Spring 10

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Magazine of the
College of Arts & Sciences

REGENERATION

Sustaining Knowledge in the Next Generation

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REGENERATION

Sustaining Knowledge in the Next Generation

28 History professor Ron Eller is challenging the way people perceive Appalachia.

30 The Biology and Statistics Departments recently received a grant to study limb regeneration.

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The Magazine of
The UK College Of Arts & Sciences

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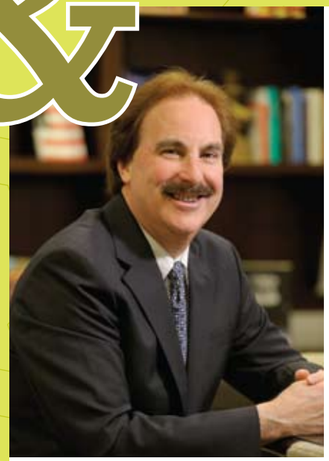
Ampersand is published twice a year for alumni, faculty and friends of the College of Arts and Sciences at the University of Kentucky.

We'd like to hear from you. Send letters and story ideas to, Ampersand, at the address on back cover or by fax to (859) 323-1073.

Front and back cover illustration
Influx Studio

The cover is an illustration of the Peano-Gosper Curve, an endlessly regenerating l-shaped fractal pattern.

& letter from the dean



Dear Friends,

Spring is a time of regeneration, which is our theme for this issue of Ampersand. The college is also in the process of regenerating, both in numbers and in ideas.

We are on track to welcome 17 new faculty members to the college and also launch our first set of online classes this summer. The online education program will offer classes in many of our departments at introductory and advanced levels, giving you the flexibility to continue or expand your education on your own timeline. Check out page 13 for more information.

In this issue of Ampersand you will see that we are not thinking of regeneration as a one-sided topic. You will find stories about regenerating body parts (take a look at stories on retinal regeneration on page 22 and regeneration of limbs on page 30), regenerating perceptions (check out the story on unveiling the real Appalachia on page 28) and regeneration of space (the story on page 14 takes a look at our Ecological Research Facility). The scope of academic research taking place in the college is wide, and I enjoy being able to share our work with our alumni.

I extend my accolades to English professor Randall Roorda who was named a Fulbright Scholar, and to history professor Abigail Firey who was awarded an ACLS Digital Innovation Fellowship. Geography professor Morgan Robertson just received the largest NSF grant in the Geography Department's history to study the emerging commodity of restored streams. Frank X Walker, co-founder of the Affrilachian Poets and founder of a journal of Affrilachian culture, joined our English department in January. Our chemistry department also recently had a project on solar cell research funded by the NIST.

Our students are no less deserving of praise. In fact, we recently honored the largest number of A&S students to make the Dean's List in the college's history – 1,052.

None of these achievements are possible without the continued support of our alumni and friends. We are gearing up for the annual A&S Phonathon scheduled for April 5 – 30. A&S students will be calling you for support, as your annual gifts help fund scholarships and student research. All gifts to the college, including those made during the Phonathon, make an impact on our students' lives.

Make sure you are following the Dean's Blog on the college's Web site for up-to-date news on our activities and accomplishments. As always, I want to keep an open dialogue about our work and the challenges we face – I hope to hear from you.

Thank you for your continued support!

Yours,

Mark Lawrence Kornbluh
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Ashley Lee rallies campus to help orphans in Haiti.

Mark Cornelison

PUTTING HERSELF IN THEIR SHOES

A&S undergrad looks for support on campus to help orphans in Haiti.

By Kathyrn Wallingford

Ashley Lee likes shoes. Nike. Adidas. Reebok. Name brand doesn't matter. On her spring break trip to Haiti, Lee, a pre-med major and aspiring pediatrician, took boxes of them.

Although this most recent trip was a response to the tragedy of January 2010, when an earthquake left the poorest country in the Western Hemisphere in shambles, Lee's plans to return to Haiti predated the tremors that destroyed the island nation.

In the summer of 2009, the University of Kentucky sophomore traveled to the Good Shepherd Orphanage in Carrefour, Haiti, with 10 other students affiliated with UK's United Methodist Center Wesley Foundation. Sheltered from some of the poorest slums in the city, this orphanage offers an education and a place of worship to 60 young girls and boys. For one week, Lee's group held a day camp for the children, providing sessions in arts and crafts and culture and language studies in addition to facilitating games.

Even without the support of parents and easy routes to education and steady incomes, Lee recalls the children's happiness and strong resilience to the poverty that so often characterizes Haiti.

Her experiences at the orphanage left such an impression that she felt a need to continue to care for these children from the UK campus. Lee returned to Kentucky with the memory of the student's "sweet spirits," but also with concern. "It is the realization that this is people's lives and this is what they know. I want them to have the same opportunities I do."

Lee initially showed her dedication to the children through a campus-wide shoe drive she called "Shoes for Haiti." Last fall, Lee distributed boxes to 10 of the university's dormitories as well as other university locations, including the Student Center and the Medical Center AV Library.

When asked how Lee came up with this idea, she explains, "I saw their feet and that is all it took." Lee remembers the children's toes and heels protruding from worn shoes, shoes that provided little protection from the littered streets and hot pavement of Carrefour.

"I had a choice if I could take my shoes off or not," she said. "They did not. There is no grass in the city and they simply had to endure the hot concrete. I can't imagine not having a choice. How can you play if it is that hot out?"

With the assistance of project volunteers and the generosity of UK's students and faculty, Lee planned to return to the orphanage during spring break with new shoes for all.

When the fatal earthquake struck Haiti last January and changed the city of Carrefour forever, Lee realized the needs of the children far surpassed protection from the city's hot pavement. Due to an extremely fragile infrastructure, the earthquake had easily flattened most of the city's buildings. And with tens of thousands people left dead, many children were suddenly without families and in need of a home.

Haiti, a country that relies so heavily on foreign aid, needed people like Lee more than ever. Lee says, "America has a lot of ways of helping itself that Haiti does not."

Lee and members of the Wesleyan Foundation immediately sent food, water, and money directly to the school through Chrispin Gabriel, a UK Senior civil engineering major,

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continued from page 5

who traveled to the heart of the epicenter shortly after the earthquake struck. Gabriel grew up in the orphanage before coming to the United States and has helped develop and maintain the partnership between students at the University of Kentucky and the Good Shepherd Orphanage.

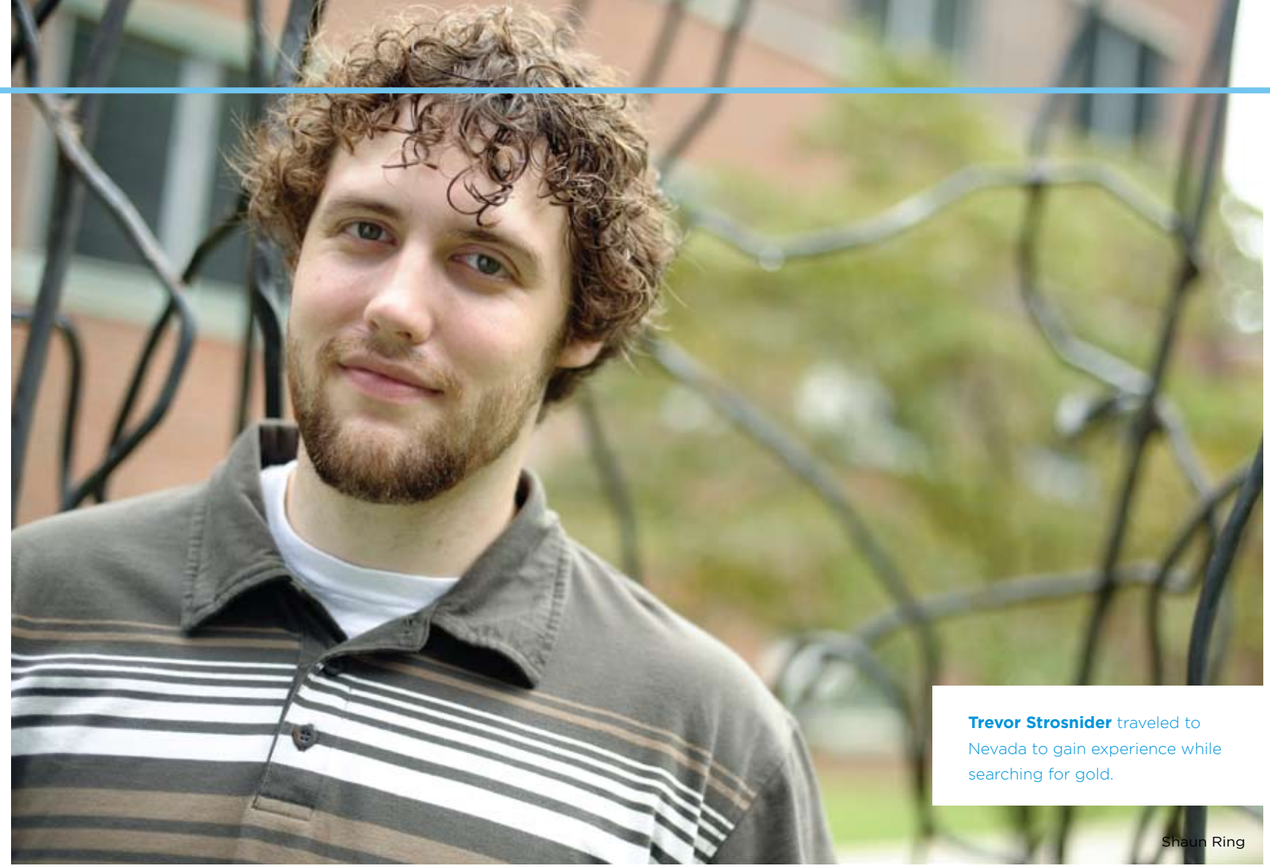
What began as a simple and meaningful service through "Shoes for Haiti," transformed into a test of urgency. Lee rallied with other students to gather supplies and pray the students with such "sweet spirits" received the needed provisions in time.

