



LEHIGH
UNIVERSITY.

Newsletter Issue 6

DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES DECEMBER 2012



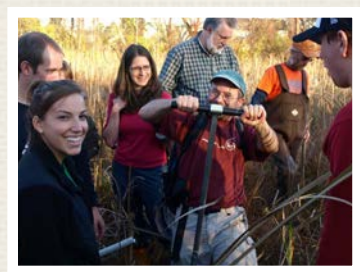
Musings from the Chair:

I am very pleased to welcome you to our sixth installment of the EES newsletter that highlights our activities for the 2012 calendar year. Every year brings new challenges and accomplishments and it is important that you, the EES alumni, are a stakeholder in the success of the Department. That is a theme that we would like to weave throughout the newsletter this year – that our curricular and research programs all benefit from participation of our diverse and talented alumni. Specifically, many of you have been very generous in donating resources that subsidize undergraduate and graduate research. Others have been very generous with their time and resources towards the field camp, field programs in general, and/or the Vic Johnson Fund. Others who live near Lehigh have been regularly attending our graduate student symposium in February, and still others have been very helpful in passing along job notices and employment opportunities for our graduate and undergraduate students. It is good to see the Lehigh network in action! So, the message is, we value your participation in the Department and your role in helping us mint the next cohort of successful EES graduates.

To that end, we have a newsletter that should appeal to all of our alumni with a look back into EES history, some updates of what we are doing now, and examples of our vision as to where we are headed. Your newsletter editor, Laura Cambiotti, has put together a nice historical perspective on the Department and its faculty over the past several decades. You will no doubt find some of your favorite professors in this review. Jumping to the present, we introduce you to the seven post-docs and research scientists that are transforming the EES research landscape. Never before in the history of the Department have we had so many talented research scientists working along side faculty and graduate students. Also in the present, we highlight some of the undergraduate research projects, all of which are made possible by the Ryan endowment and your generous contributions. Looking towards the future, we have a feature story on novel ways in which graduate students are looking to both fund their research and reach a general audience with the impact of their investigations. Also focusing on the future, Hurricane Sandy had EES and Lehigh shut down for a week, providing us with the opportunity for an introspective look at what the future of storm patterns and their impacts might be for a warming planet. We report on an EES-led panel discussion including representatives from PPL that reached over 150 students and faculty. Recalling a theme of past newsletters, the future of secure, sustainable energy resources remains a very important part of the EES curricular and research programs. EES played a central role in planning, organizing, and hosting a series of panel discussions, talks, and production of a White Paper on shale gas development in Pennsylvania.

These are just some of the ways in which we are positioning the Department to be a leader with scientific and societal impact at Lehigh and beyond. We welcome your continued participation in helping us attain that goal. With warmest wishes to you and yours for a peaceful holiday season and New Year,

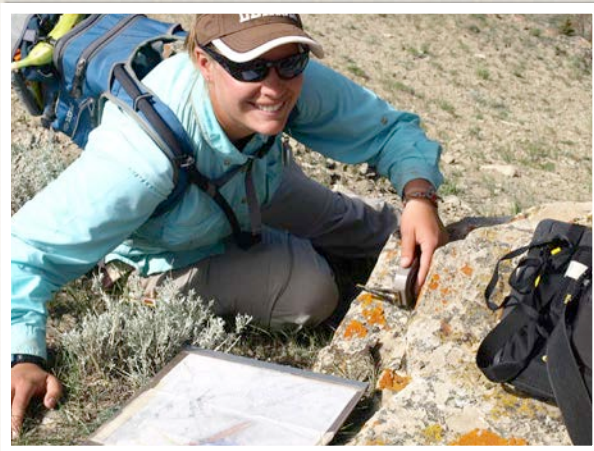
Frank J. Pazzaglia
Professor and Chair
Earth and Environmental Sciences



EES FIELD PROGRAMS

page 2

One of the ways that EES distinguishes itself from other Earth Science programs at our peer institutions is its long-standing commitment to experiential learning. That is a fancy word for learning in the field. In addition to the long-standing summer field camp (in its 39th year) and the winter program in Costa Rica, the Department underwrites the cost of field learning in more than a dozen courses. For 2013, we are looking to become part of a field ecology station run by the University of Pittsburgh. We also have an endowed fund that enables us to run a graduate student field trip to special places like Iceland, Hawaii, Death Valley, Italy, Puerto Rico, and elsewhere. In the spring of 2013 the graduate students will be planning and organizing a trip to the Pyrenees of Spain. We think that these field experiences do more than practical training; they also serve as a venue for building camaraderie and lasting friendships. There is no doubt that many of you have benefited from those friendships forged during your time here at Lehigh. Consider supporting EES field programs and help us sustain this invaluable experience for the next generation of undergraduate and graduate students.



