

# GOLD PAN

New Mexico Tech

Spring 2005



*The statues of Past, Present, and Future stare in amazement at Fidel Student Services Center, rising in the middle of campus. For more new views of campus, see the centerfold.*

Hailstorm of Oct. 5, 2004



Photo and hand by Susan Delap

Above: hailstones to scale with hand and centimeter scale. Right: John Wilson, professor of hydrology, indicates amazement at windshield damage. Below right: In the aftermath of the storm, stunned students and faculty survey the damage to their cars. The white substance covering the ground is hail, not snow.

Below: Graduate students Han Gin and Rob Wyckoff, and Prof. Brian McPherson compare hailstones. Fred Phillips, who took this photo, claims that both Wyckoff and McPherson had full heads of hair before being caught out in the storm.

Fred Phillips photo



Fred Phillips photo



Fred Phillips photo

Fred Phillips photo



Hailstorm Pummels Socorro

by Kathy Hedges

A three-inch hailstone has a terminal velocity of about 95 miles per hour, according to Richard Sonnefeld, associate professor of physics. It would pack more than 3,500 times the momentum of one-fifth-inch hail.

Socorro experienced the impact of this calculation on Oct. 5, 2004, when a hailstorm of phenomenal proportions pounded the town and the campus. At about 2 o'clock that afternoon, an apparently conventional hailstorm started, with conventional-sized hailstones. Usually, these storms are over in about 10 minutes. However, this storm continued to worsen, every time onlookers thought it was going to let up.

When it finally did end, students, faculty, and staff discovered, to their dismay, what large hailstones can do to cars and roofs. Some 8,000 cars were damaged in Socorro, including Tech fleet vehicles as well as private cars. Many roofs were ruined, including the Spanish tile

roofs on the older campus buildings. Campus trees, which were still green in early October, were stripped of leaves and small branches. The Golf Course sustained extensive damage to its grounds and putting greens.

Despite the damage, Socorro did not qualify for federal relief funds. Damage to the campus was initially estimated at more than \$8 million, although a final figure has not been forthcoming.

The only physical injuries, fortunately, were some minor contusions to people who were either caught out in the storm or dashed out into the weather to take pictures. Several physics professors are rumored to have hailstones preserved in their freezers, to show to classes for some years to come.

In the ensuing months, Socorroans have replaced windshields or bought new cars, repaired roofs and windows, and returned to life as we (formerly) knew it, with a new appreciation for the forces of nature.

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### FROM THE ALUMNI ASSOCIATION

Dear fellow alumni,

On behalf of Tech's Alumni Association, it is a privilege to thank those who generously donated to the New Mexico Tech Annual Giving Fund. Through your support, we have raised \$17,900. Your generosity not



only provides financial resources for the Alumni Association, but more importantly, each donation helps strengthen Tech's reputation and commitment to excellence.

Through this fundraising effort, we learned that most New Mexico Tech alumni want to give something back to the university they credit with helping them achieve their educational, professional, and personal goals.

This year, we are pleased to announce plans for both a Silver Reunion and Golden Reunion to be held May 13<sup>th</sup> and May 14<sup>th</sup>. Alumni and friends who attended

## Honor a Distinguished Techie!

Do you know someone who ought to be nominated for an award? This is your chance!

Awards are given out at Commencement on May 14, so get your nomination in as soon as you can.

The Alumni Association gives two awards, one for **Distinguished Service** (to a person who need not be an alum) and one for **Distinguished Achievement** (to an alum). To nominate someone for one of these awards, send an email stating why you think the person deserves the award to Rose Baca-Rivét at [rbaca-rivet@admin.nmt.edu](mailto:rbaca-rivet@admin.nmt.edu), or call her at 1-800-428-TECH, #4.

or graduated in or around 1955 and 1980 are invited to attend.

Special thanks go to our New Mexico Tech alumni and friends who assisted with the New Mexico State Fair and Summerfest Tech booths in Albuquerque, and the Whole Enchilada Fiesta Tech booth in Las Cruces, and participated and assisted with the 2004 49ers Gold Rush Golf Scramble. All the events were big successes thanks to our volunteers and participants.

Also, as part of the Alumni Association's ongoing fundraising campaign, you might consider purchasing a New Mexico Tech T-shirt featuring the Periodic

Was there a great teacher at Tech who influenced your learning, career, and life? Nominate that person for the **Distinguished Teaching Award**. Email Debby Olguin, Office of Academic Affairs, [dolguin@admin.nmt.edu](mailto:dolguin@admin.nmt.edu) and include the reasons you think the professor should get the award.

[Has your nominee already received the award? For Alumni Association awards, see <http://infobost.nmt.edu/mainpage/alumni/dist.html>. For Distinguished Teaching recipients, see <http://infobost.nmt.edu/mainpage/faculty/dist.html>.]

Table of the Elements or 2004 49ers. For more details, see our ads on page 23.

For more information, contact me at 800.428.TECH (8324), ext. 4, or e-mail [rbaca-rivet@admin.nmt.edu](mailto:rbaca-rivet@admin.nmt.edu).

Yours truly,

*Rose Baca-Rivét*  
(97, BS, technical communication)

New Mexico Tech  
Alumni Association

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### TechNotes

#### C. B. Moore Elected AGU Fellow

Charles B. "Charlie" Moore, a professor emeritus of atmospheric physics at New Mexico Tech, has been elected as a Fellow of the American Geophysical Union (AGU).

AGU Fellowship is awarded to scientists who have attained acknowledged eminence in one or more of the various branches of geophysics. The number of Fellows elected each year is no more than one-tenth of one percent of its membership, which comprises more than 41,000 scientists from about 130 countries.

Among his numerous scientific accomplishments in a research career which spans almost 60 years, Moore believes it was his recent work on improving configurations of lightning rods first developed by Benjamin Franklin that gained him the international attention of the AGU.

"I was quite surprised to find out about this award," Moore relates. "It was something that was totally unexpected."

In 1997, Moore was named the recipient of the American Institute of Aeronautics and Astronautics (AIAA) Otto C. Winzen Lifetime Achievement Award for his pioneering work in using free-flight, high-altitude balloons for scientific research.

Moore also has made significant

contributions in the investigations of fundamental theories of lightning and other atmospheric electricity activity during his long association with New Mexico Tech and the university's internationally recognized research facility for lightning and cloud physics studies, the Langmuir Laboratory for Atmospheric Research.

He served as chairman of Langmuir Lab from 1968 to 1986.

Moore will be officially presented with the award on May 25, during the annual AGU Joint Assembly in New Orleans.

#### Geochronology Lab Dates 4.5 Million-Year-Old Hominid Fossils

A New Mexico Tech alumnus was a co-author on a recent article in *Nature* that reports on new Early Pliocene hominid discoveries in Gona, Ethiopia. William C. McIntosh (90, Ph.D., geology), a volcanologist and geochronologist with the university's New Mexico Bureau of Geology and Mineral Resources, was a key researcher in dating the remains.

McIntosh is co-director of the New Mexico Geochronology Research Laboratory (NMGR), which accurately dated the volcanic sediments encasing the 4.5-million-year-old fossilized remains of *Ardipithecus ramidus*.

The basalt specimens that were dated by the NMGR were collected from lava flows in drainage basins in the Ethiopian

rift. The study was led by paleoarcheologists at the CRAFT Stone Age Institute.

"The key to dating the fossils within the sediments is to date the overlying or underlying volcanic units," McIntosh explained.

