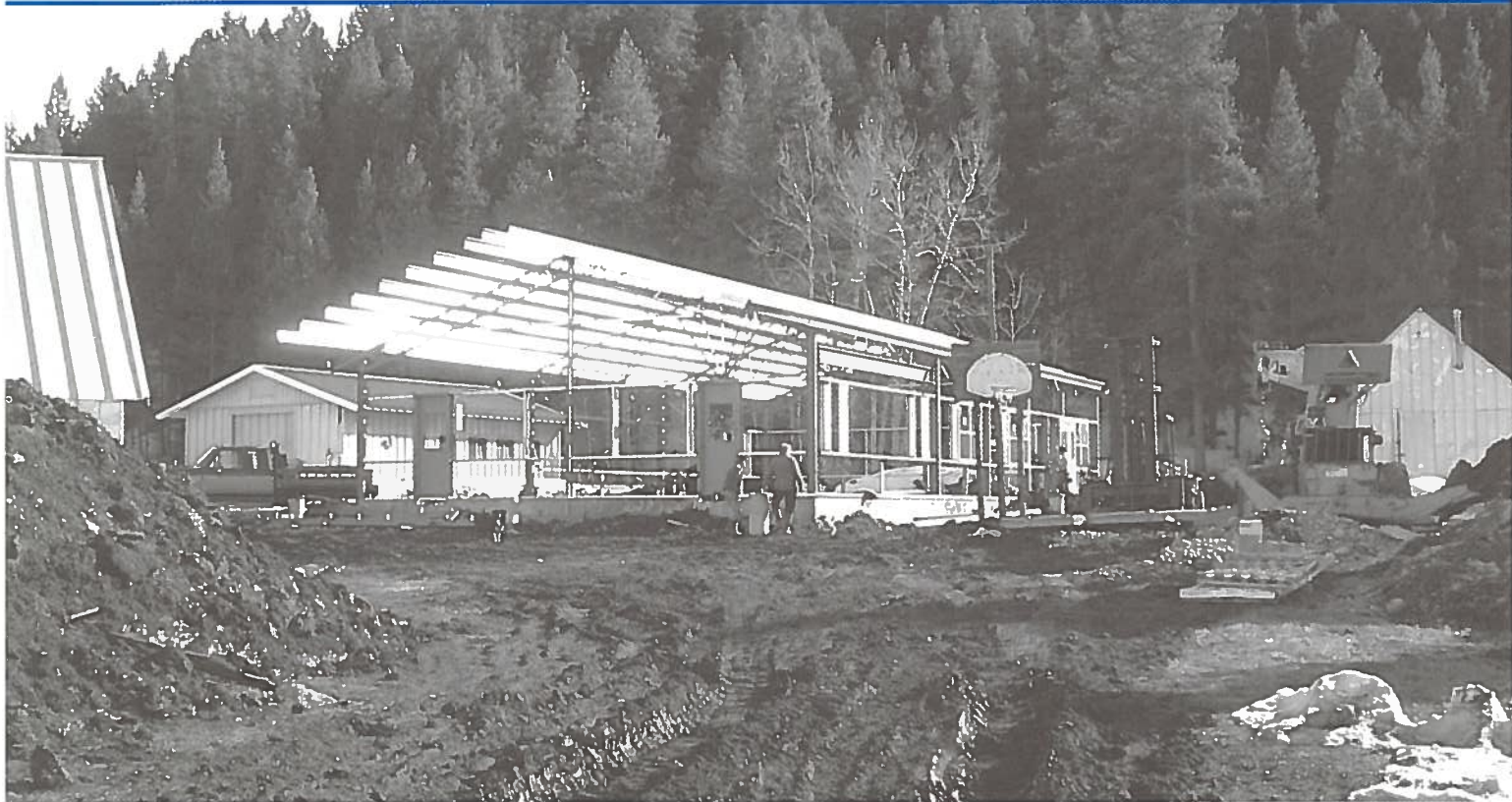


GEOSCIENCE NEWS

*for the Alumni and Friends of the
Department of Geological Sciences
University of Michigan, Ann Arbor, Michigan*



August 2001



Chuck Wooden (front right corner) supervises construction of Camp Davis' Dorr-Kelly Hall. This photo was taken in mid-March in its early (but encouraging!) stages of construction. The building, complete with furniture, was just christened with bottles of bubbly prior to the opening of camp.

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Greetings from the Chair



It has been a pleasure taking over leadership of a smoothly operating, highly regarded, and intellectually vibrant department. A full year in the front office has brought me a deep appreciation of how unbelievably active the department is in both teaching innovation and research. While being careful to preserve that which has made the department great, I have also actively sought out new ideas and used the change in leadership as an opportunity to implement some new initiatives. Let me highlight a few of the changes and new initiatives in the department this year.

Camp Davis. This year we introduced a new course at Camp Davis “Field Course in Environmental Geology,” which was spearheaded by Charlie DeWolf, a department alumnus and geological consultant. Ann Arbor faculty Tom Baumiller, Peter van Keken, and myself will also participate in the course. Enrollments have greatly surpassed our expectations and it appears that this course may become a popular addition to the Camp Davis repertoire. This summer we will be dedicating the new classroom building that was generously supported by John, Molly and Thomas Geissman and dedicated to John Dorr and William Kelly (see Cover) This summer we are also launching the Alumni Getaway at Camp Davis, which has generated a lot of interest in its inaugural year and which we hope becomes an important alumni tradition for many of you and your families.

New Departmental Awards. We initiated a series of new awards utilizing a small unrestricted fund from alumni gifts to recognize the outstanding accomplishments of our undergraduate and graduate students. Let’s face it—it is our students that make this place so great—and they are the ultimate output that we produce. We hope to raise additional funds for these awards and possibly name them for illustrious alumni and former faculty. The new awards and their 2001 winners are Listed in the *Honors and Awards* column elsewhere in this newsletter.

First year graduate student fellowship program. We have taken a new approach this year to the recruiting and funding of our first year graduate students. In the past students were largely recruited to work on research projects during their first year that were already established and funded from outside sources. Thus, there was an inclination to recruit those high quality students that matched projects, but some outstanding students who had not yet determined their specific interests were not as actively recruited. The Graduate Admissions Committee felt that there would be a benefit to recruiting the very best students into the program and providing a year of fellowship support in which they could become familiar with the breadth of ongoing research activities in the department and/or develop independent ideas for research projects.

The President of the University, Lee Bollinger, recently stated this philosophy well in the context of undergraduate education:

“Many students arrive at the University of Michigan without a clear idea of what they want to study...and that is exactly how it should be. No one should feel rushed into deciding what he or she will study or into quickly becoming an expert in a particular field.”

