



# THE SMILODON

PRINCETON UNIVERSITY

DEPARTMENT OF GEOSCIENCES

## GEOSCIENCES — PAST AND FUTURE — AND HOW IT RELATES TO THE GUYOT MUSEUM

In 1805, President Stanhope Smith of Princeton University effectively started a natural history museum at Princeton by purchasing the *De la Costa Cabinet of Natural History*. By that time, natural historians recognized that there must be close links between the fossils they were finding in the rocks, and the weather and climate of the planet. They realized that the sub-disciplines of the geosciences are interdependent. The renowned geographer von Humboldt wrote that “The perception of the chain of connections by which all natural forces are linked together and made mutually dependent on one another, exalts our minds.”

Geologists have learned much over the past two hundred years, about the vast span of time in the geological record, the astonishingly different climates in the distant past, the

## NATURAL HISTORY MUSEUM CLOSES

After 90 years, the Natural History Museum in Guyot Hall was closed to the public in September. Its closing has been a highly controversial matter and many alumni/ae and faculty have made representations to forestall this event. However, a new and improved museum facility with new and updated educational exhibits are part of an overall plan to expand Guyot Hall into a major Science Center for Geosciences, Environmental, and Biological Sciences. During the expansion phase, many of the current exhibits will be housed in temporary spaces of Guyot Hall, including parts of the current museum space. A faculty committee, chaired by **Gerta Keller**, and including **Lincoln Hollister**, **Bill Bonini '48**, and **George Philander**, will work with the administration, the architects, and a museum expert to develop plans for the location and design of the new museum.

sweltering Earth of the Cretaceous Period when dinosaurs roamed across the continents, and the recurrent Ice Ages of the past several million years. The result of those scientific advances was increased specialization, the division of the Earth sciences into separate sub-disciplines. In the 1960's, confirmation of the hypothesis of continental drift was a major step towards integration of the Earth sciences. This unifying idea, to which the late **Harry Hess \*32** and **Jason Morgan \*64, Faculty**, made seminal contributions, explains diverse phenomena such as the specific locations of earthquakes, volcanoes, and mountain ranges, and the shapes of continents.

The next major step towards the fulfillment of the vision of a unified geosciences, now underway, has as its goal not only detailed descriptions of conditions in the past, but also explanations for those conditions. What caused the major mass extinctions at the Cretaceous-Tertiary boundary, at the end of the Devonian and of the Precambrian? How are they related to climate changes and to catastrophes, such as extraterrestrial impacts, and of the sudden release of methane-trapped gasses? What caused the extremely warm climate a hundred million years ago? Why did the termination of the last Ice Age commence abruptly some 18,000 years ago, introducing a comfortably warm period during which humans could thrive? These questions are not merely of academic interest, but are also of direct relevance to a matter of considerable concern at present - future global climate changes. Man has become a geologic agent, interfering with



*The dinosaur takes its place next to the new library's glass wall following the construction in part of the Museum in 1982.*

the processes that make this planet habitable. What are those processes? How and why did they change and create radically different conditions on Earth in the past? An ability to explain the past will bolster confidence in predictions of future changes.

The interdisciplinary effort needed to address these issues motivated this department to expand the scope of research and teaching over the past few years. After a visit in April 2000, our Advisory Council, whose members included **Robin Martin '75** and **Richard Vierbuchen \*79** wrote the following:

*“No university can retain national leadership in higher education without a strong position in the study of the planet on which we live.”*

This stems from the many important issues our civilization faces now and will face in the future as regards our interaction with nature. Further:

*“In its Department of Geosciences, Princeton has a strong platform from which to lead in teaching and research about our planet. The University has an excellent reputation in the Earth sciences, earned by seminal contributions made over many decades to understanding the history and dynamics of our planet. During the past several years, the Department of Geosciences has been involved in a period of major rebuilding to meet the challenges of teaching and research at the forefront of Earth sciences. The University should be proud of the success that has been achieved.”*

The “major rebuilding” did not involve any break with the past. For example, the tradition of expeditions, to the American west and Patagonia a century ago, continues today. **Lincoln Hollister, Faculty**, is making field expeditions to Bhutan and British Columbia; **Gerta Keller, Faculty**, to Madagascar, North Africa and Central America; **Jason Morgan \*64, Faculty**, and **Guust Nolet, Faculty**, to Iceland; and **Bess Ward, Faculty**, to Antarctica. **Satish Myneni, Faculty**, is using a cyclotron to analyze fossil plants collected by Princeton professors a century ago. Future Princeton scientists will no doubt have novel uses for the air samples that now arrive twice a month, from stations around the globe, in the laboratory of **Michael Bender, Faculty**, who also studies ice-core samples that record conditions in Antarctica over the past 400,000 years.

