BEREA

COLLEGE MAGAZINE WINTER 2010

Scientific Inquiry


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CONTENTS

BEREA COLLEGE MAGAZINE www.berea.edu/alumni/
WINTER 2010 : Volume 80 Number 3

22

Thought Patterns– Finding New Hope in Alzheimer's Research

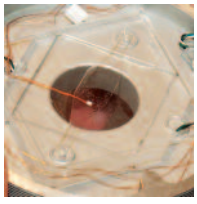
Student Managing Editor: Deb McIntyre, '11

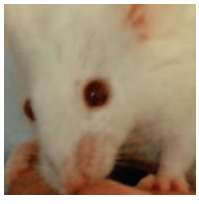
Contributing Writers:
Jay Buckner, Libby Kahler, '11, Monica Leslie, '12, Michael Loruss, '09, Deb McIntyre, '11, Robert Moore, '13, Ahmad Shuja, '11, Megan Smith, '11, Morgan Smith, '12, Kate VanEchute, '11

Front Cover: Rocky Tuan, '72, photo by Mike Drazdzinski
Inside Front Cover: Linh Nguyen, '10, photo by LeAnna Kaiser, '12
Back Cover: midyear graduate Stephen Amick, '09, photo by Aaron Gilmour, '12

FEATURES

DEPARTMENTS





BEREA COLLEGE MAGAZINE

Normandi Ellis, **Editor**

William A. Laramee, **Vice President, Alumni and College Relations**

Timothy W. Jordan, '76, **Director, Public Relations**

Mae Suramek, '95, **Director, Alumni Relations**

Correspondence and Reprints
If you have comments, questions, or suggestions for the *Berea College Magazine*, or would like information about reprinting any article appearing in the magazine, please contact:

Normandi Ellis
Editor, *Berea College Magazine*
Berea College
CPO 2142
Berea KY 40404

or e-mail normandi_ellis@berea.edu

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AT YOUR SERVICE

Web:	www.berea.edu
E-mail:	mae_suramek@berea.edu
Mail:	CPO 2203 Berea, KY 40404
Phone:	859.985.3104 Toll free: 1.866.804.0591
Fax:	859.985.3178

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GOD HAS MADE OF ONE BLOOD ALL PEOPLES OF THE EARTH
BEREA COLLEGE

EDITOR'S NOTE

What is a scientist after all? It is a curious man looking through a keyhole, the keyhole of nature, trying to know what's going on.

–Jacques Cousteau

I like three-year-olds. They ask "why" a lot. "Why?" is a great question, along with "How" and "What if..." There are no silly questions – from a three-year-old's quizzical "Why are people different colors?" to a medical researcher's inquiry, "How do chickens grow bones?" or "Why do thoughts become tangled?"

For some time I've been a fan of the book *How to Think Like Leonardo da Vinci* by Michael J. Gelb. Certain habits of thought and experience gave da Vinci the capacity to become a heavy-hitting, multitasking, Renaissance Man–inventor, artist, scientist, musician, botanist, writer... The list goes on. Those traits were: curiosity, experiencing life through trained senses, analyzing experience, embracing uncertainty and ambiguity, working both sides of the brain (scientific/artistic), physicality, and recognizing patterns and connections.

These are traits each of our alumni featured here demonstrates as a medical doctor, researcher, or nurse as they go about their work in hospitals, laboratories, and clinics. Each felt that their Berea education served them well, helping them to achieve their goals through the cultivation of a strong work ethic and a love of inquiry.

Medical researchers Rocky Tuan, '72, and Mark Lovell, '87, hope their research questions will provide answers that will address critical medical problems. At the University of Pennsylvania, Dr. Tuan performs groundbreaking research on orthopaedic stem cell regeneration that will change the way joint damage can be repaired. Dr. Mark Lovell at the Sanders-Brown Center on Aging has come closer to diagnosing and preventing Alzheimer's disease before the devastation begins.

Then there are the personal questions like those that faced our alumni Paul Law, '92, and his wife Kiely Law, Cx '95. Perhaps after the birth of their autistic son they wondered "Why did this happen?" and "What now?" They turned those questions into the creation of the Interactive Autism Network, a community of parents whose children are affected by autism. One of those parents, a student writer for the *Berea College Magazine*, Deb McIntyre, '11, used her experience as the parent of an autistic child to inform her interview with the Law family.

Bereans often ask the question: "How can I help?" Dr. Linda Moneyham has taken her deep empathy for seriously ill rural women and created a counseling network for women suffering from AIDS/HIV. Others, like Howard Strickler, '75, and Freda Turner '72, work in communities to solve problems with drug addiction and lack of medical care.

With a childlike curiosity about the world, Bill Harrison, '86, his wife, and their three young children are pedaling a tandem bicycle across America to discover how others live and what they think. And they teach their children math, social studies, reading, writing, and science through experiential learning.

Reading all of these stories makes me proud to be part of a community in which the central question is "What's the most important thing I can do with my time?" or "Why am I here?" Good questions. Tell us your answers. Maybe it will become the subject of another enlightening Berea story.

Normandi Ellis

Two Boys, Two Families, and a Thousand Questions

John McIntyre (age 12 months)

Isaac Law (age 12 months)

BY DEB MCINTYRE, '11

There once were two adorable toddlers named John McIntyre and Isaac Law. They both had engaging smiles, blue eyes, loving parents, supportive extended families, and showed every promise of growing up to be something special. Like other babies, on their first birthdays their parents threw them a party and they had fun smearing frosting all over their hands. A few months later, their parents began to notice that something was not right.

In 1988 my son, John McIntyre, was a handful—constantly on the move. At 18 months he could not sit still long enough for me to cuddle with him or read him a story. He didn't verbalize as much as his brother had at that age. The pediatrician assured us that he was fine—just an active little boy. At two, he would say only a few words and occupied himself by spinning plastic bowls on the kitchen floor or repeatedly filling a cup with water from the sink and watching mesmerized as he dumped it out.

Instead of asking for a snack or pointing to what he wanted, John pushed a chair to the counter and climbed to the jar of peanut butter. He brought it to me along with a spoon from the drawer. If I did nothing, he passively took my hand and placed it on the lid. If I offered him a spoonful, he grabbed it and ran. I was a tool—nothing more. He did not point to objects in a picture book when I asked and hardly reacted when I called him, or when he heard a loud noise that made other children jump. In 1988 when our new pediatrician asked me to describe my beautiful son, it broke my heart to tell the truth. "He's odd ...," I said.

In 1994, Paul Law, '92, and his wife Jessica "Kiely" Starnes Law, Cx '95, also feared that something was amiss with their 15-month-old son, Isaac. Kiely was finishing a degree in chemistry at the College of Notre Dame, and Paul was a third-year student at Johns Hopkins Medical School.

"Although Isaac would look straight into the camera and smile, he really wouldn't look straight at me," says Kiely. "If you tried to distract him by calling his name, it was as if he didn't hear you. If you forced him to stop, he would get very angry and throw horrendous tantrums." Isaac's speech was delayed and he moved nonstop—pacing, forcibly banging his head on the floor when agitated, and sometimes engaging in odd behavior. "There was one day when he got two glasses and a bunch of coins and he poured the coins back and forth between the two glasses," says Paul. "He did that for about six hours."

John wandered around the house, always on the move. (1988)

Already diagnosed with autism, John loved spinning objects. (1991)

John played so often with his favorite toy, a wand with streamers, that it was usually destroyed within a few days. (2000)

On the Ides of March 1996, John was 34 months old when my husband, Cleon, and I got the news that our son had autism. He would likely never regain his speech, play sports, marry and have children, or call me Mommy. Numb, I sat in silent sorrow trying to take in all that the developmental specialist told us. Through my tears, I couldn't take my eyes off my son. John repeatedly walked under a shelf, banging his head, withdrawn and apparently oblivious to any pain.

Even with their medical backgrounds, the Laws didn't suspect their child had autism right away. At the time, Paul says, the extent of his knowledge about the disorder was limited to a 20-minute class lecture. "Our first concerns for Isaac developed when he was about 15 months old, but it was a long journey to the diagnosis." The pediatrician dismissed their fears, saying "Oh, he'll catch up; he's a boy. There's nothing to be worried about." Isaac's communication was so limited that the Laws had his hearing tested, but when that was found normal, they were back to square one.

After the Laws' health insurance company approved an evaluation at the nearby Kennedy Krieger Institute, Isaac was diagnosed with Pervasive Development Disorder-Not Otherwise Specified, an autism spectrum disorder (ASD) on his third birthday. "I just sat and cried," says Kiely, who knew Isaac's future would not be the one she dreamed for him. "Isaac was holding on to the

Ray Davis, '11

Cleon and Deb McIntyre cherish photos like this one of John at age two.

The Autism Society of America lists the following signs that may indicate autism in young children:

- Lack of, or delay in, spoken language
- Repetitive use of language and/or motor mannerisms (e.g., hand-flapping, twirling objects)
- Little or no eye contact
- Lack of interest in peer relationships
- Lack of spontaneous or make-believe play
- Persistent fixation on parts of objects

(locked) door knob. He was crying and saying 'go' because he wanted to get out. I wanted to go home, too."

Paul always wanted to be a doctor. As the son of missionaries in the Democratic Republic of the Congo, he came to Berea College planning to get a degree in public health so he could return to West Africa and be the first western physician to serve the people while speaking the native language. At Berea, the chemistry major excelled academically, earning the prestigious T.J. Wood Award for outstanding scholarship and campus leadership. Paul was also an accomplished athlete, breaking several long-distance running records.

During his senior year, Jessica Kiely Starnes, a freshman from Tennessee, caught his eye during a short term class. Kiely, like Paul, planned to make medicine her career. Two years later they were married, living in Baltimore, and expecting Isaac. Kiely finished her bachelor's degree in 1995, eventually earning a master's degree in public health and a medical degree from Johns Hopkins.

The McIntyre family with siblings Megan and Chris before John moved to Indianapolis.

"The day Isaac was diagnosed with autism was a pivotal moment that changed the course of my life forever," says Paul, who embarked on a journey of advocating for Isaac that led him to a new career field. Paul eventually created and launched the Interactive Autism Network, (IAN, see p. 10) a project that has the potential of improving the lives of millions of people lost in the puzzling world of autism.

When he was eight, John was enrolled in a new Medicaid waiver program that provided speech, occupational, and behavior therapy, for him and much needed respite care for us. Within 10 minutes, however, after observing John run around the house, never sitting still for more than 10 seconds at a time, the behavior therapist said, "I can't work with him until he gets on some medicine to calm him down." The first time the Ritalin kicked in and John sat quietly beside me on the sofa, I was stunned. I remember thinking at the time that it was as if he wore an invisible straitjacket.

After a few months, however, Ritalin's side effects indicated giving a different medicine a try; then another, then another. With each medicine, our hopes rose, but then he'd be too sleepy, or too aggressive, or stop eating, and we'd have to start all over. By the time he was nine-and-a-half, the combination of medicines had John's system so impaired he was drooling and engaging in frequent self abuse and lashing out with slaps, pinches, head butts, and bites. He spent 40 days through Christmas 1995 in a mental health facility. He was not yet ten.

The behavior of children with milder forms of the disorder, however, often improves with age. After a year in special

Kiely, Issac and Paul Law

education, Isaac's negative behaviors decreased and he transitioned to regular classes. At 16 he is two years older than most of his classmates and attending a public high school with a personal aide. His speech is normal as long as he talks about his favorite topics: monsters and space aliens. He enjoys drawing and doing online research. "He is like other teenagers in that he listens to music on his iPod and likes to play computer games," says Kiely. "The major difference, however, is the lack of friends. He doesn't call classmates, send text messages, or have a Facebook account."