Thus was born the First Year Graduate Student Fellowship Program. Partial support for the new program was sought in a successful proposal to the U. S. Department of Education (Eric Essene and Kacey Lohmann took the lead on this effort) and the remainder will be supported from the proceeds of donations to the Department’s endowment. We are currently seeking additional endowment funds to extend this beyond the three year federal grant, and eventually extend the fellowships to the first two years of graduate study. Our recruiting efforts this year were very successful, and the credentials of our incoming class are even more impressive than usual.

Turner Postdoctoral Fellowships. To maintain and enhance the research preeminence of the Geological Sciences Department it was proposed by the faculty that we create a highly prestigious Postdoctoral Fellowship Program. This year we initiated such a program using funds provided by proceeds from the Turner endowment. The idea was to create a highly attractive position that was a great honor for the recipient, had a highly competitive salary, and was at least two years in duration. The individuals were selected because they already had excellent research visibility and could bring exciting new ideas and research methods to the Michigan research community. Additionally, they will establish new research ties between Michigan and other leading academic programs when they later move on to careers as leaders in their fields. The quality and quantity of the applicants was overwhelming. We selected two top candidates from over fifty applicants, and I am pleased to report that we successfully recruited our first two choices, Dr. Susan Bilek of CalTech and Dr. Wendy Panero of the University of California, Berkeley. They will be joining the department this fall.

In the past year I have had the opportunity to meet many friends of the department. I look forward to meeting many more of you this year in Ann Arbor, at Camp Davis, and at the Geological Society of America meeting in Boston.

Sincerely,

Joel D. Blum

Geoscience Opportunities in Government

*James M. Robertson (MSc '68, PhD '72)
Wisconsin Geological and Natural History Survey*

Working as a geoscientist for the government won't make you rich, but you can make a difference. Most major societal issues have clear-cut geoscientific underpinnings, and most public policy can be better informed by good geoscience.

These connections and opportunities were addressed during the most recent Geological Society of America national meeting, where the GSA's Institute for Earth Science and the Environment sponsored a *Geology in Government Mentor Program*. The program featured a panel discussion on present and future geoscience issues and roles for geoscientists in government. The panelists, representing four Federal and two State geoscience employers, identified major issues their agencies are currently addressing, appropriate qualifications for a successful employee, and future directions and opportunities.

Present and future geoscience issues at both the Federal and State levels include finding adequate supplies of potable water, energy, and aggregate resources, delineating and mitigating natural hazards, and environmental protection. Successfully addressing any of these issues involves maintaining scientific rigor, engaging and educating the public, and informing public policy.

Panelists were unanimous about the essential skills and experiences a successful geoscience job applicant to their agency should possess. All placed a premium on field experience, especially if it included mapping. A comprehensive set of computer skills, including familiarity with geographic information system applications, is a given. The ability to work effectively on an interdisciplinary team is highly desirable, and some training in a second or third geoscience/earth-science/science discipline is clearly a plus. Finally, strong communication skills are absolutely essential.

Geoscience jobs in government fall into two general categories – those with familiar geoscience disciplinary labels, and those with other titles. The great majority have familiar labels at familiar organizations.

At the Federal level, the U.S. Geological Survey is far and away the largest employer of geoscientists, with over 2500 geologists, geochemists, geophysicists, and hydrologists on staff. Other Federal employers of geoscientists include the Department of Energy – especially the national laboratories – the Environmental Protection Agency, the Natural Resources Conservation Service, the land management agencies (Bureau of Land Management, National Park Service, U.S. Forest Service), the Federal Emergency Management Agency, the Army Corps of Engineers, the National Aeronautics and Space Administration, and the National Science Foundation.

At the State level, state geological surveys are, collectively, the single largest geoscience employer. In CY 2000, approximately 1500 geoscientists held full- or part-time positions with state surveys. Other state agencies that typically employ geoscientists include the Departments of Natural Resources, Environmental Quality/Protection, Transportation, and Agriculture.

Geoscientists in *mufti* make up an extremely small percentage of government employees, but they have broad job responsibilities and enjoy significant political influence. At the Federal level, these include Congressional Science Fellows, legislative assistants, committee staffers, and even a Member – Nevada Congressman Jim Gibbons, who has two degrees in geology. At the state level it is not uncommon to discover geoscience training and experience in the resumés of regional, county, and municipal planners.

Honors, Awards, Kudos

Phil Gingerich was recently named a Fellow of the American Association of Arts and Sciences. We congratulate him on his numerous accomplishments and the great honor of this award.

Rob Van der Voo, Professor of Geological Sciences and Director of the LS&A Honors Program, has received the Franklin Institute's 2001 *Benjamin Franklin Medal* in the field of Earth Sciences for his outstanding contributions to the field of paleomagnetism and his reconstruction of ancient continental positions that have led to a better understanding of plate tectonic processes for the past billion years of Earth history. He has shaped the field of paleomagnetism for the past 30 years. He and his students have made groundbreaking discoveries in many important areas, particularly in reconstructing the pre-Mesozoic paleogeography of the continents. His work has shown the importance of microplates in continental collisions in mountain building events. In addition, Rob has shown the mechanism and geographical extent of a continent-wide remagnetization event associated with mountain building in North America 300 million years ago, and shown the importance of true polar wander at distant times in Earth history (300-400 million years ago).



Rob Van der Voo, colleagues, friends and former students celebrate Rob's 60th birthday in Ann Arbor, August 2000

Rob is currently pushing back the scientific frontiers in delineating the timing and extent of the late Precambrian (750-1000 million years ago) supercontinent called Rodinia, a critical time in Earth history. Eight letters of reference from an international group of distinguished scientists familiar with Van der Voo's work agree unanimously that he has made outstanding contributions to paleomagnetism and plate tectonics and is a worthy recipient of a Franklin Institute award.

Please join me in congratulating **Casey Hermoyian** for being selected for the Outstanding Student Paper award in the Ocean Sciences section at the spring AGU meeting. Casey's paper was: Hermoyian, C. S. and R. M. Owen, The late Miocene-early Pliocene biogenic bloom: A worldwide (and possibly pulsed) event.

Arlo Weil won the Outstanding Student Paper Award in the tectonophysics section at the December American Geophysical Union Meeting. This is the second time Arlo has won this award. He has recently accepted a faculty position at Bryn Mawr College in Pennsylvania. The Department will miss his contributions to our paleomagnetism and structural geology research group. Congratulations!!!