Only a few days after the earthquake, Lee was relieved to learn that all but one of the 60 students had been miraculously unharmed. The director of the orphanage, Papa Cassy, was also alive, but along with his students, was living amongst the city's rubble. All were trying to avoid the decaying bodies that could be found around almost every corner.

While during spring break most college sophomores traveled to the Florida sun or the comfort of their parent's home, returning to the Good Shepherd Orphanage and Haiti's devastation was an easy choice for Lee. With hopes of attending medical school, Lee foresees a career of providing medical assistance to countries in need.

Says Lee, "I'm ready to be out of medical school now and saving people and I've not even begun applying to medical school yet. I'm impatient, but very motivated now."

"My passion for Haiti intensified through the earthquake. I am not sure where I will end up, but my heart is with Haiti right now." &



Trevor Strosnider traveled to Nevada to gain experience while searching for gold.

Shaun Ring

A GOLDEN OPPORTUNITY

Junior EES major heads into the depths of a Nevada gold mine.

By Sarah Vos

For work last summer, **Trevor Strosnider**, a junior majoring in geology, donned a hard hat and descended into a Nevada gold mine. He identified rocks and fault lines, measured how far mining tunnels had been extended and used that information to help the Newmont Mining Corporation find gold.

Before he left for Nevada, Strosnider had no idea what he would be doing at the mine. He learned of the internship after a representative from Newmont, one of the world's largest gold producers, gave a presentation at UK. A professor encouraged him to apply, even though Strosnider didn't think he was qualified. He had studied geology at UK, but had not specialized in gold mining and mineral extraction.

But a few weeks later, the offer came: $20 an hour, 40 hours a week, to work in the company's Nevada mines. The opportunity was much better than his previous summer job – pushing carts at Wal-Mart for $7 an hour – and it afforded Strosnider an opportunity to go west of the Missouri River for the first time. So after classes ended, Strosnider drove to northern Nevada to a small town called Elko where Newmont operates two mines in a geologic formation called the Carlin Trend.

To get to work every morning, he caught a bus to the mine site at 4:45 a.m., arriving at the site around his 6:00 a.m. starting time. He wouldn't get back to the parking lot until after 5 p.m. But long days meant he had three-day weekends: Friday to sleep and Saturday and Sunday to explore the rocks above ground.

Strosnider spent the first half of his internship working in a warehouse, where he examined two-foot sections of rock – core samples that had been taken from the Leeville mine. It was Strosnider's job to test the rock's carbonate and silica content, thereby helping other geologists identify where gold might be. The gold deposits in the Leeville mine are not visible to the naked eye; the gold has to be extracted. One ton of rock might generate 0.1 ounce of gold, Strosnider said.

In other mines, geologists have identified where gold is found based on the mineral content of the rock. But the Leeville mine, which opened in 2006, is still a mystery. While Strosnider was there, "They still hadn't figured out what was controlling where the gold deposits were," he said.

Strosnider's findings were entered into a database that geologists used to create a 3-D model of the mine, its rocks and its tunnels. The information helped identify where gold might be, helping to direct the mining operations.

For the second half of the internship, Strosnider worked in the mine itself after undergoing mandatory training from the Mine Safety and Health Administration. On those days, he started out in an office, using shifts reports to identify which tunnels had been "advanced" with explosives. Then, he would take an elevator into the mine to look at the rocks that had been exposed and record what he found.

Strosnider had to visit seven to 15 headings a day. The headings were never next to one another, and often routes from one to the next were blocked because miners were at work, making it easy to get lost in the mine. Geologists were not allowed to hold up production, Strosnider said. By the end of the internship, Strosnider didn't get lost often, but his fellow geologists played tricks on him. "They got to the point where they were trying to throw me off," he said.

Once above ground, Strosnider would enter his findings into a computer, making sure the reality of the rock matched the 3-D map of the rock. It never matched perfectly, though, and Strosnider would have to then figure out how it was wrong. That information helped the geologists predict where the gold might be and decide which rock to process as gold and which to throw away.

Strosnider grew up in Henderson, Ky. He's always collected rocks, but he didn't consider majoring in geology until college. The major has suited him well. He likes the field work he does in his classes and what he learns about the earth from rocks. He enjoys that geology brings several fields together – chemistry, physics and natural history – to explain the world around him.

"I like to see how the earth is put together and how everything interacts together," he said.

Strosnider took the internship in part to see if he liked working as a geologist, and he did. He plans on going back next summer and may try to work for Newmont after he graduates. Geologists fresh out of college can earn $60,000 to $70,000 a year working for a gold mine, and there's lots of opportunity to move up within the company, he said.

In Nevada, Strosnider saw that what he had learned in his classes was critical to the work he did.

"People in the industry treat it like it's stuff you should know," Strosnider said.

The other geologists were impressed with how much experience he had with field work, even though he only had two years of college, and the textbook geology he had learned made it possible for him to participate in the geologic conversations. &

COURTING SUCCESS

Determination and drive are leading Kentucky Governor's Scholar to career in law.

By Guy Spriggs

She doesn't know why, but first-generation college student **Sharon Lynn Murphy** has always wanted to be a lawyer.

"I don't know what attracted me to law. I just had a fascination with these legal proceedings," Murphy explained. "Ever since I was 5 years old, I've always known that I wanted to be a lawyer."

As a child, Murphy had a general interest in the court proceedings she saw on television, but one figure in particular stood out. "I was fascinated with Johnny Cochran. I would just see him and think, 'Oh my God,'" Murphy said. Drawn to the image of lawyers standing up and arguing the law, Murphy decided that she wanted to learn more about legal proceedings.

Still in elementary school, however, Murphy didn't know how to go about achieving her dream. Her journey to the UK College of Arts & Sciences began with important encouragement from her father, a university employee of 20 years.

"I wanted to be a lawyer but I didn't know what to do, so my Dad told me that if I got good grades I'd get a scholarship to go to college," she said.

Over the next few years, Murphy focused special attention on her schoolwork to achieve those good grades and make her wishes of becoming a lawyer possible. As a Kentucky Governor's Scholar and Lexington native, Murphy chose to stay in state and attend the University of Kentucky to prepare for law school. Now a senior majoring in political science with a minor in philosophy, Murphy has her tuition covered by the William C. Parker Scholarship.

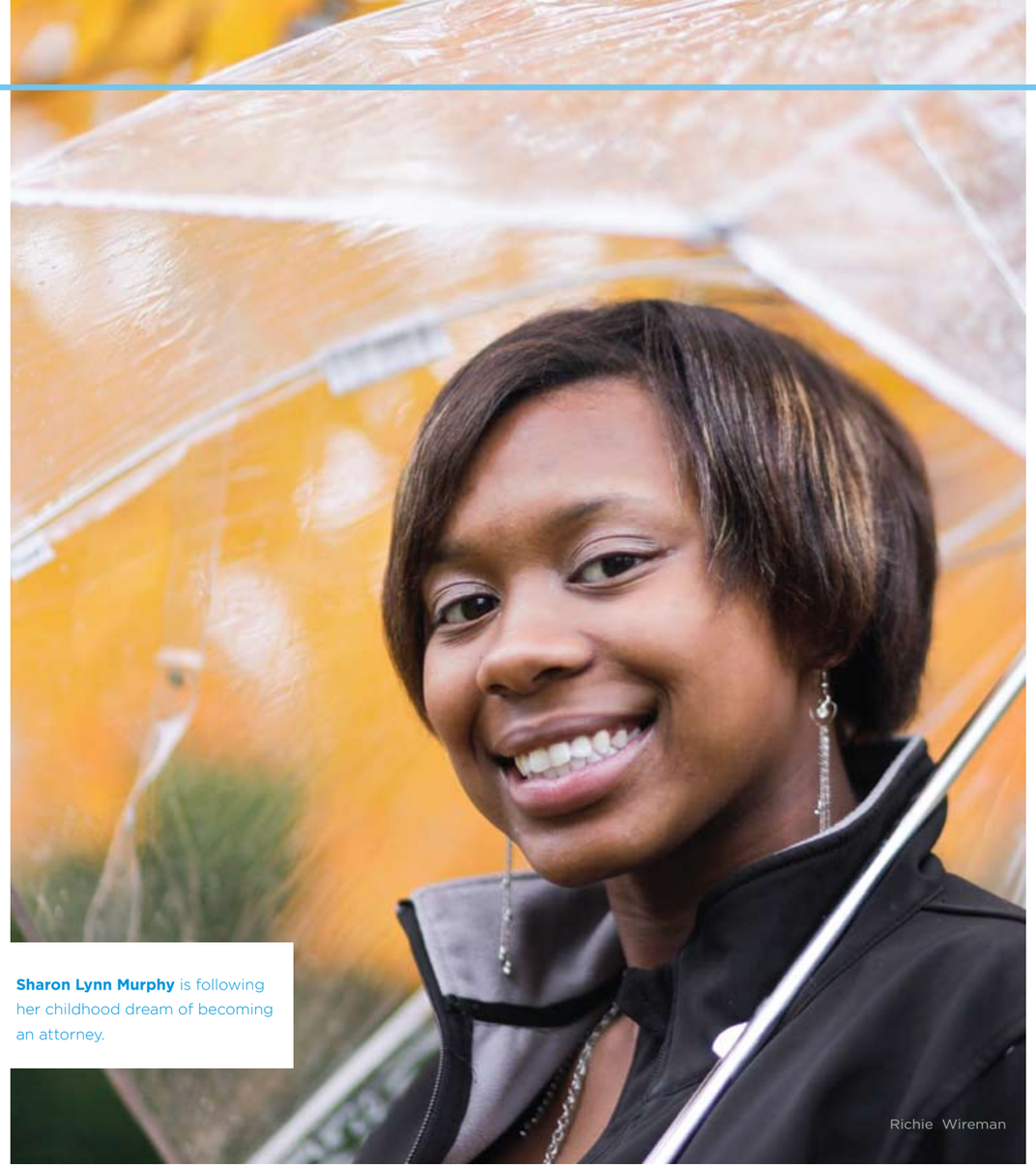
The Parker Scholarship requires a 2.5 GPA for those it supports, but Murphy keeps her GPA well above a 3.0. Still, there are extra demands placed on Murphy to maintain her funding, such as extra study hours, becoming involved in student services and meeting frequently with academic advisers to monitor progress.

