

The Redbeds



*The Annual Newsletter of the
Department of Geological Sciences
Rutgers, The State University of NJ*

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The Geology Museum Open House, Saturday January 26, 2001 (See back page)

Welcome to the Redbeds 2002

The Redbeds are the Annual Newsletter of the Department of Geological Sciences, Rutgers, The State University of New Jersey. The *Redbeds* were reincarnated by then Chair (now Dean) Michael Carr five years ago and have since grown into a detailed report on research activities, students, awards, funding, and comings and goings in our department. Sent to over 700 alumni, the *Redbeds* are our primary means of informing alumni, friends, and colleagues of our most recent accomplishments.

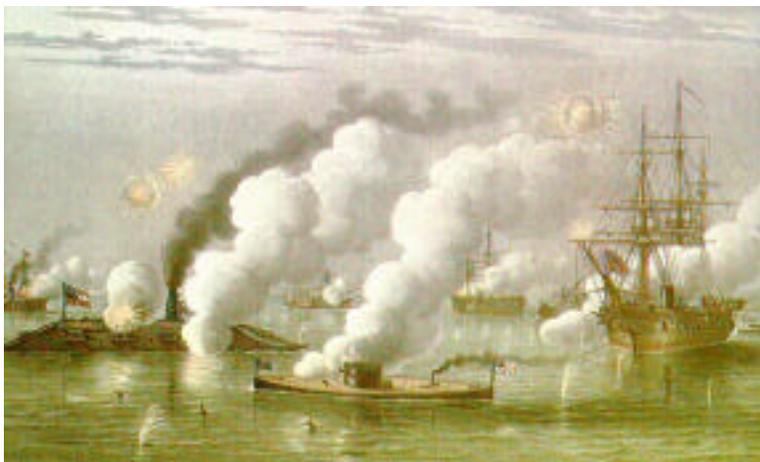
Right. Mark Feigenson, Ken Miller, Mike Carr and Dennis Kent at Museum Holiday party



Rescuing the *Monitor*

Contributed by Kenneth G. Miller

The struggle of the famed Civil War ironclad *Monitor* did not end on that fateful day in March 1862 when she repulsed the advance of the Confederate States of America ironclad *Virginia* (originally the *Merrimack*). The ship that changed naval warfare forever survived that epic battle only to succumb to the seas during a storm off Cape Hatteras in December 1862, with a loss of 16 officers and crew. Now the *Monitor* is struggling to survive the ravages of corrosive seawater as her original 1/2-in thick steel plates have rusted paper-thin. Rutgers Professor Robert E. Sheridan led the team that located the final resting place of this historical vessel in 1973. Now, 28 years later, he returned to her watery grave to participate in rescuing a portion of that famed vessel. His pursuit of the *Monitor* was chronicled in the national press, including the Washington Post and the Newark Star Ledger. The following article is from the Star Ledger.



Left: the *Monitor* (center) and *Virginia* (left), March 9, 1862 Right: Bob Sheridan on the rescue barge *Wotan*, 2001

THE NEWARK STAR LEDGER,
FRONT PAGE TUESDAY JULY 17, 2001
BY ALEXANDER LANE
STAR-LEDGER STAFF

By all accounts, the raising of the engine of the USS *Monitor* yesterday from the depths of the Atlantic -- where it had spent 138 quiet, corrosive years -- was a momentous achievement.

The 35-ton tangle of iron, copper and brass -- now encrusted with barnacles, sand and seaweed -- was the innovative steam engine that powered the Union battleship to a draw in the historic battle against a fellow ironclad, the Confederate ship *Virginia* (formerly known as the *Merrimack*), in 1862.

For Rutgers professor Robert Sheridan, the raising was a personal victory. Sheridan helped locate the *Monitor* 240 feet under choppy waters off the coast of North Carolina in 1973 and lobbied the government to recover the wreck ever since. His efforts bore fruit in 1998, when Congress ordered the recovery of the *Monitor*. It is being conducted with vigorous and groundbreaking deep-sea efforts by the Navy and the National Oceanic and Atmospheric Administration. Small pieces of the ship had been recovered, but yesterday's engine-raising was the most significant step in the effort.

The vibrating side-lever engine is the ship's heart. It is the largest *Monitor* artifact recovered to date, and a rare example of a horizontal steam engine.

"It's very likely to be the only one we'll see recovered from anywhere," said Jeff Johnston, a NOAA historian who is helping direct the effort.

The engine will be stored behind the Mariners' Museum in Newport News, Va., where it will soak for 10 years on public display as chemicals eat away barnacles, oysters and other hangers-on.

Ever since he was a child, Sheridan, 60, has been taken with the beautifully simple yet remarkably effective ship. Using a piece of plywood and a tuna fish can, an 8-year-old Sheridan built a miniature *Monitor*. "I was fascinated with it. I didn't know why," Sheridan said Friday, on his way to a football field-size barge anchored in the Atlantic Ocean 16 miles off North Carolina. "Now look where I'm going."