To introduce students to the exciting new research in the department the curriculum is being restructured. Traditional courses have been revamped to reflect current perspectives. For example, Geosciences 206 “History of the Earth,” explores how the drift of continents and the motion of the atmosphere and oceans together resulted in a continuously changing environment that profoundly influenced the evolution of life over the past four billion years. In addition to courses in geology and geophysics, courses are also offered on oceanography, and on weather and climate. In the same way that the students who were here in the 1960’s recall the excitement of being in a department making major contributions to plate tectonics, so do students now have the

opportunity to learn about, and to participate in the exciting developments of today.

Guyot Hall has become cramped, so the university administration will make a large addition to the building, which will effectively turn it into a Guyot Science Quadrangle serving Geosciences, Environmental, and Biological Sciences. To those who planned Guyot Hall a century ago, a museum that serves a teaching purpose was of central importance. The same is true today. Even from a casual inspection of the museum it is evident that, for teaching purposes, it is now of very limited value, because it is in a state of neglect. It would be irresponsible to leave the museum as it is; it has not had a curator for a decade and many valuable fossil specimens are in serious disrepair.

New additions to Guyot Hall will afford a wonderful opportunity to plan a splendid museum that displays our invaluable treasures in a suitable manner, and will also introduce visitors to current developments in the geosciences. The dream is to have a museum that is both educational and inspirational, that integrates the past and the present, the new research and the old. One possible theme might be a *Walk through Time*. The museum, ideally centered in a vast atrium space, could begin with the early Earth, proceed through the major highlights in the evolution and mass extinctions of life in the Paleozoic. This naturally would lead into the Mesozoic, highlighting the extinct fauna and flora, contrasting these with the remnants of Mesozoic plants and animals still living today. The Cenozoic would form the last phase and could highlight climate change from ice ages to greenhouse warming. For each phase, current research by faculty could be integrated into the exhibits. For students and visitors alike, the *Walk through Time* would be fascinating, educational and enjoyable, stimulating curiosity in our planet Earth and furthering the understanding of who we are, where we came from, and where we are going. Such visions of a new museum are currently just a dream. To make them a reality would require not just the enthusiastic support and efforts by the faculty, administration, and alumni/ae, but more importantly, it would require major funding to bring such dreams to reality.

## **A BRIEF HISTORY OF THE NATURAL HISTORY MUSEUM AND GEOLOGICAL STUDIES AT PRINCETON**

Natural Philosophy, broadly included studies of the Earth, and now called Geology, was first taught at the then College of New Jersey in 1771 by William Churchill Houston, Professor of Mathematics and Natural Philosophy. He was succeeded by several different instructors of “Natural Philosophy” over the next 83 years, including the physicist, Joseph Henry. All of these men taught courses in more than one field, i.e. mathematics, chemistry, or physics as well as “natural history.” In 1796 Dr. John Maclean Sr. was appointed to teach Natural History (Natural Philosophy) as well as chemistry. In 1805 Dr. Maclean and President Stanhope Smith purchased the *De la Costa Cabinet of Natural History*, which is purported to have been the be-

ginning of the natural history collections at Princeton. The decree of the original benefactor, Elias Boudinot, was that the cabinet should be open to the public without charge. From 1818 to 1822 **Dr. Jacob Green** taught paleontology at the College of New Jersey. This apparently was the first instance in which paleontology was taught as a formal course in the United States.

In 1854 Dr. **Arnold Guyot** from Neufchatel, Switzerland, was the first person hired to teach Geology and Geography at Princeton and instruction began in 1855 with **Guyot's** arrival. Until 1873, when **Henry B. Cornwell** was hired to teach mineralogy, **Guyot** was the only geology instructor on campus. He amassed teaching collections that later became the core of the Elizabeth Marsh Museum of Geology and Archaeology. The museum was named for the wife of William Libbey Sr., a Trustee of the University. **Franklin Hill** was Curator of the Geology Museum from 1873-1890. In 1874 Libbey provided an endowment for the Elizabeth Marsh Museum, and the Trustees set aside a large room in Nassau Hall (later to become the Faculty Room) to house it. Libbey intended that the museum would be supported by income from the University Hotel. When the hotel failed the museum's endowment was lost.



Around 1900: The Elizabeth Marsh Museum in the current Faculty Room of Nassau Hall.

The Class of 1877 had a major influence on the development of natural history at Princeton. That Class endowed teaching fellowships in Biology and Zoology, and also donated the Biology Laboratories, which formerly stood on the site now occupied by Firestone Library.

While trying to cool off by swimming in the canal after exams one hot June day in 1876, **William Berryman Scott**, **Henry Fairfield Osborn**, and **Francis Speir** — all of the class of 1877 — dreamed up the idea of a fossil-collecting expedition to the American West. **Scott** happened to mention having seen an article about Othniel Marsh's expeditions on behalf of Yale University, and the idea of a western expedition was born. The following summer saw the first of many fossil-collecting expeditions to the western United States. These expeditions are represented by the Condylarth exhibit in the museum.