Nevertheless, Murphy juggles all of these responsibilities and still manages to work at Kroger more than 20 hours a week. "Because law school is so expensive, I want to make undergraduate as cheap as possible," she said. In order to avoid collecting debt for her undergraduate study, Murphy has had a job since 10th grade to soften the impending cost of law school, working during the weekends so that her weekdays can be dedicated to school.

Murphy has enjoyed various fields of study at UK, particularly the courses in her major and a sociology course on crime, law and deviance. She is most drawn to her classes on constitutional law, however, still displaying the same fascination that first interested her in becoming a lawyer.

"You read the Constitution and think it is clear and precise, but it's hard to debate what the framers actually intended for the words to mean," Murphy explained. "It's the complexity that interests me."

Murphy would like to eventually specialize in malpractice law, but for now she is happy to have found a niche in such a large school. "A lot of people think that UK is really big, but if you show that you're really serious about your education, then your professors will help you," she said. "You just have to show that this is something you really want to pursue."



Sharon Lynn Murphy is following her childhood dream of becoming an attorney.

Richie Wireman

Despite all of the effort she has put into studying and working to become a lawyer, Murphy downplays her experience and maintains a humble perspective. "I only work part time. I'm amazed at the people who have kids and they still manage to go to school," she said.

Murphy will finish her undergraduate work in May of 2010, and hopes to enter law school the following fall. &

A & SYLLABUS

ENG 336 / APP 300
APPALACHIAN LITERATURE

INSTRUCTOR: Eric Reece, Lecturer in English

COURSE DESCRIPTION: This course focuses on central Appalachia, including West Virginia and Kentucky, and explores the early history and developmental impact of the coal industry on the region. Issues surrounding strip mining, which are a force in the region today, also provide a driving theme for this class.

PAPERS AND ASSIGNMENTS: In order to connect students to the readings, Reece not only assigns two larger writing assignments for the semester, but also asks students to keep a daily journal. The journal allows students to respond to the writer's style, relate their own experiences to the writer's work or comment on various themes, ideas or conflicts the writer dramatizes. Students also participate in field trips around campus, which Reece hopes will prompt students to write thoughtful journal entries about the readings and the out-of-class environment.

READING LIST:

Miners, Millhands and Mountaineers, Ronald D. Eller
What My Heart Wants to Tell, Verna May Sloan
Kinfolks, Gurney Norman
Kettle Bottom, Diane Gilliam Fisher
The Briar Poems, Jim Wayne Miller
Storming Heaven, Denise Giardina
Kentucky Straight, Chris Offutt
Hell or Ohio, Chris Holbrook
River of Earth, James Still
Devil's Dream, Lee Smith

THE MORE YOU KNOW

Read more about Gurney Norman, Kentucky Poet Laureate, in the Fall 2009 issue of Ampersand

INSIDE THE CHEM / PHYS BUILDING

Completed in 1962, the building is divided in half: the left part (from front) is devoted to chemistry, and the right part to physics.

Compiled by Guy Spriggs

LABS

All labs in the building use 100% outside air. Labs are kept at a lower pressure level to prevent lab air from being forced into the rest of the building.

MANIFOLD

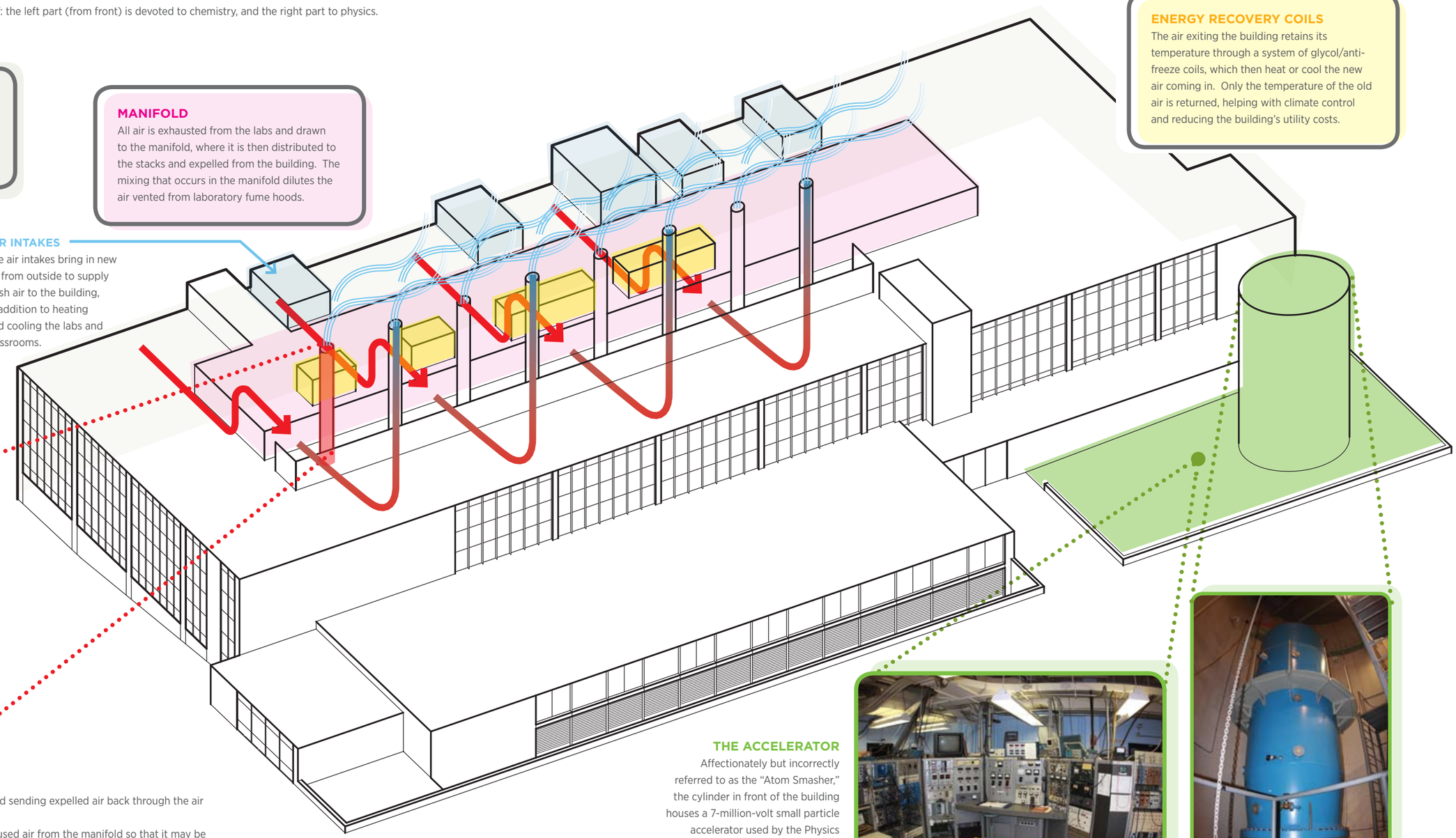
All air is exhausted from the labs and drawn to the manifold, where it is then distributed to the stacks and expelled from the building. The mixing that occurs in the manifold dilutes the air vented from laboratory fume hoods.

ENERGY RECOVERY COILS

The air exiting the building retains its temperature through a system of glycol/anti-freeze coils, which then heat or cool the new air coming in. Only the temperature of the old air is returned, helping with climate control and reducing the building's utility costs.

AIR INTAKES

The air intakes bring in new air from outside to supply fresh air to the building, in addition to heating and cooling the labs and classrooms.



THE STACKS

The stacks add height to the exhaust process to avoid sending expelled air back through the air intakes, thus making sure that air is not recirculated.
Located at the base of each stack, motors draw the used air from the manifold so that it may be exhausted from the building. This helps to maintain the low pressure in the laboratories.

THE ACCELERATOR

Affectionately but incorrectly referred to as the "Atom Smasher," the cylinder in front of the building houses a 7-million-volt small particle accelerator used by the Physics Department for various experiments, such as studying the form and shapes of stable nuclei.

Brian Connors Manke

The college's **Division of German Studies** celebrated the 20th anniversary of the fall of the Berlin Wall with a week-long calendar of events ranging from film showings to a roundtable about impressions of the fall of the wall by those who were there. The events also included "Tag the Wall!," which allowed the campus community to take part in signing a mock wall and then tearing it down.

1,052

In fall 2009, almost one-quarter of the A&S undergraduate students made the **Dean's List**, an academic honor given to students who have a GPA of 3.6 and above and are enrolled in at least 12 letter-graded hours. The number of students who received this honor – 1,052 – is slightly greater than in previous years, and, most importantly, it reflects the largest number of A&S students to make the Dean's List in the college's history.

Rachel Eliza Griffiths

Frank X Walker – co-founder of the Affrilachian Poets, widely published writer, founder of a journal of Affrilachian culture, and recipient of numerous writing and teaching awards – joined the Department of English this semester. Walker will teach in the Creative Writing Program as an associate professor. As he returns to his alma mater, Walker also brings with him "Pluck! The Journal of Affrilachian Arts and Culture," which he founded in 2007.