Once on the barge, Sheridan watched dive operations and looking at artifacts brought up from the wreck.

Meanwhile, an elite cadre of Navy divers was strapping hundreds of metal chains around the engine, preparing to hoist it.

The *Monitor's* battle against the *Virginia* on the James River marked history's first clash of ironclad vessels. The four-hour fight ended in a draw, with the *Monitor* ending a string of sinkings by the *Virginia*.

Ten months later, a vicious gale sank the *Monitor* off Cape Hatteras, N.C. There it lay undetected until Sheridan and his colleagues came around.

Sheridan, then a University of Delaware geophysicist, set off to find the *Monitor* with John Newton of Duke University, Harold Edgerton of the Massachusetts Institute of Technology and Gordon Watts of the North

Carolina Division of Archives and History. They had funding for just a weeklong search. Sheridan's side-scan sonar picked up the wreck on day four. "I said this can't be possible. It's against the odds," Sheridan said. The odds had been defied. But a schism quickly developed in the team. Watts argued the *Monitor* should be left alone so he and other archeologists could glean information that would not be available if it was lifted out of the water.

Sheridan and Newton argued that hurricanes, powerful Gulf Stream currents and other stresses would inflict too much damage, and the *Monitor* should be retrieved. "I knew it was out there getting rusted, getting battered," Sheridan said.

Time proved his point. The lower hull and a bulkhead collapsed between 1987 and 1990. Some 6 feet of an armor belt has deteriorated since 1974. In 1990, a fisherman dropped anchor into the wreck, ripping off hull plating. More than 70 of the Navy's best deep-sea divers work around the clock at dicey depths recovering pieces of the *Monitor*. Most dives last only half an hour to avoid decompression sickness.

The best of the best -- so-called saturation divers -- stay down much longer. They live for up to two weeks at a time in a tank on the barge that mimics the effect of being at the bottom of the ocean. Their joints ache with compression pain and their voices are high-pitched squeaks due to the helium they are breathing -- but with their systems saturated with gases, they can work eight-hour shifts in the deep water



Salvage barge *Wotan* with 500-ton crane used to hoist the *Monitor's* engine in 2001

Sheridan watched this gung-ho group with a satisfied smile. Finally, he was seeing an urgent attempt to raise the *Monitor*. "My feeling is the Navy lost it 139 years ago, and it's the Navy's job to go get it," said Boatswain's Mate Chief Brett Stafford, a saturation diver on the site.

Next year, the Navy intends to go after the *Monitor's* turret, a first-of-its-kind cylindrical gun mount that, in updated forms, remains in use on virtually all modern battleships. The process of recovering the entire wreck is expected to take at least 10 more years.

Most of the funding for the *Monitor's* retrieval -- \$2 million last year and \$4.9 million this year -- is coming from the Navy Legacy Resource Management Program.

Field Geology visits Fundy Basin

Contributed by Roy Schlische & Martha Withjack

For the last half century, the mainstay of the Rutgers Field Geology course was a weeklong geologic mapping exercise involving folded Paleozoic rocks on Godfrey Ridge near the Delaware Water Gap in Pennsylvania. Since the early 1990's, mapping exercises also involved faulted cyclical lacustrine strata in the Newark basin and an unconformity in coastal plain strata in the Sayreville pit. In the last few years, the outcrops in Sayreville pit deteriorated markedly, and significant parts of Godfrey Ridge became inaccessible due to development. This past year, Dr. Schlische and Dr. Withjack substantially revised the Field Geology curriculum. The main, 11-day-long project now takes place in the Fundy rift basin in Nova Scotia, Canada, where Schlische and Withjack have been conducting field work and leading field trips since the mid 1980's. The Fundy project stresses geologic mapping exercises along the complexly deformed northern faulted margin of the Minas subbasin, which has undergone at least three distinct phases of deformation: oblique shortening during the Permian Alleghanian orogeny, oblique extension during Late Triassic and Early Jurassic

rifting, and oblique shortening during postrift basin inversion. Carboniferous prerift strata and Triassic-Jurassic synrift strata (fluvial, eolian, lacustrine, and talus-slope deposits, along with flood basalts) are the principal geologic units in the study area. In addition to field exercises, students also interpreted three regional seismic reflection profiles from the Fundy basin and constructed regional cross sections. Lectures and classroom exercises were held in the Fundy Geological Museum in Parrsboro. Field Geology students showed their appreciation for the use of the classroom by "buying a bone" that is part of a prosauropod dinosaur skeleton on exhibit in the museum. The Fundy basin project was very well received by the eight undergraduates, three graduate students, and one geologist from Rome who took the course in August 2001. They acknowledge the generous financial subsidy provided by the Department of Geological Sciences Development Fund. Donations to the Development Fund are most welcome; send a note along to the Chair indicating that you want your donation allocated to supporting Field Geology.

