

**STONY BROOK UNIVERSITY**  
**Department of Geosciences**  
**2012 Year in Review**

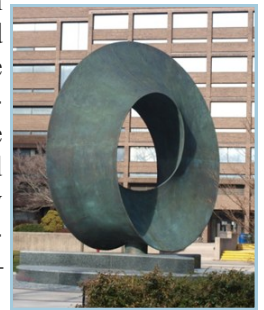


Stony Brook University

## Letter from the Chair



2012 saw the completion of the large renovation project for the interior of the Earth and Space Sciences Building. This was welcomed by members of the Department, all of whom were displaced for varying periods during the project. Final procedures intended to seal the building exterior remain to be completed and await the outcome of the University's insurance claim from the small fire we reported in last year's newsletter. The other large renovation project scheduled to begin in 2012, the complete re-landscaping of the courtyard area in front of the ESS building, has been delayed due to fiscal matters. However, those who visited campus in Fall 2012 may have seen the new *objet d'art* that graces the small courtyard at the corner of ESS facing Physics. A gift from philanthropist Jim Simons to the University, this large and striking geometric form—an umbilic torus—makes a dramatic statement next to ESS (photo right).



Perhaps the biggest news this year was Hurricane Sandy, which ravaged much of the South Shore of Long Island, resulting in widespread power outages across the region. The University campus suffered little damage and power was out only for a matter of hours. The ESS building gained new appreciation among families of many of its inhabitants, as it offered heat, electricity, and hot showers for those left in the dark (some for well over a week). 2012 also saw the closing of the Geosciences Machine Shop. This came with much regret, as the Shop's skilled staff provided dedicated service to many faculty and students of the Department since its creation.

There were several notable honors awarded to Geosciences faculty this past year. Bob Liebermann received the Edward A. Flinn Award at the American Geophysical Union's Annual Fall meeting in San Francisco. Well-deserved by Bob, this award recognizes unselfish cooperation that facilitates activities and creates opportunities for a research community. Tim Glotch was selected to receive a National Science Foundation CAREER Award for his leading research in planetary science. Scott McLennan was chosen by NASA to be a Participating Scientist for the Mars Science Laboratory mission. I would also like to introduce our new Department Administrator, Laura Colucci, who brings experience to the Department that is appreciated by all. This gives me the opportunity to acknowledge (and thank) all the dedicated staff of the Geosciences main office, who have made my job, and those of the faculty, much easier (photo, from left: Owen Evans, Diane Isgro, Laura Colucci, Yvonne Barbour).



The keynote speaker at the Department's May Graduation Ceremony was alumnus Craig Allen (BA '79) (photo at right). Many of us know Craig from his prominent position as Chief Meteorologist for New York radio station WCBS. Craig provided new graduates and their families some entertaining stories of his experiences at Stony Brook. Graduating senior Niya Grozeva received the Oliver Schaeffer Award, which was presented by Ollie's son George Schaeffer (photo below). David E. King Field Work Awards were presented to Terry-Ann Suer and Andrew Kay.



In this issue we again have some of the Department's early history recounted by Emeritus Professor Don Lindsley. While I have received much favorable comment from older alumni about these history articles, the younger generations can rest assured that we are moving in their direction. We also shine the spotlight on faculty member Martin Schoonen, whose research is breaking new ground in the exciting field of medical geology. Troy Rasbury and Gary Hemming tell us more about the new isotope lab, and we hear from recent alumnus Scott Perl, who is currently working on the Mars Science Lab mission at the Jet Propulsion Lab in Pasadena.

The many emails that I have received over the past year have been very gratifying. Please continue to let us know what you're doing now. And plan to visit us this year if at all possible.

-Rich Reeder (rjreeder@stonybrook.edu)

## Starting ESS V: Major Changes (1971 and 1972)

Donald H. Lindsley, Distinguished Professor Emeritus

The 1971-72 academic year was a time of great change in the Department. The ambitions of the marine scientists far outstripped both the available space within the ESS Building and the limitations (from their viewpoint) of Ollie Schaeffer's rule, and they decided to withdraw, forming their own group and moving to "temporary" buildings on south campus. Eventually they became today's strong School of Marine and Atmospheric Sciences—still located in those "surge" buildings.