The recently discovered *A. ramidus* fossils from Gona, Ethiopia included a piece of a toe bone that curves in a manner indicative of upright walking as a means of locomotion for what is thought to be an apelike common ancestor of both humans and modern chimpanzees.

"Most of the work I've done in the New Mexico Geochronology Research Laboratory over the past 12 years has been focused on volcanoes and related topics, but we also have been involved with some early man studies — ranging from Ethiopia to Java," McIntosh noted. "Early man studies tend to be more controversial than volcanoes."

In hopes of expanding the capabilities of the NMGR, McIntosh's fellow co-director Matthew Heizler and New Mexico Tech adjunct professor Shari Kelley recently submitted a proposal to the National Science Foundation to add uranium/thorium/ helium isotope dating capabilities to the lab, including new equipment such as a state-of-the-art mass spectrometer and a laser extraction line.

"The addition of this new equipment would help us 'fill in the gaps' in our dating abilities, helping us draw a more accurate

picture of recent uplifts and faulting, which can have a direct impact on issues such as management of water resources or land development," McIntosh said.

McIntosh credited NMGRL technicians Lisa Peters and Rick Esser for "doing most of day-to-day work in the lab for the past ten years," including the recent analyses of the basalts from Gona.

### NM Tech Hosts Inaugural Event at Playas Training Center

On Dec. 2, 2004, New Mexico Tech opened its new Playas Training Center in Playas, N.M. with a bang.

A small explosive device was used to cut the ribbon at the entrance to the former Phelps Dodge company town located in southwest New Mexico, kicking off a daylong inaugural event that also included live demonstrations of the type of anti-terrorism training that will now be occurring in Playas on a regular basis.

Top administrators from New Mexico Tech and Phelps Dodge Corporation signed off this past summer on a \$5 million real estate transaction that made New Mexico Tech the only university known to literally own an entire town. New Mexico Tech is now in the process of fully converting Playas into one of the nation's premier locations for anti-terrorism and first responders training.

"New Mexico Tech is now able to look forward to initiating a whole range of research activities and training programs in and around Playas that will directly support homeland security efforts, not only at the state and national levels, but on a global basis as well," said New Mexico Tech President Daniel H. López.

López credited the efforts of U.S. Senator Pete V. Domenici, along with those of the late U.S. Representative Joseph R. Skeen, as being instrumental in garnering support for the Playas purchase, from its inception to its completion.

The New Mexico Tech President also extended his personal thanks to Tech vice presidents Van Romero (79, BS, physics) and Denny Peterson, as well as the university's board of regents, for the critical roles they assumed in the purchase and current development of Playas.

## People You Know

### 1950s

**Morris T. Worley** (58, BS, mining engr.) writes that he has accepted a position as manager of the Manufacturing Sector Development Program at New Mexico State University-Carlsbad. The program administers six industrial technology degree and certificate programs, provide contract workforce training, and manage the area apprenticeship program.

### 1960s

**Fritz Wolff** (60, BS, mining engr.) is the author of *A Room for the Summer*, a book about adventures and misadventures set in the mines of Coeur d'Alene, Idaho, in the 1950s. It is available from Oklahoma University Press at [www.oupress.com](http://www.oupress.com).

**Barney Popkin** (65) writes, "After a year of project work in several places — Egypt for the U.S. Agency for International Development; India for the Food and Agricultural Organization; Iraq for Halliburton/KBR's Restore Iraqi Oil program; and Mexico for the Desert Development Foundation — I accepted an assignment as senior advisor and environmental protection specialist for USAID's Bureau for Asia and the Near East's Iraq Team and Environment Agricultural team. I facilitate the USAID equivalent of the National Environmental Policy Act."

### 1970s

**Tousson Topozada** (70, MS, geophysics; 74, Ph.D., geophysics) writes, "I retired on Jan. 1, 2004, from the California Geological Survey, where I have worked as a seismologist since leaving New Mexico Tech in 1974. My experience is with California earthquake hazards and history and emergency response. I have not been back to New Mexico Tech since 1974, and I hope to visit in the not-too-distant future."

**Dan DeMar** (71, BS, metallurgy/ceramics) is an

insurance agency owner in Albuquerque.

**Hugh Giggy** (71, BS, met. engr.) writes, "I am currently a regional manager for Lockheed Martin in the Fort Worth area on a support services contract, supporting the Federal Aviation Administration. I have been with Lockheed Martin for nearly 21 years.

"My wife Terry and I met at New Mexico Tech in 1971. We have two sons who are both pilots in the United States Air Force."

**Dick C. Engbrecht** (71, BS, chemistry) received the 2004 ASTM International Award of Merit, and the title of "Fellow" for his years of outstanding contributions, leadership, and special activities related to developing standards for gypsum products. Engbrecht is a development associate at USG Corp. in Libertyville, Ill. An ASTM International member since 1987, Engbrecht serves on a number of subcommittees and has served as chair and vice chair of the main committee. He also serves as liaison for international standards activities related to gypsum.

**Bill Fetter** (attended 71-73) writes, "I have fond memories of my two years at Tech. Would be glad to hear from some old friends." Bill works for Tectonic Engineering & Surveying Consultants in Mountainville, N.Y. He has a degree in geology from CUNY Brooklyn. Friends can reach him at [BFetter@tectonicengineering.com](mailto:BFetter@tectonicengineering.com).

**Stacy B. Leffler** (74, BS, math) retired and earned a law degree. He is now a lawyer and staff judge advocate for the New Mexico State Defense Force.

**Dr. Donald Wenner** (74, BS, chemistry) was the subject of an article in *General Surgery News* in November 2004. Don, who is a surgeon in Roswell, is active in programs encouraging youth to choose the medical profession in general, and surgery in particular. He participates in the school district's "Super Day," a career program for fifth and sixth graders, works closely with high school juniors and seniors considering medical careers, and mentors medical students.

At home, Don's son, Donnie, 21, has been accepted to UNM Medical School. Daughter Andrea, 24, is team leader for account maintenance at Ford. Sons Nathan, 20, and Teddy, 17, have yet to choose careers. Wife Laurie administers Don's medical business and also helps keep him "organized, focused, and fed."

**Dr. Christopher Duffy** (75, BS, environmental engr.; 77, MS, hydrology; 79, Ph.D., hydrology) was in the news for a study he conducted at Sevilleta National Wildlife Refuge north of Socorro. Duffy discovered that mountain-front recharge — ground water from rain or snow that fell in the mountains and then seeped down into the deep aquifer — takes decades to move downhill to the alluvial fans and then into the Rio Grande valley.

The study could mean that the lack of rainfall during the

drought of the 1950s could add to the impact of the current drought by decreasing the available water in the Rio Grande aquifer.

Duffy is a civil engineer at Pennsylvania State University.

**Dr. Adel A. Bakr** (76, Ph.D., hydrology) has been doing consulting and training in hydrogeology. In addition to his own consulting, since November 2003, he has been with the RCS Corporation, providing geotechnical support to the Yucca Mountain Project. He lives in Las Vegas, Nev.

**Sue (Ryan) Langdon** (77, BGS) writes to say, "Just a brief note to say 'Hi' to all the Techies and Townies we knew. I married Bob Langdon in January 1978, shortly after I graduated from Tech in 1977. Our adventures have taken us to the distant borders of New Mexico.