EES student Liz Lucas taking a strike and dip on the Muddy Sandstone in Horsetail drainage of the Red Hills, Wyoming.



Claudio Berti (standing) mentoring the first day of mapping the Red Hills anticline, Red Hills, Wyoming.

Post-Field Camp Research

In 2012 EES researchers embarked on a pilot program of taking some of the top field camp performers and engaging them in a research project where they build upon the skills they learned at camp. The project was funded by EES alumnus Mark ('78) and Kristen Koelmel and Chevron Corporation and administered through the Vic Johnson Fund. The project, completed in August, 2012, involved acquiring a reflection seismic profile across the Centennial Valley in southwestern Montana and was done in collaboration with exploration geophysicist Pier Paolo Bruno of the University of Utah. The reason for choosing Centennial Valley is that it is bound by what appear to be active normal faults that have been mapped by Lehigh geologists over the past decade in a series of USGS-funded EDMAP projects. A project goal is to tie the surface geology into the subsurface and understand the fault kinematics accommodating crustal stretching and inflation in the wake of the Yellowstone hotspot. EES undergraduate Kim Baldwin participated in the project that was supervised by Research Scientist Claudio Berti and Professor Frank Pazzaglia. Acquisition was outstanding and preliminary stacked shot-gathers illuminate a basin riddled by faults....not all of which appear to have the expected simple, normal extensional kinematics. Kim will be translating some of the results from this summer's field campaign into a senior thesis. This is discovery in action and we hope to build off of this pilot success in future years with post-camp research projects.

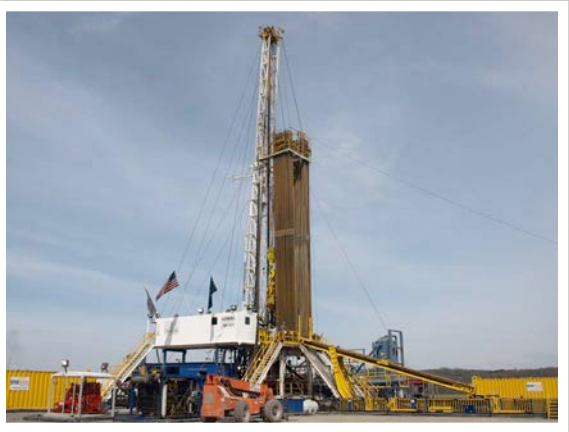


The seismic source IVI miniviv T-7000, used for energizing during the data acquisition.

EES and Marcellus Shale

page 3

It should come as no surprise to you that unconventional hydrocarbon plays, such as the Marcellus Shale, are rapidly diversifying the country's energy portfolio. Pennsylvania's mostly rural northern tier and western counties are being transformed by Marcellus Shale development activities. EES was part of a leadership team that engaged the University, alumni, and industry and regulatory partners in a series of lectures and panels devoted to raising awareness of the Marcellus transformation in the State. Unconventional gas resources will be with us for many decades to come, so Lehigh wanted to do its due diligence in identifying the faculty, curricular, and research interests that align well with the industry. The culmination of our efforts in 2012 was a field trip to a drilling pad in Tioga County operated by Chesapeake Energy. We continue to look for opportunities for our graduates to play a role in the many facets of the growing natural gas industry.



Well pad visited in April by the Lehigh group.



EES Structural geologist, Dave Anastasio and other faculty all suited up for their visit to the Chesapeake Rig.

speaking of energy...



Saudi Minister of Petroleum and Mineral Resources, His Excellency Ali bin Ibrahim Al-Naimi

Lehigh and EES were very happy to have had the opportunity to host the return of Ali bin Ibrahim Al-Naimi '62, the Saudi Arabian Minister of Petroleum and Mineral Resources on the occasion of his 50th anniversary of his graduation from the Department of Geology. Minister Al-Naimi presented the commencement address to the class of 2012. During a lunch in the STEPS building, Minister Al-Naimi had the opportunity to become reacquainted with several of his classmates from the class of 1962. He also spoke with several EES faculty and graduate students about their research and the many energy and environment challenges facing the class of 2012. You can read more about Minister Al-Naimi and his commencement address on the Lehigh website.