Arnold Guyot (1807-1884)

**Scott, Osborn, and William Libbey Jr. 1877**, all taught at Princeton beginning in 1880. They contributed significantly to the development of Natural History studies (geology, paleontology, biology, geography, and histology). **Libbey** was granted Princeton's first Ph.D., in 1879.

Natural History studies prospered under the leadership of **Guyot**. The Geology Department, officially created in 1904, included **Cornwall** and **A. H. Phillips 1887** (mineralogy), **Scott** and **Marcus Farr** (vertebrate paleontology), and **Gilbert Van Ingen** (invertebrate paleontology and stratigraphy). In 1905 **Charles H. Smyth** (petrology and geochemistry) and **William J. Sinclair** (vertebrate paleontology) joined the department.

The Geology and Biology Departments soon outgrew their quarters in Nassau Hall, Geological Hall (later Stanhope Hall) and Philosophical Hall. By 1906 it was clear that a new building was needed to accommodate the two depart-



Princeton geological expedition to the Dakotas in 1882. Left to right: top row: **C. Hewitt '83**; **Jas. Harlan '83**; **R. W. Speir '83**, **Adam Bruce '81**; **William Berryman Scott '77**; **Fred Burt '82**; **George Westervelt '82**, **Dean W. E. Magie '79**

ments. At this time **Cleveland Dodge 1879** announced that his mother would fund the building of a new hall dedicated to biology and geology. His classmate, President Woodrow Wilson, accepted the offer. Planning for the new building included travel by a faculty committee (**Phillips, Charles F. W. McClure, and Van Ingen**) and one of the architects (Mr. Schroeder) to view every similar building between Boston, Chicago, and Washington DC.

The building was completed in 1909 and named for **Arnold Guyot**. At the time it was the tallest steel-frame building in New Jersey. The two departments and the combined museums (Biological Museum, Morphological Museum, Elizabeth Marsh Museum of Geology and Archaeology, and Mineralogical Museum) moved in. It was considered a very good working environment with many up-to-date features, like electricity and fireproofing (including automatic fire doors). Like the Department's original quarters in Nassau Hall, it has since been outgrown even though it has been enlarged several times. As part of the original design the entire first floor was to be a museum devoted to teaching in the Geology and Biology departments, and its location was designed to make it easily accessible to students. In fact, the museum was placed so that students would have to walk through it to get from one part of the building to another to encourage its use.

Under **Guyot**, the museum, which began as an expanded teaching collection, was intended to be part of the learning experience at Princeton. Exhibits in the Natural History Museum are still a part of instruction for some of the courses taught in geosciences, evolutionary biology, and the history of science. Until its closure in September, 2000, the museum continued to enrich the education of Princeton students, as it was originally intended.

Several museum exhibits recall the nearly 150 years during which Geology has been taught at Princeton. **Guyot's** interest in the Swiss Lake Dwellers is reflected in the model of a Lake Dweller village that he purchased over a century ago. His own collection of Mesolithic artifacts is still here.

Between its establishment in 1904 and the 1930's geology instruction primarily served the needs of the mining industries, and thus petrology and geochemistry prospered. The increasing importance of petroleum exploration in the



1909: Natural History Museum great hall in the newly constructed Guyot Hall before museum materials were installed.

*The Smilodon*

1920's and 1930's placed more emphasis on instruction in invertebrate paleontology and stratigraphy. Vertebrate paleontology continued to be a study area in the department under **Scott** and **Sinclair**, and later under **Glenn Jepsen '27**, to prove the theory of evolution. **Jepsen** was one of nine new faculty members added in the 1920's, which included **Arthur Buddington \*16**, **Edward Sampson '14 \*20**, **W. Taylor Thom**, **Erling Dorf**, and **Benjamin F. Howell '13 \*20**.

The late 1930's saw a large increase in enrollment in the Geology Department. One new faculty member, **Harry Hess \*32**, taught mineralogy and contributed greatly to the world renown of "Princeton in the geological sciences" when he formulated the idea of sea floor spreading in the 1960s. This idea developed, with major contributions from **Fred Vine, Faculty 1965-70**, and **Jason Morgan \*64**, into the theory of plate tectonics that has revolutionized the geological sciences. **Guyot's** own interest in archaeology was continued in work by **Sheldon Judson '40** on the geology of archaeological sites in Italy.

Studies of geological sciences at Princeton have grown over the last half of the 20th century to include geophysics, geophysical fluid dynamics, engineering geology and water resources, oceanography, climatic modeling, materials research, and environmental studies. Interestingly, recent developments in environmental studies are expanding the interdisciplinary nature of geology, and could almost be seen as a revival of "natural history" as it was taught originally at Princeton.



1930's: Museum before Biology decked over the East Hall.

