

The **Newsletter**¹⁹⁹²
The University of Texas at Austin
Department of Geological Sciences

The University of Texas at Austin
1992 Geological Sciences Newsletter
Volume 42

Editor: Clark R. Wilson
Associate Editor: Joyce E. Best
Layout and Graphics: Scott K. Schroeder
Alumni News Editor: Kimberly Kurtz
Assistant Editor, Research Section: Rosemary Brant

Table of Contents

- 1 *Letter from the Chairman*
- 2 Research in Chile
- 9 Research Report
- 9 Research Personnel
- 10 Publications
- 10 Faculty Research Summaries
- 40 Bureau of Economic Geology
- 41 Institute for Geophysics
- 42 Walter Geology Library
- 43 Vertebrate Paleontology Lab
- 44 Student Activities
- 46 Student News
- 48 Teaching & Research Assistant
- 50 Scholarship
- 54 Student Speakers
- 58 Undergraduate Degrees
- 59 Graduate Degrees
- 63 Department News
- 64 Administrative Staff
- 64 Faculty Personal Notes
- 69 Muehlberger Retirement
- 73 Endowed Lecturers
- 74 Visiting Speakers & Lecturers
- 77 Geology Foundation News
- 78 Foundation News
- 79 Advisory Council Address
- 80 Gifts to the Geology Foundation
- 82 Endowed Accounts
- 87 Alumni News
- 88 Memorials
- 92 Alumni Notes
- 128 Credits and Captions

Letter from the Chairman: ...

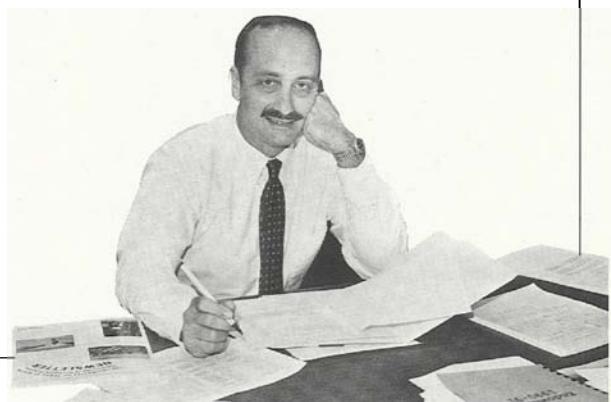
This year's newsletter reports the official retirement of Bill Muehlberger, after 37 years of service to the Department as a faculty member. There are photos and summaries of the two parties given in his honor during May. The first, a dinner at the Alumni Center on May 1, was attended by more than 100 faculty, friends, and Foundation Advisory Council members. The second celebration, a "roast" with songs, skits, poems, and slides was attended by about two hundred faculty, students and former students. The "roast" was organized by students and former students and really showed the depth of Bill's contributions to the Department and the high regard that all have for him.

For some of our faculty, and this is certain to be true of Bill Muehlberger, retirement is a time of continuing contribution to the University. Bill recently announced that he is beginning to supervise one new PhD student, and one Master's aspirant. Real retirement is obviously some years away. Recruiting for a new faculty member in Bill's field of structural geology is proceeding slowly, in part due to budget constraints mentioned in the next paragraph. In the meantime, we are in the midst of a search for a new faculty member in physical hydrogeology, with the application process continuing through October, 1992.

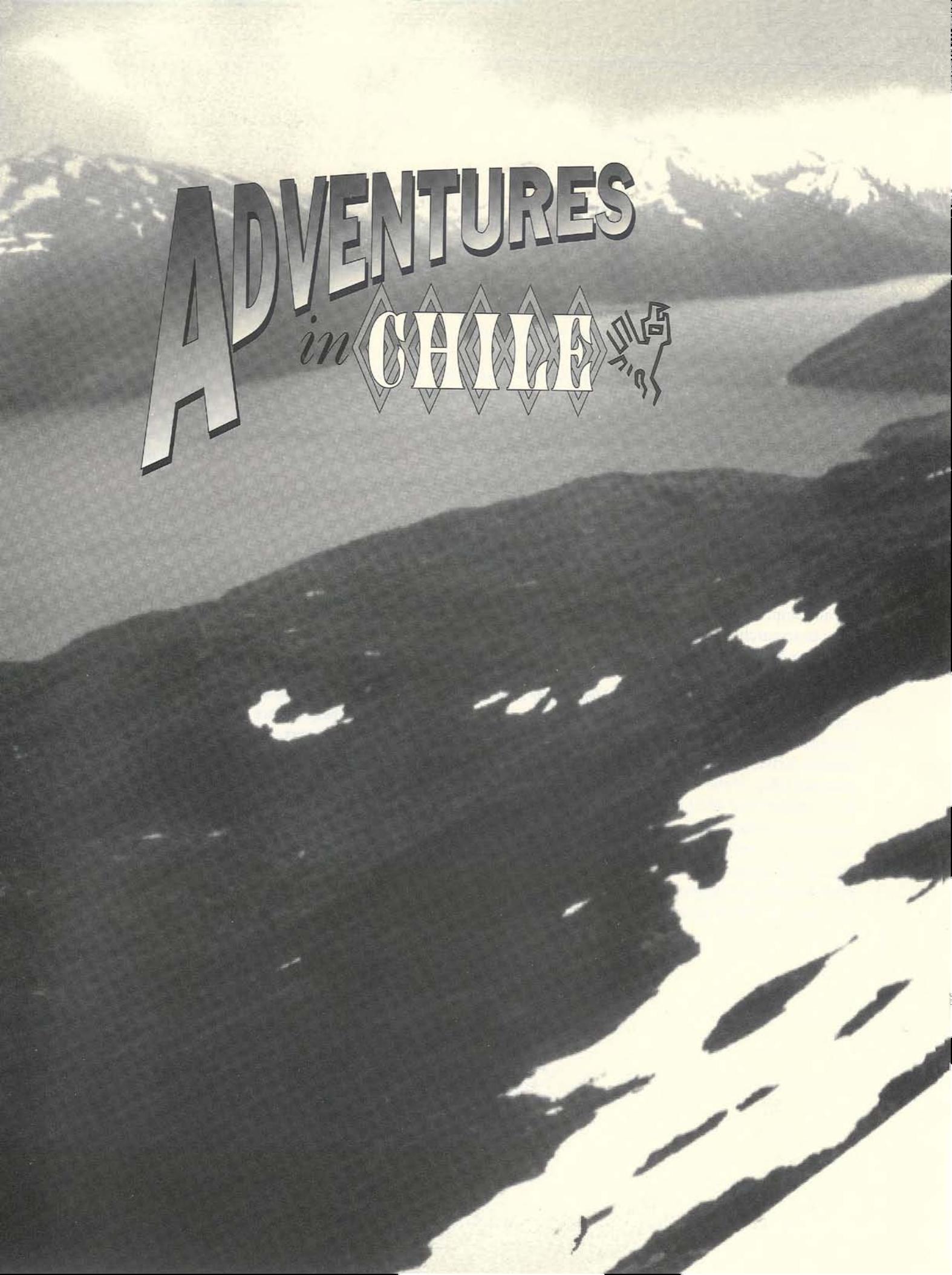
Anyone who reads the newspapers knows that the State of Texas and the University have been struggling with budgets in recent times. The effect of fall 1991 budgetary reductions on the Department was to reduce our maintenance and operations account by about 10%, and to cut our then-vacant photographer position from full to half time. Naturally, the resources of the Geology Foundation have been essential in maintaining and improving our programs. We have reduced our reliance on state-appropriated funds by shifting costs to research grants in some cases, but to the students in others, including unfortunate increases in tuition and fees.

The audience for the Department *Newsletter* is diverse. We mail over 4000 copies to alumni and friends, and several hundred to colleges around Texas and the United States to help attract students to both undergraduate and graduate programs. For prospective students, the research report, research facilities, and student activities sections are probably of greatest interest. For alumni and friends, the alumni news, personal news of the faculty and staff, and Geology Foundation News are likely to be read most closely. But I suspect that all of our readers are attracted to stories of adventure, because for many an interest in geological sciences has been sparked by the prospects for adventurous work and travel to exotic locations. Last year's *Newsletter* cover photos and student section featured Antarctic student field work, and there are several accounts of adventure in this year's *Newsletter*, as well. In the student section you can read of Khib Kugler and Glenn Klimchuk's travels to remote areas of New Guinea. The lead article this year recounts the tale of an expedition on horseback across the southern Andes.

Clark R. Wilson
Chairman



ADVENTURES *in* CHILE





TIERRA DEL FUEGO

by Keith Klepeis and Sharon Mosher

IN DECEMBER OF 1991, a group of geologists and geophysicists from the Department of Geological Sciences and Institute for Geophysics undertook a geological expedition to one of the most remote parts of the southern Andes. This highly successful three week long excursion was the first joint scientific venture to one of the southern continents. Two PhD students, Keith Klepeis and Dickson Cunningham, planned the expedition to the island of Tierra del Fuego to show their advisors and committee members, Ian Dalziel, Sharon Mosher, and Jamie Austin, the results of several long field seasons. As a group we all went on horseback across the Magallanes foreland fold and thrust belt to the South American—Scotia plate boundary where we met a 40 foot fishing boat. From a distant fjord, the boat then took us to the Beagle Channel to look at the metamorphic core of the Andean orogen and overprinting strike slip faults related to the plate boundary. The entire trip was an exhilarating adventure with spectacular scenery and geology.

On the island of Tierra Del Fuego, a dirt road extends 500 kms southward from a



Keith Klepeis,
Dickson Cunningham,
Ian and Kyle Dalziel,
Jose and Lucho
having lunch near a
makeshift horse
corral. The lean-to
was built by the
gauchos for shelter
during their yearly
trips across the
mountains.

small pueblo situated on the southern shores of the Strait of Magellan, to an abrupt end where the Andean foothills begin. Far from any city, at an old ranch near the end of the last dirt road, the group met two men named Lucho and Jose who were to be our mountain guides for the first half of the expedition. Keith had met the two men several years earlier during a long search for help in gaining access to this remote region. Lucho and Jose were authentic gauchos, but they were unique among the gauchos of the pampa in that they had turned from the plains to the mountains in search of a better life. They had agreed to bring our eight member party (which included the Dalziel family and a Chilean geologist) through rocky peaks and densely forested, swampy valleys to the center of the Cordillera in an eleven day trek whose focus was geology. The trip was timed down to the last hour so that we could see all the geology and still meet the fishing boat and Jamie Austin on a specified day in an isolated fjord halfway across the Cordillera to continue the trip.

From the minute we landed at the airport in Punta Arenas, we discovered that waiting would be our biggest logistical problem. We lost two days in the beginning to lack of enough horses and saddles and to a clash in cultures. The gauchos travel light across the mountains living off the land with only the clothes on their backs, a guanaco skin for shelter and warmth, and cigarettes and spirits to maintain them. They were totally unprepared for the amount of equipment that the group would bring. But we finally found someone to sell us a horse,

doubled the children onto the adults' horses, and combined our individual gear into a much smaller, more manageable size. Unfortunately, this loss of time meant we had to compress eleven days of fieldwork and horseback riding into nine.

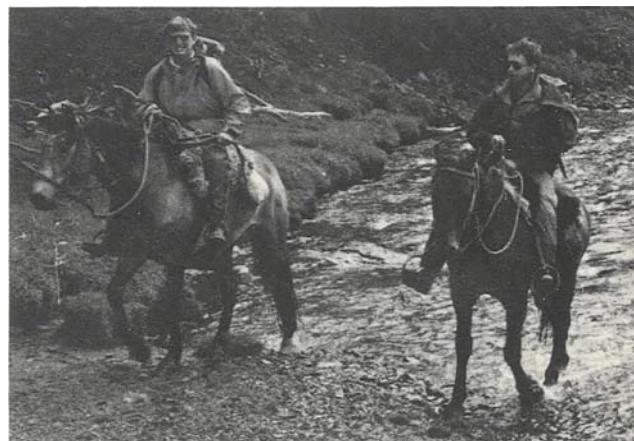
We finally started in the early evening after an interminable wait, shortly after a bona fide Tierra del Fuegan storm, complete with howling winds and horizontal rain, had passed through. Lightning, a rare sight on the island, flashed across the pampa as we loaded at the ranch. The horses were nervous from the storm and the smell of new people. Near the foot of the mountains we were to cross, we made our first camp. The gauchos untied half a lamb from a saddle, stuck a wooden stake through the rib cage and began cooking our dinner at midnight. We passed a wooden gourd filled with an herb tea called mate around the camp fire and began the slow process of understanding each other. By 2:00 a.m., after finishing our feast of fresh

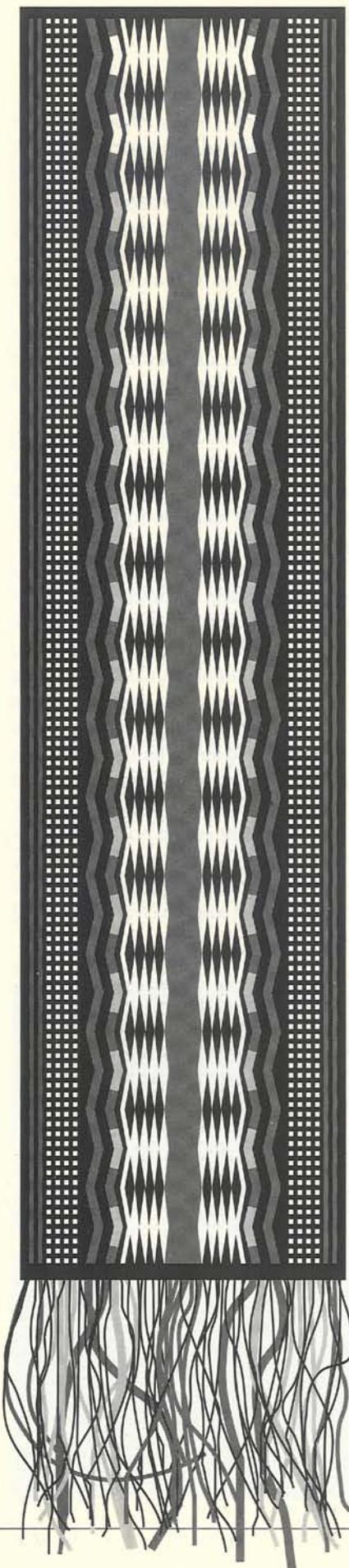
lamb, we were in our tents listening to the sounds of the ravenous dogs prowling the remains near our fire.

In the morning we discovered that packing the horses took five hours. If everything is not tied on just right, the loads come loose when the horses thrash their way over soggy bogs or leap over a series of fallen trees. After spending the entire morning packing, we slowly moved our team up along the grassy valley of the pampa and into the forested mountain slopes. After what would later seem to be a short five hour ride, we made our second camp atop a windswept mountainous meadow. It was four days into this half of the trip and we still had not seen any geology because of all the logistical problems. To make the best use of our time, the geologists rode an hour further by horse to begin a look at a series of thrust faults forming a duplex. Since there are only three or four hours of darkness during the summer, we decided to take full advantage of very long days to make up for our lost time. In the morning, the geologists hiked to a distant peak to continue field work while the rest stayed in camp to load up the horses. After doing fieldwork from 7 a.m. until 3 p.m., we rode with the rest of the group until 11:00 p.m. This arrangement was the only way to meet all our scientific goals and still meet the fishing boat half way across the Cordillera. Thus we continued it for the rest of the trip, despite the tremendous physical toil.

One of the most memorable parts of the trip was a grueling trek down a steep mountainside to a hidden lake in the valley below that started after eight

Ian Dalziel and
Dickson Cunningham
crossing the first
stream on the pampa
at the foot
of the Andes.





The group takes a needed breather at the top of a peak above the splendor of the Ventisquero Roncagli Glacier.

hours of fieldwork. The trail down to the lake occupied the shadowed side of the mountain range that rarely saw direct sunlight during the summer. Consequently, it never completely dried after the numerous violent rain storms that swept through the valleys. It winded in and around bogs; mud-filled water and muck reached up over the bellies of our horses as we descended. The trail was so steep that in many places the horses slid down the slopes. Only by leaning far back in the saddle could we keep our balance. Here we learned that a good horseman has to guide his horse every second or risk smashing a knee against a tree. At the bottom of the mountain, we found that the only way to cross the valley was to wade the horses around the lake edge. Limbs of trees and brush spines formed an obstacle course along the shore forcing the exhausted horses into deep water where hidden boulders threatened to topple the unwary. A moment's loss of concentration and one of the branches could sweep you off your saddle into the water. Finally, at 11:00 p.m. our exhausted team climbed into a hanging, U-shaped canyon to stop at an ancient, broken down corral for the night. We corralled the horses and made our dinner by firelight. In the middle of the night we heard a huge commotion of

snarling growls. The gauchos' dogs, brought along to help keep the pack horses in line, started a fight among themselves which, for us, meant the loss of our last, slightly rancid slab of lamb.

Two days after our night in the old corral, we arrived in a low-lying valley that despite numerous bogs made perfect grazing land for the horses. After struggling to cross the boggy ground with heavily loaded, violently panicked horses, we finally gave up and camped short of our destination. While the horses regained their energy and the gauchos hunted for meat, the geologists spent a day taking a detailed look at a series of backthrusts along a 20 km section through a mountain range. Large scree slopes with 250 meter sharp drop offs made our progress along the rugged terrain painstakingly slow, but the spectacular view of Cordillera Darwin and Lago Fagnano on the plate boundary, coupled with incredibly well exposed structures, made the seemingly unending day a success. We returned at night to a steaming pot of freshly killed guanaco, a distant relative of the llama.

Following the grueling backthrust day, we descended from the mountain top to a long linear valley that holds a major strike-slip fault in the South America-Scotia plate boundary. As remote as



Casey Dalziel enjoyed the safest position in the group during the trip over the Andes by riding in front of Lucho, one of the gauchos.

this place is, there is a small half room cabin built as an outpost to a new and aspiring estancia. The wooden cabin contains a hand made table, a couple of tree trunks for stools, and a small, black, pot-bellied wood burning stove. In the cabin lives a gaucho named Carlos, who gave us free use of his corrals and stove. Here our diet changed from meat to fresh salmon, fished from the lake that covers most of the valley. Jose, armed only with a coffee can, a bit of fishline and a bare hook, caught enough large salmon in less than 15 minutes to feed the entire group. The next day we took a long trek across a boggy valley (the kind that pulls your knees out of joint with every step) and then bushwhacked through thick jungle-like overgrowth to find the plate boundary. It was well worth it, however, as we found a 300 meter crushed zone that juxtaposed rocks of different ages. That evening we managed to reach the fishing boat by using Carlos's short wave radio. We found that the boat was delayed a day which gave us an extra day to take a look at some of the geology of the plate bound-

ary, but exhaustion set in and everyone spent the extra day sleeping.

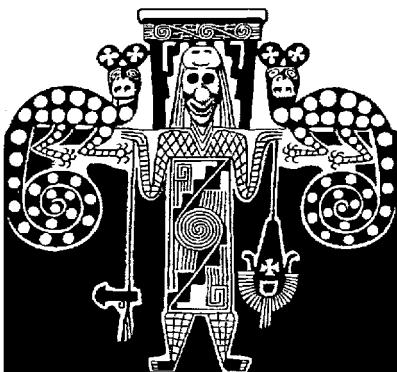
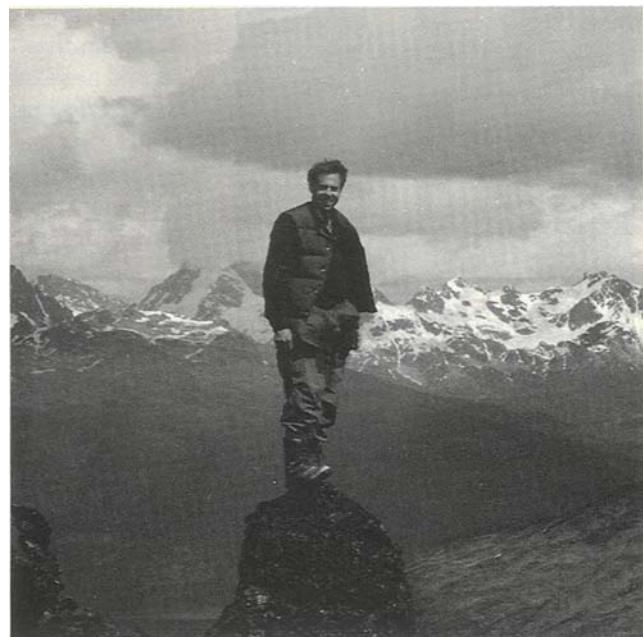
The following day we began a 15 km, all-day trek to meet the fishing boat and begin Dickson's half of the trip. On the other side of an adjacent mountain, our last obstacle before meeting our boat was to cross a wide river called the Río Azopardo. The river was too deep to cross mounted, but, years before, the gauchos had rigged up a cable across the river. We crossed ourselves and our gear by pulling a small rowboat along the cable to the other side. The animals were forced into the river at a certain spot where they swam over to meet us. Although this was the narrowest crossing point along the river, and the horses appeared to swim easily, the crossing is

not without treachery. On the return trip, several days later, our gauchos lost a horse that was swept under by the strong current.

The fjord where we hoped to meet our ship connects directly with the Pacific Ocean. Along a spotty trail we observed several lost, confused penguins who had mistakenly arrived at the end of the marine fjord only to find the fresh water of the Río Azopardo. As we came over the last mountain and dropped down into the fjord, the familiar sight of Jamie Austin's yellow cap was waiting there for us like a welcoming flag. A brisk wind had picked up. A storm was brewing. The crew of four fishermen picked us and our gear up from the beach after we said our goodbyes. We were intent on making progress up the narrow fjord before the storm worsened.

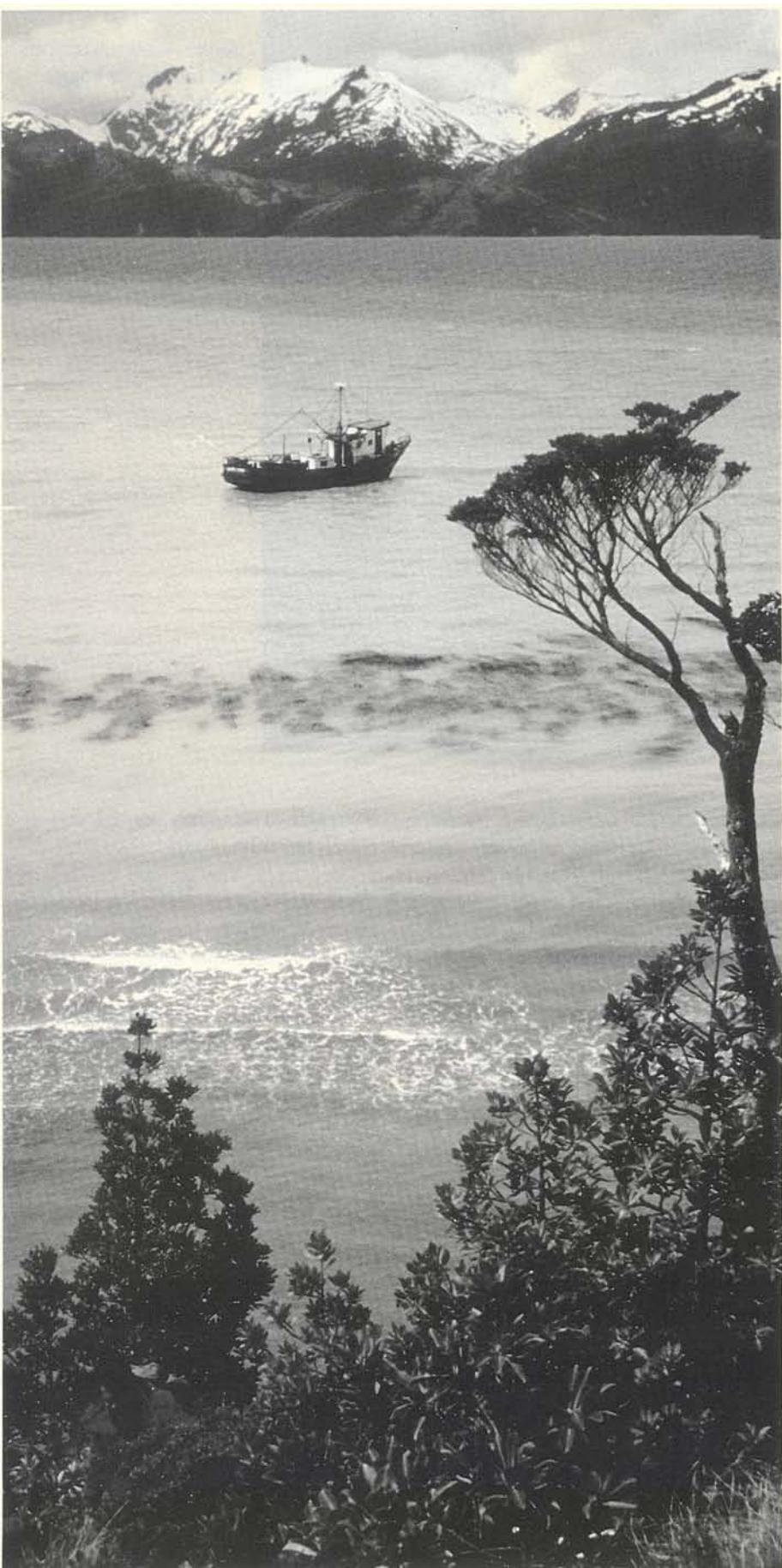
The captain of the 40 foot fishing boat had specially modified his boat for our trip. He had boarded up the sides and top of his fishing hold to berth seven people in makeshift bunks. The ceiling was slightly more than waist high and narrow planks had been nailed to the sides of the hold about half a meter from the ceiling. We all felt a huge sigh of relief at seeing all the modifications he'd made for us. The sight of the boat in a Punta Arenas dry dock with dead fish in the hold bottom had made all of us swallow hard before the trip. The transition from

Dickson Cunningham stands high above a view of Cordillera Darwin and Lago Fagnano on the plate boundary

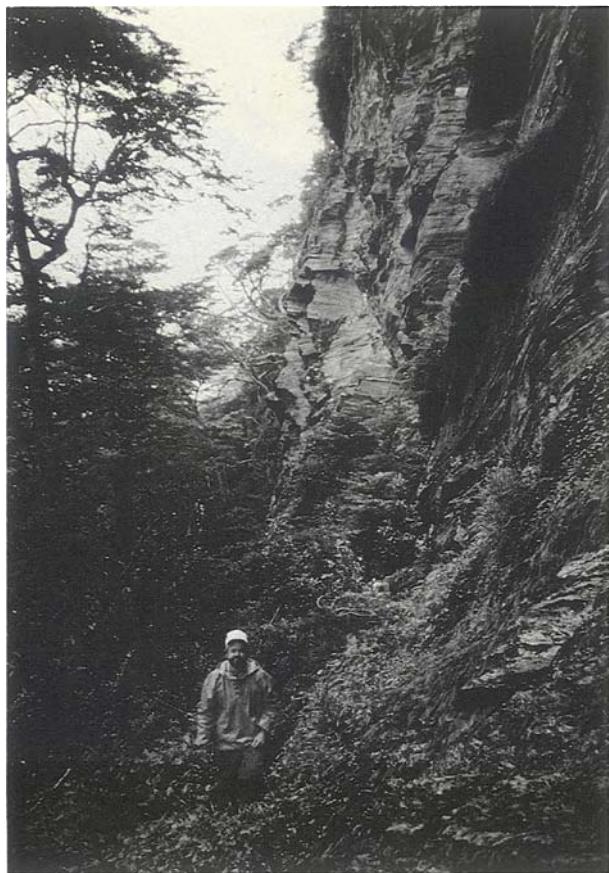


bouncing around on horses for nine days to the crowded, cramped hold of a fishing boat crashing through ten foot waves was a difficult one for all. It took us a day and a half of cruising at full speed to reach Dickson's field area on the other side of the Cordillera. Waves crashed over the sides as we fought claustrophobia, seasickness, and leaks in the hold that threatened to soak everything below.

One of the first stops along the Beagle Channel was a naval outpost called Timbales. We disembarked to begin a day hike looking at strike-slip faults in Paleozoic basement rocks exposed beneath a receding glacier atop a mountain. Weather along the Beagle Channel is notoriously foul. Huge black storm clouds hurl themselves along the fjord waters between the containing peaks. Despite the treachery the storms can bring, they are in balance with a profoundly beautiful natural setting. The windswept mountains covered with aerodynamically shaped trees and mosses are bathed in a gloomy, shadowed light as these storms pass. Taking this all in while standing on a beautifully exposed, polydeformed rock was quite breathtaking. During our excursion up the mountainside from Timbales, we kept a cautious eye to the west, looking at the dark clouds roll along the Beagle. A few minutes later we all put up the hoods of our raingear simultaneously as we were swept over by a blinding snow storm with high winds. As there is very little shelter atop a mountain, we continued to make our way in and around the wet, snow-covered boulders and across small snow fields using our brightly colored rain parkas to keep track of each other. After the storm passed, the bogs, mountain streams and forests brimmed with moisture hiding slippery surfaces. Sometimes, in such conditions, the best place to cross a rocky region was on snow fields that plunge down the slopes in bright white streaks. We quickly learned



Our boat, the Zeus, waits as the group emerges from the densely packed trees and holly underbrush on Isla Gordon during a climb up from the Beagle Channel



Jamie Austin examines the rocks in a soggy forest along the Beagle Channel where he has collected multichannel seismic data.

the safest way to cross these fields using Ian's experience in the Antarctic. Fortunately, this was our only blizzard, and good weather favored us for the rest of the trip as it had with the horses.

The geology along the Beagle Channel is wonderfully interesting if difficult to access. Fighting rather wild conditions routinely made for very long days where we would once again be active from early morning to late evening. Finding specific exposures in the maze of fjords took patience and persistence. More often than not, we would be rewarded for our efforts with a magnificent display of glacially polished rocks exposed beneath a looming glacier or along a beautifully forested beach. On long days the crew would do their best to meet our requests. Often they would surprise us with their skill at getting into and out of tight places. During one excursion they even docked with a floating iceberg beneath a glacier that spilled out into the sea and enjoyed themselves by climbing onto it to get ice.

On one particular day with beautiful, sunny weather we climbed a peak above a place called Ventisquero

Roncagli. The climb started above a cobble beach lined with holly and densely packed trees. The ground beneath the forest was soggy and wet. We began our ascent as usual by hauling ourselves up along a steep slope with our arms for hours, making occasional stops to inspect the rocks. Our feet slipped through the moss covered bogs as we tried to make progress up the mountain. Toward the end of the day our wet and tired group met with the most extraordinary sight of the trip. A huge glorious glacier, before hidden from view by the mountain we were on, spilled out in front of us for tens of kilometers. It had carved out a great canyon through the mountains. Glacial pools and floating bits of iceberg lay in between the moraines at its foot. Huge crevasses, big enough to easily hold our boat, perforated the surface of the ice. We listened in silence to the creaks and moans of moving ice while we caught our breath. After we finished our geological investigation of a large antiform exposed on the mountain, we started our descent down a forested slope towards the foot of the glacier on the other side of the peak.

It took hours of bushwhacking to slowly inch our way down the slope to the moraines. At the bottom we could not resist a spontaneous bath in one of the sparkling clear glacial pools complete with floating ice. It was incredibly refreshing if not the coldest water into which we'd ever immersed ourselves. Then the glacial moraine was a challenge to overcome. Boulders the size of houses were strewn across a narrow channel. By the time we reached our boat, the sun was setting. It was a little after 11:00 p.m.

On the whole, we had a tremendous amount of luck throughout the entire expedition. We experienced difficult conditions and violent storms but none so terrible that we could not overcome them with care. We managed to meet our scientific goals and to plan new avenues for joint research between the Department of Geological Sciences and Institute for Geophysics as well as to establish strong bonds of friendship. Our two day trip back to Punta Arenas seemed a natural concession to our abilities to endure the weather. The Beagle Channel seemed as calm as a glacial pool with no ominous clouds to be seen. We cruised easily through the fjords and made good time back to the city. We were on schedule for people to catch their planes back to the States and for Keith and Dickson to meet various people to begin their individual field work for the season. On arriving in the Chilean city, we celebrated the success of the trip. Ironically, the day after almost everyone returned home to Texas, the most violent storm in years hit Punta Arenas. Our small expedition seemed to have been blessed with good fortune.



Research Personnel

Milo M. Backus, Professor and Shell Oil Companies Foundation Distinguished Chair in Geophysics

Jay L. Banner, Assistant Professor and Dave P. Carlton Centennial Teaching Fellow in Geology

Daniel S. Barker, Fred M. Bullard Professor in Geological Sciences and Dave P. Carlton Centennial Teaching Fellow in Geology

Virgil E. Barnes, Professor Emeritus, Bureau of Economic Geology

Philip C. Bennett, Assistant Professor and Getty Oil Company Centennial Teaching Fellow

Robert E. Boyer, Robert E. Boyer Centennial Chair, J. Nalle Gregory Regents Professor and Dean of the College of Natural Sciences

Leonard F. Brown, Jr., Professor Emeritus and Research Scientist, Bureau of Economic Geology

Richard T. Buffler, Professor, Getty Oil Company Centennial Teaching Fellow and Senior Research Scientist, Institute for Geophysics

Fred M. Bullard, Professor Emeritus

William D. Carlson, Professor and William Stamps Farish Chair in Geological Sciences

Stephen E. Clabaugh, Fred M. Bullard Professor Emeritus

Mark P. Cloos, Associate Professor, Peter T. Flawn Centennial Teaching Fellow in Geology and William T. Stokes Centennial Teaching Fellow

Ian W. D. Dalziel, Professor and Senior Research Scientist, Institute for Geophysics

Ronald K. DeFord, Professor Emeritus

Samuel P. Ellison Jr., Alexander Deussen Professor Emeritus

William L. Fisher, Leonidas T. Barrow Centennial Chair, Director of the Geology Foundation and of the Bureau of Economic Geology

Peter T. Flawn, President Emeritus and Leonidas T. Barrow Centennial Chair Emeritus

Robert L. Folk, Dave P. Carlton Centennial Professor Emeritus

William E. Galloway, John E. "Brick" Elliott Centennial Professor

Wulf A. Gose, Research Scientist

Brenda Kirkland George, Assistant Professor

Stephen P. Grand, Assistant Professor and Shell Companies Foundation Centennial Teaching Fellow

Roberto Gutierrez, Lecturer

Mark A. Helper, Lecturer

Claude W. Horton Sr., Professor Emeritus

F. Earl Ingerson, Professor Emeritus

Edward C. Jonas, Professor Emeritus

Gary Kocurek, Professor and Getty Oil Company Centennial Teaching Fellow

Michelle A. Kominz, Assistant Professor and Shell Companies Foundation Centennial Teaching Fellow

J. Richard Kyle, Professor and Getty Oil Company Centennial Teaching Fellow

Martin B. Lagoe, Associate Professor and Dave P. Carlton Centennial Teaching Fellow in Geology

Lynton S. Land, Professor and Edwin Allday Centennial Chair in Subsurface Geology

Wann Langston Jr., First Mr. and Mrs. Charles E. Yager Professor Emeritus

Leon E. Long, Second Mr. and Mrs. Charles E. Yager Professor of Geology

Ernest L. Lundelius Jr., John A. Wilson Professor of Vertebrate Paleontology, Peter T. Flawn Centennial Teaching Fellow in Geology and Director of the Vertebrate Paleontology Laboratory

Arthur E. Maxwell, Professor and Director of the Institute for Geophysics

John C. Maxwell, William Stamps Farish Chair Emeritus

Earle F. McBride, Professor and J. Nalle Gregory Chair in Sedimentary Geology

Fred W. McDowell, Research Scientist

Sharon Mosher, Wilton E. Scott Professor

William R. Muhiberger, Peter T. Flawn Centennial Chair Emeritus

Yosio Nakamura, Professor and Senior Research Scientist, Institute for Geophysics

Timothy B. Rowe, Associate Professor and Peter T. Flawn Centennial Teaching Fellow in Geology

Amos Salvador, Morgan J. Davis Centennial Professor in Petroleum Geology

John M. Sharp Jr., Gulf Oil Foundation Centennial Professor

Douglas Smith, Albert W. and Alice M. Weeks Centennial Professor and Peter T. Flawn Centennial Teaching Fellow in Geology

James Sprinkle, First Mr. and Mrs. Charles E. Yager Professor of Geology

Paul L. Stoffa, Dave P. Carlton Centennial Professor in Geophysics and Senior Research Scientist, Institute for Geophysics

Willem C. J. van Rensburg, Professor, George H. Fancher Professor in Petroleum Engineering and Director, Graduate Program in Energy and Mineral Resources

Nicholas W. Walker, Assistant Professor and John A. and Katherine G. Jackson Centennial Teaching Fellow

Clark R. Wilson, Wallace E. Pratt Professor in Geophysics, Shell Companies Foundation Centennial Teaching Fellow and Chairman of the Department of Geological Sciences

John A. Wilson, Professor Emeritus

Keith Young, J. Nalle Gregory Professor Emeritus

Technical Staff

Pablo Cortez - Electronic Technician

Ruff Daniels - Technical Constructor and Repairman

Jeff Horowitz - Draftsman

Todd Housh - Research Scientist Associate I

Greg Thompson - Thin-section Technician

Dennis Trombatore - Librarian

Eddie Wheeler - Technical Machinist

Cassia Wolfson - Analytical Chemist

PUBLICATIONS

Boldface highlights the University of Texas affiliates, asterisk signifies a graduate student

BOOKS ...

Long, L. E., 1992, *Geology*, 5th edition: American Press, Boston, 535 pages. A general introductory textbook.

Sharp, J. M., Jr., 1991, *A Geology for Engineers Laboratory Manual*, 3rd edition: Earth Enterprises, Inc., Austin, Tex., 246 p. (Note: 1st edition published 1987, 2nd edition 1988.)

ARTICLES ...

Abdel-Wahab, A. A., and **McBride, E. F.**, 1991, Diagenesis of the Nubia Formation, central Eastern Desert, Egypt: *Journal of African Earth Sciences and the Middle East*, v. 13, p. 343-358.

Aguirre-Díaz, G.*, and **McDowell, F. W.**, 1991, The volcanic section at Nazas, Durango, Mexico, and the possibility of widespread Eocene volcanism within the Sierra Madre Occidental: *Journal of Geophysical Research*, v. 96, p. 13373-13388.

Atkins, J. E., and **McBride, E. F.**, 1992, Porosity and packing of Holocene river, dune, and beach sands: *American Association of Petroleum Geologists Bulletin*, v. 76, p. 339-355.

Banner, J. L., Wasserburg, C. J., Chen, J. H., and Humphrey, J. D., 1991, Uranium-series evidence on diagenesis and hydrology in Pleistocene carbonates on Barbados, W.I.: *Earth and Planetary Sciences Letters*, v. 107, p. 129-137.

Barker, P. F., **Dalziel, I. W. D.**, and Storey, B.C., 1991, Tectonic development of the Scotia Arc region, in: Tingey, R. (ed.), *Geology of Antarctica, Oxford Monographs on Geology and Geophysics*, v. 17, Oxford University Press, 680 p.

Barnes, V. E., and others, 1991, Sherman sheet revision: University of Texas at Austin Bureau of Economic Geology, *Geologic Atlas of Texas*, scale 1:250,000.

Bauer, P. W., and **Helper, M. A.**, 1992, Geologic map of Trampas quadrangle, Picuris Mountains, Taos and Rio Arriba Counties, New Mexico: *New Mexico*

Exploration geophysics; geophysical data processing and interpretation

Milo M. Backus

Professor and Shell Companies Foundation Distinguished Chair in Geophysics
PhD—1956, Massachusetts Institute of Technology



I have been involved in exploration geophysics since 1956. I teach undergraduate courses in geophysical data processing and geophysical data interpretation. My recent graduate courses include geophysical data-modeling and inversion, and seismic lithology. I have been working to make friendly micro-computers a routine student tool in my courses.

In my recent research, I and my students continue the quest for a reasonable earth model to reproduce observations, wherein the observations may consist of modern 3-D marine seismic data plus wireline log data, and the earth model consists of a 3-D model of stratal geometry and rock properties. I have also begun working with students studying data from onshore fields in Texas, at the Bureau of Economic Geology. The thrust of this research is the evaluation of the effectiveness of reservoir property predictions based on the combination of all available data, geological models, and geophysical inversion (i.e., geostatistics) techniques. Future research will include attempts to improve on the use of expectations, both through data analysis and through a more natural coupling between the interpreter and the data-fitting process. It is also clear that sophisticated visualization and analysis of 3-D seismic data is now viable on low-cost desktop computers, and I am exploring the effective utilization of this rather revolutionary development, including the use of movies and the microscope focussing-knob analogue.



Carbonates; water-rock interaction; isotope geochemistry
Jay Banner
 Assistant Professor and Dave P. Carlton
 Centennial Teaching Fellow in Geology
 PhD—1986, State University of New York at Stony Brook

My research and teaching interests encompass the fields of carbonate petrology, diagenesis, groundwater evolution, and isotope and trace-element geochemistry. These subjects have been addressed through the integration of field, petrographic, analytical, and modeling techniques to unravel the water-rock interaction history of modern and ancient carbonate sediments and groundwaters from active flow systems. A clean laboratory for isotope geochemistry is currently under construction in the Geology Building. This laboratory will enable the analysis of the concentration and isotopic composition of trace elements in small-rock, mineral, and water samples in a low-contamination environment. My teaching interests include graduate courses in Biogenic and Evaporite Depositional Systems and Sedimentary Geochemistry, and our undergraduate offering of Depositional Processes. This year I have developed and taught a new course entitled Isotope Hydrology, which applies the principles of isotope and trace-element geochemistry to the study of fluid flow, fluid-rock interaction and element transport in the hydrologic cycle.

A common theme of recent research by my students and me has been the development and application of quantitative models for determining the simultaneous variations in a range of radiogenic, stable-isotopic, and trace-element parameters that occur during fluid-rock interaction in a variety of systems. This approach has been applied to understanding the evolution of marine carbonates and saline groundwaters in Paleozoic aquifers in the central mid-continent. New case studies underway include the study of: 1) the timing and nature of processes of carbonate deposition, diagenesis, and hydrology in Pleistocene coral-reef terraces on Barbados, W.I.; and 2) the origin and evolution of fresh water and 'badwater' in the Edwards aquifer of Texas. A study to be started this year will examine the record of marine diagenesis and secular variations in seawater in Devonian reef complexes of Western Australia.

Selected Publications:

- Banner, J. L., and Hanson, G. N., 1990, Calculation of simultaneous isotopic and trace-element variations during water-rock interaction with applications to carbonate diagenesis: *Geochimica et Cosmochimica Acta*, v. 54, p. 3123-3137.
- Banner, J. L., Wasserburg, C. J., Chen, J. H., and Humphrey, J. D., 1991, Uranium-series evidence on diagenesis and hydrology in Pleistocene carbonates on Barbados, W.I.: *Earth and Planetary Sciences Letters*, v. 107, p. 129-137.

PUBLICATIONS

Bureau of Mines and Mineral Resources, Geologic Map 71, scale 1:24,000.

Bennett, P. C., 1991, The dissolution of quartz in organic-rich aqueous systems: *Geochimica et Cosmochimica Acta*, v. 55, p. 1781-1797.

Berryhill, A. W.*, and **Mosher, S.**, 1991, Structural analysis of progressive deformation within complex transcurrent shear-zone systems: Southern Narragansett Basin, Rhode Island: *Journal of Structural Geology*, v. 13, p. 557-578.

Bond, G. C., and **Kominz, M. A.**, 1991, Disentangling Middle Paleozoic sea level and tectonic events in cratonic margins and cratonic basins of North America: *Journal of Geophysical Research*, v. 96, p. 6619-6639.

Bond, G. C., and **Kominz, M. A.**, 1991, Some comments on the problem of using vertical facies changes to infer accommodation and eustatic histories with examples from Utah and the southern Canadian Rockies, in: Franseen, F., Watney, W. L., Kendall, C. G. St. C., and Ross, W. (eds.), Sedimentary modeling: computer simulations and methods for improved parameter definition: *Kansas Geological Survey Bulletin*, v. 233, p. 273-291.

Bond, G. C., **Kominz, M. A.**, and Beavan, J., 1991, Evidence for orbital forcing of Middle Cambrian peritidal cycles: Wah Wah Range, south-central Utah, in: Franseen, K., Watney, W. L., Kendall, C. G. St. C., and Ross, W. (eds.), Sedimentary modeling: computer simulations and methods for improved parameter definition: *Kansas Geological Survey Bulletin*, v. 233, p. 293-317.

Brochu, C. A.*, 1991, Ontogeny and comparative morphology of the ilium in fossil and recent eusuchian crocodylomorphs: *Journal of Vertebrate Paleontology*, v. 11 (Supp. to 3), p. 184.

Buffler, R. T., 1991, Early evolution of the Gulf of Mexico Basin, in: Goldthwaite, D. (ed.), *An Introduction to Central*

PUBLICATIONS

Gulf Coast Geology, New Orleans Geological Society, New Orleans, Louisiana, p. 1-15.

Buffler, R. T., 1991, Seismic stratigraphy of the deep Gulf of Mexico basin and adjacent margins, *in*: Salvador, A. (ed.), *The Gulf of Mexico basin*, Boulder, Co., Geological Society of America, *The Geology of North America*, v. J, p. 353-387.

Buffler, R. T., et al., 1991, F-2, Ouachita Orogen-Yucatan, *in*: Speed, R. (compiler), *North American Continental-Ocean Transects Program, Tectonic Section Display, Arctic-Atlantic-Gulf of Mexico Regions*, Boulder, Co., Geological Society of America, Sheet 2 of 2.

Cambois, G.*, 1991, Proof of the convergence of 15-degree cascaded migration: *Geophysics*, v. 56, no. 12, p. 2110-2113.

Campbell, D. H., and **Folk, R. L.**, 1991, The great pyramid debate: the ancient Egyptian pyramids—concrete or rock? *Concrete International*, v. 13, no. 8, p. 28, 30-39.

Cardimona, S.*, 1991, Waveform inversion and digital filter theory: *Geophysics*, v. 56, p. 534-536.

Carlson, W. D., 1991, Competitive diffusion-controlled growth of porphyroblasts: *Mineralogical Magazine*, v. 55, p. 317-330.

Carpenter, P. S.*, and **Walker, N. W.**, 1992, Origin and tectonic significance of the Aldrich Mountain serpentinite-matrix melange, northeastern Oregon: *Tectonics*, v. 11, no. 3, p. 690-712.

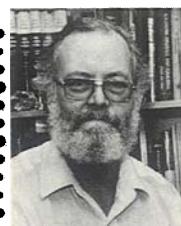
Carter, K. E.*, 1992, Evolution of stacked, ductile shear zones in carbonates from mid-crustal levels: Tuscan Nappe, N. Apennines, Italy: *Journal of Structural Geology*, v. 14, n. 2, p. 181-192.

Carter, K. E.*, 1992, Late-stage faulting in the La Spezia region associated with NE-directed extension and anticlockwise rotation of the Italian Peninsula: *Bollettino della Società Geologica Italiana*, v. 110, p. 125-137.

Igneous petrology; geochemistry; volcanology

Daniel S. Barker

Fred M. Bullard Professor in Geological Sciences
and Dave P. Carlton Centennial
Teaching Fellow in Geology
PhD—1961, Princeton University



Carbonatites (igneous rocks dominated by carbonate minerals) pose some important and difficult problems for geologists. No longer considered mere curiosities (more than 330 carbonatite occurrences are now recognized, ranging in age from Archean to Holocene), carbonatites provide important evidence concerning the composition and thermal history of the earth's mantle and hold economically significant resources of rare-earth elements, niobium, phosphate, titanium, copper, and vanadium. Although experiments and volcanological observations leave no doubt that carbonate-rich rocks can crystallize from magmas, textural and mineralogical features may not preserve a magmatic heritage. Carbonatites are especially susceptible to subsolidus modification, because of the low strength and high ductility of calcite (the most abundant carbonatite mineral), and because of the instability of many carbonatite minerals in aqueous fluids. As a result, magmatic textures and mineral assemblages in carbonatites are commonly altered and even obliterated, and then secondary features are misinterpreted as magmatic. Furthermore, because of evolutionary convergence of plutonic carbonatites and marbles toward the same textures and mineral assemblages, metasedimentary rocks can be misidentified as carbonatites, and vice versa. My research, being conducted on carbonatites from Africa, Europe, and North America, seeks to identify magmatic features that survive postmagmatic alteration processes. Apatite, commonly the second most abundant mineral in carbonatites, appears to offer the best hope for seeing through the postmagmatic changes, because apatite is less soluble than most other carbonatite minerals and commonly encloses, and therefore preserves, magmatic minerals that grew simultaneously with the apatite.

Selected Publications:

- Barker, D. S., 1989, Field relations of carbonatites, *in*: Bell, K. (ed.), *Carbonatites—Genesis and Evolution*, London, Unwin-Hyman, p. 38-69.
 Barker, D. S., and Nixon, P. H., 1989, High-Ca, low-alkali carbonatite volcanism at Fort Portal, Uganda: *Contributions to Mineralogy and Petrology*, v. 103, p. 166-177.



- Aqueous geochemistry; environmental geochemistry; kinetics of rock-water interactions
- **Philip C. Bennett**
- Assistant Professor and Getty Oil Company
- Centennial Teaching Fellow
- PhD—1988, Syracuse University

My primary research areas focus on the molecular chemistry of the silicate surface in water, and the fate and transport of organic solutes in ground water. In order to characterize the nature of the silicate surface, I am combining classic continuum approaches with kinetic studies of silicate dissolution, spectroscopic studies of silicate complexes, and quantum computational geochemistry in order to model the surface at the molecular level. I am examining the fundamental controls on silicate dissolution kinetics and stoichiometry, as well as examining the nature of the solute-surface interaction at low temperature. I am especially interested in the mechanisms of organic-acid-enhanced dissolution of silicates, and in the mechanisms of sorption of organic solutes on silicate surfaces.

An important part of this research project is the use of computational-chemistry and spectroscopic methods to examine a geologic problem. Computational chemistry allows me to model the nature of a surface at the *atomic* level, accounting for solvent-shell effects, rotational and translational motion of atoms at surfaces, and intra-surface hydrogen bonds. In addition, using techniques modified from pharmacological and biochemical methods such as QSPR, quantitative structure-property relationships, the distribution of surface sites, and the types of surface sites can be quantified. This type of model can be used to characterize possible rate-limiting reactions, surface energy distribution, and surface-solute interactions. This work is supported by NSF, the University of Texas, and Los Alamos National Laboratory.

I am also investigating the role of bacteria in low-temperature silicate diagenesis. With PhD student Franz Hiebert, I am using both laboratory column experiments and *in situ* methods to differentiate between the action of a bulk geochemical fluid, such as ground water or soil water of a certain composition, and the action of the controlled microenvironment that surrounds a bacterium or bacterial colony attached to a silicate surface. Also, as part of the U.T.-B.E.G. Pantex project, my students and I are investigating the mobility of high-explosive residues such as TNT and RDX in aqueous systems, and examining various fate models of vapor-phase organic contaminants such as benzene in and around the High Plains playa environment.

Selected Publications:

- Bennett, P. C., 1991, The dissolution of quartz in organic-rich aqueous systems: *Geochimica et Cosmochimica Acta*, v. 55, p. 1781-1797.
- Bennett, P. C., Siegel, D. I., Hill, B., and Glaser, P., 1991, The fate of silicate minerals in a peat bog: *Geology*, v. 19, p. 328-331.
- Bennett, P. C., and Casey, W. H., in press, Organic acids and the dissolution of silicate minerals, *in*: Lewan, M. D., and Pittman, E. D. (eds.), *The Role of Organic Acids in Geologic Processes*, Springer-Verlag.

PUBLICATIONS

- Cather, S. M., and Folk, R. L., 1991, Pre-diagenetic sedimentary fractionation of andesitic detritus in a semi-arid climate: an example from the Eocene Datil Group, New Mexico, p. 211-226 *in: Society of Economic Paleontologists and Mineralogists Special Publication* 45, *Sedimentation in Volcanic Settings*.
- Cloos, M., 1992, Plate Tectonics: *The World Book Encyclopedia*, World Book, Inc., Chicago, p. 565-569.
- Cunningham, W. D.*., Klepeis, K. A.*., Gose, W. A., and Dalziel, I. W. D., 1991, The Patagonian orocline: new paleomagnetic data from the Andean magmatic arc in Tierra del Fuego, Chile: *Journal of Geophysical Research*, v. 96, 16061-16067.
- Dalziel, I. W. D., 1992, Antarctica; a tale of two supercontinents? *Annual Review of Earth and Planetary Sciences*, v. 20, p. 501-526.
- Dalziel, I. W. D., 1992, The future of scientific drilling in Antarctic waters: *Antarctic Science*, v. 4, no. 1, p. 1.
- Dalziel, I. W. D., 1991, Pacific margins of Laurentia and East Antarctica-Australia as a conjugate rift pair: evidence and implications for an Eocambrian supercontinent: *Geology*, v. 19, no. 6, p. 598-601.
- Dalziel, I. W. D., 1991, Pacific margins of Laurentia and East Antarctica-Australia as a conjugate rift pair: evidence and implications for an Eocambrian supercontinent (Comment and Reply to discussion by R. Stern et al.): *Geology*, v. 20, no. 1, p. 190-191.
- Dalziel, I. W. D., 1992, Tectonics: *Geotimes*, v. 37, no. 2, p. 27-28.
- de Zoeten, R.*., and Mann, P., 1992, Structural geology and Cenozoic tectonic history of the central Cordillera Septentrional, Dominican Republic, *in*: Mann, P., Draper, G., and Lewis, J. F. (eds.), *Geologic and Tectonic Development of the North American-Caribbean Plate Boundary in Hispaniola*, *Geological Society of America Special Paper* 262, p. 265-279.

PUBLICATIONS

- Dickson, J. A. D., Smalley, P. C., and Kirkland, B. L., 1991, Carbon and oxygen isotopes in Pennsylvanian biogenic and abiogenic aragonite (Otero County, New Mexico): a laser microprobe study: *Geochimica et Cosmochimica Acta*, v. 55, p. 2607-2613.
- Diggs, T. N.*., McBride, E. F., and Wilson, J. C., 1991, Compaction of Wilcox and Carrizo sandstones to 4,420 m, Texas Gulf Coast: *Journal of Sedimentary Petrology*, v. 61, p. 73-85.
- Dobson, L. M., and Buffler, R. T., 1991, Basement rocks and structure, northeastern Gulf of Mexico: *Transactions, Gulf Coast Association of Geological Societies*, v. 41, p. 191-206.
- Dolan, James, Mann, P., Monechi, S., de Zoeten, R.*., Heubeck, C.*., and Shroma, J., 1992, Sedimentologic, stratigraphic, and tectonic synthesis of Eocene-Miocene sedimentary basins, Hispaniola and Puerto Rico, in: Mann, P., Draper, G., and Lewis, J. F. (eds.), Geologic and Tectonic Development of the North American-Caribbean Plate Boundary in Hispaniola, *Geological Society of America Special Paper* 262, p. 217-263.
- Dorobek, S. L., Reid, S. K., Elrick, M., Bond, J. C., and Komink, M. A., 1991, Subsidence across the Antler foreland of Montana and Idaho: tectonic versus eustatic effects, in: Franseen, K., Watney, W. L., Kendall, C. G. St. C., and Ross, W. (eds.), Sedimentary modeling: computer simulations and methods for improved parameter definition: *Kansas Geological Survey Bulletin* 233, p. 231-251.
- Dubar, J. R., Ewing, T. E., Lundellius, E. L., Jr., Otvos, E. G., and Winker, C. H., 1991, Synopsis of vertebrate faunas of the Gulf Coastal Plain, in: Morrison, R. B. (ed.), Quaternary geology of the Gulf of Mexico Coastal Plain, Quaternary nonglacial geology; nonterminous U. S., Boulder, Colo., Geological Society of America, *The Geology of North America*, v. K-2, p. 583-610.
- Eyles, C. H., Eyles, N., and Lagoe, M. B., 1991, The Yakataga Formation: a

Marine geology and geophysics; sequence stratigraphy

Richard T. Buffler

Professor and Getty Oil Company
Centennial Teaching Fellow

PhD—1967, University of California at Berkeley



My main research interests involve the study of ocean basins and their margins using marine geological and geophysical tools, mainly seismic reflection data. Principles of seismic (sequence) stratigraphy are applied to interpret the depositional and structural history of a region. The principal focus continues to be the geologic history of the Gulf of Mexico basin. Major accomplishments this year include the completion and publication of four major synthesis papers on the Gulf basin, three for DNAG publications and one for a New Orleans Geological Society special publication.

Part of the Gulf work involves supervising graduate student research projects. Two excellent Master's projects were completed ("Seismic Stratigraphy and Geologic History of Upper Middle Jurassic Through Lower Cretaceous Rocks, Deep Eastern Gulf of Mexico," by David A. DeBalko, and "Seismic Stratigraphy and Geologic History of Mid-Cretaceous through Cenozoic Rocks, Southern Straits of Florida," by Walter M. Denny), and papers on the results are in preparation. Three major ongoing PhD projects in the Gulf include: 1) Seismic Stratigraphy and Geologic History of the Post Mid-Cretaceous Rocks, Deep Gulf of Mexico Basin, funded by industry and being conducted by Jianhua Feng; 2) Regional Seismic Stratigraphy and Salt Tectonics, Continental Slope, Garden Banks and East Breaks Area, Northwestern Gulf of Mexico, funded by industry through Texas A&M and being conducted by Carl Fiduk; and 3) Mesozoic Structural and Stratigraphic Evolution of the Southeastern Gulf of Mexico, funded by NSF and being conducted by Gyorgy Marton.

A paper describing the "Structural Geology and Evolution of the Mississippi Fan Foldbelt" was published this year by Paul Weimer (former PhD student) and me in the *AAPG Bulletin*. I am also working on the K-T boundary problem with Walter Alvarez at UC Berkeley. We have proposed a series of ODP sites in the Gulf of Mexico designed to test the hypothesis that the large Chicxulub structure in northern Yucatan is a major K-T impact crater. The sites would sample the proximal ejecta material. A proposal to do a site-survey of the Campeche Bank just north of the structure has been submitted to NSF.

In addition to our Gulf of Mexico research, we have started a program to apply sequence stratigraphy principles to the study of outcrops. We are just completing two Master's projects on Permian carbonate rocks in West Texas/New Mexico, and we have two ongoing PhD studies, one on Permian carbonate rocks in West Texas and one on Jurassic deep-water sands in northern California. Research related to the extrapolation of ODP drilling results from Legs 122/123 off northwest Australia using seismic reflection data also continues. This includes being co-author on five papers soon to be published in the two ODP Proceedings volumes and presenting papers at the upcoming AAPG meeting in Sydney.



- Metamorphic petrology; experimental geochemistry; kinetics
- **William D. Carlson**
- Professor and William Stamps Farish Chair in Geological Sciences
- PhD—1980, University of California at Los Angeles

My research efforts over the past year have been focussed on the development and application of high-resolution computed X-ray tomography for quantitative textural analysis of rocks. In a project funded by the NSF and the Texas Advanced Research Program, PhD student Cambria Johnson and I have obtained three-dimensional images of textures inside metamorphic rocks. Figure 1 is a perspective view of a 3-D map of density within a large hand sample of garnet- and kyanite-bearing schist; in it, brightness correlates with density. With such imagery, many thousands of individual porphyroblasts can be located and measured with high precision and accuracy. Such measurements, combined with theoretical models for crystallization kinetics like those I recently developed for rocks of the Picuris Range of New Mexico, have produced unique understanding of the mechanisms of metamorphic reactions.

Other projects include continued exploration of pyroxene phase equilibria at pressures to 10 kbar in a project funded by NSF and conducted principally at Johnson Space Center, and further work with students to decipher the metamorphic history of the Llano Uplift of central Texas.

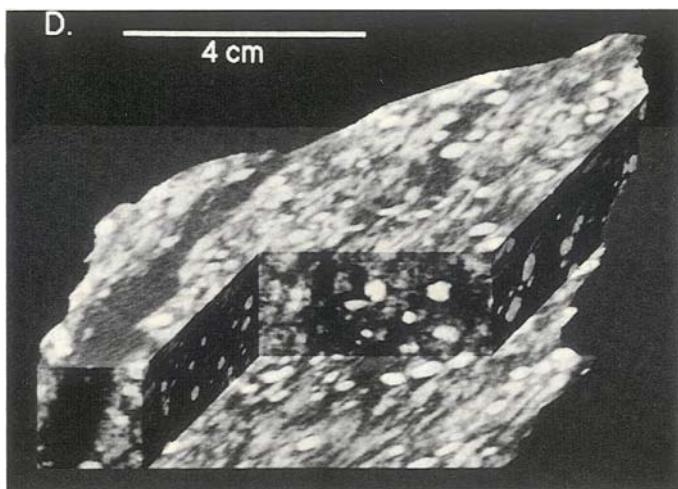


Fig. 1. Three-dimensional density map constructed from contiguous X-ray tomographic images of metamorphic rock. Garnet porphyroblasts appear as light-gray to white ovoids; medium-gray regions are masses rich in fine-grained kyanite and biotite; and dark-gray to black regions are masses rich in fine-grained quartz, feldspar, and muscovite. A discontinuous quartz vein about 1 cm wide and a narrow fracture less than 1 mm wide can be seen to traverse the specimen.

PUBLICATIONS

Late Miocene to Pleistocene record of temperate glacial marine sedimentation in the Gulf of Alaska: *Geological Society of America Special Paper* 261, p. 159-180.

Feng, J.*, and **Buffler, R. T.**, 1991, Age determinations for new deep Gulf of Mexico basin seismic sequences: *Transactions, Gulf Coast Association of Geological Societies*, v. 41, p. 283-289.

Ferrusquía-Villafranca, I., and **McDowell, F. W.**, 1991, The Cenozoic sequence of selected areas in southeastern Mexico; its bearing in understanding regional basin development there: *Memoria, Convención sobre la Evolución Geológica de México, Primer Congreso Mexicano de Mineralogía*, p. 45-50.

Finley, R. J., and **Fisher, W. L.**, 1991, Natural gas reserve additions: recent trends and future potential in the lower 48 states: *Society of Petroleum Engineers*, SPE 22037, p. 209-216.

Fisher, W. L., 1991, Future energy needs: oil and natural gas projection: *GSA Today*, v. 1, no. 4, p. 72, 76.

Fisher, W. L., 1991, Future supply potential of U.S. oil and natural gas: *Society of Exploration Geophysicists, The Leading Edge*, v. 10, no. 12, p. 15-21.

Fisher, W. L., 1991, Oil and gas in the new Texas: a future worth securing: *Journal of Texas Lyceum*, v. 8, no. 2, p. 19-26.

Fisher W. L., 1991, Statement to U.S. House of Representatives, Committee on Interior and Insular Affairs, Subcommittee on Energy and the Environment, concerning oil recovery in President's National Energy Strategy: *Committee Print, Serial No. 102-11, pt. II*, U.S. Government Printing Office, Washington, D.C., p. 87-95.

Fisher, W. L., 1992, U.S. energy policy after the Gulf war: *Oak Ridge National Laboratory, Forum for Applied Research and Public Policy*, v. 8, no. 1, p. 2-9.

Fisher, W. L., with **W. E. Galloway** et al., 1991, Cenozoic, in: *Salvador, A. (ed.), The Gulf of Mexico basin*, Boulder,

PUBLICATIONS

Colo., Geological Society of America, *The Geology of North America*, v. J., p. 245-324.

Fisher, W. L., with S. R. Riggs et al., 1991, Mineral resources and geopressured-geothermal energy, in: Salvador, A. (ed.), The Gulf of Mexico basin, Boulder, Colo., Geological Society of America, *The Geology of North America*, v. J., p. 495-528.

Folk, R. L., and Campbell, D. K., 1992, Are the pyramids of Egypt built of poured concrete blocks? [followed by a hysterical rebuttal]: *Journal of Geological Education*, v. 40, p. 25-34.

Folk, R. L., and Campbell, D. K., 1992, Pyramid debate (continued): *Concrete International*, v. 14, no. 2, p. 18-21.

Frohlich, C., and **Apperson, K. D.***, 1992, Earthquake focal mechanisms, moment tensors, and the consistency of seismic activity near plate boundaries: *Tectonics*, v. 11, no. 2, p. 279-296.

Galloway, W. E., Bebout, D. G., **Fisher, W. L.**, Dunlap, J. B., Jr., Cabrera-Castro, R., Lugo-Rivera, J. E., and Scott, T. M., 1991, Chapter 11; Cenozoic, in: Salvador, A. (ed.), The Gulf of Mexico basin, Boulder, Colo., Geological Society of America, *The Geology of North America*, v. J., p. 245-324.

Galloway, W. E., **Dingus, W. F.***, and **Paige, R. E.***, 1991, Seismic and depositional facies of Paleocene-Eocene Wilcox Group submarine canyon fills, northwest Gulf Coast, U.S.A., in: *Seismic Facies and Sedimentary Processes of Submarine Fans and Turbidite Systems*, Springer-Verlag, New York, p. 247-271.

Galloway, W. E., and Williams, T. A., 1991, Sediment accumulation rates in time and space: Paleogene genetic stratigraphic sequences of the northwestern Gulf of Mexico Basin: *Geology*, v. 19, p. 986-989.

Gao, G., and **Land, L. S.**, 1991, Geochemistry of the Cambro-Ordovician Arbuckle limestone, Oklahoma: implications for diagenetic $\delta^{18}\text{O}$ alteration and secular $\delta^{13}\text{C}$ and $87\text{Sr}/86\text{Sr}$ variation: *Geochimica et*

Structural geology and tectonics

Mark Cloos

Associate Professor, Peter T. Flawn Centennial Teaching Fellow in Geology and William T. Stokes Centennial Teaching Fellow
PhD—1981, University of California at Los Angeles



My overall long-term research interests continue to center on field, laboratory, and theoretical studies of the structure, metamorphism, geochronology, and sedimentation at convergent plate margins. In particular, I am interested in aspects of blueschist metamorphism and their thermal history, the formation of melanges and other chaotic rocks, and dewatering mechanisms for subducting and accreting sediment. I have active field projects in the central and northern Coast Ranges of California.

Several years ago my graduate students established a facility in the Department for apatite fission-track thermochronology. Students are applying the technique to a variety of tectonic problems and to quantify basin thermal evolution.

In 1989, with the support of Freeport McMoRan, Inc., Rich Kyle and I began field studies in the Gunung Bijih (Ertsberg) mining district in Irian Jaya, Indonesia (west New Guinea). I am now supervising four students who are working on aspects there of the petrology of igneous intrusions, regional and local structural geology, fission-track thermochronology, stratigraphy, and origin of brecciated rocks. We expect the first studies from our New Guinea work to be completed in the fall of 1992.