"Actually, we have traveled all over the United States, but never moved our home from the Land of Enchantment. We spent short stints in Silver City and Hobbs. We moved to Albuquerque in 1983, the year our daughter, Jennifer, was born.

"Jennifer is a theater and teaching student at UNM. Bob has been on VA disability since the early 1990s. Sue is working for UNM Hospitals as an office supervisor in the Food and Nutrition department.

"Would love to hear from any of our buddies. Drop us a line at [srlangdon@ix.netcom.com](mailto:srlangdon@ix.netcom.com)."

## New Mexico Tech

### 1980s

**Susan Ewald Brink** (80, BS, geology) writes "After the U.S. Bureau of Mines was abolished, I began teaching Earth science and geology/paleontology at North High School in Mahtomedi, Minn. My husband Steve and I have two children, Katie, 9, and Jeff, 7, both of Korean heritage. I am enjoying life and still love geology and rocks!"

**Patrick E. Haynes** (81, BS, geology) writes, "After 19 years in Colorado, Mary Anne and I have moved to Las Vegas, Nev. I am still collecting and peddling mineral specimens. In the last few years I have had four new minerals published."

"Our son Aaron, 24, obtained a bachelor's degree in biology from Tech and is now working on a master's degree in environmental engineering, also at Tech. Old friends, please stay in touch!"

**Kevin Donovan** (82, BS, mining engr.) and **Doree Donovan** (81, BS, metallurgical engr.) recently moved to the Denver area, where Kevin is a marketing director for Washington Group International. Their oldest daughter, Karen, was recently married and lives in Albuquerque. Their middle daughter, Megan, will be a freshman at Colorado State University this fall, and their youngest, Kelsey, is enjoying Colorado with her Mom and Dad.

**Greg Hibbard** (82, BS, geological engr.) writes, "I've been wanting to write to *Gold Pan* for quite some time to update all of the 82-era Techies on my past

22 years. Here's a brief run-down.

"After my final semester in December of 1982 (I missed the graduation ceremony in spring of 1983, as I was hard at work by then), I started working for International Engineering Company, a subsidiary of Morrison Knudsen (MK), in project management for hydroelectric and water resource projects. For 15 years, I worked on projects for MK throughout the western United States. By the mid 1990s, I had settled in San Francisco, working out of MK's Engineering Design Office and traveling to project sites as needed throughout the United States.

"In October 1996, Judi Leonard (now Judi Hibbard) and I were married in Sausalito, Calif. Judi works in bio-tech and pharmaceutical industry. She spent 11 years with Elan Corporation before joining Intermune Corporation earlier this year.

"In 1998, I left MK (well, it sort of collapsed out from under me) and joined a small engineering, design, and construction firm called Academy Studios in Marin County, Calif. For 2.5 years, I designed and built interesting and one-of-a-kind structures and interiors. My clients included: Washington State History Museum, Presidio of San Francisco, Lyman Museum of Hawaii, and the *USS Arizona* Memorial Museum at Pearl Harbor, just to mention a few.

"With the dot-com crash in 2001, I left Academy Studios and took on the position of (San Diego) regional operations manager for PowerLight Corporation in Berkeley, Calif. (PowerLight is a large solar engineering and construction firm.) Judi and I moved to La Jolla, Calif., in October 2001 and spent 2.5 years enjoying the southern California beach life. Unfortunately, this ended in early 2004.

"Over the 2003 Christmas holidays, Judi and I were both offered positions back in San Francisco — offers we really couldn't refuse — Judi with Intermune and I with AIG Consultants. So as of June 2004, we find ourselves living back in San Francisco (and really missing San Diego!) Oddly enough, my position with AIG puts me back in realm of mining and mine restoration, as I'm now responsible for investigation, monitoring and analysis of bond insurance policies for mining, environmental, and construction and restoration cost caps throughout the West. It's interesting work and the "time in the field" is substantially more palatable than it was in the construction business.

"So far I've met people who have graduated from School of Mines in Nevada, Colorado and Montana. I'm still looking to run into someone from Tech"

**Bryan Ulrich** (83, BS, mining engr., 85, BS, geological engr.) writes "After four years in South Africa, working in Knight

## New Mexico School of Mines

Piésold's Rivonia office, the Ulrich family returned to their longtime home in Denver, Colo. However, moss was not to grow for long, as the stones started rolling shortly after becoming fully settled. In January 2004, the Ulrichs moved to Spring Creek, a small town just outside Elko, Nevada. Here, we enjoy a different pace of life and the amazing mountain views from our balcony. While not relaxing, Bryan has taken on a new role with Knight Piésold, and is now the principal in charge of the Elko office, and the vice president of the Nevada operations. Ellen and the kids (Stephanie and Timothy) are becoming accustomed to country living."

**Kenneth Mekani** (87, BS, metallurgical engr.) writes, "After graduating from New Mexico Tech, I came back home to Zimbabwe and joined Lonrho Mining as a graduate trainee metallurgist. The group, which is now known as Indepgold, currently produces about 40 percent of Zimbabwe's gold. I head the metallurgy department on one of their five mines. I am married to Connie, and we have two kids: Haleema, a 12-year-old girl, and Simba Sean, a five-year-old boy."

**Tim Stirrup** (88, BS, chemistry; 88, BS, biology) has been promoted to executive vice president at Outrider Environmental Planning and Technical Services in Albuquerque. In addition to his technical responsibilities

providing senior-level ESH consulting to clients, Tim has taken on business functions for the company. **Barbara (Serna) Stirrup** (89, BS, technical communication) has started back to work by supporting Outrider with her exceptional technical writing and editing expertise. Barb is pulling together complicated safety and hazards analyses.

They add, "The Stirrup Family is doing well and is still enjoying life in Corrales, N.M. Barbara and Tim have their hands full with Darby Patrick, 4, Kerry Ann Megan, 7, and Emily Kate, 9. Both Barb and Tim volunteer in the Corrales community and have no free time whatsoever."

### 1990s

**John Oelfke** (90, BS, biology) works at Sandia National Laboratories in the Thermo-fluids Group. He also works with his brother **Scott Oelfke** (87, BS, geological engineering) in a small publishing business started in 2001. They publish poetry, literary fiction, and non-fiction.

**Karl Tonander** (92, BS, general engr.; 93, MS, mineral engr.) has been promoted by Souder, Miller & Associates to vice president of operational support services. Tonander, a principal geoscientist and regional manager of the company's southern service region, has worked for the company since 1993.

**Syed Redzal Hisham** (93, BS, petroleum engr.) is working for Weatherford Oil Tools in Dubai. He is the region technical

manager for Tubular Running and Mechanization Systems for the Middle-East and North Africa.

Syed writes, "Been here since January 2003. My wife and I have five kids now: three boys and two girls, from a new-born to a nine-year-old. My wife is Rina Abdul Razak (a UMSL alumna, Class of 94). Things are good in Dubai. Even during the war life, is normal; however our travel obviously is limited and with caution."

**Cory Stevens** (93, BS, chemical engr.) writes that he and his wife **Tammy (Rutledge) Stevens** (92, BS, biology) have relocated to Thatcher, Ariz., where he accepted a position as manager with the Phelps Dodge Process Technology Center. Cory adds, "Tammy is currently staying home with our son, Jack (who will be 3 in January) and dog Joey. We would love to hear from old friends at [tstevens@cableone.net](mailto:tstevens@cableone.net)."