<http://www4.lehigh.edu/news/newsarticle.aspx?Channel=/Channels/News:+2012&WorkflowItemID=59c6cb0c-df88-45a1-83bb-77bdc5ec907d>

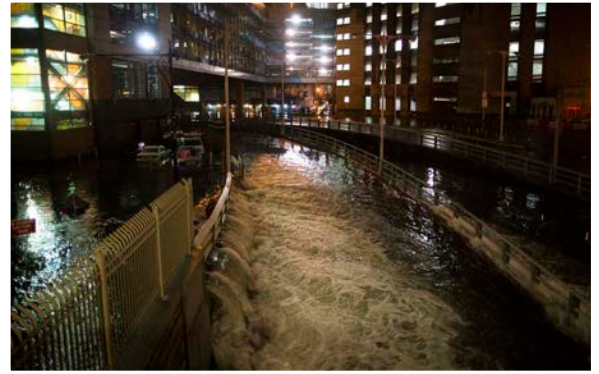
<http://www4.lehigh.edu/news/newsarticle.aspx?Channel=/Channels/News:+2012&WorkflowItemID=6143d073-acd3-4ea3-a95f-1d074f2310a9>

Sandy: A Rare Storm or the New Norm?

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(left to right) Volkmar Dierolf, David Casagrande, Steve Gelatko, and Ben Felzer field questions from the audience during the Hurricane Sandy Panel.



Seawater floods the entrance to the Brooklyn Battery Tunnel in New York on October 29, 2012 (AP Photo/ John Minchillo).

As soon as Lehigh University reopened after the devastation and power outages caused by Hurricane Sandy, students, staff, faculty, and community members gathered for a panel discussion and Q&A session that helped to answer many of the questions in peoples' minds regarding the storm, connections with global warming, the electrical power grid, future plans for prospects for preventing storm impacts, and societal responses to natural disasters in general. About 120 people gathered to ask questions of the panel, which was moderated by **Dork Sahagian** (EES; EI), and consisted of experts in weather and climate, electric power systems, social structures and vulnerability, and personal preparation for storms and power outages.

Benjamin Felzer (EES, EI) provided an overview of storm generation and propagation, its relation to sea surface temperature (SST), and the details of the development of Sandy as a storm that surpassed "The Perfect Storm" in its severity both in areal extent and central pressure, as a blocking high to the northeast and a cold front to the west steered the storm out of the Atlantic and straight into New Jersey on its way to Lehigh. In his answers to numerous questions, Felzer pointed out that all indications are that hurricanes would increase in severity, but not in number as a result of warming SSTs. Special guest **Steve Gelatko** (PPL Electric Utilities) is Manager of Distribution Asset Management, responsible for system reliability, distributed capacity planning,

distribution maintenance, research and development, and optimization of distribution. He played a leading role in PPL's development of "smart grid" strategies. A week before the storm, preparations included setting up bases for linemen, bringing in repair personnel from distant states, and monitoring a system of "smart meters" that indicate in real time which customers have power at a given time and which do not. Regardless of preparations, when a storm of Sandy's size and severity hits, power will be disrupted, and repairs take time when thousands of trees are down over an entire service area.

David Casagrande (Soc-Anthro; EI) discussed the ability of social structures to respond to disasters such as the flooding associated with the storm. He explained how people seldom prepare by reducing vulnerability prior to a catastrophe, but instead, bolster infrastructure after the fact. In the case of flooding, if levees are built in and around a community, it tends to give the population a false sense of security which could do more harm than good when an event overcomes the infrastructure.

Volkmar Dierolf (Physics) noted that the power will go out, it will be out for a while, and if you want anything done, you had better do it yourself. He described the way he was able to prepare for the storm with solar cells on his roof to power critical systems such as heat, a few lights, and refrigerator. Dierolf set up an independent off-grid solar panel system that charges back-up batteries that can last 2-3 days. The

batteries can also be recharged using a car that runs much more quietly and efficiently than the usual noisy generator. Not to waste the solar power during normal periods, the system is used to power the kegerator, dehumidifier, and television in his "solar powered man-cave!"

Numerous questions followed, especially for Gelatko (PPL), which he fielded with calm and aplomb. While it is theoretically possible to bury all power lines, he explained, for most of the PPL service area, the expense to customers would be far too great to justify. Discussion continued regarding ways in which we, as a society can guard against the worst damage caused by storms such as Sandy. The upshot of the conversation was that it is best to simply get out of the way, and that attempting to prevent flooding by building walls is a losing proposition. This strategy insures losses in the future and plans should be made at both individual and community levels with storms such as Sandy in mind.

The Panel discussion was organized by Dork Sahagian, Benjamin Felzer, and **Martha Dodge** (ESEI), and was sponsored by EES, EI, ESEI, and Sigma Xi. EES generously provided enough pizza to feed the entire audience of 120, and this was greatly appreciated by all in attendance.