3 Three members of UK's faculty have been named Fulbright Scholars for the 2009-2010 academic year. The prestigious Fulbright Scholar Program is the flagship international exchange program of the U.S. and provides grants that allow distinguished academics to spend extended periods of time studying and teaching at foreign universities. From the College of Arts & Sciences, **Randall Roorda**, associate professor in the Department of English and former director of the UK Writing Program, has been honored. Roorda spent September to December 2009 in Brno, Czech Republic, and lectured on "Teaching a Sustainable Literacy in English" at Masaryk University.

<1% Two faculty in the Department of Physics and Astronomy, **Gang Cao** and **Ganpathy Murthy**, have been elected 2009 Fellows of the American Physical Society (APS) in recognition of their outstanding contributions to physics. Election to fellowship in the APS is limited to no more than one-half of one percent of the membership. Counting Cao and Murthy, the Physics Department now boasts a total of 13 APS Fellows. In addition, physics professor **Joe Brill** has been named one of the 2009 Outstanding Referees of the Physical Review and Physical Review Letters Journals. The APS bestows this honor on less than 1% of active APS referees each year.

30 Want to brush up on your degree? Interested in a new area of study? Now you can learn the things you always wanted on your own time and take advantage of studying in the comfort of your own home. The College of Arts & Sciences is launching an **online education program** this summer. Thirty classes will be offered in most of the departments at introductory and advanced levels. Some of the offerings include Peoples and Cultures of Africa, Global Dynamics of Health and Disease, and Blue Planet: Introduction to Oceanography. To view a complete listing of classes, visit www.as.uky.edu/OnlineEd.

GLY220

Students taking **Principles of Physical Geology** were able to put their studies to the test on campus. After learning about volcanoes and volcanic eruptions, a demonstration took place on UK's main campus that illustrated that the main cause of explosive igneous behavior is the devolatilization (boiling) of volatile species like water and carbon dioxide dissolved in magmas. In the demo, the boiling took place in a separate container, which was submerged in water. Liquid nitrogen was poured into a small plastic bottle that was capped and submerged in the bottom of a trash can filled with water. Nitrogen gas built up in the bottle because it boils at room temperature. Eventually, the small bottle burst and the force of the explosion threw the surrounding water several meters into the air.

PHOTOS BY
RICHIE WIREMAN

FIELD REPORT BY
REBEKAH TILEY

SUBURBAN SPACE

ECOLOGICAL PLACE

biology's research facility poised to lead emerging field

BIRDS ARE CAPTURED IN A FINE NET (TOP LEFT), AND ARE CAREFULLY REMOVED (CENTER), A NUMBERED METAL BAND IS THEN PLACED ON THE BIRD'S LEG (RIGHT). AFTER TAGGING THE BIRDS WITH METAL BANDS (BOTTOM), RESEARCH ASSISTANT IAN STEWART, RELEASES THEM UNHARMED.

T WAS A SILENT LANDSCAPE. All that was left of the old family farm was a timbered barn, a crumbling silo and thousands of daffodils stretching out in front of the bare farmhouse foundation. In the long grass, birds, mice, foxes, coyotes, snakes, and other wildlife roamed the acres of land that made up the McCullough Farm, located just off Russell Cave Road in north Lexington.

Today the land is known as the UK Department of Biology Ecological Research Facility (ERF) and is a unique suburban biological research site still teeming with wildlife. It includes such features as natural and artificial ponds, aviaries, an artificial stream system, two research modules and the recent property addition of the old Lexington Northside Library building, which houses meeting spaces, offices, and an on-site student laboratory.

Back in 1988, the UK Department of Biology launched the Aquatic Research Facility (ARF) with funds from the National Science Foundation-Kentucky EPSCoR (Experimental Program to Stimulate Competitive Research). Located on Virginia Avenue, the facility consisted of a laboratory building and artificial research ponds, and was geared toward giving undergraduates training in aquatic research.

Eventually, being located in a prime real estate location put ARF in the crosshairs of campus development and the program made the move out to the old McCullough Farm, in the process expanding its purpose and changing its name to the Ecological Research Facility. Ten of the property's 52 acres were fenced, research ponds and a research module were built, and the ERF became a teaching and research site for faculty and graduate and undergraduate students from UK and other surrounding colleges.

Two recent developments have made ERF one of the highlights of a biology department committed to rapid development through the hiring of talented new researchers, the acquisition of grant funds, and the expansion of research productivity and training. The first of these developments was the arrival of the new chair of the UK Department of Biology, Dr. Vincent Cassone.

"One of the things that really attracted me to UK was ERF," said Cassone, the former head of the highly regarded biology program at Texas A&M University. "In a research environment where research stations are closing all over the world, it is unique to see a field station not only still open, but one situated within a suburban area." *continued on page 19*

FIELD NOTES

1970

1976-1985 – JULIA BENEDICT MCCULLOUGH DONATES SMALL SECTIONS OF THE OLD MCCULLOUGH FARM PROPERTY IN NORTH LEXINGTON TO UK, EVENTUALLY TOTALING 52 ACRES.

1980

1988 – WITH FUNDING FROM THE NATIONAL SCIENCE FOUNDATION (NSF)-KENTUCKY EPSCOR, THE AQUATIC RESEARCH FACILITY (ARF) IS OPENED ON VIRGINIA AVENUE. IT HOUSES A LABORATORY BUILDING AND RESEARCH PONDS.

1988-1992 – FOUR YEARS OF NSF RESEARCH EXPERIENCES FOR UNDERGRADUATES GRANT SUPPORT AT ARF.

1990

1995 – THE AQUATIC RESEARCH FACILITY BECOMES THE ECOLOGICAL RESEARCH FACILITY (ERF) AND MOVES TO THE RUSSELL CAVE ROAD LOCATION ON OLD MCCULLOUGH FARM. TEN OF THE 52 ACRES ARE FENCED, PONDS ARE DUG, ARTIFICIAL STREAMS ARE CONSTRUCTED AND A LAB MODULE IS BUILT. STUDENTS FROM UK AND TRANSYLVANIA UNIVERSITY BEGIN USING THE FACILITY.

1995-2009 – GRANT AWARDS FROM THE NATIONAL SCIENCE FOUNDATION AND THE NATIONAL INSTITUTE OF MENTAL HEALTH FOR RESEARCH CONDUCTED AT ERF TOTAL ALMOST $1.5 MILLION.

2000-2004 – FOUR SEPARATE NSF DOCTORAL DISSERTATION IMPROVEMENT GRANTS ARE AWARDED TO STUDENTS WORKING PRIMARILY AT ERF.

2000

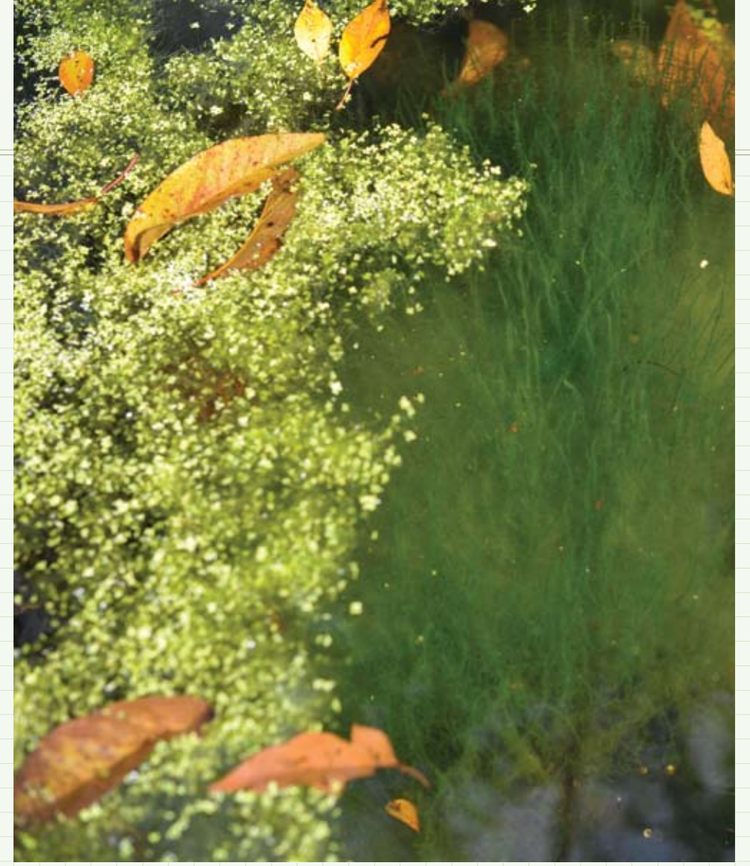
2008 – DR. VINCENT CASSONE BECOMES THE NEW CHAIR OF THE UK DEPARTMENT OF BIOLOGY.

2008 – UK EXPANDS ERF WITH THE ACQUISITION OF THE OLD NORTHSIDE LIBRARY BUILDING AND PLANS TO RENOVATE THE FACILITY TO HOUSE ON-SITE ECOLOGICAL LABS, MEETING AREAS AND OFFICES.

2009 – AN ADDITIONAL RESEARCH MODULE IS CONSTRUCTED AT ERF, ADDITIONAL AVIARIES ARE ADDED AND THE ARTIFICIAL STREAM SYSTEM IS RENOVATED.

2009 – A NATIONAL INSTITUTE OF HEALTH GRANT PROMISES $200,000 PER YEAR FROM 2009-2014 FOR THE STUDY OF AVIAN CIRCADIAN BIOLOGY.

2010



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Cassone is spearheading significant changes in the biology curriculum set to take effect in fall 2010, a key part of which is giving undergraduates the dynamic experience of hands-on, on-site laboratory research.

To that end, UK purchased the old Northside Library building adjacent to ERF, which is being remodeled to house an undergraduate student laboratory as well as offer expanded state-of-the-art research facilities for faculty and graduate students.

"We've shifted our emphasis from huge freshman labs to realizing that we need to train our majors better and give them lab experiences at the next level," said Dr. Philip Crowley, who has been actively involved with ERF since its conception on Virginia Avenue.