We finally got to the point where John was more than we could handle. He was so strong it would take at least four adults to hold him down for an allergy shot. Two months before his 11th birthday a space opened at a new group home for boys with autism in Indianapolis, 75 miles away from home. With feelings that mingled relief with a deep sense of loss, we signed papers to give the group home professionals the responsibility for the daily care of our son. John attended special education classes in public school until he turned 22. This summer he moved into an adult care home.

Around the time of Issac's third birthday party (seen here at day care), he was evaluated at the Kennedy Krieger Institute and diagnosed with autism.

Paul's reaction to his son's diagnosis was to seek answers. "I began to look at the medical literature on autism, and it turned out that the autism medical field was very, very far behind." He conceived an idea for a national online registry and believed that if it could connect people "that maybe there would be some answers for this disorder that people knew so little about," says Elise Welker, IAN communications manager at Kennedy Kreiger. IAN's goal is to answer the questions that surround ASD.

The big question, of course, is why autism is increasing. In 1989 statistics indicated that autism spectrum disorders occurred in 1 out of every 1,000 children. The most recent statistics from the National Children's Health Survey says that number may be 1 in every 115. "I think the biggest factor modifying those numbers may be the increased awareness of autism. People are looking for it. They are aware of it. However, I also believe part of the measured increase represents a true increase in prevalence."

There is a genetic factor, according to Paul. Ninety percent of the time when one identical twin has autism, the other will also. With the advances in genetic research, there was hope that

scientists could quickly find the genetic causes of autism, but this hasn't happened. "It has become very clear that autism is an *extremely* complicated collection of genetic disorders with lots of different ways that genes can interact to cause autism," he says. "This is unfortunate because it's going to complicate autism research for the next 20 years. We definitely have a long way to go." There is also mounting evidence of an environmental component. For example, a recent fraternal twin study showed that 30 percent of children with ASD who have a fraternal twin, share the disorder with their twin, up 10 percent from the last time a similar study was completed, according to Paul.

IAN has documented over 487 treatments that families use for their autistic children. "The vast majority (of treatments) haven't been proven scientifically, but that doesn't mean they don't work," says Paul. So far, two treatments have proven to help with behavioral issues. Risperdol is a drug approved by the Federal Drug Administration for decreasing the irritability and self-injurious behavior that plagues many children and adults. Also, applied behavioral analysis therapy has a lot of evidence behind it and some insurance companies are beginning to assist with the cost. Paul believes that the answer to the many autism questions lies in identifying and finding treatments for the different subtypes. John and Isaac aptly represent the differing capabilities of people with ASD.

John is 5 feet 5 inches and weighs nearly 200 pounds. He doesn't speak, he squeals. He has a tendency to dash into traffic when excited. Unless he is sick, he is always moving, wandering about the house or sitting while rocking vigorously back and forth or rapidly twirling a string on the ground. When frustrated, he throws tantrums, lashing out physically at whomever is nearby and destroying property. He is 23 years old. When we picked him up for a recent visit, he tried to dash out the door with his shirt inside out, shoes untied, and no jacket. At lunch he squealed loudly, flapped his arms, and jumped out of his seat, disturbing other restaurant customers. He loved riding in the car with a Beatles CD blasting, but was not happy when we returned to the group home. I didn't get a kiss or hug goodbye. It was the first time we had seen him in two months. It was a very typical visit.

Isaac, age 5, on his trip to Lake Okeechobee in Florida, fished with his father and uncle.

Issac at age 10 participated in a rope course.

courtesy Real Simple

Keily Law and Paul Law with their children, (L-R) Sarah (age 5), Joseph (age 4), Isaac (age 16), and Abigail (age 9)

While the outlook for Isaac's adult years may be brighter than many others with the disorder, Kiely knows the concerns are still great. "We are apprehensive as we approach the end of Isaac's schooling. We are already aware of the many challenges adults with ASD face and the lack of available services and support. This phase may be one of our biggest challenges yet," she says. Isaac struggles with basic social interaction. "I have concerns about the options he will have for employment and whether he will be able to be financially independent. I think my biggest fear, as a mom, is that Isaac will lose confidence in himself as he faces the challenges ahead. I worry that others will take advantage of him and destroy his zeal for life."

Despite the worries, the Laws remain optimistic. Paul hopes Isaac will grow up and have friends, a job, hobbies, and live in a place of his own someday where he can "be an active participant in the family and seek to help others." Kiely wants him to "achieve his full potential and to be comfortable with who he is and what he

IAN interactive autism network

A web project of Kennedy Krieger Institute • Sponsored by Autism Speaks

The Interactive Autism Network (IAN) is focused on accelerating autism research by bringing researchers and families together online. Paul joined the staff at Kennedy Krieger in 2005, obtained funding through an Autism Speaks grant, and launched IAN in April 2007. IAN matches project participants with research studies for which they qualify. As of October 2009, more than 32,000 participants had registered. According to Elise Welker, researchers in the autism field have long struggled to find enough participants for their studies.

"Parents hold valuable information on autism. They spend every day with their children and have this vast wealth of information that researchers weren't tapping into," said Welker. Paul, IAN's director, and Kiely, its research director, act as mediators between researchers and parents. They have facilitated over 300 research studies at no cost to either party. "Within a day [of getting a request] an e-mail has gone out to people who fit the research study. Researchers are astounded. A lot of information is being collected in a way that has never been done before."

Recently IAN launched an adult version of the survey that allows individuals or their parent/guardians to participate. "There's a huge wave of children in their teenage years who are about to enter into the adult world. That transition can be pretty abrupt for most families," says Paul. While there are many similarities in autistic children at the time of diagnosis, they can be miles apart when they're grown in terms of needs and services. "It's very hard for the adult system to cope with all the needs that are out there."

John McIntyre, age 20

does. I hope that he will continue to see the value of including other people in his life."

The Laws' advice to parents with children newly diagnosed with ASD is to look for friends, family members, organizations, and support groups who will help you. "Don't forget to enjoy the beautiful and simple things about life," says Kiely. "Celebrate the accomplishments even though they may seem small. Take time for yourself."

I hope John will learn to communicate someday. I want him to have a vocational placement at which he is learning and being productive. I wish he could do all the things he loves to do as often as he wants to do them: listen to music, swim, ride roller coasters, take rides, visit his family. But beyond that, I still hold on to the dream that he will play an instrument, have a job, hang out with friends, drive a car, talk to me and call me mom—in short, I want him to be normal. I have joined IAN and hope the information I provide can help find that breakthrough that can make my dreams, and the dreams of millions of parents around the world come true.

Isaac Law, ninth grade, Fall 2009

Serving American Heroes

BY ROBERT L. MOORE, '13

It's not surprising that Leslie Boyd Long, '89, became an internal medicine doctor. She grew up with a hospital in the back of her house. Leslie was the only girl and youngest of four children on a farm outside Tollesboro, a small town in Lewis County, Kentucky. Her father James, a veterinarian, kept a clinic at home, and his children assisted him.

Leslie's father had intended to be a medical doctor, but after getting married, he entered veterinary medicine to start work sooner. Also the family physician, he tended sore throats, removed warts, and stitched up cuts. Both Leslie and her brother, Mike Boyd, '85, went to Berea College as chemistry/premed majors, attended medical school at the University of Louisville, and became doctors. "I think my father sort of pushed his dream our way," Leslie says.

During her residency at the Cincinnati Veterans Hospital, Leslie was treating a patient possibly at risk of a stroke. One nurse, a six-year Navy veteran named Mark Long, insisted that the patient be transferred to intensive care for close observation. Leslie disagreed. "Needless to say, my (future) husband had more clout and the patient was moved," she says. "We started talking more after that encounter and I married Mark three years later."

Since 2000, she has worked at a Veteran's Administration outpatient clinic in Florence, Kentucky. She has a panel of 1,250 patients and sees 14 people each day. Her focus is geriatric care. One patient needs help with a Social Security disability application, while another needs pain treatment for terminal cancer. "I try to make certain that we have pursued all avenues," she says. "When those have been exhausted, compassion and support are what I have to give."

While most complaints are the same thing every doctor hears, post traumatic stress disorder (PTSD) and complications around amputation are more prevalent. Long after active duty, prisoners of war remember eating maggot-infested food, being physically brutalized, and sleeping in the cold. Once, PTSD went undiagnosed, but it's different today. "The emotional distress can be honed in on early," she says.

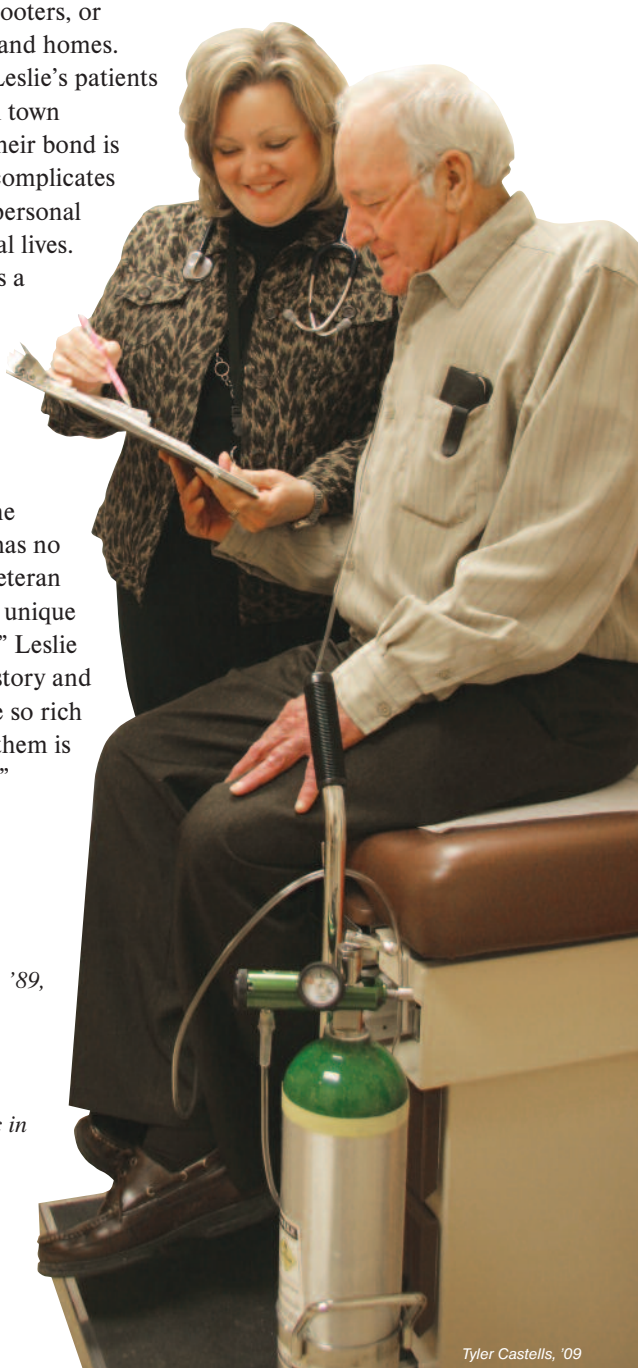
Combat-related PTSD is a problem for female veterans, she says. "Military sexual trauma is probably more prevalent than many thought." Department of Veteran Affairs statistics show that around 30 percent of female soldiers experience sexual assault; their attackers are often male personnel. Untreated, PTSD can lead to substance abuse and domestic violence. Leslie listens for symptoms, referring potential sufferers to therapy.

The concern with her amputee patients? "Returning them to a high level of functioning," she says. Physical therapy is essential. Veterans may also need prosthetic devices, wheelchairs, scooters, or modified vans and homes.

"The veteran population is a unique group to serve. Their history and experiences are so rich and talking to them is a real pleasure."

Many of Leslie's patients share her small town background. Their bond is strong, which complicates balancing her personal and professional lives. "My husband is a constant support." She says, he often reminds her to enjoy her days off.