Two of my graduate students finished their dissertations in May. Leslie A. White's dissertation was entitled "Thermal History of the Western Transverse Ranges and Surrounding Region, Southern California, Based upon Apatite Fission Track Analysis." Leslie is now a Research Geologist at Exxon Production Research in Houston. Denise Apperson completed a two-part dissertation entitled 1) "Tectonic Stress Fields and Shallow Seismicity at Convergent Plate Margins," and 2) "Mechanical Models of Compressional Fault-Related Folds." Denise is now a Research Scientist at the Earth Science Research Institute at the University of South Carolina.

During the 1991-92 year, I presented invited research talks at the Department of Geology and Geophysics, Rice University, in October, at the Department of Geology, University of Nebraska, Lincoln, in March, and at Lamont-Doherty Geological Observatory of Columbia University, Palisades, New York, in March. I continue to serve as an Associate Editor for *Geology*, and as a member of the Management Board for the Structural Geology and Tectonics Division of the Geological Society of America. This spring I was appointed to a two-year term as a Member of the National Academy of Sciences/National Research Council Board on Earth Sciences and Resources.



Tectonics
Ian W. D. Dalziel

Professor
 PhD—1963, University of Edinburgh

The highlight of the last year has been research on the "Texas-Antarctic Connection," the hypothesis that Eldridge Moores (University of California at Davis) and I advanced in the spring of 1991 that the long-sought conjugate margin of late Precambrian Laurentia is to be found along the Pacific margin of the East Antarctic and Australian cratons. The rocks of the Grenville belt, including the Llano uplift, appear to have continued along the margin of the present-day Weddell Sea until the Neoproterozoic. Although publication in *Time Magazine* and the international press has been hard to live with (down?!), this idea has been surprisingly well received by our peers and has led to new ideas about the amalgamation and fragmentation of a Neoproterozoic supercontinent and the birth of the Pacific Ocean basin. Not least important here are the implications for possible tectonic controls on geochemical, environmental, and biological changes accompanying the emergence of multicellular animal life at the end of the Precambrian.

Selected Publications:

- Grunow, A. M., Kent, D. V., and Dalziel, I. W. D., 1991, New paleomagnetic data from Thurston Island: implications for the tectonics of West Antarctica and opening of the Weddell Sea: *Journal of Geophysical Research*, v. 96, no. B11, p. 17,935-17,954.
- Storey, B. C., Pankhurst, R. J., Millar, I. F., Dalziel, I. W. D., and Grunow, A. M., 1991, The geology of Thurston Island, Antarctica, in: Thomson, M. R. A., Crame, J. A., and Thomson, J. M. (eds.), *Geologic Evolution of Antarctica*, Cambridge University Press, p. 339-404.



Energy and mineral resources

William L. Fisher

Leonidas T. Barrow Chair in Mineral Resources,
 Director, Bureau of Economic Geology,
 and Director, Geology Foundation
 PhD—1961, University of Kansas

Research efforts over the past year have been directed chiefly to analysis of U.S. oil and gas resources and especially sensitivities to price and technology. A substantial amount of analysis of current energy policies and proposals has been made in preparation for Congressional and State testimony as well as invited lectures.

Selected Publications:

- Fisher, W. L., 1991, Oil and gas in the new Texas: a future worth securing: *Journal of Texas Lyceum*, v. 8, no. 2, p. 19-26.
- Fisher W. L., 1991, Statement to U.S. House of Representatives, Committee on Interior and Insular Affairs, Subcommittee on Energy and the Environment, concerning oil recovery in President's National Energy Strategy: *Committee Print, Serial No. 102-11, pt. II*, U.S. Government Printing Office, Washington, D.C., p. 87-95.
- Fisher, W. L., 1992, U.S. energy policy after the Gulf war: *Oak Ridge National Laboratory, Forum for Applied Research and Public Policy*, v. 8, no. 1, p. 2-9.

PUBLICATIONS

- Cosmochimica Acta*, v. 55, p. 2911-2920.
- Gao, G., and Land L. S., 1991, Nodular chert from the Arbuckle Group, Slick Hills, SWOklahoma: a combined field, petrographic, and isotopic study: *Sedimentology*, v. 38, p. 857-870.
- Goggin, D. J., Chandler, M. A.* Kocurek, G., and Lake, L. W., 1992, Permeability transects of eolian sands and their use in generating random permeability fields: *Society of Petroleum Engineers Formation Evaluation*, March 1992, p. 7-16.
- Gose, W. A., and Finch, R. C., 1992, Stratigraphic implications of palaeomagnetic data from Honduras: *Geophysical Journal International*, v. 108, 855-864.
- Grunow, A. M., Kent, D. V., and Dalziel, I. W. D., 1991, New paleomagnetic data from Thurston Island: implications for the tectonics of West Antarctica and opening of the Weddell Sea: *Journal of Geophysical Research*, v. 96, no. B11, p. 17,935-17,954.
- Guensburg, T. E., and Sprinkle, J., 1992, Rise of echinoderms in the Paleozoic Evolutionary Fauna: significance of paleoenvironmental controls: *Geology*, v. 20, no. 5, p. 407-410 + cover photo.
- Gustavson, T. C., Baumgardner, R. W., Jr., Caran, S. C.* Holliday, V. T., Mehnert, H. H., O'Neill, J. M., and Reeves, C. C., Jr., 1991, Quaternary geology of the southern Great Plains and an adjacent segment of the Rolling Plains, in: Morrison, R. B. (ed.), *Quaternary nonglacial geology: conterminous U.S.*, Boulder, Colo., Geological Society of America, *The Geology of North America*, v. K-2, p. 477-501.
- Heubeck, C.* 1992, Sedimentology of large olistoliths, southern Cordillera Central, Hispaniola, *Journal of Sedimentology Petrology*, v. 62, p. 474-482.
- Heubeck, C.* and Mann, P., Structural geology and Cenozoic tectonic history of the Cordillera Central, Dominican Republic, in: Mann, P., Draper, G., and Lewis, J. F. (eds.), *Geologic*

PUBLICATIONS

and Tectonic Development of the North American-Caribbean Plate Boundary in Hispaniola, *Geological Society of America Special Paper* 262, p. 217-263.

Hibbs, B. J.*, 1991, Hydrogeology of the Colorado River alluvial aquifer between Austin and Smithville, Texas—a numerical assessment of the shallow flow system: *Lower Colorado River Authority Report*, 111 p.

Hibbs, B. J.*, and **Sharp, J. M., Jr.**, 1991, Evaluation of underflow and the potential for instream flow depletion of the Lower Colorado River by high capacity wells in adjoining alluvial systems: *Lower Colorado River Authority Report*, 126 p.

Hibbs, B. J.*, and **Sharp, J. M., Jr.**, 1991, Hydrodynamic, hydrochemical, and hydrothermal investigation of bank storage effects in stream-aquifer systems: *Technical contract report to the U.S. Geological Survey*, 52 p.

Hibbs, B. J.*, and **Sharp, J. M., Jr.**, 1992, Delayed drainage in stream-aquifer systems—implications for surface-/ground-water interactions: *Technical contract report to the U.S. Geological Survey*, 12 p.

Hine, A. C., **Land, L. S.**, Clayton, T. D., and McCullough, M. L., 1991, Seismic stratigraphy of Discovery Bay, Jamaica: *Marine Geology*, v. 98, p. 83-97.

Jones, H. D., Kesler, S. E., Spry, P. G., Richardson, C. K., **Kyle, J. R.**, Anderson, W. H., and Furman, F. C., 1992, Determination of the limits of mid-continent brine flow by sulfur isotopes from Mississippi Valley-type deposits, in: Goldhaber, M. (ed.), Mineral Resources of the Illinois Basin in the Context of Basin Evolution: U. S. Geological Survey, *Open File Report* 92-1, p. 32-33.

Klepeis, K. A.*, Lawver, L. A., **Zellers, S.***, Miller, J., and Nelson, G., 1990, Bathymetry of the Shackleton Fracture Zone, Elephant Island and Clarence Island regions, Antarctica: *Antarctic Journal of the United States*, 1990 Review, v. 25, no. 5, p. 71-73.

Clastic depositional systems; basin analysis; sedimentary economic geology
William E. Galloway

John E. "Brick" Elliott Centennial Professor
PhD—1971, University of Texas at Austin



My research for the past year has focussed on expanding and comparing the sequence stratigraphic frameworks of the Gulf of Mexico and North Sea Cenozoic basins.

In the North Sea, regional correlation of seismic (provided by courtesy of NOPEC), well, and paleontologic data shows that the Paleocene-Miocene succession records at least 15 depositional episodes, grouped into four tectonosequences. Episodes are largely modulated by tectonic events in the basin and its bounding source areas. The array of depositional systems traverses the spectrum from braid deltas to contourite mound complexes, making this one of the most heterogeneous basins I've studied in terms of the variety of facies found within the fill. Three students have been involved in dissertation and thesis studies of the North Sea, supported by a consortium of companies. Preliminary results were presented at the Barbican Conference on the Petroleum Geology of NW Europe (by me) in London and the International Symposium on Mesozoic and Cenozoic Sequence Stratigraphy of European Basins (by Ben Sloan) in Dijon.

In the Gulf basin, work by two students is focussed on developing and refining a high-resolution sequence stratigraphy and depositional system evolution of the Yegua and Middle-Lower Wilcox groups. Detailed well log correlation confirms that the previously defined sediment-supply-dominated genetic stratigraphic sequences are punctuated by numerous, subregionally developed flooding events. The relationship of these events to the changing patterns of sediment supply, eustasy, and intrabasinal tectonic processes is being sorted out. New work, funded by NSF with me, Cliff Frohlich of the Institute for Geophysics, and Robley Mathews of Brown University as co-investigators, will focus on developing a high-resolution stratigraphy for the Miocene section of the Texas coastal plain and shelf and on testing, through the application of computer modeling, the significance of orbitally forced Neogene glacio-eustasy.

Ongoing teaching and research on the topic of sequence stratigraphy led to preparation of a note set, focussing on a sedimentologic approach, that is being used for short courses, both public (Australia Geological Convention; Stanford University) and corporate, as well as for my own graduate courses.



- Carbonate and evaporite sedimentology;
- fossil algae; carbonate petrography
- Brenda Kirkland George**
- Assistant Professor
- PhD - 1992, Louisiana State University

Prior to arriving in Austin in January, I devoted myself to completion of my dissertation and related projects. The first section of my dissertation was a study of well-preserved, still aragonitic *Eugonophyllum*, a Pennsylvanian green alga from the Sacramento Mountains of New Mexico. The remarkable internal preservation of these fossils allowed me to confirm their taxonomic affinity and to confirm their suspected analogy to the role of modern *Halimeda* in Pacific and Caribbean bioherms. The second study centered on *Mizzia*, a green alga found in the Guadalupe Mountains. It is commonly found in abundance at the transition between the Capitan and associated formations of the shelf. This led to a third study revising the hypothesis that the Capitan Formation was deposited as a barrier reef. Fossils and lithologies present suggest that, during deposition of the upper Capitan, conditions on the outer shelf were restricted. During deposition of the lower to middle Capitan, however, fossils and lithologies present suggest that the outer shelf was open to greater current energy.

I am part of a group, led by D. G. Bebout at the Bureau of Economic Geology, that is writing a guidebook to the Permian Reef Geology Trail in McKittrick Canyon, Guadalupe Mountains National Park. In conjunction with Emily Stoudt and Susan Longacre of Texaco, I have focussed on the portion of middle Capitan reef that crops out along the trail. We are continually impressed by the Capitan Formation's rich biotic diversity, abundant marine cement, and remarkable textural similarity to modern reefs. I have also learned a great deal about deposition of the Yates, Tansill, and Lamar formations that crop out along the trail.

This spring I initiated several new research projects. I have begun studying the distribution of marine cement types in the Capitan Formation. I have also begun two smaller projects. The first concerns an occurrence of giant (0.2 to 1.5 m) selenite crystals, which appear to be forming by recrystallization of the Castile Formation. The second is a study of oolitically coated quartz grains from the Rita Blanca Formation of the Panhandle. A few of these grains have ostracod carapaces caught up in their oolitic laminae.

Selected Publications:

- Kirkland, B. L. and Chapman, R. L., 1990, The fossil green alga *Mizzia* (Dasycladaceae): a tool for interpretation of paleoenvironment in the Upper Permian Capitan Reef Complex, southeastern New Mexico: *Journal of Phycology*, v. 26, p. 569-576.
- Kirkland George, B., 1992, Distinctions between reefs and bioherms based on studies of fossil algae, *Mizzia*, Permian Capitan Reef Complex (Guadalupe Mountains, Texas and New Mexico) and *Eugonophyllum*, Pennsylvanian Holder Formation (Sacramento Mountains, New Mexico): *Dissertation*, Louisiana State University, 156 p.

PUBLICATIONS

- Kocurek, G.**, 1991, Interpretation of ancient eolian sand dunes: *Annual Review of Earth and Planetary Science*, v. 19, p. 43-75.
- Kocurek, G.**, Deynoux, M., Blakey, R. C., and **Havholm, K. G.***, 1991, Amalgamated accumulations resulting from climatic and eustatic changes, Akchar Erg, Mauritania: *Sedimentology*, v. 38, p. 751-772.
- Kocurek, G., Knight, J.***, and **Havholm, K.***, 1992, Outcrop and semi-regional three-dimensional architecture and reconstruction of a portion of the eolian Page Sandstone (Jurassic), in: Miall, A., and Tyler, N. (eds.), *Three-Dimensional Facies Architecture of Terrigenous Clastic Sediments and its Implications for Hydrocarbon Discovery and Recovery*, Society of Economic Paleontologists and Mineralogists Concepts in Sedimentology and Paleontology, v. 3, p. 25-43.
- Kominz, M. A.**, and Bond, G. C., 1991, Reply to comment by David L. Macke on Unusually large subsidence and sea-level events during middle Paleozoic time: new evidence supporting mantle convection models for supercontinent assembly: *Geology*, v. 19, p. 1149-1150.
- Kominz, M. A.**, and Bond, G. C., 1991, Unusually large subsidence and sea-level events during middle Paleozoic time: new evidence supporting mantle convection models for supercontinent assembly: *Geology*, v. 19, p. 56-60.
- Kominz, M. A.**, Bond, G. C., Beavan, J. and McManus, J., 1991, Are cyclic sediments periodic? Gamma analysis and spectral analysis of Newark Supergroup lacustrine strata, in: Franseen, K., Watney, W. L., Kendall, C. G. St. C., and Ross, W. (eds.), *Sedimentary modeling: computer simulations and methods for improved parameter definition*: *Kansas Geological Survey Bulletin*, v. 233, p. 319-334.
- Kupecz, J. A.***, and **Land, L. S.**, 1991, Late-stage dolomitization of the Lower Ordovician Ellenburger Group, West Texas: *Journal of Sedimentary Petrology*, v. 61, p. 551-574.

PUBLICATIONS

Kyle, J. R., 1992, Review of *Salt Diaps of the Great Kavir, Central Iran* (Memoir 177, Geological Society of America, 1991); *Economic Geology*, v. 87, p. 454-455.

Liangqing, X., and Galloway, W. E., 1991, Fan-delta, braid delta, and the classification of delta systems: *Acta Geologica Sinica*, v. 4, p. 387-400.

Land, L. S., 1991, Dolomitization of the Hope Gate Formation (north Jamaica) by seawater: reassessment of mixing-zone dolomite, in: Taylor, H. P., Jr., O'Neil, J. R., and Kaplan, I. R. (eds.), *Stable Isotope Geochemistry: a Tribute to Samuel Epstein*, *The Geochemical Society, Special Publication No. 3*, p. 121-133.

Land, L. S., 1991, Some aspects of the late Cenozoic evolution of north Jamaica as revealed by strontium isotope stratigraphy: *Journal of Geological Society of Jamaica*, v. 28, p. 45-48.

Land, L. S., Gao, G., and Kupecz, J. A.*, 1991, Diagenetic history of the Arbuckle Group, Slick Hills, southwestern Oklahoma: a petrographic and geochemical summary, and comparison with the Ellenburger Group, Texas: *Oklahoma Geological Survey Special Publication 91-3*, p. 103-110.

Long, L. E., 1991, Book review of *Absolute Age Determination: Physical and Chemical Dating Methods and their Application* by M. A. Geyh and H. Schleicher, Springer-Verlag, Berlin; *Geochimica et Cosmochimica Acta*, v. 55, p. 1751.

Lowenthal, D., and Stoffa, P. L., 1991, Synthetic acoustic seismograms by deconvoluting sources: *Acoustic Society of America Journal*, v. 90, no. 2, p. 1101-1105.

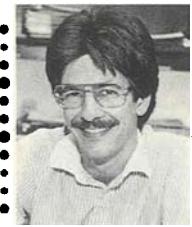
Lundelius, E. L., Jr., 1992, The Avenue local fauna, Late Pleistocene vertebrates from terrace deposits at Austin, Texas: *Annales Zoologae Fennici*, v. 23, p. 329-340.

Mann, P., Tyburski, S. A.*, and Rosencrantz, E., 1991, Neogene development of the Swan Islands restraining-bend complex, Caribbean

Seismology and geophysics

Steven P. Grand

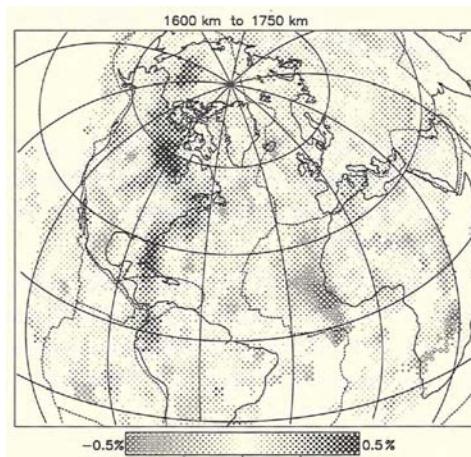
Assistant Professor and Shell Companies Foundation Centennial Teaching Fellow
PhD—1986, California Institute of Technology



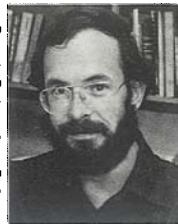
I have spent most of my time this year completing a project mapping lateral variations in seismic velocities throughout the mantle of the Earth beneath North and South America. Variations in seismic velocity in the mantle are primarily due to temperature variations. The seismic images can thus be used to understand the convection patterns within the deep interior of the planet. The figure below shows a map of shear-wave velocity for a layer 1600 to 1750 km deep in the Earth. Note the narrow high-velocity feature stretching from near the equator to close to Siberia. This high-velocity anomaly can be seen from about 700 km depth to the core-mantle boundary and probably represents a large downwelling arm of a convection cell. Recent work on the history of subduction for the last 150 Ma seems to suggest a correlation of deep-mantle seismic anomalies and subduction in the distant past.

In related work, graduate student Xiao-Yang Ding and I have been looking at the travel-times of P-waves produced by deep earthquakes in the Kurile Island subduction zone. The goal of this project is to image the seismic velocities of the mantle beneath the deepest earthquakes near 650 km depth. There is considerable debate about whether the large-scale high-velocity anomalies in the deep mantle are actually surface rocks which have sunk to great depth or if the deep convection pattern is physically unconnected with near-surface processes. We have found no evidence for a penetration of high-velocity material beneath the deepest earthquakes. We believe that subducted lithosphere is likely to "spread out" horizontally near 650 km depth. The connection between the deeper mantle images and what occurs shallower than 650 km is still an unresolved problem.

Graduate student Duk-Kee Lee and I are involved in an experiment to image the crust and mantle beneath the Rocky Mountain Front in Colorado. This study is in collaboration with Lamont Doherty Observatory and the University of Oregon.



(Legend in body of first paragraph of text, above.)



- Eolian sedimentology
- **Gary Kocurek**
- Professor and Getty Oil Company
- Centennial Teaching Fellow
- PhD—1980, University of Wisconsin at Madison

My research is centered in sedimentology, primarily eolian or wind-blown systems, but ranges from what most might call eolian geomorphology to basin analysis. Above all, I work with processes and think any sedimentary systems, including eolian ones, have to be understood from the grain-fluid level to the basin-global scale if they are to be understood at all. I am interested in the flow of fluids and fluid-substrate interactions. This interest, in turn, leads to trying to understand the dynamics of bedforms, and the production and recognition of sedimentary structures. I work with the arrangement of sedimentary units and surfaces, and how these come to be assembled in the rock record. From a process point-of-view, I work with stratigraphic sequences—what had to have happened to give a specific sequence. At the basin-global scale, I am interested in how climate, tectonism, sea level, and sediment supply affect sedimentary sequences and, conversely, how large-scale events can be interpreted from the rock record. My teaching includes sedimentary processes at the graduate level, and, at the undergraduate level, depositional systems, sedimentology, field camp, and the geology of the national parks.

Because of the range of my research interests, my “field areas” extend from the wind tunnel, to modern dune fields in North America and Africa, to ancient sequences on the Colorado Plateau. During the past year, a project has been completed in the Sahara of Mauritania in which we were able to link through absolute dating specific accumulations and geomorphic features to climatic change during the past 20,000 years. For this project, we worked with a French team of geologists and remote sensors, both in Mauritania and in Strasbourg. Field work with eolian sequence stratigraphy has been carried to the Jurassic Entrada of eastern Utah. Here we believe that the inland eolian sequence can be correlated to water-table fluctuations caused by relative sea-level changes. In other words, we are drawing sea-level curves from eolian sequences. A two-year monitoring of conditions has begun at White Sands, New Mexico, as well. By carefully monitoring the wind regime, water table, and dune behavior, we hope to link the processes precisely to the dynamics of the system, so that what we see at the surface and in trenches can really be understood as the result of the processes themselves. Modern air-flow work continues with a group from Aerospace Engineering, in which numerical simulations and actual field data are meshed, with the goal of extracting the fundamental dynamics that apply in general. Much effort continues to go into designing a physical basis for eolian sequence stratigraphy.

PUBLICATIONS

- Sea: *Geology*, v. 19, no. 8, p. 823-826.
- McCullough, M. L., and **Land, L. S.**, 1992, Diagenetic history of a submerged Jamaican fringing reef: *Carbonates and Evaporites*, v. 7, p. 2-10.
- McCullough, M. L., and **Land, L. S.**, 1992, Dynamichydrology of a Jamaican fringing reef: *Marine Geology*, v. 104, p. 139-151.
- Misi, A., and **Kyle, J. R.**, 1992, Dados isotópicos de enxofre em sulfetos e sulfatos da Bacia de Irecê: Contribuição ao conhecimento da gênese das concentrações de sulfetos, in: *Proceedings, I Simpósio Regional de Geologia Bahia-Sergipe*, Salvador, Bahia, p. 150-154.
- Moore, G. F., Karig, D. E., Shipley, T. H., Taira, A., **Stoffa, P. L.**, and **Wood, W. T.** *, Structural framework of the ODP Leg 131 area, Nankai Trough: *Proceedings, Ocean Drilling Program, Initial Report 131*, p. 15-20.
- Moores, E. M., and Dalziel, I. W. D., 1991, Pacific margins of Laurentia and East Antarctica-Australia as a conjugate rift pair: evidence and implications for an Eocambrian supercontinent (Reply to comment by A. J. Boucot): *Geology*, v. 20, no. 1, p. 87-88.
- Morton, R. A., and **Galloway, W. E.**, 1991, Depositional, tectonic, and eustatic controls on hydrocarbon distribution in divergent margin basins: Cenozoic Gulf of Mexico case history: *Marine Geology*, v. 102, p. 239-263.
- Muehlberger, W. R.**, 1991, Frank E. Kottlowski: p. v, in: *Geology of Sierra Blanca, Sacramento and Capitan Ranges, New Mexico: New Mexico Geological Society, 42nd Field Conference Guidebook*, 361 p. (guidebook dedication)
- Natural Environmental Research Council (**Sharp, J. M., Jr.**), 1991, Expert review of hydrogeology: *NERC*, London, 13 p.
- Oberst, J., and **Nakamura, Y.**, 1991, Search for clustering among the meteoroid impacts detected by the Apollo lunar seismic network: *Icarus*, v. 91, p. 315-325.

PUBLICATIONS

- Oh, J., Phillips, J. D., Austin, J. A., Jr., and **Stoffa, P. L.**, 1991, Deep-penetration seismic reflection profiling across the southeastern United States continental margin, in: Meissner et al. (eds.), *Symposium on deep seismic reflection profiling of the continental lithosphere: American Geophysical Union, Geodynamics Series*, v. 22, p. 225-240.
- Riggs, S. R., **Ellison, S. P., Jr., Fisher, W. L., Galloway, W. E.**, Jackson, L. W., and Morton, R. A., 1991, Mineral resources and geopressured-geothermal energy, in: Salvador, A. (ed.), *The Gulf of Mexico basin*, Boulder, Colo., Geological Society of America, *The Geology of North America*, v. J, p. 495-528.
- Rowe, T.**, 1991, Book review of *Encyclopedia of Paleoherpetyology: Theriodontia I*, by D. Sigogneau-Russell, Gustaf Fischer Verlag, Stuttgart, 1989, 127 p.: *Copeia*, no. 2, p. 531-533.
- Rowe, T.**, 1991, Homage to Rudyard Kipling: the Dicynodonts, a study in paleobiology: *Systematic Zoology*, v. 40, p. 244-245.
- Salvador, A.**, 1990, Future trends in stratigraphy: *Review of the Bulgarian Geological Society*, v. 51, Part 3, p. 1-5.
- Salvador, A.**, editor, 1991, *The Gulf of Mexico basin*: Boulder, Colorado, Geological Society of America, *The Geology of North America*, v. J, 568 p. Chapter 1, Introduction, by **A. Salvador**, p. 1-12.
- Chapter 2, Physiography and bathymetry, by W. R. Bryant, J. Lugo, C. Córdova, and **A. Salvador**, p. 13-20.
- Chapter 7, Pre-Triassic, by R. D. Woods, **A. Salvador**, and A. E. Miles, p. 109-130.
- Chapter 8, Triassic-Jurassic, by **A. Salvador**, p. 131-180.
- Chapter 14, Origin and development of the Gulf of Mexico basin, by **A. Salvador**,
- Chapter 18, Summary: current knowledge and unanswered questions, by **A. Salvador**, p. 545-549.

Periodicity of cyclic sediment packages; tectonic and stratigraphic history of sedimentary basins

Michelle A. Kominz

Assistant Professor and Shell Companies Foundation Centennial Teaching Fellow
PhD—1986, Columbia University



I have completed my third year in Geological Sciences at U.T.—Austin. My teaching load this year has included joint teaching of exploration geophysics for geophysics majors and first-year graduate students with Milo Backus. I have also enjoyed joint teaching of the introductory geology course for engineering students with Roberto Gutierrez. In the spring semester I team-taught a graduate course in Quantitative Stratigraphy with Martin Lagoe. The emphasis in my portion of the course included both quantitative analysis of basin subsidence and analysis of high-frequency cyclicity via spectral and linear methods.

My research in the study of high-order cyclic sediments is progressing. Triassic/Jurassic cyclic lake sediments of the Newark Basins have been studied via gamma analysis. Here we have found that a meter of deep-water-varved shales represents about six times as much time as a meter of the shallow-water, strongly burrowed and mud-cracked calcisiltites that make up the majority of the cycles. We also find that the cycles record both the precessional and eccentricity periodic components of the earth's rotation, indicating a climatic control of lake levels during non-glacial times. Work on applying the method to Pleistocene deep-sea sediments is in progress. This work is designed to test the procedure in cyclic sediments that are known to be periodic. An image-analysis station allows for rapid acquisition of images from color slides of the cores. Preliminary results in a North Atlantic glacial debris/carbonate ODP core (609) indicate that the new method does enhance the orbital signals.

Selected Publications:

- Bond, G. C., Kominz, M. A., and Beavan, J., 1991, Evidence for orbital forcing of Middle Cambrian peritidal cycles: Wah Wah Range, south-central Utah, in: Franseen, K., Watney, W. L., Kendall, C. G. St. C., and Ross, W. (eds.), *Sedimentary modeling: computer simulations and methods for improved parameter definition*: *Kansas Geological Survey Bulletin* 233, p. 293-317.
- Kominz, M. A., Bond, G. C., Beavan, J. and McManus, J., 1991, Are cyclic sediments periodic? Gamma analysis and spectral analysis of Newark Supergroup lacustrine strata, in: Franseen, K., Watney, W. L., Kendall, C. G. St. C., and Ross, W. (eds.), *Sedimentary modeling: computer simulations and methods for improved parameter definition*: *Kansas Geological Survey Bulletin* 233, p. 319-334.



Michelle Kominz (front left) leads students on an exploration geophysics class field trip to a Mobil off-shore drilling rig. Others in the photo, from left to right, are students Matt Ralston, Russell Hicherson, Deron van Hoff and Barbara Luke.



Ore deposits geology; stable-isotope and fluid-inclusion studies; mineral exploration
Richard Kyle
 Professor and Getty Oil Company
 Centennial Teaching Fellow
 PhD—1977, University of Western Ontario

I have developed a diverse program in ore deposits geology in the Department of Geological Sciences since my arrival from the mineral exploration industry in 1978. This program combines many aspects of geology into the investigation of the origin of mineral resources in sedimentary, igneous, and metamorphic environments. The program is broad-based geologically, geographically, and topically, and involves field projects in several states and foreign countries. Students investigate theoretical and applied aspects of the concentration and effective utilization of mineral resources within the context of the total geologic environment. In addition to undergraduate and graduate courses in ore deposits geology, I teach a core course in economic geology for the E/MR program in Petroleum Engineering, and a nonmajors course on the geology and resources of Texas. I am the editor for North and South America for *Ore Geology Reviews* and recently served as an associate editor for *Economic Geology*.

We are involved in a major project to investigate the tectonics and ore deposits of the Ertsberg district in Irian Jaya, Indonesia. The region consists of a spectacular Alpine terrain of folded and thrust-faulted Cenozoic carbonate rocks that form the central mountain range of New Guinea. This complex terrane developed in response to subduction-related processes on the northern margin of the Australian plate. The carbonate sequence has been intruded by diorite plutons with which major intrusion- and skarn-hosted copper-gold deposits are associated. The primary goal of the project is to investigate the tectonic setting, igneous petrology, and ore genesis.

Other current research projects include metal sulfide and industrial mineral deposits in the Gulf Coast, isotopic and paleomagnetic dating of mineralization, origin of associated sulfide and phosphate concentrations in Proterozoic carbonates of Brazil, and regional studies of siliciclastic-hosted zinc-lead deposits in Alaska and China.

Selected Publications:

- Kyle, J. R., ed., 1990, Industrial Mineral Resources of the Delaware Basin, Texas and New Mexico: Society of Economic Geologists, Guidebook Series, v. 8, 203 p.
- Kyle, J. R., 1991, Evaporites, evaporative processes, and mineral resources, in: Melvin, J. L. (ed.), *Evaporites, Petroleum, and Mineral Resources*, Elsevier, p. 477-533.
- Kyle, J. R., and Posey, H. H., 1991, Halokinesis, cap rock development, and salt dome mineral resources, in: Melvin, J. L. (ed.), *Evaporites, Petroleum, and Mineral Resources*, Elsevier, p. 413-474.
- Vasconcelos, P. M., and Kyle, J. R., 1991, Supergene geochemistry and crystal morphology of gold in a semi-arid weathering environment: application to gold exploration: *Journal of Geochemical Exploration*, v. 40, p. 115-132.

PUBLICATIONS

- Sawyer, D. S., Buffler, R. T., and Pilger, R.H., Jr., 1991, Crust under the Gulf of Mexico basin, in: Salvador, A. (ed.), *The Gulf of Mexico basin*, Boulder, Colo., Geological Society of America, *The Geology of North America*, v. J, p. 53-72.
- Schwartz, S. Y., Lay, T., and Grand, S. P., 1991, Seismic imaging of subducted slabs: trade-offs with deep paths and near receiver effects: *Geophysical Research Letters*, v. 18, p. 1265-1268.
- Sen, M. K., and Stoffa, P. L., 1991, Non-linear one-dimensional seismic waveform inversion using simulated annealing: *Geophysics*, v. 56, no. 10, p. 1624-1638.
- Sen, M. K., and Stoffa, P. L., 1992, Genetic inversion of AVO: *Geophysics, The Leading Edge of Exploration*, v. 11, no. 1, p. 27-29.
- Sen, M. K., and Stoffa, P. L., 1992, Rapid sampling of model space using genetic algorithms: examples from seismic waveform inversion: *Geophysical Journal International*, v. 108, no. 1, p. 281-292.
- Sharp, J. M., Jr., 1991, Aquifer overexploitation and reservoir depressurization and their effects on low-lying coastal areas: examples from the Gulf of Mexico Basin, in: *Aquifer Overexploitation*, 23rd International Conference, International Association of Hydrogeologists, Puerto de la Cruz, Spain, p. 167-170.
- Sharp, J. M., Jr., Kreitler, C. E., and Lesser, J., 1991, Ground Water, in: Salvador, A. (ed.), *The Gulf of Mexico basin*, Boulder, Colo., Geological Society of America, *The Geology of North America*, Boulder, Colo., v. J, p. 529-543.
- Sharp, J. M., Jr., Raymond, R. H., *Germiat, S. J., *Paine, J. G., *1991, Re-evaluation of the causes of subsidence along the Texas Gulf of Mexico Coast and some extrapolations of future trends, in: Johnson, A. I. (ed.), *Land Subsidence*, International Association of Hydrological Sciences Publication, v. 200, p. 397-406.

PUBLICATIONS

- Shipley, T. H., McIntosh, K., Silver, E., and **Stoffa, P. L.**, 1992, Three-dimensional seismic imaging of the Costa Rica Accretionary Prism: structural diversity in a small volume of the lower slope: *Journal of Geophysical Research*, v. 97, no. B4, p. 4439-4459.
- Smith, D.**, and Barron, B. R., 1991, Pyroxene-garnet equilibration during cooling in the mantle: *American Mineralogist*, v. 76, 1950-1963.
- Solomon, C. S., Anderson, D. L., Banerdt, W. B., Butler, R. G., Davis, P. M., Duennbier, F. K., **Nakamura, Y.**, Okal, E. A., and Phillips, R. J., 1991, Scientific rationale and requirements for a global seismic network on Mars: *Technical Report LPI/TR-91-02, Lunar and Planetary Institute*, Houston, 1991, 51 p.
- Squires, L. J., Blakesle, S. N., and **Stoffa, P. L.**, 1992, The effects of statics on tomographic velocity reconstructions: *Geophysics*, v. 57, p. 353-362.
- Stoffa, P. L.**, and Sen, M. K., 1991, Non-linear multiparameter optimization using genetic algorithms: inversion of plane wave seismograms: *Geophysics*, v. 56, no. 11, p. 1794-1810.
- Stoffa, P. L.**, and Sen, M. K., 1992, Seismic waveform inversion using global optimization: *Journal of Seismic Exploration*, v. 1, no. 1, p. 9-27.
- Stoffa, P. L.**, Shipley, T. H., Dean, D., Kessinger, W., Elde, R., Silver, E., Reed, D., and Aguilar, A., 1991, Three-dimensional seismic imaging of the Costa Rica Accretionary Wedge Part I: field program and migration examples: *Journal of Geophysical Research*, v. 96, no. B13, p. 21,693-21,712.
- Stoffa, P. L.**, Wood, W. T., Shipley, T. H., Taira, A., Suyehiro, K., Moore, G. F., Botelho, M. A. B., Tokuyama, H., and Nishiyama, E., 1992, Deep-water high-resolution expanding-spread and split-spread marine seismic profiles: acquisition and velocity analysis methods: *Journal of Geophysical Research*, v. 97, p. 1687-1713.
- Storey, B. C., Pankhurst, R. J., Millar, I. F., **Dalziel, I. W. D.**, and Grunow, A. M., 1991, The geology of Thurston Is-

Micropaleontology

Martin B. Lagoe

Associate Professor and Dave P. Carlton

Centennial Teaching Fellow

PhD—1982, Stanford University



My research interests focus on using foraminiferal micropaleontology to address problems in paleoenvironmental analysis, basin analysis, paleoceanography, and sequence stratigraphy. I also have interests in using this specialty to address topics in tectonics, petroleum exploration, and paleoclimate reconstruction. Currently, I teach undergraduate courses in physical geology and introductory field methods and graduate courses in micropaleontology, paleoceanography, and quantitative stratigraphy.

Several longstanding research interests include the Late Cenozoic glacial and climatic history of the Gulf of Alaska and North Pacific; the paleoenvironmental analysis of active-margin basins of California; and the use of quantitative methods in biostratigraphy and paleoenvironmental analysis. Work on the Gulf of Alaska this year included presentations at the Cordilleran G.S.A. meeting in Eugene, Oregon, and at the Arctic Margins Conference in Anchorage, Alaska. My own work in this area is presently focussed on the depositional record of large megachannels (up to 500 m relief) in the Yakataga Formation. This work is being done in cooperation with Carolyn Eyles (McMaster) and Nick Eyles (U. of Toronto). In addition, PhD candidate Sally Zellers is working on seismic, well, and paleontological data sets in studying the Late Cenozoic development of the Yakataga continental shelf. During the coming year we intend to expand our studies of late Cenozoic glacial and depositional history to various COST wells in the Bering Sea. The Gulf of Alaska research is supported by a grant from the National Science Foundation.

Two newer projects have progressed well during the past year, one on high-resolution paleoenvironmental studies on the modern Gulf of Mexico slope, and the other on the late Quaternary depositional history of the New Jersey continental shelf. Both projects involve cooperation with scientists at the U.T.-Austin Institute for Geophysics. The work on the Gulf of Mexico slope, in cooperation with Anthony Gary (Unocal), Bill Behrens (UTIG), and Paul Loubere (Northern Illinois), is studying the distributions of live and total foraminiferal faunas in box cores to better relate these distributions to environmental parameters. In the coming year we will be extending the work to piston cores on the slope and shelf of the northwest Gulf of Mexico (the latter work in cooperation with John Anderson, Rice U.). The Gulf of Mexico work is supported by a grant from the Petroleum Research Fund, American Chemical Society. The research on the New Jersey continental shelf is a cooperative project with James Austin (PI), Tom Davies, and Paul Stoffa (all UTIG). It involves the interpretation of high-resolution seismic surveys (including 3-D surveys) constrained by piston core-based studies of lithology and foraminiferal biofacies. We are developing a detailed depositional history for the late Laurentide deglaciation, as it affected this locality. This work is supported by a grant from the Office of Naval Research.



- Isotope geochemistry; diagenesis;
 - low-temperature aqueous geochemistry
- Lynton Land**
- Professor and Edwin Allday Centennial Chair in Subsurface Geology
 - PhD—1966, Lehigh University

My research over the last year has centered on two problems: diagenesis and dolomitization of Cambro-Ordovician carbonates of Texas and Oklahoma, and burial diagenesis of the Gulf of Mexico sedimentary basin.

Studies of Cambro-Ordovician carbonates have emphasized the supposed "fault-related" dolomites in the Arbuckle Mountains. Dr. Guoqiu Gao is conducting post-doctoral work on these rocks, and preliminary results indicate that the history of dolomitization is much more complex than can be explained simply by fluids moving along faults. In fact, the faults may be there *because* the dolomite bodies were already present, and the distribution of dolomite bodies may be related to a karst system, itself fracture-controlled. Two graduate students are beginning their PhD work on detailed studies of limestone diagenesis, and the utilization of paleomagnetic data to constrain deposition and diagenesis.

Studies of burial diagenesis in the Gulf of Mexico sedimentary basin are concentrated on mudrock diagenesis. We now have a reasonable understanding of the changes that sandstones undergo as the result of burial, although our ability to predict processes of cementation and secondary porosity formation is still not very sophisticated. Likewise, we have a reasonable understanding of formation-water chemistry, and how different kinds of water are distributed. The great void in our knowledge is a quantitative understanding of the behavior of the mudrocks, which constitute most of the sediments in the basin. Together with Research Associates Kitty Milliken and Larry Mack, I am studying mudrocks petrographically (mainly with the SEM and microprobe) and using various isotopic tracers (B, O, Nd, Hf, Sr) in an attempt to determine the "scale of system closure." It is well known that mudrocks lose some components (water, CaCO₃, hydrocarbons), but potassium seems to be gained as burial diagenesis proceeds, and even very insoluble components such as rare-earth elements are not rigorously conserved. Our goal is to quantitatively balance the sand-mud-water system, to be able to better understand burial diagenesis.

A new gas-source mass spectrometer, capable of analyzing very small samples, is scheduled for installation in the fall of 1992. Considerable effort is currently being expended in developing micro-extraction techniques for oxygen from both carbonates and silicates using focussed laser beams. We hope to ultimately be able to analyze C, O and S isotopes on the same scale that major and some minor elements can be analyzed with the electron microprobe.

PUBLICATIONS

land, Antarctica, in: Thomson, M. R. A., Crame, J. A., and Thomson, J. M. (eds.), *Geologic Evolution of Antarctica*, Cambridge University Press, p. 339-404.

Swezey, C. S.*, 1991, A review of changes in the geomorphology and hydrology of Waller Creek (Austin, Texas) as a result of urban development: *Texas Journal of Science*, v. 43, no. 3, p. 315-323.

Swezey, C. S.*, 1992, *A Guide to the Geology of Montreat, North Carolina*: Trombatore, Austin, Tex., 25 p.

Thomas, W. A., and **Buffler, R. T.**, 1991, F-1, Mississippi to Cuba, in: Speed, R. (compiler), *North American Continent-Ocean Transects Program, Tectonic Section Display, Arctic-Atlantic-Gulf of Mexico Regions*, Boulder, Colorado, Geological Society of America, Sheet 2 of 2.

Vasconcelos, P. M.*, and **Kyle, J. R.**, 1991, Supergene geochemistry and crystal morphology of gold in a semi-arid weathering environment: application to gold exploration: *Journal of Geochemical Exploration*, v. 40, p. 115-132.

Walker, N. W., 1992, Middle Proterozoic evolution of the Llano Uplift, Texas: evidence from U-Pb geochronometry: *Geological Society of America Bulletin*, v. 104, no. 6, p. 494-504.

Walker, N. W., and Brown, E. H., 1991, Is the southeast Coast Plutonic Complex the consequence of accretion of the Insular superterrane? Evidence from U-Pb zircon geochronometry in the northern Washington Cascades: *Geology*, v. 19, no. 7, p. 714-717.

Weimer, P.*, and **Buffler, R. T.**, 1992, Structural geology and evolution of the Mississippi Fan foldbelt, deep Gulf of Mexico: *American Association of Petroleum Geologists Bulletin*, v. 76, p. 225-251.

Wilson, C., 1991, Polar motion and earth rotation, p. 641-647 in: Nierenberg, W. (ed.), *Encyclopedia of Earth System Science*, Academic Press, San Diego.

Wilson, C., and 9 other panel members, 1991, Solid Earth Science in the 1990's: *NASA Technical Memorandum*.

PUBLICATIONS

dum 4256, *Report of the Panel on Earth Rotation and Reference Frames*, v. 2, p. VII-1-VII-27.

ABSTRACTS ...

Atkins, J. E., and McBride, E. F., 1991, Porosity and packing of Holocene river, dune, and beach sands: *American Association of Petroleum Geologists Bulletin*, v. 75, p. 535.

Azpiritxaga, I.*, and Bebout, D. G., 1991, Carbonate depositional styles controlled by siliciclastic influx and relative sea-level change—Lower Cretaceous, central Lake Maracaibo, Venezuela: *American Association of Petroleum Geologists Bulletin*, v. 75, no. 3, p. 536.

Banner, J. L. and Musgrove, M., 1991, Geochemical and isotopic variations in saline groundwaters from Paleozoic aquifers, southeast Kansas and southwest Missouri: *Geological Society of America Abstracts with Programs*, v. 23, no. 5, p. A381.

Barker, D. S., 1991, Quartz monzonite and associated iron deposits, Iron Springs, Utah: *Geological Society of America Abstracts with Programs*, v. 23, p. A388.

Bell, L., Mader, G., Schenewerk, M., Vigny, C., King, R., Schutz, B., Wilson, C., Bryant, M., Pavlis, E., Nelson, V., 1991, Precision of the 1990 Fort Davis Site Stability Survey: *EOS, Transactions, American Geophysical Union* (Abstract of Poster Presentation), v. 72, no. 44, p. 112.

Bond, G. C., Kominz, M. A., Beavan, J., Devlin, W., and McManus, J., 1991, Evidence of orbital forcing in Cambrian peritidal carbonate cycles, Utah and western Canada and in Cretaceous siliciclastic marine cycles, W. U.S.: *Geological Society of America Abstracts with Programs*, Annual Meeting 1991, p. A351

Bond, G. C., Kominz, M., and Devlin, W., 1991, Rapid global-scale events during the Precambrian-Cambrian transition: consequence of rapid dispersal of a late Proterozoic supercontinent? *Geological Society of America Ab-*

Geochronology;

Rb-Sr isotope geochemistry; clay diagenesis

Leon E. Long

Second Mr. and Mrs. Charles E. Yager

Professor of Geology

PhD—1959, Columbia University



Most of my research is in isotope geology, especially the use of the Rb-Sr method for geochronology and as a geochemical tracer. Applications of dating methods to igneous rocks are commonly quite straightforward, but such is not the case for sedimentary rocks which are typically complex mixtures composed of diagenetic particles and clastic particles of different ages.

Together with my students and foreign associates, I have been exploring the potential of the method in a variety of geologic settings. For years I have worked with Prof. Alcides Sial to investigate igneous activity of Pan-African age (roughly 600 million years) in northeast Brazil. The plutons there may be classified into well-characterized suites that are distinguished according to their mineral textures and geochemical and isotopic compositions. Our studies reveal that under northeast Brazil there is a mantle source of magma that is anomalously enriched in incompatible trace elements.

Application of the Rb-Sr method to sedimentary rocks requires that first the diagenetic and detrital constituents be separated. Then the diagenetic clay particles must be treated to get rid of Sr that is loosely bound onto surfaces or in open interlayers. Only when all of the preceding has been accomplished is the sample ready for isotopic analysis. In certain environments the data from these elaborately treated samples can provide decisive ages of diagenesis. For example, in Permian evaporite sediments in the Palo Duro Basin of the Texas Panhandle, sedimentary diagenesis occurred during or immediately after deposition. Ages of diagenesis decrease up-section, and they correspond rather precisely to ages of deposition. In other sedimentary basins, such as the Tertiary Gulf Coast, diagenetic material cannot be so cleanly separated from inherited detritus.

We are extending the potential of the technique to perform analyses of very small samples in which the buildup of radiogenic Sr is possibly very small.

Selected Publications:

Long, L. E., and others, 1986, Origin of granite at Cabo de Santo Agostinho, northeast Brazil: *Contributions to Mineralogy and Petrology*, v. 92, p. 341-350.

McKee, J. W., Jones, N. W., and Long, L. E., 1990, Stratigraphy and provenance of strata along the San Marcos fault, central Coahuila, Mexico: *Geological Society of America Bulletin*, v. 102, p. 593-614.

Long, L. E., 1992, *Geology*, 5th edition: American Press, Boston, 535 pages. A general introductory textbook.



- Vertebrate paleontology;
- Quaternary faunas; biometrics
- Ernest L. Lundelius, Jr.**
- John A. Wilson Professor of Vertebrate Paleontology and Peter T. Flawn Centennial Teaching Fellow in Geology
- PhD—1954, University of Chicago

I spent the past year continuing to work on publications dealing with Neogene mammal faunas of North America and Australia. Paleomagnetic data on two faunas from southeastern Australia have provided the first good estimates of their ages. This in turn has given information on the nature and rate of change of the mammal fauna of that part of Australia for the last 3 million years. Another paper deals with the kangaroos of a Pliocene fauna from western Victoria. This is one of the few well-dated faunas from that part of Australia.

The collaborative project with Dr. Russell Graham of the Illinois State Museum, on the compilation of a data base of the mammalian faunas of the last 40,000 years in North America, is proceeding well. Preliminary runs to produce distribution maps have proven very successful. This will make possible detailed investigations of the changing fauna of North America, such as associations of species and maps of the distributions of various species at various times.



- Marine geophysics; heat flow; tectonics
- Arthur E. Maxwell**
- Professor and Director of the Institute for Geophysics
- PhD—1959, Scripps Institution of Oceanography,
- University of California at San Diego

Research this year concentrated on examining data on the deep oceanic basin of the Gulf of Mexico. Old heat-flow measurements in the central Gulf appear to be anomalously low for the estimated age of the deep basin. Additional measurements of heat flow will be made this year to determine if the earlier measurements are correct and, therefore, whether or not the anomaly actually exists. In order to interpret the heat flow values properly, a knowledge of the sedimentation rate and its thickness, an understanding of the seismic velocity in the crust as a function of depth, and the details of the magnetic and gravity fields are essential. These measurements will all be undertaken this year, which, when combined with existing Institute and industrial data, should allow us to resolve the existing discrepancy between measurement and theory. Additionally, the results should shed light on the early history of the opening of the Gulf of Mexico.

This year the Institute for Geophysics observed its twentieth anniversary by hosting a two-day symposium entitled "A Celebration of Geophysics." Approx-

PUBLICATIONS

- stracts with Programs, Annual Meeting 1991, p. A112.
- Botehlo, M. A. B., and **Stoffa, P. L.**, 1991, Finite-difference prestack inverse time migration using the P-SV wave equation: *Proceedings of the 61st Annual International Society of Exploration Geophysicists Meeting and Exposition*, Houston, Tex., v. II, p. 1009-1011.
- Botehlo, M. A. B., and **Stoffa, P. L.**, 1991, Finite-difference reverse time migration of multi-configuration marine seismic data: *2nd International Congress of the SBGf, Salvador, Brazil, Expanded Abstracts*, v. 11, p. 953-959.
- Buffler, R. T.**, 1992, Opening of the Gulf of Mexico: *Program, 20th Anniversary Celebration of Geophysics, UTIG*, p. 23-25.
- Buffler, R. T.**, and **Feng, J.***, 1991, Cenozoic sequence stratigraphy of the deep Gulf of Mexico basin: *Geological Society of America Abstracts with Programs*, v. 23, no. 5.
- Buffler, R. T.**, and **Marton, G.***, 1992, Mesozoic structural evolution of the Gulf of Mexico: *Geological Society of America Abstracts with Programs*, v. 24, no. 1, p. 5.
- Carlson, W. D.**, 1991, Effects of competition among porphyroblasts for nutrients during diffusion-controlled nucleation and growth: *Geological Society of America Abstracts with Programs*, v. 23, p. 443.
- Carlson, W. D.**, 1992, Polymetamorphism in the Llano Uplift: *Geological Society of America Abstracts with Programs, South-Central Section*, v. 24, p. 6.
- Carter, K. E.***, and **Folk, R. L.**, 1991, Differential behavior of dolomite types in the Triassic Portoro Limestone, Portovenere area, Liguria, Italy: *Conference in honor of D. de Dolomieu, Ortisei, Alto-Adige, Italy*, p. 46.
- Copeland, P., Henry, C. D., **Tsai, H.***, and **Long, L.**, 1992, $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of the Burro Mesa rhyolites, Big Bend National Park, Texas: *Geological Society of America Abstracts with Programs*, v. 24, no. 1, p. A8.

PUBLICATIONS

- Crabaugh, M.***, and **Kocurek, G.**, 1991, Entrada Sandstone—example of a wet eolian system: *Geological Society of London* (London), p. 6
- Darling, B. K.***, **Hart, M.***, and **Sharp, J. M., Jr.**, 1991, Delineation of ground-water systems by cluster, principal component, and multiple discriminant analyses: an example from the Trans-Pecos region of Texas: *Geological Society of America Abstracts with Programs* (Rocky Mountain–South-Central Sections), v. 23, p. 15.
- Davies, T. A.**, Austin, J. A., Jr., **Lagoe, M. B.**, and **Milliman, J. D.**, 1991, Geologic interpretation of late Quaternary sedimentation on the Outer Continental Shelf off New Jersey based on a detailed 3-D Huntac reflection survey: *EOS, Transactions, American Geophysical Union*, v. 72, no. 17 supplement, p. 160.
- Davis, L. L.***, **McDowell, F. W.**, **Smith, D.**, and **Walker, N. W.**, 1991, Potassic mafic rocks at Two Buttes, Col.: *EOS, Transactions, American Geophysical Union*, v. 72, no. 17, p. 295-296.
- Davis, L. L.***, and **Smith, D.**, 1991, Significance of Ni-rich olivine in minette: *EOS, Transactions, American Geophysical Union*, v. 72, p. 516.
- Ding, X. Y.***, and **Grand, S. P.**, 1991, Slab penetration and slab-related velocity structure: *EOS, Transactions, American Geophysical Union*, v. 72, p. 198.
- Elmore, R. D., London, D., and **Gao, G.** (1992) Geochemical constraints on the origin of chemical remagnetizations: *EOS, Transactions, American Geophysical Union*, v. 73, no. 14, Spring Meeting Supplement, p. 53.
- Finn, C. J.***, and **Backus, M. M.**, 1991, Maximum-likelihood traveltimes inversion for a 3-D velocity-depth model: *Society of Exploration Geophysicists Expanded Abstracts*, 61st annual meeting, p. 897-900
- Fruit, D. J., Elmore, R. D., and **Gao, G.**, 1992, Lithologic control on a secondary magnetization, Pennsylvanian Belden Formation, NW Colorado: *EOS, Transactions, American Geophysical*

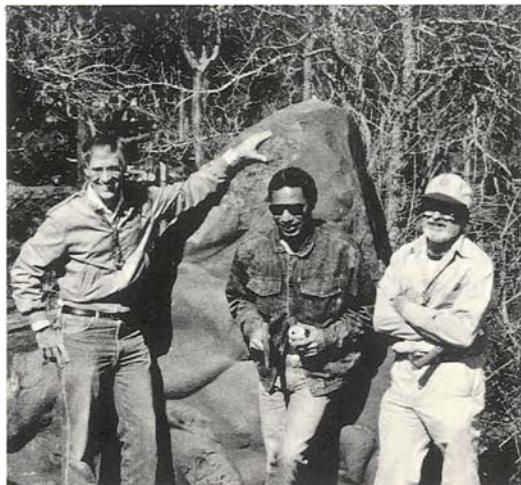
Petrography and petrology of sandstones; sandstone diagenesis; evolution of porosity in sandstones; origin of chert

Earle F. McBride
Professor and J. Nalle Gregory Chair
in Sedimentary Geology
PhD—1950, Johns Hopkins University



Most of my research efforts this year have focussed on the diagenesis of sandstones from the northern Apennines in a collaborative study with geologists from the universities of Bologna and Modena. The Texas group consists of me, post-doc Kitty Milliken, grad student Stefan Boettcher, and an undergraduate student from Bologna, Judy Lunardini. Our eight collaborators are comparing the diagenesis of sandstones in several foreland basins with sandstones from several piggy-back basins (basins that developed on moving thrust sheets during and after the Miocene). In the foreland basins, porosity in sandstones was totally lost by compaction, reflecting the deep burial and subsequent tectonic compression of the sands, whereas in piggy-back basins calcite cement in the form of concretions is the major occluder of porosity.

I continue also to have collaborative projects with my good friend, Duke Picard, University of Utah. We are mapping the orientation of aligned calcite-cemented concretions (discovered by Luigi Folk several years ago) in sandstones in southern Italy that we believe formed during shallow flow of ground water. Duke and I have recently concluded a study of a comparison of the mineralogy of the bedrock of small drainage basins with beach sands derived from them on the island of Elba, Tuscany. We found that sedimentary rock fragments, especially chert, are underrepresented in beach sands derived from small drainage basins. Napoleon, exiled on Elba in 1814, might have come to a similar conclusion had he been provided a microscope at the time. Duke, while photographing a beautiful black-sand beach on the east coast of Elba, had a near altercation with an irate male German tourist. Entranced by all the grains of magnetite in the black sand, Duke failed to notice immediately that the man's wife, topless, was sunning herself on the beach.



Earle McBride, Antar____ and Robert Folk stand beside giant flute casts in the Llano region of Texas.



- Structural petrology; deformation mechanisms; complexly deformed terranes
- **Sharon Mosher**
- Wilton E. Scott Centennial Professor
- PhD—1978, University of Illinois at Urbana

Most of my research this year was done in conjunction with present or former graduate students. I spent more time than ever in the field, over three weeks in Tierra del Fuego, Chile, two trips to the eastern Mojave desert, several trips to the Llano Uplift, and one to Rhode Island, in addition to field camp. Much of my own research time was spent analyzing the mechanical effect of pre-existing anisotropies on the orientations of crenulation cleavages, and reanalyzing superposed crenulation cleavage data from the Beaverhead Shear Zone in Rhode Island. Rachel Burks and I are currently recalculating incremental strains using the technique she developed for her PhD, but modified to account for the effects of the mechanical anisotropy caused by the pre-existing foliation. I have also been working closely with Tom Hoak and Karen Carter on finishing up the regional portion of our work on the evolution of the Tuscan Nappe in the La Spezia region of the northern Apennines.

This past year I initiated a new research program in the Maria Fold and Thrust Belt of west-central Arizona, with the help of two graduate students, Stefan Boettcher and Barb Marin. This study will expand and build on our prior work in the northern Apennines. We are again studying the effect of fluids on deformation and recrystallization mechanisms during ductile shearing and the relationship between construction and collapse of an orogen. We have chosen two areas (Granite Wash and northern Dome Rock Mountains) where the Mesozoic structures are well exposed and have not been extensively dismembered by Tertiary extension, so that we can see the geometric relationships between the contractional and extensional structures. Although the two areas contain the same crustal section of Precambrian gneisses, Paleozoic Grand Canyon sequence, and Jurassic plutonic and volcanic rocks, they have had a very different mechanical response to Mesozoic shortening. In the northern Dome Rock Mountains, the shortening has apparently been accommodated by polyphase folding of the entire sequence, whereas in the Granite Wash Mountains, the units form discrete thrust zones with imbricate stacks of spectacularly attenuated section.

Our continued research in the Llano uplift of central Texas is concentrating on better constraining the timing and nature of Grenville and perhaps pre-Grenville orogenesis. Highlights of the past year include the discovery by Joe Reese of mylonite zones separating and within the Valley Spring and Packsaddle Schist Formations, of exciting new zircon dates on these units, and of abundant staurolite (previously only an inclusion in a garnet had been found). Hopefully in two years, we will be better able to compare the tectonic evolution of the southeastern Llano Uplift with Proterozoic rocks in West Texas and along the length of the Grenville orogen.

PUBLICATIONS

- Union*, v. 73, no. 14, Spring Meeting Supplement, p. 97.
- Fuller, C. M.***, and **Sharp, J. M., Jr.**, 1991, Some physical characteristics of the Santana Tuff, Trans-Pecos, Texas: implications for hydrogeological models: *Geological Society of America Abstracts with Programs (Rocky Mountain-South-Central Sections)*, v. 23, p. 93.
- Galloway, W. E.**, 1991, Depositional system evolution within Paleogene supply-dominated genetic stratigraphic sequences, northwest Gulf of Mexico basin: *American Association of Petroleum Geologists Bulletin*, v. 75, no. 3, p. 577-578.
- Gao, G.**, and **Land, L. S.**, 1991, Dolomitization history of the Cambro-Ordovician Arbuckle Group, Slick Hills, SW Oklahoma, USA, in: *Dolomite Conference on Carbonate Platforms and Dolomitization Abstracts*, p. 79.
- Gao, G.**, and **Land, L. S.**, 1991, Petrography and geochemistry of massive dolomite from the upper Arbuckle Group, Slick Hills, southwestern Oklahoma: *Oklahoma Geological Survey Circular* 92, p. 64.
- Grand, S. P.**, 1991, Tomographic inversion for mantle shear velocity heterogeneity at intermediate periods: *Abstracts from Third Annual IRIS Workshop* (invited talk).
- Havholm, K. G.***, and **Kocurek, G.**, 1991, Eolian event stratigraphy—a conceptual framework: *American Association of Petroleum Geologists Bulletin Annual Meeting*, v. 75, p. 612.
- Helper, M. A.**, 1992, Evidence for successive Late Jurassic-Early Cretaceous underplating during high P/T metamorphism of the Condrey Mountain Schist, Central Klamath Mountains, California and Oregon: *Geological Society of America Abstracts with Programs*, v. 24, p. 33.
- Henry, C. D., **Muehlberger, W. R.**, and Price, J. G., 1991, Igneous and structural evolution of the Solitario Iaccocaldera, Trans-Pecos Texas: *Geological Society of America Ab-*

PUBLICATIONS

- stracts with Programs*, v. 23, no. 5, p. A451.
- Hibbs, B. J.***, and **Sharp, J. M., Jr.**, 1991, Numerical simulation of ground-water flow in a Gulf Coastal Plain alluvial system, Colorado River alluvial aquifer, Texas: *Geological Society of America Abstracts with Programs*, v. 23, no. 5, p. 67.
- Hibbs, B. J.***, and **Sharp, J. M., Jr.**, 1991, Stream/ground-water interaction of the Lower Colorado River and its alluvial aquifer: *Twichell Hydrology Symposium, American Water Resources Association* (Texas State Section Meeting), Austin, Tex., p. 77.
- Hibbs, B. J.***, and **Sharp, J. M., Jr.**, 1992, Hydrodynamic, hydrochemical, and hydrothermal investigation of bank storage effects in the Colorado River alluvial aquifer: *Geological Society of America Abstracts with Programs* (South-Central Section), v. 24, no. 1, p. 30.
- Hibbs, B. J.***, and **Sharp, J. M., Jr.**, 1992, Impact of high-capacity wells on flows of the lower Colorado River: *New Waves (The Research Newsletter of the Texas Water Resources Institute)*, v. 5, no. 1, p. 3.
- Jervis, M., and **Stoffa, P. L.**, 1991, Seismic waveform inversion for velocity: *EOS, Transactions, American Geophysical Union*, v. 72, no. 44, p. 333.
- Johnson, C. D.***, and **Carlson, W. D.**, 1991, Computerized X-ray tomography: a new tool for quantitative textural analysis: *Geological Society of America Abstracts with Programs*, v. 23, p. 449.
- Kocurek, G.**, and **Havholm, K. G.***, 1991, Entrada Sandstone—example of a wet eolian system: *Geological Society of London* (London), p. 6.
- Kocurek, G.**, and **Havholm, K. G.***, 1991, Eolian event stratigraphy—a conceptual framework (keynote address): *Geological Society of London* (London), p. 8.
- Kocurek, G., Havholm, K. G.***, and **Crabaugh, M.***, 1992, Eolian event stratigraphy—a conceptual framework model based upon the conser-

Lunar, planetary, and terrestrial seismology;
solar system studies

Yosio Nakamura

Professor and Senior Research Scientist
PhD, 1963—Pennsylvania State University



I was active primarily in two areas of research in the 1991-92 period: marine geophysics and planetary geophysics.

Upgrading of ocean-bottom seismographs (OBS's) to detect and record seismic signals, both artificial and natural, on the sea floor, has been completed. In addition to the French, with whom we have longstanding cooperation, the Chinese are now interested in using the instruments we developed, and I spent three months, until June 1991, at the National Taiwan Ocean University as a National Research Council (Taiwan) Visiting Professor, instructing Taiwanese researchers and students in conducting marine geophysical research using these new instruments, and participated in two research cruises on *R/V Ocean Researcher I* in the Taiwan Strait, South China Sea, and Philippine Sea. In May 1992, we had the first full-scale, large-offset, marine seismic reflection/refraction experiment using these new instruments in the central Gulf of Mexico on board *R/V Gyre*, with Mexican and French scientists participating. We deployed eight OBS's and recorded data successfully on all of them.

Vertebrate paleontology and systematics;
computer imaging

Tim Rowe

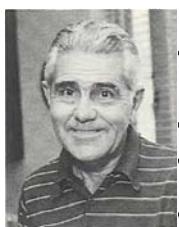
Associate Professor and Peter T. Flawn
Centennial Teaching Fellow in Geology
PhD—1986, University of California at Berkeley



I have recently finished several projects using both the latest in computer imaging technology and some more traditional approaches to vertebrate paleontology. In collaboration with Bill Carlson, I have finished a study that used hi-resolution CT scanning technology to explore the anatomy of the skull of a Triassic relative of mammals known as *Thrinaxodon liorhinus*. This technique uses X-radiography to take slices through the skull in a non-destructive fashion, and a computer turns the individual scans into images. Using nearly 800 slices, Bill and I assembled one of the finest data sets ever gathered for a fossil. The images have now been mastered onto CD-ROM and will be published by the University of Texas Press. I am continuing with several other CD-ROM projects.

In collaboration with master's student Anne Weil, UT graduate Tom Lehman (now a professor at Texas Tech), and Rich Cifelli (University of Oklahoma), I have also finished a study of Late Cretaceous vertebrates of West Texas. By focussing on the microvertebrates, we learned that Texas supported a much more diverse and distinctive fauna than was previously believed.

I have recently begun a new grant from the National Science Foundation, with matching funds from the College of Natural Sciences and the Department of Geological Sciences, to develop multimedia computer labs for freshman science courses. This grant will use the latest computer imaging technology to enrich freshman labs. The goal is to provide informed access to modern computers and scientific imagery for all freshmen taking courses in the Department.



Geology of the Gulf of Mexico basin
and the Caribbean region

Amos Salvador

Morgan J. Davis Professor in Petroleum Geology
PhD—1950, Stanford University

The volume on *The Gulf of Mexico Basin* (part of the Geological Society of America's The Geology of North America project), of which I was the editor, was completed in September 1991, and published in March 1992. I was able, therefore, to switch my efforts to other projects, principally to the revision of the *International Stratigraphic Guide*. The revision should be completed by the end of 1992 and published by the IUGS in 1993. Some time was also devoted to an inquiry about the teaching of stratigraphy in North America. For this purpose, a questionnaire was mailed in December 1991 to 100 universities in the U.S. and Canada. A summary of the answers to the questionnaire will be published in *GSA Today*, probably in the July 1992 issue.

What time was left was devoted to continuing research on the geology of the Gulf of Mexico basin and the Caribbean area.



Hydrogeology; alluvial aquifers; regional studies; energy transport in porous media; basin analysis

John M. (Jack) Sharp, Jr.

Gulf Oil Foundation Centennial Professor
PhD—1974, University of Illinois

I had a successful year in terms of bringing new grants and graduate students. Funded projects included estimation of resaturation processes in reclaimed coal strip mines, ground-water/surface-water interactions in the alluvium of the lower Colorado River, analysis of thermal anomalies in the South Texas portion of the Gulf of Mexico basin, the design of a new minipermeameter and its application to the hydrogeology of welded tuffs and sandstone weathering surfaces, subsidence along the Texas Gulf Coast, regional groundwater flow systems in Trans-Pecos Texas, the evolution of the badwater zone of the Edwards aquifer, and development of a summer teacher-enhancement workshop for Texas high-school and middle-school teachers. Theses were recently completed on the Presidio Bolson and the Davis Mountains, and three other theses are nearing completion. The hydrogeology program is still going strong; this year's groundwater field-methods field school had projects in Pecos, Dell City, and Balmorhea, Texas.