Josh Trapani is this year's recipient of the *E. C. Case Award*. He is currently finishing his PhD under the direction of Gerry Smith. **Jonathan Bloch** was honored with the *John A. Dorr Award* for his excellent research in the evolution of mammalian faunas of the Big Horn Basin.

The Department initiated a new and continuing series of achievement awards for outstanding graduate and undergraduate students. These include the *Graduate Scholarly Achievement Award* presented to **Meg Streepey** based on her contributions to both the Department and to the fields of structural and metamorphic petrology. Upon completing her dissertation this year, Meg has accepted a tenure-track position at the Florida State University at Tallahassee.





Three undergraduate students also received Departmental awards. **Demetra “Demmy” Sponuias** (left) and **Douglas Boyer** (center) received the *Undergraduate Citizen Award*. Demmy and Doug will be completing their Bachelor degrees during this coming year and we are looking forward to their continued presence for another year. **Doug** also received the *Camp Davis Outstanding Geologist Award* for his achievements at camp during the summer of 2000. We congratulate **Laura Holladay** (right) for her scholastic achievements during her undergraduate studies at Michigan. Laura received the *Undergraduate Academic Excellence Award* for her stellar accomplishments in coursework at the University and in the Department. Laura recently received a NSF Graduate Fellowship and will be continuing in the graduate program at Michigan under the direction of Kacey Lohmann.

Arizona Goes Totally Blue!



Our alumni continue to excel in their impact on the academic realm. At the University of Arizona, **Susan Beck** (PhD '87, left) recently was appointed as Departmental Chair for Geosciences. **George Davis** (PhD '71, center) is currently Vice President and Provost. **Joaquin Ruiz** (MSc '80, PhD '83) continues as the Dean of the College of Science. We congratulate them on assuming such key positions in one of our country's leading universities, and anticipate that they will soon initiate a formal change in their university's name to *The University of Michigan at Arizona*.

In addition, **Joaquin Ruiz** was honored this year with the *Outstanding Faculty Award* by the Geosciences Advisory Board of the University of Arizona. This award recognizes his many contributions to the Department of Geosciences and the geological community. The Chair of the Advisory Board, Will Wilkinson, noted the following as key to Joaquin's achievement: his vision in guiding the Geosciences Department (University of Arizona) so that it ranks among the preeminent geosciences departments in the Nation; his contagious optimism that has helped develop a collegial department atmosphere; his achievements in teaching and research using geochemistry to decipher elements of crustal evolution and the genesis of hydrothermal ore deposits; and his participation in numerous University committees. (*excerpt from the Geosciences Newsletter, The University of Arizona*)

U-M Grads Prominent in Geological Education

While we often hear about how the students and faculty of the Department are pushing back the frontiers of Earth Science through their stellar research, it is with a somewhat lesser frequency that we are made aware of how Michigan grads are making educational and pedagogic advances. During a chance encounter while at the library thumbing through journals, we found the table of contents of the *Journal of Geoscience Education* for March 2001 (volume 49, number 2) full of names of several of our alums with contributions in that issue.

Carl Drummond (MSc '91, PhD '94), now at Indiana University/Purdue University at Fort Wayne, is the Editor of the journal, and had two articles (editors do have privileges!). Other contributors included **Bert Reuss** (MSc '67, PhD '70), at Tufts University, **Bob Corbett** (BS '58, MS '59, PhD '64) at Illinois State University (whose co-author was his daughter Erica!), and **Paul Howell** (PhD '92) at the University of Kentucky. Altogether the U-M articles comprised more than 25% of the journal's contents.

Degrees Granted

Bachelor of Science 2000–2001

John Spearman	Geology	Ann Hoenke	Environmental Geology
Laura Kaminski	Environmental Geology	Laura Holladay	Geology
Cody Bahlau	Geology	Sarah Jacobson	Geology
Scott Bailey	Geology	Maureen Kreple	Geology
Michael Coram	Geology	Elizabeth Madden	Geology
Mark Erman	Geology	Peter Rose	Geology
Hans Hiser	Geology	Thomas Schmelter	Environmental Geology

Master of Science 2000–2001

Shannon Bauman: Paleoproductivity History of the Benguela Current. Advisor, Phil Meyers

Weidong Dong: Fe-Mg Order-Disorder in Orthopyroxene as a Function of Cooling Rate. Advisor, Youxue Zhang

Andrea Dutton: Stable Isotope and Minor Element Proxies for Eocene Climate of Seymour Island, Antarctica. Advisor, Kacey Lohmann

Casey Hermoyian: Late Miocene - Early Pliocene Biogenic Bloom: Evidence from Low-Productivity Regions of the Indian and Atlantic Oceans. Advisor, Bob Owen

William Hubbard: Geoarchaeological Study of El Mirón Cave, Ramales de la Victoriua, Cantabria, Spain. Advisor: Bill Farrand

Jennifer McIntosh: Hydrogeochemistry of the New Albany Shale, Illinois Basin: Implications for Pleistocene Meltwater Recharge to Regional Aquifer Systems and Biogenic Gas Production. Advisor, Lynn Walter

Chris Palenik: Radiation Effects in Zircon. Advisor, Rod Ewing

Eric Tohver: Penokean and Post-Penokean Reactivation of the Great Lakes Shear Zone: Thermochronology of Shear Zones in the Marquette Region, Northern Michigan. Advisors, Ben van der Pluijm and Eric Essene

Erika Williams: Controls on Mineral Weathering: Insights from a Field-Scale Experiment in a Forested Watershed, Northern Michigan. Advisor, Lynn Walter

Zaojun Ye: Geological and Geochemical Controls on Mineralization and Alteration, Screamer Carlin-Type Gold Deposit, Nevada. Advisor, Steve Kesler