Research Scientists and Post-Docs

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Claudio Berti, Research Scientist Chasing surface deformation

Here we are again! A new year of research, a new appointment for me with the EES Department and new interesting projects to share.

My research is focused on the evolution of landscapes and their response to tectonic forcing. Landscapes are the result of intermediate to long-term tectonic processes that build topography and the corresponding surface processes that tear them down by erosion. I am particularly interested in the medium time scale response of the landscape to tectonic forcing, investigating the range of processes that act in the transient phase of disequilibrium landscape.

My appointment as Research Scientist in EES has me involved in a couple of different research areas: tectonic geomorphology, with focus in US, Italy, Spain and Argentina and InSAR (Synthetic Aperture Radar Interferometry), that I am applying to a variety of different problems with various techniques. In a few words, no matter what is the approach that I use, I chase surface deformation, whether it is caused by repeated and cumulated co-seismic

displacement, induced by industrial activity or responding to climatic changes. Let me give you a couple of examples of what I do.

- Following the 2011 Virginia earthquake I was involved, in collaboration with Frank Pazzaglia and Anne Meltzer, in a NSF-RAPID project that lead to very exciting results under many different aspects (actually is still leading... work in progress).

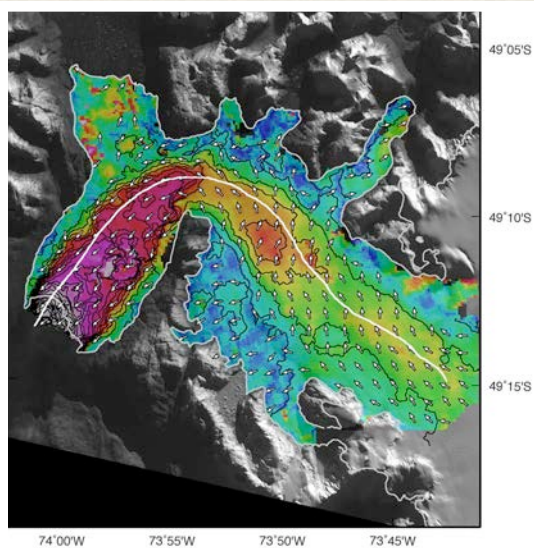
One of the most important outcomes is the discovery of deformed and warped river terraces. The deformed geometry of the terraces is consistent with a history of repeated earthquakes that can be associated to the fault illuminated by the aftershock of the 2011 event. Once we will conclude our survey and dating, we will be able to provide, for the first time

in the eastern U.S., information about timing and magnitude for a seismogenic structure in a "not so passive" continental margin.

- Progress in the computational and analytical capabilities for the Remote Sensing Lab (under the direction of Joan Ramage) and some major steps forward in understanding of InSAR techniques are allowing me to extend the range of applicability of this powerful tool to a very diversified field of observations. I mean... we are getting quite good at this! Some of the more interesting results come from the analysis of the Southern Patagonia Icefield (SPI), where I am studying the relation between temperature changes, melt onset (in collaboration with Joan Ramage and Kate Semmens) and flow velocities of the outlet glaciers. Beautiful seasonal trends are "starting to appear" and I am actively working in collaboration with Cornell University to build a 15 year history of glacier dynamics in the SPI by integrating multiple techniques of observation.



Teaching the Red Hills (WY) exercise at Fieldcamp. I started in the program in 2009 and since 2012 I am proud to be the field camp co-director, as part of my new appointment



Pio XI glacier (west side of the SPI): velocity field, integrated throughout the austral summer of 1995-96. The image is obtained applying feature tracking on SAR scenes. Max velocity 35 m/day.

Research Scientists and Post-Docs

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Bruce Idleman, Research Scientist



I am a geochronologist with interests in the tectonics of mountain belts and the evolution of the continental lithosphere. I have active research projects underway in Mongolia and Alaska, both of which entail geologic mapping, sampling, and laboratory-based geochronological and geochemical measurements. The work in Mongolia is part of a large multi-institutional project that involves five researchers and three graduate students from the Lehigh EES Department. Using a wide range of geological tools, we are working to decipher the origin and evolution of seemingly anomalous high topography and intraplate volcanism in the Hangay Dome, a broad mountainous region in central Mongolia. The Alaskan study is centered in the Talkeetna and Chugach mountains of the south-central part of the state. Here, together with colleagues from Purdue and Bucknell, I am working to characterize an enigmatic region of widespread volcanism and sedimentary basin development believed to be associated with the subduction of a paleo-spreading ridge along the Pacific margin of North America about 60 million years ago. During the “off-season” for field work I spend much of my time in Lehigh’s isotope and paleomagnetism labs, keeping our major analytical instrumentation working smoothly. I’m also involved in the development of new and novel laboratory techniques and instrumentation, particularly the application of time-of-flight mass spectrometry as a geochronological tool.