PUBLICATIONS

vation principle: *Applied Sequence Stratigraphy Symposium, Rocky Mountain Association of Geologists* (Golden, Colo.), p. 48-50.

Kominz, M. A., 1991, Testing periodicity of Late Paleozoic and Early Mesozoic cyclic sedimentation: *Geological Society of America Abstracts with Programs*, Annual Meeting 1991, p. A29.

Kominz, M. A., and Bond, G. C., 1991, Testing the "gamma method," application to Pleistocene deep-sea sediments: *Geological Society of America Abstracts with Programs*, Annual Meeting 1991, p. A112.

Kyle, J. R., and **McDowell, F. W.**, 1991, Grasberg copper-gold deposit, Ertsberg (Gunung Bijn) District, Irian Jaya, Indonesia: *Geological Society of America Abstracts with Programs*, v. 23, no. 5, p. A415-A416.

Lagoe, M. B., 1991, Planktic microfossil calibration of initial Neogene tidewater glaciation in the northeastern Pacific Ocean: *EOS, Transactions, American Geophysical Union*, v. 72, no. 44 supplement, p. 267.

Lagoe, M. B., 1991, Quantitative analysis of mixed assemblages of benthic foraminifera from diamictites in the Late Cenozoic Yakataga Formation, Alaska: clues to depositional processes: *Geological Association of Canada, 1991 Annual Meeting, Program with Abstracts*, v. 16, p. A70.

Lagoe, M. B., 1991, Quantitative multivariate analytical strategy for paleoenvironmental analysis of mixed benthic foraminiferal assemblages: *American Association of Petroleum Geologists Bulletin*, v. 75, p. 615-616.

Lagoe, M. B., Davies, T. A., and Austin, J. A., Jr., 1992, Late Quaternary foraminiferal biofacies on the outer continental shelf off New Jersey: constraints on deglacial depositional history: *EOS, Transactions, American Geophysical Union*, v. 72, no. 51 supplement, p. 68.

Levey, R. A., Ray, R. R., **Single, R. S.***, and Finley, R. J., 1991, Approaches to finding new gas in mature fields: an

PUBLICATIONS

example from the middle Frio, on-shore Texas Gulf Coast basin: *Transactions, Gulf Coast Association of Geological Societies*, v. 61, p. 407.

Marton, G.*, and **Buffler, R. T.**, 1992, Jurassic to Early Cretaceous structural and stratigraphic evolution of the southeastern Gulf of Mexico: *Geological Society of America Abstracts with Programs*, v. 24, no. 1, p. 18.

McDowell, F. W., and Roldán-Quintana, J., 1991, Timing of Late Tertiary extension in central Sonora, Mexico: *Geological Society of America Abstracts with Programs*, v. 23, no. 5, p. A247.

McMahon, T. P.*, and **McDowell, F. W.**, 1991, 3 Ma intermediate intrusions in the Ertsberg (Gunung Bijn) mining district, Irian Jaya, Indonesia: *EOS, Transactions, American Geophysical Union*, v. 72, no. 44, p. 439.

Miller, J. K.*, and **Folk, R. L.**, 1991, Post-lithification dolomitization in the Rhaetian Portoro ("Calcare Nero") of the Portovenere area, La Spezia, Italy: *Conference in honor of D. de Dolomieu*, Ortisei, Alto-Adige, Italy, p. 168.

Milliken, K. L. and **Land, L. S.**, 1991, Reverse weathering, the carbonate-feldspar system, and porosity evolution during burial of sandstones: *American Association of Petroleum Geologists Bulletin*, v. 75, p. 636.

Milliken, K. L., **Land, L. S.**, **Mack, L. E.**, and **Awwiller, D. N.***, 1991, Depth-related potassium gain and other elemental trends in mudrocks, Oligocene Frio Formation, South Texas: *Society of Economic Paleontologists and Mineralogists Meeting*, Portland, Ore., p. 22-23.

Muehlberger, W. R., 1991, Studying the Earth from the perspective of the Space Shuttle: *American Association of Petroleum Geologists Bulletin*, v. 75, p. 1807.

Muehlberger, W. R., 1991, Tectonics of North America—some unsolved problems: *American Association of Petroleum Geologists Bulletin*, v. 75, p. 1808.

Igneous and metamorphic petrology; geochemistry; mantle processes

Doug Smith

Albert W. and Alice M. Weeks Centennial Professor and Peter T. Flawn Centennial Teaching Fellow in Geology

PhD—1969, California Institute of Technology



What processes inside the earth determine magmatism and tectonic patterns in the earth's crust? How is the composition of the mantle changed by movement of melts and other fluids? How are processes recorded by the xenoliths carried up in magmas? I continue to seek answers to these questions. Several research projects completed last year involved analysis of compositional gradients in peridotite included in igneous rocks from Africa and the southwestern U.S.A. Numerical simulations have been used to investigate the histories recorded in pyroxene and garnet in these rocks. One grad student, J. Alex Riter, has begun to analyze an important collection of peridotite inclusions from basalt in a spectacular location just on the edge of the Grand Canyon. The Grand Canyon rocks will help in explaining why the Colorado Plateau is so different from the Basin and Range. Another student, Linda L. Davis, has already submitted two manuscripts about the creation and evolution of melts at the remote edge of subduction-related magmatism in southeastern Colorado; the unusual potassium-rich igneous rocks she studied may have formed during uplift of the southern Rocky Mountains and adjacent Great Plains.

Invertebrate paleontology; Paleozoic echinoderms; evolutionary history

James Sprinkle

First Mr. and Mrs. Charles E. Yager Professor of Geology

PhD—1971, Harvard University



I am still working on an Early Ordovician echinoderm project in the Rockies with Tom Guensburg (Rock Valley College). Our first general paper on diversification of early echinoderms on hard and soft substrates came out in the May *Geology*. Eleven other papers are planned, and the next paper with Greg Wahlman of Amoco (Houston) was submitted recently. I will stay in this summer to get more of this research written up and submitted.

Two abstracts have been submitted for NAPC V in Chicago in June, one with Guensburg, the other with Colin Sumrall on his edrioasteroid work.

I am expanding into looking at tiering on hard substrates throughout the Phanerozoic, in a joint project with Guensburg. We are planning to submit an abstract on this new area of research for the GSA meeting this fall in Cincinnati.



Marine seismology

Paul L. Stoffa

Dave P. Carlton Centennial Professor
in Geophysics
PhD—1974, Columbia University

This past year progress has been made in applying nonlinear inversion methods to seismic waveform data. Both simulated annealing and genetic algorithms have been successfully applied to seismic reflection data. These methods are used in an optimization procedure that tries to match seismic waveforms and travel times to synthetic data generated for a trial earth model. The parameters of the earth model are changed until agreement is reached as measured by an objective function, e.g., a correlation coefficient. Including the concept of cooling from simulated annealing in the genetic algorithm approach was found to improve the convergence of this method to an optimum solution. As part of the optimization procedure, the objective function of each model that is evaluated is used to accumulate the statistics required to determine the posterior probability density function, the mean model, and the covariance. This is an important component of the analysis because the interdependence of the derived model parameters can now be estimated. Research is continuing by further application of these methods to real data and other geophysical inverse problems.

Selected Publications:

- Sen, Mrinal K., and Stoffa, Paul L., 1992, Genetic inversion of AVO: *Geophysics, The Leading Edge of Exploration*, v. 11, no. 1, p. 27-29.
 Sen, M. K. and Stoffa, P. L., 1992, Rapid sampling of model space using genetic algorithms: Examples from seismic waveform inversion: *Geophysical Journal International*, v. 108, no. 1, p. 281-292.
 Stoffa, Paul L., and Sen, Mrinal K., 1992, Seismic waveform inversion using global optimization: *Journal of Seismic Exploration*, v. 1, no. 1, p. 9-27.



Energy and mineral economics

Willem C.J. van Rensburg

George H. Fancher Professor in Petroleum Engineering, Professor of Geological Sciences, and Director of Graduate Program in Energy and Mineral Resources
PhD—1965, University of Wisconsin at Madison

For the second year in succession, students in the Graduate Program in Energy and Mineral Resources took all three prizes in the national competition for best student papers in Mineral Economics, sponsored by the Mining and Metallurgical Society of America. During the past ten years our students have taken 9 first, 6 second, and 6 third prizes in this competition.

I taught short courses on Mineral Commodity Economics and Global Energy Economics in June 1991, and similar courses in February 1992 for the Australian Mineral Foundation in Melbourne, Australia. I was also the keynote speaker on both energy and minerals at the Australian National Convention on "The Outlook for the Extractive Industries."

PUBLICATIONS

Muehlberger, W. R., 1992, Marathon-Solitario orogen, Trans-Pecos Texas: *Geological Society of America Abstracts with Programs*, v. 24, no. 1, p. 40.

Paine, J. G.*, 1991, Sea level and vertical movement along the Texas coast— inferences from historical, Holocene, and late Pleistocene sea levels: National Aeronautics and Space Administration and International Commission on the Lithosphere, 1991 *Geodynamics Research Institute Symposium Program and Abstracts*, Geological perspectives on global changes: unpaginated.

Rubin, J. N.*, Henry, C. D., and Price, J. G., 1992, Zirconium in hydrothermal systems: a mobile element: V. M. Goldschmidt Conference Program and Abstracts (Geochemical Society), p. A-92.

Rubin, J. N.*, 1991, Anhydrite- and phlogopite-rich Cu-Au skarns of the Ertsberg (Gunung Bijih) District, Irian Jaya, Indonesia: *Geological Society of America Abstracts with Programs*, v. 23, p. A415.

Rubin, J. N.*, **McMahon, T. P.***, **Kyle, J. R.**, and **McDowell, F.**, 1991, Preliminary investigations of porphyry-skarn copper-gold orebodies, Ertsberg (Gunung Bijih) district, Irian Jaya, Indonesia: *Geological Association of Canada/Mineralogical Association of Canada Program with Abstracts*, v. 16, p. 69.

Sharp, J. M., Jr., 1991, Fluid extraction, relative sea-level rise, and predicted coastal land loss along the Texas Gulf Coast: 1991 Annual Meeting, American Institute of Hydrology, p. 21.

Sharp, J. M., Jr., 1991, Permeability and fracture patterns in fractured volcanic rocks— implications for fluid flow: *Twichell Hydrology Symposium*, American Water Resources Association (Texas State Section Meeting), Austin, Tex., p. 66.

Sharp, J. M., Jr., 1992, Issues affecting the Edwards aquifer with emphasis on spring flow: 1992 Annual Meeting, *Texas Academy of Science Abstracts with Program*, Wichita Falls, p. 63.

PUBLICATIONS

- Sharp, J. M., Jr.**, and Fuller, C. M., 1991, Some physical characteristics of the Santana Tuff, Trans-Pecos, Texas: implications for hydrogeological models: *Geological Society of America Abstracts with Programs*(Rocky Mountain-South-Central Sections), v. 23, p. 93.
- Shipley, T. H., McIntosh, K., Silver, E., and **Stoffa, P. L.**, 1992, Three-dimensional seismic imaging of the Costa Rica Accretionary Prism: structural diversity in a small volume of the lower slope: *Geophysical Abstracts*, v. 2, p. 20.
- Smith, D.**, 1991, Zoned garnets and mantle histories: *EOS, Transactions, American Geophysical Union*, v. 72, p. 558.
- Sprinkle, J.**, and Guensburg, T. E., 1991, Origin of echinoderms in the Paleozoic Evolutionary Fauna: new data from the Early Ordovician of Utah and Nevada: *Geological Society of America Abstracts with Programs*, v. 23, no. 5, p. A278.
- Squires, L. J., and **Stoffa, P. L.**, 1991, Borehole traveltimes tomography with statics and a priori constraints: *EOS, Transactions, American Geophysical Union*, v. 72, no. 44, p. 334.
- Stoffa, P. L.**, and Sen, M. K., 1991, Seismic waveform inversion using global optimization methods: *2nd International Congress of the SBGf, Salvador, Brazil, Expanded Abstracts*, v. 11, p. 837-842.
- Stoffa, P. L.**, Wood, W. T., Shipley, T. H., Moore, G. F., Nishiyama, E., Botelho, M. A. B., Taira, A., Tokuyama, H., and Suyehiro, K., 1992, Deep-water high-resolution expanding-spread-and-split-spread seismic profiles in the Nankai Trough: *Geophysical Abstracts*, v. 2, p. 13.
- Tsai, H.***, and **Long, L. E.**, 1991, Rb-Sr isotope systematics of high-silica peralkaline rhyolite, Big Bend National Park, Texas: *Geological Society of America Abstracts with Programs*, v. 23, no. 5, p. A149.
- Walker, N. W.**, and Goodge, J. W., 1991, Significance of Late Archean-Early Proterozoic U-Pb ages of individual

**Tectonics and geochronology
Nicholas Walker**

Assistant Professor and John A. and Katherine G. Jackson Centennial Teaching Fellow
PhD—1986, University of California at Santa Barbara



In the Pacific Northwest three projects are underway. In the northern Cascades and southernmost Coast Mountains of British Columbia, I am investigating the timing, processes, and cause of a profound mid-Cretaceous magmatic/metamorphic event that seems best explained by tectonic burial in response to the emplacement of 90 Ma old batholiths at mid-crustal levels within an active continental-margin magmatic arc. The loading was locally enhanced by emplacement of thrust sheets at higher structural levels. Another project in the North Cascades is underway with PhD candidate Troy Rasbury and involves U-Pb zircon geochronometry and Nd isotopic characterization, of suspected Precambrian rocks. These rocks are geologically anomalous in their present structural setting within Paleozoic and Mesozoic rocks of known oceanic heritage. Establishing the relationship of these units to autochthonous and displaced Precambrian rocks within North America, and to displaced Phanerozoic terranes that bear isotopic signatures of Precambrian crustal involvement is vital to understanding the tectonic evolution of the North Cascades and the Cordillera. A newly initiated project entails U-Pb geochronometry of individual detrital zircons extracted from clastic rocks of arc and basinal terranes in northeastern Oregon. This effort has the primary objective of characterizing the age of detrital zircons in order to address the problem of whether or not these allegedly allochthonous terranes evolved within sedimentologic reach of the North American margin.

Research with collaborators at Southern Methodist University is aimed at understanding the Precambrian to Early Paleozoic evolution of a segment of the Transantarctic Mountains of Antarctica. My inquiry focusses on the provenance age and timing of high-grade metamorphic tectonite generation within the Nimrod Group of the central Transantarctic Mountains. Individual detrital zircons have U-Pb ages that indicate derivation from Late Archean to Middle Proterozoic sources. Nimrod Group tectonites are intruded by plutons of diverse composition and variable tectonic fabric development. On the basis of U-Pb geochronometry of deformed plutons and metamorphic monazite from pelitic tectonites, deep-crustal deformation of the Nimrod Group took place between 540 and 520 Ma ago and is not a Middle Proterozoic event as previously believed. These new data provide compelling evidence for basement involvement in Eocambrian tectonism that shaped the latest Proterozoic to early Paleozoic Antarctic margin of Gondwana.

Selected Publications:

- Carpenter, P. S., and Walker, N. W., 1992, Origin and tectonic significance of the Aldrich Mountain serpentinite-matrix melange, northeastern Oregon: *Tectonics*, v. 11, no. 3, p. 690-712.
- Walker, N. W., 1992, Middle Proterozoic evolution of the Llano Uplift, Texas: evidence from U-Pb geochronometry: *Geological Society of America Bulletin*, v. 104, no. 6, p. 494-504.



Research in geodesy and geophysics

Clark R. Wilson

- Wallace E. Pratt Professor in Geophysics
- and Shell Companies Foundation
- Centennial Teaching Fellow, and
- Chairman, Department of Geological Sciences
- PhD—1975, Scripps Institution of Oceanography, University of California at San Diego

I have been working on various problems in geodesy over the past year with support from NASA through the Crustal Dynamics Project, the Earth Observing System Program, and more recently the Dynamics of the Solid Earth and Global Geophysics Programs. These activities are coordinated through the Center for Space Research within the College of Engineering, where research is dedicated to the study of the earth using satellite-based observations. My students and I have been looking at the causes of polar motion at high frequencies, comparing very accurate space-geodetic determinations of polar motion with meteorological data from the National Meteorological Center. Our recent results suggest that the atmosphere is much more important in forcing high-frequency polar motion, at periods of several days to more than a year, than was previously thought. Interannual variation in correlations suggests a time-variable role of the oceans as well, perhaps associated with climate changes having periods of a few years.

Another geodetic research area involves the Global Positioning System (GPS) satellites and technology. GPS receivers are capable of observing tectonic motion by measuring changes in distance between benchmarks with a precision of about one centimeter over distances of hundreds of kilometers. I head a group of U.T. scientists, including participants from the Astronomy and Aerospace Engineering Departments, that will install and maintain a permanent GPS receiver at McDonald Observatory, as part of the NASA Fiducial Laboratories International Natural Sciences Network (FLINN). During the spring of 1992 we conducted a site survey, and we plan to install the permanent receiver later in the year. The observations taken with this instrument will support the NASA goals for high-precision geodesy, and over the course of several years, our site surveys in the vicinity of McDonald Observatory should contribute to an understanding of active tectonics in West Texas.

Selected Publication:

- Kuehne, J., and Wilson, C., 1991, Terrestrial water storage and polar motion: *Journal of Geophysical Research*, v. 96, no. B3, p. 5337-4345.

PUBLICATIONS

Nimrod Group detrital zircons and Cambrian plutonism in the Miller Range, central Transantarctic Mountains: *Geological Society of America Abstracts with Programs*, v. 23, no. 5, p. A306.

Wang, D. L.*, and **Backus, M. M.**, 1991, Resolution of P-wave velocity and density in linearized inversion: *Society of Exploration Geophysicists Expanded Abstracts*, 61st annual meeting, p. 879-882.

Wilson, C., 1991, Current problems in the study of polar motion: *International Union of Geodesy and Geophysics Assembly, IAG program and abstracts*, Vienna, Austria, p. 114.

Wilson, C., 1991, Future challenges in the study of polar motion: *EOS, Transactions, American Geophysical Union* (Abstract of invited presentation), v. 72, no. 44, p. 119.

Wood, W. T., **Stoffa, P. L.**, and Sen, M. K., 1991, Practical acoustic inversion of multi-channel reflection seismic data for velocity and density in a 1-D Earth: *EOS, Transactions, American Geophysical Union*, v. 72, no. 44, p. 295.

Yang, W.*, and **Kominz, M. A.**, 1992, Preliminary results on depositional cyclicity of the Late Pennsylvanian and Early Permian Cisco Group, Eastern Shelf, North-Central Texas: *Geological Society of America Abstracts with Programs* (South-Central Section), p. 52.

Zellers, S. D.*, **Lagoe, M. B.**, and Ray, J. C., 1992, Paleoclimatic and depositional significance of an offshore Yakataga Fm. section, eastern Gulf of Alaska: impact on a Neogene paleoclimatic framework for the far north Pacific: *Geological Society of America Abstracts with Programs*, v. 24, no. 5, p. 93.

Emeriti

Virgil Barnes

I am continuing revision of the 1:250,000 Geologic Atlas of Texas sheets and supervising the production of the 1:500,000 scale Geologic Map of Texas. The next sheet for publication is the Plainview sheet.

.....

Ronald DeFord

Marion and I weren't able to go to the AAPG Convention this year, but in April Marion went on a field trip, guided by Peter Rose and my former student Chock Woodruff, aptly named "Wineries, Geology, and Frontier History of the Llano Uplift, Central Texas." It gave me great pleasure to see how much she enjoyed it and how much she learned! And, she brought me some wine! This past year several of my students visited with me, and their career successes and their comments to me made me very aware that my years of teaching truly touched some lives.

.....

Samuel P. Ellison Jr.

The manuscript portion of the "Geology of Texas" has been completed and only illustrations, maps, and photographs are now being assembled. The manuscript is well over 500 pages double-spaced. The Texas subjects covered include topographic provinces, surface geology, soils, subsurface structure and geology, caves, water resources, non-metallic resources, metallic resources, energy resources, state and national parks, and conservation-environment problems. The man-

script includes appendices with Texas geological societies, museums, educational institutions, and geological libraries. The aim of the manuscript is to serve junior and senior college students.

I made four all-day field trips to the Llano Uplift (50 people each time; the same field trip each time) for the University of Texas Extension Division's L.A.M.P. (Learning Activities for Mature People). Rocks ranged from Precambrian up to Upper Cretaceous. It was amazing to find that few people believe that granite was once hot liquid.

.....

Peter T. Flawn

I continue active on a number of University boards and committees including the Development Board, College of Natural Sciences Advisory Council, Geology Foundation Advisory Council, Marine Science Institute Advisory Council, and Computer Sciences Development Committee. I serve on the Texas National Research Laboratory Commission and as a director of Southwest Research Institute. I chair the Advisory Board to the Center for Nuclear Waste Regulatory Analyses, an organization that provides technical support to the Nuclear Regulatory Commission. I have been working on a Committee of the Yale University Council to evaluate the physical sciences and engineering at Yale. In addition to serving on a number of corporate boards, I have joined advisory boards to the Texas Environmental Defense Fund and the Texas Nature Conservancy. This year I again had the opportunity to participate in the

panel that reviews and evaluates candidates for White House Fellows.

.....

Bob Folk

Research on the Egyptian pyramids is rapidly winding down and I think the "problem" is solved, but my concrete-geopolymer rivals continue a frothmouthed [sic] struggle—see the back-to-back articles in the *Journal of Geological Education* and the furious correspondence in *Concrete International*. However, the "politically incorrect" work on Viterbo hot springs has really paid off scientifically, as the samples there showed enormous numbers of 0.1-micron nannobacteria (resting phases)—the first time these elusive guys have been seen in sediments. Once I learned of their existence there and how to recognize them (needs 35,000 magnification on our SEM), I have been finding them in many other, more "economically important" kinds of rocks such as oolites, hardgrounds, beachrocks, etc. Recently, I have been discovering them in salt-dome sulfur and metallic sulfide minerals. If I had slaves, time, and money, this would open a huge new field of research—enabling "body-counts" of bacteria to be made in all sorts of environmental settings. The bottom line is "If you etch it, they will come!"

.....

John C. Maxwell

My 1991-92 academic year was largely devoted to chairing a Program Evaluation Committee for the international Ocean Drilling Program. The ODP is a follow-on to the

DSDP (Deep Sea Drilling Program) initiated in 1968. Twenty countries support the present program. The United States contributes slightly more than half of the funding, and has principal responsibility for operating the current drilling vessel, JOIDES Resolution (Sedco/BP 471).

Our Committee consisted of five members and a staffperson from the United States, and one member each from France, Germany, and Switzerland. All are experienced scientists from academia and industry; staff was provided by the National Research Council. Five of our members have participated actively in ocean exploration and drilling programs. Administrative headquarters are in Washington, D.C., the operating organization is located on the campus of Texas A&M University, and a Borehole Research Group is housed at the Lamont-Doherty Laboratory of Columbia University. Responsibility for establishing the overall program and the scientific and engineering objectives is vested in executive and planning committees, the present chairmen of which are, respectively, Arthur Maxwell and James Austin of the Institute of Geophysics at UT.

The mission of the ODP requires operations at the very limits of current drilling, sampling, and logging capabilities. For example, multiple re-entries for deepening, logging, and sampling have been accomplished over the past several years in a deep ocean hole (504-B) off the west coast of northern South America. This program has contributed enormously to our knowledge of the geology of oceanic crust which, as we tend to forget, constitutes 71% of the earth's crust. Its role in confirming the Vine-

Mathews interpretation of the oceanic "magnetic stripes" and hence the validity of the plate tectonics model is well known. Holes have been drilled, logged, and sampled in the mid-ocean ridge system, deep ocean floor, oceanic plateaus, atolls, volcanoes, continental margins, and subduction wedges, settling some controversies but initiating others. A deep hole has been drilled south of Hawaii, the first of several planned to house seismographs of the worldwide seismic network. Recent drilling along the Juan de Fuca Ridge of Victoria Island, Canada, penetrated and cored a large body of sulfide "ore," presumably one of many formed in sediments by "black smokers" along the mid-ocean ridge system. Other holes have sampled gas hydrate layers in sediments. Such hydrate deposits are now estimated to contain more than twice the total hydrocarbons present on the continents.

Our committee's report was presented to the Executive Committee in Bonn, Germany, and was well received. We hope the report will help assure the continuation of the Ocean Drilling Program through the remainder of this decade.

William R. Muehlberger

I spent many days (weeks!) proofreading the first (fall '91) and second (spring '92) color proofs of the South Sheet of the Tectonic Map of North America. Early June ('92) was spent in London, at the company producing the color separation plates, where I made the final corrections to the map. It should be in print by the time this *Newsletter* reaches you.

My other major research effort is mapping the Paleozoic rocks of the Solitario uplift, a part of the new Big Bend Ranch State Natural Area, a 250,000-plus-acre ranch west of Big Bend National Park that the State recently acquired. I have worked in cooperation with Chris Henry, who is mapping the entire ranch under a contract to the Bureau of Economic Geology. Our map differs from the existing published version; we think (of course) that it is a major improvement. A related project and in similar geology (thus why I am involved in the Solitario project) is a synthesis of the structure of the Dagger Flat anticlinorium in the Marathon Basin 50 miles east of the Solitario.

This year I also toured the mid-continent (fall) and eastern states (spring) as an AAPG Distinguished Lecturer.

Keith Young

After presenting a paper concerned with the implications of the adjacent outcrops of two contrasting lithotopes, at the October meeting of the Geological Society of America, I spent much of the winter studying ammonites. I presented a paper at the Fifth North American Paleontological Convention at Chicago on July 1; it was concerned with the migration of exotic species of cephalopods during highstands of sea level. In Hamburg, Germany, in September, I will give a paper at the Fourth International Cretaceous Symposium on some Mexican ammonites

Research Scientists

Guoqiu Gao

Research Scientist Associate I
PhD—1990,
University of Texas at Austin

I am continuing my work on the petrography, geochemistry, and diagenesis of Paleozoic carbonates from Oklahoma. My research interests remain carbonate diagenesis and low-temperature geochemistry.

Paleomagnetism

Wulf Gose

Research Scientist
and Senior Lecturer
PhD—1970,
Southern Methodist University

During the past year, I have applied paleomagnetic techniques to rocks of archeological interest in co-operation with the Texas Archeological Research Laboratory. The direction of magnetization of limestone clasts, used in Indian fireplaces and middens throughout Central Texas, readily reveals whether the clasts have remained in situ or whether they have been disturbed or represent discarded material. In addition, the temperature of the fireplace can be estimated. The limited data suggest that fireplaces used for cooking meat reached higher temperatures than those used for plant materials.

In the summer of 1992, excavation of the Wilson-Leonard site just north of Austin will commence, a stratified Paleoindian and archaic site with a 10,000-year sequence of occupations. We plan on extensive paleomagnetic sampling as an aid for correlation within the site. Equally important, we hope to establish a reference curve for the magnetic secu-

lar variation in Texas which then can be used to date this and other archeological sites.

I also started work on the Precambrian granites and Cambrian sediments of the Llano area. This work is part of a five-year research project aimed at testing whether North America could have been adjacent to Antarctica as suggested by E. Moore and I. Dalziel.

•••••••••••••••••••••
Field geology;
structural geology; tectonics

Mark A. Helper

Lecturer, PhD - 1985,
University of Texas at Austin

As a lecturer, my primary responsibility continues to be teaching, which this past year included courses in gems and gem minerals, introductory field methods, and summer field camp. The field methods class this spring saw its largest enrollment in four years, and the gems and gem minerals course was again at capacity in both the fall and spring semesters. Combined with the larger enrollment, an exceptionally wet spring made scheduling for the many weekend field trips, associated with the field methods course, a challenge. Students saw the Colorado River at flood stage while studying Quaternary river terraces and paleosols, measured Cretaceous carbonate sections in the Austin area in the rain, and enjoyed several drier trips to the Llano region to map older strata.

My research continues to focus on blueschists and the Mesozoic tectonics of the Klamath Mountains in northern California and southwestern Oregon. I presented results of my recent work in an invited talk at a symposium on Cordilleran high-pressure metamorphism at a G.S.A. sectional meeting in Eugene, Oregon, this spring. In addition, abiding research interests in the Precambrian of Texas and the southwest U.S. have recently come to the fore with in-

vovement in a four-year research project with Ian Dalziel, Nick Walker, and Wulf Gose to explore similarities in the Precambrian of the southwest U.S. and the East Antarctic craton. The project began this summer with field work in Arizona, and will entail two field seasons in Antarctica. Field and laboratory work will test Ian's and Eldridge Moore's hypothesis that the Pacific margin of western ancestral North America and East Antarctica-Australia were contiguous parts of a supercontinent that broke up in latest Precambrian-Early Cambrian time.

Selected Publications:

Helper, M. A., 1986, Deformation and high P/T metamorphism in the central part of the Condrey Mountain window, north-central Klamath Mountains, California and Oregon, in: Evans, B. W., and Brown, E. H. (eds.), Blueschists and Eclogites, Geological Society of America Memoir 164, p. 125-142.

Bauer, P. W., and Helper, M. A., 1992, Geologic Map of Trampas quadrangle, Picuris Mountains, Taos and Rio Arriba Counties, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Geologic Map 71, Scale 1:24,000.

Larry Mack

Research Associate
PhD—1990,
University of Texas at Austin

I am continuing to work with L. S. Land and K. L. Milliken on geochemical aspects of diagenesis in Tertiary siliciclastic rocks and in the Louann salt in the Gulf of Mexico basin, and with Jim Wittke (graduate of the Department of Geological Sciences) on the isotope geochemistry of Balcones province igneous rocks. Lars Borg, Bob Roback (graduate students in the Department), and I have developed the techniques necessary for analysis of Lu-Hf isotopic system-

atics in the Department's isotope geochemistry labs.

Geochronology and isotope geochemistry of continental arc magmatism

Fred W. McDowell

Research Scientist

and Senior Lecturer

PhD—1966, Columbia University

For many years the basic theme of my research has been the history of magmatism in continental margin settings. My primary playground for this effort has been western Mexico, where there is an abundance of well-exposed igneous rocks emplaced during the past 100 Ma. I am utilizing the tools of geochronology, specifically the U-Pb and K-Ar dating methods, combined with careful attention to field relationships, to elucidate patterns of magmatism associated with subduction of the Kula/Farallon plate beneath western North America. During the past year a major project was completed in the central part of the state of Chihuahua. The study documented magmatic activity there between 68 and 27.5 Ma, with a profound increase in the volume of magmatism starting at 46 Ma. This mid-Tertiary episode occurred after Laramide contractional deformation and before Late Tertiary extension. In addition, it took place close to the end of a long interval of plate convergence.

Current investigations have been shifted west of Chihuahua to the state of Sonora. There, U-Pb and K-Ar dating studies are documenting emplacement of a major Cretaceous-Early Tertiary batholith, along with an associated volcanic component that has been virtually ignored in prior studies. K-Ar dating is also being used to examine mid to Late Tertiary volcanic rocks in three settings: those related to a westward extension of the Sierra Madre Occidental volcanic field; those associated with deposition of coarse clastic

debris within basins formed during Basin and Range extension; and those associated with extension related to the development of the Gulf of California. When completed, the Sonora and Chihuahua results will be integrated to provide a coherent picture of magmatic patterns across the entire width of a long-lived convergent-margin magmatic arc.

Another convergent-margin igneous province of great interest in this Department is the Miocene-Pliocene magmatic arc of New Guinea. A detailed K-Ar study of intrusion and mineralization in the Ertsberg district of Irian Jaya has established a very short interval of activity between 2.7 and 4.4 Ma. The next phase of investigation would be to compare these results with activity along strike of the arc in order to improve our understanding of regional tectonic, magmatic, and mineralization patterns.

Petrography and geochemistry of siliciclastic rocks

Kitty Lou Milliken

Research Associate

PhD—1985,

University of Texas at Austin

Mudrocks in the Gulf of Mexico sedimentary basin continue to be the primary emphasis of my research. Back-scattered electron imaging has proved to be a remarkably informative tool for learning about the chemical history of shales. A large proportion of my research effort in the past year has been devoted to this method. Textures observed in BSE-images reveal some rather specific clues to the interactions between fluids and detrital components in shales. In general, despite their relatively low permeability, Gulf Coast shales are characterized by considerable elemental mobility, even with regard to some "immobile" elements such as Al and Ti. Much of this work has been completed through a grant

awarded by NSF. Continuing support for work on the chemical history of Gulf Coast shales has recently been awarded by DOE.

My project on the regional diagenetic variations in Pennsylvanian foreland basin sandstones of the southern Appalachians is now in its second year of support from the American Chemical Society. Since my visit to Italy in the summer of 1991 I've also continued my collaboration with Earle McBride on the diagenetic history of Cenozoic piggy back- and foreland basin sandstones in the Apennines. In samples from both the Appalachians and Italy, it is uncertain to what degree initial detrital compositions have been modified during burial and tectonic deformation. A classic approach, this question is to search for "least-altered" compositions in samples that underwent drastic permeability reductions through early localized cementation events. Preliminary results from microprobe examination of feldspar populations in samples from both projects suggest, however, that concretions are not as helpful in this regard as one might hope.

This past year I've also taken up an entirely new project in the form of a collaboration with hydrogeologists. I'm very excited about this new venture because I think it's possible that imaging of rock textures (especially with back-scattered electrons!) can bring some useful insights to understanding controls on fluid movement. Jack Sharp and graduate student Fu Li are working on a TARP-funded project to measure permeability contrasts across surface "fracture skins" on a variety of rock types. Imaging and analysis using the SEM and microprobe are then used to elucidate the causes of permeability variation. In our first effort with this approach, Mn-oxide precipitation on natural rock surfaces and Fe-mineral pore-filling associated with liesegang banding are identified as factors related to permeability contrasts within the sample.



The Bureau was involved in 56 research projects during 1991; 21 new projects were initiated during the year. The Bureau's operating budget expanded from \$12 million (1990) to more than \$14 million, from line-item State appropriations and from 71 outside contracts and grants. Inter-agency contracts with State and local governments numbered 32; 17 contracts were with the petroleum industry and private institutional foundations such as the Gas Research Institute, and the remaining contracts and grants were with various agencies of the Federal government.

Several notable long-term projects were successfully concluded during 1991. Among these, the *Tectonic Map of Texas*, mapped in 4 quadrants at 1:750,000 scale, incorporates extensive surface and subsurface geologic data from all of Texas as well as adjoining parts of Mexico, New Mexico, Oklahoma, Arkansas, Louisiana, and the Gulf of Mexico into a full-color representation of the regional structural configuration of Texas. An accompanying text describes the complex tectonic setting and evolution of Texas. *Restore*, developed by a Bureau researcher and computer specialist, is a copyrighted program that enables a user to sequentially backstrip and balance geologic cross sections of extensional terranes, common settings for large hydrocarbon accumulations. Such restorations are vital for establishing the migration pathways of hydrocarbons and the evolution of structural traps.

Most of the 21 new projects initiated during 1991 address prominent environmental concerns within the State, reflecting a recent national trend toward increased interest in waste-isolation, contaminant-remediation, water-quality, and coastal-degradation studies. These new projects include (1) a five-year study funded by the U.S. Department of Energy to characterize the geologic and hydrologic factors involved in possible contamination at the PANTEX Plant near Amarillo, the nation's site for the construction and maintenance of nuclear weapons, (2) geologic and ground-water characterization of the Eagle Flat region in Trans-Pecos Texas to enable the Texas Low-Level Radioactive Waste

Disposal Authority to determine the site's suitability as a waste repository, (3) a study funded by the Lower Colorado River Authority to evaluate ground-water availability in a rapidly developing area in southeast Texas, and (4) a federally funded, five-year investigation of coastal land loss along the Texas Gulf coast.

Ongoing (multi-year) environmental investigations emphasize ground-water and waste-isolation issues of importance to Texas and the United States. These projects include (1) investigation of the late Cenozoic climatic history of the continental interior to improve hydrologic models used to predict water-level changes in the critically important High Plains aquifer, (2) study of the colocation of geothermal-water reservoirs in the deep Wilcox Group below heavy-oil plays in the Mirando trend of South Texas and the economic viability of thermally enhanced oil recovery from this trend, (3) an assessment of the risk that abandoned exploration wells and brine-injection wells in New Mexico and Texas pose to underground sources of drinking water, and (4) characterization of the extent and geologic controls on contaminant migration from mill tailings at an inactive uranium-ore processing plant in western Karnes County, Texas.

As they did last year, energy-resource investigations received primary emphasis in Bureau research during 1991-92. The regional dimensions, internal complexity, and permeability structure of the fluvial-deltaic Ferron Sandstone of Utah is being studied to derive a better understanding of reservoir heterogeneity in subsurface reservoir analogs in Texas. The State Lands Energy Resource Optimization (SLERO) project is managed by the Bureau and is composed of a consortium of Texas state universities to develop improved strategies for petroleum recovery from State Lands. Other, long-term programs involving investigation of the regional genetic stratigraphy, structure, and energy resources of the outer shelf and deep-water slope systems of the western Gulf Coast Basin received continued industry support during 1991.

Developing the necessary geologic and engineering knowledge to efficiently produce natural gas from low-permeability sandstone reservoirs remains a prominent focus of several Bureau projects funded by the Gas Research Institute. A nine-year Bureau program continues to investigate factors controlling porosity and permeability, fracture distribution, and state of stress in low-permeability gas reservoirs in Texas

and Wyoming. Another multi-year project, funded by the Gas Research Institute, the U.S. Department of Energy, and the State of Texas, addressed critical industry concerns regarding extraction methods of unrecovered natural-gas resources remaining in heterogeneous nonassociated gas reservoirs. During 1991, Bureau researchers also expanded their examination of the geologic and hydrologic factors that control the distribution and producibility of coalbed methane in coal-bearing strata of the Fruitland Formation in the San Juan Basin, Colorado and New Mexico.

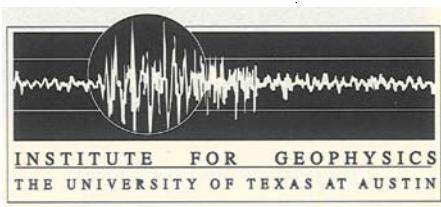
During 1991-92, Bureau researchers received several professional awards and attained high elective offices. William L. Fisher was elected the American Institute of Professional Geologists President-Elect. He was also awarded the Ian Campbell Medal by the American Geological Institute and the Hollis D. Hedberg Award in Energy by the Institute for the Study of Earth and Man. He also served as a Hearst Distinguished Lecturer at the University of California at Berkeley. Walter B. Ayers, Jr., was awarded the 1991 Best Paper Award by the Energy Minerals Division of the American Association of Petroleum Geologists. Martin P. A. Jackson was named one of 11 Distinguished Lecturers for 1991-1992 by the American Association of Petroleum Geologists.

— Tucker F. Hentz



Bureau researcher Roger Tyler examining an intrusive igneous dike in coal and sandstone of the Upper Cretaceous Vermejo Formation in the Raton Basin, Colorado.





The Institute for Geophysics (UTIG), launched in 1972 by the late Maurice Ewing, conducts geophysical investigations of the history, structure, and dynamics of the Earth's crust, especially the ocean basins and margins, and of earthquake phenomena. UTIG has evolved in twenty years into one of the leading academic research groups in geology and geophysics.

While the work of the Institute is directed toward research, graduate-student training is an important component of these activities. The Institute itself does not award degrees or offer formal classes for academic credit; rather, the Institute maintains close relationships with the Department of Geological Sciences and the Marine Science Department. Approximately one third of the research staff hold joint appointments in the Institute and the Department of Geological Sciences or the Marine Science Department. Many geophysics graduate students at UT and other universities take advantage of the opportunity to work with the staff and facilities of the Institute for Geophysics. Students are encouraged to author or co-author publications for refereed journals both for their own training and to produce products of funded research.

Research scientists often work as part of international and national teams in large, multi-disciplinary research programs. Disciplinary areas of research interests include seismic reflection and refraction, earthquake seismology, geothermal studies, gravity, geomagnetism, aerogeophysics, laser altimetry, geodesy, and theoretical geophysics. Major topics of current research include ocean margin and plate boundary processes, seismic stratigraphy, global plate reconstructions, contemporary seismicity, earthquake prediction, basin analysis, seismic data processing, paleomagnetism, lunar and planetary seismology, and deep-earth processes. Geographical interests range widely from the continents to continental margins, and offshore to the deep oceanic areas. Both passive and active margins are under investigation. Programs are ongoing in the Pacific, Indian, and Atlantic oceans, with a major effort toward understanding the Caribbean region and the Gulf of Mexico. The

Institute has become one of the major centers in the world in studies of the Antarctic region.

In the past few years members of UTIG have led or participated in research programs on previously owned ships of the Institute, the *Fred H. Moore* and the *Ida Green*, various ships of the UNOLS fleet, numerous foreign vessels, and several contract geophysical ships. To support seagoing activities, UTIG maintains an engineering staff and staging facility in Galveston. Examples of the type of equipment maintained include low-fold multichannel systems, an array of active or passive ocean-bottom seismometers, and geothermal probes.

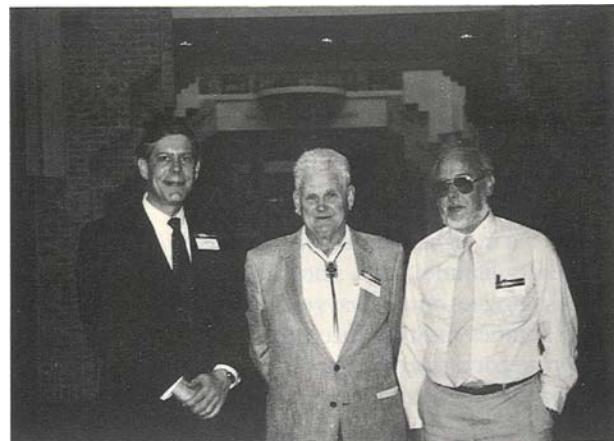
A new UTIG project involves coordinating an experiment to investigate the tectonic evolution of the West Antarctic rift system and the geologic control the rifting process provides for the dynamics of the overlying ice sheet. This aerogeophysical experiment includes simultaneous acquisition of ice-penetrating radar, laser altimetry, airborne gravity, and aeromagnetic measurements. The new airborne platform has completed its second successful season.

With a T1 connection to the University of Texas System Center for High Performance Computing (CHPC) Cray Y-MP8/864 computer, seismic reflection and refraction data are processed. UTIG has installed the Geovecteur software of CGG on the Cray allowing 2-D and 3-D seismic data processing and Geoquest™ interactive software mounted on color Sun Sparc™ hardware assists in 2-D and 3-D interpretation. UTIG currently has a network of 25 Sun™ workstations and 75 Macintosh™ computers, 7 laser printers and 1 Tectronics™ solid ink color printer. These are interconnected by AppleTalk™ and EtherNet™ with national and international connections to Internet and Bitnet. About 13 Gbytes of disk are attached to the more powerful Suns, with 3 Gbytes concentrated on one Sun 4/380/32Mb server. This machine provides the services of many peripherals, including a 22-inch Versatec black-and-white plotter, a 34-inch Calcomp™ pen plotter, a 24-inch 4-color Versatec printer, and 9-track and exabyte tape drives.

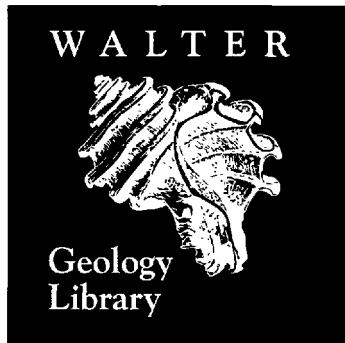
UTIG is one of ten member institutions of JOI, Inc. (Joint Oceanographic Institutions, Incorporated) that was established to facilitate the organization and operation of major national and international oceanographic programs. JOI's responsibilities include managing the international Ocean Drilling Program (ODP). This program, one of the world's largest studies of the earth, is a successful international scientific venture to explore one of Earth's last frontiers, its ocean basins. Scientific input to ODP is provided by JOIDES (Joint Oceanographic Institutions for Deep Earth Sampling), an advisory structure which includes representatives of the JOI member institutions and seven non-U.S. partners (countries or consortia). UTIG currently hosts the JOIDES Executive and Planning Committee Offices. Many UTIG scientists are actively involved in JOIDES panels and committees and have participated aboard the drill ship *JOIDES Resolution*. In addition, UTIG is the University's representative and a founding member of the Incorporated Research Institutions for Seismology (IRIS), which now has over 60 member universities.

The Institute has offices in three locations. The main laboratory is in north Austin near the University's Balcones Research Center. On UT's main campus, there are offices, a computer facility, a high-density tape archive, and a paleomagnetic laboratory within the Geology Building. The marine-activities staging facility remains in Galveston, where marine engineering staff continue to maintain workshops and a core storage facility.

— Patricia E. Ganey-Curry



David Lammlein, Pennzoil, J. Lamar Worzel, retired Director of the Galveston Geophysics Laboratory, and Wulf Gose are reunited during the UTIG 20th anniversary, "Celebration of Geophysics."



The aspirations of all academic research libraries are now being forcibly constricted to accommodate budgetary realities and explosive technological change. This new reality requires a continuing effort to salvage as much quality as possible for our principal users within budgetary limitations, resulting in a narrowing of focus on both collections and services.

This has been a year of preparation for the Walter Geology Library. The national crisis in journal costs has again forced preparation for serials non-renewals. Last years cancellation project was forestalled, but this summer we will not renew 60 journal titles for \$8,400, or 9.8%, of 1991-92 subscriptions.

High quality computer networks are helping libraries shift to an "information access" model to provide researchers with their specific needs. These networks allow the storage and transmission of the full text of research reports, and also permit electronic publishing or bypassing printing altogether. To explore this opportunity, the UT General Libraries has obtained funding for a network of work stations linked to a variety of data sources. The Walter Geology Library will get four of these networked microcomputers late in FY 1992-93.

Proliferating high-tech equipment that is fundamental to library activities raises a number of issues such as space and space renovation, adequate staffing and staff training, technical and equipment support, and sufficient funding to stay on the technology treadmill. All of these new issues are being sorted out in tight budget environments at university libraries, and, since traditional publishing goes on as always except for the cost, libraries must balance resources between preparing for the future and continuing to accommodate the present. No matter how these challenges are met, in this time of rapid change and uncertainty there is no doubt that long established work habits of both library staff and users will be profoundly affected.

This year the Walter Geology Library

reached absolute maximum capacity; materials will have to be stored. The UT General Libraries has a new storage facility under construction at Balcones Research Center, scheduled to open late in 1992. Walter Library staff have been working to identify from circulation records 20,000 volumes (about 22% of the collection) for storage. These are mostly old and fragile materials, which will be available for recall in 48 hours.

One of several long term goals for the Walter Library is cataloging and coding the entire Tobin International Map Collection in order to take full advantage of the developing on-line catalog. This year all of the more than 5,000 Texas topographic maps in the Tobin Collection were coded for automated circulation.

In staff news, Jim McCulloch (Library Assistant II) celebrated his tenth anniversary with the Walter Library this year, and Carol Russell (Library Assistant I, half-time, maps) her twelfth anniversary. Dennis Trombatore (Geology Librarian), was one of two recipients of the General Libraries' Librarian Excellence Award for 1991-92, which includes a \$1,000 stipend. Mr. Trombatore also served another year on the Geoscience Information Society's Best Paper Committee. Heather Squatriglia (Clerical Assistant, part time), was selected to participate in Shakespeare performances at the UT theater in Winedale this summer. The Walter Geology Library has been fortunate to have a dedicated, knowledgeable staff and a talented and responsible pool of student workers who work together to provide services and further the goals of the unit.

— Dennis Trombatore



Dennis Trombatore, one of two recipients of the General Libraries' Librarian Excellence Award for 1991-92.

WALTER GEOLOGY LIBRARY HONOR ROLL

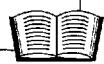
Support the Walter Library by helping us acquire the following special items!

Get your name in the Newsletter!

Get a custom bookplate/equipment plate with your name on it!

- Provide funds to complete the cataloging of the Tobin International Map Collection. Help provide online access through UTCAT and the national library database OCLC. Approximate cost: \$30,000.
- Provide funds to purchase multidisk CD-ROM player and board for a 386 DOS computer, to allow more efficient use of GEOREF and USGS compact disks. Approximate cost: \$1700.
- Provide funds to purchase dissertations on microfilm on geologic topics pertaining to Texas, Mexico, the Gulf of Mexico, and other special topics. This once routine purchase was suspended in 1989. Approximate cost: \$1200.
- Provide funds to purchase all conference proceedings from National Ground Water Association to support the fastest growing area of our collection. Approximate annual cost: \$1,000.
- Provide funds to purchase earlier years of several important journals which we have been unable to acquire. Approximate cost: \$750.
- Provide funds to purchase heavy duty electric hole puncher and power stapler for heavily used copying facility. Approximate cost: \$250.

If you see an opportunity here that appeals to you, lend a hand! Use the envelope provided with the Newsletter and include a note to the Geology Foundation staff describing what you wish to support, or contact Dennis Trombatore for more details at (512) 495-4680.



VERTEBRATE PALEONTOLOGY & RADIOCARBON LAB

The Vertebrate Paleontology Laboratory continues to be a very active and productive place. A three-year Curation Improvement Grant from the National Science Foundation has provided new metal shelving, steel cabinets, and computer equipment for the Lab. In addition, there is funding for assistance in upgrading the specimens and the records. This will make the collection much more useful to researchers and students.

Wann Langston, Jr., is continuing his research on fossil crocodilians. His current project is a study of a very large gavial from the Miocene of Colombia. Wann completed his part of a long paper on Eocene mammal tracks in Trans-Pecos Texas in collaboration with W. A. S. Sarjeant of the University of Saskatchewan. This work will be published by the Texas Memorial Museum in later 1992.

Tim Rowe will be starting a new project based on the collections of the Vertebrate Paleontology Laboratory and funded by a grant from the Division of Undergraduate Course and Curriculum Development of the National Science Foundation. The aim of the project is to develop new educational media for his undergraduate course, *The Age of Dinosaurs*. The media will include digital pictures and models of fossils, along with explanations, quizzes, and other kinds of information to be used on computers in the lab sections of the course. The multimedia dinosaur labs will be published on CD-ROM for use by other colleges and universities that teach similar courses.

Tim, along with graduate student Ann Weil, Texas Ex Tom Lehman (now a professor of geology at Texas Tech), and Rich Cifelli of the University of Oklahoma, has finished a study of the vertebrates of the Aguja Form-

tion. Their work focussed on the microvertebrates, which has greatly expanded the known diversity of Aguja taxa and shows that the late Cretaceous vertebrate fauna of Texas was far more diverse in the Late Cretaceous than was previously believed.

A Fulbright scholar from Albania, Dr. Antone Fistani, is spending six months working at the lab. Vertebrate paleontology graduate students are working on a number of projects. Rick Toomey is finishing his PhD project on the Pleistocene-Holocene faunal sequence from a cave in Kerr County. The virtually continuous 13,000-year record has produced a detailed picture of the faunal and environmental changes that took place in that part of Texas. For the first time there is good evidence of a mid Holocene dry period in that part of the state. Gorden Bell is finishing his work on mosasaurs. Chris Brochu is finding strange things about the way crocodilians grow. Ann Weil is finishing her work on the multituberculates from the Cretaceous Aguja Formation of West Texas. Andy Czebeniak is just starting a project on a group of microtine rodents. These are small rodents that underwent explosive evolution in the last 5 to 6 million years and thus are potentially useful for biostratigraphic and evolutionary studies. John Merck passed his comps and is now deeply involved in the phylogeny of archosauromorph reptiles. Kyoko Kishi has jumped into her master's project, which is a close look at the role of digital imagery and GIS (geographic information systems) in management of vertebrate collections. Hillary Tully has begun a

master's thesis on late Cretaceous lizards from the Aguja Formation.

The preparation of the skull of the horned dinosaur *Chasmosaurus*, from Big Bend National Park, is nearing completion. It is a very good specimen that preserves a large amount of the internal structure of the skull, which should provide much information on the details of the cranial anatomy of this animal. Technicians from the Lab were involved in the casting of tracks of a small dinosaur found in Zilker Park. Associated with the track were parts of a large marine turtle shell. The bones were collected and a cast was put back in the ground for exhibit.

The Radiocarbon Laboratory has been busy producing dates for a wide variety of projects. A major focus is the dating of sediments from fluvial deposits. This is now being used on a variety of projects to obtain information on the history of deposition and human activity in Mexico, Italy, and Texas. The dating of sediments will be greatly accelerated in the near future with new equipment made available by a Special Equipment Grant from the College of Natural Sciences.

Corals are being dated at the Institute for Geophysics in a study of tectonic uplift on the island of Rendova in the South Pacific. The Lab is also participating in the Third International Intercomparison, in which about 100 radiocarbon laboratories worldwide compare results on a standard series of samples.

— Ernest Lundelius Jr., Director



~~STUDENT~~ ACTIVITIES...



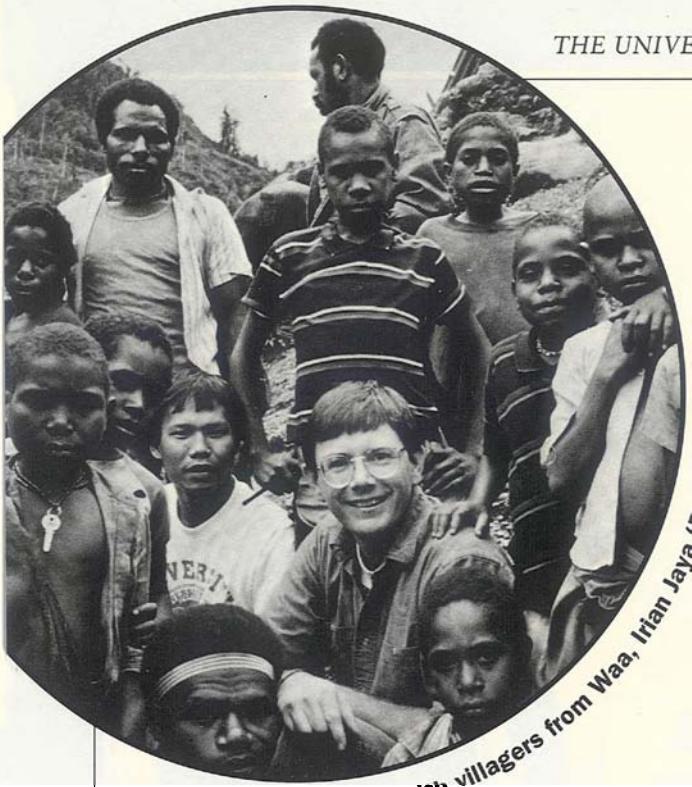
HIGH IN THE TROPICAL ALPINES OF IRIAN JAYA

by Andrew Quarles

My PhD research focuses on understanding the structural and tectonic evolution of the geologically unexplored Central Ranges of Irian Jaya (western New Guinea), Indonesia. I am determining the lithostratigraphy and biostratigraphy of the Paleozoic to Cenozoic rocks exposed in the Central Range, the timing of deformation as recorded in the stratigraphic record, and the geometry of deformation. These photographs show me during structural and stratigraphic field mapping in the tropical alpine areas surrounding Puncak Jaya, the highest mountain in New Guinea, and the Freeport Indonesia Ertsberg mining district. The high elevations (over 13,000 feet) afford excellent outcrops of a thick, deformed Cenozoic carbonate sequence. During my fieldwork I am assisted by Indonesian Freeport geologists and natives. Adventures during fieldwork have included being over run by hardy alpine mice and a native mutiny due to a pig roast.

This project is funded by a grant to the Department by Freeport McMoRan Inc. and supports seven full time graduate students, up to four undergraduate students and two faculty members.





Richard Welland with villagers from Waa, Irian Jaya (Province), Indonesia

GSEC REPORTS ...

The Graduate Student Executive Committee (GSEC) is the means by which grad students get things done around the department. Aside from organizing social events, GSEC acts as the voice of the grad students to anyone who wants to hear it, such as the faculty, staff, and the UT administration, and probably some who don't. GSEC also coordinates the czarship program, in which students take responsibility to do various odd jobs around the Department, such as keeping the thesis board up to date, buying cookies to eat before Tech Sessions, and assembling the student address list-in all, there are about 30 jobs which need volunteers. The only reward for their labor is the gratitude of their peers, a good feeling inside, and the honor of bearing the title of czar. GSEC also occasionally buys small ticket items to improve the lot of the grad student body. This past year, purchases have included a water filter for the lounge, a new slide projector and accessories to aid students in preparing presentations, and a replacement for the faithful yet aging lounge tea kettle. Finally, GSEC raises funds for its various activities and acquisitions, usually through stuffing envelopes for the Geology Foundation (in fact, this Newsletter was probably mailed by a smiling grad student volunteer).

This year, GSEC also created the Graduate Student Service Award, in recognition of the outstanding volunteer spirit pervading the Department, and in particular certain individuals who go far above and beyond the call of duty. Award winners this year were Linda Davis and Chris Brochu. Linda has served her fellow students in a large number of capacities, including GSEC rep, office czar, and representative at faculty meetings, not to mention being a reliable glove at third base on the softball team. Chris served as secretary of COGS (the university-wide Council of Graduate Students), and has been in general an inspiration to many.

Thanks to funds allocated by the Geology Foundation, GSEC was able to expand its very successful prospective student hospitality program this year to include defraying some costs of visiting students and their hosts. The Hospitality Program takes care of arranging interviews with professors, giving departmental tours, and providing housing for prospective students who visit the department. Also, the students can get a feel for Austin and what culinary and cultural opportunities abound here. We have received a very positive response from prospective students regarding our program. In fact, 11 of 13 students who visited this spring will be back in the fall as new students, an outstanding achievement during these times of greater competition for increasingly scarce good students entering the geological sciences.

STUDENTS



PROGRESS AND EXPANSION

With the help of Bill Woods, grad student surroundings have been made much more pleasant over the past year. All of the lounge furniture was reupholstered, and the kitchen area was refurbished. The 4th floor conference room was repainted, and will soon be fitted with a slide projector. We have also begun the process of slowly replacing the more decrepit specimens of office furniture with newer stuff from the UT furniture warehouse. The GEO 512 "bullpen" room was cleaned up and partitions were installed, creating premium new office space. In general, grad office space continued to spread out through the building (like the plague), with new space opening on the second, third and fifth floors. This is part of a continuing policy to disperse office space and have the students and faculty working beside each other instead of concentrating the grad students in the fourth floor "ghetto."

SPORTS AND LEISURE

GSEC sponsored a wide range of social activities over the past year. There were the usual new student parties and beer busts, a particularly raucous (albeit destructive) Halloween party, a Christmas party at Francisco Pardon's with a distinctive Latin flair, and a miraculously sunny Spring Picnic. As usual, final Bedlam was a source of mirth and dread to many, featuring among other things Bill Carlson's unwitting tour of America as a cardboard cutout in the back of Jim Rougvie's truck, an encore performance by the Thrust Fault Jesus Baptist Choir, and Rob Reed explaining the top ten reasons for Bill Muehlburger's impending retirement. "Man of a thousand faces" Lee Potter did journeyman service for the evening, with roles ranging from visiting lecturer to the evil Mr. Potter (a la "It's a Wonderful Life") to game show prize announcer.

In the sporting news, the grad students fielded intramural teams in ultimate frisbee, softball and volleyball. The ultimate frisbee team, led by able veterans Bob Roback and Carl fiduk, won the University Championship for an unparalleled fourth consecutive year, and fifth in the last six. Two softball teams, one coed and one all male, both captained by the inimitable Leo Lynch, each went 4-1 in the regular season before being robbed in the playoffs. The men's losses were particularly rancorous, as they were both to Law School teams. A request for more Venezuelan baseball players has been forwarded to the admissions committee. We won't mention what happened to the volleyball team, but they did have fun as well.

— Rich Ketcham and Denise Harrington

GSEC OFFICERS

FALL 1991

President: Rich Ketcham
 Vice-President: MaryLynn Musgrove
 Secretary: Heidi Mertig
 Treasurer: Alex Riter
 Members: Denise Harrington
 Tim McMahon
 Milton Kwong

SPRING 1992

President: Denise Harrington
 Vice-President: Dan Barker
 Secretary: Matt Ralston
 Treasurer: Alex Riter
 Members: Jeffrey Chen
 Rich Ketcham
 Milton Kwong

ACTIVITIES

ROA

**RESEARCH
ASSISTANT**

DEPARTMENT

Awwiller, David
Barnett, Robert
Baumgartner, Scott
Boettcher, Stefan
Crabaugh, Jeff
Crabaugh, Mary
Davis, Linda
Denison, Cambria
Ding, Xiao-Yang
Dworkin, Stephen
Frank, Andrew
Fu, Li
Hibbs, Barry
Hiebert, Franz
Hua, Hsiao-Peng
Ketcham, Richard
Kirschenmann, Kyle
Kishi, Kyoko

**Bureau of
Economic
Geology**

Kuehne, John
Lynch, F. Leo
McGilvery, Thomas
McKenna, Thomas
McMahon, Timothy
Mertig, Heidi
Moore, James
Musgrove, Mary Lynn
Quarles, Andrew
Riter, Alex
Romanak, Katherine
Rougvie, James
Rubin, Jeffrey
Sapiie, Benjamin
Stapleton, Colleen
Weiland, Richard
White, Leslie
Yang, Wan
Zellers, Sarah

**Institute for
Geophysics**

Liao, Jun
Lin, Shing-Tzong
Mora, Gabriela
Pendleton, Virginia
Roark, Terry
Sapp, Amy
Single, Robert
Tsai, Heng
Xue, Liangqing
Ye, Quicheng
Zeng, Hongliu

Barker, Daniel
Cunningham, Dickson
Feng, Jianhua
Hoar, Timothy
Jervis, Michael
Klepeis, Keith
Lee, Tung-Yi
Marton, Gyorgy
Nagihara, Seiichi
Oh, Jinyong
Sen, Vikramaditya
Simmons, James
Squires, Livia
Starcher, Michael

**CAPTIONS...**

(left) Mary Crabaugh "saves" her husband Jeff while out in the field. (right) Alex Riter at Vulcan's Throne. (middle right) Mary Lynn Musgrove, about to be lowered in a bucket 250 feet to H₂O table in the Bowmanston pumping station, Barbados. (far right) Kevin Reed, Rich Ketcham, Emilio Carmona, Brad Wolaver, Sneha Dholakia, Christie Morgan and Roger Gary stop to observe the "wildlife" during the USGS/AAPG field trip to Big Bend during Spring Break.



TA

**TEACHING
ASSISTANT**

Awwiller, David
Barnett, Robert
Baumgartner, Scott
Beam, Eric
Bell, Gordon
Black, Jeffrey
Boettcher, Stefan
Bowling, Doug
Brochu, Christopher
Caran, S. Chris
Cardimona, Steven
Chen, Jeffrey
Clague, Alistair
Darling, Bruce
DeBalko, David
Edgerton, David
Eustice, Rachel
Fröhlich, David
Fu, Li
Gan, Stoney

Hansen, Davis
Harrington, Denise
Hickerson, Russell
Hicks, David
Johns, Mary
Kirschenmann, Kyle
Kwong, Milton
Marin, Barbara
Mayer, James
McGilvery, Thomas
Merck, John
Molineux, Margaret
Moore, James
Nyffenegger, Paul
Oetting, Gregg
Olson, Daniel
Pope, Sylvia
Potter, Lee
Ralston, Matthew
Rasbury, Troy

DEPARTMENT

Noble, Paula


**ASSISTANT
INSTRUCTOR**

UNDERGRADUATE NEWS

Both undergraduate organizations, the University Student Geological Society and the AAPG Student Chapter, enjoyed a variety of field trips and activities during the year. The groups combined efforts for field trips, including visits to Enchanted Rock, Pedernales Falls, the Ring of Fire at the Houston Museum of Natural Science, and a spring break field trip to Big Bend.

Other educational activities revolved around several guest lecturers. Dr. Marty Perlmutter of Texaco Briarpark Research Lab talked on global cycle stratigraphy and basin dynamics in September. Dr. Bill Muehlberger spoke on the geologic history of the Big Bend region a few days before the spring break trip in March. In May a panel discussion

on women in geosciences featured Dr. Sue Havorka (Bureau of Economic Geology), Dr. Michelle Kominz (Department of Geological Sciences), Dr. Priscilla Nelson (Department of Civil Engineering), Ms. Jan Sloan (Hall Southwest), and Ms. Debra Williams (Hazcorp Environmental).

Other activities included areas of community service. USGS/AAPG members participated in the Adopt-a-Creek project, in which the organizations were responsible for regular cleanup and maintenance of a section of Waller Creek that runs through the UT campus. In November, the students assisted in the annual gem show of the Austin Gem & Mineral Society.



UNDERGRAD OFFICERS

USGS

President: Marshall Taylor
Vice-President: Clayton Thorp
Secretary: Jennifer Bishop
Treasurer: Eric Matzner

AAPG

President: Trevor Kendall
Vice-President: Matt Gildon
Secretary: Amanda Casebier
Treasurer: Keith Ging

Designated Scholarships from Outside Sources:

UTIG Ewing Worzel Scholarships

Qing Fang	Spring 1992
Radim Kolarsky	Fall 1991
Lis Konnecke	1991-92
Duk Kee Lee	Spring 1992
Paul Nyffenegger	Spring 1992
Ran Zhou	1991-92

Deep Gulf of Mexico Basin Scholarship

David DeBalko	Fall 1991
---------------	-----------

Houston Geological Society Memorial Scholarship

David Hicks	1991-92
-------------	---------

Dallas Geophysical Society

Karen Bergeron	1991-92
----------------	---------

Mobil Exploration and Producing Services Inc.

Brian Reinsborough	1991-92
--------------------	---------

Unocal

Bill Fitchen	1991-92
Mike Starcher	1991-92

Undergrad Scholarships

Amoco Foundation, Inc.

Trinidad Botello	Spring 1992
Emilio Carmona	Spring 1992

BP Exploration, Inc. Scholarship

Nikolas Hazel	Spring 1992
Stephen Leslie	Spring 1992
Eric Matzner	Spring 1992

Bloomer Fund for Motivated Students

Craig Bennett	1991-92
Lisa Sparlin	Spring 1992
Kirby Wynn	Fall 1991

John F. Bookout Jr.

and Carolyn Bookout Scholarship	
Louisa Eclarinal	Fall 1991

Wayne F. Bowman

Endowed Presidential Scholarship	
Thomas Stidham	Spring 1992

Champlin Petroleum Scholarships

Jennifer Bishop	Summer 1992
Colby Drechsel	Fall 1991
Keith Ging	Fall 1991
Mark Guckeyson	Fall 1991
Sonya Jones	1991-92
Karen Jarocki	Summer 1992
Stephen Leslie	Fall 1991
Cynthia Mauk	Fall 1991
Catherine Patterson	Summer 1992
Kevin Reid	Summer 1992
Thomas Stidham	Fall 1991
Brad Wolaver	Fall 1991

W. Kenley Clark Memorial

Endowed Presidential Scholarship	
Jennifer Bishop	1991-92
Michael Harren	1991-92

Continental Oil Co. Fund

Kevin Reid	Fall 1991
Clayton Thorp	Fall 1991
Brad Wolaver	Fall 1991

R. H. Cuyler

Endowed Presidential Scholarship	
Sharon Bruyere	1991-92

Guy E. Green

Endowed Presidential Scholarship	
Jesse Hamilton	1991-92

Charles and Eunice Haas

Endowed Presidential Scholarship	
Jennifer Ericsson	1991-92
Courtland Little	1991-92

Fred E. and Nora V. Haas

Endowed Presidential Scholarship	
Carolyn Cooper	1991-92
Jim Gharib	1991-92

Karl F. Hagemeier Jr.