Despite the demands, she has no regrets. "The veteran population is a unique group to serve," Leslie says. "Their history and experiences are so rich and talking to them is a real pleasure."



Dr. Leslie Long, '89, meets with Ray Brumley, a war veteran, at the Veterans Affairs outpatient clinic in Florence, Ky.

Tyler Castells, '09

Dr. Rocky Tuan, '72, works in his laboratory at the University of Pittsburgh School of Medicine, where he is the founding director of the new Center for Cellular and Molecular Engineering.

photo by Mike Drazdzinski, Pitt

The Healing Power of Our Own Bodies

BY JULIE SOWELL

A few years ago, Dr. Rocky Tuan, '72, an expert in musculoskeletal systems and a pioneer in the field of tissue engineering and regenerative medicine, was asked by doctors at Walter Reed Army Medical Center to help them study a problem affecting soldiers returning from combat in Iraq and Afghanistan. Wounds to their arms and legs weren't healing properly. "People who have blast injuries have a very high incidence of heterotopic ossification," says Rocky. "Bone forms where it's not supposed to form, particularly after amputation, and we wanted to know why." The condition causes deformity and pain at the amputation site and makes wearing a prosthesis difficult.

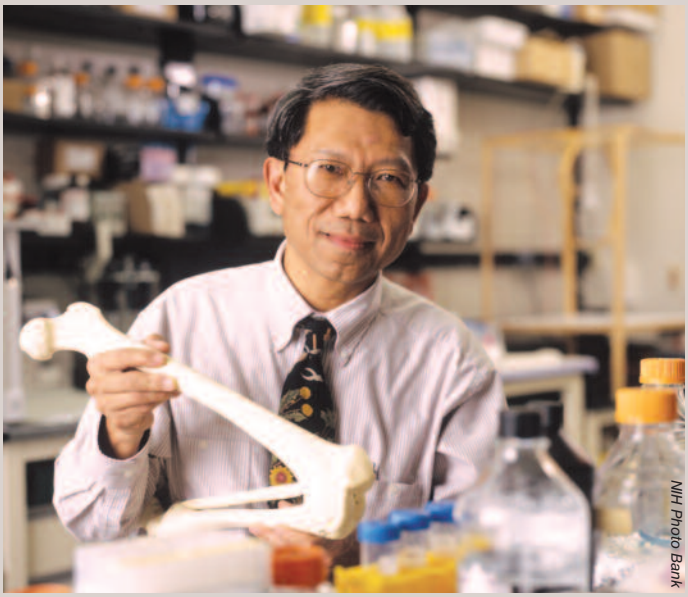
There is presently no good way to prevent or treat the problem, but Rocky has been working on a way to use the soldiers' own stem cells for a cure. Studying samples of the soldiers' injured muscle in his lab, he and his team found stem cells present in unusually large numbers.

"These stem cells have all kinds of potentially regenerative activities," Rocky says. "I think it's possible these stem cells can be used to repair nerves and suppress the bone formation." The project is just one of several going on in Rocky Tuan's lab at the University of Pittsburgh School Of Medicine's new Center for Cellular and Molecular Engineering, where he is the founding director, as well as professor and executive vice chairman of the Department of Orthopaedic Surgery. A pioneer in the tissue engineering and regenerative medicine field, Rocky leads an interdisciplinary team there whose members are creating cell-based therapies for musculoskeletal diseases and injuries that can be turned into a variety of products for healing and cures.

Rocky has studied the musculoskeletal system and its workings for more than 30 years. His interest began in graduate school with a literal chicken and egg question that resulted in an important scientific discovery.

After graduating from Berea College with a degree in chemistry, Rocky enrolled at Rockefeller University in New York, where he earned his doctorate in 1977. "One of the things about the Rockefeller is they encouraged students to search on their own for what really, truly interested them," he says. With his advisor's blessing, he spent a month at the library studying possible research topics, finally deciding on the development of the chick embryo. "A chicken develops independently, outside the mother, literally. It has the power to do everything on its own. I thought that was a very fascinating model." And there was a mystery about the chick's development worth investigating. "The chicken starts out as a little dot on top of the yolk and then at the end it comes out and it's walking around. It has lots of bones. Where did they come from?" Rocky's discovery of the transport mechanism of calcium from the chicken eggshell was the substance of his doctoral dissertation and launched his professional career.

How the young man from Hong Kong got his start at Berea College was about as improbable as a full-blown chick emerging from an egg. "I guess it was fate," Rocky says. In high school he happened to attend a presentation in Hong Kong with then-Berea-President Francis Hutchins on the program. "I talked with him afterward and he described his school to me," Rocky says. "I thought it was an interesting concept." A thorough researcher even then, he read all he could about Berea College and Hutchins before deciding to apply. "It was a great opportunity," he says. "It would have been impossible for my family to pay tuition for college then." His brother James, who now works in the nutritional biotechnology field, also attended Berea, graduating in 1978.



NIH Photo Bank

Rocky Tuan's stem cell research has groundbreaking potential for those who suffer bone injuries and diseases. While attending Berea College, he received the Layman Memorial Scholarship in 1972, given annually to a student most likely to make a contribution to international relations.

Several Berea College professors stand out as important to him—chemistry professors Gus Levey and Tom Beebe, physics professor Tom Strickler, and Rolf Hovey in music. "My education at Berea was tremendous," Rocky says, who adds that he would not have received the same broad exposure to the liberal arts under the British system in Hong Kong. In addition to taking all the science courses he could, he also had the chance to pursue his lifelong love of music. Once Rocky decided to pursue chemistry as a career, Beebe encouraged him to get some research experience. "He gave me a big pile of stuff to read over," Rocky says. "There were opportunities for research in the region, but also throughout the country." He got into a summer research program in a biochemistry lab at the University of Louisville Medical School, under the tutelage of the late Dr. Calvin Lang, and returned the following summer. "That was what really got me started wanting to do research."

A microfluidic bioreactor aids in the analysis of cell behavior.

Mike Drazdzinski, Pitt

After that came postdoctoral fellowships at Harvard Medical School, including the Department of Orthopaedic Surgery at Children's Hospital and the Department of Medicine at the Massachusetts General Hospital. Following his fellowship training, Rocky was appointed in 1980 as assistant professor and then later associate professor in the Department of Biology at the University of Pennsylvania in Philadelphia, where he continued to explore the biology of musculoskeletal structure and development. After his recruitment in 1988 to direct orthopaedic research and appointment as Professor in the Department of Orthopaedic Surgery at Thomas Jefferson University, also in Philadelphia, his research interests began to take on a new direction, he says. "I started thinking, 'Well, it's okay to study how everything's put together, but in the end, things fall apart. How can we mend all these structures?'"

Not treat, but mend. Regenerative medicine was still in its early stages when, in 1997, Rocky established the nation's first Cell and Tissue Engineering doctorate program at Jefferson, a transdisciplinary program that would train a new generation of "cross-cultural biomedical scientists committed to regenerative medicine and the development of functional tissue substitutes."

Rocky has remained on the leading edge of regenerative medicine research and education. In 2001, he was recruited to join the elite corps of scientists at the National Institutes of Health (NIH) as chief of the newly created Cartilage Biology and Orthopedics Branch of the National Institute of Arthritis and Musculoskeletal and Skin Diseases, leaving in 2009 for his present position at Pitt.

His wife of 33 years, Dr. Cecilia Lo, is also a research scientist, specializing in congenital heart disease. She was chief

of the laboratory of developmental biology at the National Heart, Lung, and Blood Institute of the NIH, and currently is the founding chair of the University of Pittsburgh School of Medicine's newly established department of developmental biology.

While problems with the musculoskeletal system are among the most common reasons people see a doctor, the true importance of the scientific research goes deeper than that for Rocky. "We are how we look, mostly, because of skin and bones," he says. "The bones give us structure, and then we cover everything with skin, with a little bit of muscle in the middle.

Mike Drazdzinski, Pitt

(L-R) Rocky Tuan, Allison Bean, Victor Leung, and Natasha Baker examine the culture of adult stem cells. Rocky has received several awards from the National Institute of Health for mentoring young researchers.

What this means is that if you have any defects in your skeletal structure or you're missing a limb, it's immediately apparent, but also in many cases disabling or confining. Short of dying, the loss of physical freedom is just about the worst thing that can happen to a human being. Orthopaedic science and medicine is about restoring freedom and mobility to people," says Rocky. "That's why what we do is really, really important."

So he turned his attention to the enormous potential of tissue-engineering technologies. Osteoarthritis provided a clear example of how this totally new approach to treatment could change outcomes. Affecting 27 million Americans over the age of 25, osteoarthritis is caused mostly from normal wear and tear, but genetics and lifestyle also play a role. It often starts with a tear in joint cartilage. As the tear worsens, the cartilage deteriorates, causing pain. The surrounding joint tissue becomes irritated and the body reacts by forming more tissue, known as bone spurs, causing more pain and reducing movement.

"A major advancement in orthopaedics was—and it still is—restorative surgery," says Rocky. "If your joint is falling apart, we take everything off. A device made of plastic and metal is put in, and the joint functions again."

At least for a while. The best case scenario for artificial joints is that they can last on the average a maximum of about 10-15 years. However, the surgery can only be performed one more time, at the most twice, and each time with diminishing benefits. "Total joint replacement is a terrific procedure that has restored mobility, self-esteem, and happiness to many, many people," says Rocky. "A million procedures are done every year world-wide in hip and knee replacements."

Rocky's approach is biological. "Wouldn't it be nice if you could make something exactly like your natural joint to restore you back to your old self?" he asks. His idea is to engineer tissue instead of engineering a device. A patient's own bone marrow stem cells are reprogrammed to grow into large pieces of cartilage, which is then transplanted back into the patient. "It's like a skin graft," says Rocky, "and when it becomes available, you'll only need it done once."

There are other fascinating projects going on in Rocky Tuan's labs, too. "We're trying to repair the meniscus, the semicircular wedge that's the washer in your knee, and we're engineering substitutes for the intervertebral discs, the shock absorbers in the spine between the vertebrae," he says. There is a huge need for the treatment. "Right now, the disc is removed entirely and the vertebrae fused together. This stops the pain but reduces the patient's mobility and can lead to other problems."

The basic building blocks for all of these engineered products are adult stem cells. Unlike embryonic stem cells, which have ethical and moral issues related to their use, adult stem cells are found in the body, primarily in bone marrow. The adult stem cells that Rocky works with, called mesenchymal stem cells (MSCs), can become all of the cell types that make up musculoskeletal tissue—bone, cartilage, muscle, tendons, ligaments, and even nerves and blood vessels. In order to turn cell behavior into cures, however, it first requires a thorough study of the biology of these MSCs because "ultimately the cell is the tissue engineer," Rocky says. "We're just the cheerleaders." Innovative new approaches and laboratory devices have had to be invented or adapted for this type of research, that include nanotechnology, biomaterials construction, and bioreactors, for which Rocky holds two associated patents.

Doctors have been using adult stem cells to treat autoimmune diseases and some types of cancer for a number of years. Adult equine stem cells are also being successfully used to heal torn ligaments and regenerate tissue in horses. Rocky says it will be several years before most of the therapies he and his team are developing will be available. "There are a variety of complicated problems we have to find solutions for before these kinds of therapies can be used in humans," he says. "We need more studies to be sure that these therapies are safe and nontoxic, as well as effective. We have to worry about any immune reactions from the host, because we're replacing, not repairing." Still, various forms of regenerative medicine are projected to revolutionize healthcare within the next 10-20 years.

Thanks to leaders of this revolution like Dr. Rocky Tuan, those of us with knee and back injuries, traumatized limbs, and worn out joints, will be standing restored and stronger one day soon.