Doctor of Philosophy 2000–2001

- Edmond Harry Peter van Hees:** Gold Deposition in the Western Abitibi Greenstone Belt and its Relation to Regional Metamorphism. Advisors, Steve Kesler, Jim O'Neil and Eric Essene
- Jonathan Bloch:** Mammalian Paleontology of Freshwater Limestones from the Paleocene-Eocene of the Clarks Fork Basin, Wyoming. Advisor, Phil Gingerich
- Elizabeth Kowalski:** Middle to Late Miocene Environments of Southern Ecuador: Temperature, Elevation, and Fossil Plants of the Nabon Basin. Advisor: Robyn Burnham
- Tim Ku:** Organic Carbon Mineral Interactions in Terrestrial and Shallow Marine Environments. Advisor, Lynn Walter
- Steve Peters:** The Origins and Geochemical Behavior of Arsenic in a Fractured Bedrock Aquifer, New Hampshire. Advisor, Joel Blum
- Meg Streepey:** From early Transpression to Late Extension: the Post-orogenic History of the southeastern Grenville Province. Advisor, Ben van der Pluijm
- Donna M. Surge:** Geochemical Proxies of *Crassostrea virginica* (Bivalvia) for Reconstructing Paleotemperature and Salinity: Assessment of Pre-Disturbance Environmental Conditions, SW Florida. Advisor, K. C Lohmann
- Arlo Weil:** Paleomagnetism of the Cantabria-Asturias Arc: Kinematics of Arc Formation and Implications for Final Collisional Adjustments within the Pangea Supercontinent. Advisors, R. Van der Voo and B. A. van der Pluijm
- Weiming Zhou:** Correlation of High-Resolution TEM Data of Mineral Assemblages of Mid-Ocean Ridge Basalts with Rock Magnetic Properties. Advisors, Rob Van der Voo and Don Peacor

In Memoriam

Merrill Haas (BA '32) passed away. Merrill had a long and distinguished career with EXXON. He and Mrs. Haas have been wonderful friends of the Department over many years, and his loss will be deeply felt. Merrill's generosity has impacted the lives of many Michigan students for over half a century. He will be long remembered in Ann Arbor.

Allen G. Ehlers (BS '36) passed away on March 24, 2001, after a long illness with Alzheimer's. After graduation, Allen was employed as a petroleum geologist by the Carter Oil Company from 1937 to 1942. During this time, he worked in Kansas, Michigan, Illinois, Ohio, and Kentucky. From 1942 to 1945, he was the Carter Oil Company's district geologist at Seminole, Oklahoma. Allen resigned that position to be senior staff geologist with Skelly Oil Company in Tulsa, Oklahoma. He moved to Midland in 1945 and became district geologist for West Texas and Southeast New Mexico for Skelly in 1948. He was elected president of the Midland Geological Society and was instrumental in consolidating that group with the West Texas Geological Society. In 1955, Allen made Midland his permanent home and resigned from Skelly to become an independent consultant until he retired. He was a member of the West Texas Geological Society and The American Association of Petroleum Geologists. He was a Permian Basin Petroleum Pioneer.

Edwin Lorig (BS '42) passed away on December 24, 2000 at age 81. He was a retired purchasing agent for Armco Steel Corp., Middletown, Ohio for 33 years.

Robert Sharland (BS '57) passed away in August of 1998. He had gone on to earn an MA in business and used both degrees to work for a mining company.

E. C. Druce (PhD '71) passed away on 19 April 2001. Ed Druce worked under the direction of Professor Frank Rhodes on the conodont biostratigraphy of the Devonian Reef Complexes of the Canning Basin, Western Australia. He is survived by his wife, Janet, and his two children, Deryn and Benjamin.

Alumni News

Thomas Beard (BA '48, MS '49) recently visited the campus and the Department for the first time since June of 1949. He says: "Very little remains the same as I knew..." He has been consulting with moderate success since 1954 and says it has been fun. Since 1956, he's gone to several International Geological Congresses, including Mexico, France, Russia, and Japan. Tom has done 20 years of "off and on" consulting in Venezuela, mainly at Aeromapas Serarenca and Interep (the scientific arm of Petroleos Venezolanos). A recent activity has been the drilling of three horizontal oil and gas wells in the Austin chalk in Fayette County, Texas. These were the first horizontal test wells to be drilled in Fayette County.

Lawrence Mannion (MS '48) visited the Department in early June, while in Ann Arbor for a 50+ class reunion. Larry presently lives in California where he is retired from Stouffer Chemicals following a busy and productive career of exploration and development of industrial mineral deposits.

Kenneth Vanlier (BS '50) spends the summers on the beach near Stoney Lake in Michigan and the winters in Tuscaloosa.

William Easton (BA '41, MS '53) and his wife Ann went on an archeology excavation of old Fort Michilimackinac, Mackinaw City, Michigan from August 12 – 26, 2000. Many interesting artifacts were discovered. This is one of many years that they have been involved in this excavation.

Stewart Wallace (MS '48, PhD '53) was recently inducted into the *National Mining Hall of Fame*, with the ceremony to be held in Leadville, Colorado on the 8th September 2001. Stew worked with the U.S. Geological Survey for many years prior to joining Climax Molybdenum Co, where he rose to the position of chief of geology and exploration. In addition to discovering the Henderson mine and Ceresco orebody at Climax mine, he developed a model to describe complex magmatic and hydrothermal events that gave rise to the emplacement of the Climax orebody. From 1970 to 1976 he served as exploration chief for Minefinders, and subsequently as a consultant to the major exploration companies. Stew has also served as President of the *Society of Economic Geologists* and in 1974 received the Daniel C. Jackling Award for having discovered the Henderson orebody. All of us at Michigan give our warmest congratulations.

Rev. David W. Plumer (BA '54). The highlights and lowlights of adventures took David and Conway over to Spring Hill, Florida to a friend's retirement mansion; to Diablo, Washington to Plumer Rangers Cottage; New Denmark, Nebraska, Cannings Rectory; Hillsboro, New Hampshire, Plumer-Weiss Ancient farmhouse; to Omaha, Nebraska; Nancy Plumer Castle and residing in Hartland, Nebraska, Old Plumer Bungalow above the longest covered bridge in the world. To keep moving we added a motor trip to old Saybrook, Connecticut, to visit grave site of our first ancestor Josep Ingham born in 1630 in England, who was in Saybrook by 1650, and died 1710 and that of his son, Samuel, who was born in 1661 and died in 1773. We went north to Hebron's Gilead Parish to see site of the family farm of Samuel Ingham Jr., who was born in Saybrook, 1697 and died in Gilead 1754, we also visited the cemetery where Captain Daniel Ingham is buried (Revolutionary War). He was born in 1723 in back of wagon enroute to Hebron, Connecticut, died in 1801 Gilead. At the farm, constant renovations and restorations continue as family and friends pitch in. This year two babies of Weisses wail in and a marriage was done under the great Oak in the deep woods. Everyone has a good time there! The first week of August, David had a heart attack. So now a slower life style: no more church services and local driving and walking the covered bridge. They have new rector for the parish of Richmond and Good Shepard. Conway is doing well with a cane and walker and keeps a good house! May god bless you all in the coming 21st century.