Endowed Presidential Scholarship	
Carlotta Chernoff	1991-92

Marathon Scholarship

Keith Ging	Spring 1992
Jolyn Piercy	Spring 1992

John H. and Lujza P. McCammon Scholarship

Darrel Corcoran	Spring 1992
-----------------	-------------

Mr. and Mrs. L. F. McCollum Scholarship

Ted Angle	Fall 1991
Lisa Sparlin	Spring 1992

Frank W. Michaux Scholarship

Thomas Warren	Spring 1992
---------------	-------------

Carroll C. Miller

Endowed Presidential Scholarship	
Scott Rubin	1991-92

Mobil Scholarship

Emiliano Garcia	1991-92
Gavyn Thomas	Fall 1991

Wes Ogden**Memorial Scholarship in Geophysics**

Keith Ging	Spring 1992
------------	-------------

Oryx Energy Company Scholarships

Jesus Chavez	Spring 1992
Anish Deshpande	Summer 1992

Sneha Dholakia	Summer 1992
Marcus Gonzales	Spring 1992

Pennzoil Company Scholarship

Darrel Corcoran	Fall 1991
Todd Muelhoefer	Fall 1991
Randy Remington	Fall 1991

Petrography Award

Jennifer Bishop	
-----------------	--

Endowed Presidential Scholarship Recipients:
(back row)

Jennifer Ericsson	
Jesse Hamilton	
Clark Wilson (<i>chairman</i>)	
Courtland Little	
Thomas Stidham	

Jennifer Bishop	
Scott Rubin	
Sharon Bruyere	
Jim Gharib and Darcy Brooks	

Phillips Petroleum Company Scholarship

Trinidad Botello	Fall 1991
Emilio Carmona	Fall 1991
Karen Jarocki	1991-92
Cynthia Lee	Spring 1992
Cynthia Mauk	Spring 1992
Lisa Sparlin	Fall 1991
Jennifer Walker	Spring 1992

Louis and Elizabeth Scherk Geology Scholarship

Craig Bennett	Fall 1991
Colby Drechsel	Spring 1992
Aura Guevara	Fall 1991
Cynthia Lee	Fall 1991
Kevin Reid	Spring 1992
Wayne Ritchenson	Fall 1991
Kirby Wynn	Spring 1992

F. W. Simonds

Endowed Presidential Scholarship	
Sneha Dholakia	1991-92

Unocal Scholarships

Michael Brown	Spring 1992
Sonya Jones	Spring 1992
Clayton Thorp	Spring 1992
Brad Wolaver	Spring 1992

USX Foundation Inc.

Keith Ging	Summer 1992
David Mackintosh	Summer 1992

Glenn and Martha Vargas Gemological Scholarship

Cynthia Mauk	Fall 1991
--------------	-----------

F. L. Whitney

Endowed Presidential Scholarship	
Darcy Brooks	1991-92

Charles E. Yager

Undergraduate Field Scholarship	
Craig Bennett	Summer 1992

Eric Matzner	Summer 1992
Darrel Corcoran	Summer 1992

Robin Balinsky	Summer 1992
Kirby Wynn	Summer 1992





Алис В Стране Чудес: Похождения В Сибири

Alice in Wonderland: Adventures in Siberia

27 • 7 • 92

Dear friends and colleagues at the Department,

Today, we arrived at Lake Baikal after a thirty hour journey on the Trans-Siberian Railway, and as I stand along the west shore of the world's deepest lake and an active rift zone, I am reminded why I chose to pursue my fortune in geology. Here, along the southwestern shore of the lake, the deep-blue waters seem strangely calm and pristine; however, locals warn us that further north the winds and temperatures can change unexpectedly, threatening even the most experienced seamen. In the distance, the lake remains shrouded in white mists.

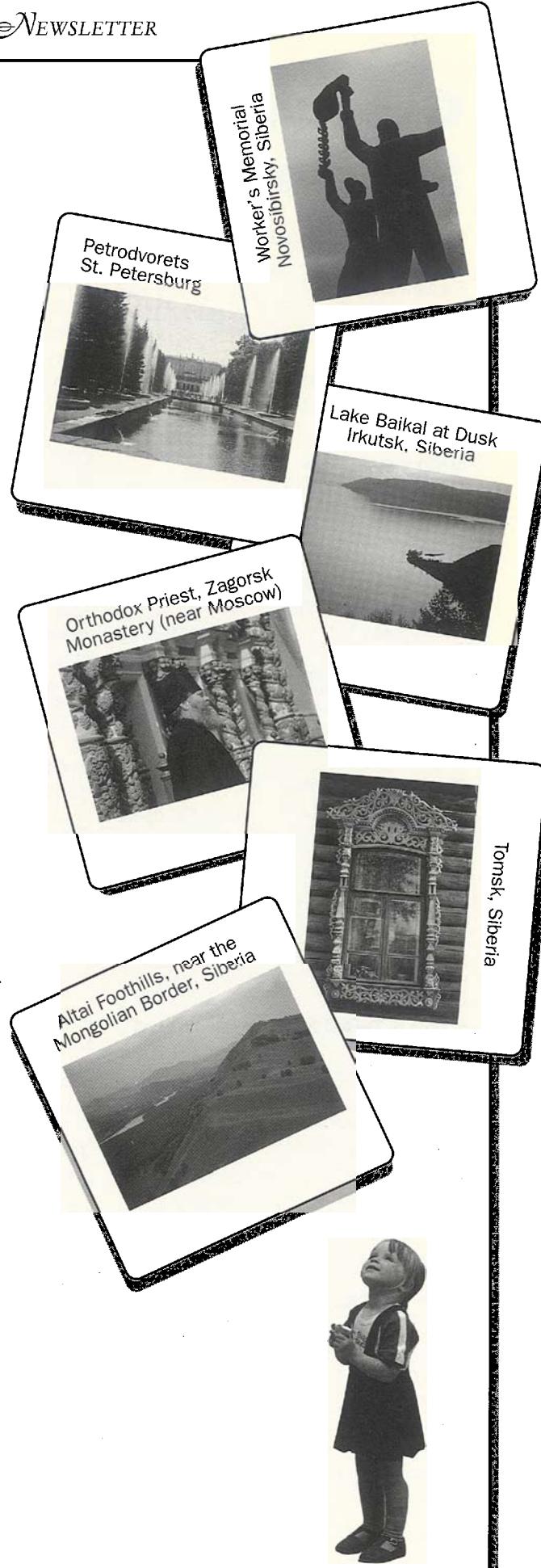
In a few days, we will return to Akademgorodok and Novosibirsk to say our farewells to teachers and friends, before we depart for St. Petersburg and then home. For the past six weeks, we have been students at Novosibirsk State University in Akademgorodok ("little academic town") which is located about thirty miles from Siberia's largest industrial city: Novosibirsk. The quaintness of Akademgorodok, with its university buildings and institutes nestled amongst the birch and pine trees, stands in strong contrast to the dusty streets and utilitarian architecture of Novosibirsk.

Our days have been filled with intensive courses in Russian grammar, translation and conversation, while weekends and evenings have afforded opportunities to tour research institutions, travel and meet with our friends. I am constantly amazed with the hospitality of the Russian people, and often surprised by the generosity with which they share all that they have with us. Also surprising is the relative plenitude of food offered to us and the quality of accommodations we have seen throughout our travels. Although the stores are often lacking fundamental products, our Russian organizers have always managed to find the essentials to make our stay quite comfortable.

Thus far, I have met with igneous and metamorphic petrologists from the Siberian Institute of Geology and Geophysics. Although the research facilities at times appeared rather modest, the work being pursued was impressive. In particular, I was pleased to see scientific investigation forge ahead despite the great degree of uncertainty regarding research positions and the future of the Russian academic community. Merely another testament to the Russian will to survive.

To the west, the sun is setting over the lake and the lush tree-covered hills surrounding it in glorious hues of orange and pink. At this very moment it seems that there is no place more perfect than this or a people more interesting than the Siberians we have come to know.

Carlotta B. Chernoff



Graduate Scholarships

Amoco Foundation, Inc.

Denise Apperson	Spring 1992
Barbara Marin	1991-92
Matthew Ralston	Spring 1992
Jim Simmons	Spring 1992

Amoco Teaching Assistant Award

Norman Van Broekhoven	Spring 1992
Robert Roback	Spring 1992

ARCO Scholarships

Rich Ketcham	1991-92
Kevin Lyons	1991-92
Colin Sumrall	Fall 1991

Laura Thomson Barrow

Graduate Fellowship	
Julie Roska	1991-92

Chevron Fellowships

Lars Borg	1991-92
Robert Roback	Fall 1991
Ben Sloan	1991-92

Chevron Scholarships

Gerardo Diaz	Fall 1991
Steve Cardimona	Fall 1991
Linda Davis	Fall 1991
Daniel Olson	Fall 1991
Colin Sumrall	Fall 1991
Rick Toomey	Fall 1991
Heng Tsai	Fall 1991
Ran Zhou	Fall 1991

Ronald K. DeFord field Scholarship Fund

Eric Beam	Summer 1992
Stefan Boettcher	Fall 1991
Jeffrey Chen	Summer 1992
Carlotta Chernoff	Summer 1992
Mary Crabaugh	Summer 1992
David Edgerton	Summer 1992
Rachel Eustice	Summer 1992
David Froehlich	Summer 1992
Li Fu	Summer 1992
Hongxing Ge	Summer 1992
Denise Harrington	Summer 1992
David Hill	Summer 1992
Herbert Haubold	Fall 1991
Mary Johns	Summer 1992
Richard Ketcham	Fall 1991
James Mayer	Summer 1992
Barbara Marin	Fall 1991
Tim Thompson	Summer 1992
Wan Yang	Summer 1992

John E. "Brick" Elliott Academic Activities Fund

Xijin Liu	Fall 1991
Lawrence Meckel	Spring 1992
Brian Reinsborough	Fall 1991
Ben Sloan	Spring, Summer 1992
Liangquing Xue	Fall 1991

Exxon Education Foundation Scholarships

Gerardo Aguirre	Summer 1992
Jianhua Feng	Summer 1992
Jinyong Oh	Summer 1992
Joseph Reese	Spring 1992
Brian Reinsborough	Summer 1992
Phillip Rowell	Summer 1992
Colin Sumrall	Summer 1992
Christopher Swezey	Summer 1992
Hongliu Zeng	Summer 1992

Peter T. Flawn Centennial Professorship

Pat Dickerson	Spring 1992
---------------	-------------

Gulf Oil Company Centennial Professorship Fund

Li Fu	Spring 1992
-------	-------------

Hogg-Cullinan Scholarship

Stefan Boettcher	Spring 1992
------------------	-------------

Hogg-Sharp Scholarship

Joe Reese	Fall 1991
-----------	-----------

Howard R. Lowe
Fund in Vertebrate Paleontology

Gordon Bell	Fall 1991
Christopher Brochu	Fall 1991
David Froehlich	Fall 1991
Rick Toomey	Fall 1991
Ann Weil	Fall 1991

Marathon Scholarship

James Rougvie	Spring 1992
---------------	-------------

Mobil Oil Scholarship

Daniel Gonzalez	1991-92
-----------------	---------

Oryx Scholarship

James Rougvie	Spring 1992
---------------	-------------

Owen-Coates Fund Grant

Barry Hibbs	Summer 1992
-------------	-------------

Bill R. Payne
Centennial Teaching Fellowship Grant

Richard Appleton	Fall 1991
------------------	-----------

Pennzoil & Pogo Producing Companies/
William E. Gipson Scholarship

Khib Kugler	1991-92
-------------	---------

Petrography Award

James R. Rougvie	Spring 1991
------------------	-------------

Phillips Petroleum Fellowship

Warren T. Wood	1991-92
----------------	---------

Shell Oil Foundation Centennial
Teaching Fellowship in Geophysics Grant

Xiao-Yang Ding	Fall 1991
Duk Kee Lee	Fall 1991

William T. Stokes
Centennial Teaching Fellowship Grant

Denise Apperson	Fall 1991
Richard Ketcham	Summer 1992
Glenn Kilmchuk	Summer 1992
Khib Kugler	Summer 1992

H. Tod Sutherland Memorial Scholarship

Linda Davis	Summer 1992
Tom Hoak	Summer 1992

John and Elizabeth Teagle
Scholarship Fund

Denise Apperson	Fall 1991
David Awiller	Fall 1991
Jeff Crabaugh	Fall 1991
Mary Crabaugh	Fall 1991
Franz Hiebert	Fall 1991
Cambria Johnson	Fall 1991
Keith Klepeis	Fall 1991
Leo Lynch	Fall 1991
Seiichi Nagihara	Fall 1991
Livia Squires	Fall 1991
Warren Wood	Fall 1991

Technical Sessions Best Speaker Awards

Denise Apperson	Spring 1992
Mary Lynn Musgrove	Spring 1992

Texaco Scholarship Fund

Andy Frank	1991-92
------------	---------

Unrestricted Scholarships

Daniel Gonzalez	1991-92
-----------------	---------

Arno P. (Dutch) Wender
Professional Development Fund Grant

Mark Barton	Spring 1992
Jeffrey Black	Spring 1992
William Fitchen	Spring 1992
Barry Hibbs	Spring 1992
Barbara Mahler	Fall 1991
Gyorgy Marton	Summer 1992
Gabriela Mora	Summer 1992
Paula Noble	Spring 1992
Robert Roback	Fall 1991
Jeffrey Rubin	Spring 1992
Ben Sloan	Summer 1992
Mike Starcker	Spring 1992
Wan Yang	Spring 1992
Sarah Zellars	Summer 1992

Second Charles E. Yager
Professorship Grant

Gabriela Mora	Spring, 1992
---------------	--------------

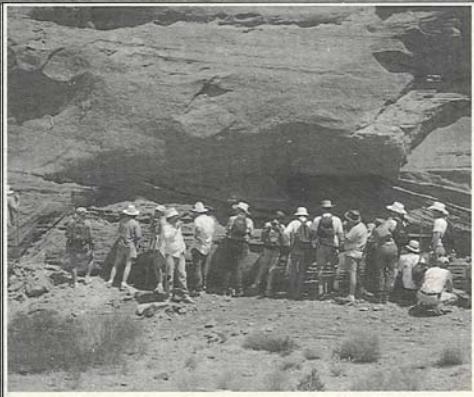
GEO 660

Field camp, Geo 660, broke with tradition this year and spent the last half of the camp in Arizona instead of in the Picuris Mountains near Taos, New Mexico. After a week of new projects in the Solitario Uplift of west Texas with Muehlberger and McBride, the group went to the usual areas in the Guadalupe and Sacramento Mountains with Land and Sprinkle. Then Helper and Bob Roback, a finishing PhD student, led the group through the Rio Grande rift along the Taos Plateau and through the Creede caldera. The group ended up north of Durango where they mapped Paleozoic sediments and structures. Afterwards, we met Kocurek in Page, Arizona, to study ancient eolian dune deposition and the interaction with the Carmel sea. Next the group went with Mosher and Helper to Chino Valley, Arizona, to map a large scale dome and basin structure in the Precambrian Mazatzal Quartzite that was unconformably overlain by Paleozoic sediments and Tertiary volcanics. The area was especially interesting in that the units were intruded by volcanic plugs containing lower crustal and mantle xenoliths.

Field camp this year was blessed by incredibly good weather. We encountered no rain, except at night in the Solitario Uplift, where it only served to cool the daytime temperature to a reasonable level. In the mountains of Colorado we had no sleet, hail, snow or lightening, just beautiful, warm sunny days. This warm spell did mean that we overheated in Arizona, where temperatures were over 100°. But the students quickly learned the benefits of starting work at daybreak and taking an early afternoon siesta or swim in Lake Powell to cool down before continuing work later in the day.

Nineteen students took the course this year. The small number plus the excellent weather made the incorporation of more camping easier. The group camped over two weeks this year, and with the help of new cooking boxes, the camping went smoothly. We had excellent TA's—Joe Reese and Colin Sumrall for the first half; Keith Klepeis, Bob Roback, and Doug Bowling for the second half that consisted mainly of camping. At the end of field camp after camping for a hot six days in a waterless desert field, the group celebrated finishing with a shower and a trip to a nearby Tastee Freeze. A great way to celebrate the end of another good year of field camp.

—Sharon Mosher



(top) Geology 660 field camp students at the Grand Canyon.
(above) Geology 660 field camp students studying eolian dunes in the Page sandstone with Gary Kocurek.



Student Speakers

Gerardo Aguirre-Diaz

PhD candidate,
"The Amealco Caldera, Trans-Mexican Volcanic Belt: Geology, Geochronology, and Geochemistry"

Denise Apperson

PhD candidate,
"Part 1. Mechanical Models of Compressional Fault-Related Folds,"
Part 2. "Tectonic Stress fields and Shallow Seismicity at Convergent Plate Margins"

David Awwiller

PhD candidate,
"Geochemical Redistribution in a Burial Diagenetic Mudrock Sequence, Texas Gulf Coast Paleocene-Eocene."

Mark Barton

PhD candidate,
"Permeability Characterization of fluvial-Deltaic Sandstones: Cretaceous Ferron Sandstone; E. Central Utah"

Stefan Boettcher

PhD candidate,
"Investigation of the field relationship between contractile and extensional structures in the Maria Fold and Thrust Belt, Southwestern U.S. Cordillera"

Christopher Brochu

MA candidate,
"Ontogeny of the Postcranium in Crocodylomorph Archosaurs"

Cesar Cainelli

PhD candidate,
"Sequence Stratigraphy, Canyons, and Gravity Mass-flow Deposits of the Piaçabuçu Formation, Sergipe-Alagoas Basin, Brazil"

Chris Caran

PhD candidate,
"Bottomless Lakes, Chaves Co., New Mexico: Groundwater-sustained perennial lakes in karstic collapse-chimneys with diagenetically unstable algal-carbonate fill."

Steve Cardimona

PhD candidate,
"Analysis of Short Period P-wave Coda for Upper Mantle Structure."

Julian Castro

MA candidate,
"Reservoir Characterization and Modeling of the Waha Field, Bell Canyon Formation, West Texas"

Carlotta Chernoff

Bachelor of Sciences aspirant
"A deformational history of the PeidraLumbre region in the western Picuris Range, New Mexico"

Dickson Cunningham

PhD candidate,
"Strike-Slip Faults in the Southernmost Andes and the Development of the Patagonian Orocline"

Linda Davis

PhD candidate,
"Origin of Minettes at Two Buttes, Colorado"

Carl Fiduk

PhD candidate,
"Evolution of the Continental Slope in the Northwestern Gulf of Mexico."

Bill Fitchen

MA candidate,
"Sequence Stratigraphy and Facies of Lower Leonardian Platform Margin Outcrops, Sierra Diablo, West Texas: Rediscovery of a Classic Exposure"

Nina Harun

PhD candidate,
"Diagenesis and Origin of Microporous Chert in the Ivishak Sandstone; North Slope, Alaska"

Franz Hiebert

PhD candidate,
"Environmental Devastation Resulting From the Persian Gulf War: An Eyewitness Account."

Franz Hiebert

PhD candidate,
"Microbial Control of Mineral Weathering in Organic-rich Groundwater: Some Experimental fieldwork"

Barry Hibbs

PhD candidate,
"Numerical Simulation of Ground water flow in the Colorado River Alluvial Aquifer Between Austin and Smithville, Texas"

Tom Hoak

PhD candidate,
"Detailed Fault Kinematics and Tectonic Evolution of the La Spezia Graben, Northern Apennines"

Tim Hoar

MA aspirant,
"Satellite Based Observations of Atmospheric Effects on the Sea Surface"

Fred Holzmer

MA candidate,
"Physical and Chemical Hydrogeology of a Redeveloping Groundwater System at a Reclaimed Lignite Surface Mine, East Texas"



AAPG/USGS SPRING TRIP TO BIG BEND

BY JENNIFER BISHOP

In March, with the generous funding provided by the Geology Foundation, the USGS/AAPG student groups organized a Spring Break field trip to Big Bend National Park. Ten undergraduates and one graduate student, Rich Ketcham, participated. In addition to relaxing among the beautiful scenery, the purpose of the trip was to observe the variety of lithologies composing the peaks, ridges, and canyon walls of the park, and, in turn, gain an understanding of the geologic processes and events that produce these features. Dr. Muehlberger presented the group with an excellent slide show overviewing the regional geology and special points of interest within the park.

At Big Bend, the group spent the first two of six days camping at Tornillo Creek. The scenic location, with the Elephant Tusk and the Siena Del Carmen distinctly in view, is an excellent spot for observing sedimentary structures such as crossbedding of gravel and sands, graded bedding, and pebble imbrication. The students also examined the well-defined contact between the beautiful, iron stained clay of the Pen Formation and the Inoceramus bearing limestone of the Boquillas Formation, both of which crop out along one side of the creek. The melon-sized, carbonate concretions within the orange and brown clay were especially interesting.

For the next few days the campers split into two groups. One party embarked on a three day backpacking trip into the Chisos Mountains, hiking around the North Rim of the Basin. The other group opted to enjoy some of the more easily accessible areas of the park. Among the most enjoyable activities were the hikes through Pine Canyon and Boquillas Canyon. Pine Canyon exhibits a beautiful panorama of multicolored volcanic rocks among bush vegetation and ends in a trickling waterfall down a steep cliff face. The Boquillas Canyon trail, through bamboo and fine, Rio Grande sands, displays a variety of geologic features, from well exposed faults cutting the canyon's limestone walls to rounded pebbles representing all of the rock types within the park.

Outside the park the group took a ride to the town of Terlingua to visit the Terlingua Trading Company and the abandoned Chisos Mine. Nice specimens of cinnabar and multi-colored calcite were collected. Following Tornillo Creek, the remaining nights were spent camping along the Rio Grande.

The field trip was a good experience for everyone who took part. It not only was a fun and educational experience, but also provided an opportunity for people to become better acquainted.

STUDENT SPEAKERS

Kyle Kirschenmann

MA aspirant,

"Geochemical Controls on High Explosives Migration Through Soils at the Pantex Plant, Amarillo, Texas"

Glenn Klimchuk

MA aspirant,

"Rocks, Guns, and Coconuts: Geology in PNG"

Radim Kolarsky

MA candidate,

"Late Cretaceous-Cenozoic Tectonics and Sedimentation in Southern Central America: Costa Rica and Panama"

Radim Kolarsky

MA candidate,

"Cenozoic Tectonostratigraphic Basin Evolution: Panama and Costa Rica"

Khib Kugler

MA aspirant,

"Seismic Structure and Stratigraphy of the Aure Fold and Thrust Belt, Papua, New Guinea"

Tung-yi Lee

PhD candidate,

"Depositional Systems and Tectonic Evolution of the Tainan Basin, Offshore Southwest Taiwan, and Plate Reconstruction of Southeast Asia"

T.A. (Mac) McGilvery

PhD aspirant,

"Tectonically Controlled Depositional History of the Atoka-Desmoinesian Interval, Arkoma Basin, Midcontinent, USA"

Trey Meckel

MA candidate,

"High-frequency genetic stratigraphy of the downdip Eocene Yegua Formation, Texas Gulf Coast"

STUDENT SPEAKERS

Heidi Mertig

MA aspirant,
"An Introduction to the
Dom Copper-Skarn
Deposit, Irian Jaya, Indonesia"

Jim Moore

MA aspirant,
"Tomographic Inversion for Mantle
Heterogeneity Beneath the Himalaya"

Mary Lynn Musgrove

MA aspirant,
"Origin, Evolution and Mixing of Saline
and Dilute Groundwaters in a Regional
flow System, Midcontinent USA"

Selichi Nagihara

PhD candidate,
"Heat flow Measurements Over Salt
Structures in the Texas Continental
Slope, Gulf of Mexico: Instrumentation
and Basic Observations."

Paula Noble

PhD candidate,
"Biostratigraphy and Paleoecologic
Considerations of the Caballos
Novaculite and Tesnus Formation,
Marathon Uplift, West Texas"

Paul Nyffenegger

PhD candidate,
"Tectonic lineations on Ariel and the
mechanics of icy lithospheres"

Lee Potter

PhD candidate,
"Trace element variation along
strike in the Eastern Alkalic Belt,
Trans-Pecos Magmatic Province,
Texas: An Introduction"

THE PAPUA NEW GUINEA EXPERIENCE...

Using funds obtained from the UT Geology Foundation and various funding associations, fellow graduate student, Glenn Klimchuk, and I visited Papua New Guinea earlier this year as part of our Master's theses research. In order to assist us in constraining, in time and style, the deformational events responsible for the formation of Aure fold-and-thrust belt, we examined outcrops of Miocene and younger sedimentary strata exposed along the coastline of the Gulf of Papua. Many of these exposures had not been visited by a geologist in years, and some had not been previously seen by a geologist. We observed spectacular examples of thrusting, folding and faulting at all scales, mass wasting, carbonate buildups exhibiting all reef facies, and exposed Holocene coral terraces, all of which were seen amidst the spectacularly varied flora and fauna. While hiking to the outcrops we met many natives who often laughed at us for digging in the rocks, but were nevertheless very interested in our activities. In fact, our field lunches often consisted entirely of various fruits given to us by these same "laughing" natives who were returning from their jungle gardens.

In order to access these rock exposures we had to first seek permission from the local tribal elders who own the land. Thus, we befriended several chiefs who usually attended us while on their land and who, upon returning from the day's work, fed us: local cuisine, of course! Chief Momo and his family of Bereina village, the biggest village in the region and our base of operations, took us under their wing and escorted us wherever we went. Moreover, Chief Momo's eldest son's wife gave birth to a baby boy during our second day at Bereina. The Momo's christened this boy with a very unusual name for a native of the region, Glenn (after Glenn Klimchuk)! Glenn Momo, being the firstborn male of the Chief's eldest son, will one day become the chief of Bereina. Chief Momo and his family entertained us grandly with dinners in our honor, a village dance, a movie ("The Gods Must Be Crazy") projected on the wall of his hut, and he even invited us to participate in a black magic ceremony! We are still in touch with the Momo family and baby Glenn is doing well.

— Khib Kugler

STUDENT SPEAKERS



Photos: (top left) Glenn Klimchuk, and local guide, Ahi, hiking through the jungle near the village of Ere-Ere. The women are returning from hillside gardens. These women usually provided us with free lunches of watermelons and mangos. (bottom left) Khib Kugler dances with local villagers at a small "sing-sing" in the village of Bereina. (top right) Khib Kugler and Glenn Klimchuk, finishing lunch with Chief Cooper (grey hair, center) and children of the village Meauri. Chief Cooper was named after movie star, Gary Cooper. (middle right) Glenn Klimchuk, with Joe Momo, his wife, Patricia, and their baby boy, Glenn (named after Glenn Klimchuk). Glenn Momo will one day succeed Joe to become the Chief of Bereina. (bottom right) University of Papua students, John Waas and Paul Kamakande, inspecting the Kaiuku limestone exposed on Yule Island.



Robert Roback

PhD candidate,

"Late Paleozoic Tectonic Evolution of the Kootenay Arc, Northeast Washington and Southeast British Columbia: Regional Implications"

Philip Rowell

PhD candidate,

"Structural and Stratigraphic Evolution of the Celtic Sea Basins, Offshore Ireland"

Mike Starcher

MA candidate,

"Sequence Stratigraphic Analysis of the Hueco Group, Northern Sierra Diablo, West Texas"

Jim Simmons

PhD candidate,

"Practical Seismic Inversion"

Mehmet Tanis

MA candidate,

"A Comparison of Migration Methods in Laterally Varying Media"

Anne Weil

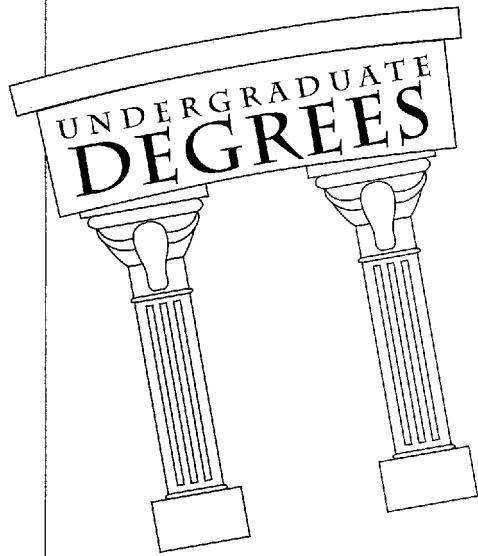
MA candidate,

"Multituberculate Mammals of the Cretaceous Aguja Formation, Brewster County, Texas"

Matt Wickham

PhD candidate,

"Hydrogeologic Characterizations of an Alluvial Aquifer, Ellis County, Texas"



Bachelor of Arts

August 1991

Krudewig, Lou W.
Tulley, Hillary

December 1991

Eclarinal, Louisa B.
Guevara, Aura Y.
Smithhart, William G.
Truesdell, Lisa A.

May 1992

Botello, Trinidad Jr.
Hine, John D.
Mallory, Philip F.
Murphrey, Julia A.
Sparlin, Lisa E.

Bachelor of Science

August 1991

Bauer, Patricia N.
Bhujang, Krishnaveni
Bowen, Donald A.
McCoy, Mark T.
Newby, Edward R.
Peloquin, Annette R.
Teas, Philip A. *

December 1991

Blass, Jeff L.
Brock, Laura L.
Davis, Jeffery R.
Johnson, Stuart G. **
McDonald, Mitchell E.
McKinnon, Temple E.
Muelhoefer, Todd J.
Priday, Beth
Ritcheson, Wayne H.

May 1992

Bergeron, Karen K. ***
Chernoff, Carlotta B. *
Lambert, Bradley J.
Lee, Cynthia A.

* With Honors

** With High Honors

*** With Highest Honors

Master of Arts

August 1991 (4)

Bland, Kathym L.

B.A., Geology, 1985, Rice University
Crystallization Pathway of the Katemcy
Granite, Llano Uplift, Central
Texas.

Supervisor: Leon E. Long

Committee Members: Daniel S. Barker,
Hanna Nekvasil

Cogswell, Thomas L.

B.S., Geological Sciences, 1984,
The University of Texas at Austin
Depositional and Diagenetic Controls
on Gas Production from Frio
(Oligocene) Sandstones at Monte
Christo field, Hidalgo County, Texas.
Supervisor: William L. Fisher / Noel Tyler
Committee Member: Earle F. McBride

Gabaldon, Gilbert

B.S., Geological Sciences, 1986,
The University of Texas at Austin
A Hydrogeologic Characterization of the
Presidio Bolson, Presidio County,
Trans-Pecos, Texas.

Supervisor: John M. Sharp, Jr.

Committee Members: Philip C. Bennett,
William R. Muehlberger

Stapleton, Colleen P.

B.A., Geology, 1986, Macalester College
Igneous-Textured Mafac Xenoliths
from the Sullivan Buttes Latite in
Chino Valley, Arizona.

Supervisor: Douglas Smith

Committee Members: Daniel S. Barker,
Sharon Mosher

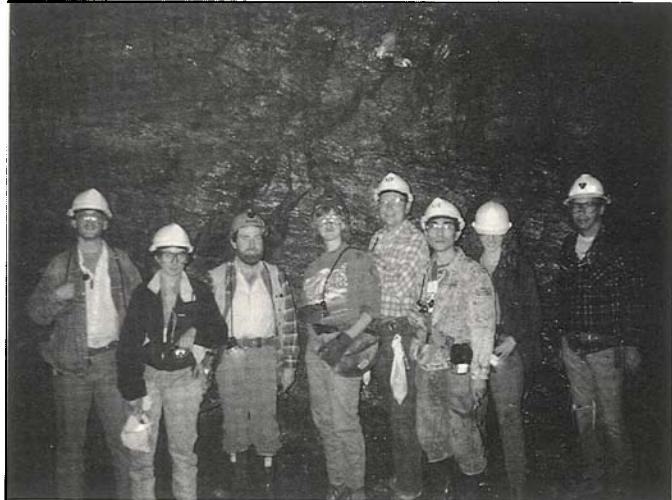
December 1991 (7)

Beckley, Lila M.

B.S., Geological Sciences, 1989,
The University of Texas at Austin
Recent Sedimentation and Shallow
Salt Movement, Northwest Gulf
of Mexico Continental Slope.

Supervisor: Richard T. Buffler
and Earl W. Behrens

Committee Member: John G. Sclater



Rich Kyle's graduate class on tectonics, magmatism and mineralization in the southwestern United States in appropriate underground attire at the Pinos Altos copper mine near Silver City, New Mexico.

DeBalko, David A.

B.S., Geology, 1989, University of Southern California
Seismic Stratigraphy and Geologic History of Upper Middle Jurassic through Lower Cretaceous Rocks, Deep Eastern Gulf of Mexico.
Supervisor: Richard T. Buffler
Committee Members: Millard F. Coffin, Michelle A. Kominz

Mahler, Barbara J.

BMus, 1981, Boston University
A Geomorphic, Hydrologic, and Geochemical Study of the Hamilton Creek Watershed, Travis County, Texas.
Supervisor: Philip C. Bennett
Committee Members: John M. Sharp, Jr., David Maidment, Raymond Slade, Jr.

Phillips, Nestor D., II

B.S., Geology, 1983, The University of Houston
Refined Subsidence Analysis as a Means to Constrain Late Cenozoic Fault Movement, Ventura Basin, California.
Supervisor: Martin B. Lagoe
Committee Members: Michelle A. Kominz, William R. Muehlberger

Sumrall, Colin D.

B.S., Geology, 1989, Arizona State University
Functional Morphology in Late Paleozoic Edrioasteroids and its Taxonomic Implications.
Supervisor: James T. Sprinkle
Committee Members: Timothy Rowe, Martin Lagoe

Wickham, Matthew K.

B.S., Geological Sciences, 1985, The University of Texas at Austin
Hydrogeology and Water Resources of an Unconfined Aquifer in a Pleistocene Terrace Deposit, Ellis County, Texas.
Supervisor: Philip C. Bennett and Alan R. Dutton
Committee Member: John M. Sharp

Williams, Thomas A.

B.S., Geological Sciences, 1986, The University of Texas at Austin
Stratify: A Computer Simulation of Clastic Stratigraphic Sequence Development.
Supervisor: William E. Galloway
Committee Members: Michelle A. Kominz, Martin Lagoe

May, 1992 (11)

Brewton, James G.

B.S., Geological Sciences, 1983, The University of Texas at Austin
Facies Architecture, Petrophysical Attributes, and Compartmentalization of Oil Reservoirs within Complex Shorezone/Deltaic Systems in the Upper Wilcox at the Lake Creek field.
Supervisor: William E. Galloway and Noel Tyler
Committee Member: Milo M. Backus

Buehring, Robert L.

B.S., Geological Sciences, 1988, The University of Texas at Austin
Paleoenvironments, Sedimentary Sequences, and Structural History of the Upper Miocene and Pliocene Etchegoin and San Joaquin Formations, Southwest Margin San Joaquin Basin, California.
Supervisor: Martin B. Lagoe
Committee Members: William E. Galloway, William R. Muehlberger

Castro, Julian J.

B.S., Geology, 1979, Universidad Central de Venezuela
Reservoir Characterization and Modelling of Deep-Water Sandstone Reservoirs of the Bell Canyon Formation, Wahibafield Delaware Basin, West Texas.
Supervisor: William L. Fisher and Noel Tyler
Committee Member: William E. Galloway

Denny, Walter M.

B.S., Geology, 1988, Oklahoma University
Seismic Stratigraphy and Geologic History of Mid-Cretaceous Through Cenozoic Rocks, Southern Straits of Florida.
Supervisor: Richard T. Buffler
Committee Members: Martin B. Lagoe, James Austin

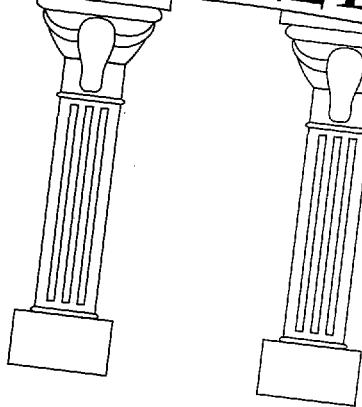
Erwin, Mark E.

B.S., Geology, 1985, University of Miami
Rb-Sr Dating of Mg-Rich Clay, Palo Duro Basin, Texas.
Supervisor: Leon E. Long
Committee Members: Philip Bennett, Stephen Fisher

Habuki, Shinho

B.S., Geology, 1983, Tohoku University
Diagenesis of Shallow Miocene Sandstone (Oakville Formation), Live Oak County, Texas.
Supervisor: Earle F. McBride
Committee Members: Lynton S. Land, William E. Galloway

GRADUATE DEGREES



Hart, Margaret A.

B.S., Geological Sciences, 1983, The University of Texas at Austin
The Hydrogeology of the Davis Mountains, Trans-Pecos Texas.
Supervisor: John M. Sharp
Committee Members: Charles Kreitler, William R. Muehlberger

Huelsnbeck, John P.

B.A., Paleontology, 1988, University of California-Berkeley
Oyster Phylogeny: Fossils and Confidence.
Supervisor: James T. Sprinkle
Committee Members: Timothy Rowe, David Hillis

Kolarsky, Radim A.

B.S., Geology, 1989, George Washington University
Late Cretaceous-Cenozoic Tectonics and Sedimentation in Southern Central America: Costa Rica and Panama.
Supervisor: Richard T. Buffler
Committee Members: Paul Mann, William R. Muehlberger

Tybuski, Stacey A.

B.A., Geology, 1988, Bryn Mawr College
Deformational Mechanisms along Active Strike-Slip Faults: Seamarcoii and Seismic Data from the North America-Caribbean Plate Boundary.
Supervisor: William R. Muehlberger
Committee Members: Mark Cloos, Paul Mann

Winkler, Hugh V.

B.S., Applied Geophysics, 1980, Georgia Institute of Technology
Some Strategies for Nonlinear Inversion
Supervisor: Paul Stoffa
Committee Members: Clark R. Wilson, Joe Phillips

Doctor of Philosophy

August 1991 (2)

Cambois, Guillaume

Diplome, Ingenier, 1987,
Ecole Polytechnique
Surface-Consistent Processes in the Log-
Fourier Domain: Deconvolution, Static
Corrections and Amplitude Balancing.
Supervisor: Paul L. Stoffa
Committee Members: Milo M. Backus,
Clark R. Wilson, Stephen P. Grand,
Henry Brysk, Jan D. Garmany

Walters, Robert D.

B.A., Geology/Physics, 1982,
Rice University
M.A., Geological Sciences, 1985,
The University of Texas at Austin
Emplacement History of an Allochthonous
Salt Structure from 3-D Seismic
Reflection Data, Northern Gulf
of Mexico.
Supervisor: Milo M. Backus
Committee Members: Clark R. Wilson,
John M. Sharp, Jr., Bok S. Byun,
Dale S. Sawyer

December 1991 (5)

Cander, Harris S.

B.A., Geology, 1982, Colgate University
M.S., Geology, 1985,
S.U.N.Y. at Stony Brook
Dolomitization and Water-Rock Interaction
in the Middle Eocene Avon Park
Formation, Floridan Aquifer.
Supervisor: Lynton S. Land
Committee Members: Jay L. Banner,
John M. Sharp, Don G. Bebout,
Anthony F. Randazzo

Dworkin, Stephen I.

B.A., Geology, 1981, Albion College
M.S., Geology, 1983,
Michigan State University
Dissimilar Diagenetic Histories of Smack-
over Sandstones, Gulf of Mexico, USA
Supervisor: Lynton S. Land
Committee Members: Robert L. Folk,
Earle F. McBride, Shirley P. Dutton,
Clyde Moore

Havholm, Karen G.

B.A., Geology, 1976, College of Wooster
M.A., Geological Sciences, 1986,
The University of Texas at Austin
Eolian Event Stratigraphy: Theory and Appli-
cation to the Middle Jurassic Page
Sandstone, Colorado Plateau, U.S.A.
Supervisor: Gary A. Kocurek
Committee Members: Earle F. McBride,
Timothy B. Rowe, Ronald C. Blakey,
Fred Peterson

Lugo Lobo, Jairo M.

Engineer, Geology, 1982,
Universidad Central
Cretaceous to Neogene Tectonic
Control on Sedimentation:
Maracaibo Basin, Venezuela.
Supervisor: Amos Salvador
Committee Members: Leonard F. Brown Jr.,
William P. Mann, William E. Galloway,
William R. Muehlberger

Meneses-Rocha, Javier

B.S., Geology, 1976, Universidad
Nacional Autonoma de Mexico
M.A., Geological Sciences, 1985,
The University of Texas at Austin
Tectonic Development of the Ixtapa
Graben, Chiapas, Mexico.
Supervisor: William R. Muehlberger
Committee Members: Amos Salvador,
Keith Young, William P. Mann,
Burke Burkart

May 1992 (6)

Apperson, Karen D.

B.S., Geology, 1987,
The University of Texas at Austin
1. Tectonic Stress fields and Shallow
Seismicity at Convergent Plate Margins.
2. Numerical Models of Compressional
Fault-Related Folds.
Supervisor: Mark Cloos
Committee Members: Stephen P. Grand,
Eric B. Becker, Ron Shreve,
William R. Muehlberger

Awwiller, David N.

B.A., Geology, 1986,
Case Western Reserve University
Geochemistry, Mineralogy, and
Burial Diagenesis of Wilcox Group
Shales, Texas Gulf Coast Basin.
Supervisor: Lynton S. Land
and Leon E. Long
Committee Members: Earle F. McBride,
Stephen Fisher, David R. Pevear

Cainelli, Cesar

B.S., Geology, 1978, Universidade
Federal do Rio Grande do Sul-Brasil
Sequence Stratigraphy, Canyons, and
Gravity Mass-flow Deposits in the
Piacabucu Formation, Sergipe-
Alagoas Basin, Brasil.
Supervisor: Richard T. Buffler
Committee Members: William E. Galloway,
Leonard F. Brown, Jr., James A. Austin,
Antonio M. Figueiredo

Cardimona, Steven J.

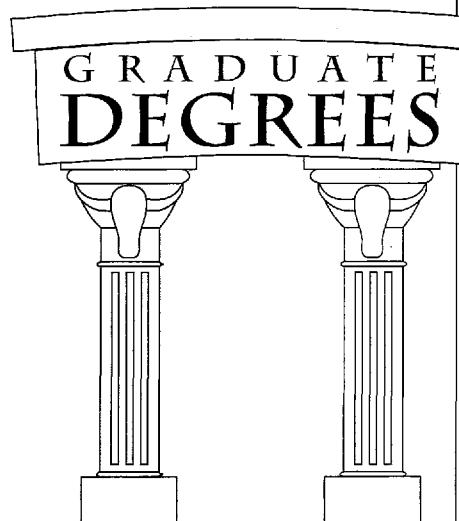
B.S., Geology, 1985,
The University of Wisconsin-Madison
Studies in Seismic Scattering
Supervisor: Clark R. Wilson
Committee Members: Paul L. Stoffa,
Milo M. Backus, Jan D. Garmany,
Fumiko Tajima

Nagihara, Seiichi

B.S., Geology, 1985,
Chiba University-Japan
M.S., Geology, 1987,
Chiba University-Japan
New Studies in Marine Heat flow
Instrumentation and Observations
from the Salt Structures on the Texas
Continental Slope, Gulf of Mexico.

White, Leslie A.

B.A., Geology, 1985, The University
of California-Santa Barbara
Thermal and Unroofing History of the
Western Transverse Ranges,
California: Results from Apatite
fission Track Thermochronology.
Supervisor: Mark Cloos
Committee Members: Martin B. Lagoe,
Thomas Davis, Paul Green,
William R. Muehlberger



STUDENT HONORS & AWARDS

Jennifer Bishop won the Undergraduate Petrography Contest, which carried a cash prize of \$250.

Stuart Johnson was one of six undergraduates in the College of Natural Sciences to be named as a Dean's Honored Graduate to recognize top graduates for excellence in class work, research, and service to the College.

Scott Rubin, undergraduate, was awarded a \$1,000 scholarship from the Houston Geological Society. David Hicks, Master's student, received a \$2,500 scholarship from the Houston Geological Society.

Livia Squires received an award of merit for her paper "Tomographic Inversion for Velocity Plus Statics" from the Society of Exploration Geophysics.

Sally Zellers received the Promising Young Geoscientist Award from the Society of Sedimentary Geology for 1991.

Cesar Cainelli received an award for the Best Poster presentation from the Society for Sedimentary Geology for his paper entitled "Active processes on a mixed clastic-carbonate system, Brazilian Shelf Margin."

Denise Apperson won the Houston Geological Society Best Student Award.

Outstanding speakers in Geo 193, Technical Sessions, were **Paula Noble** for the fall semester, and **Mary Lynn Musgrove** (Master's) and **Denise Apperson** (PhD) for the spring semester.

Amoco outstanding teaching assistant awards went to **Norman Van Broeckoven** for introductory geology, and to **Bob Roback** for advanced and graduate teaching.

Jim Rougvie won the Graduate Petrography Contest with a cash prize of \$1,000.

Keith Klepeis was selected as the W. Gordon Whaley Fellowship recipient for the 1992-93 academic year. This fellowship is the only endowed fellowship specifically dedicated to the Graduate School.

Chris Swezey learned in the spring of two exciting honors. He received a Fulbright Grant for the 1992-93 academic year to conduct research for his dissertation at the Université Louis Pasteur in Strasbourg, France. Chris also received a Smithsonian Institution Graduate Student Fellowship for the summer of 1992.

Investigations in the Maria Fold and Thrust Belt of Southeastern California and West-central Arizona

Barbara Marin and I recently completed field seasons which involved detailed mapping, structural and metamorphic petrology, and fission track thermochronology in the Dome Rock and Granite Wash Mountains of west-central Arizona. Our objective is to assess the kinematic history of Mesozoic contractile deformation and subsequent exhumation of mid-crustal metasedimentary and metagneous rocks. Sharon Mosher is supervising our field studies, and Mark Cloos is supervising fission track thermochronologic studies.

The areas are located in the southern Basin and Range province and have a low desert climate and fauna. Field work is best conducted in the winter months since summer temperatures commonly exceed 110 degrees Farenheit. We frequently sighted rattlesnakes and bighorn sheep on the cactus-covered cliffs of this region. The areas are easily accessible with high clearance pickup trucks, but are far enough from towns so that a cot or tent can be set up just about anywhere. The exposure of rock is excellent, allowing complex refolded fold patterns to be delineated on a km-scale.

— Stefan Boettcher



Geology 380N (seismic/sequence stratigraphy) class field trip to West Texas/New Mexico to study Permian outcrop sequence stratigraphy. El Capitan and Reef Margin are in the background with the basinal Delaware Mountain group sands in the foreground.

Placement Season 1991-92

by Judy Lipscomb

Companies recruiting in Geological Sciences in 1991-92:

Amoco Production Company

Arco Oil and Gas Company

Arco Exploration

& Production Technology

BP Exploration

Chevron U.S.A.

Chevron Development & Services

Conoco

Digicon Geophysical Corporation

EG&G Idaho, Inc.

ERM Southwest

Exxon Production & Research

Exxon U.S.A.

Marathon Oil Company

Mobil Research & Development

Mobil Oil Company

Oryx Energy

Phillips Petroleum

Radian Corporation

Shell Oil

Texaco Inc.

Union Pacific Research

Unocal (Domestic)

Western Geophysical

Roy F. Weston

Woodward Clyde Consultants

The Geological Sciences placement office hosted 25 companies in 1991-92. There were 73 students signed up with the Geological Sciences Placement Office including 34 BA/BS students, 19 Masters students and 20 PhD students. Over 70% of these students were seeking permanent employment while the remaining 30% were applying for summer work. A total of 362 interviews were conducted in the fall and spring of this recruitment season.

Between interview schedules and paperwork, our recruiters often took time to schedule presentations and host orientations. Some highlights this year included: Marty Perlmutter's seminar on "Cyclostratigraphy" to the undergraduate student USGS and AAPG chapters (Texaco, arranged by Mark Gallagher, recruiter); Steve Wright's presentation at the soft rock seminar (Chevron); John Garza's presentation to the exploration geophysics class, GEO 465K (Mobil Oil); and a BP reception for faculty at the Alumni Center by Bob Ruggierro (BP Exploration). Bob has recruited in our department for three years and now turns the job over to Joseph DeVay (BP Exploration). We would like to acknowledge all the companies and their recruiters who visited the Department of Geological Sciences during the 1991-92 placement season.

A special thank you goes out to all the "Friends of the Placement Office": Amoco Production Company, Arco Oil and Gas, BP Exploration, Chevron Companies, Mobil Oil, Oryx Energy Company, and Phillips Petroleum Company. Donations to the placement office enable us to provide resources for general office expenses such as long distance charges, faxes, and the production/mailing of the Geological Sciences resume book, due to be mailed in September. Due to a generous contribution from Amoco Production Company, a Macintosh Plus will be set up in the placement office for use by geological sciences students preparing resumes and company correspondence. The new computer will provide access to the specific resume software used in the College of Natural Sciences career placement office, allowing greater exposure to companies interviewing at the College of Natural Sciences. Our goal for the future is to obtain software for creating a database of Geological Sciences student resumes.



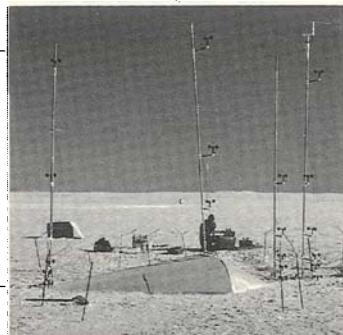


1

DEPARTMENT NEWS...



2



3



4



Staff: from left to right (front row) Jeff Horowitz, Andrea Black, Casia Wolfson, Ann Page, (second row) John Ready, Eddie Wheeler, Rulf Daniels, Kimberly Kurtz, Donna Precht, (top row) Kathy Yule, Betty Kurtz, Bill Woods, Joyce Best, Rosemary Brant, Paul Desha, Joe Jaworski, (not pictured) Todd Housh, Scott Schroeder and Greg Thompson

Administrative Staff Listing...

Joyce Best
Administrative Associate

Andrea Black
Accounting Clerk III

Rosemary Brant
Senior Technical Secretary

Paul Desha
Senior Procurement Officer

Betty Kurtz
Administrative Assistant

Kimberly Kurtz
Office Assistant

Ann Page
Administrative Assistant

Donna Precht
Student Development Specialist II

John Ready
Administrative Assistant

Scott Schroeder
Accounting Clerk III

Bill Woods
Executive Assistant

Kathy Yule
Administrative Assistant

Staff

CAPTIONS FROM PREVIOUS PAGE...

1. Jay Banner overlooks the 195ka coral reef terrace at Deebles Point (east coast of Barbados).

2. Gary Kocurek, Andy Frank and Mary Crabaugh set up a monitoring station for wind conditions at White Sands, New Mexico. Data on wind speed and direction are fed to a data collector (housed in the mailbox) and the unit is powered by a solar panel.

3. PhD student Andy Frank sets up anemometer staff for recording airflow over a model dune (alkali flats of White Sands, New Mexico).

4. Gary Kocurek, Andy Frank and Chris Swezey drilling at White Sands, New Mexico.

Paul Desha received a longevity award for 10 years of service.

Dennis Trombatore won the Librarian Excellence Award given by the University of Texas General Libraries. The award recognized professional librarians who have made distinguished contributions to the library and the University in fulfilling their job responsibilities at a level of true excellence.

Donna Precht received the Texas Excellence Advising Award given by the Texas Exes and University Student Councils. She also received the College of Natural Sciences Staff Excellence Award.

Awards

On a Personal Note...

Milo Backus was the May 1992 recipient of the Offshore Technology Conference Individual Achievement Award for contributions to development of digital and 3-D seismic systems in geophysical exploration, and for academic activities at UT.

Dan Barker has been teaching graduate courses in igneous petrology and analytical techniques. Last fall he attended the annual meeting of the Geological Society of America in San Diego, and an international conference on active volcanoes and risk mitigation in Naples, Italy. The latter was his second visit to Vesuvius and the Phlegraean Fields; the first, in 1983, was solo, but this time he had the advantages of expert guidance. He also spent two days looking at volcanic rocks on the island of Ischia, and five days on a post-meeting field trip examining weird igneous rocks in Umbria. This summer's activities include a vacation visiting daughter Molly in Maine, a meeting and field trip to look at carbonatites in South Africa, and the International Geological Congress in Japan, with pre- and post-congress field trips in the volcanic areas of Hokkaido and the



Fuji-Hakone-Izu-Oshima district. The Japanese experience will provide much new material for the senior-level volcanology course Dan plans to teach for the fourth time in the spring of 1993. Dan received the 1991 Faculty Teaching Excellence Award in The College of Natural Sciences in recognition of his dedication to teaching.

Dick Buffler continues to enjoy his dual role at UT, which involves conducting research programs with the Institute for Geophysics and teaching the sequence stratigraphy graduate course for the Department. Both involve working with many great graduate students, including a large international contingent from places like China, Taiwan, Hungary, Czechoslo-

vakia, Australia, Venezuela, Brazil, Trinidad, Indonesia, and Oklahoma. The

most exciting news involves his wife, Pat, who left UT at Houston and took a new job as Dean of the School of Public Health at the University of California, Berkeley, beginning January 1, 1992. The commuting now will be a little longer, but Berkeley is a great place to visit and Dick should earn lots of frequent-flyer miles.

In early June Fred and Evelyn Bullard were invited by Scotty Holland, chairman of the UT Geology Foundation Advisory Council, to be honored guests at a private showing of the film "Ring of Fire" at the Houston Museum of Natural Science. (Mr. Holland is also a director of the museum.) Fred's opinion afterward was that viewing the film was better than "being at the site of a volcanic eruption."

The project reported in last year's *Newsletter*, about preserving Fred's film on Parícutin Volcano, is making progress. A video tape of the film was made last year, and now Fred's lecture accompanying the film is being added. A tape of a program that Fred gave in 1967 at Ball State University was located and will be coordinated with the video tape. The plan is to re-create the program on Parícutin Volcano, which Fred gave many times to his students and to organizations throughout the country.

In January, Bill Carlson concluded his tenure as the Department's graduate advisor. A few weeks later he was surprised and touched to receive an award of appreciation from the graduate students for his efforts on their behalf. He continued to serve throughout the year as an associate editor for *American Mineralogist*, on the editorial review board of the *Journal of Metamorphic Geology*, and as a faculty advisor and seminar instructor for the Dean's Scholars honors program in the College of Natural Sciences. The travel highlight of the year was his participation in a conference on "Stable Isotopes in Metamorphic Petrology" in Edinburgh, Scotland, in early April, which enabled him to visit some classic geologic localities in the Scottish Highlands and some classic distilleries there as well.

Steve and Pat Clabaugh spent a quiet year at their home on the Pedernales. Most of the action was provided by children and grandchildren who visited and vacationed with them. They made a trip to Virginia for the 90th birthday celebration of Pat's

brother-in-law last October during the peak season of fall color, and visited historic and scenic sites from the Blue Ridge to Jamestown.

This summer between visits from their Oregon and Canadian families, they plan to slip away to the British Virgin Islands for a week of tropical relaxation.



A full year of research and travel by Ian Dalziel, including both the Tierra del Fuego visit with graduate students Dickson Cunningham and Keith Klepeis, featured in this *Newsletter*, and an icebreaker cruise through the totally uncharted waters of the Amundsen Sea, culminated in the award of the Murchison Medal for "acclaimed and authoritative contributions to the geology of South America and Antarctica" by the Geological Society of London. Unfortunately, his wife Linda and children Kyle (8) and Kacie (5) will not be present at the award ceremony in London. But then Tierra del Fuego was much more fun anyway—and hopefully Bill and Sally Muehlberger will be present as Bill has to be in London checking the proofs of the tectonic map of North America.

January 1992 was very special for Marion and Ronald DeFord as Ronald's 90th birthday was celebrated at a supper-dance held in the ballroom of the new UT Alumni Center. Even though it was Super Bowl Sunday and was pouring rain, 244 friends and relatives came to dine and dance and toast the honoree. Former students Hugh Hay-Roe, Judge Finley, Morgan Davis Jr., Don Reaser, and Chock Woodruff were there, Frank Dougherty, Art Meyerhoff, and Jim Underwood sent best wishes, and Jim Quinlan and Guillermo Bustos came for a visit a week later.

The library is filling up and cataloguing has begun, using a McIntosh computer. It's very exciting seeing the progress being made.

The DeFords are still enjoying the music, drama, dance, and art that abound in Austin and Round Top. A most interesting evening was spent in May dining with Dr. Merlin Tuttle, founder of Bats International, and playing with his bat ambassador, Zuri, who feels like velvet when stroked.

The rains have done much for the flora and fauna at the DeFords' hilltop home. The grounds have never been so green and all the critters are in fine fettle, including NINE baby raccoons!



Dottie and Sam Ellison visited their son and his family in Atlanta, Georgia, twice during the school year. The last visit in June was to see their granddaughter, Stephanie D. Ellison, graduate from high school. Their oldest granddaughter, Barbara Ellison, is in Plan II at the University of Texas and in May was elected to Phi Beta Kappa.

The computer has been used, in their spare time, to form family trees for Sam and Dottie's families. Sam took a genealogy short course for six weeks and learned to use the Texas state genealogical library.

They were both greatly impressed by the excellent attendance of the members of the Geology Foundation on May 1, 1992.

Bill Fisher continued a number of national efforts over the past year, completing a term as president of the American Geological Institute in 1991 and assuming the position of president-elect of the American Institute of Professional Geologists in 1992. Bill currently serves as Councillor to the Geological Society of America and serves on several committees of the Society.

Bill serves on a number of advisory committees including the Secretary of Energy Advisory Board, the National Petroleum Council, the Outer Continental Shelf Advisory Board to the Secretary of the Interior, and the Advisory Council of the Gas Research Institute, and as Trustee for the Southwest Research Institute. At the state level, Fisher is Vice Chairman of the Texas Low-Level Radioactive Waste Disposal Authority Board of Directors and co-chairs the Outlook Committee for

the State of Texas Energy Policy Partnership, operated by the Texas Railroad Commission and Office of the Governor.

During the past year, Bill Fisher presented invited testimony to the U.S. Senate Finance Committee and the U.S. House Committee on Interior and Insular Affairs. Bill gave 30 invited lectures during the year including the Hearst Lecture at University of California at Berkeley. He was awarded the Ian Campbell Medal from the American Geological Institute and the Hollis D. Hedberg Award in Energy from the Institute for the Study of Earth and Man, Southern Methodist University.

Marge and Bob Folk spent a hot summer of 1991 in Austin, punctuated by a visit from their family in Alabama and a trip to Port Aransas. In September Bob went to Italy with L. S. Land, where they met Steve Johanson to enjoy Milano and proceeded to the scenic area of Triassic carbonates around Portovenere. Steve lost his way on the "Via dell'amore," but attempts to seduce Lynton into the "dolce vita" failed. Still, there is a lot of interesting carbonate petrology and geochemistry to be done there. Also, Bob re-created a new recipe, "Penne tre stagione d'aglio," inspired by a meal in La Spezia. Then, Land and he went to the Dolomieu conference at Ortisei, in the spectacular dolomite Alps of NE Italy. Bob was co-author on two papers, by UT grad students James Miller and Karen Carter, on the Portoro dolomites. They all enjoyed returning to bell'Italia even though Ortisei has heavy Germanic overtones. Last year Rick Major of the BEG (carbonate petrography and geochemistry) was Bob's Italian associate and they went to Viterbo to do some more sampling of the hot springs there which precipitate aragonite. They worked with Prof. Allen Pentecost, an English microbiologist/chemist who is a specialist in bacteria and travertines of the world. Rick found Viterbo to be a delightful medieval city and managed to see Venezia and Orvieto also.

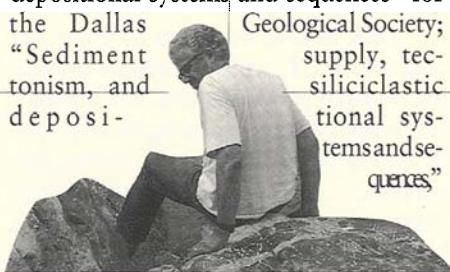
In October Marge and Bob went to Pennsylvania and West Virginia to see autumn leaves at their peak, give a talk at alma mater Penn State, and see family, friends, and old stomping grounds. In November Bob visited the Cathars and gave talks in Socorro and Albuquerque, New Mexico, and in January he lectured at Wichita University in Kansas. Marge continues the art class at Travis State

School with Martha Jonas. The Folks "weekend" at their cabin which has a new fountain and pools, and enjoy short side trips in Texas, to San Marcos, Columbus, and Burnet.

The past year has seen a number of notable events in the life of **Bill Galloway** and family. Opportunities for travel in the course of invited lectures took them from Waco to southern Australia, and in Australia they added a few extra days to tour the spectacular scenery of the Great Ocean Road and Shipwreck Coast. After absence from that country for a few years, it took

a little time to recover Bill's "Strine" vocabulary and eye for a good fish-and-chips shop, but a little applied research brought both back. His involvement with the Australian National Center for Petroleum Geology and Geophysics will likely provide further opportunities for linguistic and culinary, as well as geologic, research. Bill's trip to London for the Barbican Conference introduced him to the elegance of a formal English banquet in London's Guildhall, complete with the royal toast, trumpet fanfares heralding major events of the evening, a speech by a "type-section" British politician (who was roundly booed by the locals upon introduction), and ending with retreat played by the her Majesty's Coldstream Guards. The science was pretty good too; and this was the first meeting he's attended in years where speakers routinely finished on time! Preparing his paper for the *Transactions* volume required that he learn British spelling of words such as paleogeographic, demonstrating yet again the importance of knowing foreign languages.

Bill gave the following invited lectures during 1991-92: "Geologic framework of the Gulf Coast Cenozoic Basin" in a Geology of Texas seminar at Baylor University; "Excavation and filling of large submarine canyons," for the Department of Geology and Geophysics at the University of Houston; "Sediment supply—primary control on development of siliciclastic depositional systems and sequences" for the Dallas Geological Society; "Sediment tonism, and deposi-



a keynote lecture for the Geology of Energy Resources Section, and "Depositional Systems and Sequences," a short course, at the Eleventh Annual Australian Geological Convention in Ballarat, Australia; "Sequence stratigraphic and depositional framework of the Cenozoic fill, central and northern North Sea Basin," at the Fourth Conference on Petroleum Geology of Northwestern Europe, London; and "Depositional Systems and Sequences," at a seminar in Sequence Stratigraphy at



Stanford University.

Around Austin, Bill has spent inordinate time getting a house built (it's finally complete, they're moved in, and should be unpacked by 1994) and learning the ins-and-outs of being graduate advisor. Thanks to Ann Page, he's catching on. He's learned that the G.A. signs everything that doesn't move—practical necessity has reduced the Galloway signature to a four-letter word.

Claude Horton Sr., spends nearly all of his time with his wife, Louise, on their small ranch east of Georgetown. He is working on a biography of the French scientist, Pierre-Louis Moreau de Maupertuis (1698-1759), but he still has a lot of work to do. He visits the campus and the libraries frequently.

In October Michelle Kominz joined an Exxon and J. L. Wilson field trip to Monterrey and Saltillo, Mexico, where she learned the latest on the relation of high-frequency cyclicity to seismic stratigraphic concepts as well as learned about Texas/Mexico Mesozoic geology. She attended the G.S.A. annual meeting for her first trip to San Diego, speaking on periodicity of ancient cyclic sediments. She returned to San Diego a week later to talk on the causes of long-term sea-level variations to the Ocean Drilling Project panel on sea-level change held at the Scripps Institution of Oceanography, University of California at San Diego. She will return to Scripps in early June to give a visiting lecture on her work testing periodicity of Pleistocene deep-sea cycles as well as to sample cores for chemical analyses. Other meetings this summer will take Michelle to Calgary in June (annual AAPG convention) and to Kyoto in August (International Geological Congress). Between

these activities, she has found herself judging high school Science Fair projects, sitting on Women in Geosciences ad hoc panels, and regularly attending aerobics classes. She is getting used to the heat but who ordered all the rain this winter?

Rich Kyle reports a busy year of teaching and research in ore deposits geology. In addition to teaching the usual graduate course in economic geology, he taught a regional geology course focussing on the "tectonic, magmatic, and mineral-

ization history of the Southwestern United States." After the students "did their homework," they spent Spring Break on a field trip examining regional geology and ore deposits in Trans-Pecos Texas, New Mexico, and Arizona. Rich also taught Geology 335, a popular nonmajors course on the geology and mineral resources of Texas. He continues as the undergraduate advisor for the seventh year and reports that the undergraduate population remains stable at about 125 geological sciences majors.

Research continues on a wide variety of projects, including metal sulfide and industrial mineral deposits in salt dome cap rocks and in Jurassic carbonates of the Gulf Coast, copper-gold mineralization in the Ertsberg district in Irian Jaya, associated sulfide and phosphate concentrations in Proterozoic carbonates of Brazil, and regional studies of siliciclastic-hosted zinc-lead deposits in Alaska and China. Summer plans include field work in Indonesia, Alaska, Louisiana, and Tennessee. Rich continues to serve as the editor for North and South America for *Ore Geology Reviews*, an international journal in the field of ore deposits geology.

Brock and Brett advance as happy Montessori students who are active in Little League baseball as well as tennis and swimming. Linda continues as an editor for the *Journal of Chemical Education* and a writer with over 100 articles in local, regional, and international publications. In addition, she serves on the board of directors of Prevent Blindness and also has worked over 300 hours at Recording for the Blind. Brock and Brett, also volunteers at Recording for the Blind, have each worked 100 hours.

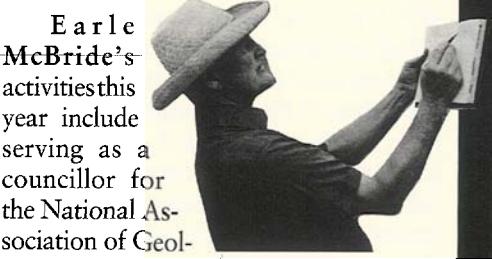
Martin Lagoe served as president of the North American Micropaleontologi-

cal Section (NAMS) of the Society of Economic Paleontologists and Mineralogists (SEPM) during the last year. He also served as vice-chairman of the SEPM research committee. The most important news of the year was the arrival of Elizabeth Anne Murphy Lagoe on May 14, 1992 (9 lbs. 1 oz., 20 3/4 in.). Both sleep and work schedules will never be the same again. Elizabeth will need to get a passport because Martin has been awarded a visiting professorship to the Geologisk Institut, Aarhus University in Denmark for fall, 1993.