**Robert TerBerg** (94, MS, hydrology) and his wife, Shikha Jain, are the proud owners of a four-bedroom house in the San Francisco Bay area. Robert is working 65+ hours per week on the Yucca Mountain Project as a principal research associate for Lawrence Berkeley National Lab in both Berkeley and Las Vegas. The project is nearing license application as the first high grade nuclear waste repository in America. Shikha is preparing for a post-baccalaureate Clinical Lab Scientist certification.

Robert adds, "We are making and finding time for each other. The

## New Mexico Tech

13-year old cat seems to be OK. Lots of lizards, raccoons, deer, skunks, squirrels, and small children nearby. I play hockey twice a week in downtown Oakland. I scored the game-tying or winning goals three games in row, in the last two weeks, so I'm feeling pretty good."

**Dr. Michael Sehorn** (95, BS, biology) was the co-author of an article published in *Nature*. The article, titled "Human meiotic recombinase Dmc1 promotes ATP-dependent homologous DNA strand exchange," appeared in the May 24, 2004 issue.

Michael earned his Ph.D. from Louisiana State University Health Science Center at Shreveport in biochemistry and molecular biology. He is a postdoctoral associate at Yale University School of Medicine, Department of Molecular Biophysics and Biochemistry.

**Beth (Parker) Salvas** (96, BS, geology) writes, "I received my master's in hydrology from the University of Arizona in 1998. In 2001, I married **Scott Salvas** (97, BS, environmental engineering). I'm currently working for the New Mexico Interstate Stream Commission in Albuquerque. Scott received his PE in June 2003 and is an engineer in Albuquerque for ASCG."

**Neal Tapia** (98, BS, electrical engr.) and **Penny Gomez** (97, BS, environmental engr.) are married and living in Santa Fe with their son Dylan, born in January 2003.

**Daniel Mendoza** (99, BS,

materials engr.) is a technical staff member at Los Alamos National Laboratory. He has a master's degree from the University of Alabama.

### 2000s

**Kyle Lamb** (02, BS, electrical engr.) married Rebecca Telles of Las Cruces on July 24, 2004 in Las Cruces. Kyle is employed by White Sands Missile Range, and Rebecca, who has a master's degree in counseling and guidance, works for Las Cruces Public Schools.

**Shawn Irvin Toni Smith** (02, BS, environmental engr.) married Melanie Darcy Sanchez, a biology major at Tech, on June 19, 2004, in Albuquerque. Shawn is employed with the Bureau of Indian Affairs, Natural Resources Division, in Crownpoint.

**Lane Thompson** (03, BS, computer science) spent the six months after graduation living in Scotland.

**Lorraine Sanchez** (03, BS, biology) is attending UNM to get a master's degree in Theater Education. She says she misses Tech an awful lot!

**Kim Haulenseele** (03, MS, engineering mechanics) married Steve Dowling on Feb. 14, 2004, in Albuquerque.

## Hailstorm Aftermath

In the months following the October 2004 hailstorm, the New Mexico Tech campus has been gradually coping with, and recovering from, the damage.

Photos, right:

1. The traditional Spanish tile roofs of the older buildings on campus suffered extensive damage. Like this roof on Presidents Hall, they have been covered in plastic, but frequent winds make the plastic coverings a temporary solution, at best. The bidding process for a roofing contractor was time-consuming.

Roofs which survived best were covered with a rubberized membrane called EPDM.

2. Temporary entrances to buildings were constructed wherever a door was directly below potentially falling tiles. This one is in front of Skeen Library.

3. Orange emergency fences aren't there to prevent captive plants from escaping. The fences, like this one outside of Driscoll, prevent the unwary from wandering where they might be hit by falling roof tiles.

4. Even wire-reinforced safety glass was no barrier to the hail.

5. Like a phoenix, the spirit of Socorro rose from the ashes. Or in this case, the rubble.

## New Mexico School of Mines



1.

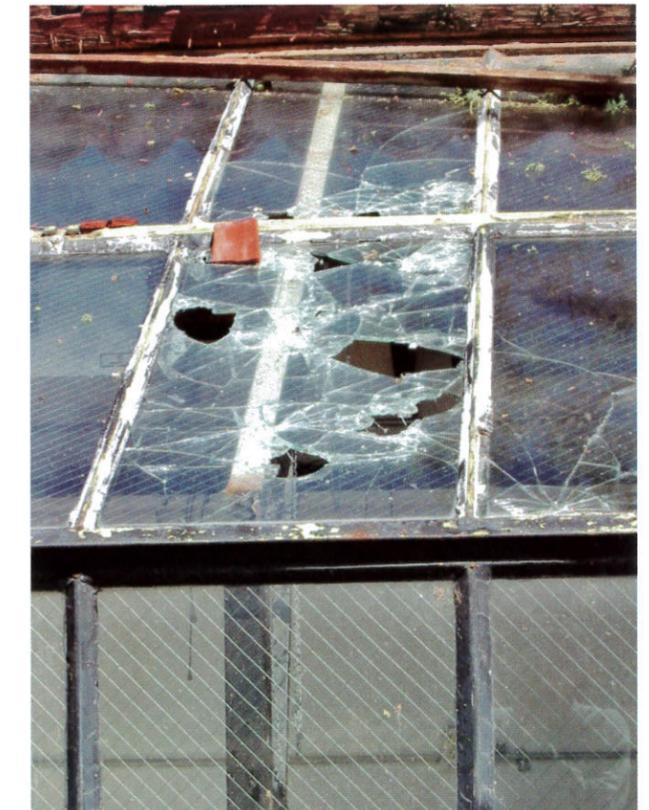
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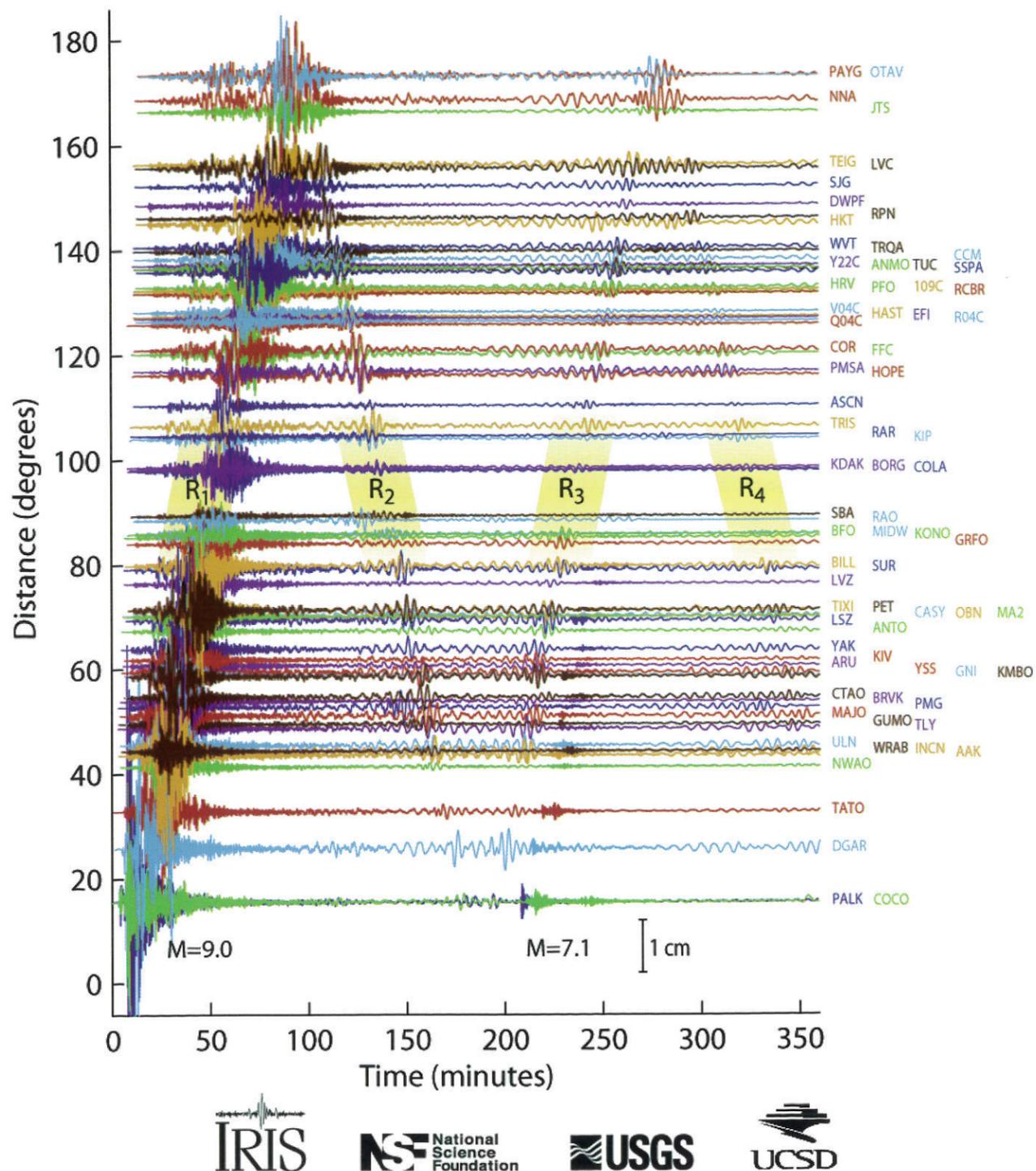
Fred Phillips photo



