

WINTER 2006



# geosciences

AT VIRGINIA TECH

## *Magazine*

Twenty Years of Summer Field Camp  
1965 to 1984

Fall 2005 Alumni Dinner

A Writer for the Ages: F. Donald Bloss

*Seismic Characterization of the San  
Andreas Fault Zone*

Virginia  
Tech  
1872  
VIRGINIA POLYTECHNIC INSTITUTE  
AND STATE UNIVERSITY





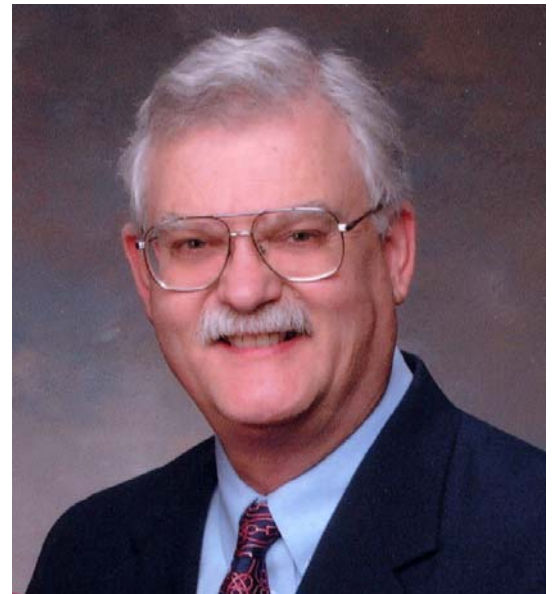
# *Message From The Chair*

## Changes . . .

*by Robert Tracy, Chair*

The last Message from the Chair, in the spring/summer issue of the Department of Geosciences Alumni Magazine, was written by Don Rimstidt, then in his first year as chair. Late last summer, Don decided for personal reasons to step down, and I took over from him as he had taken over for Bob Bodnar when Bob assumed leadership of a major university research initiative in the fall of 2004 after only a few months as chair. So I am the fourth Geosciences chair (after Cahit Çoruh, Bob Bodnar and Don Rimstidt) since June of 2004! Hopefully, we will reestablish a more typical long-term equilibrium in the chair's office over the next few years. I gratefully acknowledge the significant contributions of these three individuals to the department's leadership structure and organization that I have inherited. This most recent transition in the chairmanship was very smooth, indeed, and most of the credit goes to my predecessors who have created an outstanding and enduring leadership tradition that I hope to continue.

As I begin my term as chair, the Department of Geosciences is about to embark upon a very exciting and challenging path. Both the university and the College of Science are developing strategic plans that will carry us through 2012, and our department has simultaneously created two ambitious new strategic initiatives that we hope will take us to a near-doubling of our faculty size (from 18 to 35) over the same time period. We also plan to grow our graduate student body from 65 to about 100. The two research initiatives are in the areas of crustal and upper mantle evolution and deformation (we call this initiative Rheodynamics) and in Earth Systems History and Processes, including paleoceanography, geobiology, global water cycles, paleoclimatology and global climate change. We anticipate strong teaching and research linkages of our new faculty with existing faculty in this department and in other departments and colleges at Virginia Tech who are involved in related activities. Such increased collaboration fits well into the university's new strategic plan, and promotes focused research collaborations.



In addition to this ambitious departmental expansion and renewal, we also anticipate the opportunity to occupy a new building within a few years. Venerable Derring Hall has given 40-plus years of service, but it is becoming increasingly dated and sub-par as research space. Our department is now near the top of the university's list in the annual request to the legislature for capital construction funds. If all goes well, we will soon be talking to architects about the design of a new state-of-the-art research and teaching facility of 100,000 square feet that will be designed to house the enlarged department, its faculty, staff, laboratories, students and classrooms. Last but not least, we plan the centerpiece of the new building to be an expanded Geosciences Museum that will be not only a striking display space for geological materials, but more importantly a center for the educational and outreach activities that fit our land-grant university mission.

We recognize the significant challenges that lie ahead in the next few years in fulfilling our ambitious plans for expansion and our reach for increased excellence and top ranking among research-university Geosciences departments in the United States. I now challenge you, our loyal alumni and friends, to assist us in this effort. More than ever before, both the university and the Department of Geosciences need your support to achieve the educational excellence and research preeminence of which we are capable. As we implement our expansion and building plans in Geosciences over the next few years, we will alert you in detail to the multitude of opportunities you will have for being a key part of our future. Stay tuned for exciting news and updates!

# DEPARTMENT OF Geosciences

## AT VIRGINIA TECH

### *Magazine*

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## Winter 2006

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For forty years, Virginia's Tech geology summer field camp provided generations of Hokies with outstanding training. Retired professors Fred Webb and Jim Craig recall the glory days from Saltville.

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Department members and a number of alumni honored Lynn Glover and Don Bloss during a memorable evening at the recently opened Inn at Virginia Tech and Skelton Conference Center.

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*Cover: A classic dip slope of mud-cracked Ordovician Moccasin Formation near Gate City, Virginia, was studied by this group of 1971 Virginia Tech geology summer field camp students soon after the US 58 roadcut was completed. By 2005, gravity, weather, and collecting had seriously removed most of the outcrop. See story on page 6.*



# A Writer for the Ages: F. Donald Bloss

by Michael F. Hochella, Jr.