Karl Fritz Bruder (BS '54, MS '56) After working for Amoco for about 10 years in the U.S. and North Africa and teaching for 26 years at various colleges and Universities, Karl retired in 1993, only to take on consulting for the Amway Corporation regarding water treatment, with most activity taking place in Thailand, Australia, and New Zealand. Now Marilyn and Karl are enjoying their farms in the Belding, Michigan area, with occasional trips to various parts of the world to visit old friends and associates.

John Cooper (BA '61) In June 2000, John completed 30 years of teaching at Cal-State University, Fullerton, and received the Distinguished Educator Award from the Pacific Section of American Association of Petroleum Geologists. He has also received the Distinguished Faculty Award from the College of Natural Sciences at Cal-State. He continues to enjoy teaching paleo, sed-strat, and historical geology and involving students in his sequence-stratigraphic research on lower Paleozoic rocks of the southern Great Basin.

S. Dave Hixon (PhD '64) recently traveled to the best exposed Permian Reef in the world at Guadalupe Mountain National Park while doing a small job for them. Dave has been extending his masters thesis in the Big Bend area of West Texas. He currently has two grandsons, who were in soccer last fall (Andrew 11 years old and Jack 3 years old). Three year old soccer is a bit different from any other.

John Bowman (PhD '78) has won a Presidential distinguished Teaching Award at the University of Utah, one of only five awarded throughout the University.

John Geissman (BS '73, MS '76, PhD '80) is relieved to have completed a six-year term as Science Editor (first with Lynn Walter and then Allen Glazner) of the Bulletin of the Geological Society of America. He celebrated by accepting the Eos Geomagnetism and Paleomagnetism Editor position and taking a five week drilling "vacation" to southwest China and northwest Vietnam. The experience in terms of lots of rocks drilled (what else?) in southwest China (third trip to the area) was very successful; Vietnam far less so, although roaming around the back woods of Vietnam with Clark Burchfiel was a real treat. So as to not get bored, he is the middle of a two and a half year stint as President of the University of New Mexico Faculty Senate. Importantly, he looks forward to early July, sitting on the front porch of the new Dorr/Kelly building at Camp Davis, watching the sunset on Cream Puff and downing a few with Chuck Wooden, Henry Halloway, and the Camp Davis staff.

Clifford Todd (BS '84) After more than a decade and a half living away from Michigan in places like Seattle, Switzerland, Santa Barbara and Honolulu, Cliff landed a great job with Dow as an electron microscopist in Midland, Michigan. The change in climate – tropical to temperate and academic to corporate – has been drastic, but that is what keeps life interesting.



Fred Haynes (PhD '86) and **Patty Haynes** (MS '84) report that they are now entering their fourth year as expats in Stavanger, Norway, with hopes of making it at least another year (or two?). Fred continues in his role as petrophysicist for the Esso Norge affiliate of Exxon Mobil. When he isn't working to characterize one of EXXON Mobil's many North Sea reservoirs, he and Patty are usually found leading their troops (Thomas-13, Stephen-11, William-8) amongst the fjords and glacial geomorphology of coastal Norway. One could live here a lifetime and not see it all. Recently, Fred has teamed up with geophysicist **Steve Sutton** (MS '86), during the development drilling phase of Esso's Ringhorne Field. For nearly three years (save for a 6 month temporary hitch in London), Steve, his wife Ute, and their three year old daughter Mathilda have enjoyed a home with a backyard view of the rocky North Sea coast. They all expect to still be here through 2001 and visitors are always welcome!

Steve Henry (BS '73, MS '78, PhD '81) is celebrating the Big Five-Oh this summer, and is partying both in Houston (principal home) and in Cloudcroft, New Mexico, the site of his family dacha in the mountains. Steve's kids Klarysa, Nicholas, and Natalia are all athletic stars in volleyball, football, and figure skating. Natalia has won two silver medals in the Texas Special Olympics. Wife **Krys Swirydczuk** (MS '77, PhD '80), has traveled to Russia six times in the past year, looking after Conoco's interests in the Russian Arctic region.

Kevin Righter (MS, '89), a Senior Research Associate in the Lunar and Planetary Laboratory of the University of Arizona, recently completed editing a book titled "Origin of the Earth and Moon", recently published by the University of Arizona press.

Brad Opdyke (MS '87, PhD '91) writes from Canberra, Australia that life is hectic, full of travels, and rich in family life. Brad is in the Geology Department at the Australian National University, and Nancy is a management consultant making frequent trips to Indonesia. Kids Nigel (7) and Myra (4) are in Grade 2 and pre-school, respectively.

Cassi Paslick (PhD '95) and Rob are pleased to announce the birth of their daughter, Emma Anastasia Clark. She was born on November 15, 2000, weighing 9 pounds., 2 ounces., and 19.5 inches long.

Steve Smith (BS '98) returned to Michigan a little more than a year ago from a two year Americorps Alaskan adventures as a volunteer in Sitka, and picked up life as a hydrogeologist. He is working for Malcolm Pirnie in East Lansing, and getting opportunities that have helped him decide what type of graduate program he needs. "We have been performing an all out hydrogeologic study for a company in order to determine if a spring water aquifer in northern Michigan is a sustainable aquifer, that will produce bottled water without adverse effects on local water wells or wetland habitat. I've gotten a great introduction to water resource work through the project, and have come to the conclusion that water resource hydrogeology would be an excellent graduate school program for me. I hope all is well, and Ann Arbor is having a beautiful spring bloom."

Faculty, Staff and Student News

This Fall the Department of Geological Sciences will have a newly built **Noble Gas Laboratory** that will operate under the direction of **Clara Castro** with the valuable collaboration of **Chris Hall**. This laboratory is configured to analyze He, Ne, Ar, Kr and Xe in groundwater and will be among the most advanced laboratories in the World. Its operation will focus mainly on two types of studies: 1) reconstruction of paleoclimate through determination of noble gas paleotemperatures, and 2) understanding groundwater dynamics through the use of noble gas as natural tracers in combination with mathematical modeling.

Clara Castro also organized, in collaboration with **Chris Ballentine** (ETH, Zurich), the first Noble Gas Session ever in crustal fluids at the last AGU Fall Meeting 2000. This session was a great success and brought together the noble gas community from around the world. Following the same line, **Clara Castro** and **Mark Person** (University of Minnesota) are organizing a more general session on natural tracers in groundwater for the 2001 GSA Annual Meeting taking place in Boston this year. The aim of this session is to bring together both the geochemical and hydrogeological communities so that by working together progress in both fields will occur at a faster pace.

