinds of sedimentary detritus spread across parts of the continent. However, the Cordillera has not yet achieved the same dominance as a sediment source, as was the case for the Caledonian-Appalachian mountains.

The paleogeographic and evolutionary aspect of this story is that when mountains are made, they can yield overwhelming quantities of sedimentary material that dominate the surface of that continent until the next mountains appear. Big changes in the ultimate provenance of sediments are associated with mountain building events, an axiom that graduates of this department who enjoyed the teachings of Bill Dickinson and Peter Coney should find quite credible!



Center for Earth Surface Processes Established

Owen Davis

On March 4-6, 17 scientists from the UA met with 35 of their colleagues from the USGS to discuss collaborative research and a joint "Center for Earth Surface Processes" (CESP) at the UA. The lead programs for CESP research are to be the Dept. of Geosciences and the Geologic Division of the USGS. However, the Laboratory of Tree Ring Research, the Dept. of Hydrology and the Institute for the Study of Planet Earth (ISPE) are to be important partners. The meeting began with 25 talks on climate change, ecosystem and landscape impact, water resources and hazards, and environmental effects of resource exploitation. This was followed by a USGS Managers meeting, a tour of Geosciences laboratory facilities, and a dinner at the Desert Laboratory on Tumamoc Hill. The next day (Saturday) introduced USGS scientists to Southern Arizona with a field trip to the upper drainage of the San Pedro River. Details of the meeting are available at <http://geo.arizona.edu/Antevs/surficial.html> and <http://climchange.cr.usgs.gov/cesp/>

The creation of CESP continues a long-standing relationship between the USGS and the department, which includes many of our faculty who are former USGS scientists, and the many Geosciences alumni who now occupy positions throughout the USGS. This relationship became an active collaboration in 1989 when geologists from the Minerals Division moved into the fourth floor of the Gould-Simpson building. The collaborative research that resulted from our close proximity resulted in a host of research publications, theses, and dissertations. The spirit of

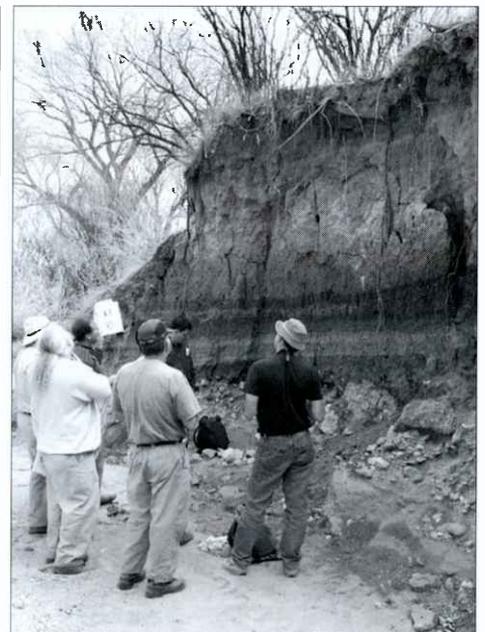


San Pedro River field trip participants Owen Davis, Todd Hinkley, Dave Kirtland, Dave Miller, Brenda Houser, Bob Kamilli, Don Gautier, Rick Forester.

collaboration is embodied in the Mineral Resources Center which currently includes four Geosciences faculty, two USGS scientists, and 18 graduate students (<http://www.geo.arizona.edu/cmr/>).

CESP will focus largely on climate change, surficial geological processes, land use, and other geologic phenomena that affect the landscape, ecosystems, and human use of the land. Both the department and the USGS will benefit from the intellectual interactions, opportunities for scientific collaboration, shared resources, and scientific focus that CESP will provide. The enhanced ties to the UA will benefit the USGS by providing scientific and staffing flexibility, access to students, and ties to local and regional constituencies. The UA will profit by participating in the long-term scientific stability and planning provided by ties to the USGS and by enhanced funding and scientific opportunities for students.

Initially the CESP scientists will consist of geoscientists currently at the UA. However, within two years it is planned that USGS scientists will be hired to fill CESP positions, and senior USGS scientists may also join the Center. Bob Thompson, Team Chief Scientist, Global Change and Climate History, Denver, and Owen Davis, Geosciences, are the acting co-directors of CESP.



USGS and UA geoscientists discuss historic erosion of Curry Draw. L-R: Bob Kamilli, Don Gautier, Owen Davis, Paul Carrara, Elliot Spiker and Keith Howard.



SESS Goes to Northern Sonora, Mexico

Peter Kresan



Left: Floyd Gray reviews the geology exhibited by a satellite image of the area. Right: The gang and the primary crusher at the Nacozari Mine.

The Society of Earth Science Students (SESS) had one of their best spring break field trips ever this March to Northern Sonora, Mexico. Special guests included a KUAT Public TV crew who filmed the trip for a segment of *The Desert Speaks* to be aired next year; Floyd Gray and Bob Miller from the USGS; Yar Petryszyn, a UA ecologist; Fernando Vasque Lopez, a geology student from the Univ. of Sonora; and Jose Luis Rodriguez, a geologist from the Universidad Nacional Autonoma de Mexico. In all, we had a wonderful group of 22 students, faculty and guests.

The six-day trip explored the rich natural and cultural history of Northern Sonora. Some of the geologic highlights included visits to the 1887 earthquake fault scarp, Arizpe and other communities which were impacted by the quake (estimated to be a magnitude 7 plus); the hot springs at Aconchi, where students sampled spring water for a geochemical study and enjoyed its therapeutic value after a few days of dusty travel; Moctezume to explore lava tubes in Quaternary basalt flows on which grows the northern extent of the dry tropical thorn scrub forest; and the impressive Nacozari copper mine.

Undergraduate students Arturo Baez and Sean Haggerty were the principle organizers of the trip. Both are involved in an independent study project involving the geochemistry of hot and warm water springs associated fault systems. Floyd Gray, who is involved in an international field study of this region, has invited Arturo and Sean to contribute to a USGS open file report about the region. Yar Petryszyn enriched the interdisciplinary character of the trip by adding

the ecological story. Near Moctezume, Yar guided us into a nicely formed lava tube to visit a small colony of bats. We left the lava tube at dusk with the bats streaming out of its entrance in search of their evening snacks.

Ore deposition was the focus of our last day



Above: Fernando Lopez and Arturo Baez are on camera with a "mouse". Left: Arturo and our hosts for the Nacozari party.



on the trip with a tour of the very impressive, modern Nacozari open pit copper mine. Mining in the Nacozari district goes back to before the arrival of the Spanish missionaries. In 1979, Mexicana de Cobre began production from the La Caridad deposit. The major elements of a porphyry copper system are still very well displayed in the open pit of La Caridad. Senior geologist, Jose Contla Jimenez and Gildardo Montenegro Palomino, an ecologist, gave us a very informative tour. Graduate student Sergio Castro-Reino did a short course on the identification and

interpretation of the gossan in the leached cap. Most of us could not resist the temptation to collect, including Mark Rollog, who collected samples for his graduate studies.