With the departure of the marine scientists, the ESS Department began evolving towards two semi-autonomous groups: the astronomers (who included planetologists like Toby Owen) and the geoscientists. To be sure, a number of geoscientists actively worked on lunar samples, and of course Bob Dodd continued his work on meteorites, but only Ollie had his feet firmly planted in both camps. Sadly, his dream of a closely integrated, collaborative faculty was slipping away. So great were our cultural differences that GEO and AST even had quite different procedures for the treatment of our graduate students. And although the Department faculty as a whole voted on new faculty hires, we reached a tacit agreement to support whatever candidate the other group chose. That worked reasonably well as long as we agreed ahead of time whose turn it was to hire, for example when replacing a departing member of either group, but the time was not far off when each group would be competing for the same new position.

In the early '70s the Department lacked two support positions that we take for granted today: Assistant to the Chair (ATC) and Director of Labs/Building Manager. Deputy Chairman Pete Palmer fulfilled many of the tasks of the ATC, such as scheduling courses and revising the course catalogs. It would be ten years or so before we were able to hire an ATC. Dave Sutter provided many services of Director of Labs (for example, he was very helpful to new faculty in ordering the materials for our labs), and Bob Dodd helped manage the building. However, Ollie Schaeffer was determined to hire someone for these tasks, and he managed to write a Ph.D. degree into the job requirements. In 1971 we hired Phil Perkins—a fellow grad student of Jeff Levinton and recent Yale Ph.D. in paleobiology—as our first Director of Labs and Building Manager.

In those days the University allowed only the Chairman and Building Manager to have master keys to the ESS Building. One sunny summer Saturday, Jim Papike and I (possibly accompanied by Jack Daniel) were sitting around Jim's pool when the phone rang. There was a fire in an ESS lab—and since they couldn't reach the Building Manager, would Jim please come and let the firemen into the affected room? Smoke was billowing out into the first-floor hallway. Once Jim opened the door (to Jeff Levinton's lab) it became clear that the fire was fortunately restricted to an electric cooler. The cooler was unplugged, and it and its contents were dumped outdoors in the trash. When Phil Perkins returned to the Department on Monday, he was greatly dismayed; "That was Fred!", he wailed. Turns out that Fred was the name he'd given to the African lungfish he'd studied in his doctoral research. One outcome of this incident is that the administration reluctantly allowed all faculty to have master keys.



As of the early '70s, the Department had no women faculty. That nearly changed when another department (it may have been Economics, though I'm not sure) offered to give us a faculty line if we would hire the wife of someone they very much wished to recruit. She was a space scientist, working on the solar wind as I recall. But the joint hires fell through, and it would be quite a few years before Karen Circone joined us as our first female faculty member. To be very blunt, I don't think our faculty was ready for a female colleague back then; to put it kindly, our attitudes were not enlightened. [Here I must point out that at least one of my colleagues from that period disagrees with my assessment of our sexism.] This is getting a bit ahead of the story, but our attitude toward women colleagues didn't change much until the arrival in the Fall of 1974 of a new grad student named Louise Levien (photo left). Louise was happy to learn science from us—but in return she felt compelled to teach us about gender equality. For example, I came from a tradition that the way I treated women was a measure of my worth as a southern gentleman. That tradition required me to open a door and hold it for the lady to pass through first. Louise flatly refused to let me hold a door for her. Indeed, there was a departmental joke that if you were third in line behind Don and Louise at a door—you never got through! After some tense months, Louise and I reached a tacit compromise: she would let me hold a

## Starting ESS V: Major Changes (1971 and 1972)

door open for her if I got there first, as long as I allowed **her** to hold it for **me** if she got there first. Astonishingly, the sky did not fall.

Louise was not confrontational by nature, and I think it was not easy for her to be active in this way. But she persisted, and gradually—like changing the course of the Queen Mary—our attitudes changed. Towards the end of her graduate career, Louise complained to me that the newer women graduate students weren't active feminists. I'm not sure she believed me when I responded, "Louise, that's because you've won." We all owe her a great deal. She remains a good friend of the Department to this day.