Zavareh Kothavala, Research Scientist

My background encompasses Earth System Models of varying complexities ranging from simple energy balance models to high resolution global climate models. The increasing awareness that climate change can cause potential shifts in extreme events, requires an ever-greater demand for climate analyses tools. The interactions between and within the surface-atmosphere biogeophysical and biogeochemical systems involve a network of linked processes and non-linear responses, that are at a potent risk of occurrence during periods of extreme climate or weather conditions. Widespread extreme events often result from the interaction of large-scale atmospheric flow and instabilities with local phenomena. However, at the global scale, uncertainties in greenhouse gas emissions, climate sensitivity, and the ecosystem response require a comprehensive set of climate model simulations to span the range of plausible earth-system outcomes.



My research deals with the interactions between the climate and the biosphere, and the associated feedback mechanisms when natural systems are perturbed by human activities. Natural disturbances such as wildfires, hurricanes, flooding, droughts and other extreme weather events, influence ecosystem functions and reshape landscape structure over a range of spatial and temporal scales. In most cases, these events adversely affect ecosystem services (e.g. food, fiber, and freshwater), human infrastructure, as well as atmospheric chemistry through the release of enormous pulses of carbon dioxide and other greenhouse gases from terrestrial ecosystems. The area of the Earth under agriculture has been increasing steadily over the last several decades. Croplands require irrigation and fertilization. The focus of my research investigates how nitrogen down-regulates photosynthesis and how large-scale irrigation could affect the water cycle, leading to changes in the frequency and intensity of extreme such as heat waves, severe droughts, and heavier precipitation events.

Research Scientists and Post-Docs

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Kim Genareau, Post-Doctoral Research Associate



I am a volcanologist that uses various microanalytical techniques (scanning electron microscopy, secondary ion mass spectrometry, electron probe microanalyses) to examine igneous rocks and quantify microtextural and geochemical variations in order to constrain eruptive mechanisms and changes in eruptive style at active stratovolcanoes. I work primarily in the Caribbean, the Cascades, and New Zealand. My current NSF research project involves analyses of the 2010 pyroclastic events at Merapi Volcano in Indonesia, which resulted in the loss of many lives and destruction of surrounding communities. I am examining clasts from the 2010 dome collapse events to decipher how variations in magma degassing dynamics resulted in collapse, rapid regrowth, and subsequent catastrophic collapse of the lava dome at Merapi during this particularly intense period of eruptive activity.

Julie Loisel, Post-Doctoral Research Associate

I am a French Canadian working as a post-doctoral research associate in the Department. Prof. Zicheng Yu and I are currently working on an international effort aimed at synthesizing all existing circum-arctic peatland records spanning the Holocene. This large-scale synthesis is part of a collaborative research program that is funded by the United States National Science Foundation. My tasks are to compile all peat-based paleoclimatic reconstructions and associated peatland carbon records, and to analyze these datasets and write synthesis papers on Holocene climate change, peat-carbon fluxes, and ecosystem dynamics. I am also working on an infrastructure (web interface) to make peatland datasets publicly available to facilitate data accessibility and encourage collaborative work within the scientific community.



An early foggy morning in Alaska, in a peatland a few miles south of Mt. McKinley

Research Scientists and Post-Docs

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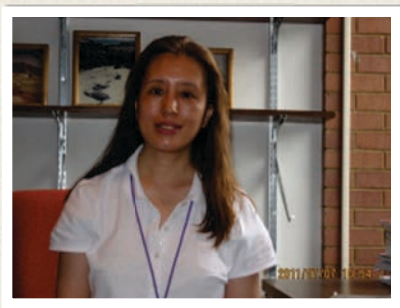
Josh Stachnik, Research Scientist

As a research scientist at Lehigh University, my current work focuses on determining the processes that have shaped the lithosphere using seismic imaging techniques. My expertise is in using surface waves from both earthquakes and ambient noise to determine shear wave velocities of the crust and upper mantle. Through this imaging, I have studied continental crust formation processes in British Columbia and the Sierra Nevada. In the Rocky Mountains and Mongolia I am determining the mechanisms for support of high topography in continental interiors. Seismic imaging in the Yellowstone Hotspot region has revealed the depth extent of partial melt beneath the current caldera. And in New Zealand, I am currently researching the depth and lateral extent of deformation related to the Alpine Fault. I have also spent much time in Alaska installing and maintaining the regional seismic network. Throughout all of this work, I have deployed hundreds of seismic instruments all over the world keeping a holistic and interdisciplinary approach to my research.