Although the geology and other natural history explored on this trip was especially diverse and interesting, the biggest highlight for me was the great group of students and colleagues who participated. Arturo and Sean did a superb job with trip organization; Alisa Miller, Mandi Lyons and Michelle Wagner had plenty of SESS T-shirts on hand for our hosts; Dan Quinlan and Sergio helped Arturo and Floyd with English/Spanish translation; the CB radios flared with almost continuous conversations about roadside geology thanks to Bob Casavant, Jan Lacanette and others. And then there was the party on our last night in Nacozari where we were the guests of the Honorable Gerardo Baez, the Mayor of Nacozari, and other city officials. The food, the music, and the hospitality were fantastic—a perfect end to a fabulous field trip.

Active Tectonics Goes to "the Valleys"

George Davis



Above: Fault scarps in the Volcanic Tablelands near Bishop. Left: The gang, near the 1872 Owens Valley scarp. (photos by Susan Beck)

rhombochasm created at a releasing bend in a strike-slip system. Walker Lake, as a result, is DEEP, and is used as a U.S. Navy site for testing out submersibles and submarines. Creepy place. Old bathtub rings around the lake serve as markers for fault displacements.

Somehow staying clear of late-winter storms, we circled around to Mono Lakes and Long Valley, where we thought hard about the Long Valley Caldera, the eruption of the Bishop Tuff, the resurgence(s), and present-day seismicity. Then we drove to Bishop and up onto the Volcanic Tablelands, which for structural geologists is a kind of mecca. Clearly expressed in the landscape are normal fault scarps that cut the top of the Bishop Tuff. The faulting is active, the scarps are fresh, and there are dozens and dozens of faults. Because of this, it is possible to clearly see the transfer zones between overstepping and overlapping faults. We all ran out of film on the Tablelands!

Our final stops were along the Owens Valley fault, where we examined the impressive scarps that formed during the 1872 earthquake. This was a big quake which created many meters of both strike-slip and dip-slip motion, with the ratio being approximately 6:1. Parts of the scarp were completely un-eroded, giving us a glimpse of what a fresh scarp looks like in fanglomerate.

We all look back on an experience that literally opened our eyes to active tectonic landscapes, and to the broad and diffuse nature of an important plate boundary. We concluded that the plate boundary movement is accommodated elegantly through the combination of both strike-slip and normal movements, as well as some occasional volcanic blasts.

Sue Beck and George Davis co-taught Active Tectonics during the Spring '98 semester, and one of the high points was their field trip to "the Valleys": Death, Fish Lake, Owens, and Long (March 20-26). Clem Chase came too, contributing insights all along the way. Karl Mueller, active tectonist from Univ. of Colorado, brought six students from Boulder to the Valleys.

The purpose of the trip was to better understand the nature of the easterly part of the broad plate boundary between the North American and Pacific Plates. Thus we felt it important to examine active tectonic expressions along the Eastern California Shear Zone and Death Valley. Two years ago Beck and Davis took their students to the western part of the same plate boundary, as expressed in downtown Los Angeles.

The trip was about FAULT SCARPS, ones in every flavor imaginable. Karl Mueller taught us the ABCs of dealing with the neotectonic

and geomorphic expressions of scarp systems. Some of the scarps we examined were 80m tall, inclined at steep angles of repose, and composed usually of alluvial fanglomerates. Typically these scarps were found to be somewhat eroded along their tops, creating a little crestal rounding, and in-filled a bit at their bases by colluvial wedges. The most fun for us was, in each case, trying to evaluate the actual direction of fault slip and figuring out the "partitioning" of strike-slip and dip-slip movement. Markers to assess this included offset ridge crests, offset lateral moraines, offset ancient shorelines, and the like.

While in the Death Valley pull-apart basin we checked out the classic turtlebacks, and looked at strike-slip scarps along the Furnace Creek fault zone. Northward from Death Valley we examined the most spectacular fault scarps in the coterminus U.S., exposed on the western side of Fish Lake Valley.

Further northward we visited Walker Lake, yet another pull-apart feature, a classic

ALUMNI NEWS

1940s

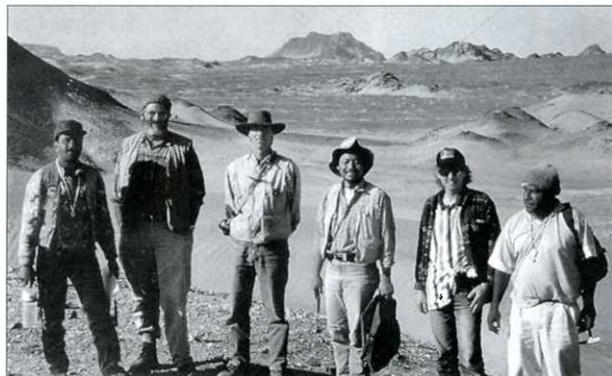
ROBERT H. HIGGS (BS) retired as Director of the Geophysics Dept. of the Naval Oceanographic Office in July 1987. He's currently living in Sevierville, TN.

1970s

MATT GREENHOUSE (BS '79) became interested in astronomy after receiving his BS here. He worked with Steward Observatory for several years and then moved to Laramie, WY, where he received a PhD in Astrophysics in '89. Matt then worked for seven years at the Smithsonian in Washington and later at NASA Goddard Space Flight Center in Maryland where he is a Deputy Project Scientist for the Next Generation Space Observatory (NASA's replacement for the Hubble Space Telescope). Matt has two kids: Molly (6) and Ben (4), and has been married to Shelley (BS Biology '81, UA) for 19 years. (matt@stars.gsfc.nasa.edu)



JOHN SCHLODERER (MS '74) is an Exploration Geologist for BHP World Minerals. John was based in London from 1993 to 1997 where he worked in eastern Europe, Russia and central Asia. Currently based in Perth, he is now working on porphyry copper exploration in Pakistan and Indonesia. John makes special note of **PETER LARSON'S (MS '76)** Bear Down Den receipt (Spring '98 Newsletter): "Pete, that must be your *only* receipt. Tom, Bill and John S. carried you in '74!" (schloderer.john.jp@bhp.com.au)



John Schloderer (MS '74), third from left, with the BHP Minerals Discovery Group at the Reko Diq porphyry copper project in Pakistan.