**I**t was in the middle of the great depression, and immigrant families in big cities were doing their best to hang on. This was a time of self-preservation, making do with

whatever one had at hand which was very, very little, and a will to make it from day to day. For one 12-year-old schoolboy in North Chicago, it was a time of dreaming about the adventures of Huckleberry Finn. Donald Bloss was sure that he could build a raft and float it all the way down to New Orleans. Of course, young Donald had thoroughly studied how it could be done, from Twain's imagination directly to his - and why not? With four German immigrant grandparents, a blue collar father who had to finish high

school at night so that he could work during the day, a devoted mother who went to work full-time after sixth grade, and his parents' deep conviction of a solid education for their children, this young man was going to beat the world. With his poetry, written in grammar school yet read over Chicago radio and printed in the Chicago Daily News, and near-perfect grades to back him up, he proudly accepted a scholarship to attend the elite University of Chicago as an English major. In the first quarter of 1939, he heard a lecture by the legendary J. Harlen Bretz, the first correct interpreter of the scablands of eastern Washington as remnants of ancient cataclysmic floods. Although having no previous interest in geology, and yet with a passion for writing still at his core, Don turned to science. Therein was the birth of what was to become one of the best and most versatile writers in the history of Virginia Tech, and the one who will forever be remembered as the world's best writer in his specialty, optical mineralogy.

I visited Don, 85 years young, in early November at his home on Forest Hill Drive in Blacksburg. He greeted me at the

door, and I walked in to find Louise, his dear wife of nearly 60 years, finishing a crossword puzzle. After a lovely three-way discussion of our respective children, Don and I retired to his study.

Papers and books covered all available horizontal space, but I couldn't help notice what seemed to be a somewhat tattered manuscript with yellow "stickies" unceremoniously extending out in various places. I picked up this inch thick stack of goodness-knows-how-many-carefully-crafted words, and . . . oh . . . right . . . it's Don's latest book, a biography of Mark Twain. Mark



Don Bloss and his dog, Alfie, Spring 1975

Twain??! Unbelievable. Let's see, with ten books already to his credit, including three legendary science books on optical mineralogy (1961), crystallography and crystal chemistry (1971), and the spindle stage (1981), plus numerous books on chess, Don has written a physical geology textbook, a mystery novel, and now a book about the life and times of Mark Twain, all in his "retirement." In the forward of this latest book, Louis J. Budd, Duke University renowned Twain scholar notes that Don "enthusiastically as well as insightfully, recreates Twain for us thematically, recovering linkages between widely separated texts while convincing us that some of the most interesting passages are also the most entertaining." So I asked Don the obvious "why" question, expecting a long, deep, philosophical answer, which I didn't get. "I enjoy writing. Even people to whom I am not related want to read my annual Christmas letter!" Is this Twain humor or what?! "I like to amuse people," he also offered with a grin and chuckle. More insight followed. "When I write science, it is not so it can be understood; I'm writing so it can't be misunderstood." Now that I can personally relate to, having taken his grand optical min-



eralogy course in the mid-1970s when I was an undergraduate at VPI. His optics book was razor sharp, every word trim and perfect, every concept precisely explained. Any chance of misinterpretation, unfortunately for us, was the reader's fault. The author had complete control over the subtleties of a very difficult subject to visualize and explain. I'll never forget going into his office 30 years ago after seeing my final grade posted on his door, and saying, "Dr. Bloss, I just wanted to let you know that I am proud to have earned a B in your class. I worked very hard and I am deeply satisfied." I was not being the least bit sarcastic. I was an A student who was genuinely honored to get a B from this scholar. The students of Socrates must have felt the same way, more or less.

Don ended up receiving all three of his degrees from the University of Chicago, finishing with his Ph.D. in 1951 after losing three academic years to his military service during World War II. But it was also during the Great War that he met Louise while attending a special training school at the University of Kentucky where she was a first year student. Clearly the love of his life, Louise has been "the best thing that ever happened to me," and "the wind beneath my wings." Along with their three daughters, the Bloss family is as happy and connected as a family can be. This base, by Don's own admission, allowed him to do what he accomplished in academics, which of course is now legendary. He held professorships first at the Univer-



**Louise and Don Bloss, April 1946**



**Louise and Don Bloss, October 2005**

sity of Tennessee, then Southern Illinois University, and finally at Virginia Tech starting in 1967. In 1973, Don was appointed to be Tech's first Alumni Distinguished Professor, a University-honored position he held for 20 years. He was editor-in-chief of the *American Mineralogist* from 1972 through 1975, and was elected President of the Mineralogical Society of America in 1977. His awards include top state scientific prizes from Illinois and New York, and the first Caswell Silver Distinguished Visiting Professor Chair at the University of New Mexico. In 1987, the mineral blossite, a copper vanadium oxide, was named in his honor.

In 1992, the late Walter McCrone, dean of the world's forensic scientists, wrote: "No one, this century, has done more than Don Bloss for optical crystallography and mineralogy" (*The Microscope*, v. 40, first quarter, 1992).

As I said my good-byes to Don and Louise that day, I walked up the leaf-covered lane back to my car in the bright sunshine. I remember feeling humbled, and at the same time deeply enriched, that I could sit in the master writer's study where so much had been created over the years. The unique combination of Don's intellect, his passion, and his humor and kindness created what his proud parents had always hoped for him, a long life of remarkable creativity. I have always been grateful to have shared just a bit of that.