An exhibit in the museum commemorates the Princeton Patagonian Expeditions organized and led by **John Bell Hatcher** from 1896 to 1899 and described by **Scott** and **Sinclair** (who actually prepared and mounted many of the vertebrate skeletons in the museum). **Hatcher** raised funds privately for the Patagonian expeditions primarily by soliciting alumni. However, a rumor has long persisted that the third and last Patagonian expedition was funded in part by **Hatcher's** skills at the poker table.

Paleobotany at Princeton is represented in the museum in part by fossil leaves in the Green River case. One of these leaves was collected by **John Boyd '43**. **Boyd** never finished his Princeton education, because he joined the U. S.

*Fall 2000*



1970's: In the Museum the dinosaur, *Antrodemus valens*, was the center piece.

Navy shortly after Pearl Harbor, and was killed in action in the Pacific during WW II. **Osborn's** presence at Princeton is still memorialized by a Green River Formation palm leaf, which he donated to the Museum during its early days. **Dorf's** research is shown in the Beartooth Butte exhibit, but in a lopsided manner. The case mainly contains vertebrate fossils, but **Dorf** was looking for plants when he stumbled on Devonian fishes in a channel fill at Beartooth Butte, Wyoming. He found the plants, though, and some of them are represented in the exhibit as well.

Geophysics has a long history at Princeton. **Hess** got the ball rolling during his Naval service in WW II. He obtained permission to continuously run the sonar on his ship, and thus discovered the flat-topped seamounts. He named these for **Arnold Guyot**. The idea of sea floor spreading is discussed in the panels at the base of the globe in the Geology foyer. Interestingly, the idea of continental drift could almost have originated at Princeton before the turn of the century, if anyone had listened to **Hatcher**. He believed that South America had in the past been connected to Antarctica, and thence to Australia. No one took him seriously, just as they would later fail to take Wegener seriously until the latter half of the twentieth century, when **Hess**, **Vine**, and **Morgan** helped lead the way.



2000: The Museum area just before its closure, taken from the library.

The *Smilodon*

As the Geosciences Department starts the new millennium it is focusing more on the dynamic forces that determine the physical appearance of the Earth and its environmental conditions, the solid Earth, its atmosphere, oceans, and the biosphere. A new Museum of Natural Sciences should be developed as a teaching and outreach facility to encompass these new directions.

## THE TIGER AND *SMILODON* STALK THE FRIST CAMPUS CENTER

The "Leaping Tiger and Saber Tooth" exhibit from the museum was given to the Department in 1972 by the Class of 1927. It consists of a skeleton of a Bengal tiger from India, and the extinct *Smilodon* fossil from the La Brea Tar Pits in Los Angeles that died in sticky asphalt deposits 28,000 years ago. Included are bronzed sculptures of the tiger and the saber-tooth (as it probably appeared in life) by Charles R. Knight, noted sculptor and painter. President Shapiro's Office requested that this exhibit be displayed in the new Frist Campus Center until a new museum space is available in Guyot Hall. It required experts about a week to dismantle, pack, and safely move them. Descriptive texts have been added to make this an interesting study in comparative anatomy.



The Leaping Tiger and Saber Tooth exhibit now installed in Frist Campus Center.

# Palmer Physical Metamorphosis New Frist Campus Center

The Frist Campus Center was closed in 1998. The Center is our view from the new building. Here is a series of pictures taken during the construction to make this major renovation of the Palmer Physical Building.



February 1998: The rear of Palmer and the machine shop building



August 1998: The machine shop and parking lot are gone



December 1998: The hole is dug

The Smilodon



January 1999: The big crane comes in



July 1999: Topping the basement level

Fall 2000

# ysics Lab ses Into the mpus Center

edicated on October 20, 2000.  
the north side of Guyot Hall.  
en as construction proceeded  
addition to the old  
s Laboratory



*December 1999: Vertical pillars in place*



*January 2000: Window frames go up*



*October 2000: Dedication*

## DEGREES AND HONORS

### Ph.D.

**Christopher L. Andronicos \*99**, *Tectonic evolution of the Coast Plutonic Complex, British Columbia.*

**Kathryn Ann Hoppe \*99**, *The biogeochemistry and paleoecology of Late Pleistocene Proboscidiens from the southern United States.*

**Irina E. Molodetsky \*99**, *Energetics of zirconia stabilized by cation and nitrogen substitution.*

**Robert Lee Putnam \*99**, *Formation energetics of ceramic waste materials for the disposal of surplus weapons plutonium.*