"...'Hey Peter,' Claude Davis began, 'I'm in Burnside and I just saw five people on one bicycle pedaling down Highway 27 towards McCreary! You have to see it to believe it, so be on the lookout! '...."A little while later, I saw this wild yellow five-passenger tandem bike chug past."

A Bicycle Built for

BY GLENDA DENT WHITE

By February 2010, the Harrison family had reached San Diego, California. (Left to right) Cheyenne, Amarins, Robin, Jasmine, and Bill.

The Harrisons camp for the night in South Carolina.

Quite a Few!

Peter S. Ferrara, a columnist for the *McCreary County Record* in Whitley City, Kentucky, described the August 2009 tip that put him in touch with Bill Harrison, '86, and his remarkably adventuresome Kentucky family—his wife Amarins, and their three children, Cheyenne, 7, Jasmine, 4, and Robin, 2.

They plan to pedal their bright yellow "Quint" tandem bicycle all the way from Kentucky to Alaska, a journey of 7,000 miles. Bill believes the trip will take about 18 months. As of the end of November, having completed 2,692 miles, they arrived in Eastland, Texas, 942 miles past the quarter point of their historic journey.

"The Pedouins," as the nomadic Harrison family calls itself, live in a tent (as do the Bedouin desert dwellers). Everything they need for the long trip is packed and carried in a small trailer attached to the 14.5-foot long, five-passenger tandem pedal bike. The traveling lifestyle suits these American nomads.

"I have lived in quite a few of the United States and many countries abroad," says Bill. "I have six children, born in four states, in three countries, and on three continents." In fact, Amarins, who was born in The Netherlands, met Bill at the bottom of the Grand Canyon while she was touring the Southwest by bicycle.

The Pedouins took up this long and arduous trip after months of careful planning. They researched travel routes, safety issues, and secured proper equipment. They made sound financial plans while Amarins built their website. The family began an intensive months-long program of physical training on the bicycle. After Bill had finished his day's work as a builder/contractor, the family climbed on the quint and rode it to a specified location, a distance that increased over time, so that the family could operate the quint safely and efficiently.

The bicycle-built-for-five-Harrisons was custom-designed with a special seat that had to be ordered from Europe to assure that the youngest, Robin, would be safe and secure in her place if she fell asleep while traveling. The cranks for pedaling had to be individually fitted to accommodate the smaller riders. Safety helmets became part of the gear that the children and adults learned to inhabit every time they took to the road.

"Aren't you concerned about whether your little girls will be able to handle this?" the McCreary County reporter Peter Ferrar asked them. Other people had asked the same question.

"This trip will end the minute I sense it has become a hardship for any member of this family," says Bill. "But I believe in the pioneer spirit. What made America great wasn't politics or religion. It was risk-taking, entrepreneurship, and a sense of adventure. I want to show people that it is still possible to live your dreams."

What was their dream?

"To see the diversity, hear the stories, smell the flavors, taste the foods, touch the textures, and witness the generosity and kindness that has made this land the place to be for people all around the world," say Amarins and Bill.

Both Harrisons home-school their daughters. "In this way," he says, "we can show them first-hand about geography, climate, history, math, map reading, human nature, and a host of other things they will learn as they go."

The Harrison children are also learning how a family works together. Everybody shares the tasks of putting up the

tent in the evening and breaking camp in the morning. Even Robin can help Papa Pedouin collect the tent poles.

The Pedouins have made a big hit at the libraries where they stop to augment the girls' learning. They are always happy to talk about their grand adventure. They have also been invited to speak with several schools along the way. To everyone's delight, the girls keep journals, both in words and pictures. The older girls, Cheyenne and Jasmine, practice adding and subtracting using the mile markers, while Robin learns to read numbers from the same source. The children are enriching their understanding of other cultures. For example, they played traditional birthday party games with a Latino family who hosted them.

Naturally, on a trip of this scope, not everything is coming up roses. Running over a dead opossum early in their trip gave a distinct road-kill odor to their trailer as it bounced across the corpse, spreading tiny bits of 'possum around the vehicle. Heat, humidity, broken spokes, faulty tire rims, flat tires, broken tent poles, and miraculously, only five minor spills—with no major injury—are some other hardships these hardy travelers have surmounted.

The Pedouins are discovering something they had hoped to find—people from all walks of life, of various ethnic and socioeconomic backgrounds throughout the entire length of their voyage thus far have been more than willing to go out of their way to extend kindness of all sorts. The police in Natchez, Mississippi, for example, escorted the Pedouins across a lengthy bridge across the Mississippi River, because its joints necessitated dismounting and walking the bike across. At one state park, rangers pooled their personal funds so the family could stay at an expensive camp site. In the heat and humidity of a Tennessee afternoon, a family flagged them down, and handed out popsicles. In Georgia, an elderly woman offered to let them camp in her backyard, and told them stories of her life. In Texas, a new friend brought parts from a distant bike shop to the Pedouins so repairs could be made. Encouragement has also come from as far away as Western Europe and Russia.

A flat tire calls for a little roadside respite.

A day of learning in the "nation's oldest city."

En route from Natchez, Mississippi to Lousiana.

Bill and Amarins are also willing to lend a hand when they see there is something they can give in return for the help and support they have received. At one point, Bill, using his skills as a building contractor, took a day and a half out of their trip to help a man repair his garage. Since Bill and Amarins built their own house in Rockcastle County, Kentucky, from the dirt up, using largely recycled materials, repair work comes easily to them. The family is also dedicated to listening to and passing along other people's stories of hope and encouragement—stories that they gathered on this epic journey, as well as songs and games taught by the elders and youngsters whom they've met.

Some people have also been willing to provide much needed funds for the trip. The Harrisons are not wealthy; and they made a conscious decision to do this trip without corporate sponsorship. One of their aims was to test a theory that good old-fashioned ingenuity, creativity, willingness to work hard, the kindness of other folks, and the grace of God would allow them to realize this incredible dream.

Readers can visit Pedouins.org to read of their daily adventures and see photos of this amazing journey of discovery, hope, connection, and encouragement.

Dr. Linda Moneyham (center) discusses her research with her team at the hospital at the University of Alabama-Birmingham.

Steve Wood, UAB

Quiet Fear

Women's Health Issues in Rural America

BY MEGAN SMITH, '11

Zelda Langley was the mother of eight children living in the rural community of South Shore, Kentucky. Even if it meant that she had to do without, she always made sure her children were clothed and fed. Zelda died at age 57 from a massive coronary.

After her mother's death, Linda Langley Moneyham, '76, discovered that her mother had been keeping a secret. Linda learned from a physician that another doctor had arranged for Zelda to undergo further tests at the hospital after an exam for what Zelda probably thought was just a terrible cold. For lack of funds and not wanting to make a fuss about it, Zelda decided to skip the expensive hospital tests. She never told her family about it. One year later, she died.

Zelda's story is not unlike the story of many other women Linda knew growing up in a small town in Greenup County. A large number of community members developed multiple chronic health problems at an early age, and the majority of them died young. Busy raising their children and taking care of others, most women never sought care for themselves. Even though she received health insurance later in life, Linda's mother, Zelda, never took preventative measures. She never had a pap smear or a mammogram.

The HIV research team at UAB Hospital includes David Vance, Linda Moneyham, and Gwendolyn Childs.

Moneyham's colleague, Berea graduate Comfort Enah,'97, has developed an electronic game for HIV prevention with rural African American teens.

Their foreshortened lives, their multiple health problems, and their tendency to care for others ahead of themselves made the lives of these women motivating factors that stirred Linda's interest in women's health. "In some small way," she says, "the work I am doing is a way of 'paying it forward' for all the kindnesses and support that were shown to me by such women along the way."

Currently, Linda codirects the Behavioral Science and Prevention Core for AIDS research at the University of Alabama in Birmingham. Her involvement with acquired immunodeficiency syndrome (AIDS) research started in 1992 after women diagnosed with human immunodeficiency virus (HIV) began speaking out about the issues surrounding their lives. Little was known during this time about the issues HIV-positive women experienced, and Linda wanted to help give them a voice.

Just two weeks after learning that grants were available from the Center for Disease (CDC) control, Linda put together a funding request called "Family Responses to AIDS/HIV Infection: Stressors, Resistance Factors and Adaptational Outcomes." The CDC funded her grant, and thus Linda conducted research for four years in rural and urban areas throughout the state of Georgia in an effort to better understand the negative perceptions and disclosure of this illness.

Listening to these women tell their stories—especially the stories of women living in rural areas—made Linda even more determined to improve their health and their lives. "Everything we learned showed me that all of the AIDS/HIV women were having a bad time; but rural women were consistently the ones with the most problems," says Linda.

Although a large number of women with HIV experience depression, Linda found it was most prevalent among those from rural areas. Many of their fears, anxieties, and difficulties had to do with their isolation. "It convinced me that that's where I needed to focus my work," she says.

Wanting to decrease the isolation that many women felt, Linda challenged herself to invent a creative solution. She thought about creating peer-support groups, but she knew a lot of women didn't have access to transportation. She also knew from speaking with rural women that they feared talking in group settings. Not only were they afraid that other members might not respect confidentiality, but they dreaded the stigmatizations they might receive if the whole community knew.

As a result, Linda developed peer-based interventions in which HIV-positive women, who had learned how to cope with the disease, would act as mentors and counsel rural women one-on-one. She knew the other women would feel safe and trusting with their peers, but she also thought it could empower those suffering from the disease. Word of this exciting project got around, and women started to contact her requesting a peer counselor assignment before Linda had even turned in a grant proposal.

With a National Institute of Health (NIH) grant designed to offer peer counseling intervention for rural women with HIV, Linda was able to provide them with peer counselors.

"They appreciated talking with a counselor who understood what it's like to be a woman and a mother living with the disease and someone who also knew what it was like to struggle to meet their needs," says Linda. Survey results showed that having a peer counselor improved the women's psychological stresses; they indicated that the program helped them to feel more connected with resources and less isolated. They often told her, "Dr. Moneyham, thank you so much for giving us a voice."

With the help of core groups of AIDS researchers at The University of Alabama, Linda works to keep patients connected. Patients who stay connected are more likely to take their medications that decrease their viral load (the amount of virus in a patient's blood). When patients decrease their viral load, they decrease their chance of spreading the disease. Because research shows that patients who don't stay in care don't take their medication, Linda believes keeping patients connected to a health care program plays a vital role in fighting the epidemic.

New research findings indicate that HIV medications contribute to cardiovascular risk. Patients used to have "wasting syndrome" in which they lost weight. Now researchers have found increasing occurrence of obesity in HIV-positive people, a phenomenon called metabolic syndrome. "It is particularly problematic because African American women make up the largest percentage affected by the disease, and are already at risk for obesity," says Linda.

This new research has Linda compiling several more grant proposals. "We've got to find some way to intervene," she says, "or all we're going to do is give them medications that save them from the HIV virus, but cause them more risk to die from a heart attack." Linda plans to collaborate with weight loss experts and trainers to develop interventions that will offset some of the cardiovascular risks. Since women with AIDS have an increased risk for developing cervical cancer, Linda is also examining ways to facilitate prevention by brainstorming how she can encourage sexually active women to be tested.

"We could address lots of the problems with these HIV-positive women here in the South if we could deal with their economic issues," she says. "It is the foundation for everything we are experiencing." Women's sexual risk-taking is one example that endangers women. She notes that such risk-taking behavior decreases when the women have more economic stability. Women who are economically vulnerable tend to take more risks with their male partners—chances that they would not normally take except that it can provide them money that helps to pay bills and help them care for their children.

"Everywhere I have gone in the rural areas, people are interested in helping me because they're so glad that someone is shining a light on the problems."

"The thing that keeps me going is the hope that through my research, I will come up with something that is truly going to make a difference for these women," she says.