1980s

JOE BARTOLINO (BS '80), following five years as a Navy pilot, joined Newmont Mining in 1985 and has worked throughout Latin America. In his present position he is responsible for Newmont's exploration programs in the entire Andes region. Joe resides in Lima with his family and writes that he truly enjoys life in South America.

GARY COLGAN (MS '89) is alive and well in Salt Lake City where he's still skiing, kayaking, and mountain biking as much as possible. In 1997 Gary started his own groundwater firm, Aquifer Science, Inc. After years working for Montgomery Watson, including a year in Guam supervising a large drilling project for the US Air Force, he was ready to retire from the rigors of the corporate world. With his own firm Gary believes it should theoretically be easier for him to get away for powder mornings at Alta! In 1994 he married Darlene Batatian, recently appointed the Salt Lake County Geologist. Gary would love to hear from his fellow Squids. (gcolgan@lgcy.com)

VIVIAN G. DELL'ACQUA (BS '87) has been working for UNIMIN in North Carolina as a Research Scientist in minerals processing for a little over a year. Before that, she worked for BHP Minerals in Reno, NV.



LISA ELY (MS '85, PHD '92) visited the department last fall while attending the Project Kaleidoscope Workshop on research opportunities for students in a research-rich

environment. Lisa is on the faculty with the Geology Dept. at Central Washington Univ. (ely@cwu.edu)

PASCUAL MARQUEZ (BS '80) writes that the Fall '98 Newsletter "was a very pleasant surprise that made me remember some of the great times I shared with teachers and classmates from fall '77 to summer '81, but it also reminded me how much I owed to that school." Pascual is living in Venezuela where he has been working for PDVSA

for 18 years. He is currently leading an Integrated Study Team in the Eastern Division and his main interests lie in reservoir characterization, sequence stratigraphy (particularly in continental, fluvial domain) and fault sealing analysis. (marquezps@pdvsa.com)

MICHAEL H. RAUSCHKOLB (BS '73, MS '83) is with US Borax as Senior Land Agent in California. (m_rauschkolb@yahoo.com)

BART (MS '85) and KAREN (MS '87) SUCHOMEL have returned to the US after six years in Chile, where Bart was Regional Exploration Manager-South America for WMC, and Karen was Coordinator, Chile for HSI Geotrans, a hydrogeologic consulting firm. Bart continues to work for WMC, an Australian mining company, with new global responsibilities. Karen, who worked for HSI for 10 years, is now heading into semi-retirement to do contract work and care for their three boys, Bryce (8), Luke (6) and Jesse (3). (suchomel@oneimage.com)

1990s



ELENA CENTENO (PHD '94) gave a talk in the department ("Paleozoic Tectonic Evolution of Mexico from the Sedimentary Record") in November. Elena is on the faculty at the Instituto de Geologia at UNAM in Mexico City. (centeno@servidor.unam.mx)

LAURA CATHCART (MS '90) writes, "I receive the newsletter and enjoy reading about the latest and greatest there. It seems like ages ago that I was there, and yet it was the most important experience that I have had in geophysics and what I learned there is always with me." Laura worked for IT Corporation in the geophysics department from 1990 until 1997. She then joined Converse Consultants in California as chief geophysicist where she managed all geophysics work for Converse for almost two years. She recently joined Spectrum Geophysics as their chief geophysicist in Southern California. (cathcart@vividnet.com)

ALUMNI NEWS

SUMIT CHAKRABORTY (PHD '90) received his Habilitation Degree, basically a German post-doctoral degree, from the Univ. of Cologne in February '98. Sumit then accepted a Professorship, the Chair of Experimental and Theoretical Petrology, at the Institute of Mineralogy in the Univ. of Bochum, Germany. (Sumit.Chakraborty@rz.ruhr-uni-bochum.de)

TOM DILLEY (MS'90) took a month-long vacation in Florida where he enjoyed kayaking, snorkeling and birding and attended a shuttle launch with **MARK TINKER (MS '93, PHD '97)**. He returned to a cold and snowy Alaska where he started teaching at the local community college in January.

BRIAN HORTON (PHD '99) recently relocated from Los Angeles, where he had a postdoc at UCLA, to Baton Rouge. He says it's "something of a cultural transition." Brian will get a chance to briefly settle in at Louisiana State Univ., where he's accepted a position as Assistant Professor, before heading off on another long jaunt into the field (three months in Tibet and then two in Bolivia). He can't believe he's getting paid to do this! (horton@geol.lsu.edu) The Other Brian, **BRIAN CURRIE (PHD '98)**, now a postdoc at the Univ. of Chicago, will be starting his new job as Assistant Professor at Miami (Ohio) Univ. in the fall. (bscurrie@midway.uchicago.edu)

JEANETTE INGRAM (BS '97) is employed with Physical Resource Engineering in Tucson as staff geologist and computer draftsperson. (jeanette@pir.lpl.arizona.edu)

AGATA KOWALEWSKA (MS '96) and **MICHAL KOWALEWSKI (PHD '95)**, and daughter Ula, send their greetings from Blacksburg, VA. After spending the last two years in Europe (mostly in their native Poland and in Germany), they have moved back to the US, this time to the east coast where Michal is Assistant Professor in Geological Sciences at Virginia Tech and Ula attends the Rainbow Raiders pre-school!

KIK (CATHY) MOORE (MS '93) is the coordinator of the Earth Science Information Center of the Arizona Geological Survey (AZGS). Ask her about Arizona topo maps! (Moore_Cathy@pop.state.az.us)

KATHLEEN NICOLL (PHD '98) is working with Chevron Overseas Petroleum, Inc., the San Ramon Unit, where she's already been doing a lot of travelling for the company. (nika@chevron.com)

GREGORY ROSELLE (BS '90) received his MS ('93) and PhD ('97) from the Univ. of

Wisconsin. Gregory is currently a postdoc at the Institute of Mineralogy and Petrology at the Univ. of Bern in Switzerland. (roselle@mpi.unibe.ch)

JEFF WARREN (BS '94) was married last August to Missy Graves of Birmingham, AL. He's left Phillips Petroleum and will begin his PhD program in geology at the Univ. of North Carolina at Chapel Hill this fall where he'll work with seismic and sequence stratigraphy of the South China Sea. Jeff will get a jump start by collecting data this June from a UA Navy research vessel.



NEW ARRIVALS

DAVID (PHD '94) and **KRISTINE COBLENTZ**, Kai (boy) Sept. 27, 1998.

CARL (MS '94) and **MICHA (MS '93, PHD '99) YOUNG-MITCHELL**, Catalina (girl), Nov. 10, 1998.

STACEY KIDMAN (MS '93) and **JOE PLASSMAN**, Ryland (boy), Dec. 29, 1998.