Under the new curriculum, all biology majors will be required to take an ecology course, and the plan is for the ecology lab to take place at ERF. With six or seven lab sections and 25 students in each section per semester, the addition of the old library building will make it possible for undergraduates to have the kind of hands-on field educational experience that has become increasingly rare in biology programs.

"Ecology should be taught outside as much as possible. The problem is you can't take students to Red River Gorge easily. But this way, every week they can be outside doing a field-oriented experiment or project, and that's just a much higher quality education," said Dr. James Krupa, an ecology professor in the UK Department of Biology.

continued on page 21

BIOLOGY PROFESSOR CRAIG SARGENT SURVEYS
THE ERF ARTIFICIAL STREAM FACILITY.

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One of the key features of ERF is its location. Suburban ecology is an emerging field and ERF is uniquely situated within a suburban environment that allows researchers to examine the ecological impact of suburban phenomena such as the effects of certain toxins on animals, insects and birds. Study at ERF can also provide insight into how the plants we grow in our yards can accidentally become pests, which has happened with the invasive species kudzu, which kills native plants throughout the Southeast.

"Many plant invaders began as horticultural species that people planted around their homes and businesses," explained Megan Poulette, a doctoral student who is currently writing her dissertation on invasive species. "Plants like bush honeysuckle, wintercreeper and oriental bittersweet readily escape urban and suburban areas and invade Kentucky forests, parks and wilderness areas, choking out native species."

ERF attracts researchers with a wide variety of expertise from different departments and even different universities. Dr. James Wagner of the Transylvania University Biology Program has been an active researcher at ERF since 2000 and regularly brings his entomology and ecology students to ERF for instruction on things such as ecological sampling techniques and pollination biology.

"I am excited by the prospect of the UK Department of Biology becoming joint users of the old library space because that will give the researchers who use ERF a common space in which to meet and interact with each other," Wagner said. "With increased communication between the various groups conducting research at ERF, then the potential for collaborations will increase."

With the acquisition of the library building as well as a second research module, updated aviaries and a renovated artificial stream system, ERF is poised to enter a new chapter of excellence in research and teaching.

"I think that as we build modern biology departments in the 21st century, we really need to pay attention to what the real biological challenges are in the 21t century," Cassone said. "Those challenges are the long-term effects of climate change, the effects of human overpopulation on biological and biomedical processes and the effects of urbanization on life."

Going forward, the goals for ERF are clear: an increased level of science outreach by partnering with other science education groups both on and off campus, high quality ecological instruction in the form of on-site undergraduate labs, and the development of an ecological research facility in the broadest sense, in which funded research related to environmental problems in modern society is conducted.

"We've expanded our research footprint on that small site, and expanded the kinds of research we are able to do out there," said Crowley. "We're definitely fired up about that." &

EYE INGTHE DETAILS

STORY BY KATHRYN WALLINGFORD PHOTOS BY MARK CORNELISON

THE NEWEST ADDITION TO THE DEPARTMENT OF BIOLOGY, Ann Morris, not only brings her expertise in developmental biology and genetics to the University of Kentucky, but also a model organism for studying the genetic disorders that disrupt the human eye. What is her secret weapon? A small, freshwater vertebrate. The zebrafish's innate ability to regenerate tissues within its retina following injury makes it a valuable tool for understanding the ocular diseases that compromise the vision of thousands of people each year. Morris' genetic approach to studying retinal regeneration has exciting possibilities for regenerative medicine.

ALTHOUGH EXTERNALLY THE AQUATIC ZEBRAFISH appears drastically different from humans, the zebrafish retina is equipped with the same light-capturing neurons, called photoreceptors. "Rod" photoreceptors control night vision, whereas daytime and color vision are determined by "cone" photoreceptors.

"Since the architecture and the organization of the retina is well-conserved across all vertebrates, the genes that are important for the zebrafish retinal development may also be important for humans," Morris explains.

"I had found a system I knew I would be able to work on for the rest of my life."

Ocular diseases, such as retinitis pigmentosa (RP) and macular degeneration, develop when genetic mutations cause the degeneration of photoreceptors. According to Morris, "RP is one of the most common causes of inherited retinal disease and there is currently no cure. People who have RP lose their night vision sometime in their adolescence because their rod photoreceptors begin to degenerate. Soon after, the cone receptors degenerate, as well. And then they go completely blind."

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ANN MORRIS *is not the only University of Kentucky biologist to provide exciting advances in the field of regeneration research. In 1901, Thomas Hunt Morgan's* **Regeneration** *was published, appealing to the growing interest among biologists of that time in understanding the complexity of organisms' abilities to regenerate. In* **Regeneration,** *this UK graduate also spoke to the importance of using the scientific method and asking biological questions in a rigorous manner, stating in the book's preface,* **"never before in the history of biology has this been more important."**

Today, the labs of **Randal Voss** *and* **Liz Debski** *are also engaged in innovative approaches to answering rigorous questions using the salamander as a model for regeneration. Comparing gene expression in mammalian and salamander models, Voss' lab is identifying genes that are important in regeneration of the spinal cord following injury. In addition, Voss has also embarked on a new project with the Department of Defense to develop methods for inducing regenerative responses in mammalian limbs (see page 30). Debski is interested in the salamander's ability to repair its retina following optic nerve damage and ischemia (reduced blood flow), which are major causes of retinal injury and result in permanent visual deficits in humans. Her lab is investigating how the salamander repairs its retina with the hope that this understanding will lead to strategies for achieving visual repair in mammals.*

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In addition, "RP is heterogeneous," says Morris. Unlike some inherited genetic disorders like sickle cell anemia, in which scientists can identify the exact mutation that causes the disease, there are many different mutations that lead to RP. "There needs to be a lot of research done to help us understand and even discover the genes that might be involved," Morris states.

By developing genetic models of zebrafish with photoreceptor degeneration, Morris hopes to identify novel genes that serve as regulators of photoreceptor development and regeneration. Still, Morris admits, "There is quite a separation from what we do and the translation to therapies for retinal disease. Rather, I consider what we do to be the first step."

FINDING THE RIGHT APPROACH – Morris is enthusiastic about bringing this new system to the University of Kentucky, where she welcomes the interdisciplinary nature of the department. "You never know when you are going to get your next big idea," she says.

Upon her first introduction to zebrafish as a postdoctoral associate at Florida State University, Morris "fell in love with the eye." She looks back on this period in her life and remembers, "I had found a system I knew I would be able to work on for the rest of my life."

Using zebrafish, Morris had been characterizing a strain of zebrafish that experience degeneration of their rod photoreceptors in the laboratory of Dr. James M. Fadool at Florida State University. "What I learned along the way was that the fish were trying to regenerate the rod photoreceptors that kept degenerating. This sparked my interest in studying the potential of the zebrafish retina to regenerate and trying to learn what genes may be involved."

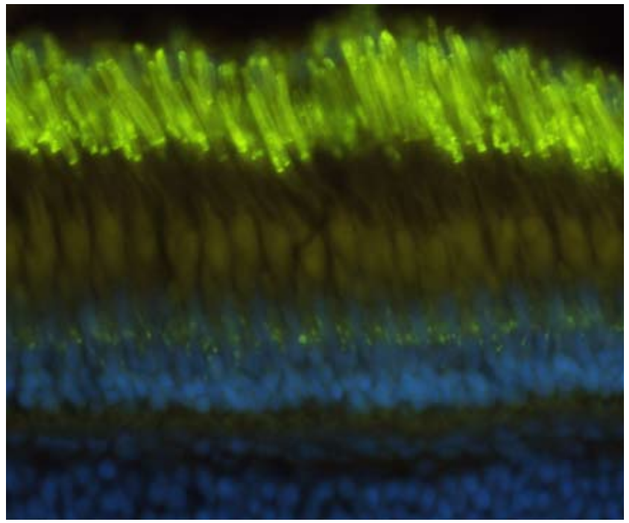
Although the regenerative capacity of zebrafish has been known for many years, researchers have historically focused on methods that involve acute retinal damage, including intense light exposure and mechanical injury. This approach has made it difficult to study the different effects injury may have on rod and cone photoreceptors.

Morris is also interested in exploring the connection between embryonic retinal development and the regeneration of photoreceptors in adult tissues. "Essentially, regeneration is a recapitulation of development, except that it takes place in the context of mature tissues," Morris explains. "The genes that are important for development are probably going to be important for regeneration as well."

Morris' method takes an innovative approach. Focusing on the cellular level, Morris' lab is using genetic models of photoreceptor degeneration to identify the specific pathways that mediate photoreceptor development and regeneration.

"If we learn how it works in fish and do it successfully, maybe we can translate that to therapies for human disease," she says.

Known for their rapid development and vigorous reproduction, zebrafish hatch from their chorions within three days post-fertilization and reach sexual maturity in only two to three months. A successful breeding pair can produce up to 200 eggs a week. For these reasons, zebrafish have become an ideal model for conducting genetic screens with vertebrates. Their transparent embryo and external development also set them apart from other organisms used in regeneration research and make them particularly useful when asking developmental questions.



ABOVE: An image of a section of tissue taken from a zebrafish retina. The tissue section was incubated with proteins that bind to photoreceptor cells and emit a flourescent signal, and the image was captured through a microscope that detects flourescent light. The blue circles indicate the portions of all the cells in the different retinal layers. The bright green signal at the top of the image outlines the light-capturing tips of the rod photoreceptors.

BECOMING A WELL-ROUNDED SCIENTIST – Asking the right questions and finding answers has always been something that has interested Morris.

"I was not someone at an early age who knew what I wanted to do. I had very broad interests," Morris says. "I really focused in on science in general when I realized what I really liked doing was problem solving. I really enjoyed looking at questions and figuring out how to get the answers."