Drilling at Fort Mott, a Collaborative Study of Water Resources

Contributed by P.J. Sugarman (NJGS/Rutgers), K G. Miller, & P. McLaughlin (DGS)

Much of the water used by the public in southern NJ comes from underground water-bearing units called aquifers. To understand these important natural resources, scientists from the New Jersey Geological Survey (NJGS), Delaware Geological Survey (DGS), and Rutgers Geological Sciences spent much of October 2001, drilling a continuously sampled research borehole at scenic Fort Mott, NJ on the Delaware River. The primary goal of this study is to examine the water resource potential of two critical aquifers, the Magothy and Potomac Formations. These units are two of the primary "aquifers" in a belt that parallels the Delaware River from Salem County in southern New Jersey to Monmouth County in the central part of the state. These geological formations are made up of clays and interbedded sands deposited in ancient river and coastal deposits during the middle part of the Cretaceous Period, ~100-88 million years ago. Our understanding of distribution of these clays and sands is critical for prediction of water resources and pollution remediation in the southern part of the state, but is limited by the poor sampling of the formations in both outcrop and discontinuously sampled water wells. Continuous geological samples obtained from this 820-ft-deep borehole provide new

insights into the age and the complex environments of deposition that control the plumbing of these aquifers. Drilling and study of the borehole was a collaborative project between several organizations. The NJGS provided funds to drill the borehole and science personnel; the DGS provided scientific personnel and downhole logging support; Rutgers provided science personnel and logistical support; and the U.S. Geological Survey drilled the hole. Co-chief scientists were Sugarman (NJGS), Miller (Rutgers), and McLaughlin (DGS).



Computer-Based Seismic-Interpretation Technology

Contributed by Martha Withjack and Roy Schlische

Seismic-reflection data, both 2-D and 3-D, provide critical information about the Earth's strata and structure. Often, these seismic data are the best, if not the only, source of this geologic information. Many 2-D and 3-D seismic surveys, initially costing millions of dollars to acquire and process, are now available from industry and foreign governments for a nominal fee. For example, the Canadian and Norwegian governments release all seismic data more than 5 to 10 years old to the public for the minimal cost of reproduction and shipping. In 2000, Dr. Withjack and Dr. Schlische received a donation of 3 licenses of the Kingdom Suite seismic-interpretation software (valued at \$108,000) from Seismic MicroTechnology. Seismic MicroTechnology renewed the licenses (valued at \$148,000) in 2001. Withjack and Schlische also received a grant of almost \$20,000 from the Rutgers Academic Computing Initiative Committee to purchase three Windows NT workstations to run the software. With Dr. Mountain's arrival at Rutgers in September 2001, the Department of Geological Sciences is in an excellent position to exploit this computer-based, seismic-interpretation technology. Obviously, this technology has significant value as a research tool for undergraduates, graduate students, and faculty. This technology also has significant value as a teaching and learning tool. It creates a stimulating environment for learning, teamwork, and interaction

between faculty and students. The software helps students visualize and appreciate the 3-D geologic complexities of the Earth. Specifically, the software package has animation displays and 3-D graphics that allow users to quickly and accurately observe how real-world geologic features vary laterally and with depth. Finally, this technology enhances students' employment opportunities by teaching them skills valued by industry and government. This technology was first used in the graduate course Acquisition, Processing, and Interpretation of Seismic Data taught by Drs. Withjack and Mountain. Dr. Withjack and Dr. Schlische also will incorporate it into the undergraduate Structural Geology course in Spring 2002. If you have seismic data (paper or digital) that you wish to donate to Rutgers, please contact Dr. Withjack at drmeow3@rci.rutgers.edu.



Exploration of Hudson Canyon

Contributed by Peter Rona

A scientific team led by Chief Scientist Fred Grassle, Director of IMCS, and Co-Chief Scientist Peter Rona, Professor of Geological Sciences, explored the Hudson Canyon with the famed submersible *Alvin* in September. Hudson Canyon extends some 400 nautical miles seaward from the Hudson estuary in New York Harbor, across the continental margin to the deep ocean basin. Although situated in the backyard of a major metropolitan area, the Hudson Canyon region is a true ocean frontier that is only beginning to be explored with modern methods. The dive series was part of the Deep East Expedition sponsored by the NOAA Office of Ocean Exploration, which was recently established to implement a new national initiative, "Discovering Earth's Final Frontier: A U.S. Strategy for Ocean Exploration." The multi-disciplinary scientific team comprised marine biologists, geologists and geochemists, and students from Rutgers, Stony Brook, and the U.S.G.S., as well as two high school science teachers. The submersible dove during the day and the

support vessel, *R/V Atlantis*, carried out box coring and water sampling at night to achieve three scientific objectives: (1) biodiversity: Sediment sampling was repeated to determine change at a station on the continental slope where a landmark study by Dr. Grassle ten years ago revealed biodiversity of benthic forms comparable to that in rain forests on land; (2) pollution: samples were recovered along the axis of Hudson Canyon and at a former seafloor dump site on the southern margin of Hudson Canyon to evaluate the effect and fate of pollutants in the region; (3) gas hydrates: the expedition found evidence of active venting of methane gas from the seafloor in this region; prior studies had showed that methane as trapped in ice in the form of gas hydrates within the sediments. This new finding has implications for slope stability and climate change which is a subject of intensive study in the Department of Geological Sciences.