STEVE MYERS (MS '90, PHD '97) and **KATIE LONG (MS '94)**, Adele (girl), March 11, 1999.

PABLO YAÑEZ (MS '90) and **SILVIA TANDECIARZ**, Cristobal (boy), July 25, 1998.



Drilling ahead to 15,000 ft, the Agata Prospect on the western foothills of the Eastern Cordillera of Colombia.



PEDRO RESTREPO (MS '91, PHD '95), with Conoco in Houston, writes, "To reach the stage pictured here, I conducted two months of surface mapping, got involved in the acquisition of 500 km of 2D seismic and processing, did the seismic/structural interpretation, ran economics and risking, laid out a prognosis...a process that took nearly two years. This is my first well! I love the challenge. Even though success has been estimated to be 1 in 9, this well gives me an opportunity to directly test a model. The responsibility is enormous—in excess of \$30 million has been invested. It is commonly said that nobody is remembered for drilling a dry hole, but everybody will remember you if you had the opportunity to drill and never did (leaving someone else to come along and make a significant discovery)!" (PACE@usa.conoco.com)

ALUMNI NEWS

In Memory of

JERRY HARBOUR (PHD '77); who retired in 1990 as an administrative law judge with the licensing board of the Nuclear Regulatory Commission, died on Sept. 14, 1988 in Falls Church, VA.

Jerry worked in the military geology and astrogeology branches of the USGS early in his career. He was a researcher for the Institute for Defense Analysis before joining the Atomic Energy Commission in 1972 where he was chief of the site safety research branch at the NRC. He became a technical law judge in the early 1980s.

A native of Coleman, TX, Jerry attended the Merchant Marine Academy and served in the Air Force in Germany in the early 1950s. He received BS and MS degrees in geology from the Univ. of New Mexico and his doctorate from the UA in 1977.

Survivors include his wife of 47 years, Carol, three children and one grandchild. Carol writes that they and their children were denizens of Polo Village while Jerry did his coursework and research for his PhD and that they have many fond memories of Arizona.



NILE O. JONES (BS '68, MS '77) died in October 1996. In 1980 Nile and his wife Sue moved to Las Vegas, NV where Nile was employed by Holmes and Narver (geothermal energy surveys in Nevada), E G & G Special Projects (Dept. of Defense work) and various contractors associated with nuclear waste disposal at the proposed Yucca Mountain repository.



RICHARD R. WEAVER (MS '65) died on August 3, 1998. Richard graduated from Franklin and Marshall College in 1958 with a BS in geology, receiving his MS from the UA in 1965. In 1960 he began working for the Bear Creek Mining Co. on the Sierrita and Twin Buttes copper discoveries in Arizona. Five years later he moved to Quintana Minerals Co.

In 1967 Richard joined Exxon Minerals Co. for a 13-year tenure. In 1980 Richard joined Atlas Corp. as its president and chief executive officer. Under his management he transformed the company into a successful gold and exploration development and mining company. Richard left Atlas in 1993 to establish a consulting practice, the Lodestone Group Inc., where he gave his clients the benefits of his expertise as an explorationist, an ore finder and a manager. Richard's priorities were always to his family and science first—although fishing occasionally took precedence.

He is survived by his wife Catherine and two daughters.

ALUMNI PROFILE

DIANA HALLMAN (BS '97)



Diana Hallman has just been accepted to the Univ. of Florida where she will be working on her doctoral studies in Zoology starting in Fall 1999. She has been awarded the Lucy Dickinson Fellowship in Vertebrate Paleontology and a four-year Fellowship.

My name is Diana Hallman and I am in the final year of study for my MS at Northern Arizona Univ. in the Quaternary Studies Program. I graduated from the UA with a BS in Geosciences in Fall 1997. I am a Tucson native and of Mexican heritage. I am the first one in my extended family to receive a degree from a four-year university and also the first one in my family to pursue graduate education.

While studying at the UA, I worked on taphonomic studies of marine invertebrates under the guidance of Dr. Karl W. Flessa. I felt very fortunate to be able to conduct research as an undergraduate. This experience was invaluable to me. It prepared me for my graduate studies and greatly enhanced my application to my graduate program. It also played an integral role in the success of my application in the 1997 NSF Minority Fellowship competition.

Currently, I am working on my thesis with Dr. Larry D. Agenbroad (NAU) and Dr. Daniel C. Fisher (Univ. of Michigan). This research focuses on oxygen isotopic analyses of biogenic phosphate from southwestern proboscideans. I will use this analysis in conjunction with growth line studies of mammoth tusk material to infer climatic seasonality, season of death, and life history of the last few years of each animal's life. I have also returned to the UA (they can't seem to get rid of me) to conduct the oxygen isotope analyses in Dr. Jay Quade's lab. Tusks and cheek teeth of proboscideans record the life history of the animal including age, sex, age at sexual maturity, calving, and season of death. These parameters provide information of the ecological stress, nutritional and predation patterns. By comparing the southwestern mammoth material with Michigan mastodon material and South Dakota mammoth material, I will be able to look at life histories and climatic signatures across the continent. In addition to providing detailed environmental and life history information, this research will aid in paleoenvironmental interpretations and allow for testing assumptions implicit in extinction hypotheses.

Throughout my undergraduate career, I was supported by the AGI through their Minority Scholarship Program. This support was essential as I pursued my undergraduate degree. I am grateful for this assistance and am now pleased to serve AGI as a member of the Steering Committee to increase professionalism in the 21st century. The committee is putting together a conference that will be offered for undergraduate minority geoscientists and is proposed for Spring 1999.

In my doctoral work I would like to continue my research in oxygen isotopes as they are quite useful in reconstructing paleoenvironments. In addition, I would like to look deeper in time at earlier Miocene proboscideans and the role they played in the Great American Faunal Interchange. After completion of my doctoral program, I would like to obtain a position in academia that will allow me to continue my research in proboscidean paleobiology. As a faculty member, I look forward to the opportunity to recruit and mentor the next generation of scientists. I hope to serve as a good role model for women and minorities in the sciences. (dianahallman@yahoo.com)

ALUMNI NEWS

MARK ZOBACK RECEIVES ALUMNI ACHIEVEMENT AWARD



Mark Zoback (BS '69)

The 1999 Department of Geosciences Alumni Achievement Award was presented to Dr. Mark Zoback during the 47th Annual GeoDaze Symposium. The award is given in recognition of outstanding accomplishments by a graduate of the department. Mark received a BS in geophysics from the UA in 1969, and went on to earn a MS and PhD in

Geophysics at Stanford. Mark then began a career as a geophysicist at the USGS, where he was Chief of the In-Situ Stress Measurement Project, Deputy Chief of the Office of Earthquake Studies, and finally Chief of the Branch of Tectonophysics. In 1984 Mark went back to Stanford as a professor of Geophysics, and is recognized as one of the world's leading experts on the state of stress in the Earth's crust and the physics of deep boreholes.