Ollie had long wanted to add a geophysics group to the Department. In the late 1960's, he hinted that he was negotiating with a "big-name" geophysicist to join us, but evidently that fell through. In 1970-71, though, he succeeded in luring Neville Carter (photo left) from Yale. Neville joined us in January, 1972, and immediately began setting up a rock-deformation lab in Room 305. Unfortunately, though, a few months later saw the establishment of a student radio station (that eventually became WUSB) broadcasting from the roof of the then new Chemistry building across the way. Room 305 was in the main beam of their antenna, and much of Neville's electronic equipment was overwhelmed by radio-frequency interference. Despite the best efforts of Bill Huebsch and Ben Vitale to overcome this problem, Neville's equipment never performed at full efficiency. I suspect that frustration over this contributed to Neville's departure some years later.



Neville was not the only one with such problems. The rudimentary solid-state electronics of the early '70s was sadly susceptible to RF interference. My experimental petrology lab was directly below Ollie Schaeffer's lab. And while Ollie pioneered the use of laser heating for Ar40/Ar39 dating of tiny lunar samples, he had a huge induction furnace that he used for heating larger samples. The RF signal affected much of my electronics. For example, every time that furnace was turned on, the chart recorder for my x-ray diffractometer zoomed to full scale, loudly complaining that it couldn't go any higher! Fortunately, Ben Vitale was able to design a filter that usually solved that particular problem.

Also joining us in January, 1972, was Rudi Hanny, a structural geologist from Switzerland. For administrative convenience—and to provide some level of balance—he was assigned with Neville to the geophysics group within the GEO faculty.

To the best of my recollection, Neville Carter was the last person our department hired as a Full Professor. From then on—with a very few exceptions—we hired new faculty only at the Assistant Professor level. Our approach could be described as "identify 'em young, choose 'em well, hire 'em, and nurture 'em to home-grown greatness". That policy has served us well to this day, as evidenced by our current stellar faculty.

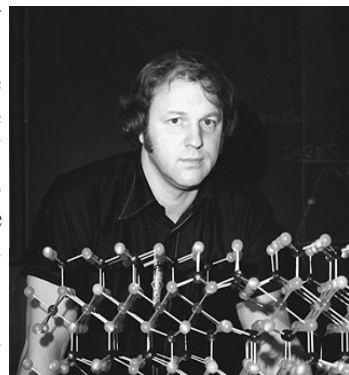
One such hire was that of Don Weidner, a brand-new Ph.D. from MIT, for the Fall of 1972. We didn't know it at the time but his appointment started a trend that eventually helped lead to Stony Brook's pre-eminence in the field of Mineral Physics. I recall that when Don visited for his interview, we took him to dinner at the old Elks Hotel in Port Jefferson. I don't remember very much about the dinner itself, but we must have had a really good time, because one of my neighbors (who was dining with his wife at a nearby table that evening) never spoke to me again.

Still another change was the departure of curator Chuck Buddenhagen in 1972. Chuck's legacy still lives on though, in the form of numerous "Buddenhagen specimens" in our undergraduate teaching labs—rock samples so enormous that no one else could move them! To replace him as curator and lecturer we hired one of our recent M.S. graduates, Steve Englebright. Within a few years Steve had established the Museum of Long Island Natural Sciences on the first floor of the ESS building. Several generations of local schoolchildren visited the museum, and Steve became so well known that he was able to get elected to the Suffolk County Legislature, and later to the New York State Assembly, where he still serves. He is particularly active on educational and environmental issues.