After working on dolomite for so many years, Lynton Land finally got to "THE dolomites," in northern Italy. The international meeting was a great success, especially the field trips. It's hard to know what the high point of the trip was: the dolomites themselves; ten days before the conference roaming around Italy with Luigi exploring various cultures (including Porto Venere, of course); or having a great meal the last night, with a bottle of Chianti, and watching the moon rise over Milano!

Aaron continues to fill up the house with various colors of karate belts, and numerous soccer and karate trophies. He talked the family into a boat, which now pulls various children around on various contraptions on the various lakes around Austin. Judy's Macintosh-based "Vanishing Species of Texas" museum exhibit is a great success, and new projects are underway. One result is that Aaron is now a Hypercard-freak. Judy makes a couple of trips a year to Lee Stocking Island in the Bahamas to study coral bleaching, and Lynton went along last summer to marvel at the giant stromatolites. He hopes some underwater drilling can be arranged for next summer.

Leon Long has been awarded The Dad's Association Centennial Fellowship for 92-93, based on his superior teaching which has motivated and inspired students.



ogy Teachers; serving on the advisory council of the geology foundation of his undergraduate *alma mater*, Augustana College; serving on the editorial boards of *Sedimentary Geology* and *Journal of Egyptian Petroleum Geology*; attending the GSA meeting in San Diego plus a post-meeting field trip to the Anza-Borrego desert; field work in South Africa and Egypt; and attending, with the rest of his family, the marriage of his daughter, Suzie, in Dallas in April.

The visit to South Africa provided the opportunity to compare the diagenesis of fluvial, deltaic, and submarine fan deposits of a common sediment source. Exposures in the Karoo Basin are superb. A shock was the discovery of karst features developed on quartzite bedrock! Earle enjoyed the opportunity to visit with one of the few surviving groups of Bushmen and to shoot an elephant (with camera, of course).

His Egyptian collaborator, Antar Abdel-Wahab, of Tanta University at Kafr El-Sheikh, paved the way for a visit to the Sinai to examine Paleozoic sandstones. Scenery of the desert terrain is spectacular, and the culture of desert dwellers is mystifying to Earle. Separate sand storms and dust storms provided excitement. He also had to examine the pyramids of Giza to check on Luigi Folk's conclusion that the great limestone blocks are really natural limestone and not aggregate cemented by resin. As usual, Luigi is correct.

Earle spent the month of June in Italy working with both Duke Picard and Earle's Italian collaborators. Duke thinks the Italians make awful pizza, but they agree that they make fine wine.

The highlight of Sharon Mosher's year was her trip to Tierra del Fuego, Chile. She reports that the trip was incredibly good for her because she had nearly a month with nothing to think about other than staying alive and the geology of the day—no family, no students, and no administration! She says she found the harsh conditions invigorating and rediscovered a more relaxed and physically fit, former self. She really enjoyed the horseback riding and became rather proficient—it's amazing what you can do when your life depends on it! Her children are old enough now, Sarah 8 and Lisa 5, that she felt comfortable spending more time in the field in a variety of places (see research report). Of the many committees she serves

on nationally and in the Department and University, the two that were the most interesting this year were the University Outstanding Doctoral Dissertation and GSA's Young Scientist (Donath) Award Committees. She enjoyed seeing what the brightest and best young scientists in geology internationally and in the other sciences within the University were doing.

For Bill Muehlberger, this year was different from all others because he retired from teaching at the end of May. It was a strange feeling for him after each lecture, knowing it was the last time he would give it! However, Bill has about 20 years of research projects in mind that he would like to see completed before being put out to pasture! A fitting end to his outstanding teaching career was being elected to receive the 1992 Knebel Dis-



tinguished Teaching Award in May by vote of the students in the Department.

Unfortunately for Jack Sharp, the duck hunting season was flooded out because of record stream flows in December and January. A new retriever has been purchased in hopes of a better season next fall. The other major problem is that no graduate students play handball anymore! The family is fine, and Carol is still taking graduate courses in the College of Education.

Doug Smith found new challenges in both teaching and learning this past year. Teaching challenges arose because it was the first year of a revised undergraduate curriculum that transformed the traditional 416 series of courses. The beginning mineralogy course has been replaced by "Earth Materials," and igneous and metamorphic petrology have been combined into a single course. The learning challenge involved an introduction to Japanese, an attempt to prepare for a trip last summer; he reports a new appreciation for the difficulties of student life.

In addition to serving as chairman, Clark Wilson taught in the fall semester the data processing class, and in the Spring semester organized a new graduate class in the applications of finite element methods, with graduate student Denise Apperson and Steve Cohen (visiting for the year from NASA Goddard Space Flight Center geodynamics branch) providing the majority of effort. Fall travel included a trip to Houston for the Society of Exploration Geophysicists meeting (he is now beginning service as an SEG district representative), to San Francisco to present a paper at the American Geophysical Union meet-

ing, to Maryland for the final NASA Crustal Dynamics meeting, and to Irvine, California, to begin a period of service on the Committee on Earth Studies of the National Research Council. Spring travel included a trip to the first NASA Dynamics of the Solid Earth meeting in Pasadena, California, and one to Washington, D.C., for the committee on earth studies.

After all these rushed trips to meetings, it was fun to spend a few field days in West Texas at the end of May preparing for the installation of a permanent Global Positioning System receiver at McDonald Observatory, one of Clark's NASA projects. At home, daughter Kirsten has just completed the first grade, daughter Sissel is continuing in pre-school, and Ellin is preparing a full summer of activities for the kids, including a trip to Calgary with Dad at the time of the AAPG meeting in late June. Clark continues to ride his bicycle to the University as weather permits.

Jack Wilson has more or less, mostly more, retired for the second time. He was at a good stopping point for his research and with much personal business. At home he spends most of his time working in the yard. It is surprising how easily the VP Lab gets along without him.

Ann and Keith Young spend spare time enjoying visits with family in Dallas and Harlingen. Grandchild number four arrived in June. Ann and Keith will travel to Hamburg, Germany, in late September, where Keith will give a paper on Cretaceous Mexican ammonites.

William R. Muehlberger...

A Legend Retires



On May 1 the Department of Geological Sciences and the Geology Foundation hosted a retirement dinner for Bill Muehlberger at which Bill's friends and colleagues gathered to honor him for his distinguished teaching career. Held at the Etter Alumni Center, the occasion provided an opportunity for serious recognition of Bill's many accomplishments. John Maxwell was the citationist for Bill's dinner, and his comments are reprinted here:

William Rudolf Muehlberger was born September 26, 1923, an event of considerable importance to this Department, the University of Texas, NASA and numerous other organizations. When Bill was six, the Muehlberger family deserted New York City, his place of birth, and moved to California, settling eventually in Hollywood. Bill completed his education in the Los Angeles area, first grade to PhD (Caltech), but with interruptions occasioned by World War II and the Korean War. During World War II, he was accepted in the Marine Corps and sent to O.C.S. at Berkeley for training as a civil engineer. As usual, his sense of timing was perfect. He graduated on V.J. Day! When returned to duty during the Korean War, his training as a civil engineer led to assignment at Camp Pendleton, where he protected the troops from contaminated ground water.

At Caltech, Bill distinguished himself as an undergraduate. In 1948, he was awarded the Hinrichs Memorial Award as the outstanding member of the senior class, but did not receive his BS degree until 1949. (Consult Bill for details.) In 1949, he also was awarded the MS degree by Caltech, but more importantly, he married Sally, his support and companion throughout his career. Incidentally, during his undergraduate years, Bill began, as field assistant, a long association with Dr. R. H. Jahns. Presumably, at this time and later, he also acquired his well-developed diplomatic skills from Dr. Jahns.

For his PhD research, Bill selected an area at the east end of the Garlock Fault Zone, in San Bernardino County, California, receiving grant to support that work. Unfortunately, before he could complete the field work, the U.S. military acquired a critical part of this area and closed it to civilians. As a replacement, he selected an area including the central Sierra Pelona Range and Northern Soledad Basin, Los Angeles County, California. The conclusions from his research were published in volumes of the American Journal of Science and the *Bulletin of the American Association of Petroleum Geologists*. In 1954,

he was awarded the PhD degree by Caltech and also moved to Austin and the University of Texas, which haven't been the same since.

Bill's vita and lists of publications and lists of outside activities cover some 34 pages of single-space typing. It is impossible to encompass the full scope of his activities and accomplishments in this short biography. For his scientific interests and achievements, it is helpful to recognize, as he suggests, four principal foci of activity during his career thus far: southwestern United States and adjacent parts of Mexico, and critical areas in Central America; character and age of basement rocks beneath Paleozoic and younger cover in the Continental interior of the United States; studies of salt domes; and geological aspects of NASA operations.

As noted earlier, Bill's geological interest in the southwestern United States began in 1947, when he assisted R. H. Jahns in the mapping of mica pegmatites near Ojo Caliente, New Mexico. During the early 1950's, he was employed by the New Mexico Bureau of Mines and Mineral Resources, primarily for studies of prospective areas for oil, gas, and uranium. During subsequent years, he and his students studied areas of tectonic interest in New Mexico, West Texas, and adjacent parts of Mexico, and also some critical tectonically active areas in southern Mexico, Guatemala, and Honduras.

As a member of the Basement Rock Study Committee of the AAPG in the early and mid-1960's, Bill and his colleagues examined, described, and dated samples of basement rocks recovered from drill holes, mostly in the central United States. The data were used in constructing the Basement Map of North America, published jointly by the AAPG and USGS in 1967. Bill and his colleagues, R. E. Denison and E. G. Lidiak, received the AAPG's Matson Award for the best paper at the 1964 annual meeting: "Basement in the Continental Interior of the United States." This study of basement rocks was a fundamental foundation for the new "Tectonic Map of North America," sponsored jointly by AAPG and GSA, on which Bill has been working for nearly a decade. Unquestionably, this map will be a worthy successor to P. B. King's 1969 masterpiece, and will certainly be as heavily used.

Bill's involvement with salt domes came as a result of the search by the U.S. Atomic Energy Commission for safe disposal sites for radioactive wastes. Salt domes were considered to have the requisite properties for isolating such wastes, and Bill was engaged to do detailed structural mapping of the salt within domes which were being mined for salt. The mapping of the salt within domes which were being mined for salt. The scientific results were excellent, but unfortunately, the salt proved not to be reliable as a long term container of "hot" wastes.

The fourth topic, covering Bill's scientific activities is, in part, "out of this world." Beginning in the mid-sixties, he has been continuously involved in NASA

space operations, first for the training of the lunar astronauts in geologic field methods, using areas with geology similar to that expected at landing sites on the moon. After the Apollo program ended, the Space Shuttle was developed and training of astronauts resumed, this time with emphasis on the locations and recognition of significant terrestrial features lying along the orbital path. Bill also assisted in developing a program of hand held photography to best display these features. Results to date have been spectacular. Our knowledge of geology, regional tectonics and ephemeral geologic procedures related to wind and water actions is greatly enriched by the resulting photographic records. In recognition of his outstanding contributions, NASA awarded Bill its Medal for Exceptional Scientific Achievement.

Bill is now completing his 38th year of distinguished service to the University of Texas at Austin. He has served the Department of Geological Sciences as assistant chairman and chairman, has represented the Department on numerous University committees and has been a dominant force in building and modernizing the Department. More importantly, his commitment to high academic standards and his ruthless insistence on vigorous and accurate field work are known and appreciated by generations of students, both undergraduate and graduate. I have seen no record of the number of undergraduates he has helped to educate, but certainly the 60 Masters and 23 PhD students he has supervised are, and will continue to be, able representatives of the Department and the University.

The William R. Muehlberger Field Geology Scholarship has been established by Bill's former students in recognition of his many years of dedication to teaching geology. See the related article about the scholarship fund in the Geology Foundation News section of this *Newsletter*.



Bill and Sally display the plaque Bill received from the Department of Geological Sciences in honor of his retirement.

BILL MUEHLBERGER — FROM HARLEM TO HOLLYWOOD AND THE MOON

by Pat Dickerson

'Roast' (rost): an occasion to skewer a notable individual, baste him liberally with irreverence, and toast him over coals of cracking wit and Mephistophelian lyrics.



Charles Mankin (left) and Tom Bjorklund celebrate with Bill Muehlberger.

"Bill Muehlberger has announced his intention to retire from teaching at the end of the present academic year. As students of Bill's, we find this an opportunity too good to miss. Accordingly, the Mother of All Roasts will be held in Austin the evening of Saturday, May 16, 1992."** So stated the call to arms from David Dunn and Tim Denison.

Shortage of material was not a problem: wounded vehicles, dialogues with the Dean, lunar landings, Isetta automobiles, thunderstorm generation, armwaving, Honduran elixirs, Beulah Boxfold, and development of the flush seismograph. Too much for a single evening's revel; too much to report or explain here. The challenge was to weave a semicoherent piece from all those threads—a mildly sobering mission even for veterans of n (where n is a large whole number) Final Bedlam.

*The entire sight-and-sound extravaganza was masterfully captured on videotape; for those who want to experience "From Harlem to Hollywood and the Moon" vicariously, there is a copy in the Geology Library as well as one in the UT faculty archives.

The appropriately genteel appreciation began with scenes from Bill's childhood, somewhat after his arrival on the planet in Harlem, New York. Although his high school days in Hollywood, California, remained shrouded in Silurian mists, there were mementos of his tenure at CalTech. Don Wise cited his early forays into geophysics and his part in the invention of the flush seismograph. The respect of his fellow students was shown by his election to president of his residence hall and bestowal of the lofty title of Pope Condomus Rupturedus.

Service in the Marine Corps was an important part of his formative years. Because that interlude has left its stamp (about size 12) on many of our careers, an individualized version of the Marine Hymn was rendered by Poly Deformed and the Quaquaversal Dips:

From the halls of Pasadena
to the Texas Longhorn scene,
He has driven us like cattle
into space, on land and sea...

while an image of Raising the Rod on
Alidade Hill filled the screen (and

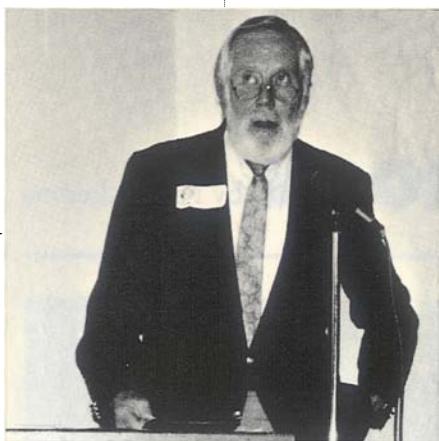
brought tears to the eyes of music lovers in the audience...).

Some of Bill's early, distinctly seismic, activity as a faculty member was chronicled by Ernie Lundelius, Ted Longgood and Birdena Schroeder. Before becoming departmental secretary, Birdena's principal dealings with geology faculty had been with Sam Ellison and Steve Clabaugh. Her reflections on meeting the rest of the staff—particularly the roast-ee ---brought the house down. Her later description of Chairman Muehlberger's delicately phrased dia-

logues with Dean John Silber was no less uproarious.

Field work has always been one of Bill's passions, and his prowess in thunderstorm generation in the field is legendary. Handel's "Water Music" seemed the appropriate accompaniment

for a procession of sodden slides: Muehlberger and colleagues in the rain in Chihuahua, in New York, in Honduras, in West Texas, in Guatemala, in New Mexico, in Kentucky. At least it doesn't rain on the moon... Continuing in the classical vein, his grace in the field



Dave Dunn was Master of Ceremonies for the Roast.

--notably his frequent and flowing arm motions --was celebrated in a series of vignettes set to the "Dance of the Sugarplum Fairy;" choreography was decidedly not by Balanchine.

Well known, too, is his inverse Midas' touch where field vehicles are involved. "Tijuana Taxi" rambled along in the background during projection of (a lot of) views of broken trucks, vans, carryalls, rental cars, and buses in various venues. In most, our hero could be seen beside, beneath or peering into the maw of the afflicted conveyance. [As if to add an exclamation point after this statement, the carryall he was driving back from field camp in the Big Bend this June died noisily in Fredericksburg, leaving our honoree to be rescued and the machine towed in to Austin.]

Speaking of field camp, we felt that three days was a trifle too long for the roast to last, so we did not include all the WRM/field camp stories that were submitted. A tender lyric, though, was composed to convey the essence of those experiences (tune: "El Paso"):

Out in the West Texas town of Lajitas,
Out where the cholla and prickly pear grow,
Muehlberger came and he saw and he conquered
Though just *what* was conquered we never did know...
So-o we returned to the town where he dragged us and beat us,

With nothing but sunburn and chapped lips to show.
Muehlberger came and he saw and he conquered,
Though just *who* was conquered We still do not know.

Field work in Honduras and Guatemala, an experience both transpressional and transtensional, provided unique trials and particular rewards. To express appreciation for Muehlberger's thrusting them into Central American geology the Ancient and Honorable Knights of Nervo Forza, with Zan Ritchie as Jefe, conferred upon him an especial honor: induction into the Order as Senior Knight Extra-ordinaire. (Nervo Forza is a Honduran elixir with an exotic taste reminiscent of cherry-flavored cod liver oil.)

The exaltation of this ceremony can be discerned from the opening phrases, commemorating his many years of service to those countries. "This service took the form of coercing innocent young graduate students to allow themselves to be robbed by communist banditos, to be run over by their own cars, to be very nearly lynched for murder, to be subjected to amoebic and bacillary dysentery, to face poisonous serpents and insects, and many other horrors to disgusting to mention! These unfortunates are WE--the Honduran Geological Survey and our Guatemalan Associate."

More foreign still is field work on the Moon, where others of Muehlberger's students have explored. The two walk-ons (or fly-ons) on the program, astronauts John Young and Charlie Duke, waxed eloquent on Bill's involvement in NASA's geological training.

Duke stated that Muehlberger had made them "the best-qualified lunar field geologists in the world, and then NASA discontinued the astronauts' geology training program. Now all we're qualified for is food stamps."

As one might expect, Bill was *not* speechless in the face of all this respect, honor, adulation and other rose fertilizer. He acknowledged the farthest traveled participant in the program, Marco Zuniga from Tegucigalpa, Honduras, as well as his earliest and most recent masters and doctoral students in attendance.

Then, in connivance with Sharon Mosher, Muehlberger was transmogrified into Beulah Boxford, voluptuous new geology graduate student being introduced around the department by co-student Tom Jones (Mosher). Beulah's forays into the audience and passes at past students, present faculty and astronauts alike--and Tom's restraining(?) influence--were received with varying levels of hysteria.

Vestiges of Beulah's escapade carried into the presentation of the more serious



Zan Ritchie and Bill Dupre reminisce about experiences with Bill Muehlberger.



Sharon Mosher (aka Tom Jones) and Bill Muehlberger (aka Beulah Boxford).

expressions of appreciation that closed the festivities, as someone had spirited away Bill's more conventional clothing. Attired in a fiesta skirt, t-shirt and appropriate anatomical enhancements, Beulah/Bill accepted a plaque commemorating the roast and an album of testimonials, reminiscences and reflections from dozens of students and colleagues.

In presenting him the bronze "Watcher of the Plains," Rusty Goetz recounted the custom of some of the Plains Indians who kidnapped youths along their migration routes and pressed them into the tribe. She drew the analogy to the Muehlberger tribe, which over the years has gathered youths from all over the hemisphere into a tribe whose members wander Earth and Moon to see the next outcrop.

The closing accolade was David Dunn's announcement that the Bill Muehlberger Field Scholarship had been established by the Geology Foundation—a most fitting tribute to a man dedicated to teaching about rocks in their natural habitats, wherever in the solar system that might be.

The Muehlberger retirement roast. Once in a great long while an occasion, an individual, an esprit, a meld of effort/will/tribal memory/talent (a euphemism, to be sure!), and a great good-spiritedness converge to produce something to savour and to celebrate. The fifty-two creators of the roast were part of one of those rare convergences, one of those savoured celebrations.

Endowed Lecturers Program...

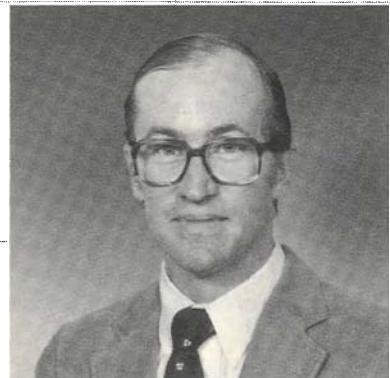
Jacques Gauthier
Clara Jones Langston Lecturer
California Academy
of Sciences

*"The Origin of Archosaurs
and the Problem of
Taxonomic Ranks"*



Jeffery Hanor
Edwin Allday Lecturer
Louisiana State University

*"Sediment Diagenesis
Around Salt Domes",
"The Origin and Migration
of Subsurface Fluids in the
Louisiana Gulf Coast", and
"Hydrogeology of the
Murray Basin, Australia"*



Richard Sillitoe
Edwin Allday Lecturer
University of London

"Tectonics, Magmatism, and Mineralization with Special Reference to the Central Andes and Western Pacific"
and *"Gold and Copper Metallogeny of the Central Andes"*

Visiting Lecturers...

Ruben A. Alvarado Texas Low-Level Radioactive Waste Disposal Authority <i>"Site Selection Activities of the Radioactive Waste Disposal Authority"</i>	Sandra Carlson University of California, Davis <i>"Phylogenetic Relationships among Brachiopods"</i>	Grant Garven Johns Hopkins University <i>"Hydrogeology of Mississippi-Valley-Type Ore Genesis in the Midcontinent Basins of North America"</i>
E. T. Baker, Jr. U.S. Geological Survey, Austin <i>"National Parks Project: Hydrogeology of Big Bend"</i>	Steve Cohen Goddard Space Flight Center, Maryland <i>"Finite-Element Modeling of Post Seismic Stress Propagation"</i>	Nancy Grindlay University of Rhode Island <i>"Constraints on South Atlantic Ridge Accretionary Processes from Finite Element Modeling, Multibeam Bathymetry, Magnetic and Gravity Data"</i>
James R. Bartolini U.S. Geological Survey, Austin <i>"Distribution of Radon-222 in Ground Water Associated with a Playa-Lake Basin, Hockley County, Texas"</i>	Clayton Coker UT Applied Research Lab, Austin <i>"GPS Applications"</i>	Gerry Grisak INTERA Technologies, Inc., Austin <i>"Hydrogeologic Characteristics of a Hazardous Waste Facility in a Carbonate Terrain: Trans-Pecos, Texas"</i>
John R. Baumgardner Los Alamos National Laboratory, New Mexico <i>"3-D Spherical Numerical Modeling of the Dynamics of the Earth's Mantle and Lithosphere"</i>	Thomas J. Crowley Applied Research Corporation and Adjunct Professor, Texas A&M University <i>"Climate Change on Tectonic Time Scales"</i>	Paul L. Hancock University of Bristol, United Kingdom <i>"Neotectonic joints"</i>
Robin Bell Lamont-Doherty Geological Observatory Columbia University, Palisades, NY <i>"Extensional Tectonic Processes — Airborne Geophysical Evidence"</i>	John Diebold Lamont-Doherty Geological Observatory Columbia University <i>"Seismic Velocity Analysis"</i>	Richard Hawkinson U.S. Geological Survey <i>"U.S.G.S. Water Resources Division Programs and Activities"</i>
William Berggren Woods Hole Oceanographic Institution, Massachusetts <i>"Revisions to a Cenozoic Time Scale: Getting it Right"</i>	André Droxler Rice University <i>"Results of ODP Leg 133 off Northeast Australia"</i>	John Hoff State University of New York at Stony Brook <i>"Application of the Pb isotope system to carbonate diagenesis: geochronologic and tracer studies"</i>
Peter Blum Joint Oceanographic Institutions for Deep Earth Sampling <i>"Controls on Sediment Dispersal and Basin Filling in Southwest Japan Forearc Basins"</i>	David C. Engebretson Western Washington University <i>"180 Million Years of Global Subduction, Sea Level and Mantle Heterogeneity"</i>	Todd Housh Massachusetts Institute of Technology <i>"Remnants of Earth's early crust"</i>
Alan Brandt Office of Naval Research, Washington, D.C. <i>"Small-Scale Physical Oceanography Program"</i>	Ismael Ferrusquia National University of Mexico <i>"Aspects of the Tertiary Continental Stratigraphy of Southwestern Mexico"</i>	Manuel Iturralde-Vinent Museo Nacional de Historia Natural, Cuba <i>"Tectonic Models of the Caribbean—A Cuban Perspective"</i>
Eric Calais Institute of Geodynamics University of Nice, France <i>"Kinematics of Deformation Along the Northern Caribbean Plate Boundary from Geological Evidence and GPS Measurements"</i>	George Fisher Johns Hopkins University <i>"Infiltration Metasomatism at Crestmore, California"</i>	R. E. Jackson INTERA Technologies, Inc., Austin <i>"Behavior of Organic Solvents in Ground Water and Implications for Aquifer Restoration"</i>
	Donald W. Forsyth Brown University <i>"Mantle Control of a Dynamically Evolving Spreading Center"</i>	John Jacob Texas A & M University <i>"Holocene Paralic Marl of Cobweb Swamp, Belize"</i>
	Fred Frey Massachusetts Institute of Technology <i>"Geochemical constraints on the origin and evolution of Hawaiian volcanoes"</i>	Erle Kauffman University of Colorado at Boulder AAPG Distinguished Lecturer <i>"250 Million Years of Mass Extinctions: Dinosaurs to Man"</i>
	Mike Gaffey Rensselaer Polytechnic Institute <i>"Geochemistry of Asteroid Surfaces."</i>	John Kappelman Department of Anthropology, UT-Austin <i>"Paleomagnetic-Reversal Stratigraphy and the Age of the Fayum Primates (Egypt)"</i>



Stephen Kesler University of Michigan "Metamorphic Fluids, Structural Geology, and High-Grade Gold Deposits" and "Mississippi-Valley-Type Deposits and Appalachian Basin Evolution"	Andrew C. Morton British Geological Survey "Processes Controlling the Composition of Detrital Heavy Mineral Assemblages in Sandstones"	Bob E. Schutz Department of Engineering and Center for Space Research, UT-Austin "Applications of GPS to Crustal Motions/ Tectonics: Concepts, Problems, Successes and Future Prospects"
Nevin Kresic University of Belgrade, Yugoslavia "Quantitative Karst Hydrogeology"	Edward Nestvold Shell Internationale Petroleum Maatschappij "3D Seismic: Is the Promise Fulfilled?"	Alan G. Smith Cambridge University "Tethyan Continental Margins"
Tim Kusky University of Houston "Tectonics of the Archean Slave Province"	Jurgen Oberst Institute for Planetary Exploration Berlin Adlershof, Germany "Sweeping the Red Planet with Pushbroom Cameras"	Sean Solomon Massachusetts Institute of Technology "Tectonic Contrast Between Venus and Earth: Latest Results from Magellan"
Allan McCree Architect of the Texas State Capitol "The Texas Capitol: Its Design, Construction, and Current Restoration"	Carl Oppenheimer Oppenheimer Environmental Co., Austin "Microbial Recycling of Hydrocarbons"	Sean Solomon Massachusetts Institute of Technology "Imaging Seismic Q in Oceanic Crust and Mantle: New Constraints on Temperature Structure"
Daene McKinney Department of Civil Engineering, UT-Austin "Cost Effective Aquifer Remediation"	Andrzej Pszczokowski Polish Academy of Sciences "Geology of the Pinar del Rio Province, Western Cuba"	Christof Stork Advance Geophysical Corporation Denver, Colorado "Combining Reflection Tomography with Migration Velocity Analysis"
Nancy McMillan New Mexico State University "Chemical, Spatial, and Temporal Constraints on Andean Magmatism"	James Quinlan Independent Consultant, Nashville, Tennessee "Hydrogeology of the Mammoth Cave Region Kentucky with Emphasis on Groundwater Pollution and Methods of Study," "Principles of Groundwater Monitors in Karst Terranes," "Procedures for Reliable Monitoring of Groundwater Quality in Karst Terranes"	Manik Talwani Houston Advanced Research Center "Recent Results from EDGE Virginia Seismic Profiles and the East Coast Magnetic Anomalies"
Cleavy McNight Baylor University "Contrasting Foreland Responses to Compression, Northern Tarim Basin, Northwest China"	Tony Randazzo University of Florida, Gainesville "Diagenetic Controls on Carbonate Rocks in Florida"	John Tauxe Department of Civil Engineering, UT-Austin "Graphical User Interfaces for Existing Groundwater Modeling Programs"
Kate C. Miller University of Texas at El Paso "Crustal Structural and Composition of the Sierra Nevada Foothills"	Thomas Reed Hawaii Institute for Geophysics "Visualizing the Seafloor: New Techniques for Processing, Analyzing, and Enjoying Side-Scan Sonar and Bathymetric Data"	Gary Upchurch Southwest Texas State University "Climate, Vegetation and the Cretaceous-Tertiary Boundary Extinctions"
Gautam Mitra University of Rochester "Deformation Patterns in the Sevier Fold and Thrust Belt and Laramide Foreland, Idaho, Utah, Wyoming"	Olivier Rieppel Field Museum of Natural History, Chicago "Review of the Mont San Georgio Fauna"	Charles M. Vest President, Massachusetts Institute of Technology "The American Research University: The Restless Frontier"
Susan Moore Attorney with Small, Craig and Werkenthin, Austin "Project Documentation and Preparation for Deposition"	Lauren Ross Petroleum Engineering, UT-Austin Glen Rose Systems "Multivariate Statistical Analysis of Environmental Monitoring Data"	David A. Wark Rensselaer Polytechnic Institute "Origin of Mantled (Rapakivi) Feldspars: Experimental Evidence of a Dissolution-and Diffusion-Controlled Mechanism"
Julie Morris Carnegie Institute "Sediment Accretion, Subduction and Recycling at Convergent Margins: Implication from Cosmogenic ^{10}Be "	David W. Scholl U.S. Geological Survey, Menlo Park, California "Deep-Sea Drilling Confirms and Evaluates Non-Accretionary and Erosion Processes at Subduction Zones"	Steve Wright Chevron USA, Houston "Hydrocarbon Potential of the Paradox Basin, Southern Utah"
Julie Morris Carnegie Institute "Uses and abuses of ^{10}Be "		



OUTREACH ACTIVITIES...

The Geological Sciences Department has an Outreach Committee which coordinates Department relationships with local area schools and organizations, and provides information by mail to more distant areas of the state. The Committee members are Donna Precht, undergraduate student development specialist, Leon Long, faculty member, and Roger Lee, graduate student.

Recruiting of Prospective Majors in Geological Sciences

Outreach to statewide schools and colleges included mailings of departmental brochures to virtually every senior level high school in Texas, and mailings of departmental *Newsletters* to all Texas colleges and junior colleges with an earth sciences program of any size. Newsletters are also mailed to several dozen major public and private universities across the United States as a recruiting tool for prospective graduate students.

Off-Campus Activities...

- For the 1991-92 year, activities supporting local organizations included field trips for the Austin Independent School District Science Academy of Austin. Leon Long and student Anne Molineux participated in this effort. A variety of other lectures and tours were offered:
- Early in the fall, student Malcolm Ferris lectured and demonstrated to about 80 students at the Science Academy of Austin on the subject of seismic methods for locating subsurface objects. Paul Warren (BS Geological Sciences, UT Austin, 1988) was the high school teacher in charge.
- In November, students Lee Potter, Joe Reese, Sally Zellers, and Carlotta Chernoff assisted in a field trip for the eighth grade class (120 students) of the Lake Travis Middle School. The trip included several stops in the Llano area.
- Sally Zellers presented two talks on her experiences in Antarctica to the Honors Earth Science class at Lake Travis Middle School on December 10.
- In April, students Roger Lee and Malcolm Ferris lectured and demonstrated to about 80 tenth graders at the Science Academy of Austin on seismic methods, and Leon Long spoke to students at Allison Elementary school about careers in geological sciences.
- As part of a June workshop, Clark Wilson spoke to Austin area science teachers on "What's new in Earth Sciences."
- With NSF sponsorship, faculty member Jack Sharp ran a teacher workshop covering field geology through the midwest, in cooperation with the University of Arkansas and the College of Education.

On-Campus Activities...

- Visitors to campus ranging in grades from elementary through high school are routinely hosted by students and faculty in the Geology Building.
- On three occasions during the year, graduate students and staff assisted Cub Scouts with their Achievement Pin in geology. Bill Woods also conducted a tour of the gem and mineral display areas for 15 children from the Austin Children's Museum in July.
- Lee Potter, Sally Zellers, Kitty Milliken, and Bob Folk hosted 21 Honors Earth Sciences students from Lake Travis Middle School for a tour of the Geology Building and a talk on volcanos in January. Clark Wilson talked to 22 students in the honors geometry class from Elgin High School on how geometry relates to geology in March.
- In July, faculty members Clark Wilson and Bill Muehlberger gave lectures to visiting high school students as part of the Junior Honors Colloquium, designed to attract top ranked students to UT.



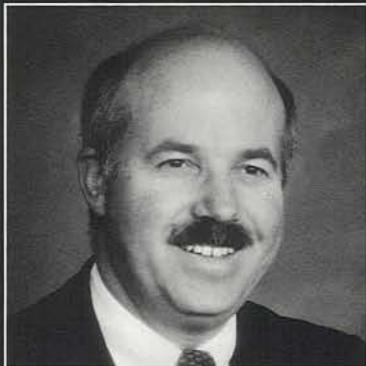
Sally Zellers speaks to eighth graders from Lake Travis Middle School about geology in the Llano area.



*F*OUNDATION NEWS...

Advisory Council News

New Members



W. Douglas Hall



Susan A. Longacre



David B. Story

The Council welcomes three new members in fall 1992: Mr. W. Douglas Hall, Dr. Susan A. Longacre, and Mr. David B. Story.

Mr. Hall is president of Hall Southwest Corporation, an environmental consulting and groundwater exploration company in Austin which Mr. Hall began in 1983. He received his BS in geology from Washington & Lee University in 1969, and completed his MA in geology at UT Austin in 1974. After receiving his Master's degree, Mr. Hall worked as a hydrogeologist with Dames & Moore Engineering and Environmental Consultants in Florida, then was a hydrogeologist with the Mined-Land Reclamation Research Group at Montana State University in Bozeman. In 1978 and 1979 he worked as manager of geological services and senior hydrogeologist with Espey, Huston & Associates in Austin, then was manager of Austin operations and senior hydrogeologist with Hydro-Search, Inc. until 1983 when he organized Hall Southwest.

As his background indicates, Mr. Hall is heavily involved in hydrogeology concerns, and has been instrumental in assisting the Department of Geological Sciences in planning its hydrogeology program. He is a member of SIPES, AIPG, the Association of Ground-Water Scientists and Engineers of NWWA. He served as president of the Austin Geological Society in 1986-1987.

Mr. Hall and his wife, Pam, live in Austin, and are parents of two daughters and a son.

Dr. Longacre received both BS and PhD degrees from UT Austin in 1964 and 1968, respectively. She began working for Getty Oil Company in 1969 as a research associate and research scientist in Houston, and continued working for Getty until its acquisition by Texaco in 1984. At that time she became a senior research consultant for the exploration and production technology division. In 1990 she became a senior scientist for the exploration and production technology division, and continues at that position today. She directs and participates in studies of reservoir architecture in both

carbonate and siliciclastic reservoirs from the Permian basin of Texas/New Mexico, the Cretaceous of the Middle East, and the Plio-Pleistocene of California's San Joaquin basin. Dr. Longacre is actively involved in developing and teaching several carbonate-based classes for geoscientists and engineers, not always in separate classes, that consistently receive highest evaluations from the students. Late in 1991, Dr. Longacre was one of five Texaco scientists recognized for their technical achievements and contributions to corporation successes when she was inducted as a charter member of Texaco's Honorary Fellowship program.

Dr. Longacre and her husband, Ken, have two daughters; Melissa, who is an accountant, wife, and mother; and Christina, who is a college student.

Mr. Story joined Exxon Company U.S.A. after completing his BS degree in geology from The University of Texas at Austin in 1978. His initial work for Exxon included development mapping in several fields in southeast Texas, followed by mapping and drilling in the Austin Chalk. He has mapped and presented prospects for Gulf of Mexico offshore lease sales. He has supervised exploration efforts in the Gulf of Mexico on the Texas Slope, along the Appalachians and in the Miocene trend of southeast Louisiana. He is currently the geologic manager for Exxon's Alaska Interest Organization in the production department in Houston.

Mr. Story and his wife, Maribeth, live in The Woodlands with their two children, Rebecca and David.

Two Council members did not seek renomination for another term and have concluded their service on the Advisory Council. They are Ken G. Martin, of Madisonville, Louisiana, and Charles Weiner, of Houston. Mr. Martin has served on the Council since 1977, and Mr. Weiner has been a member since 1990. The Department sincerely thanks both of these men for their contributions of time and resources.

Chairman

Mr. David S. "Scotty" Holland
3 River Way, Ste. 1300, Houston, TX 77056

Vice Chairman

Mr. Phillip E. Wyche
126 Firebird, Austin, TX 78734

Members

Mr. Charles W. Alcorn Jr.
President, Alcorn Co., P. O. Box 2879, Victoria, TX 77902

Mr. Eugene L. Ames Jr.
President, Venus Oil Co., 2100 NBC Bldg.,
San Antonio, TX 78205

Dr. David S. Birsa
General Manager of Exploration, Chevron U.K. Limited,
P. O. Box 5046, A3325, San Ramon, CA 94583

Dr. Richard R. Bloomer
Route 2, Box 317E, Leander, TX 78645

Mr. Thomas M. Burke
Consultant, 8519 Manhattan Dr., Houston, TX 77096

Mr. Weyman W. Crawford
10026 Sugar Hill, Houston, TX 77042

Mr. L. Decker Dawson
President, Dawson Geophysical Co., 208 S. Marienfeld,
Midland, TX 79701

Dr. Rodger E. Denison
Consultant, 15141 Kingtree, Dallas, TX 75248

Mr. George A. Donnelly Jr.
President, The Eastland Oil Co., P. O. Box 3488,
Midland, TX 79702

Mr. Thomas E. Fanning
Vice President, Domestic Exploration, Marathon Oil Co.,
P. O. Box 3128, Houston, TX 77253

Mr. James H. Frasher
Consultant, 14751 Quail Grove, Houston, TX 77079

Mr. Joseph N. Gittelman
Shell Development Co., P. O. Box 481,
Houston, TX 77001

Mr. W. Douglas Hall
Hall Southwest, 505 W. Huntland Dr., Ste. 550,
Austin, TX 78752

Mr. George M. Harwell
Norcen Explorer, Inc., 550 Westlake Park Blvd. Ste. 350,
Houston, TX 77079

Mr. Larry R. Hensarling
Dove Resources Inc., 400 E. Kaliste Saloom Rd., Ste. 1300,
Lafayette, LA 70707

Mr. Charles J. Hooper
2111 Pine Valley, Houston, TX 77019

Mr. John A. Jackson
10325 Gaywood Rd., Dallas, TX 75229

Mr. J. Donald Langston
P. O. Box 6106, Oxnard, CA 93003

Dr. Susan Longacre

Texaco Inc., P. O. Box 770070, Houston, TX 772115

Mr. Vance M. Lynch
13 Laurel Hill, Austin, TX 78737

Mr. David F. Martineau
Exploration Manager, Pitts Oil Co., 4600 Greenville Ave.,
Dallas, TX 75206

Mr. Harry A. Miller Jr.
600 First National Bank Bldg., 303 West Wall,
Midland, TX 79701

Mr. Michael B. Morris
3108 Reba Dr., Houston, TX 77019

Mr. Robert D. Ottmann
1014 Suwanee Lane, Houston, TX 77090

Mr. James C. Patterson
12331 Broken Arrow, Houston, TX 77024

Mr. W. F. Reynolds
J.C. & W. F. Reynolds Oil Producers, 700 MBank Bldg.,
Wichita Falls, TX 76301

Mr. George W. Schneider Jr.
P. O. Box 160607, Austin, TX 78716

Mr. Don B. Sheffield
3741 Chevy Chase Dr., Houston, TX 77019

Mr. William T. Stokes
Consultant, 7703 Southwestern Blvd., Dallas, TX 75225

Mr. David B. Story
Exxon Co. U.S.A., P. O. Box 2180 (RM 2917),
Houston, TX 77252

Mr. Eddie A. Williamson
Division Exploration Manager, Amoco Production Co.,
200 E. Randolph Dr., MC 4608A, Chicago, IL 60601

Honorary Life Members

Dr. Thomas D. Barrow
Consultant, 4605 Post Oak Place, Ste. 207, Houston, TX 77027

Mr. Don R. Boyd
1720 The Six Hundred Bldg., Corpus Christi, TX 78473

Dr. Samuel P. Ellison Jr.
5948 Highland Hills Dr., Austin, TX 78731

Dr. Peter T. Flawn
3718 Bridle Path, Austin, TX 78703

Mr. William E. Gipson
Gas Fund, Inc., 808 Travis, Ste. 1512, Houston, TX 77002

Mr. John L. Loftis Jr.
11919 Broken Bough, Houston, TX 77024

Mr. Judd H. Oualline
Consultant, 217 Mayerling, Houston, TX 77024

Mr. O. Scott Petty
711 Navarro Street, Ste. 235, San Antonio, TX 78205

Mr. Edd R. Turner
900 West Main Street, Kerrville, TX 78028

Mr. Joseph C. Walter Jr.
Walter International, Inc., 1021 Main Street, Ste. 2110,
Houston, TX 77002

Gifts

*Gifts to the Geology Foundation
June 1, 1991 through May 31, 1992*

INDIVIDUALS

Floyd J. Adcock
Phoebe J. Aldrich
Eugene L. Ames, Jr.
David L. Amsbury
Nancy Jenswold Anderson
Richard G. Anderson
David Angstadt
Anonymous
Larry M. Asbury
Arten Avakian
Herbert Babione
Daniel S. Barker
Virgil Barnes
Laura Thomson Barrow
William W. Bath
Mr. & Mrs. Fred H. Becker
Ellis S. Belfer
Richard E. Bennett
Timothy B. Berge
David S. Birsa
Wesley F. Blankenship
Carol L. Bloomer
G. Pat Bolden
John F. Bookout, Jr.
John F. Bookout III
John L. Boone
Mr. & Mrs. Don R. Boyd
David O. Bozeman
Robert A. Brady
Amy Lewis Branch
Herbert L. Brewer
Thomas E. Bridge
Mr. & Mrs. Mark Briggs
David A. Bristol, Jr.
Roberta C. Brooks
Wallace E. Brunson
Ray A. Burke
Thomas M. Burke
Ron A. Butterworth
Sarah L. Bybee
Mr. & Mrs. Robert W. Bybee
L. G. Byerley, Jr.

Mr. & Mrs. Warren J. Cage
Clint Cagle
Frank K. Cahoon
Rodney J. Camp
Donald H. Campbell
Jose D. Carballo, Jr.
William D. Carlson
Mr. & Mrs. Robert E. Carter
Mr. & Mrs. Dwight Cassell
Edward C. Cazier III
Joseph C. Cepeda
Robert Chapin
Walter Chatham Jr.
Daryl S. Chicken
Mr. & Mrs. S. E. Clabaugh
Arthur W. Cleaves II
Robert Cobb
Rebecca J. Coel
George B. Coffin
H. Grady Collier, Jr.
H. C. Cooke
Taliaferro Cooper
Henry C. Cortes Jr.
Augustus S. Cotera, Jr.
Dexter H. Craig
Scott D. Davis
Henry C. Dean
Mr. & Mrs. R. K. DeFord
Mr. & Mrs. William Demis
Rodger E. Denison
John Lane Denson III
William H. Devine
Patricia Wood Dickerson
Mr. & Mrs. W. F. Dingus
Mr. & Mrs. Gary T. Donnan
Gene C. Doty
William E. Dougherty
James D. Doyle
Mr. & Mrs. Ralph C. Duchin
Charles M. Duke Jr.
Edward A. Duncan
David E. Dunn
Connie M. Dyer
John E. Edwards

G. K. Eifler Jr.
Ruth P. Elliott
Mr. & Mrs. S. P. Ellison Jr.
Mr. & Mrs. Paul A. Erickson
Rizer Everett
Robert H. Fakundiny
Thomas E. Fanning
Dorman N. Farmer
Irma Morgan Feibelman
Jeanne Allen Ferrin
J. D. Finley
Hewitt B. Fox
James H. Frasher
W. D. Frazell
Annabelle Banahan Friddle
Mark D. Froneberger
Iacopo J. Gambini
Mr. & Mrs. Henry Gayle
Clem E. George
William E. Gipson
Joseph N. Gittelman
Lisa K. Goetz
Daniel M. Gonzalez
Ronald L. Graner
Volker C. Grasso
C. DeVearle Gray
Robert W. Grayson
Ridge Greenberg
Charles R. Grice
John C. Gries
Robbie R. Gries
Roy H. Guess
Walter T. Haenggi
Jim Hardwick
Mark Harris
Richard E. Hart
George M. Harwell Jr.
Peggy Harwood
Jon P. Herber
Janice L. Hill
Dave Hixon
Richard T. Holt
James W. Hood
Richard A. Hoover
Richard T. Houser
Douglas J. Howard
William P. C. Hudson
Don F. Hugus Jr.
Laura Hill Hunt
J. R. Jackson Jr.
Russell W. Jackson
L. Chris Johnson
Luther G. Jones
Robert T. Kent
David L. Kirchner
Gary Kocurek
Mr. & Mrs. J. Richard Kyle
George A. Laguros
Mr. & Mrs. Lynton S. Land
James Donald Langston
Randy Larkin
Robert L. Layden
David H. Lehman

Max Levin
Sandra J. Lindquist
Eugene Lipstate
Susan A. Longacre
Mark W. Longman
E. W. Longmire
L. E. Ludwick
Mr. & Mrs. E. L. Lundelius Jr.
Don Lundy
Vance M. Lynch
Michael O. Maler
Mrs. W. A. Maley
Charles J. Mankin
Sabin W. Marshall
Hildebrando J. Martell
Mr. & Mrs. John Maxwell
LeRoy McCravey
Fred McDowell
Edward McFarlan Jr.
William R. McKinley
Jereld E. McQueen
Asa D. McRae
C. Wade Meade
Peter Megaw
Charles M. Merrill
Harry A. Miller Jr.
Larry Miller
Ann Moorhead
Duane E. Moredock
Michael B. Morris
Mr. & Mrs. Eric Muehlberger
Gregory E. Onstott
Robert D. Ottmann
Mr. & Mrs. Judd H. Oualline
Robert T. Parks
Walter C. Parrish
Stephen R. Payton
Jack L. Penick
Benjamin J. Petrusik
O. Scott Petty
Elliott Pew
Mr. & Mrs. William A. Poe
W. T. Probandt
A. Leo Pugh Jr.
James A. Ragsdale
James M. Raymond
Mr. & Mrs. M. A. Reagan Jr.
Carla Everett Reed
Lynn R. Reese
Bernard W. Reiss
Patrick S. Reiss
W. F. Reynolds
Mr. & Mrs. E. A. Ripperger
Mr. & Mrs. Kenneth Ritmire
Jess P. Roach
Michael F. Roden
Lucy O. Ross
James H. Rucker
Paul Sagasta
Mr. & Mrs. Amos Salvador
Jack R. Schmid
Louis I. Schneider Jr.
Milton R. Scholl Jr.

Mrs. Bruno E. Schroeder
 Clyde R. Seewald
 Holmes A. Semken
 Charles R. Sewell
 John M. Sharp
 Tai-chang Shih
 Charles Sicking
 Robert S. Singer
 Harry H. Sisson
 Marriott W. Smart
 Bruce D. Smith
 Daniel L. Smith
 Howard Gray Smith
 Howard J. Speer
 Mr. & Mrs. Jim Sprinkle
 Bill E. St. John
 Sarah L. Stinger
 Mike Stowbridge
 Michael W. Strickler
 John L. Stripling
 Charles Sullins
 Dorothy Carsey Sumner
 Leonard Svajda
 James B. Tartt
 Peter R. Tauvers
 Bert C. Timm
 Everett J. Travis
 Steven R. Trudeau
 Delos R. Tucker
 John D. Tuohy
 Clyde W. Turner
 Edd R. Turner
 L. J. Tydlaska
 Mr. & Mrs. Glenn Vargas
 Harry A. Vest
 R. B. Vickers
 Bryan Wagner
 Mark C. Walker
 J. C. Walter Jr.
 J. C. Walter III
 Anne Walton
 Bernie Ward
 Paul Weimer
 Bonnie R. Weise
 Dana L. White
 David J. White
 Leslie P. White
 Steven L. White
 Peter N. Wiggins III
 William B. Wilkerson Jr.
 Dan W. Williams
 Homer C. Wilson
 John A. Wilson
 Melissa C. Winans
 Charles Woodruff Jr.
 Mary C. Woods
 Raymond D. Woods
 Charles F. Word
 Stephen S. Wright
 Phillip E. Wyche
 Charles E. Yager
 Robert L. Zinn
 Kevin Zonana

**Joy and Bill Payne
 are greeted by
 Dean Robert Boyer
 at the annual Endowed
 Presidential Scholarship
 Recognition Dinner,
 held in April, 1992.**



INDUSTRIAL AND SOCIETY CONTRIBUTORS

Estate of Edwin Allday
 Amoco Foundation Inc.
 Anadarko Petroleum Corp.
 ARCO Foundation Inc.
 Booth-Bricker Fund
The Buffalo News
 BP America Inc.
 BP Exploration Inc.
 Chevron U.S.A. Inc.
 Conoco Inc.
 CXY Energy Inc.
 Dow U.S.A.
 du Pont de Nemours & Co.
 Enron Foundation
 Everett & Associates
 Exxon Education Foundation
 Flanigan & Flanigan, Inc.
 Hall Southwest Corporation
 Halliburton Foundation Inc.
 M. E. Hart Foundation
 Hoechst Celanese Fdn. Inc.
 Houston Geological Society
 Intevep S.A.
 Katie Foundation
 Robert S. Kier Consulting

Marathon Oil Company
 Mobil Corporation
 Mobil Exploration & Producing Services Inc.
 Mobil Research and Development Corporation
 Norcen Energy Resources Limited
 Norton Company Fdn. Inc.
 Oryx Energy Company
 Pennzoil Exploration and Production Company
 Phillips Petroleum Fdn. Inc.
 Pogo Producing Company
 Shell Oil Company Foundation
 Sonora Exploration Corp.
 Statoil
 Texaco Foundation
 Texas Gas Transmission Corp.
 Union Pacific Foundation
 Unocal
 USX Foundation Inc.
 N. B. Waechter & Associates
 Estate of Albert W. Weeks
 Zinn Petroleum Company

DONORS OF BOOKS AND MATERIALS TO THE WALTER GEOLOGY LIBRARY

Amoco Production Co.
 Denise Apperson
 Dan Barker
 Peter Boone
 Fred Bullard
 Dick Buffler
 Chris Caran
 Family of Myron Dorfman
 Sam Ellison
 William Galloway
 Edgar Guevara
 Hagen & Miller
 Steve Hall
 Ann Hoadley Leist
 John Maxwell
 Randy Larkin
 Leon Long
 E. F. McBride
 Fred McDowell
 Mobil Oil Company
 Joanne M. Moldenhauer
 William R. Muehlberger
 Jim Quinlan
 Jack Sharp
 Sally Sutton
 Paul Weimer
 C. M. Woodruff



Geology Foundation Endowed Accounts

• • • • • • • • • • • • • • • • •

June 1, 1991 through May 31, 1992

Fund	Goal	Endowment	Fund	Goal	Endowment
Edwin Allday Centennial Chair in Subsurface Geology Income supplements salary and supports research of recipient	Unspec.	\$ 603,594	Don R. and Patricia Kidd Boyd Lectureship in Petroleum Exploration To provide for guest lecturers in petroleum exploration	Unspec.	\$ 43,867
Edwin Allday Lectureship in Geological Sciences To provide for guest lecturers in geological sciences	\$ 203,716*	\$ 89,559	Brahman Energy Scholarship Senior field course scholarships	Unspec.	\$ 16,443
Alternative Energy Research and Development Fund For study of energy sources other than petroleum	\$ 125,119	\$ 125,119	Jesse L. Brundrett Memorial Endowed Presidential Scholarship Graduate student scholarships	Unspec.	\$ 26,192
E. M. Barron Trust For support of the Barron Mineral Collection	Unspec.	\$ 105,050	Fred M. Bullard Professorship Excellence in teaching, income supplements salary and supports research of recipient	Unspec.	\$ 68,986 ++
Leonidas T. Barrow Centennial Chair in Mineral Resources Development of program of excellence in mineral resources; income supplements salary and supports research of recipient	Unspec.	\$ 878,770	Thomas M. Burke Student Job Program Jobs for students in geologic work related to faculty research	Unspec.	\$ 13,119
Laura Thomson Barrow Graduate Fellowship To support graduate students specializing in natural resources; special consideration for female students and students concentrating in field-oriented studies	Unspec.	\$ 199,660	Hal H. Bybee Memorial Fund Student field support, or support of students researching geologic issues related to public policy	Unspec.	\$ 43,618
Bloomer Fund for Motivated Students Financial aid for students not qualified for scholarships	Unspec.	\$ 64,650	Hal P. Bybee Memorial Fund Faculty use—research, travel, study, etc.	Unspec.	\$ 429,744
Leslie Bowling Professorship To attract persons from industry and government for short-term appointments on the faculty	Unspec.	\$ 96,932 +	L. W. Callender Memorial Fund Departmental use, unrestricted	Unspec.	\$ 52,038
Wayne F. Bowman Endowed Presidential Scholarship Unrestricted geology scholarships	Unspec.	\$ 94,841	Dave P. Carlton Centennial Professorship in Geology Income supplements salary and supports research of recipient	Unspec.	\$ 467,679
			Dave P. Carlton Centennial Professorship in Geophysics Income supplements salary and supports research of recipient	Unspec.	\$ 471,377
			Dorothy Ogden Carsey Memorial Scholarship Fund Geology scholarships, any level; special consideration to micropaleontology students	Unspec.	\$ 83,752

*116,437 in addition pledged from Allday Estate.

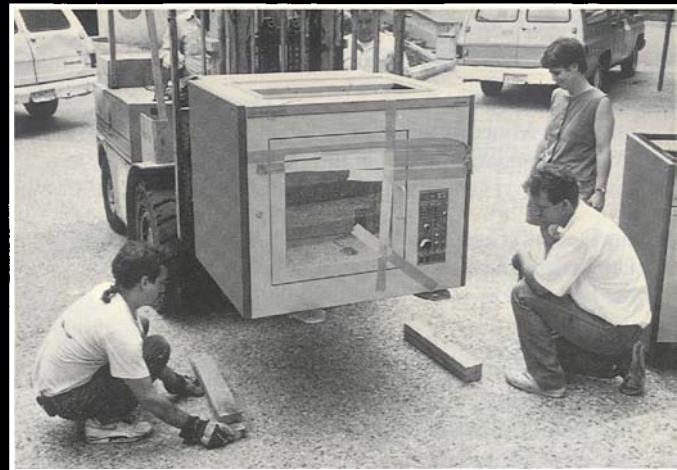
+Does not include \$41,069 held in unitrust ++Does not include \$45,261 held in unitrust.

Fund	Goal	Endowment	Fund	Goal	Endowment
J. Ben Carsey Sr. Special Maintenance Fund To maintain teaching and research equipment	\$ 250,000	\$ 85,221	Peter T. Flawn Centennial Chair in Geology Income supplements salary and supports research of recipient	Unspec.	\$ 654,800
S. E. Clabaugh Fund in Hard-Rock Geology To support research in hard-rock geology	Unspec.	\$ 26,462	Geology Foundation Advisory Council Centennial Teaching Fellowship in Geological Sciences Income supplements salary and supports research of junior faculty member	Unspec.	\$ 63,412
W. Kenley Clark Memorial Endowed Presidential Scholarship Geology scholarships, any level	Unspec.	\$ 44,134	Getty Oil Company Centennial Chair in Geological Sciences Income supplements salary and supports research of recipient	Unspec.	\$ 796,492
Robert H. Cuyler Endowed Presidential Scholarship Undergraduate (upper-division) and graduate scholarships	Unspec.	\$ 49,536	Miss Effie Graves Memorial Fund Department needs (faculty support, student aid, special equipment, etc.)	Unspec.	\$ 24,536
Morgan J. Davis Centennial Professorship in Petroleum Geology Income supplements salary and supports research of recipient	Unspec.	\$ 606,959	Guy E. Green Endowed Presidential Scholarship Geology scholarships, any level	Unspec.	\$ 29,381
Ronald K. DeFord Field Scholarship Fund Field studies for graduate students	Unspec.	\$ 160,981	J. Nalle Gregory Chair in Sedimentary Geology Development of program of excellence in sedimentary geology; Income supplements salary and supports research of recipient	Unspec.	\$ 653,702
Alexander Deussen Professorship Energy Resources Development of program of excellence in energy resources; income supplements salary and supports research of recipient	Unspec.	\$ 138,126	J. Nalle Gregory Regents Professorship in Geological Sciences Income supplements salary and supports research of recipient	Unspec.	\$ 263,617
Michael Bruce Duchin Centennial Memorial Endowed Presidential Scholarship Scholarship for Master's candidate with preference toward general geology	Unspec.	\$ 35,940	Gulf Oil Foundation Centennial Professorship in Geology Income supplements salary and supports research of recipient	Unspec.	\$ 243,411
Elf Aquitaine Petroleum Faculty Fellowship in Geological Sciences Income supplements salary and supports research of junior faculty member	Unspec.	\$ 121,749	Karl F. Hagemeier Jr. Memorial Endowed Presidential Scholarship General geology scholarships, any level, with preference to students from Brazoria or Kerr counties	Unspec.	\$ 39,939
John E. "Brick" Elliott Centennial Professorship in Geological Sciences Income supplements salary and supports research of recipient	Unspec.	\$ 256,738	George S. Heyer Memorial Fund Any purpose of the Foundation	Unspec.	\$ 87,836
Samuel P. Ellison Jr. Endowment Fund For Department Newsletter and support of faculty-alumni functions	\$ 100,000	\$ 66,336	William C. Hogg Memorial Scholarship Fund General information: The total Hogg endowment in the sum of \$ 237,024 for all of the scholarships (a total of six) is carried in one Common Trust Fund account. The income is credited to one expendable account and distributed from there at the end of the fiscal year to each of the six scholarship accounts. Geology holds two of the six accounts.		
Energy and Mineral Resources Fund Support of programs and students in energy and mineral resources	\$ 100,000	\$ 26,486	Hogg-Cullinan Scholarship in petroleum or field geology in honor of Joseph S. Cullinan	Unspec.	\$ 40,270
William Stamps Farish Chair in Geology Income supplements salary and supports research of recipient	Unspec.	\$ 354,847			

Fund	Goal	Endowment	Fund	Goal	Endowment
Hogg-Sharp Scholarship in petroleum or field geology in honor of Walter Benona Sharp	Unspec.	\$ 40,270	Frank W. Michaux Scholarship Fund Geology scholarships, any level	Unspec.	\$ 10,730
Houston Oil & Minerals Corporation Faculty Excellence Awards In recognition of outstanding service and special contributions to the teaching and research programs	Unspec.	\$ 43,558	Carroll C. Miller Endowed Presidential Scholarship Geology scholarships to students pursuing careers in energy industries; preference to students from South Texas	Unspec.	\$ 30,725
F. Earl Ingerson Graduate Research Assistance Fund in Geochemistry Research assistance to graduate students in geochemistry	Unspec.	\$14,072	Wes Ogden Memorial Scholarship in Geophysics Geophysics scholarships to students who express interest in applying geophysical training in practical applications within the oil and gas industry	Unspec.	\$ 11,321
John A. and Katherine G. Jackson Centennial Teaching Fellowship in Geological Sciences Income supplements salary and research of junior faculty member	Unspec.	\$ 116,328	Fred L. and Frances J. Oliver Lectureship in Texas Hydrology and Water Resources To provide for guest lecturers in water resources	Unspec.	\$ 51,777
Carolyn G. and G. Moses Knebel Teaching Awards Annual Distinguished Teacher Award, Innovative Improvement and New Course Development	Unspec.	\$ 74,080	Judd H. Oualline Endowment Fund For special needs of the Department	Unspec.	\$ 19,424
Clara Jones Langston Centennial Lectureship in Vertebrate Paleontology To provide for guest lecturers in vertebrate paleontology	Unspec.	\$ 20,772	Judd H. and Cynthia S. Oualline Centennial Lectureship in Geological Sciences To provide for guest lecturers in geological sciences	Unspec.	\$ 43,564
J. Donald Langston Special Operations Fund Purchase teaching and research equipment	\$ 250,000	\$ 132,204	Judd H. and Cynthia S. Oualline Centennial Lectureship in Petroleum Geology To provide for guest lecturers in petroleum geology	Unspec.	\$ 36,990
Wann and Marietta Langston Research Fund in Vertebrate Paleontology Faculty research in vertebrate paleontology	Unspec.	\$ 91,750	Ed Owen-George Coates Fund Publication of geological research by faculty and graduate students	Unspec.	\$ 106,614
Jack K. Larsen-Mesa Petroleum Company Fund in Sedimentary Geology Support of the Department's program in sedimentary geology	Unspec.	\$ 117,943	Bill R. Payne Centennial Teaching Fellowship in Geological Sciences Income supplements salary and research of junior faculty member	Unspec.	\$ 61,354
Howard R. Lowe Vertebrate Paleontology Endowment Support of student field work in vertebrate paleontology	Unspec.	\$ 28,124	Joyce Bowman Payne Centennial Teaching Fellowship in Geological Sciences Income supplements salary and research of junior faculty member	Unspec.	\$ 62,294
J. Hoover Mackin Memorial Scholarship Fund Graduate geology scholarships	Unspec.	\$ 21,456	Pennzoil and Pogo Producing Companies— William E. Gipson Scholarships Scholarships for UT graduates seeking Masters degrees at UT	Unspec.	\$ 125,889
John H. and Lujza P. McCammon Endowed Scholarships Upper-division undergraduate scholarships	Unspec.	\$ 10,946	O. Scott Petty Geophysical Fund Development of program of excellence in geophysics	Unspec.	\$ 131,977
Mr. and Mrs. L. F. McCollum Endowed Scholarships Geology scholarships, any level	Unspec.	\$ 18,633			

Fund	Goal	Endowment	Fund	Goal	Endowment
Wallace E. Pratt Professorship in Geophysics Development of program of excellence in geophysics; income supplements salary and research of recipient	Unspec.	\$ 154,603	Glenn and Martha Vargas Gemological Scholarship Scholarships for students interested in gemology or mineralogy	Unspec.	\$ 15,596
Louis and Elizabeth Scherck Geology Scholarship Undergraduate (upper division) and graduate scholarships	Unspec.	\$ 103,442	Vargas Endowment for Gems and Gem Mineral Instruction For course-related materials and instruction on gems and gem minerals	Unspec.	\$ 65,348
Wilton E. Scott Centennial Professorship Income supplements salary and supports research of recipient	Unspec.	\$ 235,395	Various Donors (General) Unrestricted funds for any purpose of the Foundation	Unspec.	\$ 32,015
The Shell Companies Foundation Centennial Chair in Geophysics Income supplements salary and supports research of recipient	Unspec.	\$ 926,586	Joseph C. Walter Jr. and Elizabeth C. Walter Geology Library Fund Acquisition of books, maps and other library materials	Unspec.	\$ 179,848
The Shell Companies Foundation Distinguished Chair in Geophysics Income supplements salary and supports research of recipient	Unspec.	\$ 849,626	Albert W. and Alice M. Weeks Centennial Professorship in Geological Sciences Income supplements salary and supports research of recipient	Unspec.	\$ 150,298
Frederick W. Simonds Endowed Presidential Scholarship Scholarships to undergraduate (upper division) and graduate students	Unspec.	\$ 26,924	E. A. Wendlandt Fund Purchase of books and journals in German or English translations	Unspec.	\$ 7,565
William T. Stokes Centennial Teaching Fellowship in Geological Sciences Income supplements salary and research of junior faculty member	Unspec.	\$ 125,170	Arno P. (Dutch) Wendler Professional Development Fund Support of graduate student presentations at professional meetings	Unspec.	\$ 104,185
Structural Geology and Tectonics Fund For support of faculty and student research in structure and tectonics	Unspec.	\$ 84,239*	Francis L. Whitney Endowed Presidential Scholarship Geology scholarships, any level, paleontology and stratigraphy preferred	Unspec.	\$ 42,694
H. Tod Sutherland Memorial Scholarship Fund For summer research support for graduate students	Unspec.	\$ 34,504	Francis L. Whitney Memorial Book Fund Purchase of paleontological books for library	Unspec.	\$ 18,232
Estate of Elizabeth M. Teagle For scholarships to students with interest in petroleum geology	Unspec.	\$ 442,505	John A. Wilson Professorship in Vertebrate Paleontology Development of program of excellence in vertebrate paleontology; income supplements salary and supports research of recipient	Unspec.	\$ 107,496
David S. Thayer Memorial Scholarship Fund Senior field course scholarships	Unspec.	\$ 27,305	Charles E. Yager Undergraduate Field Scholarship Fund Support of students taking Geology 660	Unspec.	\$ 46,875
Tobin International Geological Map Collection For purchase of maps and photos, storage and viewing facilities for these items	\$ 100,000	\$ 73,548	Mr. and Mrs. Charles E. Yager Professorships Three professorships in any discipline for faculty who participate in field instruction	Unspec.	\$ 391,806
Udden Memorial Scholarship Fund Geology scholarships at any level	Unspec.	\$ 10,877			

*\$31,750 in addition pledged from anonymous donor.



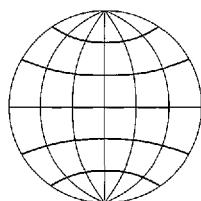
Dr. Sally Sutton (far right) supervises the unloading of a computer-controlled X-ray diffractometer donated by Mobil Oil. Philip Braithwaite (MA '58) was responsible for arranging this gift from Mobil. The value of the XRD when it was purchased by Mobil in 1989 was \$180,000. It will be used by students and faculty for quantitative mineralogic studies. Dr. Sutton traveled to Denver to get the XRD and brought it to Austin by truck. Funds from the Geology Foundation paid to move the equipment and to assemble and install it in the Department.