First IMAX Film of Deep Ocean

Contributed by Peter Rona

The deep ocean is out-of-sight and out-of-mind for most people. Yet it is the most spectacular and dynamic region of the Earth. Rutgers is instrumental in the making of the first wide-screen IMAX movie that will access this remote region. The Director/Producer is Stephen Low who is renowned for making several award winning IMAX films. Dr. Rich Lutz of the Institute of Marine and Coastal Sciences is Science Director of the film, and Dr. Peter Rona of Geological Sciences is Associate Science Director. Funding is from the

NSF, Rutgers, and other sources. The filming is done with an IMAX camera inside and a special lighting array mounted outside the submersible Alvin. The team filmed a vent ecosystem at a site on the fast-spreading East Pacific Rise last year. In August of this year they filmed three contrasting sites on the slow-spreading Mid-Atlantic Ridge. Watch for this film, which is scheduled for release about one year from now with a tentative title of *Voyage to the Abyss*.

Rutgers Growth in Micropaleontology

Published in the Newsletter of the North American Micropaleontology Section of SEPM (NAMS)

Contributed by Miriam E. Katz

The Dept. of Geological Sciences and Inst. of Marine and Coastal Studies at Rutgers University in New Brunswick, NJ has undergone rapid growth in recent years, expanding its Micropaleontology-Biogeochemistry-Paleoceanography group with new faculty and staff. In addition, Rutgers became the 11th member of Joint Oceanographic Institutions in 1999 and is a voting member of the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES) Executive Committee.

Rutgers' micropaleontology group includes Marie-Pierre Aubry (nannofossils), Bill Berggren (foraminifera), Lloyd Burckle (Adjunct, diatoms), Mimi Katz (foraminifera), Ken Miller (foraminifera), Dick Olsson (Emeritus, foraminifera), Chieko Shimada (post-doc, diatoms), and Jim Wright (foraminifera). This group benefits from expertise provided by additional Rutgers faculty and staff in related fields: Paul Falkowski (biogeochemistry), Mark Feigenson (Sr-isotopes), Carrie Lear (geochemistry), Greg Mountain (seismic stratigraphy), Dennis Kent (paleomagnetism), Peter

Rona (geophysics), Yair Rosenthal (geochemistry), Rob Sherrell (geochemistry), Carl Swisher (geochronology), Martha Withjack (exploration geophysics), and Jim Wright (O and C isotopes).

The diverse expertise of the Rutgers faculty/staff benefits the broad spectrum of active research programs conducted at Rutgers, such as: 1) a coastal plain-shelf-slope drilling program that targets Cenozoic-Mesozoic sea-level change, climate change, and sequence stratigraphic architecture; 2) tracing evolution and radiation of eucaryotic phytoplankton through the Mesozoic; 3) establishing a Paleocene-Eocene boundary stratotype; 4) detailing the uplift of the Isthmus of Panama using integrated micropaleo-lithostratigraphy of shallow-water sections; 5) reconstructing Neogene circulation changes through the Straits of Florida; 6) establishing a Paleogene cyclostratigraphic chronology; and 7) reconstructing paleobathymetry using Oligocene benthic foraminifera in the Atlantic.

Research in Rift Valley of East Africa

Contributed by Gail Ashley

The paleoenvironment of early humans is archived in the sedimentary record in Africa. Research by both geology and anthropology departments has been carried out since 1994 at Olduvai Gorge (made famous by the Leakeys) to gain a better understanding of the paleoenvironment in which humans evolved. New faculty member Carl Swisher is refining the paleomagnetic record to improve chronology and correlation. Gail Ashley has been deciphering the early Pleistocene record there in terms landscape reconstruction and paleoclimate, in

conjunction with students; Cindy Liutkus (wetlands sedimentology and stable isotope signatures), Lindsay McHenry (tephra geochemistry and correlation), Godwin Mollel (volcanology and sourcing of stone tools) and Dan Deocampo (modern lake geochemistry and clay mineral signatures). Fresh water wetlands were found to be an important part of the rift basin ecology and a possible source of water for early humans. The research has been expanded into modern analogue studies of rift valley wetlands in both Tanzania and Kenya.

Department News

An External Review Committee evaluated our department on March 1-2, 2001. The committee provided a glowing report on the recent advances and future prospects of the department. The committee was ...impressed by the state and accomplishments of the Rutgers University Department of Geological Sciences. The committee specifically cited the department leadership and *rapid, effective, and targeted faculty hires by the department, resulting in a strong external identity and focus; effective, cooperative interactions with the Institute for Marine and Coastal Sciences (IMCS); and sound and productive educational programs.* The External Committee provided recommendations focussed on four areas:

- 1) *programmatic and physical integration of the department and the Institute of Marine and Coastal Sciences, including planning for a new joint building...*
- 2) *growth in the total number of faculty positions for the department....*
- 3) *growth in the number of University-supported graduate students; and*
- 4) *revisit the undergraduate curriculum in a more global and systematic way.*

The department has taken these recommendations to heart and made concrete steps to implement the suggestions of the External Committee.