Seismic station in Alaska.

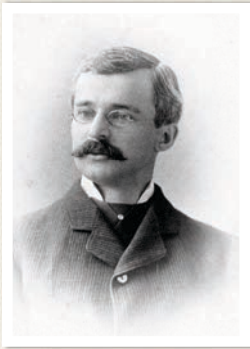
Xiaolei (Audrey) Wang Post-Doctoral Research Associate



I have worked as a postdoctoral researcher in recent years in the area of computer simulation, spatial analysis and modeling, and remote sensing applications relating to climate change impact assessment and land use land cover change modeling. My current work is to use the Terrestrial Ecosystem Model (TEM-hydro2) for quantifying the role of land use change and land management on ecosystem function and carbon cycling.

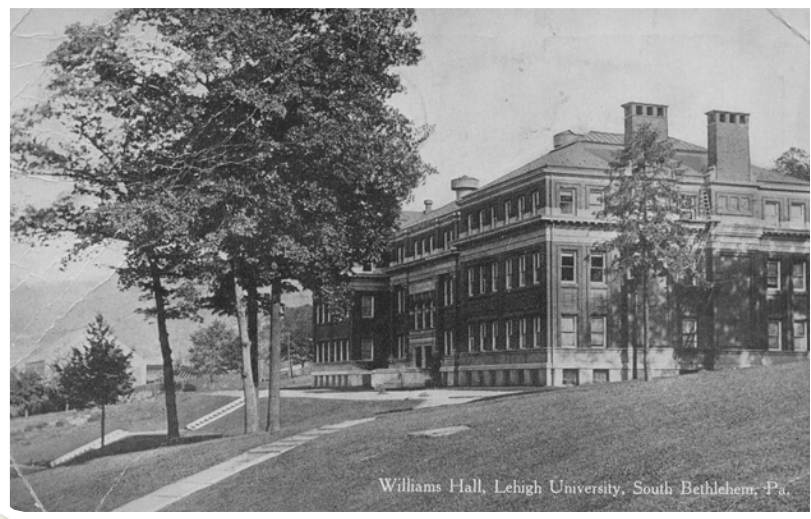
WILLIAMS to STEPS

enjoy an historical perspective...



Edward Williams, Jr.
Head, Mining and
Geology

1881



Williams Hall
dedicated by
Prof. Edward Williams, Jr.

September 25, 1903

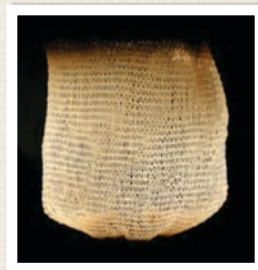
1898

Donnel Foster Hewett
matriculated to Lehigh
from what is now
George Washington
University



1921

Williams Hall illuminated by
gas jets graced with Welsbach
mantles. The only power line
into the department was for
the operation of the rock
grinding and polishing tools.



WILLIAMS to STEPS



Lawrence Whitcomb joined the faculty

- The PhD program in geology was initiated after WW II.
- Bradford Willard wrote the first newsletter in 1954.
- Also in 1954, Williams Hall housed 3 departments...Geology, Biology, and Metallurgical Engineering.
- 1955-1956 there were 50 undergraduate majors.

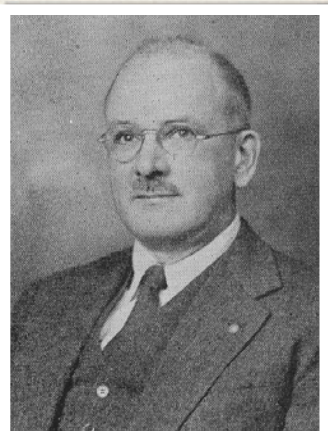
1930

1939

January 7, 1956

During WWII (1939-1945) the geology faculty consisted only of Whitcomb and Willard. They kept the department running during the war so that by 1946, when the students returned, the program could be resumed with no loss in quality.

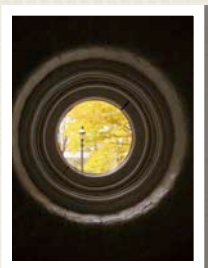
Bradford Willard joined the faculty



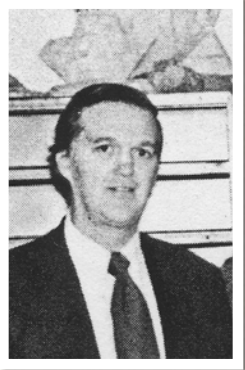
Fire in Williams Hall damaged the entire 3rd floor. A fourth floor was added with the renovation.