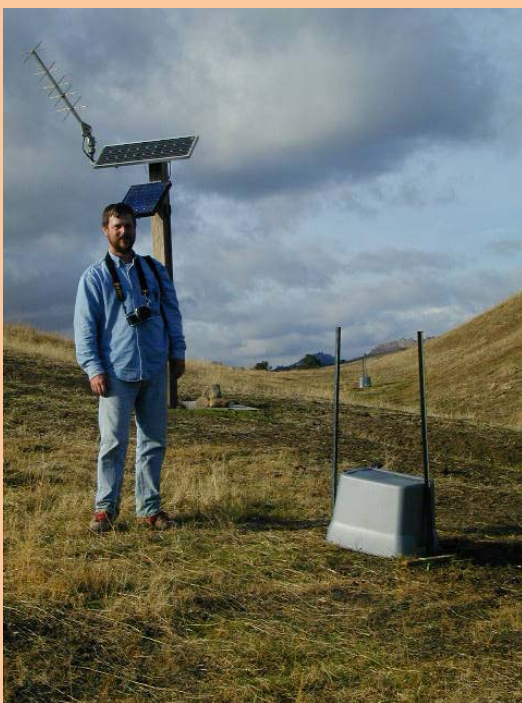
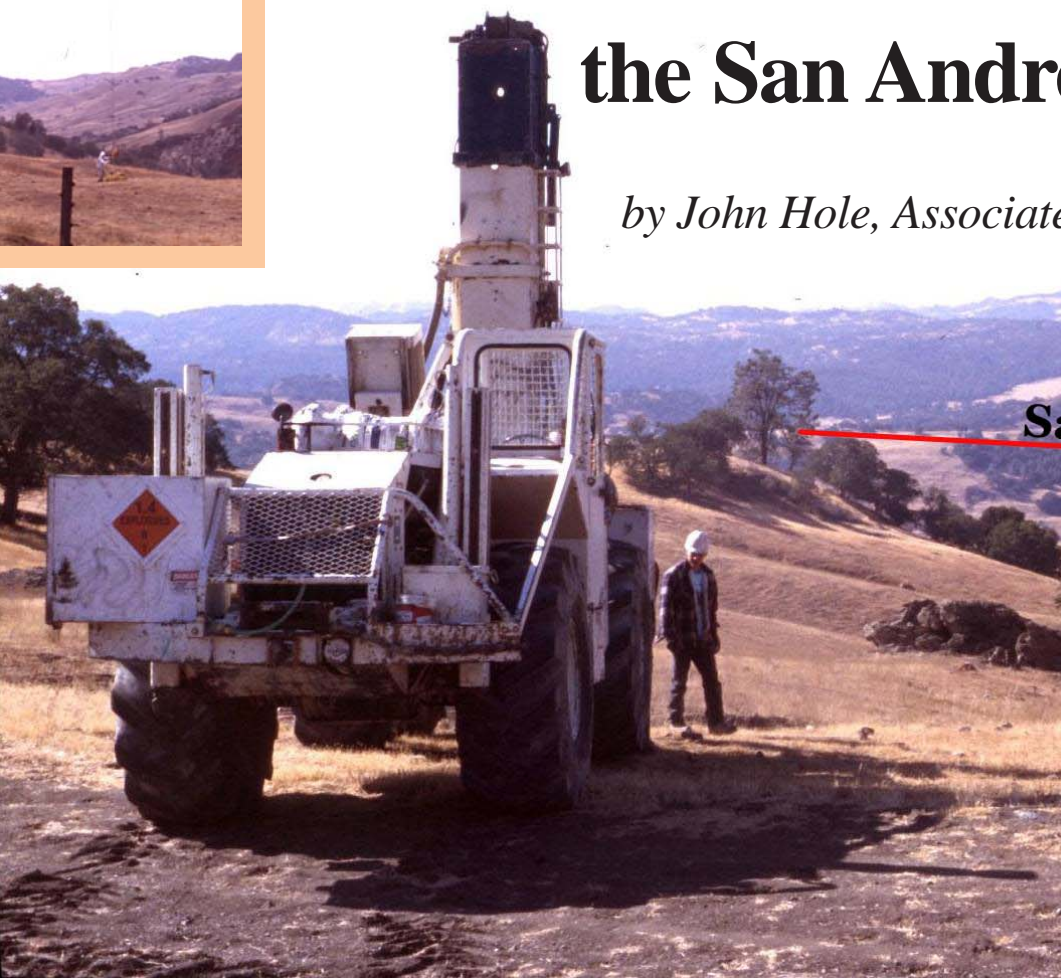


## Research

# Seismic Characterization of the San Andreas Fault Zone

*by John Hole, Associate Professor of Geophysics*

**San Andreas Fault**







**Looking along fence that crosses the San Andreas fault (near foreground) and is offset ~1.5 m.**

The San Andreas Fault takes up most of the motion between the North America and Pacific tectonic plates. It is the largest player in a system of faults that create a high earthquake hazard in California. Substantial progress has been made in understanding the physics of earthquakes by studying ground shaking, surface deformation, exposed faults, and computer and lab simulations. However, advances have been limited by a simple problem: the earthquake process occurs under conditions deep within the earth.

The San Andreas Fault Observatory at Depth, or SAFOD, project will drill a borehole through the fault at depth to acquire geological, fluid, physical, and chemical measurements *in situ* through the earthquake stick-slip cycle. SAFOD is part of the EarthScope initiative ([www.earthscope.org](http://www.earthscope.org)) funded by the National Science Foundation, with the U. S. Geological Survey as an active partner. The SAFOD site is in the coastal mountains of

central California, about half-way between San Francisco and Los Angeles, near the village of Parkfield and the oilfields of Coalinga.

To support drilling, a comprehensive site characterization is being carried out. As part of this effort, my group and I are leading the seismic reflection and refraction investigations at the site. Virginia Tech participated in acquisition of a USGS-led 5-km long seismic survey in 1998 and then partnered with Geoforschungszentrum Potsdam to lead acquisition of a 46-km line in 2003. Virginia Tech students and postdocs who have worked with these data sets or visited the site over the past several years include B. J. Carney, K. C. St. Clair, Stephanie Nowak, Jake Beale, Arvind Sharma, and Florian Bleibinhaus.

There are similarities and differences between SAFOD and petroleum industry drilling projects. For both, detailed site characterization is essential and seismic is the best tool. However, the SAFOD site was chosen based upon the goal of penetrating a relatively shallow, magnitude two earthquake that repeats on regular intervals, and thus earthquake seismology has led the site characterization. Recording the shots of our reflection surveys on earthquake networks and down-hole arrays has been critical to refining models of the target earthquake. However, only exploration seismology can approach the spatial resolution of the geology that is required for a drilling project.

Another difference is that the geology at the site consists of sedimentary rocks that have been pervasively folded in a subduc-

tion zone or faulted in the transform plate boundary so that they no longer are strongly layered or reflective for seismics. These rocks overlie granitic rocks on one side of the fault. This geology means that seismic exploration must use non-standard techniques to produce images of the fault zone.