Physical Location

We must physically and programmatically integrate our department with the IMCS in order to bring both units to the level of first-tiered public universities. The faculty view physical integration as a requisite first step; closer organizational ties alone will not yield the desired result of raising the profiles of both Geological Sciences and IMCS. We view physical integration as the *sine qua non*; without shared facilities on the same campus, we will remain two detached departments whose faculty must struggle to attain interactions. We are concerned with the difficulty of maintaining close ties with 5 of our faculty who occupy joint positions on the Cook-Douglass Campus (4 in IMCS, 1 in Anthropology), while the balance of Geological Sciences faculty is on Busch. If we are to continue to grow in scholarship, national stature, and funding, we need additional space and to be located in close proximity to IMCS.

Our physical integration is made all the more critical considering that we are bursting at the seams of our current space in Wright Labs (where we occupy 12,202 sq. ft.) and the Geological Science Lab Building (where we occupy 2,600 sq. ft.). IMCS Director Grassle, Associate Dean Carr, and Chair Miller have been meeting regularly to discuss this process. Geological Sciences needs approximately 30,000 sq. ft to relocate our Busch Faculty to a new

joint Earth, Oceans, and Planetary Sciences Building to be built at Cook. Space is needed for recently hired faculty, future faculty, post docs, new graduate students, new laboratories, and additional teaching space; this space also includes offices and laboratories for three of the joint IMCS/Rutgers faculty who currently reside in the IMCS building. Dr. Grassle is trying to raise funds for two roughly 30,000-sq. ft. buildings (IMCS Phase III and Geological Sciences) to be erected adjacent to the current IMCS building.

Faculty Growth

We need to grow in faculty size. The External Committee noted that *Relative to the size of Rutgers University, this is a small geological sciences department.* The FAS Deans office subsequently approved addition of Dr. Gregory Mountain, a senior seismic stratigrapher to our faculty. The External Committee noted that future hiring is needed, particularly at a junior level. The external committee found that the ...*general hiring priorities (geophysics, volcanology-geochemistry, and hydrogeology) are sound, and the department should refine and focus these priorities building strategically on current strengths* The department has appointed a committee to study future hiring needs. We hope to search for a junior member of the faculty in 2003, possibly in the area of geophysics.

Growth of the Graduate Program

We urgently need to grow in the number of graduate students supported. We currently have 8 TA and 2 University Fellowships and about 4-6 RA supported positions. We thus have ~15 supported graduate students vs. a faculty of roughly 18 at Busch (4 joint IMCS-Geology faculty at Cook support students through IMCS). We need to add at least one TA, one University Fellowship, and 2-4 RA's, for a total full-time graduate student body of 20 (in addition to the roughly 15 part time students). We also need to enhance TA/RA/Fellowship stipends to be competitive with other peer institutions).

Undergraduate Curriculum

We have appointed a committee to study the undergraduate curriculum that made the following recommendations:

- 1) Maintain the current requirements of the major, but to improve teaching through various pedagogical means (expanding the field components of courses, increasing the writing component of courses, and enhanced use of computers).
- 2) Increase the 400-level elective courses that are now resuming popularity.
- 3) Expand our efforts at the introductory level, doubling the number of sections of Introductory Geology I (460:101), yet trying to maintain a reasonable lecture size (~140 maximum).

Current Graduate Students

Mark Baum, F, M.S., Structure
Louise Bolge, F, Ph.D., Petrology
Joseph Bosenberg, P., Ph.D., Meteoritics
William B. Bradfield, F., M.S. Structure
David Cassenti, P., Ph.D. Paleontology
Bosmat Cohen, F, Ph.D. Meteoritics
Claire Condie, P, M.S., Volcanology
Benjamin Cramer, F, Ph.D., Stratigraphy
Jennifer Elder Brady F, M.S. Structure
George E. Fox, P., Ph.D., Meteoritics
John Hernandez, F, M.S., Stratigraphy
Lois Johnson, P, Ph.D., Petrology
Alicia Kahn, F, M.S., Paleocan.
Brian P. Lettini, F, M.S. Paleocan.
Fara Lindsay, F, M.S., Geochemistry
Cynthia Liutkus, F, M.S., Sedimentology
Katherine I. Milidakis, F, M.S. Volcanology
Lindsay McHenry, F, Ph.D., Quaternary Studies
Godwin Mollel, F, M.S., Quaternary Studies