**Olivier Pauluis \*00** AOS, *Entropy budget of an atmosphere in radioactive-convective equilibrium.*

**Sergei Alexandrovich Lebedev \*00**, *The upper mantle beneath the western Pacific and southeast Asia.*

### MA

**Sigal Abramovich**

**Sara Carena**

**Karen Lynn Casciotti**

**Qi Han**

**Phoebe Jiayue Lam**

**Yi-Kun Zhang**

### AB/BSE

**Jennifer Ann Alexander**

**Naomi Sue Bates (GE) +++\***

**Rachael Catherine Bloodsworth Baylin**

**Kathleen Mary Carroll**

**Kristen Marie Henderson Coleman**

**Sarah Margaret Gaines \***

**Anthony Scott Loden**

**Kevin Linwood Long (GE) + \***

**Kalliopi Monoyios**

**Hadley Anne Owen \***

**Meagen Lynn Smith ++\***

**Abigail Anne Wasserman +++\***

+++ **Highest Honors**

++ **High Honors**

+ **High Honors**

\* **Elected to Society of Sigma Xi**

Arthur F. Buddington Award

**Abigail Anne Wasserman**

W. Taylor Thom, Jr., Prize in Geological Engineering

**Naomi Sue Bates**

Benjamin F. Howell, Class of 1913, Junior Prize

**Jennifer Finley Adler '01**

Edward Sampson, Class of 1914, Prize in Economic Geology

**Christopher Carter Ruml**, Woodrow Wilson School

William E. Bonini '48 Award for Teaching

**Kevin Linwood Long (GE)**

National Science Foundation Fellowship

**Naomi Sue Bates (GE)**

## Athletic Awards

Thorp Van Dusen Goodfellow '41 Women's Field Hockey Award

**Kathleen Mary Carrol**

## HONORS

As an associate editor of the American Association of Petroleum Geologists (AAPG), **John C. Lorenz \*81** was awarded a Citation of Excellence for his services.

The Structural Geology and Tectonic Division of the Geological Society of America (GSA) elected **Jane Selverstone '78** as Chair for the year 1999-2000.

**Karl Muessig \*79**, has been appointed New Jersey State Geologist by Governor Christine Todd Whitman, sibling of **Webster B. Todd, Jr., '61**.

Congratulations to **Dan Schrag, Faculty 1994-97** for winning a MacArthur Fellowship. His research at Harvard is focused on oxygen isotope chemistry of marine fossils.

**Gregory van der Vink \*83** was awarded one of two 250th Anniversary Visiting Professorships for Distinguished Teaching. He is developing and will teach a new introductory course in the geosciences.

The American Geophysical Union (AGU) has selected the following men to be Fellows for the Year 2000: **David Rea '64**; **Richard N. Hey \*75**; **Bruce Moscovitz, Research Assistant 1980-87**; and **Michael A. Celia, Associated Faculty**.

## NEWS

<e-mail address>

Believe it or not, but **Ray Stotler '39** was browsing through his library recently and found a copy of the June 1936 *Smilodon* — a much-needed copy. **Ray** raved about his wonderful summer of 1937 at the new Red Lodge Field Camp in Montana, and the fantastic field trip he went on with many of the big-wigs through the Big Horn Basin.

Four children, 11 grandchildren and two great grandchildren keep **Stan Harris '40** well looked after. He's very involved in environmental projects especially trying to protect Shawnee National Forest from ATVs and equestrians in Illinois.

**David MacKenzie '54** is on the Board of Trustees of the GSA Foundation.

"Never did use my geology," said **Tom Sternberg '59**. He has a career in producing movies. His latest is "The Talented Mr. Ripley." <thomastern@aol.com>

**Dan Barker \*61** has retired after 30 some years in the geology department at the University of Texas. Enroute home from his daughter's wedding he stopped by to pay a visit. He was amazed at the changes. He pointed to a secretary's office and said, "That's where my office was when I was a grad student."

After a long career at Stony Brook, NY, **Bob Dodd \*62** has retired from teaching and moved to the foothills of the Berkshires. He and his wife, Marya, are rehabilitating an old house, enjoying the country environment, and wrestling with the Walloomsac schist in their rocky garden. <rdodd@taconic.net>

**Jim Murray \*64** is now Senior Associate Vice President in the Partnerships and Innovative Program at the University of Alberta. He's responsible for collaborative and development

programs with corporations and research institutions around the world.

After working for 25 years for ARCO, **Jamie Robertson '70** has retired from the company, having served most recently as exploration vice president in the international division. He intends to remain active in the petroleum industry including a four-year term on the Board of Directors of the Offshore Technology Conference and on the Advisory Council of this department. <jdrsmr@mindsspring.com>

**Ida Thompson, Assistant Professor 1974-1980**, and her husband, Andrew Ranicki, are spending the winter term in San Diego and hope to connect with **Al Fischer, Professor 1956 - 1984**. **Ida** is living and working in Edinburgh, Scotland. <aar@maths.ed.ac.uk>

**Walter S. Lynn '73** is now President-elect of the Society of Exploration Geophysicists (SExG). He is senior Vice President of Technical Marketing for PGS Corporation in Houston.

**Tom Dickey \*77** has moved to the Institute for Computational Earth System Science (ICESS) and the Department of Geological Sciences at the University of California at Santa Barbara. <tommy@icess.ucsb.edu>

Last April a check for \$200,000 was presented to the director of Annual Giving by **Richard Vierbuchen \*79**, Director of Esso House in England, and E. Ahnert of ExxonMobil. The check represented the oil company's three-to-one contribution in matching funds.