First, the use of very long source-receiver offsets has allowed detailed velocity models to be created from first arriving continuously refracted energy. Second, fault zones can reflect seismic energy due to velocity contrasts across the fault and due to brecciation and fracturing within a broader fault zone. However, strike-slip faults are near vertical and seismic reflection is normally designed for shallow dips. Using prestack migration techniques adopted from industry, our Virginia Tech group has produced the first-ever images that include an active fault as a near-vertical reflector. The San Andreas and some nearby faults have been imaged at depth. The geometry and interactions between at least two active fault strands, other major historic faults, and the juxtaposition of strong rheologic contrasts will all play an important role in understanding stress observed in the borehole, a critical goal of SAFOD. Third, we are using the cutting-edge technology of waveform inversion to significantly improve the spatial resolution of the velocity models as compared to traveltime analysis. Waveform tomography has the potential to obtain, through seismic velocity, information about lithology and fracturing at a scale approaching seismic reflection. We are an "early adopter" of this technology, which is currently garnering much attention in industry.

In 2004 and 2005, SAFOD drilled vertically to ~1.5 km depth below a site 1.8 km from the surface trace of the San Andreas Fault. Drilling then turned at an angle to intersect the fault at ~2.9 km depth. Logging and monitoring is currently underway, and an active fault has been identified in the borehole. Cores from across the fault zone will be obtained in 2007 by drilling from the side of the main hole. The facility will then be set up for long-term monitoring of fluids, stress, earthquakes, and strain through multiple magnitude-2 earthquake cycles.

Results of the 1998 seismic survey successfully predicted depth to granite and resulted in minor movement of the drill site to avoid underlying faulting. Results of the 2003 survey contributed to planning the drill trajectory in 2004 and 2005, and ongoing work is mapping the fault system at depth. I am now leading a team which is currently attempting to raise funds to acquire large-scale 3-D seismic.

SAFOD promises fundamental advances in understanding earthquake physics through *in situ* observation of the process. We are excited that Virginia Tech is playing a key role by characterizing the subsurface geology and fault structure to put the down-hole observations into local and regional context.

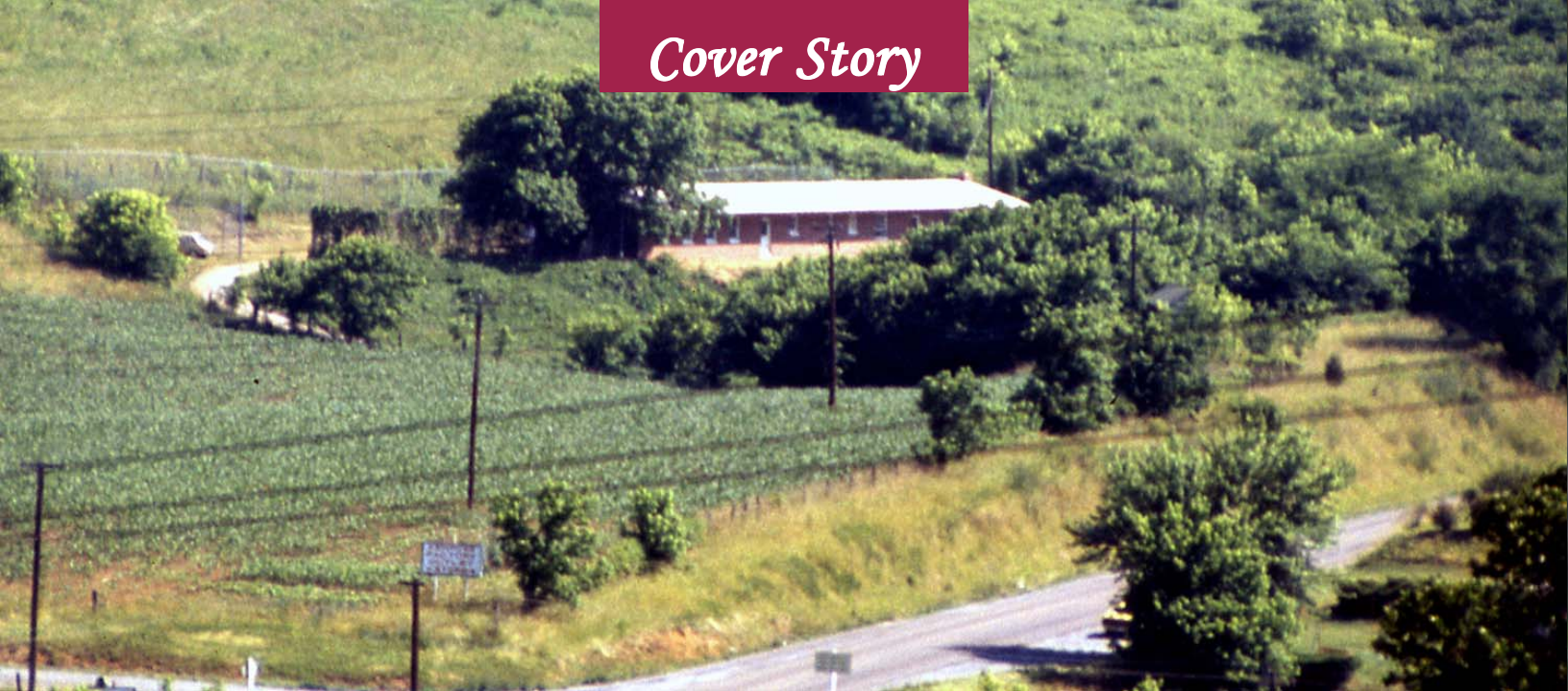


**John and a tarantula, a spider indigenous to the area.**

**Opposite Page - Clockwise: Helicopter picking up bag of equipment during 2003 survey; Buggy-mounted drill rig used for 2003 survey; 3-component digital seismometers, and helicopter drop bags containing seismographs queued for deployment; Parkfield water tower; 2003 seismic station (telemetered recorder for 6 cabled stations), view is along seismic line; John stands in small gully on San Andreas Fault. (Photo Credit : Simon Klemperer.)**







# Virginia Tech's Geology Summer Field Camp 1965 to 1984

*by Fred Webb and Jim Craig*

**Editor's note:** For 40 years, between 1946 and 1986, Virginia Tech's geology field station in Saltville, Virginia, was a thriving summer enterprise. Dr. Fred Webb, who completed his Ph.D. at Virginia Tech in 1965, taught the summer field course there for the next 20 years. Dr. Webb's principal position was as Professor of Geology at Appalachian State University for 36 years. He retired in 2004. Dr. Jim Craig, Emeritus Professor of Geological Sciences at Virginia Tech, teamed up with Dr. Webb from 1971 to 1974.