Fortunately, not the entire New Mexico Tech campus looks as though it was bombarded by hailstones. (Left, top and bottom) Apartment living is now an option for students! The on-campus Altamirano Apartments and the off-campus Mountain Springs Apartments, purchased from a private owner two years ago, both offer apartment-style living, complete with kitchen. Above, the two buildings of the new Fine Arts Complex (located opposite the Golf Pro Shop) house classes in painting, pottery, jewelry-making, stained glass, and many other activities. Below, new buildings to the west of the Golf Course house research facilities. IRIS/PASSCAL does world-wide seismological research. The Research Office Building houses offices of Magdalena Ridge Observatory and offices for the National Radio Astronomy Observatory in addition to those in the Array Operations Center.

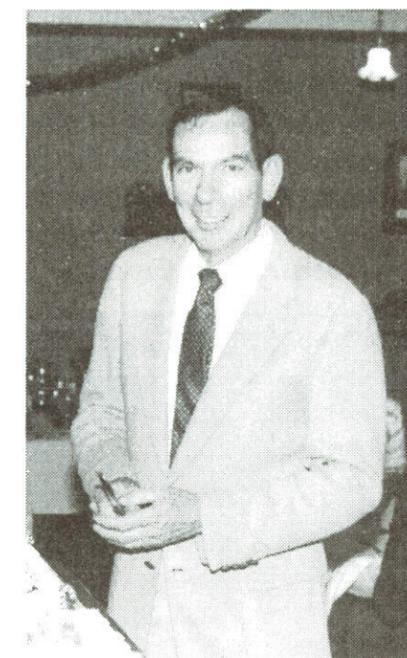


## Sumatra - Andaman Islands Earthquake ( $M_w=9.0$ ) Global Displacement Wavefield from the Global Seismographic Network



Credits: Image provided by Dr. Richard Aster. Data provided by the IRIS/USGS Global Seismographic Network, and distributed through the IRIS Data Management System. Seismic stations are operated by the U.S. Geological Survey, Albuquerque Seismological Laboratory, and the University of California, San Diego. Support for these networks is provided by the National Science Foundation (through the IRIS Consortium) and U.S. Geological Survey.

## Griswold inducted into Hall of Fame



The late Dr. George B. Griswold, longtime professor of mining engineering at New Mexico Tech and 1955 Brown Medal recipient, was inducted posthumously into the New Mexico Mining Association Hall of Fame in September 2004. Griswold passed away on March 26, 2002, in Las Cruces.

The Hall of Fame honors individuals and companies who have achieved lasting greatness in the mining and natural resources industry in the state of New Mexico. Griswold was chosen for the honor because of his long and illustrious career both in the mining industry and in teaching.

Griswold was nominated for the honor by Dr. Catherine Aimone-Martin, professor of mineral engineering at New Mexico Tech. Aimone-Martin said, "George was a leader in teaching as well

*cont. on page 18*

## Earthquake of Dec. 26, 2004 Circles the Globe

The image to the left is composed of seismic records from stations around the world, organized by distance from the great Sumatra-Andaman Islands Earthquake of Dec. 26, 2004. Stations at the bottom of the chart are closest to the earthquake; stations at the top are near the antipode, in Ecuador.

The first waves to reach each station are P waves — "pressure" waves which travel through the body of the Earth. The second, larger waves arriving at each station are S waves — surface waves, which travel along the Earth's surface and thus take longer to reach farther stations. S waves cause larger vertical displacements.

Reading from left to right, each station shows the initial P and S waves arriving ( $R_1$ ), having traveled the shortest distance from the epicenter to the recorder. At a later time, more seismic waves arrive ( $R_2$ ), having traveled around the world in the opposite direction. Continuing to the right, the next set of waves ( $R_3$ ) is the same as the first set, which has now circumnavigated the globe. The fourth set ( $R_4$ ) is the same as the second set of waves, which has also circled the globe. It takes just under 200 minutes for S waves to make one complete trip around the Earth.

as industry and richly deserved this recognition."

Aimone-Martin recalled, "George was strict with professorial protocol. During the first class of each semester, he would introduce himself to the students. He would look sternly at the students and say, 'You can call me by my first name, and it is Doctor!' At times, he appeared gruff, but he had a heart of gold and genuinely cared for all his students."

After earning his degree at New Mexico School of Mines, Griswold worked in a variety of mining campus during his early career. This took him to Mexico, Alaska, Colorado, Arizona, and California. In 1957, he joined the New Mexico Bureau of Mines and Mineral Resources as an associate mining engineer. After receiving his doctorate from the University of Arizona, he became a faculty member at Tech, serving as Mining Department chairman until 1970, when he returned to industry.

He first consulted for Mineral Azteca in Mexico, and then joined Getty Oil Company in Los Angeles. The company soon transferred him to Canada as vice president and manager of Mineral Exploration for western Canada and Alaska. Getty terminated Canadian mineral exploration in 1974.

Griswold returned to New Mexico and joined Sandia

*cont. on page 21*

## New Mexico Tech

### Charles "Doc" Holmes 1918-2004

by Valerie Kimble



Charles R. "Doc" Holmes died in his sleep on August 19, 2004, of natural causes, following several years of declining health. Holmes was a longtime professor of physics and a research scientist in atmospheric physics at New Mexico Tech. He also served a year as the university's acting president, from 1982 to 1983, between the terms of Kenneth Ford and Laurence Lattman.