Mark moved to Tucson when he was 10 years old, and naturally decided to attend the hometown university. Visions of geophysics, however, did not fill his head. Mark wanted to be a lawyer—his last name saved him from that fate. In the 60s class registration was done alphabetically, and by the time "Zoback" was up for registration most of the classes Mark wanted were filled. Hearing that Introduction to Geology was easy, he decided he ought to at least get rid of his science requirement. The instructor, Ed McCullough, proved such an excellent teacher that Mark fell in love with earth sciences and any thoughts of torts and litigation gave way to mountains and earthquakes. Mark began to look around for a specialty. He disliked excessive memorization, so thought he would look into geophysics and

made an appointment with John Sumner. He knocked on John's door and said something to the effect, "I have a couple of questions about geophysics." John grabbed Mark's hand and said, "Welcome aboard!" Afraid to leave, Mark became a geophysicist! Actually, once Mark started to work on geophysics problems he knew he had found his calling.

Mark's professional work has focused on forces in the crust. He teamed up with his wife, Mary Lou Zoback, to demonstrate that stress indicators like earthquakes and bore hole breakouts can be used to develop consistent regional scale stress fields which reflect large scale tectonic processes. Mark has been a lead investigator on a number of deep continental drilling programs. The most widely known of these is the deep hole along the San Andreas Fault in southern California. Mark's work has led to the realization that plate boundaries are truly unusual places—they are extraordinarily weak zones embedded in otherwise strong crust.

In addition to being a distinguished alumni of the Department of Geosciences, Mark has been elected a Fellow of the American Geophysical Union and a Fellow of the European Union of Geosciences. He is also the recipient of the Kenneth Cuthbertson Award for Outstanding Service to Stanford Univ. This is Stanford's highest award to faculty and staff. Mark received this award for leading a two-year effort to revise the student judicial system at Stanford. —Terry Wallace

Terry Wallace Presented Outstanding Faculty Award by Geosciences Advisory Board

The Geosciences Advisory Board awarded Terry Wallace its Outstanding Faculty Award at this year's GeoDaze Symposium. Terry was recognized by the Board for his excellence in seismological research, his contributions to the Geophysics program in the department, and his record of service on both a local and a national level.

Terry and his students have made major contributions in understanding the occurrence of deep earthquakes in subduction zones. Terry has also been on the forefront of seismic treaty verification with his work on nuclear explosions. With the signing of the Comprehensive Test Ban Treaty comes a renewed importance to seismic verification. Terry has been highly visible in Washington D.C. recently due to his work on the India and Pakistan nuclear explosions last year.

Terry is an active leader in the Incorporated Research Institutions of Seismology (IRIS), a nation-wide seismology



consortium and over the last decade he has served on four major IRIS committees, including the chair of the executive committee. Terry is also the newly-elected President of the Seismological Society of America.

Advisory Board Elects New Chair



Cycling off as Chair of the Geosciences Advisory Board is Steve May (PhD '85), left, with Will Wilkinson (PhD '81), right, elected as the new chair. Retiring board members include Hugo Dummett and Fred Graybeal (MS '62, PhD '72). Newly-elected members are Regina Cupuano (MS '77, PhD '87) of the Univ. of Houston, Stephen Naruk (MS '83, PhD '87) of Shell, and Dave Lofquist (MS '86) of Exxon.

GEODAZE '99

This year's GeoDaze Symposium gathered students, faculty, alumni, industry folk and friends together on April 8-9 for the 27th consecutive year of undergraduate and graduate presentations in the earth sciences. Drawing an audience from as far away as Alaska, two poster and three oral sessions kept the extended family of the Department of Geosciences abreast of student earth science research being conducted at the UA.

Whereas the general success of GeoDaze is dependent on a number of individuals and institutions, the outstanding quality of student presentations truly separates GeoDaze from its counterpart symposia. The Evaluations Committee, headed by Joy Gillick, pointed out that the calibre of student research presentations underscored the wholesale success of UA geoscience students in a diverse array of disciplines. The Evaluations Committee made significant strides towards improving the feedback and evaluation process this year. By making evaluation forms available to all, organizers worked towards keeping the collaborative and cooperative nature of the department at the heart of GeoDaze.

On a more recreational note, GeoDaze's function as an opportunity for current students and faculty to become acquainted and re-acquainted with industry guests and alumni came to fruition at the monumental GeoDaze bash and Saturday field trip. Joaquin Ruiz's GeoDaze party unified witty geologic banter with general merriment, leaving all palettes satiated. Spence Titley lead the field trip to Silverbell Mine, introducing some to the wonders of southeastern Arizona porphyry copper, while providing a forum for others to discuss the economic and tectonic implications of such deposits.

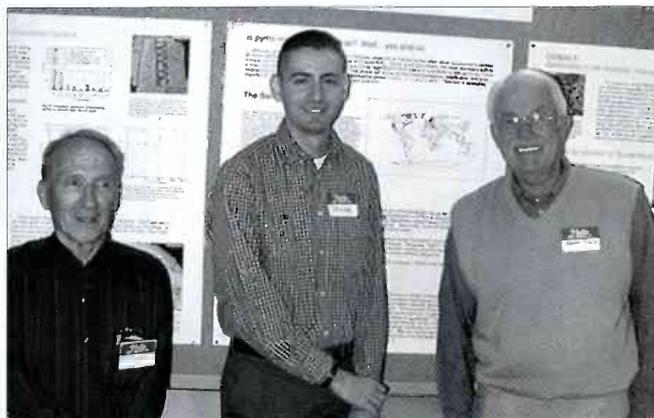
As in previous GeoDaze Symposia, a number of groups recognized colleagues who have made influential contributions to the departmental community and our fields in general. With somber and admiring intentions, we dedicated this year's GeoDaze to Peter Coney. It is our belief that the cooperative nature of GeoDaze is and will



Top Row (L-R): GeoDaze Award winners Mandi Lyon, Dena Smith and Carmala Garzoni. Bottom Row (L-R): Pilar Garcia, Sergio Castro Reino, Chris Greenhoot and Eric Jensen.



Left: Undergrads Orestes Morfin, Hillary Brown and Bill Hart at the Poster Session.



Right: Long-time GeoDaze supporters Dick Jones (BS '56, MS '57) and Bernard Pipkin (PhD '65) take a good look at Frank Mazdab's poster presentation.

remain a legacy of the influence Peter had on this department's students and our science in general.