Clara Castro is also working presently with French researchers from Fontainebleau on a project in Texas, one major aim of this study being to clarify and better understand discrepancies observed when dating groundwater using different tracers, in particular, ^4He and ^{14}C . A paper on this research is being prepared for submission to *Water Resources Research*. Her efforts in groundwater modeling will be reinforced by the arrival of **Delphine Patriarche** in October as a new post-doc in our department. Together they will be extending their efforts from 2D modeling into 3D. Their efforts are expected to be the first of their kind on regional noble gas studies.



Construction of the extraction line in the Noble Gas Laboratory of the University of Michigan under the direction of Dr. Clara Castro. This highly innovative design is being developed with the collaboration of Dr. Chris Hall. Unlike most systems, this design has reduced the the total size of the system to less than one tenth of the current lines in operation at Lamont or ETH.

Clara Castro, Kacey Lohmann, Chris Hall and Delphine Patriarche will also be putting their efforts into a project in the Michigan Basin aimed at reconstructing the past climate in the region, assessing the extent of groundwater recharge in some of the major aquifers in the basin, and hopefully in better defining the groundwater dynamics in the system. This study will be an important contribution to the understanding and better management of developing pollution problems, in particular regional ones such as those created by the presence of arsenic in some major exploited aquifers such as the Marshall Sandstone. This study will complement ongoing studies undertaken by **Lynn Water** and **Joel Blum**. The Michigan Basin project will also give new insights into understanding oil and gas migration and storage in the basin.

Lars Stixrude is very pleased that **Patrizia Fumagalli**, from the University of Milan, has joined his research group as a post-doctoral fellow. Dr. Fumagalli brings with her formidable experimental skills and knowledge of the petrology of subduction zones. She expects to work on the *in situ* laboratory characterization of fluid-rich silicate systems including those relevant to the formation of arc magmas and the transport of volatiles into the mantle. This will involve developing the hydrothermal diamond anvil cell as a petrologic tool and addressing issues of pressure calibration, compositional measurement, and stability of the apparatus. Patrizia already has substantial experience with our Raman system which will be the primary *in situ* probe. Together, we were able to assemble a model of the structure of the 10 Å phase, an important hydrous mineral in subduction zones, from Raman and X-ray diffraction data (Fumagalli, P., L. Stixrude, S. Poli, and D. Snyder, The 10Å phase – A high pressure expandable sheet silicate stable during subduction of hydrated lithosphere, *Earth and Planetary Science Letters*, 186, 25-141, 2000).



Ben in deforested area south of Porto Velho, Brazil, at approximate location of stable Amazonia's Grenville margin and unstable margin of Amazonia's rainforest).

Ben van der Pluijm was on sabbatical leave last year, but remained in Ann Arbor. Well-intentioned plans to concentrate on revising the Earth Structure textbook and co-develop an interactive CD, while continuing his *Geology* editorial duties (and, most importantly, soccer coaching), were crunched by accepting the role of Director of U-M's Global Change Project and chairing the search for a landform evolution faculty colleague. The U-M Global Change Project got a big boost by a major grant from the Hewlett Foundation to examine a topical, integrated approach to complement the traditional liberal arts education. Our ideas about capturing students' early interest and interdisciplinarity are untraditional, but have received strong support from the University for technical staffing, graduate students and faculty. You can check out the program on our redesigned website at <http://www.globalchange.umich.edu>. The textbook and CD plans were adjusted, but the *Earth Systems Today* interactive CD was completed last Fall and is now part of about a dozen Earth Sciences texts. EarthStructure revision was moved to Winter 2001,

with efforts well underway for a new version in 2002. About 15 (inter)national colleagues will again contribute on selected topics, from neotectonics to geophysical imaging and from Proterozoic supercontinents to the Altaiids.

Ben's educational and service activities are boosted by a vibrant research program in structure that is carried by a group of excellent students. **Meg Streepey** returned from a research term in Germany with former U-M post-doc **Klaus Mezger** (now Professor of geochemistry at Muenster), with exciting new data on the Adirondacks' early tectonic history. She defended her dissertation this Spring. **Arlo Weil** just completed his PhD, in part on a project on the formation of Spain's Cantabrian Mountains (with Rob Van der Voo). **Eric Tohver** continues his research on the 'Grenville' history of western Brazil (in collaboration with **Eric Essene**), where he has been mapping, sampling and dating a large strike-slip shear zone that seems to mark Amazonia's Proterozoic plate boundary. Ben visited Eric in Rondonia last summer, which was a wonderful experience for more than just geology (see photo). Paleomagnetic work is underway to get a better handle on the paleogeography and particularly Amazonia's relationship with North America's Grenville. **John Solum's** project on fault gouge with **Don Peacor**, using X-ray analysis of oriented clay-rich samples, is starting to produce quantitative results on the role of mineral transformations on fault strength and grain fabric development. Ben will likely be involved with the San Andreas deep-drilling project (SAFOD), with John and currently visiting scientist **Lawrence Warr** (from Heidelberg). Undergraduate student **Laura Holladay** is finishing an honors thesis on magnetic fabrics with Ben and **Josep Pares**, and just learned that she received the prestigious NSF graduate fellowship. Finally, belated but not less grateful, Ben wishes to express his sincere gratitude for receiving the GeoAlumni's Faculty Excellence Award in Fall 1999.

Bruce Wilkinson and Kacey Lohmann have kept themselves very busy both in their research and teaching activities. They continue to lead the annual Spring Field Trip for graduate and undergraduate students, this year trekking off to the Southeast with 45 people to examine the geology from Michigan to the Florida Keys. Bruce's current research is focused on evaluating the significance of patterns of variation in geochemical and stratigraphic systems. This has included innovative modeling of seasonal patterns of climate change, as recorded in the isotopic chemistry of precipitation and shell carbonate records. Additionally, his work with **Brandon McElroy** has highlighted the nature of continental hypsometry. Kacey continues to work in carbonate systems to relate preserved isotopic and elemental records to primary factors of paleotemperature and paleoenvironmental controls. This includes research with **Andrea Cicero** on reconstructing the elemental chemistry of the paleocean from marine cements throughout the Phanerozoic. Studies on reconstructing paleoenvironmental records from molluscan shell carbonates remain a mainstay of the research of his group that includes **Andrea Dutton, Donna Surge, and Laura Holladay**. An example of this type of study is the recent work on Antarctic scallops that record seasonal to decadal scale changes in the surface water salinities of coastal waters. In effect, this variation reflects changes in the input of glacial meltwater in response to warming of the Antarctic continent. Such studies offer a unique opportunity to reconstruct the temperature record of Antarctica, a region on Earth where few data exist, on a sub-annual scale, over the last century. Bruce and Kacey are in the early stages of planning next year's field trip, Ann Arbor to West Texas. Stay tuned for the detailed itinerary and newsletter article.