1971-72 was the seventh year of the Department, so founding members Ollie Schaeffer and Bob Dodd were due hard-earned sabbaticals, which they both took at the Max Planck Institut in Heidelberg. Somewhat to the initial dismay of the astronomers, Ollie designated Jim Papike to replace him as Chairman. Jim was not named "Acting Chairman";

## Starting ESS V: Major Changes (1971 and 1972)

he was appointed as Chairman with a **one-year term**—a fact that was to become very significant. Ollie wanted Jim to have maximum clout, for that year was when the NSF Science Development Grant would expire, and it would be up to Jim to insure that the University lived up to its commitment to give state lines to the astronomers who were hired under that grant. It was also the year of the first of many retrenchments in the SUNY system. Jim considered it his greatest accomplishment as Chairman that while the campus as a whole **lost** one faculty position during 1971-72, our Department **gained** four state-line faculty, all astronomers who had been on the Science Development Grant! Perhaps needless to say, the astronomers revised their opinion of Jim as Chairman.



*Jim Papike*

During the winter and spring of 1972, we had to begin planning for the next year and the return of Ollie and Bob. Everyone fully assumed that Ollie would return as Chairman, and we wanted to be sure that the plans we made would meet his approval. For some reason it fell to me to write to Ollie and ask “do you want us to do A or B?” Several times he responded “I’m not returning as Chairman.” I didn’t take it too seriously the first time it happened, but by the third such response I began to get seriously worried. Because Jim Papike’s one-year term as Chairman would expire August 31, 1972, we would be leaderless on September 1<sup>st</sup> unless we took action. In early Spring, 1972, all ESS Faculty (less Jim Papike and of course Ollie and Bob) came to a meeting at the Lindsleys’ house to discuss the crisis: if Ollie wasn’t going to be Chairman, who would? Should we band together and implore Ollie to accept a new appointment as Chairman? Or should we ask Jim to accept appointment for a longer term? (I remember someone jokingly complaining that I was stacking the deck by serving Schaefer beer at the meeting!) But by this time the astronomers were fully in Jim’s corner, and at the end of the meeting, we all agreed to accede to Ollie’s apparent wishes and let him rest on his hard-earned laurels. I was charged to persuade Jim to accept reappointment as Chairman.



*Don Lindsley in the 1970s*

I met with Jim in the Chairman’s office, explained our dilemma, and told him that the faculty strongly wished him to remain as Chairman. He told me he couldn’t possibly do so. I repeated our case more strongly, and again he demurred. Beginning to panic, I pressed him yet again. Finally he asked “Are you sure?”. When I said “yes”, he opened his desk drawer and pulled out a paper titled “Conditions that must be met before JJP accepts reappointment as Chairman”. Both the Department and the administration eventually met those conditions, and Jim was reappointed for another two years.

Bob Dodd and Ollie Schaeffer returned to Stony Brook in the Fall of 1972. Early that September I ran across Ollie in the second-floor hallway. “Hi! When can I move back into my [i.e., Chairman’s] office?” I was totally floored! “But Ollie, you told us you wouldn’t return as Chairman!” He responded with something like “You should have known I wasn’t serious.” Some months later someone told of overhearing Ollie talking about “the time Don Lindsley did me out of my Chairmanship”. I was deeply hurt, as I certainly never intended to “do him out of” anything! My only crime was that I had been innocent enough to take him at his word.

There is no doubt in my mind that a large majority of the faculty would have welcomed Ollie back as Chairman if he’d told us that’s what he wanted. Why then did he tell me—several times—that he wasn’t coming back as Chairman? We will never know, but one possibility is that his refusals were simply intended as part of negotiating the terms of his return. If so, he had the extreme misfortune to be communicating with someone too naive to recognize a negotiating ploy when he saw one!

Ollie remained in the Department until his untimely death in 1981, but he no longer played a major role in running the Department, that he, more than anyone else, had created. It was the end of an era.

## Faculty Focus: Martin Schoonen

*Professor Martin Schoonen, a faculty member at Stony Brook since 1989, has pioneered studies examining the impacts of inhaled minerals on human health. Here, Professor Schoonen describes some of his recent research in the emerging field of medical geology.*



“Isn’t dust just dust?” asked one of my colleagues in the School of Medicine when my geochemistry research group started to explore the possibility of a collaboration to study the role of minerals in the development or enhancement of human diseases. Since those first somewhat stilted conversations in 2006, we have been able to build a thriving collaboration with the School of Medicine and contribute to the emerging field of Medical Geochemistry and Mineralogy.