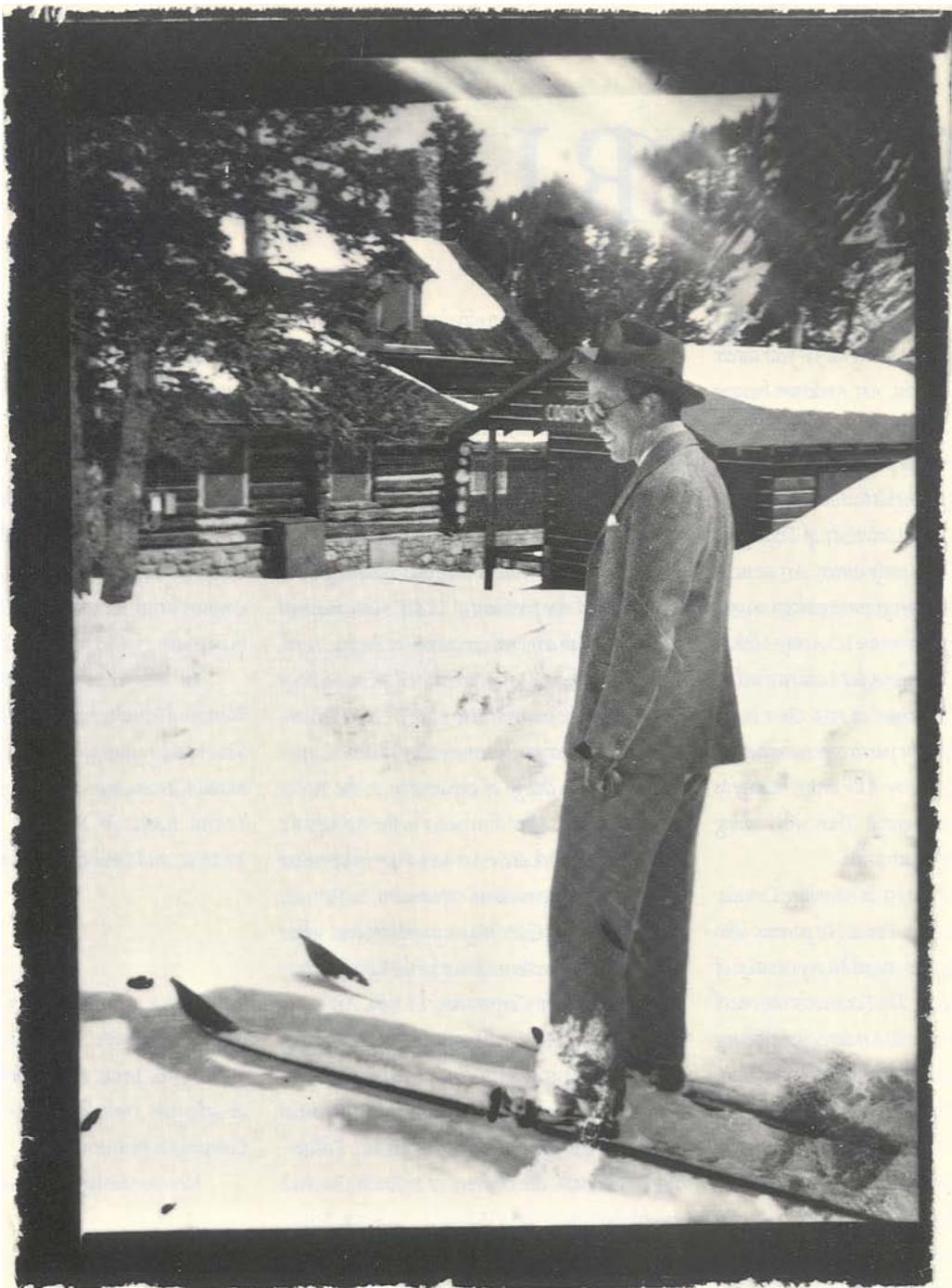


Dr. Brenda Kirkland George works with microscopes recently donated by Amoco Production Company. Through the efforts of Advisory Council member Eddie Williamson and Merrell Miller with Amoco's Houston office, the Department received two surplus binocular stereo microscopes, light sources, and accessories. These microscopes will be used in student laboratories.

Scholarship Fund Established in Bill Muehlberger's Honor

A Students and former students of Bill Muehlberger surprised him last spring by announcing the establishment of the William R. Muehlberger Field Geology Scholarship Fund. The purpose of this fund is to assist undergraduate majors taking GEO 660, as well as graduate students doing field work for theses and dissertations. A field scholarship fund seems most appropriate to honor such an outstanding field geologist. Gifts from Dr. Muehlberger's ex-students, family and friends have brought the total in the fund to almost \$12,000. If \$25,000 or more can be raised for the Muehlberger Scholarship, it will be eligible for matching funds (one dollar of matching funds for two dollars contributed). These funds must be contributed or pledged by August 31, 1993. Pledges can be paid through August 31, 1995. If you are interested in contributing to the Muehlberger Field Scholarship Fund, you can do so by indicating the name of that fund under the "Other" designation on the remittance envelope included with this *Newsletter*. Your support is essential to the growth of this much-needed fund.





Alumni News...

MEMORIALS. . .

ARTHUR EDWARD ANDERSON (MA '58) died on November 29, 1991. During his 34-year career as a geologist and geophysicist, Art Anderson became one of the most widely experienced and knowledgeable scientists in the international petroleum industry. He once confided to a friend that he felt that his training in the Geology Department at the University of Texas gave him a certain "edge" in his early career. Art came to Austin to enter the master's program in geology in 1956, just after he was discharged from the US Army. He had received a BS in geology at Texas A&M and received his commission as second lieutenant in 1953. Once in the army, Art volunteered for the paratroopers, because he felt that if he were going to serve in the army, he may as well do it as part of an elite group. There was nothing ordinary about Art's approach to life.

Art was born April 16, 1931, in Winnipeg, Canada, but grew up in San Antonio, Texas. His parents, who were commercial artists, encouraged his appreciation of art, music, and the outdoors. The Texas coast was one of the family's favorite haunts, and Art developed a lifelong love of sea coasts. Art married his high school sweetheart, Sally Sue Whitmire. Their first son, Gary, was born while they were at Texas A&M, and another son, Mark, while they were at the University of Texas.

After receiving the MA in Geology in 1957, Art worked for the California Company as a surface and subsurface geologist and geophysicist in many parts of the western US from the Canadian border to Grand Junction, Colorado. The scenery and life style of the Rockies has a great appeal to Art, Sue, and the boys, and they were to be drawn back to this area in later years. From Grand Junction Art was transferred to the Netherlands to be division exploration manager and chief geologist for Chevron in the Hague. This assignment began the Andersons' love affair with foreign travel. Following a brief stint back in the US with Chevron, Art took a position in the International Department of the Ashland Exploration Company in 1968. Although based in

Houston, Art traveled extensively to Europe, the Mediterranean, South America, and north Africa. He was trapped in a hotel room in Tripoli during the overthrow of the Libyan monarchy. In 1973 Art and a friend started a geophysical consulting business in Houston, evaluating seismic surveys of offshore northern Gulf of Mexico. Then LL&E hired Art to open a one-man office in London. There he built a staff and became general manager and vice president of LL&E's International Division, which acquired concessions in Europe, north Africa, and Ghana. Art returned to Gulf Coast geology in 1980 when he transferred to LL&E's New Orleans office, but the next year he was hired by Midcon Corporation to be in charge of exploration in the Rocky Mountain area. After three years in the Rockies, the lure of foreign work drew Art back as an independent specializing in international exploration. In 1987, he, Sue, and grandson Gary Wayne moved to Seoul, where Art was the only western advisor for the Korean Petroleum Development Corporation. In 1989, Art joined the Earth Science Research Institute of the University of South Carolina as associate director and research professor. He led evaluations of hydrocarbon potential of Eastern Europe and the Soviet Union. Following Art's death, the University of South Carolina established the Arthur Edward Anderson Scholarship Fund in his memory.

Art began a courageous battle with cancer while in South Carolina, but when he and Sue accepted that the illness was terminal, they moved to Frisco, Colorado, to be near sons Gary and Mark and their four grandchildren. He died there November 29, 1991. Art's last months were spent enjoying being with his family again in the beautiful Rocky Mountains.

— Bill Ward

JOHN C. BIANCHI JR. (BS '49) died of lung cancer in a Victoria hospital on May 24, 1992. Since 1980 he had lived in Karnes City, Texas, where he raised cattle and was an independent geologist.

John's career as a geologist included a number of years with Arkansas Fuel and Cities Service companies, and was geologist and manager for Southern Minerals Corporation and Houston Natural Gas Company in Corpus Christi. He retired from Houston Natural Gas in 1988 after 15 years with that company.

He was preceded in death by his wife, Mary Blanchard Bianchi, who died on February 3, 1990. John is survived by sons John C. Bianchi II of San Antonio and James Cletus Bianchi of Austin; a daughter, Marta Boone of Houston, brother Robert of Victoria, and three grandchildren.



ROBERT L. CHILDS (BS '53) died of a heart attack on October 11, 1991. At the time of his death he lived in Hemphill, Texas. He was employed for many years in sales for Dowell Division of Dow Chemical Company in Houston.

He is survived by his wife and three children.



VETA CLARE MOORE DAVIS, widow of Morgan J. Davis, died in Houston on July 16, 1992 after a short illness. Mrs. Davis and her husband were long-time supporters of the Department of Geological Sciences; Mr. Davis was a charter member of the Geology Foundation Advisory Council and was a former chairman of the Council.

Mrs. Davis was born in Claremore, Oklahoma in 1905. She attended college in Manhattan, Kansas, and married Morgan J. Davis in 1926. Mr. and Mrs. Davis lived in New Mexico for a time, then spent five years in

Java and Sumatra (now Indonesia). After returning to New Mexico, in the early 1930's she became interested in aviation and was the first woman in the state of New Mexico to receive her pilot's license. After moving to Houston, Mrs. Davis became involved in many civic organizations, particularly the Depelchin Faith Home of Children on whose board she served for many years.

Mrs. Davis was preceded in death by her husband, Morgan, in 1979; she is survived by her children, Morgan J. Davis Jr. and James Harrison Davis and wife, Betty; seven grandchildren; four great-grandchildren; a sister, Mrs. Nelle Moore McClellan; and a brother, Joseph Moore, both of Tulsa.



CAROLYN G. KNEBEL

CAROLYN G. KNEBEL died on October 24, 1991 at the age of 91. Mrs. Knebel was the widow of G. Moses Knebel (BS '22), a geologist with Humble Oil and Refining Company and Honorary Life Member of the Geology Foundation Advisory Council. Mr. and Mrs. Knebel were generous supporters of the Department of Geological Sciences at UT, where they established the Carolyn G. and G. Moses Knebel Teaching Excellence Fund. During Mr. Knebel's career, they lived in East Texas for five years, then spent nine years in Venezuela and thirty years in Scarsdale, New York. After Mr. Knebel's retirement, they moved to Austin in 1969, where Mrs. Knebel lived until her death. She was a

member of the Austin Womans Club and the English Speaking Union, as well as the Thankful Hubbard Chapter of the NSDAR. She was a member of St. David's Episcopal Church.

Mrs. Knebel was preceded in death by her husband in November, 1974. She is survived by her daughter, Elizabeth Knebel Kahle of Austin; a son, George M. Knebel, Jr. of Atlanta, Georgia; five grandchildren; and six great-grandchildren.



THOMAS H. LAWRENCE (BS '32) died on January 23, 1992 in Springfield, Tennessee at the age of 83. Mr. Lawrence had retired in 1964 and moved from Houston to Miami Beach, Florida. He travelled extensively after his retirement. In 1980 he moved to Springfield, Tennessee, his birthplace.



WILLIS ARCHER (ARCH) MALEY (attended UT in geology 1921-25) died January 2, 1992. After leaving the University, Arch went to work for Humble Oil and Refining Company (now Exxon). While with Humble he was promoted from field geologist to district geologist, assistant division geologist, acting assistant chief geologist, and manager of exploration. Shortly before his retirement he was assigned to the exploration staff as assistant to the vice president in charge of exploration. He lived in Corpus Christi and Houston during his years of employment. When he retired from Humble in November, 1964, he established the W. A. Maley Hereford Ranches in Nueces, Real, and Bastrop counties. At the time of his death, he and his wife of 65 years, Sylvia Fant Archer, lived in Smithville.

In addition to his wife, Arch is survived by his daughter, Mary Ann, and son, Karl (BS in geology from UT in '56) of Smithville; brother, Vaughn Maley (BS in geology from UT in '26) of Midland; sister, Bell Maley Cook of Austin; and five grandchildren.



GEORGE WILLIAM MARSHALL, JR., died January 31, 1991, shortly after his seventieth birthday. He was born January 7, 1921, in San Antonio, Texas, the son of George W. and Jeffie Marshall. George is survived by his

wife of 48 years, Ada Mae, and by three sons and their families: George W. Marshall III, his wife, Adele, and children Krista and Gary; John R. Marshall, his wife, Debbie, and daughter Erin; and Kenneth R. Marshall and his wife, Denise.

George was a charter member of Champion Forest Baptist Church, Houston, where he had been a member for almost 20 years. He served as a deacon, Sunday school teacher, and on a number of church committees. After his retirement, he taught English in the International Ministry of the church.

During World War II, George served in the Air Force as a bombardier/navigator with the 73rd Bomb Wing on Saipan, Mariana Islands, flying 35 missions over Japan. The 73rd Bomb Wing Association, formed by former members of the group, was invited by Saipan Mayor Francisco Diaz, along with Governor Carlos Camacho, to visit Saipan for its 1981 reunion. George was one of 136 former airmen, wives and children who went to Saipan for the reunion. They visited island landmarks, including the area where the men had lived in tents and barracks during the war. Because the area had been overgrown by jungle, the mayor ordered a roadway cleared so that the men could inspect their old camp sites. It was a nostalgic time.

George received a BA in geology from the University of Texas at Austin in 1948, where he was a member of Phi Beta Kappa. He joined Conoco (then Continental Oil Company) in July of 1948 as a geologist in the Midland, Texas, office. The story is told that Drue D. Christner ("Old Chris"), one of the foundation stones of Conoco oil exploration, called on Professor Hal Bybee Sr., chairman of the Geology Department at UT, and asked who were the top three geology graduates that year. Professor Bybee answered, "Him, him and him." One of these was George Marshall. George worked for Conoco in many assignments, moving from Midland to Fort Worth, to Roswell, New Mexico, back to Fort Worth, to Houston, to Ponca City, Oklahoma, and back to Houston, where he retired in 1983 after 35 years with the company.

I worked with George in Ponca City and also in Houston. In Ponca City, I was director of geological research, and George was the coordinator of the research with the operating group. We traveled together often. On all phases of new technology, George was very supportive and involved. This was particularly true in computer applications for geology. He looked for ways that Conoco

could be at the forefront of this burgeoning field. George and I continued to work closely together after we both moved to Houston. I liked George personally and enjoyed working with him. He was never personally affected by the many crises that occurred, and was always approachable. His ability to look for the simple solution to complex problems was welcomed. My wife, Diana, and I always considered George and Ada Mae as personal friends.

His pleasant, caring manner and his consistency were mentioned by many of George's Conoco friends—male and female, young and not so young—in their comments to me: "George was a pleasure to be around and was always upbeat." "He always gave his full attention and was interested in what you were saying. Even after he retired, he would call and touch base with me." A friend from the company credit union (George was a very frugal man, and because of this he dealt with the credit union a lot) noted: "He was always very nice and very patient with those he was around. He always called me each Friday to wish me a happy weekend." "George never got perturbed about things; at least he never let it show." "George was consistent. The oil business during George's career was anything but consistent—doldrums, booms, bust. Yet, through prosperity and adversity, George was consistently George." And from a geologist whom George supervised: "George was the ideal boss.... [He] treated us all with respect, and he had a concern for our professional training and development, as well as concern for our families. We all liked his management style...."

One associate recalled that George would put a little bit of himself into the "post-mortem" reports on wells. "He would put his feelings on record along with his technical write-ups. It's marvelous reading—kind of like reading a short story." Another associate tells this story: "Not too long before George retired, he and I were participants in a company geology field course that involved a lot of bus travel. We discussed philosophy as well as geology while we were traveling, and often shared snacks and sunscreen cream while some of the younger, more exuberant participants explored the steeper roadside outcrops. Recent foot surgery had slowed me down, and George had his own reasons for staying behind—probably he'd seen it all before."

George had the ability to guide, direct and manage other people so that they put forth the maximum

effort. His technical knowledge and responsible attitude were apparent to all with whom George worked, and he was a mentor to many. He was always willing to share his knowledge. One co-worker said, "When I first came to Conoco, he showed me things about geology that I had no idea about." George would tackle any chore and would produce results. "He never whined; he just went to work." "Many of the prospects the Roswell Division drilled...were inherited from the Midland office. Many of those prospects had been worked up by George."

he didn't say, as much as the things he did say. He seemingly, instinctively, knew when to speak and when to be silent." One of George's admonitions remembered by his children was: "Write when you find work!"

The following statement by his son summarized the impression held by all those who knew George: "He taught us by precept and example...a true, 'gentle' man."

— Max G. Pitcher, Houston, Texas
(with help from many of George's Conoco friends)



GEORGE W. MARSHALL JR.

One characteristic everyone seems to remember about George is that he had a rare sense of humor. Although a very quiet man, he had "...an inventive sense of humor, and you had to pay attention or you'd miss some gems, which he would gently toss out with absolutely precise timing." "He had a heck of a sense of humor—very wry." "He had a subtle sense of humor; you had to be very quick to keep up." His favorite name for a woman he worked with was "Wonder Woman."

George's consistency of character and personality were the same with his family as with the rest of those he came into contact with. Comments from one of his sons bear this out: "He was always encouraging us—never uttering a negative or discouraging word." "He always showed complete confidence in us—even the times when we didn't deserve it." "We appreciated the things

DUNCAN MCCONNELL (instructor in geology, 1937-41) died November 8, 1991 in Temple, Texas. He received his Bachelor's degree in chemistry from Washington and Lee University in 1931, his Master's degree in geology from Cornell University in 1932, and his PhD in mineralogy from the University of Minnesota in 1937. After completing his PhD, he spent three years as an instructor in the geology department at the University of Texas. He then was employed by the US Bureau of Reclamation, and later was a research scientist for Gulf Oil Company.

Dr. McConnell's area of research was apatites. That research led to his position as professor of geology and mineralogy at Ohio State University in the early '50's; a few years later he was concurrently a professor of dental research. (Apatites are found in detergents and fertilizers and occur in bones and teeth.) During his tenure at Ohio State he also served as chairman of the mineralogy department (1952-57) and assistant dean of the graduate school (1954-55). Dr. McConnell retired from Ohio State in August, 1976, but maintained an active interest in his research area after his retirement.

Dr. McConnell received many professional honors during his career. He was a fellow of the Royal Society of Arts, headquartered in London, and was also a fellow of the Mineralogical Society of America, American Association for the Advancement of Science, and Ohio Academy of Science.

Preceded in death by his wife, Jane Willis McConnell, in 1986, Dr. McConnell is survived by two daughters, Joanne Moldenhauer of Austin and Charlotte M. Miller of Colton, California; one son, Thomas Duncan McConnell of Albuquerque; one

brother, William McConnell of Castle Rock, Colorado; and four grandchildren.



HERMAN W. PORSCH JR. (BS '52, MA '65) died at his home in Midland on September 21, 1991. After graduating from UT he served in the U.S. Air Force until 1956. In 1965 he received his MA degree from UT. He was employed by Texaco Inc. for many years, retiring on October 1, 1989.

Mr. Porsch was a member of the American Guild of Organists and was the organist for the Midland Lutheran Church.

He is survived by his wife, Barbara Hays Porsch; sons, Clayton of Arlington, Virginia, and Brian, Austin; daughter, Shelly Bryant Mook of Plano; father, H. W. Porsch, Austin; sister, Peggy Aldridge, Austin; and two grandchildren.



EDWARD D. PRESSLER (BS '26) died in Houston on November 27, 1991 after a long illness. A native Austinite, Mr. Pressler received his BS degree from UT in 1926, then continued his education at the University of California at Berkeley, receiving a Master's degree in paleontology in 1928. After graduating he became a field geologist for Standard Oil Company of Venezuela (later Creole Petroleum Company). He worked for Standard in the jungles of Venezuela for two years, then returned to Texas. He was hired by Humble Oil and Refining Company as a field geologist in Uvalde, Texas. He then worked in Corpus Christi, Texas, and Tampa, Florida, then joined the headquarters geologic department in Houston in 1947. He held various executive positions until 1969, when he retired from the position of coordinator of reserves in the headquarters exploration department.

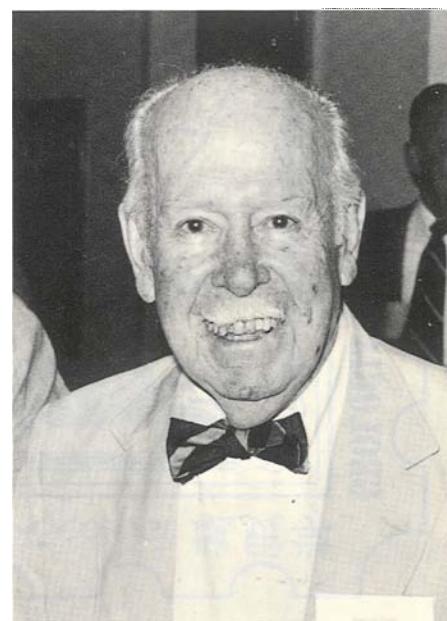
Mr. Pressler is survived by his wife, Maxine, his son, J. Eric Pressler, and three granddaughters, all of Houston; a sister, Margaret Barr of Austin, and a brother, Herman Pressler, of Houston.



ROSCOE C. WILBER JR. (BS '37) died on November 27, 1991. He attended Cornell University from 1930-

32, then came to UT in 1934 and received his BS degree in 1937. During his 33-year career as an exploration geophysicist, Mr. Wilber worked for a number of years for Teledyne Exploration in New Orleans and Houston, and also worked for J. Richard Hunt and Associates in Houston.

Mr. Wilber retired on January 1, 1967, and in 1982 moved from Houston to Seguin, Texas, where he lived at the time of his death.



CHARLES E. YAGER

CHARLES ERVIN YAGER (attended UT from 1919-1921) died of congestive heart failure on November 28, 1991, at the age of 92 in his home at Fort Worth, Texas. He was an outstanding geologist and generous contributor to the University of Texas at Austin, Department of Geological Sciences. He and his wife, Gilcy, endowed three University of Texas professorships in geology and also endowed the Mr. and Mrs. Charles E. Yager Field Scholarship Fund for students attending Geology Field Camp. Charles was a founding member of the Geology Foundation (1953) and later became an Honorary Life Member of the Foundation.

Charles was born in Indian Territory (now Oklahoma) and was reared in Abilene, Texas. After serving in World War I as a First Lieutenant he attended the University of Texas at Austin where he was a member

of Delta Kappa Epsilon fraternity. He was a founding member of the Zeta chapter of the Sigma Gamma Epsilon (Geology) at Texas and this chapter later became the largest Sigma Gamma Epsilon chapter in the United States. He later transferred to the University of California where he graduated with a BS degree in geology in 1922.

After graduation, Charles went to work for Texas Pacific Coal and Oil Company and served as its president from 1949 to 1954. He then became president and chief executive officer of the Southland Royalty Company, serving from 1955 to 1966. Upon his retirement, he became an oil and gas consultant and he managed his family's oil and gas interests.

He was a long-time member of the American Association of Petroleum Geologists, serving as a director and chairman of the Finance Committee. He was a member and director of the Rivercrest Country Club, and member of both the Exchange Club and Steeplechase Club. He was a founding member of the Fort Worth Boat Club and the Fort Worth Petroleum Club. In 1991 he became a charter member of the Littlefield Society at UT-Austin.

His hobbies included golfing, hunting, fishing and gardening. Travels permitted him to visit Europe, South America, the Far East and Alaska. He attended the Episcopal Church and was an active member of the Republican Party.

He is survived by his wife, Hyawahnah (Gilcy) Rennie, whom he married in 1924, and two children, Beverly (Mrs. Oliver H. Ross Jr., BA UT, 1948) and C. Edward Yager II, and eight grandchildren. Charles was a devoted husband, father and grandfather.

The guidance and help that Charles provided as a member and a Life Member of the Geology Foundation at the University of Texas and the accompanying financial assistance that he provided to the University were giant steps forward for both the University and Geology. His smile and helpfulness will be missed in future Geology Foundation meetings. We salute you, Charley!

— Samuel P. Ellison Jr.



Edwin V. Acker (BS '56) is an independent rancher in Tilden, Texas. "Bev and I are enjoying retirement and grandkids."

G. Baxter Adams Jr. (BS '51, MA '53), a Texas rancher and apple grower, says, "I live on a ranch near Medina. I propagate maple trees and have a number of apple orchards. Spend most of my time in the apple business. My wife and I own and operate an apple store called the 'The Cider Mill' in Medina—stop in to see us!"

Jim W. Adams (BS '51) writes from Midland, "Survived another cut at Exxon (41 years). Also survived one year as president of West Texas Geological Society. Raised money to repair Wallace Pratt's home in Guadalupe Mountains National Park for use as a research center for geologists, naturalists, cave explorers, etc."

Floyd J. Adcock (BS '55) says, "Feel lucky to have a job. Working Wilcox Trend in South Texas for a great oil and gas exploration company." Floyd works for Banner Petroleum Company in Houston.

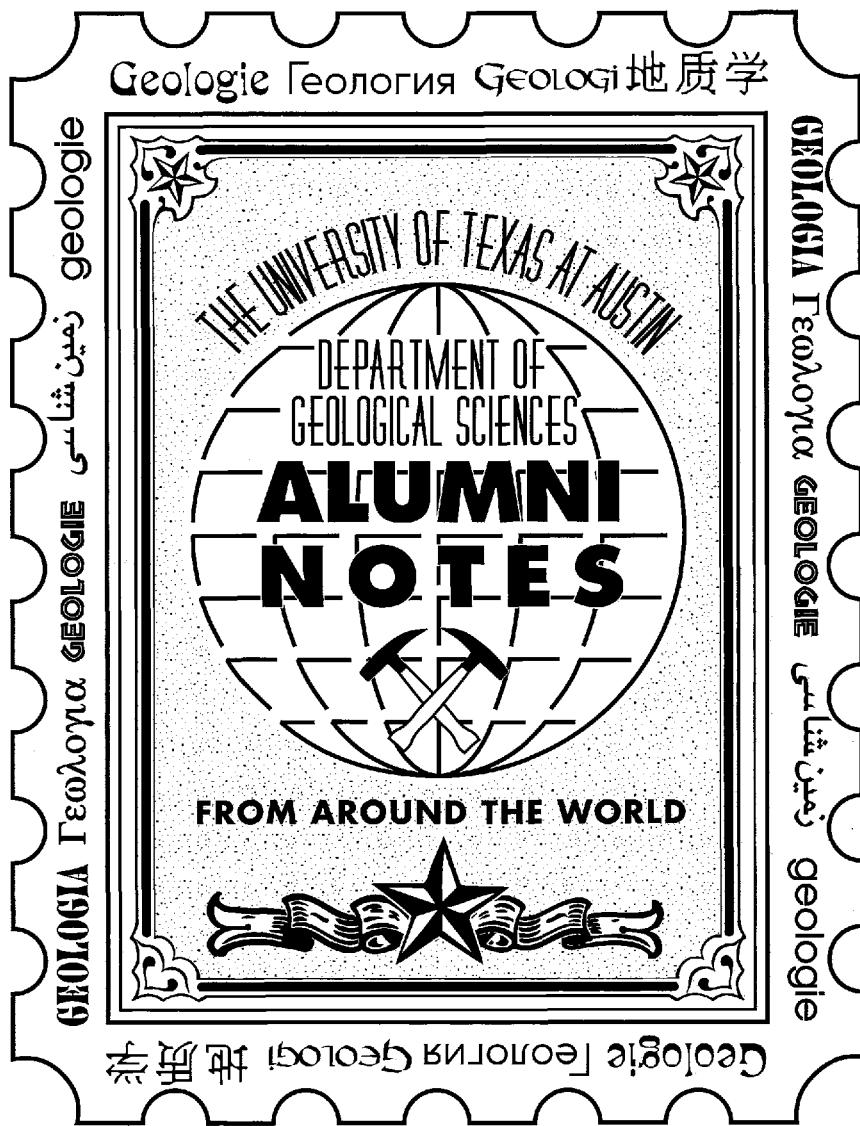
Henry N. Aicklen Jr. (BA '49) is retired and living in Houston.

Bill Akersten (BS '64, MA '67) lives in Pocatello, Idaho and reports, "Things are busy but going fairly well. Our museum will be remodeled during the next year and my first PhD student just finished up—but in biology! Stop by on your way to Yellowstone."

Elise D. Akin (BA '47) is owner of Metro Photo and Video Store in Wichita Falls. "Still very involved in retail camera stores. Beginning to go into electronics in our processing lab. Otherwise, I'm just enjoying my grandkids and life in general."

Charles W. Alcorn Jr. (BS '52) chairman and CEO of Alcorn companies, continues to look for oil and gas in the international area with some success. "Should be bringing a pretty nice oil field on production offshore Philippines about June 1st, stay tuned. Still residing in Victoria, so drop in if you're in South Texas."

Patricia Allen (BS '84) is a hydrogeologist with ERM-SW Inc. in Houston. "Got a MS in geology at Oklahoma State in 1987. Got an oil job in 1987 and



hated it. Got out of oil and into environmental hydro industry in 1990 and love it! Got married and bought a big house in the summer of 1991; currently work with two UT alums: Gary Donnan and Sally Rothwell; 'hi' to all Geo-Buds!"

David Alt (PhD '61) is a professor of geology at the University of Montana in Missoula. "Mostly these days I worry about asteroid impacts, flood basalts, hotspots, and oceanic ridge systems—all one big problem."

Gene Ames Jr. (BS '55) is president of Venus Oil Company in San Antonio. "Enjoying a two-year term as chairman of the IPAA. Spending half my time in Washington. We all owe Bill Fisher our thanks for serving as the national spokesman about our nation's great endowment of undeveloped oil and gas reserves."

Bill Anderson (BA '67, MA '75), a senior geological specialist for Phillips Petroleum in Houston is "currently working to form a new professional organization: Diminishing Society of Geoscientists in U.S. Trends (DISGUST). Any eligible candidates out there? Our platform: we oppose the strategies of BODE (Bailing Out of Domestic Exploration)."

James H. Anderson (PhD '85) is a senior exploration geologist for Exxon in Houston. "Debbie and the kids are doing great. Miss old Scott Gorham since he and Susie left Exxon for New York. Still traveling a lot, out of the U.S. four months last year. Did field work in Angola. Biggest problems were unexploded mine fields and cobras. Job still exciting."

John J. Anderson (PhD '65) writes, "Took early retirement from Kent State University as result of wife Linda's health, and moved from under the leaden skies of Ohio to the foot of the Hurricane scarp in Utah, where I can continue my research in the high plateau." John lives in Cedar City.

Nancy Jenswold Johnson Anderson (BA '50) is owner/managing principal for a planning consulting firm in Dallas. "Recently moved into larger offices because of increased work load, a pleasant surprise in this economic downturn. Environmental impact studies in Georgia and Texas and planning projects in the Dallas area keep me busy. Looking forward to an August vacation in the Vermont mountains."

Paul Anderson (att. '39-'42, '46-'47), a partner in W.D. Anderson and Sons, reports from Midland, "Peg and I are doing OK. Not working as hard as I used to. Ken is ranching in South Dakota (three kids). Karen in Wimberley (two kids). Haven't taken any trips lately because Peg has MS and it is pretty hard on her."

Payton V. Anderson (BS '45) is a partner with W.D. Anderson and Sons in Midland. "Active in the search for oil and gas in the Mid Continent and southeast states regions. Same wife (Evelyn), three daughters and nine grandchildren. Hobbies are travel and golf."

Mark W. Andreason (BS '85, MA '90) is an exploration geologist with Unocal in Oklahoma City. "I remain very busy between my new daughter, Sierra, and generating Ordovician prospects in the Michigan Basin. My family and I wish everyone at the Geology Department and at the Bureau of Economic Geology the best."

Tom Anderson (MA '67, PhD '69) is a professor of geology at the University of Pittsburgh. "Back to research in Sonora after several years in northeastern Mexico. Too much committee work at Pittsburgh. Is this what happens to a 50-year-old person?"

Edgar P. Armstrong (BS '51) writes from Houston, "Retired in January of this year. Enjoying it and performing a lot of honey-do's."

Tom F. Armstrong (BA '75) is president of Armstrong Oil and Gas in Dallas. "Drilling oil wells (and some dry holes) in Hardeman Basin."

Sara Avant-Stanley (BS '78) is a consulting geologist in New Orleans. "Rick and I welcomed a new son, Carson Benjamin (named for his grandfather, Joseph Benjamin Avant, another UT geologist), on June 10, 1991. He joins his sister, Blair (8), and brother Jorden (5), in keeping us on our toes. I'm still doing a bit of consulting when it comes my way, which isn't what it used to be. Come visit when you're in New Orleans."

Carol Evans Avery (MA '86) lives in New Orleans and works as a petroleum geologist. "Chevron is reorganizing so by the time you read this I may be out of a job. On the bright side, my husband's private investigation firm is doing well here in 'The Big Easy' and our 9-month-old child, Harris, is healthy and feisty."

Mark G. Avery (BS '83) is an oil and gas asset analyst in Houston. "Where are Mark Martin, Bruce Gates, Marcus Key, and Jenna McFarland?"

— B —

A. C. Baker (BS '51) is an independent geologist in Wichita Falls.

Ernest T. Baker Jr. (BS '55) has completed 36 years with the USGS in Texas. "Lu and I have been married for 31 years. Ken (30) pursues a career in communications, and Laura (26) pursues a MS in library and information science at UT." Ernest lives in Austin.

Jerry D. Baker (BS '51) writes, "Retirement is great, but it does not pay too well. On the other hand, working can be a pain sometimes and you lose one third of your Social Security checks. At least I am not in geology and unemployed for the umteenth time." Jerry lives in Richardson, Texas.

Tracy A. Baker (BS '86) lives in Houston and works as a project geologist for DuPont Environmental Remediation Services. She married Richard A. Gibson on May 30, 1992.

Linda R. Balcom (BS '87) comments from Colorado Springs, "Joined Dames & Moore in April, 1992. Colorado is beautiful and work is challenging and exciting. The environmental business continues to provide excellent opportunities. Hey, you 660 geo-nubs of 1987. I recently visited Taos and can only remember the fun, '...walking in a winter wonderland'."

William W. Ballard (PhD '61) is president of Ballard & Assoc., Inc. in Billings, Montana.

Michael E. Barrett (MA '79) is an engineering student at UT Austin.

Benjamin (Ben) Barrow (BS '51) is retired and living in Utopia, Texas. "I am still doing too much community work and less brush cutting on old family ranch. Also, getting involved in Barrow family association, tracing ancestors through the South back to Lancashire, England."

William Bath (MA '80) chief of environmental remediation for Martin Marietta Astronautics in Lakewood, Colorado. "I'm keeping busy managing environmental cleanup activities for Martin Marietta. Jackie (BS '80) and I have two sons, ages three and five, to keep us busy. We play soccer and enjoy camping, hiking, bicycling, and wind surfing."

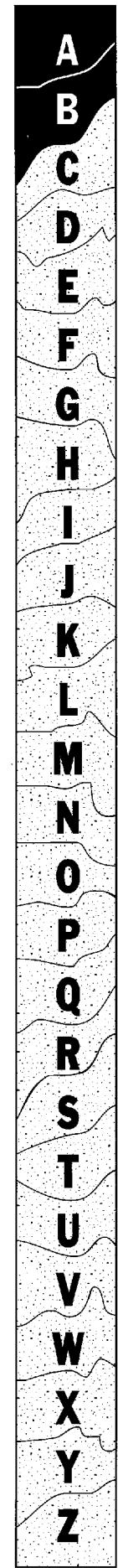
Joe Beard (BS '42) is an independent petroleum geologist in Wichita Falls.

Robert E. Beatty Jr. (BA '51, BS '53) is a consultant in San Antonio.

Roy L. Bechelhymer Jr. (BS '52) is retired and lives near Austin. "Moved to Lakeway in March. Back to Longhorn country after 60 years in Houston."

Bryan D. Beck Jr. (BD '32) is an independent petroleum geologist in Beaumont, Texas.

Fred B. and Teresa Harkrader Becker (BS '83) report, "Fred and I are



hanging in there. Fred is still with Shell and I am with Amoco in New Orleans. Our daughters, Lauren (3) and Lindsay (1 1/2), keep us busy. We would love to hear from any old UT buddies. Hello to Mike Stowbridge. It was great hearing from you!"

Lynn S. Beeler (BS '62) comments, "Have lived in the Dallas area for nine years. I am currently working with Computer Language Research, Inc. doing insurance tax returns. Married, with one daughter in high school."

Sidney S. Bell (BA '46) has retired in Fort Plain, New York.

"Sold my jewelry manufacturing business, moved closer to the Adirondack Mountains. Had three months of cobalt radiation for cancer. At the hospital they found I had diabetes too. Still active; but those Golden Years are tarnished. Triple by-pass and two spinal operations have slowed me down a tad."

Walter E. Belt Jr. (BS '43) reports from Flatonia, Texas. "Virginia and I are doing fine—few trips but never enough—doing family history."

James B. and Kathryn G. Bennett (BA '61; BS '61) write from New Orleans, "Still continuing with an active exploration program in North Louisiana and South Arkansas on behalf of a client. We are also trying to remain as flexible as possible in order to prevail over whatever the next mutation is within our industry. This year I am serving as vice chairman of the Houston chapter of SIPES. Daughter Kathryn and son-in-law Jeff are returning to Dallas after two years with Coopers and Lybrand in London. They will be accompanied by first grandson Travis. Son Wiley will be returning to the University in the fall as a junior. Kathryn and I had a most enjoyable conversation with Dr. Boyer at the SIPES convention in Midland last March."

R. E. Bennett (MA '59) is still in the exploration business in Denver. "Have an undeveloped discovery

in West Texas. Going to merge corporation with one in Texas."

Gregory A. Berkhouse (BS '82) is a geologist with Exxon in Midland.

Don G. Bilbrey (BS '53, MA '57) is retired from Gulf Oil in New Orleans. "Still retired and playing a lot of golf. As the age increases so

shock. We are living in Woking, Surrey. Bryan is six and Robin is three."

Harvey Blatt (MA '58) is a professor of geology at the University of Oklahoma in Norman. "The second edition of *Sedimentary Petrology* appeared in the fall of 1991. In preparation are the second editions of *Petrology* and *Laboratory Manual for Environmental Geology*."

Robert H. Blodgett (PhD '90) reports, "Reorganization of state government on March 1, 1992 resulted in my transfer from the Texas De-

partment of Health to the Texas Water Commission in Austin. I'm working with a geographic information system to evaluate the vulnerability of 15,000+ public water supply wells to contamination. The work is interesting but I am still hoping to get a college/university teaching position."

Bob Bluntzer (BS '60) is a hydrogeologist for the Texas Water Development Board in Austin. "Project leader of model study of Gulf Coast aquifer, regional study of Paleozoic aquifers around Llano Uplift and maintenance of flows at Comal and San Marcos Springs. Coordinated and participated in borehole geophysical research with Schlumberger, Halliburton, Southwest Research Institute and others."

Steven Bond (BS '74, MA '82) is a project hydrogeologist for McCulley, Frick and Gilman, Inc. in Austin.

Julie Bonner (BS '83) writes, "After graduating and working for an engineering firm, I returned to UT on scholarship for a petroleum engineering degree. I currently work for Conoco as a petroleum engineer, and I would like to say 'Hey' to all my old classmates." Julie continues to live in Austin.

John L. Boone (BS '73, MA '79) writes from Houston, "I'm fully committed now to a new environmental career with Conoco, performing assessments and remediation projects over much

Alumni Honors ...

Eugene L. Ames Jr. (BS '55) has been elected to a two-year term as chairman of the Independent Petroleum Association of America. The election took place last October at the group's annual meeting in Denver. Gene is president and CEO of Venus Oil Company in San Antonio, and serves on the UT Geology Foundation Advisory Council.

does the handicap, but five is not too bad for an old man."

Terry V. Bills Jr. (BS '55, MA '57) is president and geologist for Sevarg Company Inc. in Lafayette.

Russell C. Bingley (BS '62) is an associate engineering geologist for the California Department of Water Resources in Chico.

Scott Birmingham (MA '87) lives in Loveland, Colorado.

David Birsa (PhD '77) writes from London, "The oil business in the North Sea is still reasonably good. It's good to be here and not in the States. It's a shame to see the domestic oil industry crumble." Dave is general manager of exploration for Chevron UK.

William T. Biskamp (BS '54) comments, "Retirement?? Real estate is seven days per week! Mona is managing an office, so work doubled for both of us, but if Dallas ever recovers.... Anyway, we're watching the three grandchildren grow—everything else seems secondary."

Keith Bjork (BS '84) is in orthopedic surgery training at UT Health Science Center in San Antonio. "Greetings to all of the Swiss field trip groups. Keep in touch."

Barbara J. Smith Blaisdell (BS '78) writes, "After enjoying the best of life in Calgary for 3 1/2 years, Mobil Oil transferred us to London where Dave is a petrophysicist for North Sea operations. Arrived March '92 and are surviving major culture

of the country. It's nice to have a steady paycheck. Imagine my surprise to run into Pat (Mench) Ellis who is an environmental agency geologist in Delaware. I must now clean up the soil and ground water to her standards! Small world."

Silverio Bosch (BS '74, MA '75), an independent petroleum geologist in Corpus Christi continues prospecting in the South Texas Gulf Coast trends for gas and oil. "Looking forward to the day when we can look back and laugh at what happened to the domestic oil industry the past ten years. Lisa and I are enjoying watching Matthew (4) and Eric (2) run our lives. Greetings to all survivors!"

Walter A. Boyd Jr. (BS '53) writes from Houston, "Bottom of hill around the next curve. Keep up the good work on the *Newsletter*."

Walt V. Boyle (BS '54, MA '55) is retired from Shell Western Exploration and Production Inc. after almost 37 years. "Doing consulting geology in the Permian Basin of West Texas and New Mexico." He lives in Houston.

Bryan Bracken (MA '82) is a clastic petrologist in San Ramon, Calif. "I'm performing research, special sedimentological projects, and teaching for Chevrons Overseas Exploration and Production Company."

Ralph Beaver Jr. (BS '58) is president of BEVEX Corporation in Fort Worth. "I'm still plugging along. How is everyone else?"

Jeanne Brennan (BS '83) is a geophysicist for Marathon Oil in Houston.

Herbert L. Brewer (BS '47) writes from Dallas, "Retired from Triton as of December 31, 1991 but remain on the board of Triton Energy and Triton Europe. Still making a few trips back and forth to Europe. In process of forming a new company, Hexagon Energy, to conduct exploration on an international basis. Enjoy seeing our grandchildren a few times each year."

Susan P. Briggs (BS '85) is a full-time mother in San Antonio. "Mark

(BS '85) and I feel quite lucky in our success. Business is booming and so is our four-year-old, Clay. Would love to hear from any classmates. Contact us at: 9722 Kelton, San Antonio, Texas 78250."

Anne L. Brigham (BS '84) is vice president of Brigham Exploration Company. "I resigned from my position at the law firm last November to join Brigham Exploration Company, and I am thoroughly enjoying the change of pace."

Ben M. Brigham (BS '83) is president of Brigham Exploration Company in Dallas, Texas.

David B. Brock (BS '65) writes, "Still in the oil business as a consultant, but certainly not the same as the good old days." Dave lives in Tyler.

M. H. (Buddy) Brock (BS '56) reports, "Been in Edna now for 34 years. I was reporting kids (4) but am down to grandkids (3). Still have farming operations and part owner in bulk fuel dealerships."

Ken Brook (BS '67) is president of Desert Ventures, Inc. in Reno, Nevada. "Another challenging year has come and gone, and the U.S. still has a mining industry. The way things are going if the greenies don't get us, the government will. I hope the other four members of the class of '67 are hanging in there. DDYBW Ya'll!"

Gerald R. Brooks (BS '58) is vice president for Marlin Exploration, Inc. in Bossier City, Louisiana.

Suzanne Champeny Brooks (BA '88) is a wife and mother in Austin.

Larry Browning (MA '77) contributes, "Except for a year at Conoco, still doing consulting, about 50/50 oilfield and environmental. After all these years, finally made it back to live in the Austin area. Love it even more now."

Gib Brown (BS '76) reports, "Jeannette and I have five kids. Life couldn't be better although the price of gas could be a little higher." Gib is an independent petroleum geologist in Amarillo.

Wallace E. Brunson (BS '42, MA '54) is an independent geologist in Houston. "Hoping to make the Texas Exes get-together in Calgary (AAPG) in June. Things are quiet in the patch."

J. E. (Woody) Bryant (BS '43, MA '48) writes from Fredericksburg, "Oil activity slow; still correlating a few logs in South Texas to calm my nerves and, maybe, even find a drillable deal."

Leonard C. Bryant (BS '57) is an independent geologist in Helotes, Texas.

Julius A. Buchanan (BS '41) is retired in Tyler and is "still getting along great. I do volunteer work, do a lot of walking, and take many pills. My wife Virginia and I take short trips in East Texas visiting celebrations. It is a great life."

Michael S. Bumpass (BS '78) lives in Austin.

T. J. (Jeff) Burnett Jr. (BS '49) is "still in insurance business in Houston. My wife and I enjoy our eight grandchildren."

William M. Burnett (BS '50) works as a geologist in Tyler. "Beverly died in 1986. Remarried in 1990 to Betty Albright of Tyler. Moved from Winnsboro to get closer to the log library."

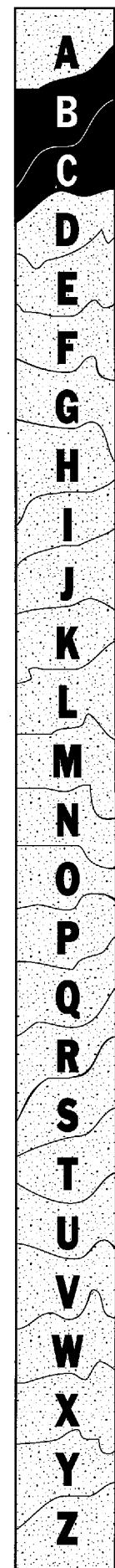
Robert W. Bybee (BA '41) writes, "Elizabeth and I continue to enjoy good health, our family, friends, and golf. Occasional consulting plus fishing, hunting and travel keep me out of trouble the rest of the time." Bob lives in Houston.

Gary L. Byrd (BS '84) is a roofing contractor in Rockwall, Texas. "Involved in fossil collecting with Dallas Paleontological Society, found 8 foot long set of shark vertebrae near DFW Airport."

— C —

W. J. (Jack) Cage Jr. and **Susan Kiefner Cage** (BS '50; BA '50) live in Boerne, Texas. "Golfing, gardening and enjoying our pets. Enjoying seeing other exes."

Frank K. Cahoon (BS '57) is an independent oil operator in Midland. "Have three wonderful



grandchildren living in Austin; the two older ones love geology. Completing my fifth year on the Texas Higher Education Coordinating Board and have enjoyed being chairman of the research committee; however, I do not believe enough research is being done related to petroleum exploration."

Roger Q. Callaway (BS '77) writes, "The domestic gold exploration business appears to be just about dead. Onward into the dirty water I guess. Better news at home. Happily married to Nancy; we have children Robin and Jimmy and are expecting a third child." Roger is a consultant in Matthews, North Carolina.

Dean L. Callender (BS '56, MA '58) says, "I really agonize over the decline in number of petroleum geologists. Hope Wall Street and Washington wake up before we all have to learn Arabic." Dean is senior vice president of Dean Witter in Houston.

Jorge Camargo (MA '82) contributes, "Still living in Natal, Brazil, at the corner of the South American continent, and working with Petrobras in exploration of the Potiguar Basin."

Donald H. Campbell (MA '62) is principal petrographer for Construction Technology Laboratories in Skokie, Illinois. "Folk and I continue to refute the cast-in-place theory of pyramid stones at Giza. Such theories deserve eradication because they give good science a poor reputation. Work at CTL continues apace, mostly litigational microscopy."

Donald M. Campbell (BS '57) writes, "Still traveling between Maryland and Kansas, helping take care of older relatives. Still miss traveling in Latin America. Our address is 9931 Johnson Drive, Merriam, Kansas 66203; our phone no. is 913-432-1145."

Alvin Candela (BS '41) is semi-retired and living in Galveston. "Enjoying good health at 72. Hopefully the president elected should have an energy program with a new cabinet official. Discourage Middle East oil dependency. Force the companies to develop the many structures in the Gulf of Mexico or retain so many

acres. Imported oil is responsible for our continuing deficit."

Rosemary Capo (BS '80, MA '84) writes, "I received my PhD from UCLA in 1990. After a stint in the lunatic asylum (Charles Arms Lab) at Caltech, I'm now a post-doc with the Jet Propulsion Lab and a Caltech visiting associate." Rosemary lives in Pasadena, California.

J. D. Carballo (MA '85) is an exploration geologist working for Marathon Oil in Houston.

A. T. (Toby) Carleton (BS '51, MA '52) lives in Midland. "Have put the search for the big one on temporary (hopefully) hold as my funding has dried up. Am currently spending most of my time as a rancher and discovering that there is a lot more to it than I thought."

Joel C. Carlisle (MA '55) writes from Jewett, Texas. "Dee and I are enjoying the good life at the ranch. I'm still doing some consulting work and progressing into the final stage of the development of a new breed of cattle, the Salorn."

Marvin T. Carlsen (BS '52) is a retired petroleum geologist and teacher in Midland. "I stay busy keeping five year old granddaughter while mother works, and raising a back-yard garden. Wife and I love to go to the mountains for a week or two whenever we can get away. Wife was bitten by a brown recluse (violin) spider recently. They are prevalent in the Southwest now; don't postpone treatment if a 3-4 inch diameter area appears."

Monica Farek Carlsen (BS '86) is a development geologist for Chevron USA Inc. in Bakersfield. "Loving life in California! Hi to all the Geodogs from field camp 1985!"

Darryl E. Carlson (BS '64) is a managing associate in hydrogeology for Pilko & Assoc., Inc. in Houston.

Steve Carlson (MA '84) is an exploration computer coordinator for Unocal in Houston. "Things are looking bleak in the domestic oil industry, as everyone knows. On the personal domestic scene, kids Rita (4) and Erin (2). Wife Jenny is still in the (extended) graduate program in clinical psychology. We made a trans-Bellaire move last

summer and sold our tear-down and moved into a fixer-upper."

David L. Carr (MA '83) lives in Denver.

"After a stint as a marine geologist/bush-league rock star in Australia, I have resettled in Colorado and have been consulting for the oil and gas business during the past two years. Although it's a long commute to the oil patch from Denver these days, each day provides adventure. And the frequent flyer perks are great!"

Royce P. Carr (BA '74, BS '76) reports, "I operate an office in Mt. Pleasant, Texas for W. B. Yarborough. We screen and generate oil and gas prospects throughout Texas and the surrounding states. In 1992 I was elected to be secretary of the Division of Professional Affairs of AAPG. Deborah and I miss Austin. We hope to see our Austin friends at AAPG in Calgary."

Richard Carroll (BS '80) works as a senior exploration geologist for Ultrama Oil and Gas Ltd. in Houston. "I'm still employed but with the company having been purchased by LASMO, I may not be much longer. Robin and I have been trying to get an international assignment, most hopefully in either Far East or South America, but that hasn't quite worked out yet. If any of you need a good exploration geologist, please give me a call. We will go anywhere."

Ralph V. Carson Jr. (BS '55) writes, "Retired from DuPont and enjoying a life of leisure to the extent I can with eight dogs around the house. However, the dogs are still winning in the show ring, and so far we always have a waiting list of prospective buyers for our puppies." Ralph lives in Chadds Ford, Pennsylvania.

Robert (Bob) Carter (BS '48, MA '48) is retired and living in Austin. "Found there is life after 70—Elderhostels! Next one is a reunion of a 1990 Holland bike tour."

Jack C. Cartwright (BS '51, MA '55) is owner of an oil and gas business in Midland. "How time flies. Here I'm starting my fifth decade of my profession as a geologist and I have a grandson starting to college this year. Barbara and I continue to live and work in Midland and to watch our family

grow up. I do some in the oil business but I also invest in other areas."

David G. Casey Jr. (BS '60) is an independent oil operator in Mandeville, Louisiana. "Still fighting the battle of the oil patch. Lots of opportunity and little money available. Working mostly on salt domes. Love'm."

Dwight E. Cassell (BS '54, MA '57) is completing a new home west of Austin. "Looking forward to getting back to work in my new office. Linda continues contracting paralegal services for Exxon. We're trying to ease into semi-retirement."

Ed Cazier (MA '84) is a senior geologist for BP Exploration. "In May, wife Suky, daughter Isabella and I moved from Alaska to Colombia, to work on the appraisal and development of the Cusiana discovery, in the Llanos Foothills. UT is abundantly represented by engineers James DuPree, Pat McCelvey, Francis Sommer and me, on the development team."

John G. Champion (BS '47) is semi-retired in Tyler. "I share an office with two sons who are petroleum landmen."

Steven D. Chang (BS '87) is an operations geophysicist for Western Geophysical in Houston.

Robert Chapin (MA '80) reports, "Recent arrival 4/20/92 Nicolas Isaac Chapin. Baby and Mom (Anna) doing great. Moved to Geraghty and Miller, Inc. in January. More travel and fun." Bob lives in Austin.

Thomas Chapin (MA '81) is a project geologist for Goldfield Operating Company in Yuma, Arizona.

Jenny B. Chapman (MA '84) lives in Las Vegas. "I continue to work with Desert Research Institute on problems of arid zone hydrology, but my most ambi-

tious recent project is Jane Elizabeth Chapman, born last November!"

Walter Chatham Jr. (BA '48, BS '50) reports, "Still alive but nothing else exciting." He is retired in Mineral Wells, Texas.

Tom H. Chesnut (BS '59) is a sales manager for Texas Industries, Inc. in Arlington. "Family all OK. Daughter graduated from TCU; now I can get a new boat."

Russell E. Clemons (PhD '66), professor of geology at New Mexico State University in Las Cruces, writes, "I will retire June 30. Plan to still do some geology, but as I

George Coffin (BS '59) is a senior tech service engineer for M-I Drilling Fluids in Houston.

H. Grady Collier Jr. (BS '49) writes, "1992 chairman of Advisory Council and vice president of Division of Professional Affairs of AAPG. Moved offices after 22 years to 1515 Poydras Building. Drop in for a visit when in New Orleans."

Billy C. Collins Jr. (BS '76) writes, "My family and I have lived very contently in the Corpus Christi area for the last ten years. I remain highly interested and motivated in the pursuit of oil and gas prospects

in the Texas Gulf Coast area and owe my success and understanding of complex geologic/geophysical processes to the Department of Geology at UT and its inspiring educators." He is dis-

trict geophysicist for Hanson Minerals Company.

James W. Collins (BS '56) reports, "Still holding on in a business that's gone." Jim is a geologist and oil operator in Corpus Christi.

H. C. Cooke (BS '41) is "still located in Ft. Pierce, Florida (redneck country). Fishing lousy, weather great, and boating still fun. Have gone from sailing to motor yacht. As usual, summer in the Bahamas, fishing and diving; can never tire of the beautiful coral. Nancy and I enjoy company—give us a call if you are in Florida."

Taliaferro Cooper (BS '49) is a geologist in San Antonio. "Virginia and I enjoyed skiing with our two daughters and three grandsons at our house in Telluride, Colorado."

Casey and Susan Schwarz Cornett (BS '86; BS '86) live in Houston, where Casey is an exploration computer analyst for Energy Development Corporation and Susan is a geotech for Columbia Gas Development

Alumni Honors ...

Robert Brackett (BS '86) was awarded the Outstanding Student Paper Award for a planetology paper given at the AGU fall 1992 meeting. The paper was entitled "Cratering mechanics on Venus: pressure enhancement by the atmospheric ocean." Bob is pursuing a PhD in geophysics in the department of earth and planetary sciences of Washington University in St. Louis. Collaborators on his research are Ray Arvidson and Bill McKinnon.

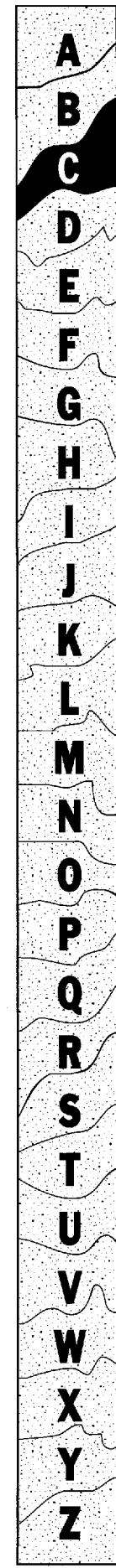
want, when I want. Also do more traveling, play more golf, read fiction, enjoy my hobbies of woodworking and photography; maybe return to fishing some. Frankie plans to retire next January 30 and then we will be doing more traveling other than during the summer."

Kelton Cloud (BS '73) has "recently transferred to Lafayette from Dallas; active in South Louisiana and South Texas; hope to get the family moved here this summer or fall."

D. B. Clutterbuck (MA '58) is president of AFG Energy Inc. in Houston.

Walter Cochran (BS '79) is "still prospecting in South Louisiana and Southeast Texas. I am also involved in developing and giving geologic testimony for Joyce and Hiltz." He is a consulting geologist in Houston.

Gordon E. Coe (BS '53) is a managing attorney for Maxus Energy Corporation in Dallas.



Co. "We are expecting our first child in August. Hoping we will make it through the current market unscathed."

Frank G. Cornish (MA '75) spent 13 months as an independent after the sale of TXO. "Joined Suemar 1/92 exploring Vicksburg in Starr, Colorado. Currently treasurer of Corpus Christi Geological Society; Boy Scout committee; academic liaison committee; continue writing career—pays as well as geology. Missed my 40-year-old retirement goal, now shooting for 41."

Henry C. Cortes Jr. (BA '40) is retired in Wellfleet, Massachusetts.

Augustus S. Cotera (BS '52, MA '56, PhD '62) writes, "Retirement is now in view (1993) in Spain (summer/fall) and in Yuma (winter/spring) writing historical fiction novels and traveling throughout Europe for the next 30+ years!"

Jerry Covington (BS '43) reports from Midland, where he is president of COV Inc. "Greetings to all my former classmates. Still fighting the good fight, but it does get tedious these days."

Frederick E. Crawford (BS '83) is a registered professional land surveyor for LCRA in Austin. "I am enjoying my work at LCRA immensely. We performed the nation's first large-scale hydrographic survey utilizing real-time differential GPS. After three months of data collection on Lake Buchanan, we were able to generate a very accurate bottom map. Hey Kevin, call me collect."

Weyman W. Crawford (BS '50) is a petroleum consultant in Houston.

John C. Crowell (BS '39) writes, "Betty and I have now moved into an elegant retirement community where we can ease up on house and garden keeping, and much more easily enjoy our leisure. I have a copious study as well as a university office, and can continue geologic research and writing on into the indefinite future." John is professor emeritus in geology in Santa Barbara, California.

C. Paul Crumpler (BS '57) is "still married to same little ol' gal, Barbara (39 years), seven grandchildren. Struggling with agriculture as usual, but still a great life. Our oil economy has

really affected our area. Everyone around here has been affected and hurting." Paul owns a farming/ranching operation in Wichita Falls.

Thomas M. Culbertson (MA '47) is retired in San Antonio. "Water issues remain significant in the San Antonio region. We need a scientist such as William L. Fisher to tell us truths."

Steve Cumella (BS '77, MA '81) writes from Grand Junction, Colorado, "Began work as an environmental geologist for SEC Donohue in May 1992."

Hugh W. Curfman (BS '48) says, "So quiet in Louisiana, just visiting kids until something happens." He is a semi-retired independent in Lafayette.

Thomas B. Curlee (BS '50) contributes, "The energy companies are on the down side, but it will get better. I play golf and have lunch often with two old Texas Exes, Ward Hall and Lloyd Gatewood." Tom is a petroleum exploration geologist in Oklahoma City.

William W. Curtis (BA '82) is president of Empire Royalty Company in Oklahoma City. "Recently invented a method to get institutions of higher learning to stop pestering me for money. Also trained my bloodhound to do cross-sections."

— D —

Harris P. (Koop) Darcy (BS '51) says, "I recommend that everyone visit the 'creation evidences museum' in Glen Rose, Texas. Dr. Carl E. Baugh has made some amazing discoveries. Please go soon." Koop is an independent in Houston.

Erik K. Davidsen (BS '83, MA '86) writes from Houston where he is a senior geologist for Chevron. "Exploring for oil in Alaska. Getting married on Sept. 26, 1992 to Donna Reese of Barrington, Illinois."

Flavy E. Davis (MA '37) is retired and living in Aspen, Colorado.

Michael D. Davis (BS '85) says, "I am enjoying myself here in South Carolina. There are plenty of golf courses, beaches and mountains to keep myself busy. I haven't run into any other Texas Exes but I hope to change that. My department is going to be expanding soon and we will need hydrogeologists. If you are interested

call me at (803) 734-5456." He is manager of the underground storage tank regulatory section for the Department of Health and Environmental Control in Columbia.

Scott D. Davis (MA '85, PhD '89) is a geophysicist for Unocal Geothermal in Santa Rosa, California.

William H. Davis (BS '41) is retired and living in San Antonio.

Franklin W. Daugherty (MA '59, PhD '62) writes from Alpine, Texas, "Dorothy and I stay busy with the family ranch and grandchildren. In addition, I am chairman of the Brewster County Historical Commission, and an adviser to the Center for Big Bend Studies and the Big Bend Natural History Association. Am collecting materials for a book on lost mines, buried treasure, prospectors, and promoters in the Big Bend. Regret very much not being able to attend Professor DeFord's birthday celebration and the Bill Muehlberger roast."

Renee Daulong (BS '89) is the president of Information Resource Services, Inc. in Austin. "Very close to finishing my MS in community and regional planning at UT. Keeping busy working with the City of Round Rock on their new geographic information system and with Information Resource Services, Inc."

Brad Dawson (BS '82) is a geologist for Norcen Explorer Inc. in Houston.

Leslie A. Dedeke Jr. (BS '55) says, "Still hanging in there with Unocal near Houston doing work on the Yegua (expanded) of Southeast Texas."

Charles J. DeLancey (BS '40, MA '42) is retired from Exxon in Houston. "After our wonderful Antarctic trip a year ago we are about to try the Trans Siberian Railroad with American Museum of Natural History."

John L. Denson III (BS '49, MA '50) says, "Refreshing my geology thanks to John McPhee...." John is a counselor and writer in Nashville.

Garry O. Dent (MA '73-75) lives in The Woodlands, Texas.

William H. (Bill) Devine (BS '48) comments from Houston, "Quiet is the word for the oil business. Everyone is pessimistic. Can it get any worse?"

Rudi DeZoeten (MA '88) writes, "Mary and I have taken the next step in life's

many experiences: the baby. Erich was born in January and filled our lives with, well, let's just say amazement. Other news: we may be rejoining friends in Texas, as the International Division of Unocal moves from Los Angeles to Houston."

Patricia W. Dickerson (BS '70), a PhD student in geology at UT, comments: "Back to research at last and thoroughly enjoying it! Starting field work in the far western Big Bend this fall. Reconnaissance sessions indicate that my area is even more fascinating than I'd expected. Grand reunion with many of you at the roast in honor of Muehlberger's phase change (retirement from teaching classes)! If you're in Austin, give a shout!"

Bill and Mary Anne Duncan Dingus (MA '87) write, "Bill and I are expecting our first child in May. We'll try to send a photo (with lens cap for scale) of the little one. (Hey Dr. Galloway! We'll finally have our own Entropy Enforcer.)"

Jane O. Dinkins (BS '38) is retired in Houston. "Still doing a little ranching at our Chappell Hill place."

Laura M. Dobson (MA '90) is a geophysicist for Exxon Exploration Company in Houston.

H. L. Dodd (BS '56) says, "I took early retirement this past December. Sandra and I will continue to

live near Houston as the children and grandchildren are nearby. Good luck to those of you who are continuing the search for our country's gas and oil."

Samuel J. Dolan (BA '57) says, "I retired from Marine Corps. with rank of Lt. Colonel. Partially retired from Tex-Trude, Inc., a plastics manufacturing company. I am now living in Rosebud where my wife, Diane, and I are restoring a 1904 Victorian home to live in and run a bed and breakfast. Still dove and quail hunt and fish for trout in New Mexico and Colorado when I can. Have four grandchildren who visit often and keep us on our toes."

George A. Donnelly Jr. (BS '40) is president of The Eastland Oil Company in Midland. He continues to serve on the Geology Foundation Advisory Council.

Gene C. Doty (BS '54) comments, "Mopsy and I are well. Son Jeff planning to marry in June. Daughter Paula, husband, and the world's cutest two grandchildren are all well. Family still misses son Charles, who died February, 1991, in aircraft accident." Gene is retired in Las Vegas.

Michael L. Douglas (BS '80) is an exploration geologist for Columbia Gas Development Corporation in Houston. "I am still working in oil and gas exploration and

production in the Permian Basin area in spite of the depression in the industry created by the Republican administration. Most of my efforts have been in regional studies with emphasis on searching for stratigraphic traps, especially Permo-Penn age algal mounds. Deb and Syd are doing great; still glad they have a petroleum geologist in the family."

James D. Doyle (BS '73, MA '76) is a staff geologist for BP Exploration in Houston.

Robert E. Doyle (BS '55, MA '57) is president of American Energy Reserve Consultants in Houston. "We are still buying gas production in southern Mississippi and onshore Louisiana. Are now involved in development projects in Western Siberia and Central Asia where the oil reserves potential is enormous."

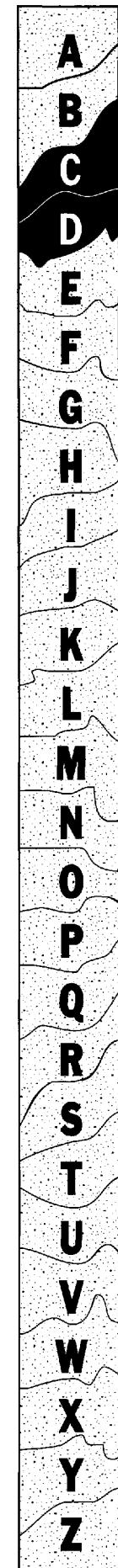
John G. Drake (BS '74) works as a district geologist for Pogo Producing Company in Corpus Christi.

William E. Dunaway (MA '62) writes, "Accepted a new position last fall as manager of geology for Scana Petroleum, a subsidiary of a South Carolina Utility Company." He works in Houston.

Robert B. Dunbar (BS '75) says, "Robyn and I are still at Rice, now with a son, Ian Cameron Dunbar, who is 15 months old. We're both



John Duke (BS '49) and his wife, Marie, own and operate this charming inn, Hubbard House, in Teague, Texas, near Lufkin.



in the field a lot: Antarctica, Japan, Peru, Colorado, and New Mexico. Funding is pretty good right now—send us some good students!" Bob is an assistant professor of geology at Rice in Houston.