Her career as a geneticist truly began when she analyzed gene expression in green algae as an undergraduate at Florida State and witnessed the growing interest among scientists in studying the human genome. After a double major in French and Biochemistry, she received a doctoral degree from Emory University, where she researched the genetics and regulation of the immune system.

For her first postdoctoral fellowship, she studied eukaryotic DNA replication at the Institute of Human Genetics in the laboratory of Marcel Mechali. Although this furthered her understanding of molecular biology and genetics, it was during her second postdoctoral fellowship at Florida State and her introduction to zebrafish that she truly defined her research question.

"It took me a little longer than most people, but I got there," Morris says.

Morris looks back on her diverse research experiences with appreciation for the new genetic techniques and perspectives that each lab taught her: "It allowed me to become a well-rounded scientist."

"It is a great time to be working in the field," Morris says. "There are so many new molecular and genetic methods that can be used to manipulate gene expression in zebrafish that we were not able to use just a few years ago. We have identified a lot of genes that might be involved in retinal regeneration in zebrafish, but now we really have the tools to test that functionally."

As Morris thinks ahead to the group of graduate and undergraduate students that will help with her own research, she believes the most important thing she can do for these aspiring biologists is to "encourage them to think critically and always ask questions in a rigorous way."

For Morris, this means continuing her understanding of gene expression in zebrafish retina with the hopes of one day making useful contributions to regenerative medicine. **&**

REGENERATING THE TRUTH

RON ELLER STRIVES TO UNVEIL THE REAL APPALACHIA

BY ANDREW BATTISTA

Ron Eller identifies two versions of Appalachia: a real place and an imagined region. He makes this distinction because he has dedicated his career in higher education to addressing the needs of rural communities. Transcending the boundaries of the classroom and library, Eller's research in Appalachian history and culture is motivated by his desire to help people understand Appalachia.

"Although I have written extensively about Appalachian identity and the challenges that stereotypes and images about Appalachia pose to the region, what's most meaningful to me is the task of developing education and knowledge to make a better future for Appalachia," said Eller.

A first-generation college graduate, native Appalachian and professor of history at UK, Eller prefers to consider himself not as academe's preeminent authority on Appalachian studies, but instead as a public intellectual who strives to improve the life in Appalachia and expose the economic and social inequality that has crippled his home region for centuries. To that end, he writes for a public audience and has appeared in a wide variety of media outlets, including Diane Sawyer's "20/20" special "A Hidden America: Children of the Mountains."

Casual observers might be surprised by Eller's suggestion that Appalachia is an idea created by 19th century journalists who wrote for publications in urban areas of the United States. Nevertheless, Eller has long argued that historians and cultural critics should differentiate between a real and imagined Appalachia so they can understand how the region has developed socially and economically.

"The idea of Appalachia has played a major role in how public policies have been established over time," Eller explained. "Appalachia has always been a foil for how urban Americans want to define society and culture. It allows those who view urban life as a positive outcome of America's scientific and technological progress to represent Appalachia as backward and unsophisticated. On the other hand, for those people who don't like urban life, Appalachia is rural bliss, something to be preserved and valued for its rusticity."

Eller extends these ideas in his most recent contribution to Appalachian studies, "Uneven Ground: Appalachia Since 1945," a book that was published last year by the University Press of Kentucky. Eller suggests that Appalachia, far from being merely an idealized counterpoint to mainstream America, is in fact a microcosm of it, a window to our understanding of how we relate to the environment as a nation and a model of the uneven economic conditions that constitute and produce the collective American society.

"The title of my book, 'Uneven Ground,' has a dual meaning," Eller said. "Those of us who are from the mountains refer to our place as uneven ground. Our community exists in a place where the land isn't even, and that rugged terrain informs and creates many positive cultural aspects that come with mountain life."

By speaking of uneven ground as a quality of Appalachian towns, Eller also intends to describe places that experience massive social and economic inequalities. Appalachia has lagged behind the rest of the United States in health, income and environmental stability. Indeed, much of the uneven distribution of wealth throughout the United States can be traced back to the way Appalachia has been imagined.

"APPALACHIA, BECAUSE OF THE WAY THAT IT HAS BEEN MYTHOLOGIZED, IS A PLACE WHERE WE SEE FLAGRANT INJUSTICE TO LAND AND PEOPLE."

"Appalachia, because of the way that it has been mythologized, is a place where we see flagrant injustice to land and people," said Eller. "It's a representation of how we've chosen to develop society and how we've chosen to interact with the natural world around us."

However, as Eller explains his work, he is quick to point out that Appalachia is not just an idea—it's a real place with unique societies and irreplaceable musical, literary and religious traditions. These realities, especially the actual hardships that the people of Appalachia endure, compel Eller to reflect on the relationship between his academic research and his civic engagement.

"Private, but especially public universities have a special responsibility to transfer knowledge and critical thinking skills we have to the community," Eller said. "We are not engaged in just teaching 18–22-year-olds within the confines of a classroom. We have a responsibility, in my case as a historian, to help as many people as possible to learn from our past and then make decisions about how we'll handle our future." &

life & limb

STORY BY KATHRYN WALLINGFORD

PHOTOS BY MARK CORNELISON

DEPARTMENTS COLLABORATE ON $2 MILLION GRANT THAT WILL PAVE THE WAY FOR WOUND-HEALING THERAPIES

The United States Department of Defense recently awarded University of Kentucky professors Randal Voss and Arny Stromberg a $2 million grant entitled "Signaling Network Interactions Controlling Mouse and Salamander Limb" to develop methods for inducing regenerative responses in mammalian limbs.

Using a systems approach, Voss, a biology professor, and Stromberg, the chair of the Statistics Department, will undertake the most complicated models they have yet to face and pave the way for exciting new possibilities for wound-healing therapies. After using genomic tools to determine how salamanders regenerate limbs and how mice respond to limb injury, Voss and Stromberg will build models of the regenerative process by detailing how genes interact during regeneration. Information generated from these models will guide experiments performed by collaborators at Tulane University and the University of California, Irvine. Ultimately, the coupled process of modeling and experimentation will yield the best approach for implementing mammalian regenerative responses.

Ampersand recently had the opportunity to sit down with these two professors as well as the chair of the biology program, Vincent Cassone, to learn more about the implications of this grant, the significance of collaborative research at the University of Kentucky and the Biology Department's commitment to biomedical research.

The connection between the Department of Defense, a biologist and a statistician is very curious. Can you tell us more about this collaborative effort?

VOSS: I collaborate with a couple of researchers [Ken Muneoka at Tulane University and David Gardiner at the University of California, Irvine] that use the salamander model and a mouse model for regenerative research. They have been funded by the Department of Defense for the last five years on a project to stimulate a regenerative response within a mammalian digit. They use a salamander called the Mexican axolotl to learn about regeneration. We maintain at UK the only large captive breeding colony of axolotls in the world. This is funded by NSF [the National Science Foundation].

Salamanders have an ability, which is widely recognized by biologists, to regenerate complex body parts, including limbs, spinal cord, and part of the brain – almost everything. Over the last eight years, NIH [the National Institute of Health] has made an investment through my lab to start developing genome resources to make a salamander model so we can learn something about regeneration at the molecular level. We have hundreds of years of descriptions of salamanders regenerating complex body parts, but we do not know what is happening inside the cells of salamander tissues – arms, legs, heart - that can regenerate. In particular, we do not know what genes are doing during regeneration.

STROMBERG: We will use statistical pattern matching to identify sets of genes that differentiate a regenerative response from a non-regenerative response. Many biologists use cluster analysis to group genes with similar expression patterns. Typically, groups of genes identified in this way are difficult to interpret biologically because they contain many false positives. Statistical pattern matching eliminates most of the false positives, making the group of genes much easier to interpret.

CASSONE: The collaboration also says something important about UK. It is an institution that is committed to biomedical research, and yet involves a basic biology department where researchers study the axolotl, wild bird species, wild fish species, and things that are not typically employed in medical research. It is a testament that by using these specialized non-traditional models, we can provide insight in real biomedical issues and really apply these to therapies.

STROMBERG: We are all in the same college (A&S), but we are working on a project that also interests the UK Medical Center. One of the things that UK does better than other places is collaboration across the university. This project might have never have happened if we were at a different university. The fact that we can do this is special.

What are the immediate and long-term goals goals for this project?

VOSS: The genome of a salamander is so large that it would be very difficult to sequence, even with next generation sequencing technologies that are available now. So, the first short-term goal is to sequence in-depth mRNA transcripts from regenerating salamander limbs and build protein models for all 20,000 genes. We have already made great progress. The second step is to make the tools to measure the abundance of mRNAs, which will tells us how genes are expressed. These tools are available for mice. There is an interesting mouse model where early in development the mouse can regenerate in the same way a salamander regenerates its limb. It even makes a blastema [a mass of cells capable of growth and regeneration into organs or body parts]. It is a very limited regenerative response, but provides a good model for engineering, using information from the salamander regeneration model.

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L to R: Randal Voss, Arny Stromberg, and chair Vincent Cassone

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In a systems approach, you first recognize that the problem is complicated and has a lot of components and that you need an appropriate approach to deal with that complexity. After you build a model of it, you need to go in and perturb some aspects of the model that you are most interested in. And this is where it becomes a flow of information between the groups. We start by making the model and then we give our collaborators the model. They think of ways to experimentally perturb the model to engineer, for example, a regenerative response in the mouse or a non-regenerative response in the salamander. We re-make the models after the perturbation and this informs the next set of experiments.

Can you tell us more about the significance of each of your approaches and why they are so novel?

STROMBERG: The idea is to understand the complexity of the situation. How can we better understand how all these genes work together? Statistically, we are hoping to figure out which genes follow the same patterns. We are trying to interpret gene expression over time. Essentially, the whole aim of the study is to study how the genes change expression as regeneration is happening, and to model this has not been done before. We want to group the known genes with the unknown genes with the hope that with statistics, we can determine which ones are biologically interesting and involved with the regeneration process.