Uncertain of the economic support she will receive to help HIV-positive women in the future, Linda has also been examining more cost-effective ways to provide peer-based counseling. Receiving a grant from the NIH for telephone counseling for rural women with HIV disease, Linda tested and is currently analyzing the effectiveness of peer counseling by phone. Using the internet is another alternative, but because of the limited access rural women have to the internet, Linda warns, it is probably not workable for that population.

"I don't believe I can change the world, nor do I want to. I think my greatest talent is helping individuals change their world."

Looking back on Zelda's death, Linda believes her mother had a choice to receive proper medical care, however, after years of not having the money to get medical care, she probably thought it was too late. Linda also thinks that because her mother witnessed a lot of women in her family die at a young age, that her fears caused her to avoid facing the situation.

Linda works diligently to provide a voice to populations that are often overlooked and seldom heard. "To me one of the greatest tragedies in life is a sense of hopelessness," Linda says. "I want to help people dream of a different future for themselves and to find ways of achieving their dreams."

Linda Moneyham and Larry Slater (right) discuss his research on quality of life issues for older, HIV-positive men.

Lauren Antia , UAB

Thought Patterns – Finding

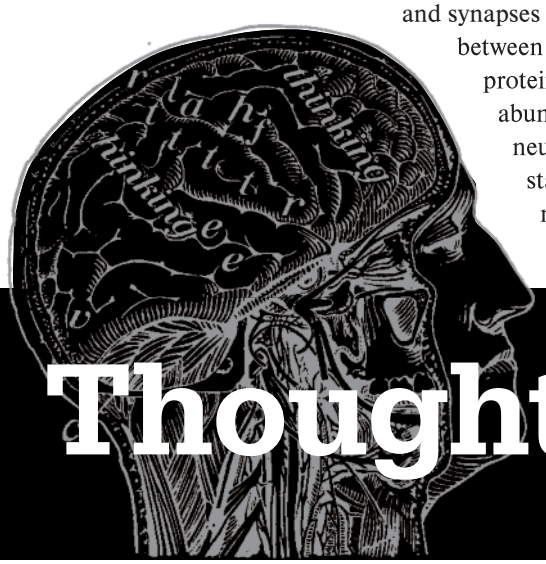
BY NORMANDI ELLIS

On the wall above his office computer, Alzheimer's disease researcher Dr. Mark Lovell, '87, has hung bright, colorful photographs that inspire him—images of astronomical objects captured by the Hubble Space Telescope. Looking at the voluminous chemical and physical processes of deep space is mesmerizing to him. He admires the gaseous towers in the Eagle Nebulae that show newborn stars hatching from dense, compact pockets of interstellar material called evaporating gaseous globules (EGGs). How galaxies work is as mysterious as how the mind works, for Mark Lovell. Both are great mysteries to be solved.

In his laboratory at the University of Kentucky (UK) Sanders-Brown Center on Aging, Mark has hung a different poster exactly on the other side of that same wall. This poster juxtaposes images of two human brains. One shows a normal brain and the other, the brain of a patient with Alzheimer's disease (AD). The temporal lobes in the healthy brain look large and intricately folded, creating a labyrinth of neural paths through the dense matter of thought. In the brain with Alzheimer's disease, one sees shrinkage in the temporal lobes and a cross-section reveals enlarged lateral ventricles, the curve-shaped brain cavities through which cerebrospinal fluid (CSF) circulates. Brains ravaged by AD often weigh 100-200 grams less than brains from normal control subjects.

Two main problems contribute to AD brain dysfunction. Mark points to an image of abnormal brain tissue showing the hallmark lesions that in 1906 Dr. Alois Alzheimer first identified. The image has been stained with silver, highlighting the neurofibrillary tangles—intraneural, twisting black helices that are symptomatic of confused thoughts.

At birth, all the neurons a brain needs (trillions!) already exist. Over time we learn new things and synapses develop between the neurons. A protein called tau is abundant in neurons. It helps to stabilize the microtubules in the cell, creating a cytoskeleton that plays an important role in signals between neurons. These structures should be straight, almost rod-like in shape. In patients with Alzheimer's disease, excessive phosphorylation of tau causes the microtubule network to collapse, thus creating neurofibrillary tangles.



In addition to the tangles of tau protein, one finds increased numbers of extracellular senile plaques made of the amyloid-beta (Aβ) peptide. The Aβ peptide is a small fragment of a much larger protein called the amyloid precursor protein (APP). Normal processing produces secreted APP, a protective factor, whereas misprocessing leads to production of Aβ. These Aβ peptides gather into larger structures that ultimately clump together to create the insoluble senile plaques that, in another microscopic image, resemble blobs of congealed butter. On the way to forming senile plaques these Aβ species can lead to oxidative damage to neurons and cell death.

Studying patterns such as these energizes Mark. He is a pattern thinker. In his lab he identifies and analyzes the molecular weight fractions of proteins that appear in cerebral spinal fluid (CSF) samples. In his spare time he has enjoyed playing rhythms on snare drum with the Danville Pipe Band. Both science and music are systems used to explore, and perhaps unfurl, the intricate patterns of creations.

Searching for Early Indications

Currently, an autopsy immediately after death is the only way to determine whether a dementia-related illness was AD. In living patients, cognitive and neuropsychological tests are part of an early diagnosis. Many of us forget where the car keys are. The worry comes when an individual can no longer remember what the car key is for. The disease begins in the deepest memory center, the entorhinal cortex, which tells us where we are, then progresses through the hippocampus, a curved ridge of tissue near the lateral ventricles where recent memories are formed, organized, and stored. In later stages of the disease, pathologic features occur in the temporal lobes.

Degeneration of the neurons likely precedes cognitive decline. Aberrant proteins may quietly damage a brain years before the patient shows the trademark devastation of AD: disorganized thinking, confusion and memory loss, mood

Dr. Mark Lovell in his lab at the University of Kentucky Sanders-Brown Center on Aging where he studies Alzheimer's disease.

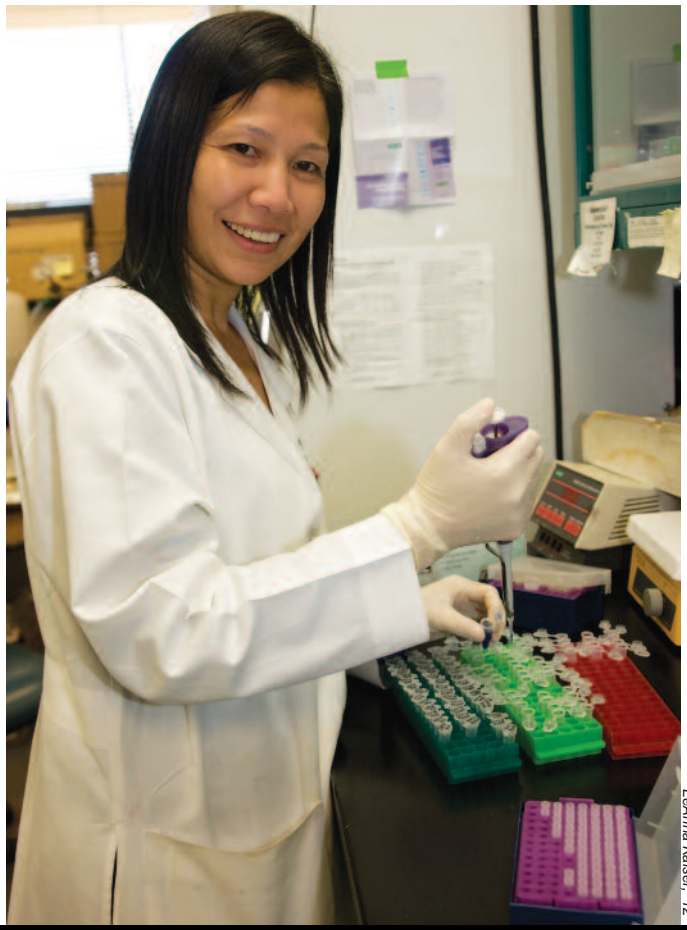
LeAnna Kaiser, '12

New Hope in Alzheimer's Research

changes, wandering, and hallucinations. Magnetic resonance imaging (MRI), particularly functional MRI, where subjects take neuropsychological exams during the imaging process, have had some success in identifying patients early in disease progression. In addition, more recent data suggest that senile plaque formation can be observed in subjects using positron emission tomography (PET). Unfortunately, both of these imaging techniques are difficult to interpret.

What if it were possible to know in advance through something as simple as a blood test? Mark and his research partner, Dr. Bert Lynn, are not there yet, but they hope their research with donated cerebrospinal fluid can one day help identify early markers for the disease.

Using mass spectrometry, Mark and his collaborators look quantifying levels of Aβ and tau proteins. They also look at novel proteins found in cerebrospinal fluid from living AD and normal control subjects. Mark hopes to see whether a novel protein, or protein complex alone, or in combination with Aβ or tau levels, can help identify Alzheimer's subjects early in disease progression.



LeAnna Kaiser, '12

Dr. Shuling Xiang works alongside Dr. Lovell analyzing cerebrospinal fluid samples.

There is considerable debate regarding which pathologic pathway is the driver of AD. Some researchers believe the brain first produces Aβ that contributes to tau phosphorylation causing neurofibrillary tangles to form. Other researchers, like Mark (who jokingly calls himself a 'tau-ist') believe that changes in the tau protein and neuronal dysfunction may be the actual culprit.

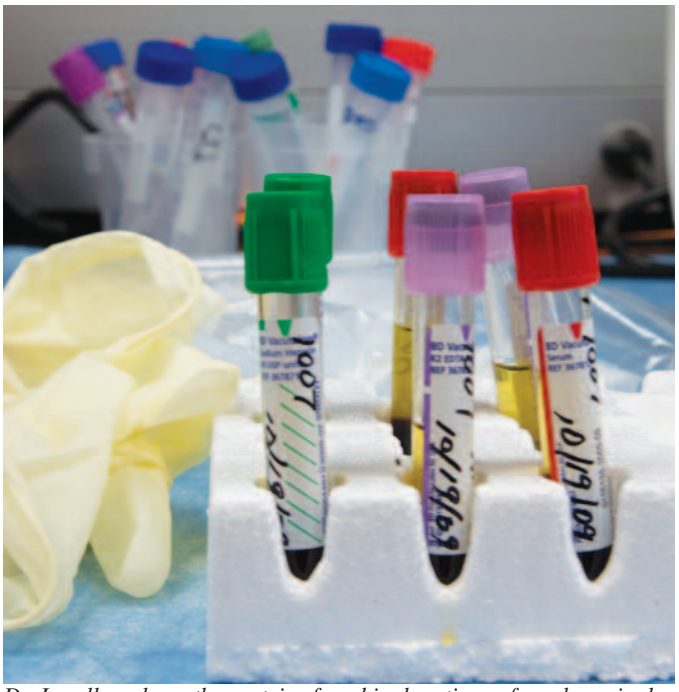
What is noticeable, Mark says, is that in the cerebrospinal fluid of patients with the disease, one finds decreased levels of Aβ. The reduction may be due to the fact that it is being deposited as senile plaques. The causes of the neurodegeneration may be many. The dominant risk factor for acquiring Alzheimer's disease is age, and the age of onset seems to dictate how quickly the disease progresses.

Several genetic risk factors are associated with the disease, including the presence of specific forms of apolipoprotein E (APOE). APOE is involved in transport of cholesterol and appears in three forms: APOE2, -3 and -4. We receive one copy of the APOE gene from each parent. A person who has two copies of APOE4 (homozygous for E4) is more likely to develop Alzheimer's disease. Subjects who have two copies of APOE2 may be more at risk for atherosclerosis. APOE3 is considered neutral and does not contribute to risk for Alzheimer's or cardiovascular disease. While many studies have shown a link between the presence of APOE4 alleles and Alzheimer's, the presence of the E4 gene does not mean a person will definitely develop the disease. Additional risk factors include head injury, low educational attainment, low-level linguistic ability early in life, smoking, and obesity.