In the words of Joe Chew (85, BS, technical communication), from his book, *Storms Above the Desert* (1987, University of New Mexico Press):

"Holmes did not seek the position (of acting president); he merely failed to run fast enough when it was thrust upon him. On the surface, he seemed to be an ideal interim president, a figurehead who would passively allow his advisors to run things: shy, unassertive, more at home in front of an oscilloscope than behind a podium.

(Marvin) Wilkening once observed that anyone who is that good at electronics has to be an introvert. President Holmes once left a particularly hectic regents' meeting and went straight to his laboratory in the tower of Workman Center, locking the stairway door and turning off the power to the elevator. From his stooped walk to his absentmindedly professorial demeanor, he looked like the kind of president that power-hungry subordinates dream of."

According to Chew, and to friends and colleagues of Holmes, that mild-mannered appearance was deceiving.

"Old-timers at Tech have fond memories of his term as President of the Institute Senate, where in half an hour he would dispose of business his predecessors would have spent all afternoon on," wrote Chew.

"Newcomers would occasionally try to bully the 'meek' little physicist, only to find themselves staring in to a pair of protuberant, bloodshot blue eyes with all the warm vulnerability of glass. When Doc Holmes gave them 'the look,' strong and ambitious men suddenly developed the urge to sit down and shut up."

#### In the beginning

Charles R. Holmes was born October 11, 1918 in Kemmerer, Wyo., where in 1946 he married another Kemmerer native, Dorothy Biggabe. Dorothy later commented: "Charlie and I were born, grew up, met each other

and were married – all on Sapphire Street!"

Holmes attended the University of Wyoming from 1939 to 1941, but left college to join the U.S. Army Air Force. He entered the Cadet Training Program in meteorology where he met a fellow cadet, Charles B. Moore. In time, the two cadets would become colleagues as New Mexico Tech faculty members and as research scientists at the university's Irving Langmuir Laboratory for Atmospheric Research in the Magdalena Mountains.

Holmes served two years as a base station weather officer and forecaster in England. After the war, he returned to college, earning a bachelor's degree in mining geophysics at St. Louis University in 1947.

In 1949, he joined the faculty of the New Mexico School of Mines under President E.J. Workman. He left to earn his master's degree from St. Louis University and, later, a Ph.D. at Pennsylvania State University

Holmes' son, Bill, recalls that even though his father left Socorro and Tech several times, he always came back. Holmes didn't return for the climate or the scenery; he came back for Tech.

"He just couldn't stand to be away from the place," said Bill. "He really liked Workman and his fellow colleagues, and after two false starts, never thought of leaving again."

Workman once told the

## New Mexico School of Mines

Holmes to buy themselves a plot in the local cemetery and settle down. They took that advice and never looked back.

#### Langmuir Lab

Holmes is featured prominently in Chew's 1987 history of Langmuir Lab, which paints a

"Occasionally, though, Holmes will delegate responsibility to a student assistant who is handy with electronics. Sooner or later, that student will get 'the look.' It is inevitable, because the schematics for a dizzying amount of Langmuir equipment are kept in Doc Holmes's head

Holmes was devoted to his family, Bill and younger sisters Margaret and Emily. He also was devoted to Dorothy, a longtime volunteer and later director of the Socorro Public Library. Dorothy, who also was elected to the State Board of Education, died three years ago.

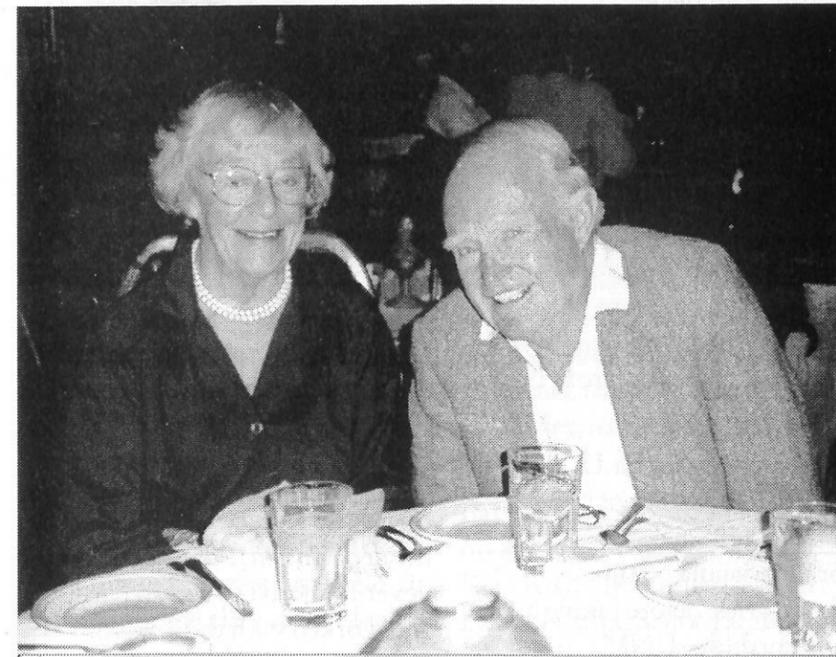
"After he retired, his interest in life became his dog, Lacy," said Bill. Holmes would walk the springer spaniel daily on the golf course until poor health forced him to turn the duties over to his friends and neighbors, Charlie and Wilma Moore. Lacy died two years ago.

Another person who visited Holmes daily was Gerardo Gross, another Tech colleague and longtime family friend. [For reminiscences about Charlie Holmes from colleagues Gerardo Gross and Paul Krehbiel, see <http://infobost.nmt.edu/mainpage/obituaries/dmrecollections.html>]

#### Return to the Langmuir days

It seems fitting to close an article about Doc Holmes by briefly returning to Langmuir Lab atop Mt. Baldy. Joe Chew leaves us with several colorful anecdotes:

"Doc Holmes is one of the best and fastest drivers at the lab. Hunched over the wheel with a crooked grin on his face, he sails down the highway with blissful disregard for the speed limit. On the mountain, he slows down a bit, but seems to have complete confidence that the small lateral excursions of the vehicle's rear end have no effect on its course.



Dorothy and Charles Holmes on their 50th anniversary

portrait of a typical work day for the scientist.

"(Holmes) designed most of the electronic systems at the lab and built many of them himself; now he maintains them as well," wrote Chew. "He comes up in the morning, puts down his sack lunch, gets a cup of coffee, and goes to work. It is solitary labor, even more so than most electronics work, for Holmes would rather do something himself than explain to someone else what he wants.

and nowhere else."

#### Work and family

"He was a man of routine, and a very clear and decisive thinker," said Bill Holmes, who recently returned to Socorro to care for his aging father and work at NRAO.

"When he gave you advice, it was usually well-founded," Bill said, adding that his father's intellectual acumen and mental health were top-notch, even as his body weakened.

## New Mexico Tech

"It is entirely possible that he saves wear and tear on his tires by hitting only the high spots on the road. Another hypothesis, advanced by Langmuir balloon chief Jack Cobb, is that Doc Holmes's tubeless tires go soft all the time because he literally beats the air out of them.

"Holmes will respond amiably enough to intelligent technical questions. A stupid question, though, or one that breaks his concentration during an all-morning trek through the innards of an instrument, will cause him to glance up through a cloud of cigarette smoke, soldering iron still in hand, and say, 'Read the damn manual.' Then he turns back to his circuit."

## Earthquake of Dec. 26

*cont. from page 15*

At the top of the chart, stations at the antipode of the epicenter experience seismic waves coming from both sides of the globe and reinforcing each other.