News from Camp Davis is that **Chuck Wooden** has been having a great time watching, supervising, and helping with the construction of the new Dorr-Kelly classroom, laboratory, and computer building. In addition to new classroom building, a new well is being drilled to accommodate the increasing needs (and decreasing supply) of water. This is requiring complete renovation of the piping and addition of pressure tanks and pumps. With this new system, it will be difficult for students to justify their water conservation activities in the shower rooms. Upon christening of Dorr-Kelly Hall, a new plaque will announce to present and future campers the significance of this latest addition to Camp Davis.



John A. Dorr

This facility is dedicated to John A. Dorr, Jr. (Professor, 1952-85) and William C. Kelly (Professor, 1956-94), two rugged and unforgottable individuals whose lives were devoted to understanding the Earth, to students of the geological sciences, and unquestionably and tirelessly to the University of Michigan. May students, faculty, staff and visitors continue to enjoy Camp Davis as a unique educational resource of a remarkable University.

Go Blue!

**John, Molly, and Thomas Gelsman
(with special thanks to Aunt Pat)**

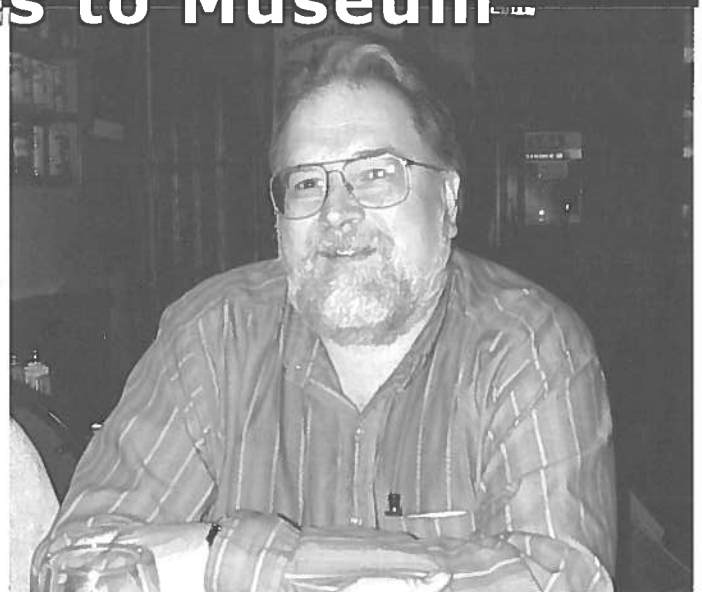
July 2, 2001



William C. Kelly

Scott Baird Moves to Museum

After over 23 years of service dedicated to the Department as an electronic and computer specialist, Scott Baird recently left our department to join the University's IT Computer Support Group. Scott has been a valuable member of our staff, helping students and faculty with problems ranging from electronic troubleshooting and repairs to more recent tasks of keeping computers humming and productive. His new duties focus entirely on computer support for the Museums complex. We in the Department will truly miss the daily interaction and wish him a productive and pleasurable life in his new career. Thanks, Scott!



Spring Banquet 2001



The Annual Spring Banquet was again sponsored by the Departmental Geology Club, now comprising the joint membership of both the undergraduate and graduate students. This year the banquet was held at Romanoff's, a local reception hall typically used for wedding receptions. Unfortunately our traditional setting, the *Schwaben Hall*, where a potluck dinner format was the typical fare, has been closed indefinitely. In its place, Romanoff's provided a complete meal of roast beef, chicken, potatoes, and a few unrecognizable entrees that were consumed nonetheless. The cast of attendees ranged from a full complement of undergraduates and graduates to about two-thirds of the faculty.

Following dinner, the newly initiated graduate and undergraduate awards were presented by Joel Blum (see Awards and Honors column) and followed immediately by numerous skits and performances. This year the students had musical performances including bagpipe, rock band, and vocal entrees. The faculty managed to pull one together as well, even though it required that an entire faculty meeting be dedicated to this purpose. With drink and song all were entertained until closing—a late, after midnight departure.

One of the more innovative skits this year was an animated performance by **Doug Boyer** and **Chris Clafin**. With the absence of **Don Peacor** at the banquet, Chris Clafin imitated the style of Don, both in appearance and stature as Doug Boyer sang "I am the Very Model of a Famous Mineralogist". We share some of the words of this song and a picture of *Don* to aid your appreciation of the moment.

I am the Very Model of a Famous Mineralogist Words by Doug Boyer

Original score by Sir Arthur Sullivan, Libretto by Sir William Schwenck Gilbert from *Pirates of Penzance*, "I am the very model of modern Major-General"

*I am the very model of a modern mineralogist
I've knowledge of silicates, their crystal structure and optics
Of the four thousand minerals I know their crystal lattices
'Cause I've discovered most myself using X-ray analysis.*

*I'm very well acquainted too with smectite diagenesis
It alters into illite, yes I know quite a lot of this.
About Bancroft, Canada I'm teeming with a lot of news.
More marble, skarn and sodalite than anyone could ever use!
I'm very good at integral and differential calculus
In my head I calculate statistical significance
In short in matters phylliceous, crystal structures and optics
I am the very model of a modern mineralogist!*

*In economic mineralogy, no one could compare to me
But by and by I tired of this and came to University
My research pioneered the field, with the Essene and Van der Voo
Now I pass my wisdom on by teaching several classes too!*

*When I was in my prime I loved scientific community
I made a point of going to Turner lectures religiously
I thrived on all new research and I thought about it critically
But finally I learned so much it all was elementary*

*My evenings are much better with a fishing pole than filet
knife
In Grayling with my dog Crystal and Dorothy, my lovely
wife
My genius son he visits us, you know he has two Ph.D.s
His degrees are in the fields Physics and Ecology*

*Looking back on my career I'm sure that I have done it right.
Of course my crowning achievement is the naming of
donpeacorite!*

Cast of Characters



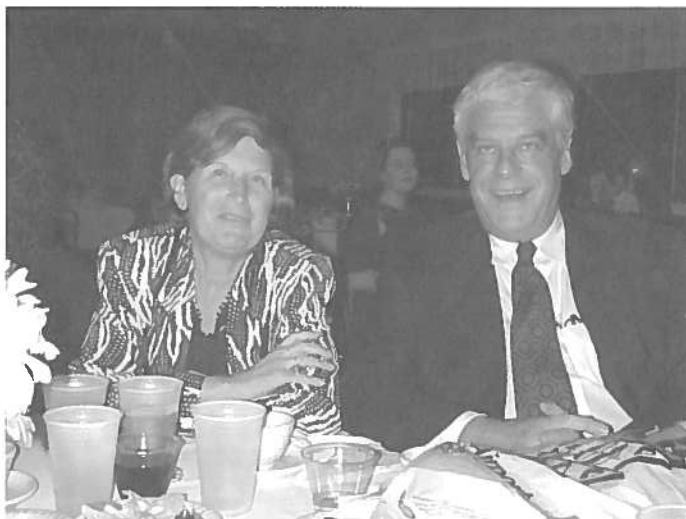
Students dig into desserts, cakes and fruits after a filling dinner of roast beef and potatoes. From left to right, Marie Harrison, Eric Tohver, Forrest Gahn and his wife).