Brad Willard wrote "to those who knew the old and took up quarters in the new, the fire and reincarnation were the finest things that ever happened to the Department of Geology".



WILLIAMS to STEPS



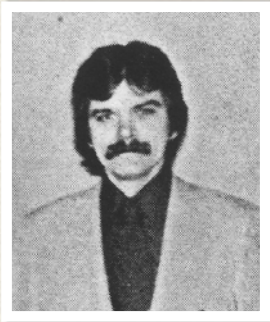
Paul B. Myers, Jr. joined the faculty

1962

- The first geology field camp departed for the west in the summer of 1975. Prof. Ed Evenson was the director and Prof. Paul B. Myers, Jr. co-taught until 2001.
- The 39th field camp, lead by Prof. Frank Pazzaglia, will be conducted in Wyoming, Yellowstone, Tetons, Montana, and Idaho in the summer of 2013.
- Go to <http://www.lehigh.edu/~fjp3/fieldcamp/alumni.htm> to view past field camps.

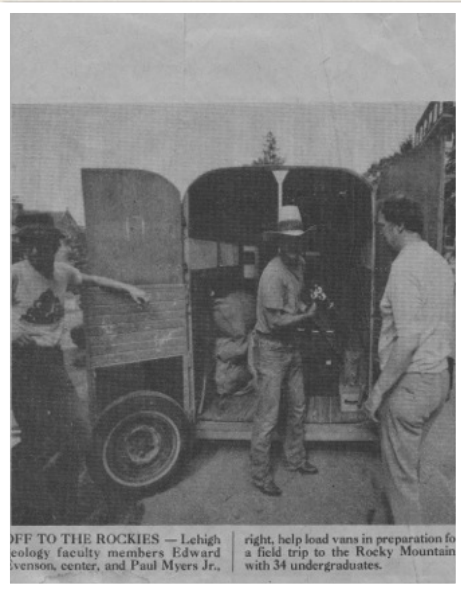
1973

Edward Evenson joined the faculty

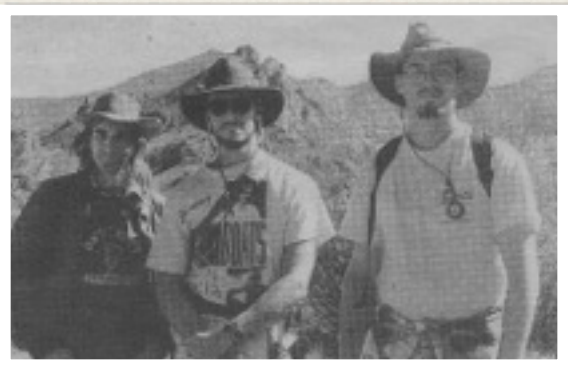


September 25, 1974

Proposed field camp course approved unanimously at faculty meeting.



OFF TO THE ROCKIES — Lehigh geology faculty members Edward Evenson, center, and Paul Myers Jr., right, help load vans in preparation for a field trip to the Rocky Mountain with 34 undergraduates.



William Abbey, Stuart Williams '93, Adam Bridges '94

WILLIAMS to STEPS



Circa 1975. Front Row: Tom Pasquini, Sanford Kaplan, J. Donald Ryan, Frank Neher, Joe Kelley, Jay Bass. Back Row: Paul Myers, Dale Simpson, James Parks, Bobb Carson, Charles Sclar, Ed Evenson, Al Walker.

Circa 1987. Charles Sclar, Dale Simpson, Bobb Carson, Ed Evenson, Ken Kodama, Peter Zeitler, Paul Myers, Carl Moses.



WILLIAMS to STEPS

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September 2012. A lot has changed in 109 years!



Want to help fund some graduate research?

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Funding the Forgotten Forest
Michelle Spicer

Crowdfunding is a new and exciting way to fund and engage the public in science research, and I am attempting to use it to support my ecology Master's work in the Lehigh Experimental Forest. My project is part of the SciFund Challenge, hosted by a crowdfunding site called RocketHub. Crowdfunding directly involves the public in research—anyone interested can go onto the RocketHub site, watch my proposal video, read my explanation of the project details, and donate funds if they like (Check out the site here: <http://rkthb.co/11883>). As my project moves forward, I will keep the funders updated on my progress via blog posts. Moreover, the Experimental Forest presents a fantastic opportunity to study forest ecology in the Lehigh Valley.