Ed Duncan (BS '79, MA '87) writes, "Anne is expecting our fourth and final child in December. We will have moved by then to Stavanger, Norway to continue working the Niger Delta with a joint BP/Statoil team. I will give a talk in Calgary soon so I hope to have seen (as of this publication) a load of old friends. Drop by Norway and say hello."

Bobby DuPree (BS '54) comments, "Living happily about six miles east of Palestine, Texas, raising trees (not cane) on deep Queen City Sand. Same wife (Lerla), ten grandkids!"

William R. Dupré (BS '68, MA '70) writes, "The highlight of my year was the Muehlberger retirement roast—what more can I say? Otherwise, boys are growing up too fast, and we're not sure we'll make it through the teenage years!" Bill is an associate professor of geology at Rice in Houston.

William K. Duran (BS '83) is a geologist in Pearland, Texas. "Lisa and I are proud parents of Rachel Taylor, born in July '91. She is the best thing to ever happen to me. We both love her and cherish her more each day. Regarding business, I'm still in it (oil industry) and hanging tough."

Steve Dworkin (PhD '91) is as an assistant professor at Baylor in Waco. "I am busy teaching and doing my research on feldspar overgrowths and overbank deposits."

— E —

Fred A. Ealand (BA '45, BS '48) writes from Houston, "The UT Geology Newsletter is an outstanding source for department activities and information on old grads. Keep up the good work! Nine grandchildren and reasonably good health keep my wife and me on the go."

Roy E. (Ernie) Easley (BS '80) is vice president of Tana Oil and Gas Corp. in Corpus Christi.

Richard D. Edson Jr. (BS '83) writes, "I'm getting married on September

8th, 1992, to Suzanne Edwards, in Mombasa, Kenya on the Indian Ocean. We will be scuba diving and on safari till October when we will throw a party for our friends here in Texas on October 17th at Mayfield Park in Austin." Richard is a computer system development specialist for the Bureau of Economic Geology.

Joe Elo (BS '56), an independent and consultant in Fort Worth, says, "Extremely slow. I hope the many young geologists whom I tried to discourage left the profession as I advised. However, each felt he was the one who would make it!"

Peter A. Emmet (MA '83) comments, "1991-92: very hectic with finishing PhD at Rice University and move to Dallas area to work for ARCO. Lisa (BS '81) is now working for an environmental firm, drilling remediation wells. Spencer (5) and Bonnie (1 1/2) are fine."

Rojelio P. Espinosa (BS '85) writes, "Worked for Tesoro Petroleum Corp. for five years. Began working for Western Geophysical in April, 1992 (Latin American Operations). Will be stationed in Venezuela for two years."

David A. Evans (BS '88) says, "Life as an environmental geologist is going very well. In these times of petroleum hardship environmental consulting is booming. As a project manager for Groundwater Technology, most of my time is devoted to report and proposal writing. The UST market is very strong these days. In April, I was married and now live happily in Spring Branch."

Jim Evans (MA '65) is a consulting hydrogeologist for Orleans Environmental Consultants in New Orleans. "Hydrogeological consulting is doing better than oil and gas exploration. Now looking for water and not wanting to find hydrocarbons."

A. Gordon Everett (PhD '68) writes, "Natalie and I spent January in Argentina, evaluating the potential environmental effects of development of a new giant oil field in Neuquén Province, northwestern Patagonia. I am also studying the potential for secondary recovery by fluids and CO₂

injection. What rocks! Polyhalite-cemented andesitic volcaniclastics and hornfelsed arkoses at the surface!" Gorden is a consulting geologist and geochemist at Everett and Associates in Rockville, Maryland.

Rizer Everett (BA '37, BS '37) says, "Hildegard and I had an enjoyable trip via the inland passage to Alaska in August '92. We fortunately had clear weather in Denali National Park for viewing Mt. McKinley." Rizer is a consultant in Austin.

Norman Ewbank (BS '43) is retired and living in Midland. "Rheumatism, arthritis, anemia, hernia, osteoarthritis, computer viruses—hoo boy! Old age sure ain't for sissies."

— F —

Robert H. Fakundiny (MA '67, PhD '70) says, "I'm having a wonderful time this year as president of the Association of American State Geologists. We are pushing through Congress the National Geologic Mapping Act of 1991 that we hope will revitalize geologic mapping in the United States." Bob is state geologist of New York in Albany.

George H. Falk (BS '57) writes, "I'm still hanging out on the lake in Seguin, Texas and am involved in a horizontal well once in a while."

Dorman N. Farmer (BS '50) says, "Petroleum exploration in our area is still very slow. However, possibilities are going to get better!" He is owner of Fargo Exploration in Abilene.

Michael J. Faust (MA '83) comments, "Susan, Hailey, Jessica and I moved back to Houston after four years in New Orleans. I am working in upstream planning and analysis—strategic planning at Exxon. Not much geology, but am learning a lot about the big picture. Hailey is three, and Jessica turns two this year."

Irma M. Feibelman (BS '59) is a supervisor for software quality assurance at Loral Space Information System in Houston.

Murray Felsher (PhD '71) writes, "Daughter Elyann has completed her PhD in political science and is now gainfully employed. Son Harry is a TA/RA at Ohio State University, completing his PhD in nuclear



**Jamie Fulcher
(BS '80)**
“coming home
from the job”
during Geo 660,
Molas Pass,
Colorado, June
1980. Photo
submitted by
Steve Glahn.

engineering. Young Josh is pre-Med at Brandeis University and claims he's going to be the only real doctor in the family, Dad, mom and siblings notwithstanding. Kind of proud of the Dallas GSA paper; still getting reprint requests from around the world.” Murray is a newsletter publisher and consultant in Washington, D.C. Judge D. Finley (MA '54) continues to live in Austin.

Richard N. Fiore (MA '76) writes from Houston, “Opened up new division of my recruiting practice, called National Environmental Career Advisors. It's a self-help program to show displaced professionals how to conduct a job search in the environmental industry.”

Walter (Dub) Fitzgerald Jr. (BS '53) writes, “Made an ace 8/1/90 at Lufkin Country Club. Playing golf with Lufkin Country Club Geritol Moaners and shooting trap and skeet at Pines Gun Club in Lufkin, two super groups. Driving Miz Daisy (my spouse-mate) on occasions. Relaxing and having a little fun every day. Hook 'em Horns.”

G. E. Flack (BS '51) is “enjoying retirement in swamp country. Thanks to all that UT training. Wish I had some of the same from the UT tennis coaches. My game needs help.” He lives in New Orleans.

D'nease Young Fly (BS '80) is a geologist with Yates Petroleum Corp. “Yates is keeping Chip and me very busy. We are enjoying that fact and the small town lifestyle here in Artesia, New Mexico with our two boys (Sage, eight and Seth, six). It seems that if we're not at Yates working then we are busy being some kind of leader or coach for the boys. Each day is filled to the max. Oh, but my memories do slip back often to the party-time Austin pre-children days.”

Graham E. Fogg (PhD '86) is an associate professor of hydrogeology at the University of California at Davis.

Charles M. Forney (BS '47), an independent geologist in Corpus Christi, is still exploring South Texas and drilling a few wells each year.

Hewitt B. Fox (BA '47, BS '48, MA '48) is an independent petroleum producer in Corpus Christi. “We would like to see a good showing of Texas Exes at the AAPG South Pacific Exploration Conference in August at Sydney, Australia. We plan to visit the Great Barrier Reef but have seen lots of ‘outback’ in Zapata County already. Proposed stops at Tahiti, New Zealand, Fiji, and Hawaii should ease the jet lag a bit.”

Kevin Frenzel (BS '87) says, “This has been an exciting year for us. Our second child, Steven, was born last July and we have moved to Midland to start a branch office for Hall Southwest.”

Annabelle B. Friddle (BA '45, MA '50) has been studying computer science at San Juan College in Farmington, New Mexico. “It is fun to be with all the young people. Always enjoy the Newsletter.”

Steve Frishman (MA '69) is a technical policy coordinator for the Agency for Nuclear Projects in Carson City, Nevada.

William H. Frye (BS '51) retired in May, 1985, and lives in Dallas. “Have three sons; two grandsons, and one granddaughter. I play tennis six days a week and bridge about four times a week when my wife and I are not traveling.”

Joe Fryou (BS '40) is retired and “moving to the Chambrel at The Woodlands, Texas in June.”

James B. Furrh Jr. (BS '50) is owner of James B. Furrh Inc. in Jackson, Mississippi. “Received Mid-Continent Oil and Gas Association (Miss.-Ala.) Wild Cat Award for 1991 on Oct. 2, 1992. In February I was appointed by President Bush to be representative of U.S. to Southern States Energy Board.”

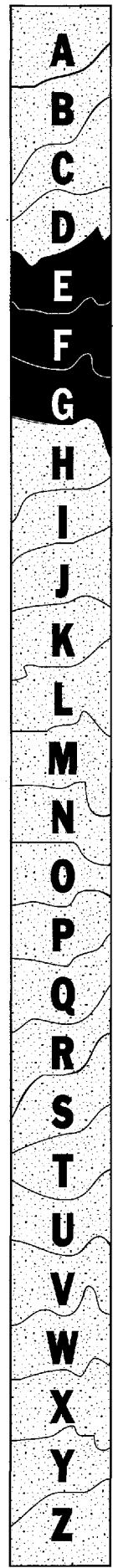
— G —

Jay L. Gallia (BA '74) is the director of the corporate and general law department for the Coastal Corporation in Houston.

William J. Ganus (BS '58) writes, “Looks like environmental work will carry me into retirement.” He is vice president of environmental technology for Kerr-McGee Corporation in Oklahoma City.

Gerardo H. Garcia (BS '82) is a senior geologist and environmental regulatory specialist in Houston. “And whatever happened to Geo Dog, our trusted field pooch from field camp in the summer of 1982.”

Daniel S. Gafford (BS '61) works as a logistics management analyst for the Defense Commissary Agency in Fort Lee, Virginia.



Cameron H. Gates (BS '60, MA '62) writes, "Enjoying still the subsurface geology of South Texas and the search for oil and gas. Not enjoying the product price, but remain hopeful it will correct itself so we can continue exploring and developing." Cameron is an independent in Corpus Christi.

Thurman Geddie (BS '45) lives in Austin, and writes, "Still drilling for oil and gas in spite of the prices." He is exploration manager for L.B. Industries oil and gas division.

John Genuine (MA '91) is a geologist with ARCO Oil and Gas. "Enjoying Dallas with my wife Cindy, but I wish I could visit the Hill Country more often."

Mary Gilkison (BS '80) works as a senior project manager at Converse Environmental West in Pasadena, California.

Gretchen M. Gillis (MA '89) writes from Dallas, "In less than three years at Maxus

Exploration Company I have worked on projects in Northern Texas, California, Texas Panhandle, West Oklahoma and just moved to our Offshore Louisiana group after Maxus cut 50% of domestic E&P staff and budget. Work remains interesting and challenging. I miss Austin, but not enough to return to school...yet!"

John Giltner (MA '87) says, "I started work in February on an exploration project in Trinidad, a very interesting and complex fold/thrust belt. Maggie and I now have two daughters, Meagan (3 1/2) and Molly (1). I visited the department last October for a recruiting trip. It was a nice visit back to the old stomping grounds." John is a senior petroleum geophysicist for Exxon in Houston.

Louis de A. Gimbrede (MA '51) writes, "Preparing to attend 60th reunion at Cornell (class of 1932) on June 4-7. This is the first one I will have attended. Expect to see my roommate from three years at the Deke House and a few other old friends. Hope to get to the 'Crew' boathouse." Louis is retired in Lafayette.

Jerry R. Gips (BS '70) is president of Tourmaline Exploration Company

in Houston. "I enjoy working with fellow UT graduate, John Preston."

Paul Giraudin Jr. (BS '48) writes, "A friend and I flew a Cessna 140 to San Diego, California and back in April to commemorate more than 50 years of flying experiences. Great fun for a couple of septuagenarians." Paul lives in Corpus Christi.

Stephen L. Glahn (BS '80) is a geologist with Glahn Resources in Arlington. "Have a new son, Nolan Taylor; Heather is seven, Tammy is back in school to help pay for it all. Hope to hear from Terry Moore, Chip Heald, and Jamie Fulcher. I wonder if Jamie is still 'rattled.'"

W. Leonard Goode (BS '53) says, "All is well in West Texas. You notice that I didn't say great." Leonard lives in Midland.

Brian S. Goodman (BS '80) is a graduate student in hydrology and water resources at the University of Arizona in Tucson. "Finishing my thesis and looking for a real job at the same time. Enjoying my second daughter, Hannah, born November 1. I will be glad to be out of school for the second time, and hoping to find a cooler climate to settle in. Cheers!"

James E. Gordon (MA '51) is an independent in Corpus Christi.

Mark Gordon (PhD '90) is a postdoctoral research associate in geology at Rice University in Houston.

Richard E. Grant (PhD '58) says, "I am editing proceedings of The Guadalupian Symposium (along with B.R. Wardlaw, USGS, and Dave Rohr, of Sul Ross, held in Alpine in

March, 1991. Plan to attend 5th North America Paleo Convention in Chicago this June. Spent a week in the Bahamas this April, observing, among other things, lithified carbonate dunes!" Dick is curator of brachiopods at the U.S. National Museum in Washington, D.C.

Roy W. Graves (PhD '49) comments, "Moved from Tulsa to the upper (west) end of the Coachella Valley to play golf and loaf. Lately the loafing seems to have taken over. Greetings to all." Roy lives in Desert Hot Springs, California.

C. DeVearle Gray (BS '57) writes, "Drilling slow but still healthy. Enjoyed visiting department while attending geophysics seminar in April. Did determine that a fantastic market exists on campus for long trousers. Working on that now." He is senior vice president of exploration for CXY Energy Inc. in Dallas.

Gary Gray (PhD '85) is a research specialist for Exxon Production Research Company. "The family and I enjoyed a spectacular year in Australia last year, courtesy of Esso Australia. We're off again to London for a year and a

Alumni Honors ...

Rizer Everett (BS '37) was named last December as the first honorary member of the Austin Geological Society. A former geologist for Carter Oil Company and Standard Vacuum Oil Company (Indonesia), Rizer has been active in the Austin Geological Society for many years.

Georgette Cove Goble (BA '44) writes from Waco, "I continue to give many hours of volunteer service to local church, civic, and cultural organizations. There is joy in having seven grandchildren, but just one lives in Waco. My husband and I are looking forward to a fall foliage tour of New England in September, 1992."

Charles Goebel (BS '80) writes, "Still in Plano with ARCO International. Now working on Mid-East new ventures, pretty good place for a petroleum geologist to look, I think. Family is growing up; both children will be in 'real' school (elementary) next year. Coached 4-6 years soccer, just started T-Ball. Finally saw Big Bend! The Aggie in the office next door said it was never crowded. Wrong! Some things never change."

Richard L. Goode (BS '82) is a geologic computer consultant for Osborn and UHL, Inc. in Midland. "Using my experience and two degrees in geology and computer science to evaluate economic reserves of oil and gas properties and write geologic software. If I can be of help, give me a call."

half starting in June. We welcome all UT visitors to stop in and say hello. I can be reached at ESSO Exploration and Production, U.K., Leatherhead, Surrey, England. Cheers."

Robert W. Grayson (BS '48) is retired in Austin.

Barbara H. Greene (BA '44) writes from Odessa, "After all the years of working, teaching and raising our family, we're playing. Taking our daughter Carol on an Alaskan cruise is next!"

Jeremy T. Greene (MA '83) is an area exploration manager for ARCO in Houston. "Moved family back to Houston from Lafayette after living there for only ten months. Developed a taste for Tabasco sauce and crawfish!"

Charles R. (Dick) Grice (BS '46) is retired and living in Midland.

Robbie Gries (MA '70) writes, "We're already working on the 1994 AAPG Convention in Denver. This is my personal invitation for you to attend, June 12-15. Still getting a well drilled now and then and finding lots of geology to pursue. Daughter, Lynn, is dual biology and internal affairs student at CU, a delightful adult already."

Ariel D. Griffin (BS '57) lives in Spring, Texas.

Guy Groomer (BS '83) says, "I made a career change in 1986 (forced to) but really enjoy being in Austin. Geology is now my hobby and just recently returned from the San Juan Mountains, hiking and camping." Guy is a firefighter in Austin.

Robert O. Gross (BS '63, MA '65) is a partner in Creole Exploration Company in Dallas.

Roy H. Guess (BA '39, MA '40) writes: "The entire 'political establishment' in Washington (meaning both parties) is corrupt, dishonest and greedy. Congress really can't tell the difference between right and wrong. Economically, they are flying our nation right into the ground. Productive companies and people are moving overseas in droves. The oil

business has been strangled by massive over-regulation and excessive governmental and environmental controls. They have 'killed the goose.'" Roy is a consulting geologist in Casper, Wyoming.

William R. Gumert (MA '68) says, "Completed airborne gravity surveys in Laos, Pakistan, New Guinea, Gabon and Indonesia in past year. Published chapter in handbook of *Geophysical Exploration* on airborne gravity. Plan to give paper at 1992 SEG meeting. Started doing high sensitivity magnetometer surveys for environmental studies." He is a geophysicist for Carson Services in Perkasie, Pennsylvania.

— H —

Susan Williams Haas (BS '86) lives in Arlington Heights, Illinois, a suburb of Chicago.

Walter T. Haenggi (MA '57, PhD '66) writes, "Moved back to California (third time since leaving in 1955). I think it beats Addis Ababa by a bit (see St. John)." Walt is manager of exploration and development for Magma Power Company in Brawley.

Henry R. Hamman (BS '59, MA '62) is president of Hamman Oil and Refining Company in Houston. "Still looking for production to buy and infiel drilling prospects."

James M. Hancock Jr. (att. '58-'59) is a petroleum geologist in Houston. "Son Mark in third year of medical school at UTSA and daughter Elizabeth in sophomore year at Texas A&M. This begins my fifth year at TJC Ventures, Inc., and we are having a successful year in spite of the horrible state of our industry."

Jim Hardwick (BS '40) is retired and living in Midland. "My activities are confined to loafing and keeping up with grandchildren."

Jennifer Thompson Hare (BS '86) is a graduate student at UT Dallas. "Back in school full time working on PhD. Finding it ever challenging balancing school with my

growing family, but liking it nonetheless. Hi to all the '85-'86 geophysics grads!"

Robert W. Hare (BS '79) is a geologist with Albert W. Adkisson Estate in Fort Worth.

Weldon J. Harrell (BS '49) has been retired since 1984 and lives in Graham, Texas.

David H. Harrington (BS '51, MA '53) works as a consultant in Houston.

Mark Harris (BA '74) is a marketing manager for Atlas Wireline in Houston.

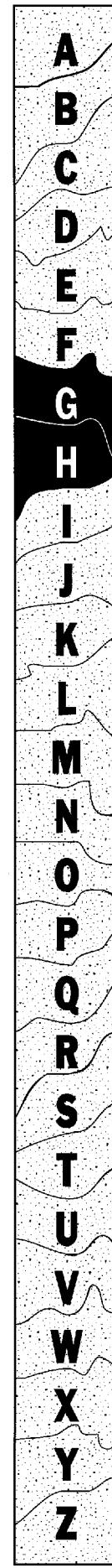
Richard E. (Rick) Hart (BS '74) is a geologist with Royal Oil and Gas Corporation in Corpus Christi. "We are still aggressively exploring the expanded and mid-dip Yegua plays in Southeast Texas. All those hours and years learning depositional processes from former UT professor, Dr. Alan J. Scott, are continuing to pay off. It seems like I run into fellow Longhorns on a daily basis, whether it is in business or pleasure. It's also encouraging to see the large number of UT geologists still active in oil and gas exploration in this time of major industry cutbacks. My wife (Jeanne) and son (Derek) are doing fine and are enjoying the beautiful beaches around Corpus Christi."

Eric K. Hass (BS '78) writes, "Spent most of the winter sitting a well in the Beaufort Sea (ice pack) Alaska. A bit chilly compared to an Austin winter." Eric is a staff exploration geologist for Mobil in Denver.

Laurence H. Hawes (BS '51) writes, "Have been blessed with a great deal of travel and renewing old acquaintances since retirement. Currently working with Liberty Petroleum Consultants in Midland, evaluating properties throughout the Permian Basin. It is a privilege being able to continue working in our ever-changing petroleum industry."

Leslie Hay (BS '89) is a hydrogeologist with Law Engineering in Dallas.

Edward F. Haye (BS '51) is president of Benchmark Exploration Inc. in Houston. "Finally have first grand baby—a boy."



James F. Hayes (BS '49, MA '51) writes,

"We enjoy living on Lake Travis and close to Austin and UT. The domestic exploration business is non-existent so we spend a great deal of time visiting our children and have grandchildren visit us."

Hugh Hay-Roe (MA '52, PhD '58) is a consultant in petroleum geology and technical writing in Kingwood, Texas. "A recent highlight was the 90th birthday for Ronald K. DeFord. Wonderful to see many old friends there! Recently did a seminar in on-the-job writing at A&M, with C. B. (Tim) Thames (MA '57) for a guide. Best regards to contemporaries from the Late (?) Pleistocene."

Kristopher K. Hefton (BS '78) writes, "We continue to live in Irian Jaya while I do mineral exploration for Freeport Indonesia. Our second child, Lauren, was born in Cairns, Australia on August 3, 1991." Kris is a senior geologist for Freeport-Indonesia.

James H. Helland (BS '43) is president of Inland Ocean, Inc. in San Antonio. "Still drilling for oil and gas. 1992 outlook: Positive—good prospects plentiful. Negative—investment money getting scarce. Solutions: (1) need increase in our product prices; (2) government—mandated penalty provisions must be eliminated."

William B. Hempkins (BS '58, MA '62) writes, "After receiving my first patents on statistical methods of avoiding stuck drill pipe, I got tired of the rat race and retired from Chevron. Doing some minor consulting and hope to teach a few short courses. Just returned from a six-week stay in Asia. Had a chance to do some work at Mt. Pinitubo in the Philippines."

Brad Henderson (BS '86) is starting his fifth year as a PhD student in geo-physics/planetary physics at the University of Colorado in Boulder. "I've been doing a lot of skiing and hiking. Trout fishing has been good, too."

John D. Henderson (BS '37) is retired in Dallas.

Andy Hennessey (BS '88) is a geologist for Geraghty and Miller, Inc. in Corpus Christi.

Larry R. Hensarling (BS '56) is president and owner of Dove Resources, Inc. in Lafayette.



Rattlesnakes

In the late spring of 1926 Dad and two of his associates were working the surface geology of southern Tom Green County on the Door Key Ranch. Dad had taken me along at age six because I could not get into the first grade at the Santa Rita grade school until I became seven years old (I was born October 12, 1919). About mid-morning a large rattlesnake was seen coiled and sunning himself on a rock ledge. Before he could be dispatched he crawled under the ledge where other snakes could be seen and heard several feet back in a cave below the rock ledge. The next day we came back with a rifle and some long poles. Within an hour's time the men had shot and retrieved 17 rattlesnakes between five and six feet long and a small one. We took pictures of them lined up on the ledge. You can imagine the excitement and memories this episode caused and left for a six-year-old!

— Bob Bybee

Bob Bybee sent a copy of his letter and a photograph he submitted to the selection committee of the Petroleum Hall of Fame in Midland when his father, the late Hal P. Bybee, was inducted into that elite group on April 25, 1991. A part of Bob's letter about his father is printed above, along with the photograph he sent.

Reid Hensarling (MA '81) lives in Shreveport.

Charles W. (Red) Henslee (BS '51) lives in Houston, where he is "enjoying retirement, golf, travel, and eight grandchildren, ages 1 thru 13."

Jon Herber (MA '81) lives in Richardson and works as chief geologist at Merit Energy. "After ten years in Corpus Christi, have moved with wife

and kids to big 'D' to take advantage of a ground-floor opportunity."

James G. Herblin (BS '52) is a geologist in Kenner, Louisiana. "It is hard to make a buck; it is fun trying."

Christoph Heubeck (MA '88) is a PhD student at Stanford University. "I'm busy drafting and writing on my dissertation, and also enjoy California geology on field trips."

Had the opportunity to co-organize a field trip to the Swiss Alps which was a success."

Charlie Hewitt (BS '88, MA '90) writes, "I've traded the 100-foot thick coal of the Powder River Basin for the 4-foot seams of the Appalachia coal fields. Suzanne and I are attempting to grow corn on a hillside and are sharpening our driving skills by dodging coal trucks." Charlie is an environmental specialist for Wolf Creek Collieries in Lovely, Kentucky.

Suzanne Mechler Hewitt (BS '89) says, "This has been a very busy year! I moved to eastern Kentucky and recently started to work at an engineering consulting firm. When I am not busy with my thesis or work, I am out exploring the hills and hollers."

Charles H. Hightower Jr. (BS '56) is president of Hightower Oil Corp. in Lafayette.

Janice L. Hill (BS '79) writes, "We're finally making the move to Houston, due down there by September 1. John will be working eastern Europe for Amoco. Our house is so immaculate while it's up for sale, almost hate to leave it. I'm still volunteering everywhere and chasing Caitlin (5) and Russell (3) around."

John D. Hill (BS '50) is owner of Hill Energy in Dallas.

Nolan Hirsch (BS '44) lives in Midland, where he is president of MVC Inc. "Started last year with good results, but as year progressed I didn't keep up. Would not say overall it was a good year. Again began 1992 very well; hope not a repeat of last year."

Dave Hixon (MA '59) lives in Friendswood, and writes, "Not much geology but lots of computing." Dave is an engineer for Unisys in Houston.

Carroll A. Hodges (BA '58) is a visiting professor at Stanford University. "What an exhilarating experience! Have been on Stanford campus since January and am loving every minute. A perpetual smorgasbord and not enough time to sample it all; great

recharge for my nearly dead batteries. Offered seminar during the spring quarter on Resources and Environment and will be cramming all summer to develop my fall course on Minerals and World Affairs, a considerable challenge. Can't imagine why I ever gave up on teaching 25 years ago. No exotic travel this year, but last summer's adventure in Tanzania, Zaire and Kenya was memorable; animals magnificent, but crush of humanity depressing."

F.A. (Fred) Hoenninghaus Jr. (BS '49) has been retired from Exxon for seven years. "Thank you for remembering those of us who have been gone from the University of Texas for so long. I appreciate the *Newsletter* greatly." Fred lives in Houston.

David S. (Scotty) Holland (BS '57) writes, "Retired March of 1990. Traveling and enjoying life. Remain active in UT and AAPG." Scotty continues to live in Houston, and maintains close ties with the University by serving as chairman of the Geology Foundation Advisory Council.

William C. (Boomer) Holland (BS '81) is a senior exploration geologist for Wayman W. Buchanan, Inc. in Houston. "Trying to survive the depressed oil industry. Working to find that big one. Family doing fine. Children Elise (7) and Jessica (1) growing rapidly. A special hello to Bill Layton, Jeff Ambrose, Steve Compton, Richard Lanfear, Kim Lancaster, Tom Tinney, Paul Kemp, Chris Marshall, and The Hulk. Remember the 'bat-mobile'? Also hello to Clinch and Liggins! Hook-Um Horns."

Melody R. Holm (BA '75) writes, "I finally succumbed to the uncertainties of the oil industry and started working for the Forest Service in January as a liaison between the FS and USGS—a wonderful job! I'm actually doing some real geology and still am involved with oil and gas. I'm buying a house within walking distance of the Federal Center in

Denver and hope to have Stan and the boys here with me by the end of summer. As always, we welcome visitors!"

Raymond F. Holsch (BS '50) is a retired geophysicist in Houston. "The 'Hook Em Horns' Longhorn ranch was started in 1991 on 40 acres. The head bull is 'Deep Eddy' (for the UT student housing) and my sweetie pie Anne (of 46 years) has a Longhorn credit card."

James W. Hood (BS '48) is retired in Salt Lake City. "Enjoying retirement immensely. Our pursuit of family history leads us into some fascinating side issues: civil war history. Some of Eva's relatives were in N.B. Forrest's cavalry in western Kentucky and Tennessee. It is still a shock to realize I'm related to some Yankees."

Ben P. Hooper (BS '80) writes, "I left Chevron after 12 years. I have taken a position with Josey Oil Co., where I'll be doing a little of everything. Debbie, Mary (5), and Kelly (3) are doing fine." Ben lives in Houston.

Brian C. Hoover (BS '84) lives in Dallas where he works as director of sales/marketing for Colwick Travel Corporation.

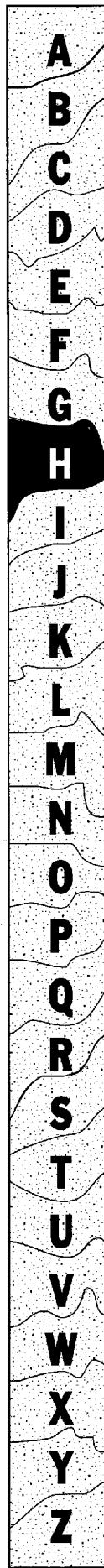
Eleanor M. Hoover (BS '56) is a geological associate in the Americas business unit of Exxon Exploration Company in Houston.

Lawrence E. Hoover (BS '48) is president of Guaranty Petroleum Corp. in Corpus Christi. "Still pursuing a mix of low risk, close-in deals and more speculative ventures aimed at larger reserves."

Richard A. Hoover (PhD '68) is now coordinator, strategic database and assessment team, for Exxon Exploration Co. in Houston. "Sandi continues her efforts to save the planet."

Scott Hoskins (BA '87) is a drilling fluids engineer managing the sales markets in Latin America, predominantly in Mexico, Bolivia and Ecuador, for Messina Incorporated in Dallas.

Jim Hossley (BS '82) writes, "We had our first child, Kristina Anne, December 31, 1991. Margot has temporarily retired from geologizing to care for Kristina. I'm busy



doing a little of everything for the Island County engineering department. My emphasis is cleaning up storm water before it hits the Puget Sound." Jim lives in Coupeville, Washington.

Richard T. Houser (BA '49) notes, "I am back in Houston after retiring from an eight year position in San Antonio. I find it difficult to completely retire, so I am associated with a young UT geologist generating prospects primarily along the Gulf Coast."

Susan Hovorka (MA '81, PhD '90) works at the Bureau of Economic Geology in Austin.

G. B. (Bill) Howard IV (BS '82) lives in Houston and works as managing director for Flare Resources Inc. "I'm still optimistic about the domestic oil and gas business; however, we must all get the word out to the general public that incentives for funding domestic exploration and price stability are the key. Claire and I have Blaire (2) and second baby due in September. Keeping us quite busy."

Nancy K. Howard (BA '90) is graduate coordinator for the library and information science department at UT in Austin. "Geology jobs are hard to come by. Actually, I am very glad to have a decent job in these hard economic times."

William P. C. Hudson (BS '75) writes, "Still investing in Poland. There is remarkable opportunity for the diligent, patient, and adequately capitalized." Bill lives in Toronto.

Jack T. Hughes (BA '41) is a retired anthropology professor in Canyon, Texas. "Enjoying visiting digs, attending meetings, doing consulting, and messing with Arabian horses and old houses."

Ed Hughston (MA '50) continues to live in the Taos, New Mexico, home where he has lived for the past 13 years.

Don F. Hugus Jr. (BS '58) is president of Hugus Investment Company.

"Mary Ellen and I moved home to Tyler in 1989."

Steven D. Hulke (MA '78) lives in DeSoto and works as a senior geologist for Hunt Oil Co. in Dallas.

Emmett A. Humble (BA '49, MA '51) writes, "Still consulting with most time spent on Far East activities. Reserve enough time to enjoy grandchildren, fishing and traveling with my wife." Emmett lives in Houston.

Allen E. Humphrey (BS '49) is seeking exploration prospects and producing properties for Humphrey Oil in Dallas. "Firm involved in Arkoma, Anadarko, East Texas and southern Louisiana as non-operating working interest participant. Still play golf. Enjoy writing national leaders about lack of commitment and tunnel vision."

Elvin M. Hurlbut Jr. (BS '43) is a semi-retired editor and writer in Tyler. "The *Newsletter* gets better and better. My congratulations. Virginia and I and both cats are still clicking. Hard to believe that the big war a lot of us were in was four wars ago."

Dan Huston (MA '87) is a geophysicist for Unocal Corp. in Houston.

job as a financial analyst with Advanced Micro Devices here in Austin and we're happy to be back. Pam and I welcomed our second child, Adrian Joseph, into the world on April 17th and we are jubilant to have him. Hello to all. Look us up when you're in Austin.

Paula Ivey (BA '84) is a graduate student at the American Graduate School of International Management in Glendale, Arizona. "I will graduate in May with a Master's in international management. I plan to work in the environmental industry, or in international development. I worked for Tenneco International marketing and sourcing and development last fall. I plan to settle in the northwest, or back in Australia."

— J —

J. R. Jackson (MA '40) writes, "Retired from Petroleum Information on January 1, 1992. Family well; enjoy seeing UT Exes in Houston area."

Russell W. Jackson (BS '76) lives in Tyler and works as an exploration geologist. "Still putting together drilling deals in East Texas, focusing on big projects. If you come through Tyler, give us a call."

S. Lance Jackson (BS '79) is a geological supervisor for Exxon in Houston. "Back in production again working a few mature fields and some new stuff in the Austin Chalk. Spend as much time with reservoir and subsurface engineering as I do with geology."

Otis L. James Jr. (MA '52) is self-employed in Gainesville.

Jim Janssen (BS '79) says, "Still hanging on at Oryx. Currently manager of one of the technology groups. Learning more about Unix than I ever wanted. Learning to fly in my spare time. Can't wait to see Llano area at 2000 feet!" Jim works in Dallas.

Alumni Honors ...

John A. Jackson (BA '40) and his wife, Katie, were surprised last spring to learn that Katie would receive an honorary doctorate of humane letters from Texas Lutheran College in Seguin at its May commencement. She is one of only 23 to be so honored during the 100-year existence of the school. For 20 years she served as a regent at the school and she and Jack have been most generous with their time and resources in support of TLC. Jack also serves on the UT geology Foundation Advisory Council. He and Katie live in Dallas.

David E. Hutchison (BS '79) writes, "I have moved to the Phoenix area and set up my chiropractic practice. I love the fresh air."

— I —

Jim Immitt (MA '81) writes, "After losing our daughter Alicia to cancer last year we had a strong desire to be closer to family. So I've gotten a new

Ken L. Jarratt (BS '57) is a real estate broker in Edna, Texas. "Now semi-retired. Out of the oil jobber business forever. Looking after real estate business with wife Joyce and spoiling four grandkids. Time to smell the roses. Hi to classmates of 1957 and come on Horns, on to the Cotton Bowl."

Amanda Moor Jay (BS '75, MA '80) comments that she has done a lot better as a writer than she ever did as a geologist. She writes historical romance under the name Laura Kinsale, and her last book, *The Shadow and the Star*, hit the *New York Times* bestsellers list. Her next, *Flowers from the Storm*, will be published in October '92. She steps hard on the toes of anyone who snickers at romance without reading it (hers in particular). Amanda lives in Cedar Hill, Texas.

Bordon E. Jenkins (BS '78) writes, "With some extra time available in the business these days, I'm taking a couple of graduate geological courses at Corpus Christi State University. It is more fun than I thought it would be." Borden is an independent petroleum geologist in Corpus Christi.

William A. Jenkins Jr. (PhD '52) is retired from Mobil and lives in Dallas.

Charles N. Jennings (BS '52) is an independent in Brownsville. "During the last 20 years I have been pursuing a career as a representative for United National Real Estate and doing some consulting geology in the Rio Grande Valley. A great place to live and work."

Eric Jerome (BS '86) is a lab analyst for Environmental Monitoring Service in Austin.

Charles B. John (BS '51) retired in 1989 from the USGS. "Living with Norma, wife for 45 years, in Tulsa. Resumed work on PhD (geology) at UT-El Paso last fall. Completed course work, now preparing for comprehensives and researching dissertation (Ouachita overthrust, southern Oklahoma)."

David Johns (MA '82) says, "Married Pam about two years ago (we've known each other for 17 years—is that a little slow on the uptake or what?!) and have a stepdaughter, Leah, almost seven. I've been doing environmental water quality work for the city for three years and greatly enjoy it. It's nice doing something positive to keep Austin a natural gem, but God save us from the politicians and their lawyers!" David is a geologist for the City of Austin.

Ann C. Johnson (BA '86) lives in Santa Monica, California, where she works as a resident instructor for Gemological Institute of America.

M. L. Johnson (BS '50) writes to us from San Antonio to say "Retirement is the pits."

John E. Johnston III (MA '77) is deputy director and deputy state geologist for the Louisiana Geological Survey in Baton Rouge. "I happily relinquished the position of acting state geologist and returned to my normal position of deputy state geologist in February, when Chip Groat finally came back from leave of absence. Additionally, I began writing and selling science fiction and fantasy this year. My first short story, 'Genie Storm', will be published in the anthology, *The Aladdin Chronicles*. As a consequence, I was admitted to the Science Fiction and Fantasy Writers of America (SFFWA)."

Gene Funkhouser Jones (BA '48) has an office at home and takes care of her family interests in Midland. "My husband, Phil, attended UT/Austin from 1947-1949, majoring in geology, also. We stay busy looking after our big family, eight children and 19 grandchildren. We're weathering the collapse of the industry in West Texas and concentrating on our many blessings. It is always a treat to read the *Newsletter* and catch up with old friends and acquaintances. Thanks for the great job you do!"

J. Phil Jones (BS '64) is a district landman, mineral exploration, for Kerr-McGee Corporation in Oklahoma City. "Joined Kerr-McGee officially in August, '91. Actually began work 7-90 as a consultant and spent the first year working on the Sand Dunes (Muddy) Unit, Converse County, Wyoming. Now pursuing coal and minerals. K-M is very active in the coal business and I am happy to be gainfully employed in the energy business outside oil and gas. This has been a fun year. Enjoy the *Newsletter*—keep up the good work."

Luther G. Jones (BS '59) lives in San Antonio where he is retired. "Enjoying retirement. Busier than ever."

Wayne E. Jones (BA '72) is an exploration consultant for Hankey Oil Company in Houston. "Actively pursuing deep gas plays in the expanded Wilcox of South Texas, despite the current gas prices. Our partners are looking long term rather than short. My wife Gwen and our son Alex (11), are adjusting well to life in Houston."

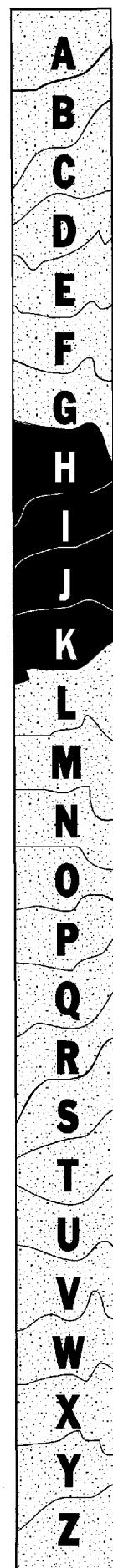
Jon T. Jorgenson (BA '49) writes, "Frances and I are now semi-retired in Denver after having had 40 enjoyable years of mainly softrock photogeologic and field consulting work throughout much of the Americas and Australia. Our three offspring are now sprung, over 40 and married which keeps us 'oldies' on the go. Our Maker has been most kind and gentle to us all."

James G. (Bub) Joyce (BS '48) works as an independent geologist in Houston.

— K —

James D. Kallina (BS '53) is president and owner of JDK Incorporated in Stafford, Texas. "JDK is a seismic data service company that conducts non-exclusive seismic surveys and broker seismic data. Am also an active investor."

Edwin N. Kasper Jr. (BS '51) is retired in Houston and writes, "Getting ready for Houston Underwater Club's Seaspaces '92. I have been working on the scholarship



committee for several years. Over \$30,000 will be awarded in marine-related scholarships and the trust fund has grown to such a sum that it will be capped. Up-date '92 coming up at Ex Students' Association in June; I will enjoy being in Austin."

Mark C. Kasmarek (BS '82) is working for the USGS supervising the ground water section's field work and GWSI data base. Mark lives in Houston.

Ernst H. Kastning (PhD '83) says, "Karen and I and our son, Kass (16), continue to bury ourselves in karst and cave projects in various localities. Work includes basic research, consulting on environmental problems, and education and outreach to those living in karst terrane. We get to the Texas Hill Country occasionally to continue our work there. Onward through the mud and water." Ernst is associate professor of geology at Radford University in Radford, Virginia.

Steven G. Katz (PhD '75) is vice president of operations for Isorca, Inc. in Granville, Ohio. "Connie and I continue to enjoy living in Granville. I'm really challenged by my position with a small local technology development firm in the fiberglass reinforced composites business. Regards to the gang at UT."

Milo Kearney (BS '62) is a professor of history at UT-Brownsville. "My daughter Kathleen and my son Sean both enjoyed Dr. Long's physical geology class at UT-Austin last fall; 'excellent teaching,' they said."

Daniel N. Keeler (BS '80) works as a supervisor of geology for Texas Gas Transmission Corporation in Houston.

Kevin M. Kelly (BS '82) lives in Honolulu, Hawaii and works as a research specialist for Hawaii Undersea Research Lab.

S. Bret Kendrick (BS '86) writes, "I am currently working on my Master's in geology at the University of Texas at Arlington, while working at ICF Kaiser. I am also learning the ropes of being a father: we had a boy, James Cunningham Kendrick, in November, 1991."

Edward R. Kennedy Jr. (BS '48, MA '49) is a consulting geologist in Midland, "still plugging away in the Delaware Basin. Two new eyes (cataract surgery) allow me to see the maps without a hand lens."

Leon A. Kent (BA '40, MA '51) enjoying retirement in Houston. "Lots of golf and travel."

George L. Keppta (BS '52) writes from Houston, "Retired from Rutherford Oil Corporation on December 31, 1991. Presently my wife and I are traveling all over the United States. Will do some consulting work if offered any."

Don Kerr Jr. (BS '60) is president of Kerr Construction Services in Houston.

Ralph S. Kerr (MA '76) says, "After three years as chief geologist at Shell Offshore in New Orleans, I have accepted a position working with Shell management to institute a CPI program in Shell's Offshore exploration and production subsidiary."

Howard W. Kiatta (BS '58) is an independent geologist in Houston.

Jerry S. Kier (BA '66, MA '68) writes, "After 20 years in Houston, I have moved to a drier climate in Tulsa. I look forward to hearing from old friends and colleagues." Jerry is a senior geologist for K&A Energy Consultants, Inc.

Robert J. Killian (BS '77) lives in Houston and works as a geologist/partner for The Gulf Tide Oil Company. "Still very active in Gulf Coast and East Texas. A little more 'elbowroom' these days with the exodus of so many competitors overseas."

Tom Kirkpatrick (BS '84) comments, "My wife Stacy and I had our first child, a boy named Evan, in December, 1991. He already has a rock hammer in his hand, but I'm trying to teach him to hit a curve ball with it." Tom is a systems analyst for Exxon Exploration Company in Houston.

Don L. Kirksey (BS '60) is owner of Recycling Consultants in Oklahoma City. "After a wonderful 30 years in oil and gas exploration I now have a new career as a recycling consultant. Producing income and cost savings for companies by recycling their solid waste (princi-

pally office paper) is an enjoyable business. Plan to offer a franchise this year (phone 405/722-0188)."

Teresa Klump (BS '85) has "moved from working with oil and gas to water, and from rocks to tissue. I've completed a year of training and am now a registered massage therapist in my spare time." She is a programmer/analyst with the Texas Water Development Board in Austin.

William F. Knode (BS '57) is a consultant in Abilene.

Erwin K. Krause (BS '49, MA '54) is retired from ARCO Exploration and lives in Houston. "After 12 cruises in six years, we took 1991 off and stayed home. Started 1992 with a Mexican Riviera cruise on the *Crown Odyssey*."

Charles Kreitler (MA '71, PhD '74) writes, "Big change. Moved to Tucson this winter to become a professor in the best hydrology department in the country (University of Arizona). Send me your future hydrogeologists!"

Lou Krudewig (BA '91) is a housewife and mother in Austin. "On December 4, 1991, I gave birth to my second child, Virginia Carolyn. Labor time was 35 minutes. On December 8, 1991, I attended the graduation ceremony for Natural Sciences. After my children get older I will once again seek employment."

Nicholas F. Kuich (BS '60, MA '64), a geological supervisor for Mobil in Houston, relates: "What with the impending reorganization and downsizing (in English, that's layoffs), I have no idea where I will be next year. Hello out there to Don Winston and Tom Freeman, wherever you are."

Julie Kupecz (PhD '89) is a geologist with Arco in Anchorage. "Jeff and I have been blessed with two beautiful children, Lauren (2) and Matthew (newborn). I will be transferred from Anchorage to ARCO's research lab in Plano in September."

— L —

Ted B. Lacaff (BS '50) writes from Midland, "Enjoying life in Santa Fe and the Pecos wilderness. We've rebuilt an old adobe house in Santa Fe and

spent most of our time there and in the Holy Ghost Canyon on the upper Pecos River. Still keep an address in Midland but we're in the Santa Fe phone book. So call if you are in the area!"

Laurel Lacher (BS '87) is a PhD student at the University of Arizona in Tucson. "Mountain-biking is great! I have a few more years in school, but that doesn't interfere with my fun."

George A. Laguros (MA '87) says, "In October '91, I was transferred to Marathon's office in Aberdeen, Scotland, where I'm doing development geophysics for our fields in the North Sea."

James L. Lamb Jr. (BS '56) is "semi-retired and moving from Midland to Austin by end of 1992."

Leon M. Lampert (BS '51, MA '53) is vice president of Dalport Oil Corp. in Corpus Christi. "Low

gas prices have severely curtailed Dalport's drilling activity, which is typical of the industry. Our daughter Gail and the children live in Dallas. Ellen, a landman, is in Denver, and our son Wayne lives in Oakland, California. I still play some tennis and skied in Colorado and Utah last winter."

Randy Larkin (BS '86, MA '88) writes, "I joined a new Austin-based environmental consulting firm in 1992, Terra Dynamics Incorporated. We have several good Longhorns on board. Call us for environmental work and assessments related to oil and gas property transfers."

Robert L. Lattimore (BS '56, MA '62) is an operations geophysicist at Chevron Overseas Petroleum in San Ramon, California.

Royce E. Lawson Jr. (BS '49) says, "Still active in oil business here in

Midland (what there is left). This now requires twice the work for 10% of the desired results. However, I am thankful that we can still engage in some exploration activity in spite of government regulations and environmental restraints that we have to contend with. Greetings to my classmates. I have much to be thankful for."

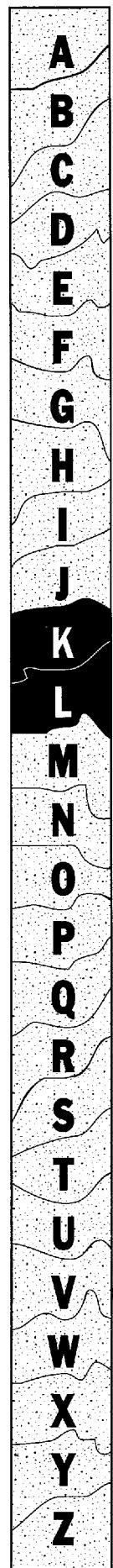
H. Louis Lee (BS '54, MA '58) works as a consulting geologist in Austin. "Really enjoying the new Sipes chapter Bob Boyer et al. organized here in Austin. I urge any other Central Texas UT geologists to join us when meetings resume in the fall. Thanks, Bob, for all your hard work getting us started."

Joseph W. Lee (BS '49) lives in Richardson, Texas.

David H. Lehman (PhD '74) writes, "The Lehmans moved back to Texas in January, 1992. This time



1948 field camp. Back row, left to right: Dr. Bullard, Travis Parker, Billy Boggs, Paul Geraudin, Paul Picket, Bill "Willie" Kendall, "Pedro" Janszen, Ed Leggat, Clem Novosad, "Mac" McGinley, Mike Morris, George Scudder. Middle row, left to right: Jim Alphin, Sam Adair, Ed Kennedy, Don Longenecker, Hugh Curfman, Fred Ealand, Bill Fuge, Buzz Fauntleroy, Howell Cocke, Bill Devine, Gardley Moon. Front row, left to right: "Doc" Throop, James "Bub" Joyce, Bob "Red" Grayson, Lynn Blackwell, "Chick" Jenkins, Charles Butler, Freddy Mayora, Dennis "Dutch" Halepeska. Photo submitted by James Joyce.



it's Dallas. Looking forward to seeing old friends. Call (214) 713-0752." Dave is at Exxon Corporation headquarters in Irving.

David Lemke (BS '82) is a senior geophysicist for Amerada Hess Corp. in Houston.

G. Warren Leve (MA '52) writes, "My environmental consulting firm was merged with a national public consulting firm (EMCON) this year. Want to thank my old professors at UT (those that are still around) for making me extremely comfortable in my old age." He is board chairman and CEO for GWL/EMCON in Jacksonville, Florida.

David Levin (BS '77) is owner of DML Exploration, Inc. in San Antonio. "Betsy and I added Martha Betsy to the brood (Blair is four). This keeps me very busy, but once in a while I get to do a little oil business on the side. Call us when visiting in San Antonio."

Dean L. Leyerly (BS '51) is "retired in Midland with daughters and a grandson nearby to keep Margy and me young. Get to play golf with John Turner (BS '51) and Bob Porter (BS '50) periodically. Everyone is sitting on 'go' waiting for the next boom."

John F. Ligon (BS '81) is president of Sandalwood Oil and Gas in Houston.

Russell Lilly (BS '53) is semi-retired in Oklahoma City. "Our four sons have given us four grandchildren and they are a lot more fun."

Tung-Hung Thomas Lin (MA '84) is a geophysicist for Marathon Oil Company in Houston.

Alsie Linscomb (BS '51) is retired in San Antonio and loves it as long as the fish keep biting. "Retired in 1989 (no one wants to hire 38 years experience in any field). Enjoying five grandchildren and fishing in the numerous Central Texas lakes and the Gulf Coast. Haven't been to Austin except to visit the Railroad Commission but hope to visit the geology department some time soon to see what's new. Enjoy the *Newsletter*. Keep up the fine job." Alsie lives in San Antonio.

Eugene Lipstate (BS '49) writes from Lafayette, "Due to the crises in our industry, I closed down Northwest Oil Company office in Lafayette and

retired at the end of 1991, I did maintain an office just in case the oil business improves. It is nice not having to keep regular office hours."

Nancy Green Lister (BS '55) is a housewife in Houston. "Best wishes to all. I have run into ex-geology majors from UT in the most unlikely places! It's always great to see a familiar face. Our family of five is fine and very busy."

Allen C. Locklin (BS '54) is president of Locklin Oil Company in Tyler. "As an explorationist in the domestic industry I feel like a dinosaur—near extinction. It's as bad as I've seen in 38 years. On the good side, I've got a great wife of nearly 38 years. Great children and their spouses and five wonderful grandchildren, good health and no justifiable complaints. In spite of the doom and gloom we had a good year but from here on I have my doubts. I feel for our industry. Good luck to the *Newsletter*. I really enjoy it."

John L. Loftis Jr. (BS '40) is an independent geologist in Houston.

T. E. (Ted) Longgood Jr. (BS '58, MA '60) retired from Exxon after 32 years in January, 1992. "So far, I have so much to do, I can't figure out how I used to find time to go to work! Singing with barbershop chorus and quartet, having a ball. Retirement is great!" Ted lives in Houston.

Mark W. Longman (PhD '76) has resumed his consulting work in Lakewood, Colorado after working the past few years with RPI International. He is conducting a year-long study of the carbonate rocks and reservoirs in the Southeast Asia region.

E. William Longmire (BS '50) is retired in Dallas. "Still the same. Traveling and playing golf. Enjoying my life."

Robert G. Lovick (BS '51) is still in the consulting business in New Orleans.

Howard R. Lowe (BS '48) is semi-retired in Oak Harbor, Washington. He planned to travel to Russia with the People to People program on June 6. "Twelve independent geologists and petroleum engineers will meet with Russian counterparts in Moscow and Ural/Volga Basin. Should be a great trip."

Don A. Lundy (BS '70) writes, "Finally sold my house in Tulsa last summer and moved my family to Ft. Collins,

Colorado. My firm specializes in assessing and remediating hazardous waste sites. We are a small niche player working with the refining, transportation, and utility industries." Don is a senior hydrogeologist for RETEC.

Pamela E. Luttrell (BA '73, MA '76) comments: "After 1 1/2 years in Norway, I'm in Mobil's German office as geological manager. If only the US had our gas prices! We're having a great time. Erin is eight and in German school, the job is interesting and challenging and we all three try to be flexible in a changing world!" Pam lives in Celle, West Germany.

Vance Lynch (BS '51) is "enjoying retirement near Dripping Springs, 20 miles west of UT. I am enjoying serving on the UT Geology Foundation Advisory Council and the UT Institute for Geophysics Visiting Committee. I also enjoy Longhorn sports, especially when we win."

James I. Lyons (BS '71, MA '75) says, "We have moved back to Texas, just barely. We are in El Paso, six miles from the western-most part of the state. All of my consulting is in Mexico these days. I am learning much more about the volcanic and mineral systems of Mexico."

— M —

Gabriel Macias (BA '82) is "working oil spills and reviewing permits in Houston." Gabriel is employed by the Texas Railroad Commission.

Don Mahaffey (BS '59) works as an independent geologist in Durango, Colorado. "Spent six years ('60's) in four-corners area while with Tenneco. Returned to this paradise in 1991 to set up final office. In the last few months have managed to put 20-section block together—Paradox Basin. Looks like last of the mastodons south of Prudhoe. Prospect for a major. If anyone likes to fish, come to town and call."

Millard H. Major (MA '42), an independent in Corpus Christi, says: "In celebration of the 50th anniversary of my graduation from UT I moved into more compact (translation: cheaper) office. My number one grandson,

David Cleaves, is a Plan II sophomore at Austin."

Vaughn C. Maley (BA '26) is retired in Midland. "After 25 years in West Texas, four years in Corpus Christi, and seven years in New York I held the position of exploration manager of Exxon when I retired in 1963. After retiring I returned to Midland. Still interested in geology, and like to hear from UT."

Frank L. Manville (BS '55) is a draftsman for Cameron county engineering office in Brownsville. "I have 20 years with the county engineering office and am eligible to retire, but so far, I have made no plans for retirement. Nothing new has entered or changed my life so I guess I will continue my present life style."

Sabin W. Marshall (BS '52) completed 26 years with Texas Gas Transmission in Houston and retired in January, 1992, as manager of geology. "Last son will graduate in May from the University of St. Thomas."

David Martens (BS '84) is "still working for Unocal in Houston. Hope to be able to say the same thing next year. My wife, Autumn, and I are expecting our second child."

Jeffrey G. Martin (BS '84) is president of Petro Quest Corporation in Mandeville, Louisiana, prospecting for oil and gas in South Louisiana.

Louis M. Martinez (BS '54) says, "I have managed to survive a heart attack and open heart surgery twice within the last three years. However, I'm still working and waiting for the big one (discovery). Daughter Laura at UT so I get back on campus often. Sincere wishes for success and good health to all the old gang." He is an exploration geologist for New Bremen Corp. in Houston.

Lamar B. Maxwell (BS '60, MS '61) lives in Liberty, Texas and works with investments.

Paul R. Mayo (BS '50) is "still attempting to maintain enthusiastic interest in exploration in

West-Central and North Texas, in spite of general difficulties of the industry. More time available to enjoy children and grandchildren, however. Would enjoy more contact with alums." Paul lives in Abilene.

Kevin J. McAllister (MA '77) teaches science and computer at Loomis Chaffee High School in Windsor, Connecticut.

Robert L. McBroom (BA '51) is an adjunct professor at Midwestern State University in Wichita Falls. "Still getting a few wells drilled now and then."

William E. (Bill) McBroom (BS '40) is a consultant in Vernon, Texas. "Still around—now interested in fighting governmental bureaucracy."

A. Nelson (Mack) McCarter Jr. (BS '83) is vice president of McCarter Energy in Houston.

C. E. McCarter (BS '34) is an independent petroleum geologist in Houston. "Just spending my income and doing nothing else. In and out of hospitals constantly."

Merle and Rene Curtis McCartney (MA '85; MA '85) write to us from Ponca City, Oklahoma. "Rene has given up the 'good life' of a geologist, and after a two-year stint teaching high school math, is goofing off at home with our son, Ben. We finally escaped the Texas oil patch, only to find ourselves in Oklahoma, where Merle masquerades as a computer nerd. Hi to Cornelia and Ed." Merle works for Conoco.

Esther C. McClung (MA '30) is retired and living in Houston.

Edward McFarlan Jr. (MA '48) writes from Houston, "Consulting work aimed at exploration in the Gulf Basin offshore continues with emphasis on using recent advances in geological and geophysical sciences."

Dick McGhee (BS '55, PhD '63) lives in Hammond, Louisiana, where he is a professor of physical education at Southeastern Louisiana University. "Staying very active in research on

Latin American sport history and have spent all university vacations for the last two years in Guatemala, Honduras, Mexico and Cuba."

John A. McGinley (BS '48) resides in Oklahoma City where he is retired from Kerr McGee. "Gloria and I are enjoying retirement. Keeping busy with seven grandchildren and periodic trips to our other home in Sabine County, Texas on the shore of Toledo Bend Lake."

Douglas McGookey (BA '78, MA '86) is a geologist for Law Engineering in San Antonio.

Bill J. McGrew (BS '54, MA '55) lives in Mena, Arkansas where he is a consulting geologist.

Wayne E. McIntosh (BS '56) lives in Rockwall, Texas where he works as an engineering geologist. "Very active doing consulting and running around the country checking on seven kids and seven grandkids (which pleases grandma greatly). Enjoy the *Newsletter*. It helps me keep track of the rest of the old fossils."

Jim McLaren (MA '84) comments from Pasadena, California, "Spent much of the year studying the hazards of East Coast earthquakes, primarily by synthetic seismograms. Our son Tom turned one on December 16. Nora and I are delighted and exhausted. Love to hear from old alums."

L. A. McLaurin (BS '58) is owner of Polaris Equipment, Inc. in Houston.

Mike McLeod (BS '86) writes, "Still enjoying working for Ebasco; it's kept me on the road quite a bit this year. Working in Oregon and the Hanford Nuclear Reservation. High level nuclear waste is fascinating—but, then, so is small pox. I'm starting to make contact with other UT grads out here and look forward to keeping up with other Longhorns." Mike lives in Davis, California.

Pete McMahon (MA '84) was transferred from the South Carolina District of the USGS to the Colorado District (Denver). He is looking forward to seeing snow again.



Linda H. McMillan (BS '84) is an attorney with Ruh and Green in Denver. "I have been a practicing attorney for a small defense firm for almost a year and will be completing my MS in mineral economics at the Colorado School of Mines this May. I will also celebrate the third anniversary of my marriage to Michael McMillan this year."

Jude McMurry (MA '82) says, "I began work about a year ago as a geochemist for Atomic Energy Canada Ltd., a crown corporation funded by the Canadian government. I am doing aqueous geochemical modelling for the Canadian nuclear fuel waste management program, deep burial in crystalline rocks of the Canadian Shield. Now living in Pinawa, the company town for Whiteshell Labs, a lovely community amid the forest, the deer, and yes, the bears. Plenty of rocks, too."

Alex McNair (BS '78) writes to us from Lafayette, where he is a principal geophysicist. "Still hanging on here at ARCO after multiple reorganizations, restrukturings, refocusings, etc. 354 paychecks in a row, nonstop. I feel highly fortunate. Thanks, UT and D.O.G.S.!"

Jerald E. McQueen (BS '61, MA '63) is vice president and chief geologist of Medallion Oil Company in Houston.

A. D. McRae (BS '42) is retired from Mobil and lives in Horseshoe Bay, Texas.

Lee I. Meador (BS '57) is "still trying to get my friends to come to beautiful Washington. See Howard Lowe frequently and Charles Johns, but we don't have much company. Y'all come."

Joe N. Meadows (BA '62) is an attorney in Waco.

John A. Means (BS '47) comments from Richardson, Texas, "Feeling good, not too busy. Looking for some fishing partners."

Robert D. Mebane (BS '36) is "playing with old oil wells, antiques, and grandchildren in San Antonio."

William J. Meek (BS '55) is president of W. J. Meek Insurance Agency in Arlington. "The insurance business is always exciting—never a dull day!"

I will complete my 15th year in the insurance business in June. Oldest son Byron is now my office manager and claims specialist. Youngest son Brad, graduated from UT last spring. Do you know anybody hiring math majors? Dorothy and I now have four grandsons and one more on the way. That's all folks!"

Peter Megaw (BA '76) is "still traipsing around Mexico looking for silver and gold. Looks like the new frontier in environmental work will be down there. Robert, when in town look me up." Peter is president of IMDEX Inc. in Tucson.

Javier Meneses-Rocha (PhD '91) is employed by PEMEX in Anaya, Mexico.

Charles M. Merrill (BS '56) contributes from Austin, "Enjoying retirement immensely, all you need is money. Recent trips through Brady-Llano area and the Big Bend country still bring back many fond memories of our 660 summer field trip in 1955. All the antics and good times had by that bunch of rowdy 'shade tree' geologists on the old blue goose bound for 'hell' and led by Pete Roux and Jack Walper."

Anne Smith Miller (BA '83) is a geologist for the Texas Water Commission in Austin. "I got lucky this past year! Tylenol Sweepstakes selected me as the recipient of a cash prize, so my husband and I ventured down to the Virgin Islands for a 'pain-free' vacation. Howdy to those lovely geo-gals named Judy, Paula, and Barbara!"

Ginger Braswell Miller (BS '87) is a flight attendant for American Airlines. "Last September I married Lt. William Miller, a Texas-Ex, and got to move to Jacksonville, Florida. I am still flying for American in my spare time when I'm not traveling about the US and Europe."

Harry A. Miller Jr. (BS '41) is an independent geologist in Midland. "In good health and still working in the oil patch. Fun—more work, but still fun."

Larry Miller (BS '79) comments, "Working offshore Louisiana for Amerada Hess in Houston. Just trying to hang in there!"

Michael R. Miller (BS '80) is a geologist for Environmental Testing Systems in

Austin. "Working on LPST projects for ETS. Brother Chris in third year of geology at A&M; still an eligible bachelor."

R. Dick Miller (BS '51) says, "Country life is great northwest of Georgetown. Enjoy golf, trailering and also UT basketball."

Wayne D. Miller (MA '57) writes from Midland, "Past year rather uneventful. Managed to sell a couple of deals and got two wells drilled. Still trying to reverse the old production decline curve, which gets more difficult each year. Right now things are slow and quiet in the Permian Basin. Family is fine. Carole and I are looking forward to this year's *Newsletter*."

Erminie H. Minard (BA '50) is "still living on the beach at Surfside, Texas, and still teaching algebra II and geometry. Training the UIL number sense, calculator, math and science teams and the Texaco Star Challenge and Scholastic Bowl Academic Teams keeps me busy!"

Evelyn Wilie Moody (BA '38, MA '40) says it has been a great year but not much consulting business. "The Main Building in Houston closed 12/31/91 for remodeling so have moved my office to my home for the duration. Spent time last summer in Hawaii observing the volcano—exciting. This summer going to Crete, Greece, to visit archaeologist daughter, Jennifer, a 1989 MacArthur Award winner, who is there creating an interdisciplinary reference center for scholars of Crete plus her usual archaeological projects. Daughter Melissa, Houston, has a family that includes two teenagers, 15 and 16 years old. Son John, who has three little boys, is still lawyering for acquisitions at Exxon. My ranch is busy too. Attended many conventions last year: AAPG, SEPM, SIPS, GSA, GCAGS and Pi Beta Phi, all excellent, and saw lots of you and other good friends. Loved your letters. Thanks a million—especially to Rizer Everett. Please keep in touch!"

James R. Moffett (BS '61) is chairman and CEO of Freeport-McMoRan Inc. in New Orleans. "Oil patch is tough but the opportunities for good explorationists who can find natural resources are still available. We need

to train many scientists to explore world-wide for the essential natural resources that drive the economic policies of the world. Other third world countries look to us for technical assistance as much as they do for investment capital. UT is one of the foremost learning centers in the world."

Robert J. Moffatt (BS '41) writes from Shreveport, "Family m o v i n g along, I have eight grandchildren, one at UT Austin, one grad from Duke, one starting first grade—what a spread."

Charles A. Montero (BA '84, BS '84) lives in Austin and works as a senior hydro-geologist for Rosengarten, Smith & Associates Inc.

C. Gardley Moon (BS '40, MA '42, PhD '50) is "still enjoying life and retirement in Houston."

Michael Moore (BS '80) says, "Alive and well down south. GDS members (you know who you are) please give me a call. That includes Whithers, Skip and D'nese, Brian and Liz, Miller, Diego, Reistroffer, CC, Hammond, and all you other scumbags that have fallen off the face of the earth (512) 883-4324 (home)."

R. McKay Moore (BS '52) works as an independent geologist in Shreveport.

Terry L. Moore (BS '80) is an associate exploration geophysicist for Phillips in Bellaire. "Beverly and I are swirling in the microcosm of the oil industry. Jessica is a dean's list senior at Southwest Texas State University. Sarah's fast pitch softball team is 8-0-1 with three more games

to play. Cyrus achieved a gold medal in the 50 meter dash at the district 22 Special Olympics. To Andy C. at UT, the fish fossils are from the Cretaceous Cera Basin in Brazil."

Francis W. Morgan (BA '34) has sold his ranch, cattle and horses. "I am

Charles P. (Chick) Mueller (BS '60) comments, "As a consultant I represent several clients who will invest in shallow to medium depth (above 7500 ft.), oil prospects. Please call if you have a prospect or deal that meets this criterion." Chick lives in San Antonio.

Harry W. Mueller III (PhD '75) is still working for Exxon in Houston, and still traveling a fair amount overseas. "Jackie is still raising Dobermanns and Whippets. Our son is 13 and has taken up the banner of most teenagers: 'Let's see if we can drive our parents crazy.' Our daughter won't be far behind in the same effort."

James G. Muncey (BS '81) is a geologist for Prime Energy Corporation in Stamford, Connecticut. "At work, acquisitions continue at a fast pace. I am managing my second Prime/US Department of Energy directional well and a related seismic project. Our project area is The Chittim Field, Maverick Co., Texas. Most important news: the Munceys are expecting child number two in February, '93!"

William D. Murphy (BA '84) is an exploration geologist for Mobil Exploration and Production US, Inc. in New Orleans. "Monica and I will soon move from New Orleans to Dallas as Mobil centralizes its exploration department. I am continuing to interpret in deep water plays in the Gulf of Mexico. Although we love New Orleans, it will be nice to cross that ol' Sabine where friends and family will be closer."