It has long been known that exposure to earth materials through inhalation, ingestion, and, in some cases, through dermal contact can lead to human disease. For example, ancient Greek stone workers were known to have “stone dust” in their lungs. While ancient stone workers were at risk of developing silicosis, this same disease was common among workers exposed to olivine dust in the glass industry in England around 1940. Victor M. Goldschmidt, widely regarded as the “Father of Geochemistry”, collaborated with a pathologist to study the effects of inhalation of olivine powder with mice as a model. The work is reported in a little known study published two years before his death in 1947. Most of our work has been focused on the development of black lung disease among coal miners.

Black lung disease, or coal worker’s pneumoconiosis, is prevalent among coal miners and accounted for about 500 deaths in 2006 in the USA according to the Centers for Disease Control. This is down from the nearly 3000 deaths that the disease caused in 1970 when stricter mining regulation were enacted, but it remains a significant human toll associated with the production of energy. As the name of the disease indicates, the lungs of affected miners contain coal dust, and over time the lungs harden, making it progressively more difficult to breathe. Initially it was thought that quartz contained in the coal was the cause for the disease as the symptoms are similar to those of silicosis. However, a more recent public health study showed that the availability of iron in the coal was correlated to the prevalence of the disease. In our group, we showed that the presence of pyrite is likely the controlling factor. Not only is pyrite common in coal, but it can produce hydrogen peroxide and hydroxyl radical, of which the radical is particularly damaging to everything from cell membranes and genetic material to proteins. Over the last few years, we have been able to develop protocols not only to determine the formation of hydroxyl radical and hydrogen peroxide when a mineral is dispersed in water, but also when lung cells are exposed to mineral dust. This cellular work is conducted in close collaboration with our colleagues in Pharmacology in Stony Brook’s Medical School.

While most of our work has been aimed at understanding the role of pyrite in the development of black lung disease, we have also contributed to several other studies. Perhaps the most important of these is a project to understand the possible role of mineral dust in the development of lung ailments among service personnel stationed in Iraq and Afghanistan. As part of a multi-disciplinary team, which also includes Rich Reeder’s group, we have been evaluating the reactivity of mineral dust that service personnel are exposed to during deployment. The work so far indicates that the amount of dust in the exposures may be more of a problem than the reactivity of the dust. Some of the mineral dust is not cleared and becomes lodged in the lung. Tissue then starts to grow around the dust particles and limits lung capacity. Leveraging the capabilities of the synchrotron at Brookhaven National Lab, Rich Reeder’s group has been able to image and identify titanium and iron-containing particles in a lung tissue section of a soldier who completed several tours of duty in the Middle-East before developing severe lung problems.

As geoscientists we all know that mineral dust is not all the same, but there is still a lot to learn about how different particles interact with the human body.

—Martin Schoonen

## Geology Club: Outdoors and in the Classroom

By Stacey Rice



The past year was an exciting year for the Geology Club. Club members experienced geology in the classroom and in the field, with trips both out of state and within New York. Becoming more involved with the Geosciences Department by inviting professors to speak with our group, our members were able to learn about the exciting research being conducted and the opportunities to become involved in that research.

The Geology Club planned multiple day trips for spring break. These included a trip to New Jersey to revisit the Franklin Mineral Museum, the “fluorescent mineral capital of the world”, where we were given a private tour to view the many minerals found in the world famous Franklin Zinc Mines. We also visited the “Buckwheat dump” to collect minerals specimens, including calcite, wollastonite, willemite, mica, and clinochlore. These minerals display different colors under shortwave ultraviolet light, including green, red-orange, bright orange, and pink. With funding from Stony Brook’s Undergraduate Student Government, the Geology Club purchased a shortwave ultraviolet lamp, allowing new and old club members to view the fluorescent minerals unique to the Franklin area. Another day trip included hiking in Bear Mountain State Park in the Hudson Highlands of upstate New York.

The Club also returned to Wildwood State Park on Long Island’s North Shore for hiking along the scenic trails and on the beach (picture right) where glacial geology is prominently displayed in the cliffs overlooking Long Island Sound.