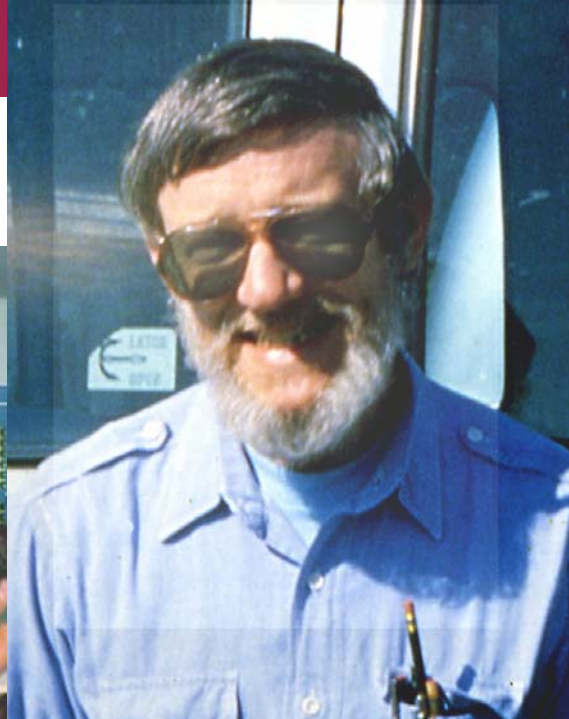
Many hundreds of Virginia Tech geological sciences alumni went to field camp at Saltville, the majority taught by Fred Webb. But many alumni were also taught by Jim Craig and others. These included Byron Cooper, who convinced the Olin Corporation to build a permanent facility in 1956 – the brick building that stands today, as well as Jack Redden, Rosie Sears, Jake Tillman, Lynn Glover, and others. Whether you attended the camp or not, the recollections and tales told here by Drs. Webb and Craig should bring back fond (and maybe not so fond!) memories of your times as a student in the field. We welcome your letters about your field camp experiences, some of which will be published in future issues of this magazine.

When I (Fred Webb) inherited teaching the Saltville geology summer field camp course from Jack Redden in 1965, no one realized that big changes in the program were about to occur. The big changes included the arrival of women – the very first female geology student at the camp, as well as my wife Barbara as the cook, and our two daughters (Jennie, 7, and Ann, 4 [both would later cook at camp]). For the next 20 years, there was never a year when there was not at least one woman in camp as student, cook or instructor.

Having received my Ph.D. a few days before field camp started that year, I had sparse instructions from Dr. Byron Cooper, head of Geological Sciences, other than to “work students hard and feed them well.” Dr. Cooper sent Tech faculty members, Dr. C.G. “Jake” Tillman and Dr. C.E. “Rosie” Sears, to Saltville for a week each to help.

Locations of field project areas changed during the 20 years as we mapped in Rich Valley along strike from the southwest end of Walker Mountain across the width of Smyth County, northeast toward the crossroads of Nebo. Additionally, there were short structural and stratigraphic exercises all the way from Pine Mountain, Kentucky, to Linville Gorge, North Carolina. We added a week of crystalline rock mapping in the Mt. Rogers National Recreation Area in 1977, and day-long solo mapping final field exams started in the late 1970s. Our approach was purposely low tech as even aerial photographs were infrequently used. Plane table mapping ceased after 1975. The curriculum stressed accurate data collection, accurate and legible record-





ing of data, and professional quality data representation (*i.e.*, geologic maps, sections, and diagrams).

Although it was not mandatory for Tech students to enroll in the Saltville field course, starting in the 1970s, nearly 400 (ca. 15 percent female) students attended during my two decades there. In addition, at least 70 students from more than 30 other universities participated during the 1970s and 1980s. Infusion of students from diverse backgrounds was beneficial as it helped “us see how we stacked up against the competition” and brought new ideas and approaches from their universities. We especially benefited from the presence of students from Rensselaer Polytechnic Institute in New York and Carleton College in Minnesota.

By 1976, demand for spaces in the camp exceeded capacity of the facility to accept every applicant. Consequently, a second session was added with Dr. Lynn Glover as professor for the first few years and adjunct faculty from Yale, Washington & Lee, and Old Dominion University in other years. The physical layout of the building made it possible to adequately accommodate 28



**Clockwise: Camp Holden – the Virginia Tech Geology Summer Field Station, Saltville, Virginia; Dr. Jim Craig, Professor Emeritus; Feverish work on finishing field projects consumed many evenings for each class including this group of 1977 students. Bill Koerschner, standing, takes time to see how everyone is doing; Dr. Fred Webb, Jr., M.S. '59, Ph.D. '65; The class of 1967 taking a rest break at Snavelly's Texaco Station at the SW end of Walker Mountain. Left to right – Terry Tucker, Frank Russell Glass, Joe Drumheller, Robert Beckwith, R.E. “Whitt” Wittemore, Jim Rucker, and Joe Ellis; Precambrian Mount Rogers volcanoclastics outcrop on Brier Ridge forms the base upon which the class of 1980 is posed.**





students in the large dorm room and four students in the small room originally used as a staff bedroom adjacent to the lounge/dining room. The staff lived in trailers behind the building starting in 1970.