Mark Zoback of Stanford received the department's Distinguished Alumni Award and delivered the GeoDaze '99 keynote talk entitled "Crustal Faulting and Fluid Flow—Some New Ideas about an Old Problem." We salute Dr. Zoback and recognize his contributions to our science.

Terry Wallace was presented with the 1999 Outstanding Faculty Award by the chairman of the Alumni Advisory Board, Steve May, for his recent professional and teaching achievements in global seismology. Steve also updated the department on the progress of

the Advisory Board at its annual GeoDaze meeting.

John Lindquist of E.L. Montgomery and Associates presented that company's generous \$1000 Best of Show Award to Steve Ahlgren.

Finally, as we recover from the organized chaos that is GeoDaze, we would like to thank and recognize all of the contributors to GeoDaze '99. With the help of student committees, financial benefactors, alumni associates, faculty members and staff support, GeoDaze promises to continue to be a source of pride for all facets of the Department of Geosciences at the UA.

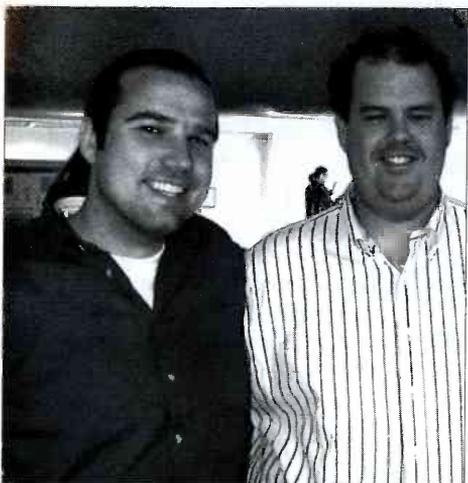
—Dave Barbeau



GeoDaze '99 organizers Dave Barbeau, Elena Shoshitaishvili and Brian Monteleone stand in front of the poster dedicated to the memory of Peter Coney.



John Lindquist (MS '92) of E. L. Montgomery and Associates presented the Best of Show Award to PhD student Steve Ahlgren.



Outstanding Teaching Assistant Award recipients Peter Liermann and Kris Kerry.

GEODAZE AWARDS

Montgomery Prize (Best of Show)

Steve Ahlgren, *Visualizing Complex Structures in Three Dimensions.*

Gardner Prize for Field Geology

Pilar Garcia, *How Does Basement Fold? Let Me Count the Faults.*

Best Talk in Geophysics

Meredith Nettles, *Faulting Mechanism of the Great March 25, 1998 Antarctic Intraplate Earthquake.*

2nd Place Talk

Carmala Garziona, *C and O Isotopic Evidence for Southern Tibetan Plateau Uplift by 11 MYR Ago, Thakkhola Graben, Nepal.*

3rd Place Talk

Dena Smith, *Beetle Mania: Insect Taphonomy in a Recent Playa Lake.*

1st Place Poster

Eric Jensen, (1) *Mineral Deposits Related to Alkaline Rocks: A GIS Approach;* (2) *Au Mineralization Related to Alkaline Magmas; Cripple Creek, Colorado as an Example.*

2nd Place Poster

Chris Greenhoot, *Metates Gold Project: A World Class Gold Prospect in Durango, Mexico.*

3rd Place Poster (tie)

Mandela Lyon, *Insect-Mediated Damage on Fossil Leaves: A Preliminary Look at Feeding Damage in the Green River Formation.*

Sergio Castro-Reino, *Patterns of Igneous Activity, Associated Alteration Styles and Possible Links to Mineralization in the Central Sector of the Sierra Madre Oriental, Mexico—Field Results.*

Best Undergraduate Presentation

Mandela Lyon, *Insect-Mediated Damage on Fossil Leaves: A Preliminary Look at Feeding Damage in the Green River Formation.*

Outstanding Teaching Assistant

Kristopher E. Kerry and Hanns Peter-Liermann

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WHERE ARE THEY?

We have compiled an alumni list of over 2000. Of these, almost 250 are "lost". Take a minute to look over these names and if you know the whereabouts of anyone here, please let us know!

1930s

D. Cederstrom
Frederic Cook
James Forbes
Charles Higdon
Carl Lausen
Walter Ornsby
Neis Peterson
David Sears
Lincoln Stewart
Walter Thomas
Clark Wilson



1940s

William Jones
Wayne Kartchnor



1950s

David Bissett
Erich Blissenback
Robert Colby
David Cowan
Robert Dickerman
Robert Dorsey
G. Emigh
Carl Fries, Jr.
Richard Geer
James Gless
Leopold Heindl
John Heyn
James Hillebrand
Paul Howell
Robert Jackson
Zamir Kidwal
John Kinnison
William Loring
Raymond Ludden
Fred Michel, Jr.
Creighton Ryno
Roland Schwartz
William Van Horn
Klaus Voelger
Robert Wager
Robert Webb



1960s

Harold Aaland
Malcolm Alford
Judith Bray
R. Cantwell
J. Collier
Donald Cooley
Edwin Cordes
Kenneth Cornelius
Herbert Daniel
Richard Deane
Phillip Denney
Hassan Diery
Thomas Dirks
Harvey Durand, III
Kenneth Dyer
Wayne Estes
Sergio Garza
Brian Hogan
John Horton
Joe Jemmitt
Robert Jorden
Deane Kilbourne
Donald Kubish
Donald Livingston
George Maddox
William Mathias, Jr.
William McClellan
David Mickle
Charles Miles
David Peabody
Don Pearson
James Riley
Robert Rohrbacker
Jay Savera
Steve Simon
David Smith
Walter Smith
Walter Stein
Robert Streitz
Jack Tleel
A. Wells
Clyde Wilson



1970s

Larry Arnold
Robert Balla
Peter Beery
Rafael Belaunde
Karen Bieber
Doyle Brook, Jr.
Richard Champney
William Clark
James Cook
Brian Cooper
James Crabtree
Keith Crandall
George Curtin
Thomas Dever
John Devilbliss
Constance Dodge
Julio Figueroa
Linda Foster
Peter Gasperini
Allen Gottesfeld
Joan Grimm
Zvi Grinshpan
Larry Hughes
Rigel Hurst
Peggy Jones
Louis Knight, Jr.
Brian Koenig
Steven Kunen
Jack Lagoni
Roger Laine
Paul Leskinen
Walter Lienhard
Arthur McIntyre
William McMullan
Robert Moore
Margaret Mowrey
Romolo Oropeza
Norman Pitcher
Blaise Poole
James Puckett, Jr.
William Reay
R. Sandberg
Marc Selover
Margaret Severson
Verl Smith
Charles Soule
David South
Wade Speer
Wilbur Sweet