Although many researchers hope to find a cure for AD, there is none to date. Potential use of stem cells to replace degenerating neurons has yet to prove effective, largely due to the difficulty of controlling the micro-environment needed to generate neurons from stem cells rather than from glial cells. Mark hopes to develop a viable prescreening test to identify those with a predisposition to the disease—something he, Bert Lynn, and John Beran, CEO of Scout Diagnostics, have been working on.

In the near future, we may be able to delay the onset of symptoms by identifying those for whom lifestyle changes may be recommended, similar to recommendations being made for pre-diabetics. Lifestyle changes alone will not prevent Alzheimer's, but might forestall the inevitable—at least long enough for the patient to lead a long and productive life before dying of other causes.

All that will take a lot more research. Mark hopes that eventually his studies, those of his colleague Dr. Bert Lynn, and those of many other researchers nationwide will result in the



LeAnna Kaiser, '12

Dr. Lovell analyzes the proteins found in donations of cerebrospinal fluid.

discovery of a combination of markers, or a newly identified marker for the disease. That might alert health care providers and their patients to earlier potential onset of the disease. Their work is funded through grants from the National Institute on Aging and the National Institute of Health.

Working with the Real Heroes of Research

Today, Mark uses gel permeation chromatography, a technique that allows proteins present in CSF to be broken into fractions by molecular weight. The individual fractions can then be analyzed using a variety of techniques. Mark shows me a vial of fluid that should be almost clear. This one bears a slight yellow tinge.

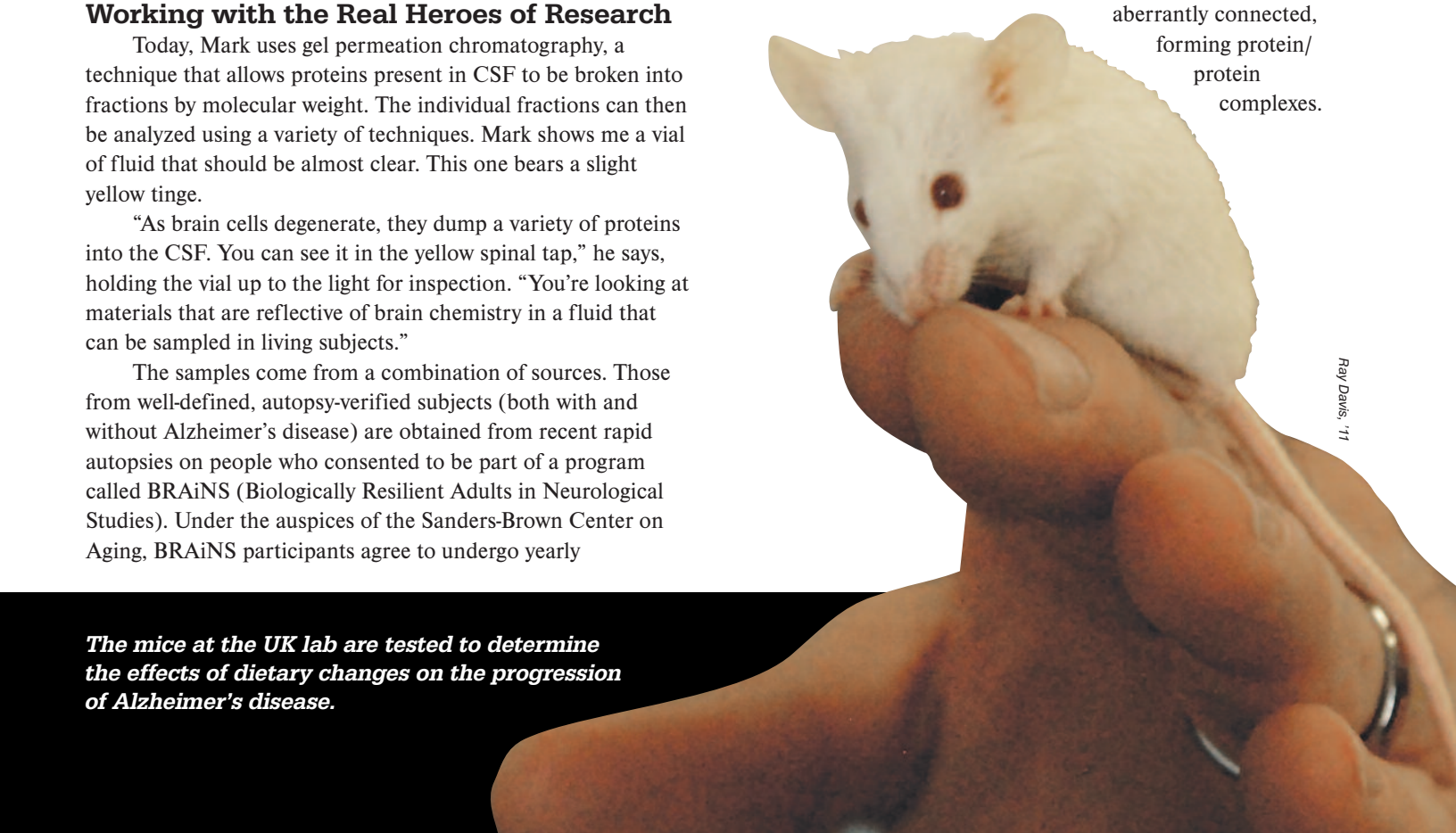
"As brain cells degenerate, they dump a variety of proteins into the CSF. You can see it in the yellow spinal tap," he says, holding the vial up to the light for inspection. "You're looking at materials that are reflective of brain chemistry in a fluid that can be sampled in living subjects."

The samples come from a combination of sources. Those from well-defined, autopsy-verified subjects (both with and without Alzheimer's disease) are obtained from recent rapid autopsies on people who consented to be part of a program called BRAiNS (Biologically Resilient Adults in Neurological Studies). Under the auspices of the Sanders-Brown Center on Aging, BRAiNS participants agree to undergo yearly neuropsychological testing and to provide yearly blood samples. The subjects also agree to autopsy after their death and to allow their brain tissue to be used for research.

In a quiet voice Dr. Lovell speaks of the first rapid autopsy he attended. It was hard on him because the elderly woman lying on the table looked so frail that he felt sorry for her. "She reminded me of my grandmother," Mark says. "Nothing is going to touch you in the same way as seeing that person's face and knowing that they have given you their last gift to give. These people are the real heroes in our research."

These days the research includes spinal fluid samples drawn from control subjects during a spinal tap. These donors may not have been diagnosed with the disease, but may be a family member or friend of someone who was diagnosed with Alzheimer's disease. Because cerebrospinal fluid circulates throughout the body, the spinal tap draws fluid that has recently been in the brain and would likely contain proteins that are indicative of neurodegeneration. Some CSF donations come through the Sanders-Brown Center on Aging. Others are obtained through collaborative studies with the Alzheimer's disease centers at Washington University in St. Louis, Columbia University, or the Oregon Health and Science University.

Drs. Lovell and Lynn discovered that in those proteins that fall above 50,000-molecular weight (MW), nine proteins appear to be "coming out in the wrong places." Eight of those nine should have fallen under the 50,000-molecular-weight mark. Among their findings two proteins, transthyretin (which primarily functions as a thyroine carrier) and prostaglandin-d-synthase (an enzyme), are aberrantly connected, forming protein/protein complexes.



Ray Davis, '11

The mice at the UK lab are tested to determine the effects of dietary changes on the progression of Alzheimer's disease.

Their current studies look at not only AD, but similar neurological disorders like frontotemporal dementia and Parkinson's disease. In this way, the researchers may verify that the protein/protein complex is specifically associated with AD.

Student Research Is Vital to Discovery

Down the hall at UK's Sanders-Brown Center on Aging Mark Lovell's student researchers are working on various projects that combine cell culture and animal models, molecular biology, and various aspects of analytical instrumentation. His advanced degree chemistry students come from many different colleges and universities, but Mark holds a special place in his heart for Berea students. And he has had several in the last decade. "They know how to work, having come from Berea," he says.

Melissa Bradley, '06, chemistry major from Vanceburg, Kentucky, originally started to work for the Peace Corps, but found her way to UK and Dr. Lovell's laboratory. She says she was drawn by "his lab reputation for employing analytical techniques and instrumentation to study a biological system."

Melissa pursues multiple projects. She is quantifying levels of oxidative (free radical) damage of DNA and RNA in early stages of the disease. Another line of inquiry is aimed at a molecule called 4-hydroxynomenal (HNE), a by-product of lipid peroxidation that is itself neurotoxic. In another study, she cares for mice that are genetically predisposed to the disease. After feeding them a special diet enriched with organo-selenium (Sel-Plex) for an extended period of time, she hopes to discover what effect the dietary change may have on amyloid plaques.

LeAnna Kaiser, '12

Dr. Lovell measures supplements for a cell culture experiment.

Mark provides his graduate students with a great deal of freedom to investigate problems. "I'm here to help them, to get them started, and assist if they need it. But I don't like to micromanage." In this way students take creative approaches to their research and can adapt their methods of inquiry based on unexpected outcomes.

Fine-Tuning His Inquiry

What drew Mark into Alzheimer's research was not family history. He confides that analytical instruments have always fascinated him. While he was a summer research assistant in chemistry at Berea, he says, there was an older nuclear magnetic resonance (NMR) spectrometer that needed to be hand-calibrated. His research advisor, chemistry professor Dr. Larry Blair, '66, said, "Here's the manual. Here's the screwdriver. Come and get me when it's tuned."

Although Mark first thought of earning a medical degree at UK, in graduate school he found himself gaining interest in working with the radio nuclear chemistry professors. "Biology to me seemed to be a lot of memorization, whereas chemistry seemed to be more about understanding—and that appealed to me."

For his graduate studies he worked under the direction of Drs. Bill Ehmann, a radio nuclear researcher, and the late Dr. William R. Markesbery, a world-renowned Alzheimer's researcher and director of the Sanders-Brown Center, using a laser microprobe mass analyzer to tease out trace mineral content in individual cells. At that time researchers were trying to determine whether an environmental cause, like aluminum from cooking utensils, might have something to do with developing Alzheimer's disease. (It does not.) After finishing his PhD, Mark worked as a post-doctoral scholar with Dr. Markesbery and focused on the role of oxidative stress in the pathogenesis of the disease.

That's the thing about research. The answers to the current research problem often create further questions and the curious mind seeks to fine-tune the inquiry and to understand. "I like to learn new things," Mark says, by way of explaining his divergent research projects. "I was trained as a radio nuclear chemist and I've become interested in mass spectrometry, cell culture techniques and animal models, and techniques from cell

"The best way to keep your synapses functioni

biology, including gene transfection (introducing nucleic acids into cells using viral vectors). So it keeps moving right along." Mark uses the tools available to him. He looks to what differing technologies can offer. "Anything that can solve the problem at hand is fine with me. It doesn't always have to be one method."

Lifelong Learning and Successful Aging

Mark's engaged inquiry into a difficult problem is actually a form of "low-impact mental aerobics" that, it turns out, will keep his brain in great shape as he ages. Continued lifelong learning creates tighter synapses, strengthens the connections between neurons, and creates thicker dendrite networks. The hope is that building stronger neuronal connections will allow sufficient neuronal communication despite the loss that normally occurs during aging. "The best way to keep your synapses functioning normally is to keep your brain very active," Mark says.

His mother is a wonderful example of a lifelong learner. The proud son points to a recent oil painting by his mother of trees in a heavy frost. He says that at age 76, "She just picked up the brushes and started painting," and is learning new techniques from master painters all the time. She reads *The New Yorker* and *Time* magazines weekly and her Bible every day.