We became more involved with the Geosciences Department by inviting professors to talk about their research, including research opportunities for current and future Geosciences majors. This has allowed non-Geoscience majors to learn more about the Department and has provided a more in-depth look into specific topics. Professors Gil Hanson, Tim Glotch, and Artem Oganov came to the Geology Club’s meetings, discussing research and answering questions from our members. Professor Hanson de-



*Photo by Sandy Richard*

scribed opportunities for research on the nitrates in groundwater, soil pH, loess, and outreach on Long Island geology and the environment. Professor Glotch discussed the use of remote sensing in his research on the surface of Mars as well as some of the classes he teaches, such as the Geology of Mars. Professor Oganov spoke about his research in crystallography and high-pressure mineralogy. He also brought Club members to his lab where he showed us his collection of fluorescent minerals, some of which came from the Franklin Zinc Mines. The Geology Club was also invited to an informational talk by Professors Tim Glotch and Dan Davis where the question of what to do after graduation was answered, from a job straight out of college to a Master’s degree to going on to earning a PhD.

The Geology Club continues to be an active presence at Science Open Nights. We sell t-shirts that feature one of our member’s designs, beach glass, and hand lenses. Afterwards, we watch a movie or documentary either to the Club’s interests or one related to the lecture that evening. Additionally, the Geology Club has tutored 100-level geology students and will continue to be a resource for those students.

Next year will be full of exciting adventures and experiences for Geology Club members. We will be visiting Hickory Run State Park in Pennsylvania, which features a boulder field created by glacial activity about 20,000 years ago during the last glacial period, stargazing at Custer Observatory, indoor rock climbing at Island Rock in Plainview, and exploring the geologic history of our region, such as the Palisades Sill, a 200 million year old igneous intrusion.

## Alumni Highlight: Scott Perl (B.S. '08)

*Scott remembers his years at Stony Brook...*

I earned my Bachelors of Science degree at Stony Brook in Geology in 2008, along with a Bachelors of Engineering degree in Engineering Science. After my undergraduate study I went to Purdue University and earned a MS in Aeronautical & Astronautical Engineering in 2011. A year after graduation I started at my current job at the NASA Jet Propulsion Laboratory with plans to earn my PhD in Geological Sciences this fall 2013 while still working full time at the lab.

Currently I work as a science planner on the Mars Science Laboratory (MSL) mission. It is an operations role involving planning and scheduling of the science activities that *Curiosity* performs in a given sol, or day on Mars. More recently I've started work on the Mars Reconnaissance Orbiter (MRO) mission in a science role. As this new position evolves further I hope to use the appropriate datasets from this mission and others in my doctoral work.

Since graduating Stony Brook, I've often reflected back at my time in the Geosciences Department and am grateful for the experiences that I had working with Scott McLennan and his research group (Photo: from left, Brian Hahn, Shannon Arlauckas, Scott McLennan, Joel Hurowitz, me, and Nick Tosca). I went into my undergraduate career knowing I wanted something more than just the typical classroom study. Having always sought to perform research and gain experience either in a lab or analyzing datasets, I contacted Scott McLennan in 2003 when I learned that he was a participating scientist on the Mars Exploration Rover (MER) mission. I read up on the work that he and his graduate students were doing at the time and wanted to get involved with related work.



The Department was a friendly and supportive place where students could pursue opportunities that could start off with a simple knock at the door. The experiences that I had while working in the Department as an undergraduate paved the way for what I'm working on now as well as my future PhD work in geology. The



constant theme that makes the Stony Brook Geosciences Department stand out in my mind is that a student new to academic research is treated with the same respect as someone who has been in the field for decades. As my research progressed, I found that working in our group as an equal taught me invaluable lessons of how to think like a scientist. These lessons instilled much of the confidence and purpose that I have today and will continue to use for my entire academic and professional career.