Food prepared for the students was always great and quantities essentially unlimited. Students found it hard to believe that food served in camp was from the same store rooms that supplied food to dining halls on the Virginia Tech campus. Dr. Glover and his administrative assistant, Marge Dellers, back in Blacksburg, never enforced a strict food budget on us. Consequently, at the end of field camp, most students had gained weight.

After enrollment started regularly exceeding 20, graduate teaching assistants were added to the staff. These young men and women added considerable talent, ideas, and quality of instruction to the program as they brought a variety of backgrounds and had recently been field camp students elsewhere. Additionally, they were more mature and experienced drivers for the second van than the undergraduates who previously had been drivers when I was the only instructor.

In 1965, alcoholic beverages were prohibited at camp. There was no place in Saltville to buy or drink alcohol legally. Beer and wine sales were legalized in the county by 1970. By the mid- and late 70s, we finally permitted the students to have a beer refrigerator in their dorm area. In most instances, students drank responsibly and only occasionally consumed "hard liquor" at night or on weekends. Consumption of alcohol during field work was always forbidden though rarely ever was it necessary to expressly state it. Once I noticed a non-Tech student headed 180 degrees away from the other students entering McDonalds near Marion. When I asked him where he was going, he replied that he was headed to the convenience store across the road to pick up a 6-pack to drink during the day. He was then directed to turn around and head to McDonalds with the rest of the gang.



**The dining hall did double duty as the office where these class of 1973 students worked on their maps and field projects in very close quarters.**

Students employed to wash dishes, help in the kitchen, and do other chores around camp possessed a special gene for character and had to submit to an interview by the head cook, Barbara Webb. They had to be in the kitchen by 6:45 a.m. to help set out breakfast and lunch fixings and also had to show up for dinner to assist cooks in serving and cleaning up afterwards. Sometimes dishes, pots, and pans were not put away and the kitchen cleaned and mopped until nearly 9:00 p.m. Pay was minimum wage, but fringe benefits such as extra ice cream and cake helped lessen the stress.

Snakes were on our minds while moving through heavy field underbrush. The topic almost always came up during camp when we started to map geology off the beaten path. Rattlesnakes preferred den sites among quartzarenite boulders. Copperheads preferred lower elevations with colluvial sandstone blocks. We encountered and killed only a few snakes on Walker Mountain.

Several students reacted to insect stings and others encountered barbed wire fences. We never had broken bones or life-threatening accidents. Illnesses and accidents were rare considering the environment and activities required by field work. Disregarding warnings about drinking water from sources away from field camp, two students contracted a vicious strain of gastrointestinal misery that put them in the hospital for several very difficult days. Their illness was so debilitating that they left camp to recuperate; they finished their last mapping project during vacation at the end of the fall quarter. Sunburn, chiggers, ticks, poison ivy, and stinging nettle were much more common miseries.

Today, most eastern university field camps are extinct. Population growth makes it practically impossible to teach geologic mapping except on public lands. Western U.S. camps with spectacular vistas attract students away and

continued next page



**All work and no play was not our motto. We sometimes were beneficiaries of impromptu concerts by students. This 1977 trio includes Sally Weber, Bob Sykes, and Ron Kreisa (T.A.).**



## From the Beginning: A VPI Geology Major a Century Ago

Imagine you were a geology major in 1906 at Virginia Polytechnic Institute, one hundred years ago this year. You would have had to be male (women would not be admitted until 1921), a member of the Corps of Cadets, and enrolled in the “Scientific Department” as it was called at the time. Within the Scientific Department, you would have requested the “Geology and Mineralogy” curriculum (Chemistry, Physics, and Biology curricula were also offered in the Department). You would have found yourself in a very young and small group which had started just over one year earlier. You would have had two geology professors, Dr. Thomas Watson, founder of the geology program and about to leave for the University of Virginia as State Geologist, and young, just-arrived Dr. Roy Holden for whom a campus building would be named many years later. The single science building, a small structure sited where Shanks Hall now resides in the Upper Quad, had just been severely damaged in a fire a year earlier, but courses and labs were continuing in temporary spaces.

Your first class, General Geology A, would have been taught by Professor Watson (as it turned out the last class he would teach at VPI), with the following description from the 1906 VPI Catalog: “Lectures, recitations, field and laboratory work. General outline of the subject, including dynamics, structural, and historical geology. The indoor laboratory work is confined mainly to the winter season. During the fall and spring, the laboratory period is devoted to field study of geological phenomena near the Institute. Occasionally, longer excursions into the field are made.”

You would have taken the prerequisites of General Geology A the year before, including introductory chemistry, physics, and biology courses. You would have attended Professor Watson’s lectures three times each week, along with one field or laboratory session. Your texts?



**Professor Thomas Watson**

**Editor’s note:** We continue our series of articles celebrating the 100<sup>th</sup> anniversary of the founding of the geology “department,” in the academic year 1904-05. In this article, we describe what it would have been like to be a geology student in 1906.

Scott’s *Introduction to Geology*, along with a pile of reference books, including Dana’s *Manual of Mineralogy*, Geikie’s *Text-book of Geology*, Chamberlin and Salisbury’s *Geology (Processes and their Results)*, and LeConte’s *Elements of Geology*.

This course would have been followed in the next semester by General Geology B, and that followed by seven other courses in subsequent years. These will be among the subjects of future additions of “Centennial Memories.”

continued from previous page

even “outsourcing” to overseas camps is common. The Virginia Tech field camp building and land now belongs to the town of Saltville. It is used for several weeks each summer by nearby universities for work on local Pleistocene fossil digs. If ever near the area, I welcome you to visit Saltville to see the old building on the hillside with a healthy crop of kudzu awaiting what we were called so many years ago, “Rock Pickers!”