Donald Monteverde, P, Ph.D., Stratigraphy
Lesley N. Patrick, F, M.S., Paleocan.
Rebecca Rodgers, P, M.S., Petrology/Geochem.
Theresa Romagna, P, M.S., Geochemistry
Eric Roman, P, Ph.D., Hydrogeology
Michael E. Serfes, P, Ph.D., Geochem./Hydro.
ShayMaria Silvestri, P, Ph.D., Stratigraphy
Jane Uptegrove, P, M.S., Stratigraphy
F = Full time; P = part time

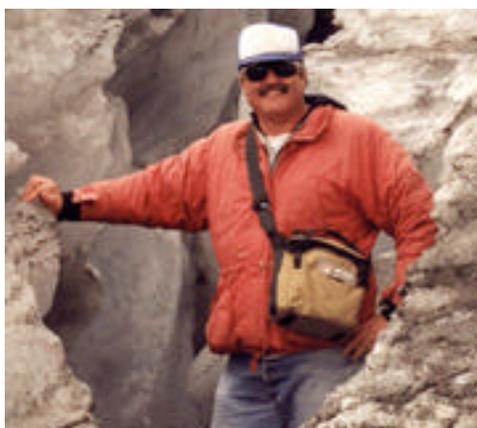
2001 Graduate Degrees

Nicole Caruso, M.S., Quaternary Studies.
Daniel Deocampo, Ph.D. Quaternary Studies.
Paul Hanczaryk, M.S., Stratigraphy.
Scott Juliano, M.S., Geochemistry.
Miriam Katz, F, Ph.D, Paleooceanography.
Timothy Reilly, M.S., Stratigraphy.
Ethan Skinner, M.S., Paleo/Strat.
Scott Stanford, Ph.D., Quaternary Studies.

Comings and Goings



Dr. Gregory Mountain joined the department as a Research Professor in January 2002. Following a B.A. from Brown and a Ph.D. from Columbia, he spent the last 20 years up the road at Lamont-Doherty Earth Observatory studying processes that shape the marine sedimentary record, especially those controlling the evolution of continental margins. While his commute is now a little longer, his research interests remain the same. He plans to continue collecting and analyzing marine seismic reflection data, and participating in efforts to core and drill sedimentary basins. Greg spent tour in Washington as an NSF Assoc. Prog. Director where he learned first-hand the makings of fundable science. He hopes to continue to put this experience to good use while anticipating appointment as a Professor in 2003 when he takes over teaching Geophysics from the retiring Bob Sheridan. Greg and Jim Wright will be co-chiefs on a 41-day survey of N. Atlantic sediment drifts aboard the R/V *Knorr* this summer.



Dr. Brent Turrin joined the department as a Research Professor in January 2002. He received his B.A. from the University of California, Berkeley (1980), his M.S. from Stanford University (1984), and his Ph.D. University of California, Berkeley (1996). He served as a Research Geologist with the U.S. Geological Survey and joined Lamont-Doherty Earth Observatory as a Senior Staff Associate in 1997. Brent's expertise is in radiometric dating of geological materials specialty is obtaining dates on very young volcanic rocks, stretching the envelope at the upper limit of the Argon system, He will work with Carl Swisher in establishing an Ar-Ar mass spectrometry lab for dating.

Dr. Mimi Katz (GSNB, Ph.D., 2001) has stayed on as a Research Associate working with the Bicomplexity group.

Dr. Harold C. Connolly Jr., Assistant Professor Kingsborough Community College, CUNY, was appointed to the Graduate Faculty in our department. Harold will be spending research time back home at Rutgers.

Dr. Michelle Goman left Rutgers for Cornell. We will miss her expertise in Quaternary Studies, though she will continue to collaborate in the East Africa wetland project as a palynologist.

Dr. Chieko Shimada (JSPS Research Fellow Department of Geology, National Science Museum, Tokyo) joined us as a post doc in September. She is an expert in diatoms and will collaborate with Lloyd Burckle and Ken Miller.

Dr. Luca Lanci returned to Italy for a faculty position. Luca will be joining us again in the summers to work on joint projects.

We regret to announce the loss of Nancy Olsson, **Dick Olsson's** wife, who passed away suddenly in September while visiting her son in Boulder, CO.

External Funding

The rapid growth of our department in both quantity and quality is exemplified by large increases in extramural funding. We currently raise approximately \$2,00,000 per year that is used to support post-docs, graduate students, and our "wonderful toys" (mass specs, cryogenic magnetometers, etc.).

Research Professor **Marie-Pierre Aubry** and Dr. Khaled Ouda (Assuit University) was awarded \$46,000 by the U.S.-Egypt Joint Science and Technology Board for a joint research project entitled *A Paleocene/Eocene boundary golden spike: Stratigraphic studies in the Nile Valley (Egypt)*. This grant will support field studies primarily in the region of Luxor and will be used to plan a proposed drilling project near Luxor.