**Tom Brocher \*80** is now a co-project chief for Earthquake Hazard Investigations in the Pacific Northwest for the U. S. Geological Survey (USGS). He is working on the strong motion site response study based on the implosion of the Seattle Kingdome stadium using 200 seismographs deployed every 8 or 9 blocks throughout the town. **Tom**, with his wife, Ann Okubo, and her family, met the President at the White House on the occasion of the posthumous awarding of the Medal of Honor to her father — a medic in the all Japanese-American 442nd Regiment.

Included in the American Association of Petroleum Geologists (AAPG) Distinguished Lecture Program which provides quality speakers to geologic audiences around the world is **L. Franklin Krystinik \*81** of Union Pacific Resources, Inc., of Forth Worth, TX. He will be offering three topics — Finding subtle traps using sequence stratigraphic and synsedimentary tectonic analysis; Sequence stratigraphic variability; and Predicting fractures five kilometers down.

**Tanya Furman '82** is now an Associate Professor in Geosciences at Penn State University and head of the undergraduate program. <furman@geosc.psu.edu>

**David Lee Smith '82** is Director of Academic Operations, Institute for Advancement of Mathematics and Science Teaching, and an Associate Professor of Geology, Environmental Science, and Physics at La Salle University in Philadelphia. <dsmith@lasalle.edu>

After doing a post-doc in Sidney, Australia, and working for two oil firms in Aberdeen, Scotland, **Lynn Reid '85** married a Scottish doctor, Andrew Minto. They are now living in Chicago and **Lynn** is writing computer programs to analyze data from cased-hole strings while looking for more permanent

work. She added that **Clay McCardell '85** stopped by on a fly-by visit from Wyoming. <lynnreid@alumni.princeton.edu>

**Art Ferri '86** is now a tenure-track assistant professor of finance at Temple University in Philadelphia. <art\_ferri@yahoo.com>

Doing double duty in Denver, **Evan Anderman '88** is helping to run his family's small oil company and trying to start a ground-water consulting business. <evan@InverseModeling.com>

**Mark Johnsson \*89** left his teaching job at Bryn Mawr College to become Senior Geologist at the California Coastal Commission based in San Francisco. He will be responsible for overseeing all development on the California coast. <mjohnsson@coastal.ca.gov>

After 12 years with ARCO in Texas **Don Medwedeff \*88** joined classmates **Wayne Narr \*90** and **Hongbin Xiao \*90** at Chevron Petroleum Technology Company on the structural geology team in San Ramon, CA, "It's great to have old friends in a new place." One of his assigned duties is to be a liaison to P3D research group of **John Suppe, Faculty**. <doam@chervron.com>

In August **Hongbin Xiao \*90** wrote that he has moved to Dhahran, Saudi Arabia, and works for Saudi Aramco.

After 10 years down-under teaching at Monash University in Melbourne, **Terrence Barr \*90** has returned to Houston to work for AFEX International, an independent oil exploration company. He says he misses academics with freedom to do research in whatever he chooses, but it's really exciting to get into a new field. <tdbarr@afexintl.com>

For seven years **Todd DeJesus '90** has been working for the New Jersey Pinelands Commission as an environmental engineer. He reviews development plans for projects in the one-million acre national reserve. <toddster90.aol.com>

After four years in Salt Lake City **Sheila Doppleshammer '90** Salazar has moved to Denver and teaches for the Denver Museum of Nature and Science in the Worlds of Wonder Outreach Program. She travels throughout the west in order to bring museum collections and educational programs to schools and libraries. <sheilq@lazydogranch.com>

A quick visit from **Jen Bonini '91**, mainly to pick up many things left at home with parents, **Bill '48** and Rose. She is the Coordinator of Environmental Learning and Leadership at St. Gregory College Preparatory School in Tucson, AZ. <bonini@rtd.com>

After marrying her Yale Medical School classmate, **Sarah Hougen '92** Poggi did her residency in OB-GYN at the University of California in LA, and is now doing a fellowship in high-risk obstetrics at Georgetown University in Washington, DC.

After teaching science in the Pennington School, **Ed Cervone '94** moved to Colorado for environmental work. Now he's applying to graduate school to learn more about natural-resource management and environmental planning.

After six years with Schlumberger Oilfields Services **Cecily Kovatch '94** is getting her MBA at Harvard Business School. In a newsy e-mail **Cecily** reported on some of her friends and classmates: **Dan Farkas '96** is living and

working in Hoboken, NJ; **Jen Heisinger '94** finished law school at the University of Chicago and is now working at the Bartlit Beck Herman Pelenchar and Scott law firm in Denver; and **Nate Fisher '94** is at Cornell graduate school. <cecilyk2000@yahoo.com>

**Bob Putnam '95**, who works in the Los Alamos Nuclear Laboratory, called to say that the devastating forest fires came "within inches" of the lab, which was scary to say the least. He's in the Nuclear Material Characterization Group.