VOSS: The project will deliver the most detailed models of salamander limb and mouse digit regeneration ever developed. We are originating a systems biology approach to a complicated biological problem that has clear human health implications.

You all are very accomplished in your fields. How does this grant compare to other research grants you have worked on? What makes this so exciting?

STROMBERG: Well, it's more complicated. These are more complicated models that we are trying to put together than we have ever done before. And more time points. I think we have 13. I think the most we have looked at in other studies within the university is five.

Can you tell us what you mean by "time points?"

VOSS: So, temporally it will take the salamander 70 days to regenerate its arm. What we are looking at is an early 13-day period. Within 7-8 hours after an arm has been cut off, epithelial cells cover the wound thousands of times faster than happens in mammals. During this first 13 days the cells are being reprogrammed to become the blastema, which is needed to orchestrate regeneration.

STROMBERG: The key is we have more time points focused around the time when the important decisions are being made within cells. With more time points, we get a better idea of what is happening as cells are being reprogrammed. It's just more information. We have more information about the genome, a better gene chip, and with more time points, we will be able to tell better what is happening.

Scientists at the University of Kentucky follow an important legacy. As you very well know, the biological building at UK is named after Thomas Hunt Morgan, who graduated from the University of Kentucky in 1886 and later won the Nobel Prize for his developments in understanding the role chromosomes play in heredity. Although he is best known for his accomplishments in the field of genetics, in his 1901 publication, "Regeneration," Morgan emphasized the significance of regenerative capacities of organisms and the implications this had for the field of biology. How does it feel to be a part of this legacy?

CASSONE: That is interesting. My Ph.D. advisor and I are now studying something completely different from Thomas Hunt Morgan. However, his thesis advisor actually studied with a student of Morgan. So, there are several legacies. They are the legacies of biology and legacies of genetics. But the students that Morgan actually trained ended up being the foundation of much of modern biology in diverse areas. I am essentially a neuroscientist, and yet I can follow my background back to Thomas Hunt Morgan. So, he was an incredibly prolific scientist in context of his own research, but also in having people who trained people, who trained people, who trained people.

On that note, scientists have come a long way since Morgan's first work with Drosophila. What, in your minds, have been the biggest milestones in science that have allowed you to ask the rigorous questions that you are asking today?

CASSONE: Really, biology is the most dynamic scientific discipline. There is more integration in biology with fields such as genetics, neurobiology and ecology than we can analyze. And that is one of the reasons many of us have developed collaborations with people like Arny. Biologists have collected sequences of some 200 species and are annotating more, trying to compare them, looking at how they are dynamically expressed, and, frankly, our personal brains are not big enough to grasp the amount of information that is being collected. As biologists collect information, we have to develop new ways to understand biology. The biggest milestone is probably ...

STROMBERG: ... the proliferation of information.

CASSONE: Yes, including the identification of the structure of DNA, the identification of the gene as the unit of transcription and the human genome project.

VOSS: The human genome project spun off a lot of other systems biology projects.

CASSONE: The truth is the human genome project has created a way of thinking about biology that we have never thought about.

New, innovative genetic approaches are an important aspect of research at the University of Kentucky. As university scientists continue to make important contributions to the field of science and their understanding of regeneration, what is the next step for the fields of biology and statistics following this trajectory?

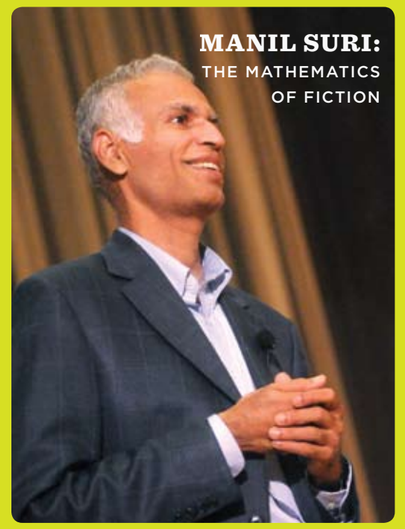
STROMBERG: Data analysis cannot keep up with the amount of information being generated. We can have the fastest computers in the world and the best statisticians, but there will always be more data than we can look at. It's just impossible. Important decisions have to be made about what data to look at. The DOD has made a decision to look at this data because it has the potential to be very useful.

In this edition of Ampersand, we are highlighting regeneration. What does this word mean to biologists and statisticians?

STROMBERG: We want to get the cells to do what we want to them to do.

VOSS: You want to introduce a true regenerative response inside an individual. You do not want to have to invasively go in and engineer a regenerative response by transplanting tissues or organs. That is what we are really trying to work at: the induction of a true regenerative response. &

HALL OF FAME 2009 HIGHLIGHTS



MANIL SURI:
THE MATHEMATICS OF FICTION

"Many people like mathematics while in school, but then have no further opportunity to enjoy it. It's not like art, for which you can go to a museum to satisfy a craving. I'd like to help push mathematics into the cultural arena."

– Manil Suri
www.manilsuri.com

DR. CHRIS M. MCDANIEL '97

Compiled by Guy Spriggs

BIOGRAPHY

Born in Bowling Green, Ky., in 1974, **Chris McDaniel** is a practicing chiropractor, film producer, record label owner, published author and proud University of Kentucky graduate. Although his family moved to Scottsdale, Ariz., when he was in second grade, McDaniel always knew he wanted to come back to Kentucky and did so, receiving his bachelor's in psychology from UK in 1997. McDaniel attended chiropractic school in Atlanta, where he completed his doctorate and an additional degree in extremity adjusting, allowing him to become the only board-certified chiropractic extremity physician in the state of Arizona. He runs a private practice in Scottsdale close to his family. McDaniel became a fellow of the University of Kentucky in 2008.

TRIVIA

Is the founder and president of the University of Kentucky Alumni Club of Arizona.

Things he misses most about Kentucky: his grandmother in Park City; UK basketball at Rupp and football at Commonwealth; Ale-8; biscuits and gravy at K-Lair; Gold Star Chili; and late-night burgers, cheese fries and shakes at Tolly Ho.

Produces movies through his film company, Semi-Rebellious Films. Also produces albums through his label, Semi-Rebellious Records.

Is an avid golfer, scuba diver, moviegoer and concert junkie.

Was the president of Haggin Hall as a freshman.

Is the only fifth-generation cave guide in the history of Mammoth Cave.

Is the inventor of the Carpel Funnel, a patent-pending chiropractic device used to strengthen the wrist and reduce the need for carpal tunnel surgery.

PERSONAL QUOTES

"Don Witt told me, and it was the wisest thing anyone said to me, that the truth of the matter was I had to do what I was interested in. He said I could major in trumpet and still be a doctor. And without listening to the guidance of Adrienne McMahan, my plans never would have come to fruition."

"Believe it or not, I never ever feel overwhelmed. I would say the fact that I do so many things that I want to do is 99 percent of it. I really don't do anything I don't want to do. I find an interest or have a hobby and I put effort into that. It's easier to put effort into something you love yourself."

"I think it's really important, even though I'm far away, that people know I support UK and love it and want to further my relationship with UK, to further UK throughout the world in general. When Lauren Kidd came to me about becoming a fellow it was a no brainer. I will support the University of Kentucky until my dying day and beyond."

FILMOGRAPHY:

1. Producer, **"Queens of Country"** (2011) (pre-production) – Comedy feature

2. Producer, **"Blood Into Wine"** (2010) (post-production) – Documentary

3. Executive Producer, **"The Heart Is a Drum Machine"** (2009) (completed) – Documentary

DISCOGRAPHY:

1. John Oszajca: **"Elephant Graveyard"** (2007) Alt-country

2. The Runaway Diamonds: **"God's Mom and Her Turquoise Chow Chow"** (2007) Experimental pop/rock

3. Treasure Mammal: **"You Wish I Was Channeling Your Spirit"** (2007) Electronic pop/rock

BIBLIOGRAPHY:

1. **"Curse of the Cracked Clock Caverns"** (2011) Teen adventure novel

2. **"Tortuga Gold"** (2011) Action/adventure novel

3. **"Move the Chair"** (2010) Self-help/motivational book

4. **"The Adventures of Dusty Popsallot"** (2010) Children's story

5. **"Loss of Voice: My Poetic Journey"** (2006) Poetry collection

Further information on McDaniel's endeavors, including book details and movie trailers, can be found at: www.McSpine.com.

Travis Smith, a biology major, is the current recipient of the Shown Scholarship.

GIVING BACK FIRST TO FOSTER A SECOND CHANCE

Scholarship rewards students who return to earn their degree.

By Robin Roenker

The son of a hardworking middle-class tailor from Owensboro, Ky., **Dr. Thomas E. Shown** learned early on about the value of a good work ethic. And about the value of giving back.

"I don't believe in getting something for nothing," said Shown, a 1957 University of Kentucky Arts & Sciences graduate and semi-retired urologist from Winston-Salem, N.C.

What Shown does believe in is lending a helping hand and paying forward any favors life gives you to help others along their way. That was his motivation for establishing the Thomas E. Shown, M.D. Scholarship, a renewable, $1,500-per-semester scholarship for second-start students ages 20 and older – nontraditional students who formerly left college but have returned to pursue their degrees.

"I've been successful and felt the need to pay something back," said Shown, who majored in anatomy and physiology at UK. "One way to do that was to establish these scholarships."

Shown – an active outdoorsman, white-water kayaker and skier who still works about 50 days a year – has also established scholarships at the University of Louisville, where he attended medical school, and at a local technical school in Winston-Salem, where they are awarded to adults pursuing their Licensed Practical Nurse (LPN) degrees. Students who earn Shown's UK scholarship have to maintain at least a 2.75 GPA and work at least 20 hours per month off campus.

He felt that earmarking aid for second-start students who are balancing the demands of family, work and college was essential.