Edwin Taylor
Katherine Taylor
David Thayer
Mark Theiss
Luis Velazquez
Jose Vidal
Sheryl Vrba
Mary Watson
Paul Welber
Paul Werst
Gary West
Robin White
C. Winter
John Young
Jeffrey Zauderer



1980s

Rodney Anderson
Banks Bailey
Richard Balcer
Richard Barlow
Jeanne Brooks
Malcom Cleaveland
Billie Cox
William Cunningham
Daniel Davis
John Declerk
John Doris
Mark Erickson
Christian Farnsworth
Robert Ferguson
Anne Fischer
Suzanne Fouty
Michael Grubensky
Andrea Handler-Ruiz
John Heaphy
J. Hennessy
Nancy Hess
Nancy Johnson
Steven Kimsey
Kristen Law
Jody Maliga
William Malvey
Dale Mathews
Robert Matthiessen
Daniel Maus
William McArthur

Richard Morneau
Matthew Nelson
Lynda Person
Kim Raymond
Luis Ruiz Gomez
Michael Sewell
Ernest Shih
Yehia Sinno
Julia Staines-Hill
Frederick Stevenson
Elaine Sutherland
Robin Sweeney
Paula Trever
Julie Turnross
Ulrich Van Nieuwenhuysen
Luis Vargas-Mendoza
Evan Wagner
Denise Wieland
Laurie Wirt
Cara Wright-Hodge
Toshiko Yasuda



1990s

Satoru Fujihara
Greg Garfin
Robert Goodmundson
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John Anthony's Autobiography Published

John Anthony (BS '46, MS '51), UA Geosciences professor from 1951 to 1986, hammered out his autobiography as a lark during his retirement. Following John's death in 1992, his son Ryan edited the text, compiling old photographs, artwork, and even song lyrics. He and John's wife Elizabeth have privately published 300 copies for distribution.

During his 35 years at the UA, John Anthony played a significant role in the evolution of a small, mining-focused geology department into a large, diversified geosciences program. John's scientific contributions included *Mineralogy of Arizona* (1977), senior authorship of the *Handbook of Mineralogy* (vol. 1, 1990), and a series of papers describing new mineral species and their crystal structures. He was also the founding editor of the *Arizona Geological Society Digest*. John moved to Tucson to enroll at the UA in 1944 to finish a degree interrupted by World War II. Upon the completion of his BS, he worked for the Arizona Bureau of Mines. John earned his MS in 1951 and joined the faculty at the UA, where he assumed responsibility for teaching introductory mineralogy and ore microscopy courses formerly taught by his own advisor, Max Short.

John's teaching responsibilities expanded to include topographic surveying and field mapping during the era before Field Camp was established. In 1965, John completed his PhD from Harvard. The remainder of his teaching career at the UA centered on courses in mineralogy and crystal structure determination, with occasional stints as Field Camp director and instructor.

John's service to the department also included two years as its chairman. His stewardship of the UA Mineral Museum for more than a quarter of a century helped preserve and expand one of the best university mineral collections during a time when support for museums was almost nonexistent.

For a copy of John Anthony's *From My Early Days*, contact:

Ryan Anthony
4462 E. 7th St.
Tucson, AZ 85711
hamsterranch@yahoo.com

From My Early Days

by

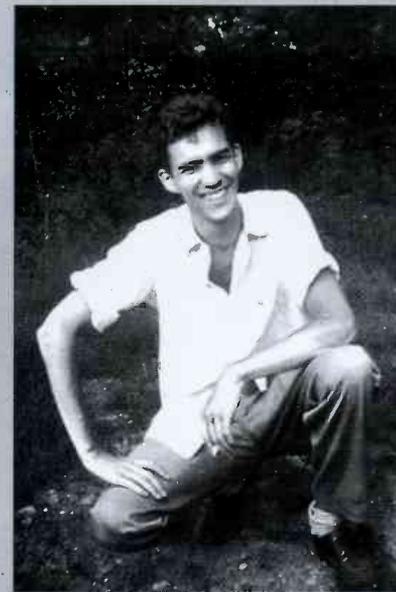
John Williams Anthony

Wherein is recalled

a little of what it was like growing up in New England and the West a generation ago, lightly leavened by charismatic characterizations of a panoply of pertinent progenitors, relevant relatives, fortuitous forebears, consanguineous collaterals and antiquated antecedents, abetted by assorted additional atrophied ancestors.



John Anthony at the UA Field Camp near Young, Ariz., May or June 1972.



John Williams Anthony
(November 25, 1920 - November 9, 1992)
circa 1938

Getting off the train in Tucson, Ariz. was somewhat less pleasant than getting on in Boston. The Southern Pacific pulled into the Old Pueblo around 6:00 p.m. on July 9 (I think it was), 1944, a day that I later learned had hit 106 degrees—locally, one might say that the ice had finally broken up in the Santa Cruz River. I should have been ready for it, because there had been no air-conditioning on the train, pulled in those days by a steam locomotive, and the trip from Tucumcari, NM (where they took off or put on the liquor car, I can't ever remember which) was sweltering. But that penultimate step out the Pullman door onto the metal ladder above the glaring white cement platform took me directly into the fireball of the last afternoon sun. For a moment I subliminally debated an about-face and continuing on to a more suitably civilized California climate. One should have been inured to Arizona's climactic surprises, but my

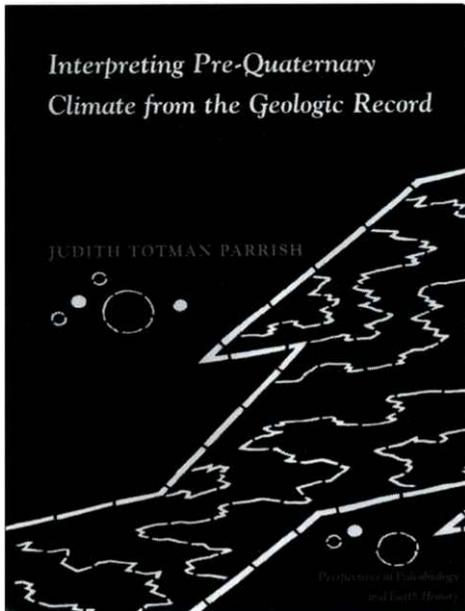
earlier Western sojourns had been either farther north and in the mountains of Mohave County or in milder Bay Area California, and both at a forgettably-early age. As one who carelessly plans ahead, I foresightedly had on my three-piece shaggy wool suit, a lined raincoat/overcoat over my arm, and a brown felt fedora on my head, and I was weighted down with two heavy leather suitcases containing my worldly goods—except for ice skates and skis. And, fresh from a couple of months of in-hospital conditioning, I probably weighed in at around 135 pounds. Thoughts of frying pan and fire flashed briefly. No welcoming mat was out, so I struggled across a couple of streets to a small hotel, where I experienced my first evaporative cooler-cooled night. That hotel (whose name I now forget) is still there, merely smaller and dingier.