**Tim Richter '97** has been hired as a geotechnical engineer with URS Corporation in Portland, OR. Old Geo 275 taught by **Bill Bonini '48 Faculty** got Tim hooked on landslides, seismic disturbances and other fun geologic problems. In 1998 he completed his masters in geotechnical engineering at Northeastern and is six months away from his Professional Engineer license.

**Matt Hoehler '98** is now a visiting researcher at the University of Stuttgart, Germany. His research will be on the behavior of concrete anchors under seismic loading — related to future development of design codes where none now exist. <mhoehler@hotmail.com>

**Heather Stoll '99** completed a post-doctoral fellowship at the University of Oviedo, Oviedo, Spain, and will be a Visiting Professor in the Geology Department there starting this fall.

**Sergei Lebedev '00** is now a post-doctoral fellow in the Department of Earth and Planetary Sciences at Massachusetts Institute of Technology (MIT) in Cambridge, MA

At the University of Arizona **Abby Wasserman '00** has enrolled in the Department of Planetary Sciences and will be a research assistant her first semester.

**Sarah Gaines '00** is working at the Woods Hole Oceanographic Institution until she departs on a fellowship with Princeton-in-Africa to study and teach quantitative literacy at the University of Cape Town.

**Barna De '00** is working as a NRC post-doc at the NASA Ames Research Center in California.

*Among our alums who came back for reunions last June (and signed the list) were:*

**Don Laws '57** is retired and is living in Sea Girt, NJ. <bardonlaws@aol.com>

**Geoff Feiss '65** and spouse, **Nancy West '79**. Nancy is an Earth Science educator and **Geoff** is Dean of the Faculty at the College of William and Mary, Williamsburg, VA. <pgfeiss@wm.edu>

**John Gephart '75**, son-in-law of **Rob Hargraves, '59**, is on the research staff at the Institute for the Study of Continents at Cornell University in Ithaca, NY. <JohnGephart@usadatanet.net>

**Greg Kimberly '85** is into software in California <gak@acm.org>

**Maggie Peacock '85** is a science director at State College, PA. <tas11@psu.edu>

**Rick Murnane '87** is working for the Bermuda Biological Station for Research, Kensington, MD <rmurnane@bbsr.edu>

**Rob Hepple '95** is a student at the University of California, Berkeley. <rhepple@alumni.Princeton.edu>

**Heather Hibbert '99** is a geotech scientist in Wakefield, MA. <hhibbert@alumni.Princeton.edu>

## BOOKS

*Faults and Subsurface Fluid Flow in the Shallow Crust*, edited by W. C. Haneberg, P. S. Mozley, **J. Casey Moore '71**, and L. B. Goodwin, 1999, Geophysical Monograph Series (GMS), Vol. 113, 222 pp., \$45.00, American Geophysical Union (AGU) member \$31.50.

Describes the diversity of research in the 1990s on faults and fluid flow emphasizing the interdisciplinary aspects. Based on the 1997 GSA Penrose Conference in Taos, NM.

*Deepwater Sandstones, Brushy Canyon Formation, West Texas*, Field Guide for American Association of Petroleum Geologists (AAPG) Hedberg Field Research Conference, by R. T. Beaubouef, **Fred B. Zelt '85, et al.**, AAPG Continuing Education Course Note 40, 1999, 48 pp., \$59.00, AAPG member \$39.00.

Exceptional exposures of submarine fan complexes.

*Remote Sensing of Active Volcanism*, edited by P. J. MouginiMark, **Joy A. Crisp '84**, and J. H. Fink, 2000, (GMS), Vol. 116, 274 pp., \$66.00, AGU member \$46.00.

Earth scientists will find the most current methodologies and data for remote sensing of erupting volcanoes.

## AROUND THE DEPARTMENT

A sad farewell to **Mary Ann Nicoletti**, who has accepted the position as business manager for the Institute for Health Care Policy, and Aging Research at Rutgers University. She has been at Princeton for over 23 years and with our Department since 1989 - first as the AOS Program Manager and most recently as Department Manager. She will be missed.

Farewell also to **Melissa Trend-Staid, research fellow**, who has transferred to Flagstaff, AZ.

**Laurie Wanat**, the *Smilodon* Production Editor, has been promoted to the Department's Publications and Web Coordinator.

New on our staff are **Stephanie Bey**, secretary, and **Robin Pispecky**, financial assistant.

Welcome to our new graduate students who are as follows: **Nicolas Coltice** from the University of Grenoble, France; **Angela Knapp** from the University of Washington; **Bryan Mignone** from Cornell University; **Benjamin Phillips** from the University of Virginia; **Rachel Reina** from Kean College of New Jersey; **Eileen Ekstrom** from Northwestern University; and **Gregory O'Mullan** from the University of Connecticut.