Assistant Professor **Yair Rosenthal** and Post-doc **Carrie Lear** were awarded \$53,938 by NSF for *Constraining Tertiary Temperatures, Salinities, and Ocean Chemistry: An isotopic and Trace-metal Study of Serially-sampled Mollusks*

Associate Professor **Carl Swisher** and Research Professor **Brent Turrin** were awarded \$155,000 from NSF for *Acquisition of a ⁴⁰Ar/³⁹Ar Dating Laboratory at Rutgers University*

Professor **Roger Hewins** was awarded \$105,000 by NASA for *Transient heating in the solar accretion disk* and \$120,000 for *Simulation and analysis of meteoritic materials*

Professor **Dennis V. Kent** was awarded \$87,615 by NSF for *Collaborative Research: Magnetic characterization of dust in Greenland Ice*.

Associate Professor **Roy Schlische** and Professor **Martha O. Withjack** were awarded \$54,734 by the Petroleum Research Fund of the ACS for *The Geometry and Development of Oblique-Inversion Structures: An Experimental Approach*.

Assistant Professor **James D. Wright**, Research Professor **Gregory S. Mountain**, and Professor **Kenneth G. Miller**, were awarded \$141,530 for *The Architecture and Paleooceanography of N Atlantic Drifts: Seismic Profiling, Swath Mapping, and Coring*.

Professor **Peter Rona** was awarded \$50,000 by NOAA/National Undersea Research Program/National Ocean Exploration Initiative for *Role of Gas Hydrates in Slope Stability and Related Processes in the Hudson Canyon Region*.

Assistant Professor **Yair Rosenthal** was awarded \$22,765 by NSF for *An inter-lab comparison of Mg/Ca and Sr/Ca measurements in foraminifera*

Kudos

Professor (II) **Paul Falkowski** was elected as a Fellow of the American Geophysical Union. This is quite an honor because only a 0.1% of the AGU membership can be elected as a Fellow each year.

Undergraduate major **Julie E. Trotta** was elected to the Douglass Chapter of Phi Beta Kappa in Spring 2001 and was awarded the Vinton Gwinn award. The award was established in memory of Vinton Gwinn (RC 56) who was killed in a collapse of a trench.

Professor **Roger Hewins** was promoted to Professor II.

Professor **Gail Ashley** was featured in the Gaea, the publication of Association for Women Geoscientists and was awarded the prestigious SEPM Distinguished Service Award at the AAPG/SEPM annual meeting in Denver Colorado, June 2001.

Distinguished Visiting Professor **William A. Berggren** was awarded Doctorate Honoris Causa of Utrecht University.

Graduate student **Jennifer Elder Brady** was awarded a Sigma Xi on Grant-in-Aid of Research for \$350 her research project entitled *Small-scale Structures as Signatures of the Tectonic History in the Fundy Rift Basin, Canada* and awarded the Arthur A. Meyerhoff grant of \$1,390 by the AAPG.

Graduate student **Lindsay McHenry** was awarded a grant from the L. S. B. Leakey Foundation for the study of human origins (\$9321) for "Geochemical Correlation of Olduvai Gorge Tuffs" and a \$1700 grant from GSA

Graduate student **Cynthia Liutkus** received a \$900 GSA grant and \$1000 grant from the International Association of Sedimentologists for her PhD work.

Graduate student **Benjamin Cramer** was awarded \$23,000 as a Schlanger Ocean Drilling Fellow by the Joint Oceanographic Institutions. The late Seymour Schlanger was a Rutgers Geology alumnus and a real nice guy. It seems appropriate that a Rutgers student be one of the first awardees

Alumni News

Please send alumni news to Ken Miller kgm@rci.rutgers.edu

A healthy number came to the cocktail party at GSA Boston. I unfortunately did not keep a close track of all, but I do remember, **Robert G. Marvinney**, (RC78, now State Geologist and Director, Maine Geological Survey), **Ray Murray** (our former chair), **Peter Sugarman** (GSNB95), **Dick Enright** (GSNB69, now Bridgewater State), and **Roy Van Arsdale** (RC72, now University of Memphis). Roy also visited the department to discuss research opportunities with **Martha Withjack** (DC72).

Richard W. Galloway, RC87, "I enjoyed the lead article in Vol. 5 on Professor Fox. I too learned more than just field geology from him..." Rich is currently Manager of Remediation & Evaluation Services, Honeywell.

George His RC52 reported "I'm delighted to find that you have established a fund to honor Steve Fox. Steve was an absolutely outstanding role model for a great many student at Rutgers, myself included." George sent along a wonderful testimonial about his career working in the Gulf Coast that was published in the Gulf Coast Association of Geological Societies in Feb. 1998.

Ernie Horton, MS50, "Most of my studies were supervised by Steve and Helgi [Johnson]. Because of Steve I was able to take many more paleo course than I should have, but that all resulted in twenty eight years with Amerada-Hess, eleven with Tesoro, and eleven with my own Company. ...Now I am doing paleo for companies in the Gulf Coast.. .All this—with thanks to Steve.