### ***Jim Craig remembers how busy and crowded the camp was in 1971***

Byron Cooper’s sudden death on the first day of Spring Quarter, 1971, left our Field Camp in a state of limbo. I had three years of field camp experience at Texas Tech when I joined the VPI faculty in the fall of 1970 and had agreed to work with Fred on running the Field Camp. Because I had visited the camp only once in the summer before with Byron Cooper, my first chore was to find out how to get back to the camp from Blacksburg.

After meeting Fred at Saltville, we discovered that a student worker at the end of the last summer season had sold or given away all of the beds and mattresses. The bunk room was bare! Furthermore, Dr. Cooper had not kept complete written records, so we did not know who, or how many, were intending to come to camp that summer.

By begging, borrowing, and buying old Corps of Cadets bunks and mattresses, we cobbled together enough student sleeping facilities and prepared for students to arrive. Arrival of female students created another dilemma – the women used the only extra room and left no place for my family. Solution to this problem came in the form of a tiny camper that fit in the back of a pickup truck – my wife Lois, our two kids, and I were shoe-horned into it. The final surprise was arrival of several students who had made verbal arrangements with Dr. Cooper. It may have been a bit of survival of the fittest, but somehow everyone made it.

All in all, the 1971-1974 camps were long, busy, instructional, and fun filled. Each year, camp became like a new family; to this day, friendships and memories remain strong.



## *Alumni Dinner*



## **Fall 2005 Faculty-Alumni Dinner**

**L**ast year's Faculty-Alumni dinner was held at the recently finished Inn at Virginia Tech and Skelton Conference Center on September 30, 2005. Lynn Glover and Don Bloss were honored for their remarkable contributions to the Department, the University and their fields of science. Use the key to the right to find the people listed here and pictured above.

- |                    |                     |
|--------------------|---------------------|
| 1. Karen Matheson  | 10. Ping Wang       |
| 2. Gordon Matheson | 11. Fred Read       |
| 3. Francia Presley | 12. Wally Lowry     |
| 4. Bill Presley    | 13. Jerry Gibbs     |
| 5. Nancy Ross      | 14. Don Bloss       |
| 6. Marge Dellers   | 15. Kevin Selkregg  |
| 7. Mickey Gunter   | 16. Debbie Selkregg |
| 8. Paul Ribbe      | 17. Jeff Jeffries   |
| 9. Lynn Glover     | 18. Cecil Cummins   |



# Alumni Dinner



19. Group Photo - Left to Right: (Front Row - sitting) Shu-Chun Su, Mike Hochella, Lynn Glover, Bill Presley, Fred Webb, Jeff Jeffries, (back row - standing): John Chermak, Nancy Ross, Kevin Selkregg, Mickey Gunter, Bob Baird, Patricia Dove, Martin Chapman, Lee Perren, Ping Wang, Gordon Matheson, Steve Grimsley and Anna Balog-Szabo





## '70s

**Mike Spangler (B.S. '70)** spent 29 years working in the oil industry as an exploration geologist. A significant portion of that time was in international exploration. He retired from ConocoPhillips on December 1, 2002, after living in Oklahoma, Louisiana, Indonesia, Egypt, and Texas. Upon retirement, Mike became a Master Gardener, and was the coordinator for the herb gardens at the Harris County Extension Center in west Houston. After years in elementary education, Mike's wife, Nancy, became active in the Audubon Society's education program.

Mike writes, "We have finally decided to retire in Grand Junction, Colorado. We have purchased a lot there and will be moving into a rental house while we have a house built. It will take about eight months for it to be completed." E-mail: [Spanglermn@aol.com](mailto:Spanglermn@aol.com)

**Scott Hughes (B.S. '72)** stopped by the office this summer to say "Hi" and hopes to see some of you one of these days. Scott is Chair of the Department of Geology at Idaho State University. He received an outstanding researcher award based on his geochemical work on lunar mare basalts and volcanic glasses and basalts of the Snake River Plain.

**Jeffrey T. Crate (B.S. '73)** holds registered professional geologist certifications from Virginia, Tennessee, Kentucky, and now North Carolina.

**Skip Lemanski (B.S. '79)** just returned to Houston after five years in Cairo, Egypt, with BP.

## '80s

**Christopher P. Ross (B.S. '82)** writes, "I have established my own consulting company, Cross Quantitative Interpretation, LP, performing quantitative interpretation on either a project-by-project basis, or on retainer for domestic and international clients. AVO modeling and analysis, acoustic impedance inversions, and multi-attribute inversion with an emphasis on reservoir characterization are the focus of the new company. With the advent of newer, cost-effective technologies, I am now working out of my home in the beautiful Texas hill country, roughly four hours from Houston (an hour northwest of San Antonio) in the town of Ingram. While my clients are all in the oil centers around the world, the newer technologies now allow me to work with clients as if 'I am right next door!' I can be contacted at [cross@crossqi.com](mailto:cross@crossqi.com) or (830) 367-3645. My new mailing address is Cross QI, P.O. Box 312, Ingram, Texas 78025."

**Linda Quackenbush (B.S. '84)** is a Senior Scientist with DMK Environmental Engineering, Inc. in Salt Lake City, Utah.

## '90s

**Ping Wang (Ph.D. '91)** (see Alumni News Spotlight, next page).

**Andrew Bush (M.S. '99)** graduated with a Ph.D. in June from Harvard, and began working at UConn (Department of Ecology and Evolutionary Biology, The University of Connecticut, 75 N. Eagleville Rd., Unit 3043, Storrs, CT 06269, Phone: 860-486-9359) in September. His position is in both the Department of Ecol-

ogy and Evolutionary Biology and the Center for Integrative Geosciences. He has not started teaching yet, but will teach Paleobiology in the spring. UConn reminds him a lot of Tech, which has been nice. It's similar in size, age, history, and location, so he felt at home pretty quickly.