"These are the people who need it," he explained. "People get a little bit smarter sometimes after they've left college for whatever reason. Then they go and work for a couple of years and say, 'Hey, maybe I should be paying attention.' Then they're more interested in working and going back to school. They regard getting an education as a privilege."

That's certainly been the case for 34-year-old biology major **Travis Smith**, a Richmond native and current recipient of the Shown Scholarship. Smith attended UK "on and off" in the mid-1990s, but, by his own account, partying was too much a focus, and he finally dropped out. Smith then took a job as a customer service representative at a local cable company. He thought that earning a college degree would forever be out of reach.

"My grades were terrible. My loans had gone into default. I just thought it was a dream that I'd never be able to fulfill," said Smith, a father of two, ages 12 and 13.

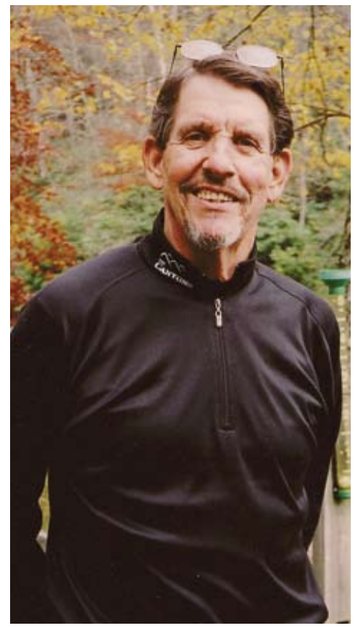
> "People get a little bit smarter sometimes after they've left college for whatever reason... they regard getting an education as a privilege."

After being laid off from his job, Smith re-enrolled at UK in fall 2008, and with the help of the Shown Scholarship, this time around has been a much more positive experience.

Smith – who has his own part-time computer repair business – is just a few credit hours away from being a junior, and he's considering going to medical school after he earns his degree.

Dr. Shown hopes that recipients of his scholarship look at the financial aid as a type of temporary loan – one they can pay back in the way of helping others when they themselves are successful.

"I want them to do the same thing I've done for someone else coming along the way," Shown said. "Then we'll have a pyramid of help, and the reach will just keep expanding." &



Dr. Thomas E. Shown, '57, has established the Thomas E. Shown, M.D. Scholarship, a renewable, $1,500-per-semester scholarship for second-start students.

FIGHTING FOR HER ACCENT

A&S alum stands up for Appalachian English

By Brian Connors Manke

Rebecca Greene knew one thing when she came to college from Elliott County in Eastern Kentucky: She was going to leave her tiny hometown of Sandy Hook and become an astrophysicist. No doubt about it.

Both her parents were teachers, and she was reading at a very young age. Greene seemed far enough ahead of the other kids that she was "outcast and ostracized" from the start. "So, I was turned against my hometown in certain ways," Greene said. "I thought I needed to get out of there—that it was suffocating and oppressive."

After landing a Singletary Scholarship to UK, she signed up as a double major in physics and linguistics. The linguistics part of the equation came from a paper she did in high school on the science of language. That idea—the science of language—swirled in her head. "I wanted to be an astrophysicist, and I just wanted to learn about linguistics because it was neat," Greene explained.

Halfway through her first semester at college, things were completely upside down for Greene. The calculus and physics classes she was taking were wearing thin, and she suddenly knew that her definitive plan of becoming an astrophysicist was being erased.

The other change was more personal. Back in Sandy Hook, she was an outcast for being the book-smart nerd. But, as she explains, "When I came to UK, I got picked on every day, all the time, because I sounded like a hillbilly." Students would often laugh at the way she said certain words and ask her to repeat herself as they chuckled.

"I was on the reverse end of things, because I was the redneck," she said. "That got me interested in sociolinguistics—and language attitudes and language ideology."

Although not a pleasant experience, at that point the science of language was truly beginning to reveal itself to Greene. Linguistics was no longer just "neat," but her new, full-time passion.

With professors like Greg Stump, who she says is the "best teacher I've ever had, hands down," guiding her deeper into understanding all that linguistics encompassed, Greene had a new career path. Since then, it's just been a matter of how the journey has unfolded.

A Gaines Fellow while at UK, Greene studied abroad in France and got her ESL teaching certificate. Another abroad opportunity arose, and she then immersed herself in Japanese culture and language while she taught English in a southern rural high school in Japan.

Having finished her undergraduate degree by the time she was in Japan, Greene was ready to continue with her academic pursuits and was accepted to Stanford. There, she faced similar adversity as when she first arrived at UK. Her fellow graduate students mostly came from prestigious Ivy League schools, and she again felt isolated and out of place as she tried to find her unique voice in the academic world. Frustrated, she dropped out in her fourth year and moved to Florida. But odd jobs weren't cutting it and she knew that she had something to say—about her linguistics, about Appalachian English. She headed back to Stanford with a new determination.

"My Appalachian culture allows me to be brave and not care what anybody thinks about me. That helps me in academia—to stake my own path out." Greene says her professors criticize her for being too political about her research and accuse her of having an agenda. She couldn't agree more—with her sociolinguistic interest, the political was sure to follow.

> "I'd like to bring issues of Appalachian English to a national discourse."

"I want to look at social change and ideology, culture and power," Greene said. "I want to write books for the lay public in addition to being an academic, and to use academia as a springboard to change the culture. I'd like to bring issues of Appalachian English to a national discourse—you usually only really see it in the Appalachian region, and nothing is going to change if it's not brought to national attention."

Greene wants to see how Appalachian stereotypes are perpetuated and how they directly affect people's lives. "On TV, the only time you hear someone talking like an Appalachian is when they are being a buffoon," she noted. "What does that mean? How do we fix that? We are careful about getting racial representation on TV shows nowadays—but 50 years ago that was a joke. Now we've come around to the understanding that that is important—to see upper-middle class African-Americans on the Cosby Show. We need to know that Appalachian English speakers can be in academia. Because most of us, when we get in academia, we drop it—we're afraid of being stereotyped, and we want to sound smart."

"How's another little girl from Eastern Kentucky ever going to feel like she can be a professor if she's never heard a professor talk like her?" she ponders.

Greene is in the stage of figuring out the best route to do just that. Does she go back home and try to start doing things on a grass-roots level? A tough proposition for sure. "When I go home and talk politics to people, they are jaded and disgusted by the whole thing—there is no interest in it. They say 'we've been written off for so long, what's the point?'"

The activist inside her soldiers on, though. "I want to try and be as loud as I can and say 'I'm representing these people here. And you can't do whatever you want to us.'"

Greene cites mountaintop removal of the Eastern Kentucky landscape as an example. "It's egregious and sickening and has a lot to do with the way people see Appalachia and our ancestors—that they are not real people that matter and we can do whatever we want to them. Because they wouldn't do mountaintop removal in California and they would have the power to stop it. Why don't we have the power to stop this?"

Greene is set to change those patterns, and she's got just the voice—and accent—to do it. &

& questions & answers

Current graduate student
Natalie Glover
philosophy & psychology alum '08

interview by Megan Neff

Natalie Glover bears no material resemblance to Wassily Kandinski. But the 23-year-old psychology graduate student has dealt with the abstract in ways that oddly parallel the Russian abstract painter and art theorist.

The most obvious parallel is that Glover is a painter, too. And like Kandinski, she realizes the intrinsic value of art in dealing with matters of human nature – of reflecting what is not only aesthetically pleasing, but also internally revealing.

&: Was your first major philosophy?

No, I picked up the philosophy major about a year or so into college because of all the extra gaps in my schedule. Instead of just taking several electives, I decided to pursue another degree in this area of interest.

&: How has your interest in art factored in to your undergraduate experience?

I was an art studio minor for awhile. Though the courseload ended up being too taxing, I'm grateful for what I learned and attribute lots of my skill to my practice in classes I took at the Reynolds Building.

&: Do you see it influencing your work still?

Not on a conscious level. Subconsciously, though, I think art helps us view the world in deeper, more abstract ways, and that kind of thinking is useful in psychology.

&: What drew you to philosophy and psychology?

I was drawn to psychology because of a desire to directly impact people's lives for the better; also it was the only class in high school I looked forward to attending. Philosophy intrigued me because it allowed me to ponder concepts that I had never before considered, and gave me a richer, more informed opinion of the nature of reality.

&: What would you say are the strengths of the philosophy program at UK?

We have an amazing faculty and a variety of courses to take; it is also relatively small, so individual attention is easier to come by.

&: How have you seen the two fields intertwine?

They are both largely the study of how we interpret the world, psychology being on a practical level and philosophy being on an abstract one. Both can and do inform the way we behave, process information, and make decisions. In other words, they both concern the somewhat elusive concept of "the mind."

&: In what ways has the philosophy program influenced you in terms of your worldview?

It has made me a lot more open-minded and encouraged me to consider things from all angles instead of taking a dichotomous, or black and white approach.

&: And in turn, how has psychology affected your perspective and professional goals?

The study of psychology has made me more aware of the importance of mental health, as well as our capability as humans to, in large part, regulate our behaviors and emotions. Professionally, my desire to become a therapist grows every day.

&: Do you see either as having an exhaustive amount of influence?

No. Psychology obviously has more of a bearing on my current work, but both play a significant role in my life.

&: Any particularly influential philosopher?

Immanuel Kant. I love the way he takes apparent contradictions and marries them in a workable fashion. Just another example of non-polarized thinking.

&: What are you working on now?

I am currently seeing a client at the Harris Psychological Services Center, working on the Brian Injury Unit conducting neuropsych assessments at Cardinal Hill Rehabilitation Hospital, finishing up two seminar courses, and working on my master's thesis.

&: And where do you see yourself going in the next 10 years?

Working as a therapist and possibly teaching on the side. Ideally, I will eventually have my own practice and make therapy more affordable; I think most of the people in need of counseling simply don't have the money.

&: Who is your biggest source of inspiration?

My closest friends—they make my life worthwhile and I don't know what I'd do without them. &

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