Our new post-docs are: **James Hall** from Queen's University, Belfast, UK, working with **Tullis Onstott '81, Faculty**, on the heterogeneity of subsurface bacterial transport; **Bongkeun Song** earned his Ph.D. at Rutgers University and is working with **Bess Ward, Faculty** on nitrite reductase genes; **Janina Benoit** with a Ph.D. from the University of Maryland is working with **Francois Morel, Faculty** on mercury methylation in estuaries.

Research Associates are: **Amal Jayakumar** from the National Institute of Oceanography in Goa, India, is working

for **Ward** on the nitrogen cycle; **Sean Shieh** earned his Ph.D. from the University of Hawaii, did post-doc research at the Carnegie Institution in Washington, and is now with **Tom Duffy, Faculty** working with high temperature and pressure experiments using the diamond anvil; **Christopher Francis** is working on trace metals, i.e., manganese oxidation by bacteria with **Morel**; and **Gasper Oldenburg** is working on the carbon cycle with **Ward** and comes from MIT/Woods Hole Oceanographic Institution.

**Jason Morgan, Faculty** is back from Kiel, Germany, where he and his son made great progress on a model to compute the horizontal flow in a thin asthenosphere channel away from hotspots toward the “sinks” of the asthenosphere.

### WHERE IS *UINTATHERIUM SPEIRIANSUS*?

This summer a request was received from Wade Speir: “I’m trying to track down a nearly complete two-to-three foot high skeleton of a small dinosaur that my grandfather, **Robert Wade Speir 1883**, gave to the Princeton Museum of Natural Sciences many years ago. I believe it was named *Uintatherium speiriansus*. I last saw it in a display case in the 1970s.”

Where to begin? **Don Baird**, of course, our museum curator from 1957-1988, retired. As you can see, we still need him. A phone call just got an answering service. However, a week later a double letter arrived — one with his personal news and a second one to send to Wade Speir with all sorts of interesting history. Here are some excerpts:

“Know that **Francis Speir, Jr.**, (brother of **R. W. Speir 1883**) was a member of the famous Princeton Scientific Triumvirate of **Osborn, Scott, and Speir** — all members of the Class of 1877 and the first Princeton Scientific Expedition of that year, and all bosom friends until **Speir**’s death in 1925. He was co-author of the expedition’s report (**Osborn, Scott and Speir**, 1878) and of a paper on the lower jaw of *Loxolophodon* (**Osborn and Speir**, 1879). **Scott** and **Osborn** went on to become professional paleontologists while **Speir** went into law (though he participated in later fossil trips). The only subsequent publication of his that I know about was a slim volume of romantic poetry. **Scott**, who called **Speir** ‘a born collector’ mentioned him numerous times in his autobiography, ‘Memories of a Paleontologist.’

“Unless I’m mistaken, **Frank Speir** discovered not one but two Uintathere skulls. The first was described by **Osborn, Scott and Speir** as *Uintatherium leidianum*, a new species, but has since been synonymized under *Uintatherium anceps* (Marsh). The most spectacular skull was the holotype of a new species that **Osborn** named after Speir *Loxolophodon speirianum*. All the fossil skulls collected by **Speir** were transferred to the Peabody Museum of Yale in 1985.”

As for **Don Baird**, he spent this last year “on vacation in the 18th Century, repairing, restoring and researching flintlocks.” He is an expert gunsmith, especially guns of Civil War days.

### DEATHS

**Augustus John Bender ’39**

January 18, 2000

**Davis Carlisle Burroughs, Jr. ’41**

May 3, 2000

**Gordon Samson Craig ’35**

April 18, 2000

**John English, Jr. ’38**

April 10, 2000

**Richard Dike Faxon ’42**

June 24, 2000

**Theodore Burroughs Fryer, Jr. ’40**

September 2, 2000

**Harold Lloyd James \*45**

April 2, 2000

**Stanislav Jaroslav Kriz \*47**

March 31, 2000

**Cameron Mackenzie ’40**

April 1, 2000

**Jere Schenck Meserole ’44**

February 24, 2000

**Claude Leopold Victor Monty \*65**

April 23, 1999

**William Joseph Morris \*51**

January 10, 2000

**Joe Webb Peoples \*32**

March 21, 2000

**Joseph Melville See, Jr., ’60**

March 19, 2000

**Ben Ethan Tate ’40**

January 21, 2000

**John Lober Welsh ’46**

October 4, 1999

**Harold Godfrey Young ’53**

May 5, 2000

The Department announces with deep regret the death on June 29, 2000, of **Willard S. Starks**, photographer, at the age of 94. For many years, particularly during the 1960s and 1970s, he took on special photographic projects - sometimes the near impossible - for our faculty and students alike. His work can be seen in many of their publications during that period.

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Our Department is  
always pleased to hear  
from our Alumni/ae and Friends.  
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**Peggy Cross**, Editor  
with help from  
**Bill Bonini '48**  
and  
**Laurie Wanat**,  
Production Editor

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