## '00s

**Robert Weaver (Ph.D. '01)** writes, "Christine and I are enjoying the birth of our son, Tristan Jack, who was born 10/11/05. We are also glad to be back in rural New York, close to family, friends, rocks, trees, hills and trails. In July, I started the position, Senior Research Scientist, in the preformulations department of PAR Pharmaceuticals in Spring Valley, New York. This is a very interesting position in which a wide variety of analytical techniques, crystallography and chemistry are used to investigate drug stability, screen for polymorphs, deformulate products, troubleshoot processing issues and comply with the FDA. Go Hokies."

**David H. Edwards (M.S. '02)** is planning on retiring again after five years of teaching at Concord University in Athens, West Virginia.

**Christopher Belback (B.S. '03)** works as a Wellsite Geologist on oil rigs mostly in the great state of North Dakota. He just got promoted to a lead geologist position. (1730 Lake Elmo Drive, Billings, Montana 59105) E-mail: [christopherbelback@yahoo.com](mailto:christopherbelback@yahoo.com).

**Chelsea McRaven (B.S. '03)** has moved to Bellingham, Washington, and will be serving as an AmeriCorps community service volunteer at

Lyman Elementary School, tutoring K-9th graders in reading, writing and some math for one year.

**Jason Reed (Ph.D. '03)** recently earned an MBA from the University of New Hampshire and moved to Houston, Texas, to begin work in the Gulf of Mexico with BP as an Exploration Geologist. (3210 Louisiana Street #1313, Houston, Texas 77006) E-mail: [jsreed@unh.edu](mailto:jsreed@unh.edu).

**Evelyn Hudson (B.S. '04)** is working for Penn Virginia Oil and Gas Corporation in Kingsport, Tennessee.

**Fang Lin (Ph.D. '05)** has completed her Ph.D. and is working at Chevron Energy Technology Company in Houston, Texas.

**Andrew Madden (Ph.D. '05)** **Megan E. Elwood Madden (Ph.D. '05)** Andy and Megan received their Ph.D.s in May 2005 and they are both working as research scientists in the Environmental Sciences Division of Oak Ridge National Laboratory. Megan received a Wigner Fellowship (one of only seven at the entire lab, making her part of the regular scientific staff) and has been working on gas hydrates and exploring the wide range of research possibilities available at the laboratory. Andy is working in his postdoc position on a geomicrobiology project growing bacteria which may be able to clean up uranium-contaminated soil and groundwater. He's developing other research projects as well. Congratulations Megan and Andy!



### Emin Demirbag (Ph.D. '90) Marriage



From Left: Cahit Çoruh, Emin Demirbag, Sezgin Altay and Aynur Uysal

Cahit Çoruh, Emeritus Professor of Geophysics, informs us that while he was traveling in Turkey this past summer, he received a phone call from Emin Demirbag (Ph.D. '90), his first Ph.D. student. Emin informed him that he was going to get married and asked Cahit to stand as a witness for the official civil ceremony. Cahit writes, "It was an honor and pleasure to witness Emin's marriage. The groom, Emin Demirbag, is now a full professor of geophysics at the Istanbul Technical University (ITU), and the bride, Sezgin Altay, is an assistant professor of mathematics at ITU." The couple married on September 2, 2005, while their Ph.D. advisors, Cahit Çoruh and Aynur Uysal, stood as witnesses for the ceremony, which was held at the Office of the Marriage Hall in the town of Besiktas in Istanbul. More than two hundred guests attended the ceremony. Congratulations to the newlyweds!

### Ping Wang (Ph.D. '91) - Tar Creek Superfund

Ping Wang (Ph.D. '91), who is a Senior Program Manager / Senior Geologist for AATA International, Inc., Fort Collins, Colorado, has been working extensively on the Tar Creek Superfund site in the so called "Tri-State Mining District" (Kansas, Missouri and Oklahoma) where the Mississippi limestones were mineralized with galena and sphalerite. From the 1920s to the 1940s, Pb and Zn from this district accounted for over 25% of the total U.S. production. As a result, there were millions of tons of mine wastes (mostly tailings) generated and left on the surface which directly or indirectly resulted in contaminations of local waters and soils.

Ping is leading a team doing sampling of mine wastes, surface water, groundwater and affected soils. Over 1,500 samples were analyzed and recorded in 2005. Ping is in charge of the entire technical operations of this project. He has two M.S. graduate students from Colorado State University as well as a GIS specialist, a geohydrologist, and several biological experts from his company assisting him. AATA International, Inc. is taking the lead on the project and the U.S. EPA, Department of Interior, Oklahoma Department of Environmental Quality and local Indian tribes are also involved in the project. Ping reports that he has learned a lot from managing and operating this very interesting yet challenging project.



Ping Wang working in the field during the "Site Reconnaissance" in March of last year.



# Museum of Geosciences Wins Best Museum Exhibit Or Is the Museum of Geosciences a Winner? Of "Quartz" It Is!

The Virginia Tech Museum of Geosciences has been an invited exhibitor at the annual Denver Gem and Mineral show for over fifteen years. This event draws over 20,000 rock and mineral lovers through its doors yearly. This year the museum was awarded the *Best Museum Exhibit* by the show's committee members for the display "The Many Faces of Quartz" which highlighted the wide variety and importance of crystal and crystalline forms of quartz in all three geologic environments; sedimentary, igneous, and metamorphic. In addition to the award, the museum was presented a cash prize used to acquire a beautiful rhodochrosite and quartz specimen from the Sweet Home Mine in Alma, Colorado, currently a closed locality.

The exhibit, created by graduate students Cenk Ozerdem and Jennifer Stempien, contains over twenty rock, fossil, and mineral samples chosen to highlight the ubiqui-

tous nature of quartz in geology. This award-winning exhibit, "The Many Faces of Quartz," will be on display in the Museum of Geosciences until February, 2006. For more information and pictures of the Denver Mineral Show visit <http://www.denvermineralshow.com/index.html>.



## Student Awards

### MSA Research Grant



I am pleased to announce that Jason Burt is the recipient of the 2005 Crystallographic Research Grant (otherwise known as the Kraus Award) from the Mineralogical Society of America.

Professor Ross Angel



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