"It's critical to continue to learn new things," he says, "because that can help push back the trip point at which cognitive decline begins." He recommends such things as saying your ABCs backwards in the shower, learning a foreign language, or playing a musical instrument—anything that strengthens parts of the mind you may not ordinarily use. He suggests that visual thinkers learn languages and math problems. That mathematical thinkers try painting or writing. (He has taken up photography.)

"And keep as physically healthy as you can," he advises. "The push in aging research is successful aging, which means maintaining activity—mental and physical." The researcher from Mount Vernon, Kentucky rides his stationary bike 16 miles a day.

Maintaining a healthy diet is another positive step. There is evidence that antioxidants, including vitamins E and C and selenium may be beneficial. He says, "I'm more conscious about taking vitamins as I've gotten older, and that's probably from the research I've done."

Apparently, the antioxidant selenium is doing wonderful things for Melissa's lab mice. Mark notes that the mice eating the standard fare of a control diet develop amyloid deposits by 9 months of age. But the mice given a diet enriched with organo-selenium show both markedly lower levels of amyloid deposits and decreased DNA and RNA oxidation.

The Future of an Aging America

The National Institute of Health has funded the majority of Alzheimer disease research in this country, but the economic crisis has hit the research communities hard. Although there are other important diseases to research like cancer and stroke, Lovell knows that the incidence of dementia patients in the country is likely to continue to rise as the Baby Boomer generation ages. "At this time 4 million people have Alzheimer's disease in this country. The National Institute on Aging predicts there may be as many as 15 million patients with Alzheimer's disease by 2040 unless preventative or therapeutic strategies are developed."

Many would need long-term care. "The current health care industry can't accommodate that many people with AD in its system."

Researchers across the nation work cooperatively to stem the tide of AD and to create ways of "aging successfully." It likely won't be one person who makes a discovery that solves the problem, but many researchers working together. Mark remains optimistic.

"My hope is that perhaps something we do in our laboratory can be coupled with research from others in order to help patients like that little lady in the autopsy suite. Someday someone will put all of these aspects together and it's going to click."

LeAnna Kaiser, '12

Empty vials await fluid samples to be analyzed in the spectrometer.

ing normally is to keep your brain very active."

Founders' Day Honors Henry Laine

African American educator, writer, and alumnus Henry Allen Laine (1899) was honored at the annual Founders' Day Celebration in Phelps Stokes Auditorium in October.

Laine posthumously received the John G. Fee Award which honors those Berea alumni who reflect the vision of John G. Fee and who have rendered distinguished service to their local or national communities. President Larry Shinn presented the award on behalf of the College to the Laine family.

Henry Laine was elected chair of the Madison Colored Teachers Association in 1895 and held that position for 20 years. In 1915, he organized a Madison County African American farmers' club which proved so successful that he was named the first African American county extension agent in Kentucky in 1917, a position he held for 23 years. In addition, he served a prominent role in the formation of the County Institute Chautauqua for Negroes, a combination fair and outdoor educational event to bring cultural, religious, and social opportunities to the community.

He was inducted into the Kentucky Civil Rights Hall of Fame in 2003.

O'Neil Arnold, '85

The Henry Allen Laine family performed during the Founders' Day convocation.

Students Spearhead the 17th Annual Hunger Hurts Food Drive

Nearly 150 Berea students, staff, and faculty joined community volunteers this fall to help replenish the Berea Food Bank. The bank's shelves were almost empty in late October after 948 visits from needy families. Some volunteers collected food donations from city residents while others sorted and shelved the haul. Within a few hours, the food bank was filled with more than 8,000 pounds of nonperishable items.

LeAnna Kaiser, '12

Ahmad Shuja,'11, sorts donations during the Hunger Hurts food drive.

The Annual Hunger Hurts Food Drive was organized by student leaders at Berea's Center for Excellence in Learning Through Service (CELTS) with volunteers from the student activities groups, College chaplains, and other CELTS students. They were joined by youth from Union Church, which has historic ties to Berea College.

Berea College Draws National Praise

Berea College's ecological commitment and historic mission continue to draw acclaim. Because of our commitment to providing free tuition, *Mother Jones* magazine listed the College as the top value in the "Mojo Mini College Guide."

Washington Monthly's September/October issue ranked Berea 12th in its Top 30 Liberal Arts Colleges list and 4th for social mobility, determined by the College's success in admitting and graduating low-income students. The rankings demonstrate "a measure of not just what colleges can do for you, but what colleges are doing for the country."

The College Sustainability Report Card 2010, a survey of 332 schools published by the Sustainable Endowments Institute, scored Berea College with a B+, indicating steady improvement over the last four years. Berea and the University of Louisville tied for the highest rank in Kentucky. The highest national grade handed out was A-. The survey, a project of the Rockefeller Philanthropy Advisors, provides information on a college's environmental commitment based on nine categories: administration, climate change and energy, food and recycling, green buildings, transportation, student involvement, endowment transparency, shareholder engagement, and investment priorities.

Aaron Gilmour, '12

Michael Davis,'10, and Ben Comin,'12, attend a short term class, "Bicycles Built for Transportation."

The College also ranked as the sixth greenest college in America, according to *thedailygreen.com*.

The Higher Purposes of Education

In the Loyal Jones Appalachian Center gallery, Bereans leaned forward to hear author bell hooks sing a gospel song about being spiritually touched. Students and faculty then discussed how touch might bring "spirit" into classrooms. The discussion was part of a two-part series, "Answering the Call: Spirituality and Education," hosted by the Center.

Aaron Gilmour, '12

bell hooks asked, "Is God a Feminist?"

hooks also spoke at two Peanut Butter & Gender luncheons hosted by the women's studies program. "Is God a Feminist?" posited that higher education is a construct of power and competition rather than a life-enhancing challenge to bring forth ideas that "shake us to the core."

In "Prophetic Spirituality," hooks joined visiting theologian Katie Cannon for a lively discussion of the place of spirituality, especially for black women, in the educational system. hooks reminded the audience that Berea was created out of a search for a spiritual space and place, not only as an earthly institution. Our challenge and task, she said, is to bring spirit into our classrooms and to discover the "higher" in higher learning.

Grant Aids Young Women

Berea College has received a U.S. Department of Education grant to support a project to help low-income Appalachian and African American high school females strengthen their skills in science and math. The grant, which will provide more than $214,000 annually for four years, will be administered through the GEAR UP program at Berea College. GEAR UP serves more than 4,000 high school and middle school students in five surrounding counties, providing a wide range of programs to help students prepare for college. The new program began in October.

Terry Hasler

Ten young women from Lee County High School attended "Girls Science Student Day" at Berea College.

Heard around Campus

The founders wisely trusted no one. They wanted every single political actor to be checked and balanced by other political actors.

Dr. Larry Sabato, director of
The Center for Politics at University of Virginia
"Politics Is a Good Thing" *October convocation*

It's no longer an authority and a patient. The patient becomes the authority. …As a community it is our job to reframe the way we look at birth.

Rebecca Amirault, midwife
"Women Empowering Childbirth and Health Care"
Peanut Butter & Gender, October

Economics should not be accessible only to the experts. The ideas are too important and too interesting.

Charles Wheelan, correspondent for *The Economist*,
"Undressing Policy and Planning Issues of Today"
October convocation

We abandon the idea that we're entitled to all this energy, entitled to all these things. …We have an opportunity in this generation to change all these things and build resilience into our community in a lot of tangible ways.

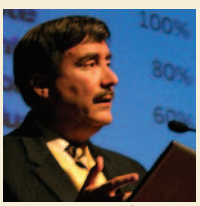
Ruhiyyih Young, '11
"Teaching and Building Resilience for Households and Community" *SENS luncheon, October*

Whole nations have melted away in our presence like balls of snow in the sun.

Robert J. Conley, author of *Cherokee Thoughts*
Appalachian Center reading, November

"You can't call for diversity when you're occupying those (state) positions for years and years and hopscotching from one to the other. Eventually we're going to have to impose some kind of term limit."

Renee Shaw, Kentucky Education Television producer
Tukule Tusome, November



Dr. Larry Sabato

Rebecca Amirault

Charles Wheelan

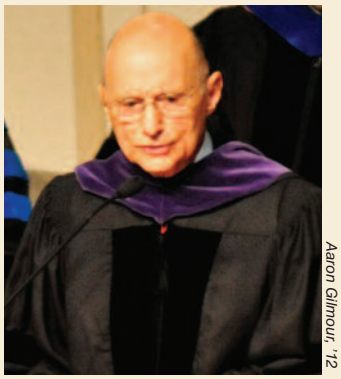
Robert J. Conley

Steve Shaffer, KET

Renee Shaw

John M. Rosenberg Urges Graduates toward Civil Service

John M. Rosenberg, retired director of the Appalachian Research and Defense Fund of Kentucky (AppalReD), addressed 80 Berea College graduates during midyear commencement exercises on December 13.



Aaron Gilmour, '12

John M. Rosenberg

He told graduates "There is no more gratifying way to spend your lives than in service to others who need it." Rosenberg mentioned his work as a civil rights lawyer in the 1960s, but also focused on his memories of Kristallnacht (November 8, 1938) when his Jewish family was forced from their home by Nazi soldiers. His immediate family escaped, but other family members died in concentration camps. It was this pivotal childhood event that set the stage for his notable career as a civil rights lawyer.

Rosenberg has worked with the legal aid division of AppalReD of Kentucky since its inception in 1970 and held the position of director of the nonprofit for more than 28 years. AppalReD offers free legal services to low-income residents in a 37-county region in eastern and south central Kentucky. Their mission is to help others attain the basic necessities of life, such as adequate wages, housing, food, and health care. It also protects families and children from violence and abuse.

President Larry Shinn awarded Rosenberg an honorary Doctor of Law degree from Berea College.

Robots Invade the CDL

At the conclusion of the robotics class taught by associate professor Jan Pearce, Berea students presented their custom-built robots to a group of three-year-olds at the Fowler Child Development Laboratory. Programmed with "personality," each robot performed in the CDL classrooms and concluded with a "robotic" parade.

Each preschooler child received a Certificate of Participation from NASA that certifies that each child's name will be put on a microchip which will be taken to Mars and placed on NASA's Mars Science Laboratory rover in 2011.

Aaron Gilmour, '12

CDL students Sam and Blaine help Joshua Absher, '12, decide how to program their robots.

Is the EU a Global Answer?

"I want to make this point with an American audience in America," said Anthony Smallwood, press and cultural counselor for the European Union (EU) Commission's delegation to the U.S. "The EU is something of which America should be proud."

Smallwood referenced American involvement in the creation of the EU at a forum held the day before his November College-wide symposium entitled "The European Union: Challenges and Cooperation."

At the symposium, political science professors Karen Mingst of the University of Kentucky, John McCormick of Indiana University-Purdue University Indianapolis, and Melissa Pine-Yeager of Longwood University, discussed how regional governments like the EU work to ensure political stability for themselves and the world beyond. Mingst said, "You cannot have economic development without good government and a modicum of peace and justice."

Earlier this fall, panelists contrasted European health care systems with America's current system for a College audience. Professors Judith Carr (nursing), Scott Steele (economics), Kent Kummerfeldt (Danish gymnastics), and Konstantinos Nikoloutsos (classical languages), along with community members Lori Meyers-Steele and Julie Baltisberger, addressed patient waiting lists, medical costs, and debated corporate versus government health care.

The events were sponsored by the Center for International Education.

Kelsey Crim, '11

During the symposium, John McCormick addresses the issues pertaining to the European Union.

Aaron Gilmour, '12

Kent Kummerfeldt speaks about his experiences with Danish healthcare.