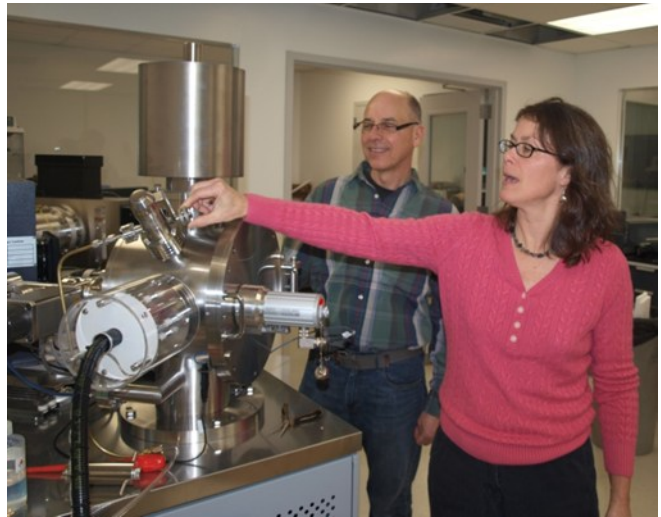
*-- Scott Perl*

*Scott (far right) with fellow science planners at the Jet Propulsion Lab with a model of the Mars Science Lab.*



## New State-of-the-Art Isotope Mass Spectrometry Lab Opens in the Geosciences Department

The mass spectrometry lab has seen major changes since its inception in 1965 led by Distinguished University Professor Gilbert N. Hanson. The original mass spectrometers that Gil installed were built by the National Bureau of Standards (now the National Institute for Standards and Technology), and were used for over 40 years before being retired to make room for new equipment. Kirk Cochran (Professor, SoMAS), Troy Rasbury (Associate Professor, Dept. of Geosciences), and Gary Hemming (Visiting Professor, Dept. of Geosciences) obtained funding for two new instruments through the Recovery Act round of the Major Research Instrumentation program at NSF. With this revitalization, the lab has been renamed *FIRST@StonyBrook* (Facility for Isotope Research and Student Training). After many trials and tribulations (recall last year's newsletter describing the roof fire that severely damaged the newly renovated lab), we now have a very busy lab that is producing isotope analyses of the highest quality.



*Gary Hemming looks on as Troy Rasbury adjusts gas flow on the new IsotopX Phoenix thermal ionization mass spectrometer.*



The second renovation turned out to be a blessing, as we were able to improve immensely over the original design. The lab has four key areas: a room for our Nu Instruments multi-collector ICP-MS, a room for our new IsotopX Phoenix (well named as it rose from the ashes after the lab fire) thermal ionization mass spectrometer, a separate room for preparing filaments for the TIMS that also houses the computer that controls the mass spectrometer, and an office/conference room where lab manager Carol Lee resides. Carol is really the face of the new facility (photo left). She has been in the lab for a little over a year and keeps the machines working, helps students with chemistry and analyses, does ordering and billing, and keeps us all in line so that the lab can be as productive as possible. Carol was involved in both mass spec installations and is the “go to” person when we have questions about how the software works. Basically she has made herself indispensable to the functioning of the lab. Other labs around the Department say, “I wish we had a Carol”.

Some exciting projects are underway by current graduate students. Jasmeet Kaur is using the ICP-MS to do Pb isotope analyses of feldspars from moraine deposits in Illinois to evaluate changes in provenance between the Wisconsin and Illinois advances. Steven Jaret is using the TIMS to do U-Pb dating of zircons, with a major focus on dating meteorite impact events in the rock record. His current focus is on the Gardnos crater in Norway. Andrew Kay just returned from a trip to Mallorca, funded by the David King Field Award, to sample ashes in Miocene reefs. In addition, he will use a variety of isotope systems to study the igneous petrogenesis of the Cortlandt Complex in upstate New York. This follows up on earlier work of John Bender and Gil Hanson done here at Stony Brook. Jesse Wolfhagen, a student from the Inter Doctoral Program in Anthropological Sciences, is using Sr isotopes in ungulates to understand changes in herding from the Paleo- to the Neolithic in Çatalhöyük, Turkey. Gary continues to work with boron isotopes and is collaborating with Brian Phillips to examine boron incorporation in carbonates and sorption on clays using boron isotope data combined with  $^{11}\text{B}$  Nuclear Magnetic Resonance spectroscopy. He is also working with former NSF post doc Cara Thompson to examine changes in boron isotopes across the Late Ordovician to test models for changes in  $\text{CO}_2$  into the short-lived