At slightly more than 200 minutes after the earthquake, an aftershock of magnitude 7.1 is visible. Under any other circumstances, this would be considered a major earthquake in its own right.

We would like to thank Dr. Richard Aster, professor of geophysics at New Mexico Tech, for this figure. People who are interested in more geophysical detail may contact Dr. Aster at [raster@ees.nmt.edu](mailto:raster@ees.nmt.edu).

## Curtis Barefoot (1951 - 2004)

by Valerie Kimble

Dr. Curtis Barefoot, New Mexico Tech professor of mathematics, died on July 23, 2004, after a brave battle against lymphoma. He was 53. He is survived by his wife of 26 years, Olga, and his stepson, Ivan Begley.

Curtis Anthony Barefoot was born in Baltimore and graduated from Baltimore City College High School in 1968. He earned a B.S. degree in electrical engineering in 1972 from Bucknell University, and two master's degrees – one in computer science from John Hopkins University, and the other in mathematics from New Mexico Tech.

After receiving his Ph.D. in math from the University of New Mexico in 1980, Barefoot went to work for Sandia National Laboratories, before taking a professorship at UNM.

He also taught at the University of Colorado at Denver before joining the faculty at New Mexico Tech in 1986.

Barefoot, who weighed 13 pounds at birth, was a big man with a big heart from the day he was born.

"Curtis had broad shoulders in more ways than one," noted Dr. Bill Stone, math department chairman. "He gave of himself and his time, and his attention. His thoughts focused on *you*, and what you were talking about."

In addition to being a professor of mathematics, Barefoot joined



the Computer Science Department in the fall of 2000 to teach courses related to both fields, such as combinatorics, cryptology, and graph theory.

"Everyone in our department liked Curtis Barefoot," said Dr. Andrew Sung, professor of computer science and chair of the department. Sung added, "He never hesitated to seek advice, and worked with the TAs to make courses successful."

He was encouraging and not demanding, colleagues recalled; a humble and friendly man, an excellent teacher, a dedicated researcher, and a trusted *confidante*.

Barefoot was well liked by students as well. He served on master's and doctoral committees for a number of international students, wanting to help students who were less knowledgeable about the system and who needed more mentoring and support than American students.

It is an East Indian tradition to bestow nicknames upon one's friends and associates. Barefoot's nickname among the East Indian community at New Mexico Tech was "Devudu Mamaya," or "Good Uncle," a term of endearment and respect.

Barefoot spent a lot of time with Dr. Steve Schaffer and his family. The associate professor of mathematics recalled the first time he met Barefoot.

"I still remember his smile when I first came here to interview – that warm, magnificent smile that made you feel like you were being hugged," Schaffer said.

"He had a heart of gold I can't even begin to describe," he said. "Curtis loved his work, his family and life so deeply. It was a privilege to know him."

Kim Schaffer, Steve's wife and an elementary teacher in Socorro, once invited Barefoot to speak to her third grade class at Parkview. He readily agreed.

The college professor introduced his young audience to the concept of combinatorics, the science that studies the numbers of different combinations, or groupings of numbers.

Barefoot used four different colors of sticky notes to show the students the many ways the colors could be combined, a simple way of explaining a complex concept.

Remember also that Curtis Barefoot was a tall, husky man who once played football at Bucknell, and who at that time

resembled an NFL linebacker.

With that image in mind, imagine the surprise and excitement his presence had on elementary-age students – especially on impressionable boys who peered inside Shaffer's classroom with curiosity.

At one point, some boys shouted, "Look! It's Emmitt Smith in Miss Schaffer's class!"

Barefoot just flashed his magnificent smile.

## Obituaries

**William "Bill" L. Bass**, 67, of Willard, N.M., passed away on July 20, 2004. He held a master of science teaching degree from New Mexico Tech, earned in 1993.

Bass was born in Estancia, N.M., on April 17, 1937 to Bill and Vera Bass. He graduated from Estancia High School and received his bachelor's degree from UNM. He served in the Air Force and went on a mission for the Church of Jesus Christ of Latter-Day Saints.

He then began a career teaching junior and senior high school math and science, which took him to many New Mexico and Arizona communities.

He is survived by his wife of 25 years, Dorothy Bass and many children and grandchildren.

**Gregory Lee Friberg** passed away on December 2, 2004 at his home in Socorro, N.M. He was born on October 3, 1953, in

Socorro to the late Martin S. and Dorothy (Schooley) Friberg.

He graduated third in the Class of 1971 at Socorro High School, where he took great pride in being kicked out of the National Honor Society for his role in publishing an underground student newspaper.

Greg graduated from New Mexico Tech in 1975 with bachelor's degrees in mathematics and computer science with highest honors. He returned to Tech to complete his master's in CS in 1981. While working as a teaching assistant at Tech, Greg met Mary Garcia, formerly of Socorro, whom he married in 1981. He was a devoted father to Sara Friberg, born in 1987, sharing with her a love for stories and books. Later, they journeyed to places like New Orleans, Mexico, and Disneyland. Greg was particularly proud that Sara chose to attend New Mexico Tech.

Greg was a multi-talented man who held at a variety of jobs, from working for a defense subcontractor at White Sands Missile Range, to being a bartender and carpenter, to running a business restoring classic cars in Las Cruces. He also took care of his father, Martin Friberg, professor emeritus of mathematics at Tech, during the last years of Martin's life. Martin passed away in Socorro in December 2003.

Friends remembered Greg as an outlaw and adventurer who lived life his own way. His sense of

other-worldliness found expression in his favorite science fiction story, a *Star Trek* episode called *City on the Edge of Forever*.

In addition to his daughter and former wife, Greg is survived by two brothers, Stephen Friberg of Mountain View, Calif., and his wife, Sodeyo, and Clint (Barry) Friberg of northern Washington; two nephews, Eric and Daniel Friberg; a niece, Marié Friberg; and a number of good friends, among them Valerie Kimble of Socorro.

Greg's cremains were placed in a simple metal tool box, along with a Raymond Chandler book, and interred next to his parents in the Socorro Cemetery. Memorial donations in Greg's name can be made to the Animal Protective Association of Socorro.

**Dr. Albert Petschek**, professor emeritus of physics, Fellow of Los Alamos National Laboratory, husband, father, grandfather, died at home on July 8, 2004, at the age of 76. He enjoyed good health, and his death was unexpected.

Albert had a lifelong love of the outdoors. He was an avid hiker, mushroom gatherer, cross-country skier, gardener and bicyclist. He was a local fixture commuting by bicycle from his home in La Senda, up Pajarito Road to the laboratory, resorting to a car only when the snow was too deep or the rain too torrential.

Albert believed his most noteworthy accomplishment was his committed and devoted

marriage to Marilyn and the raising of their four children. Before it became the social norm, he was actively involved in the day-to-day raising of his children. Albert maintained his commitment to family throughout his life, planning vacations for the family so they could spend time enjoying each other's company while exploring a new corner of the country or world.

Albert was born in Prague, Czechoslovakia, in 1928 and immigrated to the United States in 1938. He earned his bachelor's degree from the Massachusetts Institute of Technology, his master's degree from the University of Michigan, and his Ph.D. from the University of Rochester.

He joined the staff of Los Alamos National Laboratory in 1953, and the faculty of New Mexico Tech in 1966. He retired from LANL in 1987 and from NMT in 1994. He consulted at the lab until his death. His broad-ranging analytic powers and curiosity were respected by many professionals.