There is only one University of Arizona in Arizona, and it is situated in Tucson, at that time a community of less than 35,000 sun-kissed souls, so the next day, armed with directions, I set out under an underpass thence eastward on East Sixth Street to find it. After a lengthy walk in the morning heat (sans coat now!), I came to a large, appropriate-looking structure, swarming with youth, which I entered, eager to enroll. I discovered, to my embarrassment, that this was Tucson High School—having an enormous enrollment in those days, it being the only high school in town, save for the relatively small Amphitheater—not the U of A! To this day, I can't drive by THS without recalling that near miss. The story goes over well in Tucson.

—excerpted from *From My Early Days*,
pp. 151-152

RECENT PUBLICATIONS

Judith Totman Parrish



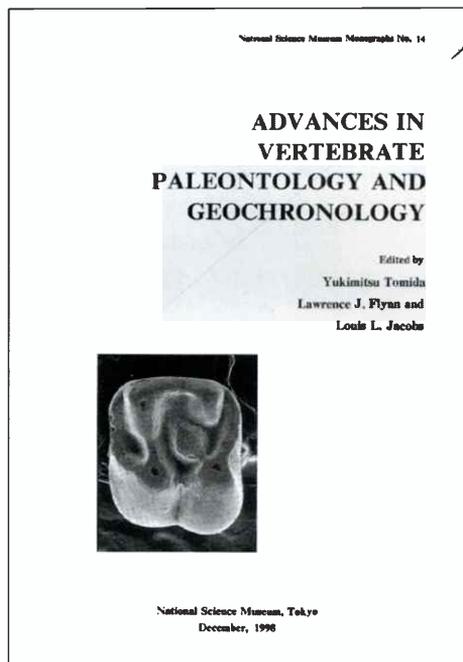
Interpreting Pre-Quaternary Climate from the Geologic Record is a compendium of paleoclimatic indicators from the pre-Quaternary geologic record, ranging from

foraminifera to reptiles, reefs to evaporites, and how they are used to interpret paleoclimate. The approach is methodological, not historical, partly because historical paleoclimatology has been covered in other books and long papers. My principal motivation for writing the book was to provide a way to systematically access the vast literature on methods of studying pre-Quaternary paleoclimatology. As a compendium, the book does not treat each topic in great depth. However, the bibliography is copious, so the reader can easily gain access to more detail in the literature by using the references provided as a starting point. Why the pre-Quaternary? The Quaternary Period (roughly the last 2 million years) has been nicely addressed in book form by other workers. The methods used to study climates in the Quaternary and pre-Quaternary records overlap, but there are also major differences. In addition, there are unique considerations for the study of pre-Quaternary climates, such as continental drift, higher sea levels, highly variable rates of volcanism, and very different vegetation patterns, which all forced the climate system in ways that have not been duplicated in the last 2 million years.

Volume of Collected Papers Dedicated to Ev Lindsay

Lawrence J. Flynn (MS '77, PhD '81) of Harvard, Louis L. Jacobs (MS '73, PhD '77) of Southern Methodist Univ., and Yukimitsu Tomida (MS '78, PhD '85) of the National Science Museum in Tokyo are editors of *Advances in Vertebrate Paleontology and Geochronology*. This volume of collected papers, dedicated to Everett Lindsay, was published as No. 14 of National Science Museum Monographs in Tokyo. In their "Appreciation of the Doc", the editors and fellow alum Louis H. Taylor (MS '77, PhD '84) write that Ev's retirement after 29 years with the UA "provides an opportunity for former students and colleagues to reflect on the accomplishments of their mentor and friend. This book, in honor of Ev Lindsay, is such a reflection manifested in original work, each contribution coherent in the whole because it has some connection through the authors to the Doc."

Edwin Colbert (Curator Emeritus of the American Museum of Natural History) notes that Ev, "an outstanding authority on mammalian evolution, is rightly honored in this collection of papers for his contributions devoted to descriptions and interpretations



of fossil mammals, and the sediments within which they are contained. His publications may be categorized within two major themes: the descriptions of fossil mammals from the American Southwest and Asia, and the application of magnetostratigraphy to vertebrate paleontology. Ev Lindsay may be considered as one of the pioneers in this last-mentioned field of study."

Kudos to...



VICTOR BAKER has been selected as an Honorary Fellow of the European Union of Geosciences.



MARK BARTON has been selected the International Exchange Lecturer for the Society of Economic Geologists for 1999. As a result, he will travel to Australia, New Zealand and eastern Asia during the first half of 2000.



BILL DICKINSON is the recipient of the Twenhofel Medal from the Society for Sedimentary Geology (SEPM), their most prestigious award.



BOB DOWNS was elected to the International Center for Diffraction Data which controls and manages the powder diffraction files every X-ray lab uses to identify unknown materials. Worldwide membership is limited to about 50.



CARLIE RODRIGUEZ is the recipient of the AGI's Minority Geosciences Scholarship for 1998-99.



JOHN GUILBERT has been awarded SEG's Penrose Medal in recognition of his ground-breaking research on porphyry copper deposits and his significant contribution to the education of an entire generation of economic geologists.

Fall '98 Degrees Awarded

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MASTER OF SCIENCE and DOCTOR OF PHILOSOPHY



Mary J. Hegmann • MS

Gravity and magnetic surveys over the Santa Rita fault system, southeastern Arizona. 111p. Roy Johnson.



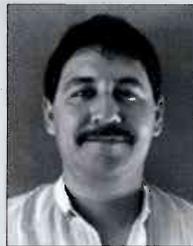
Diana Meza-Figueroa • PHD

Geochemistry and characterization of intermediate temperature eclogites from the Acatlan complex, southern Mexico. 201p. Joaquin Ruiz.



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Sources of Mesozoic through Middle Tertiary magmatism in southeastern Arizona. Mark Barton.



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A geochemical characterization of intrusives in northern Mexico and their relationships with copper and gold mineralization in central Sonora, Mexico. Joaquin Ruiz.



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Late cretaceous to recent evolution of the foreland basin system and associated fold-thrust belt in the central Andes of Bolivia. 208p. Peter DeCelles.



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A structural and geochemical study of the Sierrita porphyry copper system, Pima County, Arizona. 136p. Spencer Titley



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