## New State-of-the-Art Isotope Mass Spectrometry Lab Opens in the Geosciences Department

glaciation that is associated with one of the major extinction events in the Phanerozoic. Troy Rasbury is teaming up with Dan Davis to determine ages of tectonic events using U-Pb dating of carbonates in veins associated with faults. A laser system has now been installed on the ICP-MS. This will allow rapid evaluation of U/Pb and Pb isotopes and greatly facilitates sampling for U-Pb dating of carbonates. Abel Guihou was a post-doc funded under the MRI grant who analyzed the U-series isotopes using the Nu Instruments ICP-MS, particularly focused on a Bermuda Rise project to understand sediment transport. He has since moved on to a permanent position in France, but Kirk Cochran's student Patrick Fitzgerald continues to work on this project in the lab. Material Sciences undergraduate student Elaina Anderson is working on an honors thesis project with Troy and Abel that uses U-series isotope systematics in a Holocene peat deposit to test a model for uranium sequestration on timescales far beyond lab experiments.

For all those former students who were familiar with Gil Hanson's original isotope lab, we invite you to visit us to see the latest instrumentation in this field.

-- Troy Rasbury and Gary Hemming



*Delivery of the Nu ICP-MS required removal of a window. The unit was too large to fit in the elevator.*

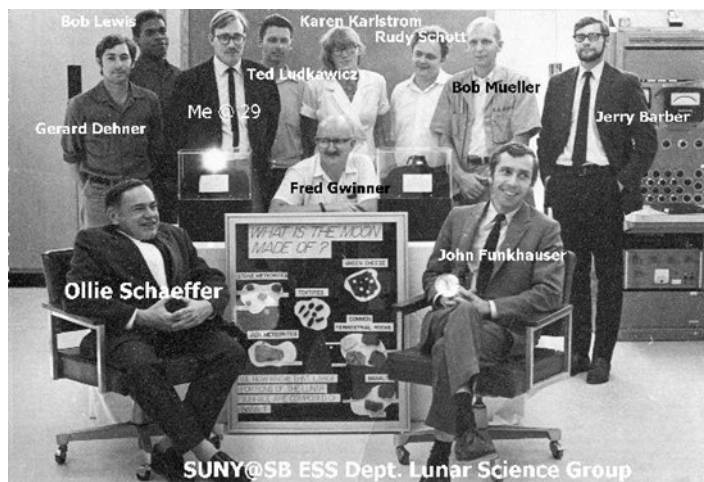
# The Oliver Schaeffer Endowed Memorial Scholarship

*The Department of Geosciences is pleased to announce*

## **The Oliver Schaeffer Endowed Memorial Scholarship**

The Scholarship offers tuition support for outstanding undergraduates majoring in a Geosciences and/or Earth and Space Sciences program at Stony Brook University. Made possible through a generous gift from Prof. Robert Warasila, with matching funds from the Simons Foundation, this Scholarship honors the Department's founder and first Chair, Oliver Schaeffer. Robert Warasila, Professor Emeritus at Suffolk County Community College, was a former PhD student and long-time research collaborator of Schaeffer, and served the Geosciences Department as Director of Labs.

Those wishing to support the legacy created by Oliver Schaeffer are invited to make donations to this Fund online through the Stony Brook Foundation. (<http://www.stonybrook.edu/sb/giving/waystogive.shtml>)



*Robert Warasila (standing, third from left) with Schaeffer's Lunar science group circa 1970.*

## ***We gratefully acknowledge gifts to Department of Geosciences Funds in 2012 from the following alumni and friends:***

*Scott and Barbara Brande*

*Lorraine Cicero*

*Robert Eby*

*Jean and Owen Evans*

*Barbara Faulkner*

*Charles Freedgood*

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*David King*

*Vesna and Tomislav Kundic*

*Louise Levien*

*Robert Liebermann*

*Wei Li*

*Donald Lindsley*

*Peter Lyman*

*Christopher Merenda*

*William Meyers*

*Kim Marie Pacanovsky*

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