His distinguished career spanned five decades of educating physicists and publishing scientific contributions to nuclear physics, astrophysics, atmospheric physics, quantum mechanics and quantum computing.

Albert is survived by his wife of 55 years, Marilyn; his brother Harry of Lexington, Mass.; and by four children and three

grandchildren.

Contributions may be made to either the charity of your choice, the Unitarian Church of Los Alamos, or to the New Mexico Tech Foundation.

**Donald Richter**, age 78, passed away on Oct. 8, 2004, at his home in Anchorage, Alaska, of a malignant brain tumor. He was a proud member of the Class of 1950 and steered numerous students to his alma mater.

Born on Sept. 29, 1926, in Huntington, N.Y., he graduated from high school in Stamford, Conn., in 1943. He joined the U.S. Navy Construction Battalion in 1945 and was honorably discharged in 1946. On May 15, 1947, he married Marion Agnes Comfort.

After graduating from New Mexico School of Mines, Richter received his master's degree in mineralogy from Queen's University in Ontario in 1952. From 1952 to 2004, he worked primarily for the U.S. Geological Survey in Washington, D.C., Cuba, Colorado, Hawaii, Alaska, Arizona, and New Mexico.

His 41-year Alaska residency began in 1963 with the Alaska Department of Mines and Minerals. In 1967, he rejoined the U.S. Geological Survey and continued geologic mapping in the Wrangell Mountains.

"Don loved the out-of-doors and was especially at home in the mountains," his family recalled. "His thirst for learning about the natural world was unquenchable and he loved to share that

### Griswold Inducted

*cont. from p. 15*

National Laboratories. He pursued energy research in coal and oil shale. He was then assigned to work under Dr. Wendell Weart, participating in the site selection for the Waste Isolation Pilot Plant near Carlsbad. He left Sandia in 1978 to form his own consulting firm known as the Tecolote Corporation. He and his associates conducted studies for Sandia, the U. S. Department of Energy, the U.S. Bureau of Land Management, and numerous mining companies.

He completed his professional career by returning to New Mexico Tech in 1984. He served as chairman of the Mining, Geological, and Environmental

*cont. from previous page*

knowledge. Don and his wife established a center for learning at Trail End Ranch in New Mexico for teaching youths the natural history of the area. He will be missed on the trails and peaks of Alaska and New Mexico."

He is survived by his wife Marion, three children, and numerous grandchildren.

Engineering Department until his retirement in 1988. He was both a Distinguished and Legion of Honor Member of the Society of Mining Engineers.

When inducting Griswold into the Hall of Fame, Mike Bowen, executive director of the New Mexico Mining Association, said, "Dr. George B. Griswold excelled at instilling a deep appreciation for ethics and respect in his students. This is especially significant because he practiced what he preached: he always conducted himself honestly and

**YOUR SPOUSE:** What are you doing? Buying more stuff for that dang computer of yours?

**YOU:** No, darling, I'm helping out good old New Mexico Tech.

**SPOUSE:** By buying computer stuff?

**YOU:** Sure! You see, it's all because Tech is a member of HACU.

**SPOUSE:** Tech is a 17-syllable Japanese poem?

**YOU:** Not that kind of haiku. Tech is a member of HACU, the Hispanic Association of Colleges and Universities.

**SPOUSE:** What does that have to do with buying computer stuff?

**YOU:** Well, you see, HACU has an alliance with Gateway Corporation. If alumni, faculty, staff, and students

made sure that students understood the critical importance of being open, honest, and frank with their colleagues and faculty advisors. This may have been the most substantial aspect of George B. Griswold's history as a professor, and likely will serve as the most notable part of his professional legacy."

Bowen concluded, "Professor Griswold served as an exemplary individual, ethically strong, professional polished, and a mentor to many students, fellow professionals, and miners."

of a HACU member buy something from Gateway, their college can get a rebate on the purchase.

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# Science Fair Wants YOU

Science Fair has been a valuable outreach program for New Mexico Tech for 53 years, bringing science-oriented students to campus. The 53rd New Mexico Science and Engineering Fair will be held on campus on April 8-9, 2005.

We need your help as a volunteer judge! You get to meet and encourage the scientists of tomorrow. Anyone with a degree related to science, mathematics, or engineering may judge — even bachelor's degrees. We especially need volunteers in the life science categories: Zoology, Medicine and Health Sciences, Microbiology, Chemistry, Biochemistry, and Behavioral & Social Sciences.

All judging takes place on Saturday, April 9. We will accept volunteer judges up to the final week before the event, but we appreciate early volunteers.

For more information, visit <http://www.nmt.edu/~science/fair> or call 505-835-5678.

*Advance notice:* The 2007 Intel International Science and Engineering Fair will be held in Albuquerque on May 13 - 17, 2007. While New Mexico Tech is not sponsoring this event, we are assisting the sponsors.

Approximately 1,500 judges will be needed for this prestigious event. They will need judges with a Ph.D., M.D., or a minimum of six years of related professional experience in one of 14 scientific disciplines. If you are interested in becoming a Grand Awards Judge, please visit the Science Service website at [www.sciserv.org](http://www.sciserv.org).

## Keep in touch!

Have you been promoted, received an award, changed jobs, moved? We are interested in you! So are your friends and fellow alums! You can also help us keep our *Gold Pan* mailing list up to date. Please give us your latest address and news. Send this form to: **Kathy Hedges, New Mexico Tech, 801 Leroy Place, Socorro, NM 87801**, or send e-mail to [goldpan@nmt.edu](mailto:goldpan@nmt.edu).

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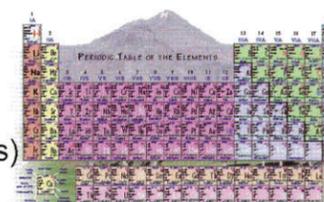
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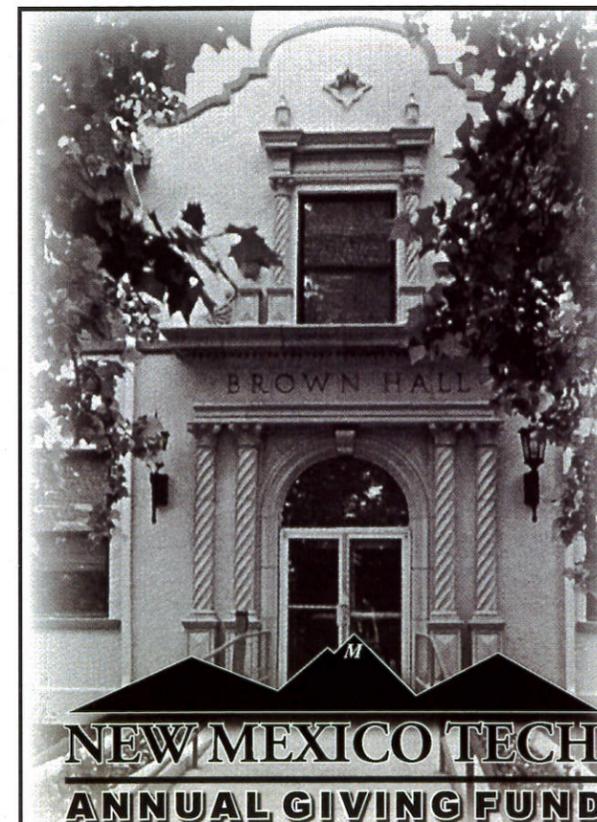
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