Phil Gingerich, continuing as the Director of the Museum of Paleontology, and Holly (above) and Tanja and Rob Van der Voo (below) represent only a sampling of the faculty attendees at the banquet. Do you think all of those empty glasses on the table might be contributing to Rob's beaming smile?



Lars Stixrude (Mineral Physics) and Carolina Lithgow-Bertelloni (Geophysics) set the standard for fashion and formal dress.



The End. Chris Claflin (left) reviews mineral names prior to his driving home just in case he encounters an Officer of the Law that has taken a Geology course at Michigan. Fortunately, Brandon McElroy (right) was not the designated driver for the evening.



Chris Palenik and Tina Johnson, both graduate students, epitomize the level of joviality among students and staff throughout the event.



Field Trip Spring 2001

The annual Spring Field Trip journeyed from Ann Arbor to the farthest reaches of the Florida Keys over a two week period. This year was the biggest trip taken to date: 3 faculty (Bruce, Carola Stearns, and Kacey), 4 postdocs, and 38 students split equally between graduates and undergraduates. This field trip was supported by a generous endowment provided by an anonymous donor and by a grant from CONOCO.

We began our trip with numerous stops in the Paleozoic limestones of Indiana and proceeded southward through carbonate and clastic sequences exposed around Louisville, Kentucky. These included the richly fossiliferous carbonate rocks of the Cincinnati Series and upper Paleozoic fluvial-deltaic clastics. Then, moving eastward into the Valley and Ridge province of Appalachians, the trip focused on the sedimentologic and structural evolution of this region, coming to rest in the Mascot-Jefferson City mining district of eastern Tennessee. After a full day of exploration, and an evening camping in the Smokies, we descended from the Blue Ridge through the Piedmont to the gentle slopes of the Coastal Plain sequences. Finally, we approach Florida and get our first scent of the ocean.



Students examining outcrops of Cambrian carbonates near Douglas Dam, Jefferson City, Tennessee.



Laura Holladay and Peter Kaplan celebrate their finds of sharks' teeth and a diamond ring in Venice, Florida.

In the area of northern Florida, we were guided with the assistance of Roger Portell (Florida Museum of Natural History) to spectacular quarries containing the foraminifer and mollusk-rich Tertiary limestones. In this region, these units were extensively karstified during the Pleistocene with the development of impressive solution fissures filled with mammalian remains. Turtle, sloth, and horse bones were among the many vertebrate fossils found by students. As the caravan moved southward on the western side of Florida, a brief diversion to the beaches at Venice provided an opportunity to collect sharks' teeth eroded from the Miocene Hawthorne Fm. While searching for treasures, one paleontology PhD student, Peter Kaplan, claimed to have found a diamond ring amongst the fragments of shell and teeth. Seizing this opportunity, he proposed to Laura Holladay and formalized their engagement for marriage.

Still heading south, the caravan proceeded to the Rookery Bay Estuarine Preserve (the research area of **Donna Surge**, a recent PhD) and camped nearby where everyone donated a pint of blood during our out first introduction to Florida mosquitoes. Then on toward the Everglades, with frequent stops at roadside outcrops of Pleistocene limestones with excellent exposures of karst structures, mangrove swamps, and shallow subtidal carbonates of Florida Bay. Unlike previous years when the group camped at Flamingo and were devoured by insects, the group drove on through local wildfires bounding both sides of the highway to reach Key Largo for camping late in the evening.

The remainder of the trip focused entirely on the environments of carbonate deposition that are present along the entire extent of the Keys. On the first day in the Keys, five boats were rented to explore areas of the shallow subtidal surrounding Florida Bay. This excursion met with a slight delay when a speeding boat with spinning blue lights and carrying an Officer of the Law, informed the group that they had inadvertently motored into a restricted area designated for habitat renewal. After a polite, though extended conversation (and official warnings to the boat captains) the group snorkeled amongst stinging jellyfish to examine the biotic communities



Kacey Lohmann lectures to the group during an overview stop near Florida Bay at Everglades National Park.

comprising the *Carbonate Factory*. The second day, with bodies still suffering from extreme sun exposure from the first boat trip, the group trekked southward through the Keys examining exposures of the Key Largo Limestone on Windley Key, and coastal settings of rocky intertidal and peritidal environments. The day ended with a view of the sunset at the harbor of Key West.

The final and most spectacular day on the Keys was the trip to the reef. With 45 folks crowded on a charter boat, the group quickly recognized the thrills of riding the waves. High winds had produced a chop of 4-5 foot waves on the seaward side of the reef trend that tested the resolve of those susceptible to the circular orbital motion of waves. Despite the seemingly hostile weather, after snorkeling at four locations everyone appreciated the magnificence, beauty and fragility of the reef system. Exhausted from a half day on the reef, the crew returned to a final camp feast of 35 pounds of black grouper. We slept, then drove again, this time to Ann Arbor.



Undergraduate major Jill VanTongren examines the Ocala Limestone at Hale Quarry in northern Florida.



Senior undergraduates Mark Erman (smiling) and Ann Hoenke (concentrating) examine an outcrop of the Saluda Formation, outside of Bloomington, Indiana.



Though cold and shaken by four foot ocean waves at the reef front, undergraduates Demmy Spounias and Tracy Kolb keep their smiles after snorkeling at Pennkamp State Park.



Bruce Wilkinson, Hannah Arkin, Marcy Palmer, and Jill VanTongren (left to right) prepare for the boat trip to Key Largo Dry Rocks reef.



As students search for fish and shark teeth, Bruce Wilkinson examines the distribution of grain sizes on the beach at Venice.

Undergraduate Cody Bahlau examines carbonate muds off the coast of Key Largo amongst mangroves as Mark Erman avoids swimming with the stinging jellyfish.



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Name

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