Alex Kulpecz RC75, GSNB78 stopped by the department. His son Andrew is interested in our department for graduate studies. Alex offered to help us with alumni relations and fund raising.

Jim Heller RC88, reported that he is still working for the Alabama Department of Environmental Management and hope to return to graduate school to pursue doctoral studies in paleontology.

Larry Rush RU61 reported: "When I was a geology student at Rutgers in the late 50's, Dr. Fox took his evolution class on a field trip to the Philadelphia Zoo. We took the van into the city, parked it some distance from the zoo, and walked part of the way. The tour and Steve's lectures took longer than expected, and as the afternoon

grew short, he decided to call a cab to drive us back to the van, to save some time. We waited maybe 20 minutes or so, and as the cab hadn't showed up, he called back to the dispatcher to see what the problem was. The dispatcher said with some surprise, "Are you Dr. Fox who called us awhile ago for a pickup?". When Steve answered in the affirmative, the dispatcher said, "You know, we never pay attention to calls like that from the zoo!". We ended up walking back, and teased him all the way."

Rusty/John Gilbert, CC77 is a manager of Chevron's Stratigraphy & Reservoir Modeling Group San Ramon, CA He reported "I hope you guys are doing well back in NJ & at Rutgers still. I get on to the web site once in awhile to see how the dept. is doing. I'm glad to see there are still some familiar names."

Jon Libourel RU93 reported "I just received the latest issue of Redbeds and I thought I'd take a minute to let the department know what I've been doing for the last seven years since graduation in 1993. Currently I am a Hydrogeologist working for Environmental Evaluation Group (EEG), a small consulting and remediation firm with headquarters located in Toms River, and offices in Fairfax, and Bensalem. In 1998 I married a wonderful woman named Kimberly. We currently reside in South Jersey.

Kathy Gauthier Takacs, RU92. "I went to work at Princeton University Library for almost 3 years. While in Graduate School at Florida State University I met and married a fellow graduate student, Scott Takacs, in May 1996. We settled down in Georgetown College in Georgetown, Kentucky."

Thomas Chacko is now a professor at the University of Alberta, specializing in processes associated with high-temperature metamorphism and melting in the deep continental crust.

Robert M. Schneider RC50 of Robert M. Schnieder Exploration of Houston received highest honors from the AAPG.

Chris Townsley, CC99 (IT Corporation), **Peter Fütternecht**, CC97, (IT Corporation), **Ted Toskos** MS85 (Weston), **Sandra Simchick**, (Geocore), and **Cynthia M. Walton** RC93 (Killam) all participated in the Geology Career Forum in 2000 (belated announcement!!).

How to help us

The Geology Development Fund is the mechanism for directing alumni contributions to the department. To help the Department, please specify the Geology Development Fund on your contribution. Each month, we get a list of alumni supporters and respond with a thank you (usually). Your generous donations have allowed us to provide summer field camp awards and field expenses for graduate students to conduct their research. Your gifts also have allowed us to leverage University funds to purchase field vehicles for the department.

As noted in last year's newsletter, we are also actively seeking contributions to the **Steven K. Fox Student Fund**. This fund was created in Steve's memory specifically to support Undergraduate and Graduate Student Research, Field work/camps, etc. To direct contributions to this fund, specify Geology Department Steven K. Fox Student Fund on your contribution. Our apologies to any problems in getting money directed to this fund last year. It is up and running.

Geology Museum Open House
GEOLGY MUSEUM

Rutgers, The State University of New Jersey
presents the thirty-fourth annual

OPEN HOUSE

Saturday, January 26, 2002
9:00 A.M. to 4:00 P.M.

PRESENTATIONS

Scott Hall room 123

10:00 a.m.

**MORE THAN TIME:
THE GEOLOGIC SETTING FOR
HUMAN EVOLUTION**

Dr. Gail Ashley
Rutgers University Department
of Geological Sciences

11:00 a.m.

**MAKING AN IMAX FILM
"VOYAGE INTO THE ABYSS"**

Dr. Richard Lutz
Rutgers University
Institute for Marine and Coastal Sciences

2:00 p.m.

**MADAGASCAR'S
BURIED TREASURE:**

DISCOVERIES OF DINOSAURS AND OTHER
FOSSILS FROM THE LAND THAT TIME FORGOT

Dr. David Krause
Stony Brook University, Stony Brook, NY

3:00 p.m.

**AS THE WORLD WARMS:
65 MILLION YEARS OF HOT AND COLD**

Dr. James Wright
Rutgers University Department of Geological Sciences



Undergraduates Dan Kspeka and Paul Errico at Annual
Department Holiday party at Museum

**THROUGHOUT THE
DAY**

Mineral Sale

135 Scott Hall

Rock and Mineral Identification

202 Geology Hall

For information:

William Selden, Collections Manager at (732)
932-7243 rwselden@rci.rutgers.edu

The Museum entrance is on the corner of George
and Somerset Street in New Brunswick, NJ.

PLEASE POST NO REGISTRATION

ALL EVENTS FREE