In 1915, a novel experiment was started on the breast of old South Mountain. 7,600 seedlings of 21 important tree species were carefully planted in single or mixed-species plots, in order to test outstanding forestry questions at the time. However, this unique experiment was slowly forgotten, overcome by ecological succession and invasive species...until last year, when it was rediscovered! You may have read about its rediscovery in the Lehigh Alumni Bulletin (Fall 2011).

My project focuses on understanding the outcome of this century-long experiment in forest planting. Since we know what was planted and where, we can compare the initial forest composition with its composition today to better understand how the forest developed over time, and how ecological succession played out against the backdrop of the initial plantings. We will also utilize the record of tree-establishment preserved in tree-rings and aerial photographs to reconstruct the timing of compositional change. My tasks over the next year will be to re-survey the whole forest, quantify the present community composition and species distribution, core the trees to determine when they established, and examine aerial photos to map changes in the canopy over the past century. Gaining insight on how this forest has developed since the initial planting will hopefully better inform afforestation efforts in the context of forest restoration and management. The Experimental Forest represents a unique learning opportunity and fascinating window into Lehigh history, and it will hopefully help us better understand the mystery of forest development.

Link to Rediscovering the Forgotten Forest: <http://rkthb.co/11883>



Undergraduate-driven project with an impact on the local community

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Garbage to Gold: Improving Lehigh University's Organic Waste Management

Green initiatives are popping up all around Lehigh's campus. One issue that Lehigh has put at the forefront is resolving waste management issues and reducing the weight of garbage sent to the incinerator. Lehigh is currently sending its organic waste from the dining halls to Rodale Institute to be composted. However, sending the waste off-site is expensive and wasteful because fossil fuels have to be used to transport the waste 25 miles to Rodale. In addition, Rodale is currently at capacity and cannot handle more incoming waste due to their limited land space. Camille and I saw this issue as one that should be fixed by adding a compost site on Lehigh's property.

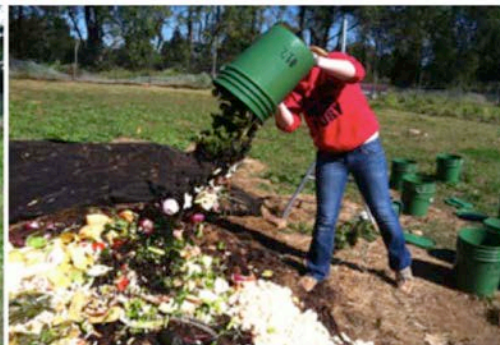
Before we could approach Lehigh with any viable solution, we had to do research to determine which method of composting would best suit Lehigh's needs and see if that method would actually be successful on Lehigh's grounds. Camille Delavaux spent the spring and fall of 2011 visiting other universities and colleges in the Northeast that have successfully employed composting programs at their institutions. From this information, we determined that windrows would be the best style for us to adopt at Lehigh.

In the fall semester of 2012, we began our windrow composting pile. Every Tuesday and Thursday that class was in session, we hauled pre- and post-consumer waste from Lower Cort dining hall up to our site in the back third of the Lehigh Community Garden on Goodman Campus. We mixed the kitchen waste with wood chips in order to make high-quality compost. Every Friday, Brickman turned our windrow with a front loader in order to fully mix and aerate the pile. We took pH, moisture, and temperature data throughout the whole experience in order to make sure we were in accordance with EPA compost regulations.

Our next step is to take what we learned from pilot and suggest a future plan of action for organic waste management to Lehigh. If you have any questions or are interesting in a site visit, feel free to contact **Rachel Henke** (rrh314@lehigh.edu) or **Camille Delavaux** (csd214@lehigh.edu).



The land we were given to use



Rachel dumping waste into our windrow



Brickman turning the windrow



Adding brown matter to the compost bins

An invitation to get involved in your Department

The faculty and staff would like to extend an invitation to alumni to stay in contact with EES and to get involved with your Department. Contact us and let us know how you would like to be involved. Some activities and events open to all alumni include:

- The weekly Friday lunch and seminar (11 AM-1:00PM)
- The Graduate Student Seminar (typically the second week in February)
- Undergraduate and Graduate thesis defenses (typically near the end of the semester)
 - Graduation (3rd Monday in May)
- Field Camp (see <http://www.lehigh.edu/~fjp3/fieldcamp/index.html> for the schedule)
- The Department Field Trip and field trips during the semester

Many of the programs we offer in EES that allow us to excel in education and research are made possible by endowed accounts and donations established by alumni. We are always looking to augment our resource base for graduate and undergraduate research, EES Field Camp, faculty development, and/or Departmental labs, equipment, and educational facilities. If you are in a position to donate, please fill out the form below with your gift and send it to us. We will acknowledge receipt as soon as it arrives.

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