Alumni Honors ...

Jim Bob Moffett (BS '61) was named to the College of Natural Sciences Hall of Honor in April, 1992. The Hall of Honor Award is presented to individuals who have distinguished themselves professionally and have demonstrated special interest in the College of Natural Sciences. Winners must recognize and reflect the importance of their association with the College, demonstrate pride in the College and UT Austin, and exhibit extraordinary loyalty and interest in both. Jim Bob is board chairman and CEO of Freeport McMoran Inc. He earned a BS in geology with special honors in 1961 from UT Austin, and later received a Master's degree in geology from Tulane University. In 1990 he received the Longhorn Hall of Honor Award and received the Distinguished Alumnus Award from UT Austin in 1989. Jim Bob has established several endowments at the University, including three in the College of Natural Sciences.

still consulting part time in El Dorado, Kansas."

Michael B. Morris (BS '47) is a consultant in Houston and continues as a member of the Geology Foundation Advisory Council.

Susan J. (Deutsch) Conger Morris (BS '70) says, "Don has retired from HL&P; Bill is driving and Amanda will be in the fourth grade. I'm working in a Russian regional study group. How time flies!" Susan is a senior geological technician for Exxon Exploration Company in Houston.

James E. Moser (BS '84) will complete his Master's degree in 1992 at Western Michigan University. "Petroleum exploration is slow, environmental work is good. We have been blessed with three wonderful boys (what a challenge). Wisconsin is too cold! Hello, Mr. Gary Byrd, drop a line." Jim is a geologist for Warzyn Inc. in Madison.



— N —

Heidi Nast (BS '79) is a post-doctoral fellow at the University of Kentucky in Lexington.

G. Allan Nelson (BS '47) is "looking forward to skiing free for the rest of my life starting in May when I turn 70 years old. Also looking forward to the fourth reunion of the famous 1947 class in Austin in a few years." Allan is a consultant in Denver.

Ken Nemeth (MA '76) writes from Houston, "In August, 1991, I regenerated my professional career by joining Browning Oil Company (the old HECI). We participated in ten wells in 1991 and hope to double that in 1992. I probably need to buy stock in Southwest Airlines; the company plane gets a lot of use."

Daniel J. Neuberger (MA '87) is a senior geologist with Shell Oil Co. in Houston.

Paul Neumann (BS '87) resides in Victoria, where he is a senior field engineer for Halliburton Logging.

David Nilsson (BS '61) is teaching part-time at Austin Community College and being a volunteer in the AISD mentor program the rest of the time in Austin.

David Noe (BS '84) writes, "All's fine here at the Colorado Geological Survey, politics and budgetary crises aside. I am now well on my way toward a new career in what I call 'Swiss army knife geology'. My duties include oil and gas reporting, underground storage tank removal and remediation, swelling soil and rockfall investigation, hydrologic modeling for uranium mill-closure proposals, and subdivision evaluation for geologic hazards. It keeps me busy! I'm proud of the CGS and its contribution to the people of Colorado." Dave lives in Boulder.

Issac W. Norman (BS '48) is retired in Taylor, Texas. "Everything still the same."

Carol Doran Northern (BS '84) says, "Carl and I have embarked on a great adventure. Emily Claire Northern was born February 19. She is more fun and more work than we ever imagined." Carol is a senior geologist for Law Engineering in Kennesaw, Georgia.

A. M. (Red) Olander (BS '48) is retired and living in Houston, "staying busy doing volunteerwork in the Presbyterian church and working as a partner with Chaparral Blondes Cattle Company."

Fred L. Oliver (BS '51) is an independent in Dallas, having retired from Greenbrier Operating Company in 1991. "Participating in E Gas R major project. Redevelopment of the Beaver River Gas Field in northern British Columbia that watered out to crest of structure in a fractured dolomite reservoir and was abandoned in 1978.

Gas remigrated into secondary gas cap. Potential 500 BCF."

William B. Oliver (BS '68, MA '70) is an independent in Lafayette.

Greg Onstott (MA '84) is president of Juniper Systems, Inc. in Austin. "Juniper Systems provides software engineering and consulting services in parallel super-computing, specializing in 3D seismic data processing applications!"

Clair R. Ossian (PhD '74) took early retirement after 18 years with ARCO research. "I founded my own consulting firm. I am working longer hours now! Have both botanical and geological clients, plus I have returned to teaching part-time." Clair is president of The Ossian Group in Carrollton, Texas.

Bob Ottmann (BS '51) is retired from Exxon in Houston. "Studied the outcrops with my binoculars from an Alaskan cruise ship last summer. What a way to do geology! Last year's Newsletter was superb! I can hardly wait to see the next one." Bob also serves on the Geology Foundation Advisory Council.

Jeff Ottmann (BS '77) writes from Houston, "The only constant is change! Exxon has reorganized again; I find myself working Middle East exploration. As of January first I became a

Alumni Honors . . .

William B. Rogers (PhD '72), a geologist with the New York State Geological Survey, was honored last year with three of his co-workers when their geological highway map of New York was chosen from 100 entries as the best general educational map in the nation by the U. S. National Committee for the International Cartographic Association. A 275-page textbook is being published to accompany the map. The book and map are designed for use in earth science classes in the state's schools.

— O —

Bob R. O'Brien (BS '52, MA '56) is a geography professor at San Diego State University. "Spending the summer traveling to national parks, completing a textbook on them."

John F. O'Donohoe (BS '50) is president and CEO of Coastline Exploration, Inc. in Houston. "Returned December 23, 1991, from two weeks in Russia representing Symskaya Exploration, Inc. in which Coastline owns a 20% interest. While there negotiated an exclusive exploration agreement on 11,000,000 acres in the Syms Region of the Krasnoyarsk Krai. Present plans are to spud a 4300 meter test well on a large well-defined seismic structure in late summer '92 utilizing a Russian rig. The size of some of the seismic structures that we are evaluating stretch the imagination. Hopefully, they contain hydrocarbons."

Michael A. Ochoa (BS '85) writes, "I returned from living in England to the third world of Laredo to teach the savages science. TB, cholera, and drug problems abound. I will give it a few years and leave to civilization. For your own sanity, visit this place but don't stay."

part of the Yemen Exploration Group. With two rigs constantly running there is never a dull moment."

Philip M. Oviatt (BA '78) is an exploration geophysicist with Arkla Exploration Company in Katy, Texas.

Donald E. Owen (MA '51) is a professor of geology at Indiana State University in Terre Haute.

— P —

Woody Pace (BS '85) is a geophysicist for Marathon Oil Company in Houston. "Having a great time with Marathon Oil exploring several frontier basins in South America."

Jack M. Park (BS '50) is a consultant in Dallas.

Robert T. (Tim) Parks (BS '88) is a geologist for Kelley Oil Corporation in Houston.

James F. Patterson Jr. (BS '52) is a consultant in Bellaire, Texas.

Bill R. Payne (BA '40, MA '41) writes, "I'm keeping busy, but nothing associated with oil business. Retired from Exxon 15 years ago and other than a year or so associated with a friend, have not 'dabbled' in the game and am glad! I wish the best of luck to all who continue to pursue it. Most of us know that the country needs it. My five grandchildren, present wife, and her seven grandkids keep things hopping at our ranch interests near Burnet and Lampasas and lakehouse at Horseshoe Bay (near Marble Falls) and living more than half the time in Houston. Still have not found time to play golf."

John R. Pedigo Sr. (BS '35) is a retired Texas A&M University professor of petroleum engineering.

Jack L. Penick (BS '42) is "semi-retired and taking lots of long vacations. Spending some time at our condo on South Padre Island. Very fortunate to have found some long-life production, with pressures holding very strong. Good luck to all." He is president of Reserves Research Inc. in Houston.

Benjamin J. Petrusek (BA '42) is retired in Metairie, Louisiana. "In good health. In 1991 enjoyed an extended vacation in liberated Czechoslovakia. What a welcome difference from previous visit in 1977!"

Robert W. Pettigrew (BS '52, MA '54) comments, "Retired from Exxon the first of the year. Looking forward to moving to Austin soon." At present he lives in Corpus Christi.

Deborah S. Pfeiffer (MA '88) contributes, "Just moved into a new house north of Lake Pontchartrain and enjoying our daughter Lauren." She is a geological engineer for Shell Offshore Inc. in New Orleans.

Harry S. Phillips (BS '42) is president of Blackgum Corporation in Tyler. "Received 1991 Pioneer Award from the East Texas Geological Society."

James N. Piper (BA '88) says, "My position here at Applied Research Labs/UT as their marine geologist and research dive team supervisor has kept me ultra-busy this last year. Two trips to South Korea and two to Bermuda for some underwater acoustic experiments kept me from home most of the year. Makes one appreciate Austin that much more when you return. Hook'em, ya'll!"

Gerald S. Pitts (BS '54) lives in Midland and is president of Pitts Energy Company. "Drilling activity for our company continues at a moderate pace. We would like to drill more but high reserve-high quality prospects are hard to find. We are still drilling four or five wells a year at our Barstow (Bell Canyon) area. We drilled a Scurry County, Pennsylvanian reef well in January with good success. Hope to drill two more this year in that play. Stable oil and gas prices would certainly help as would repeal of 'alternate minimum tax.'"

Phil Pitzer (BS '54) is president of Caddo Creek Corporation in Breckenridge. "It has been a long year."

William A. (Bill) Poe (BS '48) comments from Houston, "Not much new to report. Everyone in the family is getting on with their lives in reasonably good health. I'm playing a lot of golf at Sweetwater Country Club and enjoying it very much. I wish we would all get busy with letters, telegrams, etc. to get the Feds to let our industry get back in business. My regards to all."

John M. Pope (BS '86) works as an account manager for the Travelers Indemnity Company in Houston. "Good luck to all recent graduates!"

Robert B. (Bob) Porter (MA '51) resides in Midland and writes, "Staying busy as sometimes geologists most times traveler. Dividing time between Midland, Ruidoso, Edmond (Oklahoma), Dallas, and Austin; visiting kids, grandkids, and sweating out those Longhorns. We (Polly and I) have two grandchildren at UT Austin this year (Nichole Worrell and Turk McDonald). Hook'em!"

J. Dan Powell (PhD '61) writes, "Energy and mineral business still very slow in Rockies, but it's been a big year for Powells: new house, new grandchild, new business (Big Creek Fly Shop in Grand Junction, Colorado). Now we have to find a way to pay for it. Dorothy still works at bank in Aspen, bless her!" Dan lives in Aspen, Colorado.

Joseph L. Pritchett (BS '46) is an independent and consultant in Lafayette. "Good prospects will still sell."

John L. Proctor (BA '50) says, "In December '92, my youngest daughter will receive a BA degree and an Air Force Commission from UT. I have been designated to participate in the commissioning ceremony." John is retired in Richardson, Texas.

A. Leo Pugh Jr. (BS '52) reports from Houston, the oil capital. "Wish the energy business would pick up soon. Still selling seismic data to all the independents. Note: the majors are all overseas now. Hope to see old friends at the coming conventions this year."



— R —

Rick Railsbach (BA '74) is a geologist for Genesis Producing Company in Corpus Christi.

Clyde M. Rascoe (BS '49) is president of Merit Oil Company in San Angelo. "Still hanging in there trying to keep our marginal wells going. Merit became more family-oriented in 1991 with addition of son-in-law, Dale Potter, full time and daughter, Lori Rascoe Potter, part time staff."

Carla Everett Gardner Reed (BA '89) writes from New Orleans, "I am pregnant with my second child. My husband, Andrian Reed (BS '89 petroleum engineering), and I just bought our first house so we're pretty happy here in the Big Easy."

Robert M. Reed (BS '85) comments, "I recently defended my Master's thesis at the University of Massachusetts. I have also passed my PhD comprehensive exams at UT. I am working with Sharon Mosher on a project studying emplacement mechanisms

land, where he is an independent geologist. "All of us would appreciate a mini-boom to liven up our profession of finding oil and gas."

David C. Reutter (BS '82) is a hydrologist with the U.S. Geological Survey in Austin.

Kirk W. Rexrode (BS '84) lives in San Diego, California and is CEO for GreenLink International.

Paul K. Richard (BS '87) is a regional operations geophysicist in Houston.

James V. Richards (BS '56) is "still consulting for Crossroads Oil Company in Houston. Still having a good year. We're seeing a total dismantling of the oil business as we have known it in the past, but I believe that survival is possible through creativity and entrepreneurship. There are a lot of development possibilities out there if we can make the deal. Start thinking, geologists."

James W. Richards (BS '58) writes, "Still getting a few wells drilled and growing wine grapes in the Napa Valley, plus this year we are building a house at the vineyard. Please come by, we have a lot of extra gloves." James lives in Midland.

Brian Richter (BS '78) is an independent geologist in Denver. "Would it be possible for anyone who has attended Geo 660 to run for public office?"

Gary Richter (BS '79) lives in Houston. **Wade C. Ridley** (BS '53, MA '55) is president of Ridley Oil Corporation in Tyler. "Still making the deliberate search for the subtle trap. Another year older but wiser is questionable."

R. Barry Riess (BS '86) sends news from Grapeland, Texas: "It's over. Another casualty of the oil depression. I'm beginning a new career path as a structural designer for Nucor Steel in Grapeland. Also looking for greener



Nancy Green Lister (left) and Diana Oden in geology lab, mid 1950's.
Photo provided by Keith Young.

M. Allen Reagan (BA '50) writes from Houston, "Sue Ann and I are traveling much of the time. Just had our tenth grandchild. Hope to visit UT soon where number one grandson is a sophomore."

Donald F. Reaser (PhD '74), associate professor of geology at UT Arlington, is "still leading geological field trips to the SSC vicinity. The next scheduled trip is for the Southwest Section of AAPG in early 1993. This summer I've been consulting for a mining company in the Western U.S. Bette and I both enjoyed attending Muehlberger's roast in May, the end of a Golden Era."

Richard K. Redfearn (BS '58) writes from Austin, "Retired, have twelve grandchildren and two great grandchildren. Would like to hear from classmates. Call (512) 451-1797."

of granitic plutons in the Llano uplift."

Scott C. Reeve (BS '70, MA '71) is a division geologist with Shell Western Exploration and Production Inc. "Vickie and I became grandparents December 31, 1991. We moved back to Houston in January of 1992 after eight years with Shell Offshore in New Orleans. I still have a fantastic job with a great company."

Patrick S. Reiss (BS '89) writes, "Moved to Houston in September, 1989. I am in charge of restoring aquifers to original condition after in-situ uranium mining. I am also in charge of various other environmental aspects. Lots of geology, hydrology, and chemistry. Hello to everyone!" Patrick is a restoration manager for Total Minerals Corporation.

Charles B. Renaud (BS '49, MA '50) is enjoying the slow-paced life in Mid-

pastures running cattle with my new wife at our ranch along the Trinity River. Hello to Skarn, Brad H., Paul C., Mike M., and others of the 1986 Geo 660 antler van!"

Jess P. Roach (BA '41) is "still rocking along finding time to contribute more time to civic endeavors to partially pay back for the wonderful life I have enjoyed." Jess is retired in Austin.

Clem H. Roberts (BS '49) lives in Midland and is retired. "After 40 years in the oil patch, I miss it even in its depressed state. From roustabout, rough neck to division geologist, and I think somewhere along the line vice president, now out to pasture. My wife, Ann, and I enjoy retirement. Have five adult children and five grandchildren in the Tyler-Dallas area."

Edwin C. Robinson (BS '50) resides in Carlsbad, California where he is retired after 36 years in the oil business. "Attended 50 year reunion of high school class of 1942 from Beaumont High School (Texas). Enjoying early retirement (five years now) with my six children (five girls and one boy) and eight grandchildren! Give me a call if you are in the area."

C. William Rogers (BS '61, MA '63) comments, "Exploration business on Gulf Coast is slow, but still exciting. Became grandparents last year. Come see us in Lafayette."

Mary Sue Marsh Roach (BA '48) is retired and lives in Oklahoma City.

Michael R. Rosen (PhD '89) is a research scientist at the division of water resources of CRIRO in Fremantle, Western Australia. "I am having a wonderful time working on various groundwater/sediment related problems in saline systems here in Western Australia. I got married in March to a lovely (American) woman. We'll be in Australia at least until October and perhaps two-three years after that."

James J. Roskopf (BS '75) is in commercial insurance sales in Plano,

Texas. "I have been in insurance sales for eight years which is as long as my geology career lasted. Insurance appears to have more longevity! I sell a great deal of international coverage which is fun. Once you learn to live on straight commission, you will never be out of a job."

Lucy Owings Ross (BS '50) is president of Deltex Royalty Company, Inc. in Colorado Springs, Colorado.

James A. Rowell Jr. (BS '54) lives in Shreveport and is president of PAR Minerals Corporation.

Ann Joyce Ruby (BA '48) would love to hear from anyone in the class of '48. "I always enjoy the *Newsletter* and still hold an interest in the Geology Department at UT. I keep busy with my family, friends, and eight grandchildren, who live nearby. Also am active in our church." Ann is a homemaker in Austin.

Mary Dalton Ruckman (MA '38) comments, "Everything is the same with me. Long retired, widowed five years, travel a lot, and play a lot of bridge." Mary lives in Karnes City, Texas.

Jimmie N. Russell (BS '52, MA '54) works as a geologist for the Texas Water Commission in Austin. "TWC underwent a major reorganization this past year; I am now a member of the ground water investigation team, enforcement section, watershed management division."

Carolyn Rutland (MA '79) writes, "I returned to Michigan in July 1990 (after working for SAIC in Las Vegas from October '87 till July '90). I am now a project manager with American Hydrogeology Corporation (AHC). We do a variety of groundwater remediation projects, including, but not limited to, problems related to underground storage tank systems. As usual, this was an entirely new file of knowledge for me, but also as usual I've caught on pretty fast. The best part of this job is that my husband (Chris Schmitt) and I live not only in the

same time zone and state, but the same city. It's great!" Carolyn lives in Kalamazoo.

Marcie D. Machenberg Ryan (MA '82) is general manager for Resort Rentals Inc. in Telluride, Colorado. "On September 21, 1991, I married Jerry Ryan of Slidell, Louisiana, at the top of Bridal Veil Falls, Colorado's highest waterfall, accessible only by four wheel drive. Great turnout by my Texas friends! Come up to visit; we live at 8,745 feet above sea level."

Lloyd J. Ryman (BS '38) has now lived in Dallas about a year after eleven years in Houston which followed twenty one years abroad. "Not doing much exciting unless bringing a derelict large yard back to life qualifies."

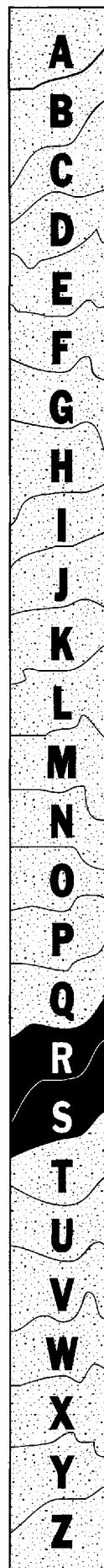
— S —

P. Martin Sander (MA '84) writes, "My wife, Carole Gee, and I moved from Zurich to Bonn in 1990 to take research associate positions in the same department. Soon after, we welcomed our son, Philipp Nikolaus, to this world. He is over a year old now." Martin's position is at the Institute of Paleontology at the University of Bonn.

Donald F. (Sandy) Sandifer (BS '35, MA '35) is retired in San Antonio. He reports minimal activity, mainly involved in 'R & M,' translated as Research (reading reports, bulletins, newspapers, etc.) and Management (managing my wife's and my estate)."

Vickey Price Sare (MA '80) lives in Plano. "Enjoying my boys, Robby (2), and husband Will, in the ultimate suburbia of Plano! Finished 12 years with ARCO this March; guess I'm an 'old timer' now. We'd love to hear from and see old friends from the great days in Austin!"

Jack R. Schmid (BS '51) is managing director of Schmid and Associates in Dallas. "Almost all of the firm's work these days is international, particularly underexplored or newly-opened areas such as Vietnam, Cambodia and Laos and the Eastern Block countries."



George W. Schneider (BS '57) is waiting for the '92 election and the price of oil to go up. "We have new a Sipes chapter in Austin this year with Bob Boyer at the helm." George lives in Austin.

Milt Scholl (BS '47, MA '48) is retired in Chula Vista, California. "Enjoying trips to Pacific Northwest and to New Hampshire. Seven grandchildren help keep us young. Still bicycling."

F. E. Schultz (BS '47) writes from Ojai, California, "Currently president of the Ojai Optimists Club; chairman of church board, and on the board of directors of Los Angeles Basin Exxon Annuitants Club."

Rubin A. Schultz Jr. (BA '61) notes, "Everything seems to be running smoothly here in Corpus Christi. Still with Texas Department of Transportation. Lots of work, short on funds. Family is growing. In addition to a grandson belonging to our son and his wife, our daughter had a boy last February. So we are grandparents again. This one weighed 13 pounds, so reserve an orange football suit for about year 2010. We are planning another May trip to Maui, Hawaii this year."

Eugene P. Scott (BS '56), a consulting petroleum geologist in Corpus Christi, is "still involved in fair share settlement of force pooling hearing proceeding matters before Texas Railroad Commission/Oil and Gas Division in Austin concerning Exxon-Lichtenberger mineral fee 797.7 acre section and adjoining tracts, Seven Sisters East Field, Duval County, Texas; however the very persistent low prices per MCF (1,000 cubic feet) and the low take (MMCRF per month) is not conducive toward inducing the fee owner/operator, the Exxon Corporation, to fulfill the requirements of full-development drilling of the natural gas producing subsurface reservoirs in order to bring the force pooling process to consummation. Hopefully, in the near term, these continuing sets of conditions will improve inasmuch as the demand for natural gas will increase, and thereby, so should the

wellhead price per MCF increase also, to cause the completion of the full-development drilling of the reservoirs to be completed, and then the force pooling process may ensue to completion under the laws of our state Mineral Interest Pooling Act."

John E. Seale (BS '41) says, "I am retired but do a little consulting from time to time." John lives in Houston.

Louie Sebring Jr. (BS '41, MA '47) continues as an independent consulting geologist in Corpus Christi.

Robert T. Sellars Jr. (BA '57) is still consulting in Denver with projects in the Rockies and South Louisiana. "Visited the campus in November, first time in 12 years. Some changes and some things unchanged."

Holmes A. Semken (BS '58, MA '60) comments, "Holmes and Elaine attended the International Quaternary meetings in Beijing this past August. We rediscovered many old friends from our previous work in the PRC; Beijing from the inside both culturally and professionally was most intriguing. We participated in a field excursion to Sin Jiang province. It was overwhelming to stand in one of the lowest, driest deserts in the world and view active glaciers on the surrounding Tian Shan Mountains. Sons Steve and David are doing well. Steve is teaching high school 'dropouts' from Kansas City and David continues in the Third Armored Cavalry; he has provided all kinds of Iraqi gear for my uniform collection from the Desert Storm experiences." Holmes is chairman and professor in the geology department at the University of Iowa in Iowa City.

Charles R. Sewell (MA '55, PhD aspirant '61-'64) is owner of Sewell Mineral Exploration in Tucson. "Most of my gold ventures in Nevada have either been sold or turned to major mining companies. I am continuing the work in CIS (USSR) that I began in 1988. Most of my activity is in Kazakhstan and Georgia."

George B. Sewell (BS '54) continues as a consulting geologist in Denver.

William W. (Bill) Sharp (BS '51, MA '51) works as a consultant geologist in Dallas. "Attorney daughter won her

first case before Texas and U.S. Supreme Courts. Paramedic daughter cited twice for above and beyond call of duty by the mayor of Terrell. Mom and I planning European vacation. Fortunate to be included in first edition of Who's Who in Science and Engineering. Currently doing a lot of fencing on Grayson County ranch."

Stephen L. Shaw (BS '71, MA '74) is serving as president of the West Texas Geological Society this year. "Nancy and I now have one in college (Katie, freshman at UT-Austin in engineering school) and one in high school (Will, a junior and on the football team at Lee High School in Midland). We're not getting older, just better." Steve is a geological advisor for Meridian Oil Company in Midland.

Steve Shelburne (BS '85) says, "I stay busy here in the Sun City (El Paso), taking care of my girls (wife included) and riding my mountain bike in the Franklin Mountains. Kim is busy with her singing career and my father retired from Mobil Oil this year. Any UT Hueco Tank rock climbers that need a place to stay look me up in the phone directory under my wife's name, Kim Livingston."

Jerry and Gay Shelby (BA '57; BS '57) write from Amarillo: "Gay and I are enjoying ourselves with tennis, skiing, fishing and travel. If you are in the area sometime, give us a call."

William K. Sheldon (BS '48) comments that he "retired after 33 years with The Nordan Trust and love it. Found out I'm a natural born bum. Stay busy all the time, but couldn't tell you what I'm doing. Wife does a good job of finding me jobs." Bill lives in San Antonio.

William T. Sherman (BS '51) is "doing work for QPS, a sub of Quintana Petroleum Corporation. Socially, am involved in oilfield tennis tournaments in Houston and Lafayette."

J. David Shetler II (BS '84) lives in Dallas where he is pursuing an MBA at Southern Methodist University.

Elgean C. Shield (BS '53) is president of Shield Development Corp. in Houston. "Still looking for oil deals in the Gulf Coast and offshore. Seven grandchildren doing fine, growing and

adopting proper ideas and no doubt will vote for the grand old party. Pray for the oil business; it needs all the help we can give it."

Tai-Chang Shih (PhD '78) comments from Sugar Land, Texas: "After ten years in geophysical research at Texaco, it has been three years since I moved to Texaco's frontier exploration department. How time flies when I'm having fun." Tai-Chang is a senior exploration geophysicist.

Elisabeth A. Short (BS '86) writes, "I'm getting married here in Princeton, New Jersey, on Labor Day weekend. Randy and I will complete degrees this summer; Randy (Smith), his PhD in mechanical and aerospace engineering, me a Master's in chemical engineering. Randy is applying for faculty/research positions now, so I'll let you know where we end up next year! Hi, Lisa Hawkins and Carla Ketner, where are you?"

Charles Sicking (BA '69, PhD '80) is a research geophysicist for ARCO in Plano.

Joe Simo (BS '77) is a self-employed exploration geologist in Dallas.

Samuel J. Sims (MA '57) is continuing to do consulting work in Southeastern Pennsylvanian with occasional trips to projects in Canada." Sam lives in Bethlehem, Pennsylvania.

R. Sam Singer (BS '61) writes from Houston, "The hunt continues for the elusive elephant. The location has moved across the seas. I hope the government wakes up before it is all gone. If people are going to continue use of petroleum, then let us find it here." Sam is manager of reserves and acquisitions for Pennzoil Exploration and Production Company.

Margarett Sipple-Srinivasan (BS '82) writes from Industry, California, "I've made the switch to the environmental field doing project management in site assessment and remediation for Unocal. Come August we'll be a regular



Bill Fisher (left) and Raul Solis (MA '72, PhD '80) at Madre dos Dios, M. Bolivia Pando #2 location in September, 1992. Raul is a geologist with Diamond-Sol, formerly Occidental, in Bolivia.

family. This is a big year for changes—all good."

Harry H. Sisson (BS '40) is retired but keeping busy. "Nancy and I keep busy in the office attending to our personal business. We are both active in Grace Presbyterian Church which is near our home. We walk for exercise and enjoy automobile trips. Keep the *Newsletter* coming." Harry lives in Houston.

David K. Skidmore (BS '76) is president of Skidmore Exploration Inc. in Nocona, Texas.

Steve Slaten (BS '82) writes, "We are now living in Los Alamos, New Mexico, in the heart of Geo. 660 country. I am in charge of the environmental restoration program for DOE here, to clean up past contaminated sites. We love the mountains, but miss Austin some times."

Marriott Wieckhoff Smart (BS '57) works as a library consultant in Littleton, Colorado. "I have left the corporate world to join the ranks of those in small businesses. My library consulting will emphasize research and reflects the 15 years experience I have had in natural resource companies."

Tommy T. Smiley (BS '51) is enjoying retirement and a new granddaughter. "Everyone is healthy and happy." He lives in San Antonio.

A. Richard Smith (BS '64) works as a geologist for the Texas Water Commission municipal solid waste division in Austin. "The enforced change from Texas Department of Health to Texas Water Commission means working with more of my own kind (geologists), a pleasant change. Our first grandson, born in November, is the usual exceptionally intelligent and physically advanced child."

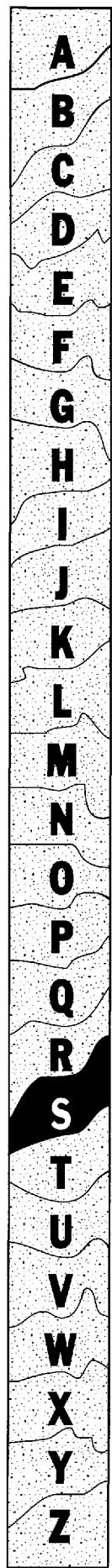
Brian A. Smith (PhD '86) writes, "A year ago I took a job with Geraghty and Miller in their San Juan office. I am still working with groundwater projects in karst terranes. In May I married Sandra Salgado of Vega Alta, Puerto Rico."

Bruce D. Smith (BS '58) is a partner at Fulbright and Jaworski in Houston. "I am still practicing Admiralty law in Houston. Marja and I will be going to Tuscany in September for a short vacation. Life continues to be challenging and rewarding."

Charles Smith (BS '78) says, "I earned my MS degree in geology from Stephen F. Austin State University in 1987. Since then I have worked with Raba-Kistner-Brytest Consultants, Inc. in Austin."

Daniel L. Smith (BS '58) writes, "Although I continue as a director of Texoil Company, I am now an independent and consultant associated with Texas Meridian Resources Corporation in Houston."

Harry L. Smith (BS '51, MA '56), living in Boerne, Texas, was forced to retire because of the present climate in the oil business. "Second grandchild, Lindsey, born



to daughter last June. They live nearby in Blanco so we see a lot of them. Son works as computer systems analyst for Tenneco in Houston. Wife, Marcelle, and brother, Dudley Dobie, involved in selling latefather's very large J. Frank Dobie book collection."

J. T. Smith (BS '50, MA '56) writes, "I continue to enjoy retirement and living in the Texas Hill Country. After four years of retirement, I spend more time sweating the price of cattle, wool and mohair instead of crude oil and natural gas. Cattle prices are OK, but wool and mohair are not so good. One out of three isn't too bad." He lives in Fredericksburg.

Frederick C. Smyth (BS '57) is retired and lives in Dallas.

Stephen W. Speer (MA '83) comments from Roswell, New Mexico, "Still here after 1 1/2 years as an independent geologist. Although the domestic oilpatch is foundering, I'm convinced that it is still quite viable and necessary for our country, and besides, there's still a lot of resource here to be found and produced. The family is doing great and we're enjoying life in Southeast New Mexico. Hi and hope all is well with all my dirty dozen compadres."

Fred D. Spindle (BS '49) is retired from Marathon and lives in Sugar Land, Texas. "I have been to circuses, a county fair and a rodeo, and I thought that thereby I had seen about everything, but realize that I hadn't seen anything as unbelievable as the government treatment of the petroleum industry. It is too ridiculous to be accepted. Betty and I are relatively well. She is working on a black belt in bridge and I piddle here and puddle there. Best wishes to one and all."

Scott D. Spradlin (BS '75, MA '80) writes, "Have survived the move to Louisiana. We left our son, Jacob, in Texas (college-bound). Recent retirements have depleted familiar Texas-Exes faces from the hallways. The thing we miss the most is good Mexican food." Scott is a division reserves geologist for Exxon in New Orleans.

Ann St. Clair (MA '79) reports from Austin, "Kirk Holland (MA '73) and

I keep busy chasing 3 1/2 year old Cameron. Kirk's work at Radian Corporation takes him to Europe several times a year. Last summer Cameron and I joined him for seven weeks living outside London. I'm still enjoying being a stay-at-home mom but will admit to an occasional yearning for uninterrupted adult conversation."

Theodore E. Stanzel (BS '56) writes, "Relocated to my hometown of Schulenburg, Texas from Houston two years ago. Took early retirement from Transco Energy. Working in the manufacture of the flying toy industry making airplane toys. Come by and visit the toy factory."

Burgess Stengl (BS '85) comments, "My family and I are doing fine in Austin. Angela will be starting her seventh year as a second grade teacher, Shara will be starting seventh grade, Susan is going to start kindergarten, and I am going on three years with the Water Commission, ground water section. Our summer was extremely busy, and we are planning a big trip to Disney World this November. I hope all of my fellow 1985 UT graduates are doing well and keeping out of trouble."

Walter Stein (BS '52, MA '52) is "still trying to unravel the geology of the Muenster Arch in North Texas." Walter is an independent in Dallas.

Sheree L. Stewart (BA '84) works as a hydrogeologist for the Oregon department of environmental quality in Portland, Oregon. "Finally found home in Portland, I love it here. Plenty of hiking, snow skiing, camping and biking. Working with a great group in environmental cleanup. Currently busy with sixteen State Superfund sites. My specialty is DNAPL groundwater contamination. There are lots of sites to work on. Will probably work on technical policy issues next."

Sarah Landtiser Stinger (BS '82) lives in Lovettsville, Virginia, where she works as a senior hydrogeologist with Radian Corporation. "In January Steve and I were blessed with a healthy, beautiful daughter, Gwen. We are looking forward to introducing her to the Appalachian Trail

and Catoctin Greenstone this summer. Finally completed my MS in geology at George Washington University in 1991."

Preston A. Stofer (BA '57) writes, "Doing what my grandfather did in 1910, selling Port O'Connor, Texas."

Brad Stokes (BS '87) says, "After grad school, Melissa and I moved back to Austin and I am working as a consulting environmental geologist. We've just bought a house in northwest Austin and we love being back in Austin!"

Winston L. (Skip) Stokes (BS '57) is "keeping busy buying leases, working titles and doing due diligence for various acquisitions. The three kids all have jobs and are doing great. Kathryn and I have one grandson, Nathan, who is terrific!" Skip lives in The Woodlands, Texas and is an independent landman.

Ted Stout (BS '85) works as a park ranger at the Santa Monica Mountains National Recreation Area in Agoura Hills, California. "I finally made it to the mountains. Unfortunately, the Santa Monica Mountains are within the greater Los Angeles area. My wife, Rose, and I are still hoping to work in a real national park someday. Until then, surf's up!"

Mike Stowbridge (BS '82) lives in Abilene and works as a well-site geologist for Geosite Consultants. "For the last two years in development of the Conger (Penn.) field in Sterling County, and the job continues. I'm also developing wildcat prospects around the Abilene area."

Robert E. Stowers II (BA '86) writes, "Lisa and I still live in Spring, Texas. Enjoying friends and family, especially raising our son Cameron (2). Number two on the way. Looking forward to a new era in Longhorn football. Larry, keep in touch." Robert works as an environmental geologist for Jones and Neuse, Inc.

Michael W. Strickler (BS '78) is a senior vice president for exploration for Hardy Oil and Gas USA, Inc. in Houston.

Carroll Stroman (BS '58) writes, "I own and operate extended care and training residences for adults with developmental disabilities in Sweetwater, Texas."

Martin Stupel (BS '88) lives in Houston where he is a geophysicist/ party manager for Western Geophysical.

Paul D. Suddath (BS '76) is an independent geologist in Abilene.

Charles J. Sullins (MA '71) says, "Transferred to Houston from Oklahoma City. New job in new area is great change after 16 years in Mid Continent. Also great to still be employed in energy industry. Looking for contacts from UT alumni." Charles is exploration manager, southern region, for Anadarko Petroleum.

Keith Sullivan (MA '88) writes from Thousand Oaks, California. "Currently planning logging and coring programs for two new platforms in the Santa Barbara Channel, and watching the Southern California reservoirs fill up." He is a senior geologist for Exxon.

Stanley M. Sutton Jr. (MA '80) is a research associate in computer science at the University of Colorado in Boulder.

Leonard Svajda (BS '40) says, "My brother, Jerome, and I were the first students to live in a mobile home on the 40-acre campus on Waller Creek at present location of the Alumni Center. Since then I have had a yearning for another water-front home, like Tahoe, which

I cannot afford, or Lake Corpus Christi, which I cannot afford, so I am looking for an empty space on Waller Creek."

W. C. Swadley (MA '58) is "Still with the USGS in Denver, mapping in the transition zone between the basin and range and the Colorado Plateau in Eastern Nevada."

— T —

Jim Tarrt (BS '48) writes, "Enjoying this retirement chapter of our life very much as we did the UT chapter. Thanks for the *Newsletter*." Jim lives in Houston.

Dick Teel (BS '39) works as a geological systems consultant in Houston. "Still consulting with Petroleum Information. Identifying all the producing horizons and reservoirs for the major producing states in the U.S. Will go on a hunting safari in Tanzania, Africa, in September with my number one son."

Megs Testarmata (MA '78) is a commercial fisherwoman in Seldovia, Alaska. "I skipper my own 33 ft. boat for salmon and halibut. Alaska's economy went down a few years ago with oil prices, and now it's down again with fish prices. Help us out and eat more fish!"

George L. Thomas (MA '60) resides in San Antonio, and writes, "All three of the children are married now. Kelly has been married about five years. He and May presented us with a second grandchild (girl)

Dallas. "Best regards to all the department. Looking forward to the next *Newsletter*. Keep up the good work."

Charles P. Todd (MA '86) writes, "My wife Christi (UT MPA '83) and I are expecting our first child in June. I have no intention of trading in my Miata for a minivan, however!" Todd works as an exploration geophysicist for Exxon in Houston.

Elsworth (El) Tonn (BS '55) is president and CEO of Kamel Corporation in Houston.

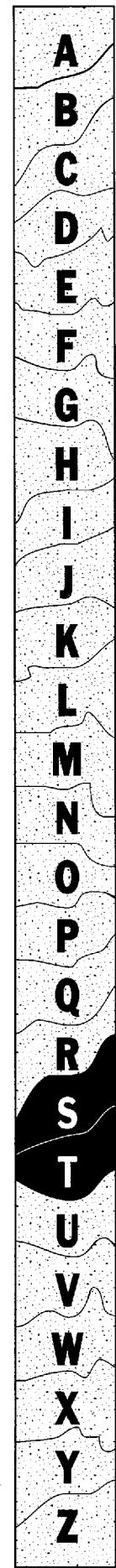
Robert J. Tondu (MA '86) writes, "We are hanging in there. Our focus is on developing independent power plants. We have closed two projects, one in Michigan and one in Canada." Robert is owner of Tondu Energy Systems, Inc. in Houston.

John Trammell (BS '59) lives in Grand Junction, Colorado, and where he is a consulting geologist.

Jack W. Trantham (BS '51) comments from Tyler, "Read in the paper this morning that in 1986 there were 13,000 independent oil operators and today there are less than 4,000. We are becoming like the dinosaur; heading for extinction fast. I'm still drilling a few wells every year. My heart goes out for the young independent who is trying to make a living in today's climate. My family is doing great; no additions or losses since last year."

Traci Trauba (BS '85) is an account manager at The Travelers in Houston. "I'm engaged to Doug Smith and we're getting married on October 24, 1992."

Everette Travis (MA '51) says, "Enjoying all the beautiful geology of the hill country and all the activities that go with living on Lake Buchanan in Llano County."



Alumni Honors ...

Paul Weimer (PhD '89) is an assistant professor at the University of Colorado at Boulder. He was honored at the recent annual meeting of the AAPG in Calgary with the J. C. 'Cam' Sproule Award. The award is for the best paper appearing in any publication of the association, affiliated society, section or division by a member 35 years of age or younger. Paul's paper is entitled "Sequence stratigraphy, facies geometries, and depositional history of the Mississippi Fan, Gulf of Mexico," and appeared in the *AAPG Bulletin*, vol. 74, no. 4, p. 425.

on 7 February '92. John married Jan Koehler this past September, and will finish an MBA in August. Kristen and Charles are med students in California." George is a consultant specializing in expansive clay.

T. J. Thompson (BS '57) is owner of Toro Exploration Company in

Robert F. Travis (BS '57) writes from Corpus Christi, "Now I know the definition of retirement. There are no companies, investors, or partners to be responsible to. But, there is still a whole lot of work to do!"

Galen E. Treadgold (MA '85) is a senior geophysicist for Arco, working as an interpreter in the Asia/Middle East group, focusing on Syria. "I'm also the continuing education chairman for the Dallas Geophysical Society."

Roy W. Tronrud (BS '40) is retired from Sun Oil Company in Dallas. "I play a lot of golf and travel about. I enjoy reading about the ex-students."

Arthur J. (Art) Tschoepe (BS '51) says, "1992 marks my 40th year in Corpus Christi." Art is an independent geologist and oil operator.

Delos R. Tucker (PhD '62) writes from Pasadena, California. "I'm retiring from teaching after 30 years at Glendale College. The consulting work for American Exploration is very interesting and challenging; it will become a full time activity after June. My exploration area is South Louisiana."

James J. Tucker Jr. (BS '48) lives in Jackson, Mississippi where he is retired.

John D. Tuohy (BS '39) is "still happily retired in the Hill Country. Children and their families doing well. We do a bit of traveling visiting them, daughter in Colorado, and son in China working for Amoco. Was a bit surprised to have made three quarters of a century, but it went so well I'm now working on the next quarter. Greatly enjoy the *Newsletter*, keep up the good work." John lives in Canyon Lake, Texas.

Edd R. Turner (BA '43) comments from Kerrville, Texas, "For the past few years I have been writing an update of AAPG history. Should be published by time the *Newsletter* is printed. Have started research on another book on completely different subject. Wife Mary well into her second book on Texas history."

Neil Turner (PhD '70) works as a staff geologist for Amoco in Houston. "Continuing to work various carbonate exploration projects for Amoco. Just concluded a two-year

sequence stratigraphic project in the South China Sea and will become involved in Tethys geology soon."

Robert D. (Bob) Turner (BS '60) writes from Thirsk, England, "My wife Ann and I have just completed our 15th year in the bookshop we established in this small market town in 1977. Our son Tom (21) finishes Newcastle University this summer, and daughter Alicia (18) starts Oxford University (The Queen's College) in the autumn. Geology plays a very subdued second fiddle to our main business now, but I keep my hand in buying 19th century classics (Murchison, Sedgwick, Phillips, etc.) when I can find them, and periodically selling and trading off bits of a large collection of ammonites from the Yorkshire Lias I assembled over the years. I still get to Texas once or twice a year, but there never seems time to work in a trip to Austin. I still haven't seen the new building. Look us up if you come to Yorkshire."

John T. Twining (BS '48, MA '54) is still enjoying retirement in Houston. "We recently bought a small property in Nacogdoches County, just south of Cushing. We go there frequently to get away from the Big City. I spent some time several years ago in Cushing area assisting Dr. Stenzel with his graduate students mapping the quadrangle. One of the students was John Bookout, retired president of Shell Oil Company."

LeRoy J. Tydlaska (BA '49, MA '51) is retired from Amoco and lives in Metairie. "Not much drilling since the oil bust, but stay busy with gardening etc. Also keeping contact with Amoco friends and occasionally consult."

— U —

Charles B. Upton (BS '57) writes, "Have decided to retire from teaching and get into environmental science and use my MS in natural sciences plus what I have been learning about environmental science. So, I am looking for a job. Will teach until I land one. Louree and I are doing fine." Charles lives in Leakey, Texas.

— V —

Robert D. Valerius (BS '59) is an independent petroleum geologist in Corpus Christi. "Noticed recently that weekends are getting longer and my memory gets shorter. Now where did I put that envelope?"

James B. and Amy Wharton Vanderhill (PhD '86; BS '83) write, "We are still in Midland, still at Mobil, but now have two children. Shannon Elizabeth was born May 24th, 1991. We are still enjoying production geology, but hate to see our domestic oil industry dying. Hopefully the independents can keep things going. Still lots of potential in the Permian Basin."

David C. Vaughn (BA '84) is a partner of Vaughn Petroleum Inc. in Dallas.

Van N. Veenstra (BS '74) lives in Houston where he works as a division supervisory geologist. "Still working for Exxon (17 years now), moved to Houston in 1990 and love it. Still married to Cheryl (17 years for that, too). We have two sons, Adam (9) and Eric (6), who keep us extremely busy with schoolwork, baseball, soccer, Scouts, etc. Exxon's reorganizing again this year in our department. Hope to still be here in Houston when the dust settles."

David W. Vernon (BS '79) writes from Dallas where he works part time at Maxim Engineers, Inc. "Graduated from Texas Tech Law School in May, 1992."

Joseph W. Versfelt (BA '84) writes, "After graduation from UT in 1984, I attended Duke University, obtaining a MS in geology. My research was in East African rift valley lakes, including seismic acquisition and processing under the auspices of Project PROBE. In 1988 I joined Texaco's Latin America-Africa division in Coral Gables, Florida. I have worked in Brazil (seismic acquisition) and Portugal (Angola exploration)."

Harry A. Vest (MA '59) is retired from Conoco and continues to live in Houston. "Nothing to report this year. Maybe I'll bump into someone at the home football games. I always check in at the Ex-Students for a 'cool one' beforehand."

R. B. (Bob) Vickers (BS '47) contributes from Abilene, "Our whole family enjoyed a Christmas week of skiing and other winter fun at Crested Butte, Colorado. That included a daughter from Ellensburg, Washington, another daughter with husband and my two grandsons (18 and 21) from the Austin area and my wife Martha and myself from Abilene. Beyond that and a few little side trips, we have a normal retirement life."

Kenneth D. Vogel (MA '85) works as a senior environmental geologist for Exxon in Everett, Massachusetts. "Laura and the boys and I are thoroughly enjoying life in New England. We certainly miss all of our good friends in Texas, along with the bluebonnets and Shiner Bock! The field of environmental geology and hydrogeology continues to be interesting and challenging to the former explorationist."

William Vrana (BA '39) is "managing to stay busy one way or another. Try to attend most of the Corpus Christi Geological Society luncheons to stay in touch. Every once in awhile we have the pleasure of hearing an enlightening speaker like Bill Fisher. At present I am compiling a history of the community where I was born and raised in Lavaca County, Texas (Moravia)."

— W —

Martin J. Wachel Jr. (BS '56) is president of Weigh Waste in Bakersfield, California. "Continuing to market (sales, install and service) weight sensing systems for measuring net amount of garbage in large trash compactors. My wife of 33 years exercised her option for freedom via divorce during February, 1992, so presently picking up the pieces. Looking forward to a less embarrassing football season!!"

William R. (Bill) Waddell (BS '38) is still drilling one or two wells a year. "I take more time to smell

the roses. I have a large rose garden. Walking, bird watching, fishing, and keeping up with six grandchildren keeps me busy." Bill is an independent geologist in Houston.

A. H. Wadsworth Jr. (BA '41, MA '41) is an independent geologist in Houston. "I urge all you old-time surface geologists to investigate the developing concepts of near surface evidence of hydrocarbon accumulation. It melds surface and subsurface geology into chemistry and natural electrical phenomena. It does not attempt to replace seismic, but is far cheaper and more available to us independents."

Tommy Waggoner (BA '56) writes, "We are still planning to spend our golden years in or around Austin. Somehow our ideas about 'golden years' seem to be getting a rusty look. I need better gas prices. Best regards to everyone." Tommy is president of Waggoner Exploration in Dallas.

Joe D. Walker Jr. (BS '51, MA '54) is retired from Aminoil USA in Houston and works part-time in independent exploration. "Almost the same as last year. Spend a lot of time on projects outside of the oil industry. Still hope gas prices will rise since I worked mostly in the Wilcox of South Texas. Everything is really going well for me, with no big problems. Thanks for continuing to put out the very fine *Newsletter*."

Mark C. Walker (BA '82) writes, "I am currently maintaining an active trial docket, primarily in civil/personal injury defense. I am now board certified in personal injury trial law. I miss my friends from UT Geology." Mark lives in El Paso.

David A. Wallace (BS '86) is an enforcement coordinator and a geologist with the Texas Water Commission in Austin. "I am currently working in the industrial hazardous waste enforcement section at the Texas Water Commission. I am responsible for enforcing the rules and regulations of

RCRA and the Texas counterparts. I review and evaluate corrective action plans with respect to hydrogeology. Although I really enjoy what I do here, the politics have gotten to be too much so I'm actively seeking other employment in the environmental field. Dave, if you see this, give me a call. I lost your number."

Preston and Dawn McKalips Walters (BS '73) say, "Still working for UNOCAL, but doing it in Lafayette. The kids Alissa (12) and Joshua (5), plus the Red Cross, keep Dawn busy. Planning to go elk hunting with my father this fall in Idaho."

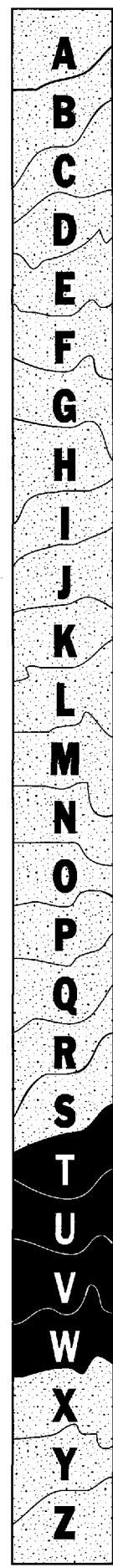
Anne Walton (MA '86) writes from Austin, "I finished my PhD under Louis Jacobs at Southern Methodist University in 1990. As for many paleontologists those days, I found the biological sciences to be more lucrative, and am now working for the State of Texas and the E.P.A. trying to figure out what affects the populations of fisheries species in Galveston Bay."

David Wang (PhD '90) is a senior research geophysicist for Exxon Production Research Company in Houston.

Bernie Ward (BA '55) is an independent geologist in Tyler. "At long last have been admitted to the grandfather club. Lane Alan Stanley was born January 16, 1992. Daughter Alice and husband, Monty, both UT grads class of 1987. Alice teaches in New Diana ISD and Monty with Satterwhite Log Homes of Longview, Texas."

Bill and Kathy Ward (BS '55, MA '57; BA '57) write, "Continuing to spend part of the summer on Mallorca working on Miocene limestone. Our son Bruce will begin second year post doc at UT in summer of '92. He'll work with Jay Banner on carbonate diagenesis." Bill is a professor of geology at the University of New Orleans and Kathy is a high school science teacher.

Daniel L. Ward (BA '49, MA '50) is retired in Grand Junction, Colorado.





1953 Geology 310 field course at bottom of Enchanted Rock. Standing, from left to right: Dr. Steve Clabaugh, Bill Ward, Bill Turner, U. S. Clanton, ___, Selby Peter, ___, Herman Roberson, ___, Jim Rehkemper, ___, Rex White, ___, ___. Seated: Bernie Ward, Leslie White, Burke Burkart, Chris Saris. Photo submitted by Bill and Kathy Ward.

David A. Wark (MA '83, PhD '89) writes, "Many thanks for the hospitality of faculty and staff at UT-DOGS, while I was there using the mass spec lab last fall. My study of Mexico volcanic rocks continues, and so does my current work as a novice experimental petrologist. Greetings to all, from upstate New York. Visitors to Troy, more than welcome!" David is a research scientist for the Department of Earth and Environmental Sciences at Rensselaer Polytechnic Institute.

Ralph H. Warner (MA '61) is self-employed in Kingwood, Texas. "Still doing basic geology while waiting for the economy to improve. Children and grandchildren are bright spots in present lifestyle."

Leslie Leland Warren (BS '85) comments, "Scott and I had our first child, Kyle Leland Warren, on March 4, 1992 during the great Houston flood. He weighed 8 lbs. 4oz. and was 20 1/4 inches long. I am still working for GeoQuest Systems but

for now on a part-time basis. Motherhood has really agreed with me!"

John A. Watson (BS '56) says, "My field geology investigations as associate of Creation Evidences Museum of Glen Rose, Texas centered on the Red Creek falls site near London, Texas. The site is famous for its iron hammer human artifact possessing the unusual chemistry of iron bonded to chlorine, and an FeO finish precluding rusting. Its wooden handle is partially-coalified. The hammer occurs with a pelecypod fossil in a sandstone concretion which by all evidence so far compiled is the Cretaceous Henzell Sand formation. The chlorine-iron bonding does not occur in open conditions, but requires complete filtration of the ultraviolet, and about two atmospheres pressure. Thus, a heavier atmosphere was required for its origin, which Genesis 1:7 confirms in its "waters above the firmament", apparently a super-conducting ice canopy which was destroyed in the Noahic Flood, bringing on the Ice Age."

Joseph (Joe) D. Watzlavick (BS '41) is a geologist/geophysicist in Houston. "Best regards to all my buddies."

John R. Wayland (BS '50) is "raising cows, mostly Longhorns. Seven grandchildren. In remission since November, 1990. Every day is wonderful." John lives in George West, Texas.

William C. Weaver (BA '32) writes from Corpus Christi, "Still producing oil and gas and forever hopeful things will get better. Having lived through \$10 oil in East Texas, should survive \$18 in 1992."

Karen L. Webber (BS '77) is an associate professor at the University of New Orleans.

Nelson E. Webernich (MA '50) resides in Midland where he works as an independent geologist.

Paul Weimer (PhD '89) says, "I will receive the 1992 J. C. (Cam) Sproule Memorial Award from the AAPG in Calgary in June."

Bonnie R. Weise (BS '74, MA '79) is chief geologist for Venus Oil Company in San Antonio.

Rob Weyman (BA '82) works for Texakoma Oil and Gas Corporation as a senior geologist in Dallas.

Richard O. Whitaker (BS '50) comments, "Enjoying retirement with travel in the United States and Canada." Richard lives in Houston.

Dana L. White (MA '91) is currently on a temporary assignment in the state of Washington. She is "providing technical support for two environmental restoration technology development programs, in situ remediation and in situ vitrification as a geotechnical engineer for Stone & Webster Engineering Corporation in Denver."

David J. White (BS '41) writes, "Am enjoying retirement more after almost eighty years of it. I am doing some volunteer work, lots of house and yard maintenance, and participation in professional societies (AIME, Central Texas Mining Section, and Austin Geological Society)." David lives in Austin.

Hugh G. White III (BA '54, BS '52) works as accountant and office manager of Texa-Chem Specialties in Midland. "Oil business is BAD at best. Especially if you're over 60. Semi-retired as Colonel USAF (Ret). Taking courses at Midland College. So far have acquired degrees in accounting, business administration, and computer science. Three grandchildren, and just yesterday Texas ousted Oklahoma from the College World Series. Thanks for the great Newsletter."

Leslie P. White (BS '56), says "I graduated from Exxon with the class of '92, after 36 years of study. I have been surprisingly busy as a consultant doing formation evaluation with Russian well logs, core and test data." Leslie lives in Tyler.

Steve White (BS '78) is an independent geologist in Tyler.

Ben Whitefield (BS '60) is president of Equitable Resources Exploration in Kingsport, Tennessee.

Charles D. Whiteman Jr. (BS '58) is retired from the U.S.G.S. and lives in Denham Springs, Louisiana.

F.L. Whitney (BS '43) is retired in Kerrville. "Thank you for the Newsletter. It is always a joy to learn of old friends."

Marion I. Whitney (BA '30, MA '31, PhD '37) is "still doing research in aerodynamic and vorticity erosion and working on a manuscript." Marion is a retired geology professor in Shepherd, Michigan.

James C. Whitten (BS '56), independent geologist in Midland, writes "Enjoying the *Newsletter*, keep up the good work."

Frederick W. Wiegand Jr. (BS '69) is president of Wiegand Brothers Drilling Company in Lockhart. "Worked in the Gulf of Suez, Egypt, last year. Still living in the country near Lockhart south of Austin. Family is fine. My Wiegand Brothers (Bryan and Douglas) are growing up, ages seven and five."

Mary Sheldon Wier (BA '43) writes from San Antonio, "Husband Max is retired and we play golf and travel some. We have nine grandchildren ages 7 to 21."

Roger Wiggin (MA '87) says, "My wife Ellen and I are pleased to announce the birth of our first child, Alexander (Alec) Scott, on 9/23/91. I'm also pleased to be busily employed at Mitchell Energy, active in the East Texas Basin." Roger is a senior geologist in The Woodlands, Texas.

Amy Wilkerson (MA '87) is assistant to the director and associate safety officer at Rockefeller University Laboratory Safety, in New York City.

A. B. (Bo) William (BS '53) is retired in Sequim, Washington.

Carroll L. Williams (BA '36) retired from Exxon in 1973 and lives in Corpus Christi.

Dan W. Williams (BS '56) is president of Marinex Petroleum in Houston. "Working in Belize and Guatemala, offshore Spain, East Texas, Louisiana and North Sea. Hoping to see classmates at AAPG in Calgary. Daughter, Miriam, is graduating from Lesley College in Cambridge, Mass. in May. Will teach early childhood education in Spring, Texas. We are very proud of her."

James R. Williams (BS '50) writes, "Just a year older with another

grandson. Still at Emerald Bay near Tyler and consulting part-time for an independent in Dallas."

Jefferson Williams (BA '88) works as an actor/logging engineer in Austin.

Robert R. Williams (BS '54) lives in Dallas and writes, "Daughter Susan Williams Haas (BS '86) in Chicago is expecting our third grandchild."

Tom Williams (BS '86, MA '91) is a PhD candidate at Stanford University. "I'm studying out here at Stanford, having a blast and seeing a lot of good field geology. My dissertation deals with stratigraphy of the Mesozoic forearc basin here in California."

Clayton H. Wilson (BS '83, MA '85) comments, "My family is beginning to get 'cajunized' after two years in New Orleans. I'm still working GOM production geology for Exxon. Our three children are now ages seven, five and two, and growing like swamp weeds. In case Douglas hasn't mentioned it, I am finally an uncle. Rachel Marion Wilson was born last November."

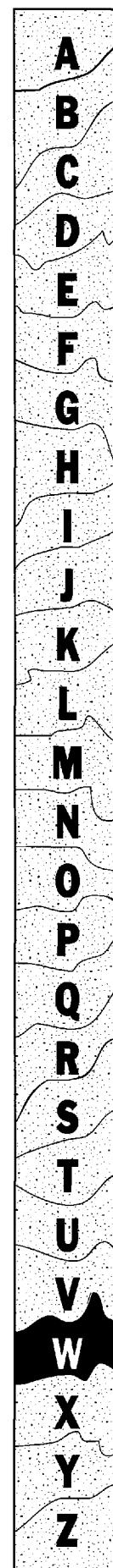
Douglas H. Wilson (BS '80) works as a senior geologist for ARCO Oil and Gas Company in Houston. "Our daughter Rachel was born in November. My current assignment is exploration of the deepwater Gulf of Mexico."

Homer C. Wilson (BS '42) writes from Dallas, "No significant news to report since 1991 *Newsletter*. Looking forward to 50th reunion of class of '42 in Austin May first. Plan to see people and places on the 40 acres that I have not seen since geology classes 1/2 century ago!"

James L. Wilson (BA '42, MA '44) is "still studying carbonate rocks and reservoirs, principally in Mexico and southwestern U.S.A. Adjunct professor at Rice University and emeritus at Michigan University."

Louita Dodson Wilson (BA '40) writes, "Still enjoying San Antonio and your publication news."

William Feathergail Wilson (BS '60, MA '62) has formed Strata Environmental Services Inc. "Working as a ground water consultant, environmental site assessments for commercial real estate and oil and gas fields. Teaching site assessments, HAZWOPER and N.O.R.M. courses in Spring, Texas."



Richard L. Winborn (BS '55) is a consultant in Houston.

C. Robert Winkler Jr. (BS '50) is an independent geologist in Midland.

Irwin T. Winter (BS '53) reports from Fort Worth, "Surely some of my fellow T.U. geology students of the late 40's and early 50's, going to school on the G.I. bill, having Wilson(s), Young, Bullard, Whitney, Clabaugh, et al. as professors, and still extant and not yet extinct can respond so we can remember together!"

Kurt J. Wiseman (BS '76) writes, "Going to former U.S.S.R. to look at oil deals, hard to find anything worth doing here!" Kurt is self employed in Houston.

Susan Witebsky (MA '87) says, "Trevor Dumitru (MA '86) and I are currently settled in California where Trevor is working on a post doctoral fellowship at Stanford University and I am a hydrogeologist for a consulting company. I still keep my tap shoes polished and send my regards to all the rotaps out there." Susan is a hydrogeologist for Earth Sciences Associates in Palo Alto.

Ed R. Wolcott (BS '48) is president of EDCO Petroleum in Dallas. "Married 45 years to Carol; two sons, John and Paul; four grandchildren, Jason, Lindsay, Edward Ryan and Justin. Semi-retired, finding some oil in Runnels County, Texas."

Amy R. Wood (BS '85) works as a fuels planner for the City of Austin Electric Company Utility.

John W. Wood (PhD '65) has retired from Texaco in Houston. "Nancy and I are now at home in Sunset Canyon, Section V, near Dripping Springs. Have enjoyed the Austin Geological Society meetings and SIPES-sponsored local and Hill Country field trips. A real pleasure to talk with older classmates, faculty and Bureau folks, as well as to meet younger geologists at UT."

Robert L. Wood Jr. (BA '56) lives in Houston where he is president of Occidental Crude Sales Inc.

Charles Woodruff Jr. (PhD '73) continues his consulting practice in Austin.

Arnold Woods (MA '81) is a staff geologist for Conoco, Inc. in Casper, Wyoming. "Busy year! Best Speaker Award for Wyoming Geological Association in 1991. Topic was dinosaur extinction. AAPG Development Geology Reference Manual submitted to AAPG for

review (co-editor). Elected WGA secretary for 1992. Still doing reservoir evaluation projects for Conoco, but big shake-up looms on the horizon.

Thomas C. Woodward (PhD '55) writes, "Because selling drilling deals is so slow and the price of gas is so low, I'm working on industrial minerals—trona (sodium bicarbonate) prospects here in the Green River Basin of western Wyoming. At least there is some action there." Tom lives in Casper.

LeRoy A. Woollett (MA '51), has lived in Houston since graduation. Have been an Aetna representative for 18 years. Have four grandchildren; one will soon be ready for college—Texas, I hope."

Thomas J. Worlington (BS '51) writes, "I marked my ninth year of retirement in May and am still enjoying it. The wife and I made a trip to New England and eastern Canada in September. This year we will go northwest to western Canada and visit old friends in Oklahoma City and Denver on the way. Still enjoy the *Newsletter* and hope to be around again next year to enjoy it. Thanks." Tom lives in Jacksonville, Texas.

John Worrall (MA '88) comments, "I'm still having fun in Roswell, New Mexico, where I've been working with Scott Exploration Inc. these last four years. We're trying to take advantage of the mass exodus of the majors leaving the Permian Basin."

Charles J. Worrel (BS '47) is president of Worrel Exploration, Inc. in San Antonio. "Developing drillable prospects in South Texas. I would like to see any classmates that come my way. We have very fond memories of the past class reunions we have attended."

John B. Wright (MA '56) comments, "Still drinking hurricanes and eating pralines in this third world city." John is retired from Shell Oil Company and lives in New Orleans.

Michael Wright (BS '85) is a geologist for H+GCL in Emeryville, California.

Steve S. Wright (MA '80) is "back in Texas again with wife (Sarah) and daughter (Chelsea, age four), after working in Denver and Oklahoma City. As the domestic oil industry continues to disintegrate, may consider teaching wind-surfing in the Bahamas." Steve is a staff geologist for Chevron in Houston.

Phil Wyche (BS '51) lives in Austin, and is retired from Gulf Oil Corporation. "Enjoying the privilege of serving on the Advisory Council and staying in touch with the department."

Bob Wynne (BS '57) writes from Fort Worth, "Still drilling a few wells each year. Enjoy receiving the *Newsletter*."

— Y —

John C. Yeager (MA '60) comments, "Our son Russ is moving to Austin in fall '92. He is on the administrative staff of Campus Crusade for Christ. Daughter Katy is a graphic artist in Houston, and youngest daughter Ann is a college student in communications/English. Still prospecting and fishing!" John is an independent geologist in Lafayette.

Charles Yager III (BS '84) writes, "Accepted a transfer to the corporate headquarters of Fleet Financial Group in Providence, Rhode Island. We had our second child on March 2, 1992, Charles Edward Yager IV (Charlie). Enjoying working and living in another part of the country, but miss Texas! Look forward to returning home some day. P.S. I am having a hell of a time finding good barbecue up here."

Susan Young (MA '85) contributes from Midland, "Daughter, Caroline (2) and son, Conrad (2 months) were born in Oklahoma, much to dad's (Randy, an Okie) delight. Transferred to Midland with Conoco on June 1st."

— Z —

Robert L. Zinn (BS '52, MA '53) is an independent producer of oil and gas in Houston. "I still enjoy exploration for oil and gas and have interest in prospects in Texas, South Louisiana, Mississippi and North Dakota. Our children are married, and we have four grandchildren."

Kevin Zonana (BS '82) writes, "Things at Zyco are as exciting as ever. I just celebrated my fifth year anniversary with the company. My wife, Debbie, and I are expecting our second child in late June. The doctor guesses that this one is a girl. We already have a six year old boy. Shannon Morrison, where are you?" Kevin and his family live in Austin.

We need your help...

The faculty and students appreciate your continued interest in the Department and Geology Foundation. We are pleased with the enthusiastic response to our request for information to be included in the Alumni News section.

We are anxious to keep your current address on our mailing list and solicit your cooperation in advising us if you move. Also, if you know of other alumni who do not receive our letters, please send their names and addresses; we would like to add them to our files.

We need your financial assistance in many areas--scholarships for worthy students, teaching and research equipment, cost of publishing the *Newsletter*, and library needs, among others.

Contributions to the Geology Foundation may be made in the form of cash, stocks and bonds, life insurance and gift annuities, and tangible property such as real estate. Under the current Regents policy, certain gifts are eligible to receive a one for two match from the University.

Many major corporations will provide matching funds at a rate of 100% or greater for those contributions made by employees and their spouses. A list of these corporations and their matching policies is available from the Geology Foundation office. The Foundation staff can assist in the arrangement of the match.

For further information, write to the Geology Foundation, The University of Texas at Austin, Austin, TX 78712 or call us, 512-471-6048 or fax 512-471-9425, or reach us by e-mail: joyceb@maestro.geo.utexas.edu.

PHOTO CAPTIONS

Front Cover:

(Center) View of Ibonobu village and Mt. Yule in the Owen Stanley Ranges of Papua New Guinea. Photo taken by Khib Kugler in 1992.

(Background) Dune crest, White Sands, south-central New Mexico. Photo taken by Patricia Dickerson in 1986.

Back Cover:

Svartisen Glacier, northern Norway. Photo taken by Patricia Dickerson in 1986.

Page 128

(Full Page) Mud cracks, Santa Elena Canyon, Big Bend National Park, Texas. Photo taken by W. R. Muehlberger in 1980.

(Inset) Chris Swezey reflective on field trip to Mexico. Photo taken by G. Kocurek in 1992.



This *Newsletter* was prepared by the staff of the Geology Foundation
and printed at Foundation expense. No State-appropriated funds were used.