O'Neil Arnold, '85

Berea Recognized for Its Arbor Care

The Arbor Day Foundation has named Berea College a 2009 Tree Campus USA in recognition of its commitment to the care of its campus trees. Berea is the second educational institution in Kentucky to be named a Tree Campus USA University. The designation is based on five core standards of tree care including development of a tree care plan and the inclusion of students in forestry service learning projects.

The Tree Campus USA program brings together college students and local citizens "to plant trees and create healthier communities for people to enjoy for decades to come," according to John Rosenow, chief executive of the Arbor Day Foundation.

Bluegrass Ensemble Delights Lexington

The Berea College Bluegrass Ensemble provided the University of Kentucky with a special concert as part of the "Appalachia in the Bluegrass" concert series on December 4th at the John Jacob Niles Center for American Music in Lexington. Current members include: Will Haizlett, '09, on mandolin; Darrin Hacquard, '10, on guitar; John Bradley, '10, on bass; Andrew Taylor, '11, on fiddle; Micah Ruehl, '10, on lead vocals, and music instructor Al White on banjo and fiddle. This summer the band also completed its second tour of Japan.

Aaron Gilmour, '12

The Berea College Bluegrass Ensemble during a 2009 fall performance.

Regional Artists Visit Berea Students

"It was a two-lane world," said Gurney Norman.

The Kentucky poet laureate and author of *Divine Rights Trip* and *Kinfolks: The Wilgus Stories* visited Berea College this fall to speak with students in an Appalachian Cultures class about the world in which he grew up. He described how oral storytelling—the "tell it again" factor—affected his work as a writer. He said anecdotes told while sitting together after a meal "are fundamentally the first literature of the world"—a tradition Appalachians hold in high regard. The outmigration of Appalachians to more urban areas with the hope of finding better jobs and housing affected his own family and "created a kind of diaspora in the mountains."

This academic year the Loyal Jones Appalachian Center also hosted a monthly film and discussion series with Appalshop filmmakers to celebrate Appalshop's 40th anniversary. Appalshop, a media, arts, and education center founded in Whitesburg, Kentucky, has produced more than 100 films examining Appalachian's environment, culture, and economy.

Aaron Gilmour, '12

Author Gurney Norman speaks in Chad Berry's Appalachian Cultures class

Aaron Gilmour, '12

Elizabeth Barrett discusses her film Stranger with a Camera.

Berea Adds Three New Board Members

In October, Berea College brought three new trustees to its board.

Geraldine F.R. McManus, director of the investment management division of Goldman Sachs, has also held management positions at Merrill Lynch and Salomon Brothers. Her community service includes groups assisting African American students to attend college and supporting conservation and education. After receiving her bachelor's degree from Cornell, McManus received an MBA from the Wharton School of the University of Pennsylvania.

Geraldine F.R. McManus

Dr. Dennis R. Roop, '69, directs the regenerative medicine and stem cell biology program at the University of Colorado (CU) School of Medicine. Prior to joining CU, he taught molecular and cellular biology at the Baylor College of Medicine in Houston, where he received the school's highest award for excellence in research. Roop's adult stem cell research has helped to identify many gene markers for a variety of inherited defects and diseases. He received his advanced degrees from the University of Tennessee, Knoxville and completed postdoctoral work at Baylor College of Medicine.

Dr. Dennis R. Roop

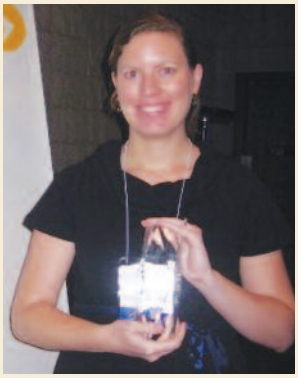
Rev. Lynne Blankenship Caldwell, '78, a United Methodist Church minister has worked with the church's Western North Carolina Conference for 20 years. She is a visiting instructor for United Methodist Studies at the Union Theological Seminary-Presbyterian School of Christian Education and The Samuel D. Proctor School of Theology at Virginia Union University in Richmond, Virginia.

Rev. Lynne Blankenship Caldwell

All three will serve six-year terms. Caldwell was elected as an alumni trustee.

Basham Builds Interfaith Bridges

Katie Basham, '02, coordinator of interfaith programs at the Weatherford Campus Christian Center, received the Interfaith Youth Core's (IFYC) Bridge-Builders Award for Best Campus Program at the sixth national conference held in Chicago this fall. IFYC lauded Basham and her students for making Berea a model of interfaith cooperation and for following their inspiration that comes from the campus motto: "God has made of one blood all peoples of the earth."



Basham,'02, displays her Bridge-Builders Award.

In March 2010, IFYC's founder and executive director, Dr. Eboo Patel, will return to campus to offer the Robbins Peace Lecture convocation.

Hodson and Bagnoli Named to New Posts

Luke Hodson, '02, is the College's new director of admissions operations. Since returning to Berea in 2005, he has served as admissions counselor, assistant director and coordinator of recruitment and outreach, and, most recently, associate director of admissions operations.

LeAnna Kaiser, '12

Luke Hodson

Joe Bagnoli, '88, accepted a position as associate provost. He is charged with overseeing the integration of administrative functions involved with admissions, financial aid, academic records, and the Student Services Center. Bagnoli will also coordinate initiatives to increase student engagement and success.

Tim Webb

Joe Bagnoli

Bullock Appeared on KET2

Music professor Kathy Bullock appeared on "Connections with Renee Shaw," which aired this fall on the Kentucky Educational Television (KET2) network. Bullock, who teaches music theory, Black music, and ethnomusicology, has a national and international reputation for teaching and performing gospel and spirituals. She discussed with Shaw the connections between African American and Appalachian music.

LeAnna Kaiser, '12

Dr. Kathy Bullock laughs with Demetrius Russell,'08 during a Black Music Ensemble rehearsal.

Boomer Games at Seabury Center

Berea College hosted the Second Annual Bluegrass Regional Boomer and Senior Games this fall. Athletes 50 years old and older competed in events including badminton, basketball, cycling, golf, swimming, tennis, racquetball, and track and field.

"We had people from as far away as Michigan," said Martha Beagle, professor of physical education and health, and one of the event's organizers. The event ran smoothly thanks to support from the students and staff from athletics and physical education and health.

"It would not have happened without the students," she said.

Athletes compete in high jump during the annual Boomer and Senior games.

LeAnna Kaiser, '12

Root, Root, Root for the Home Team

Every Berean had the chance to bat one out of the park during the alumni baseball game on October 3. Dave Audia, '69, director of the "gLove program," was collecting new and reconditioned baseball gloves during Alumni Weekend. In partnership with Berea College baseball coach Ryan Hess, '98, and the NAIA "Champions of Character" program, gLove hopes to collect 10,000 gloves this year, to be distributed to needy children the world over. Financial donations were also collected to purchase 250 gloves as educational incentives to youth in the Dominican Republic.

Ryan Hess

Berea's baseball team presented Coach Audia with gloves to be donated to children.

Six Alums Join in the Wierwille Hoops Shoot Out

The first annual Roland Wierwille Hoops Shoot Out was held December 5 at Seabury Gym. Berea basketball coach John Mills and Henry Clay High School coach Daniel Brown, '96 organized the games which proved a reunion of six former Mountaineer ball players.

In addition to Brown, alumni coaches included: Ron Kinmon, Jr., '93 (Grant County); Glen Drury, '82 (Anderson County); Devin Duvall, '00 (Owen County); Jim Conway, '96 (North Laurel); and Willie Hill, III, '90 (Seven Hills, Ohio).The all-day shoot out brought together in heated competition 12 regional high school teams and four colleges.

Ellie Rung, '10

Alumni coaches attended the Roland Wierwille Hoops Shoot Out. (Left to Right) Cory Craig, Roland Cecil Wierwille, Glen Drury, Daniel Brown, Devin Duvall, Steve Ritter, Jim Conway, and Ron Kinmon, Jr. (Willie Hill not shown)

With more than 17,000 members around the world, the Berea College Alumni Association represents a diverse, yet connected extended community. We encourage all our alumni to develop strong ties with friends and to Berea by engaging in our many programs, services, and activities.

Berea Is Coming to You! Berea College Clubs are all over the country. One is probably meeting near you!

To find alums in your community, contact the Office of Alumni Relations at 1.866.804.0591 or visit www.berea.edu/alumni/

2009 Berea College Homecoming Alumnus Awards

Ray Davis, '11

Della Mae Justice, Esq., Dr. J. Dan Pittillo, Dr. William J. (Bill) Laramee

During Homecoming 2009, Berea College honored two alumni and one administrator for their distinguished service to the College.

Dr. William J. (Bill) Laramee, vice president for alumni and college relations, received the Honorary Alumnus Award. He began his work with the College in the 1970s. He holds an undergraduate degree from Western New England College, a master's degree from Dartmouth, and a doctorate in education from the University of Massachusetts. He has been made a Kentucky Colonel for his public service.

The Distinguished Alumnus Award, Berea's highest alumni honor, was bestowed upon Dr. J. Dan Pittillo, '61. A botany professor recently retired from Western Carolina University, Pittillo has earned a bachelor's in biology, a master's degree in botany from the University of Kentucky, and a doctorate from the University of Georgia. As a student, Pittillo collected 500 specimens which are now part of the core collection of Berea's herbarium.

Della Mae Justice, '93, assistant attorney general for Kentucky's Consumer Protection Division, received the Outstanding Young Alumnus Award. After graduating fifth in her class from the University of Kentucky College Of Law, Justice worked to educate voters on the qualifications of judges through the Pike County Women's Bar Association and taught business law at Pikeville College.

SUMMER REUNION 2010 *JUNE 11 - 13*

Welcome Back Special Reunion Classes of
1940. 1945, 1950, 1955, 1960, 1965, 1970, 1975 and 1980

Date: _____ Full Name: _____ Class Year: _____

Name *(first, maiden and last name as it will appear on your name tag):* _____

Spouse/Guest Name:_____ Spouse/Guest Class Year (if applicable): _____

Address:_____ City: _____ State: _____ Country: _____

Zip: _____ Telephone: _____ E-mail (needed to receive confirmation): _____

Friday, June 11

_____ # of Guests attending (no charge) **Great Commitments Society Reception** *Baird Lounge, Alumni Building* **Friday, 2:00 p.m.**

_____ # of Guests attending (no charge) **Renewal of Wedding Vows** *A special service at Danforth Chapel* **Friday, 4:30 p.m.**

_____ # of Tickets (Cost: $12 each) **Picnic on the Quad** *Casual outdoor picnic with food and music* **Friday, 6:00 p.m.**

Saturday, June 12

_____ # of guests attending (no charge) **50th Reunion Breakfast** *Hosted by President and Nancy Shinn for the class of 1960* **Saturday, 8:00 a.m.**

_____ # of Tickets (Cost: $10 each) **Sweetheart Breakfast** *Special breakfast for couples who met at Berea College* **Saturday, 8:00 a.m.**

_____ # of Tickets (Cost: $12 each) **Class Luncheon** *Dining Services, Alumni Building* **Saturday, Noon**

Choose One per Guest: Name _____ ____ Non-Vegetarian Meal _____ Vegetarian Meal

Choose One per Guest: Name _____ ____ Non-Vegetarian Meal _____ Vegetarian Meal

_____ # of guests attending (no charge) **Alumni Awards Reception** *Meet our 2010 Honorees (No Dress Code)* **Saturday, 5:00 p.m.**

Distinguished Alumnus Award: ***Dr. Virgil Eldon Ball, '70***

Distinguished Alumnus Award: ***Virgie Mahaffey McIntyre, '45***

Honorary Alumnus Award: ***Duane and Betty High***

____ # of Tickets (Cost: $25 each) **2010 Summer Gala** *Dinner and dancing featuring live music (No Dress Code)* **Saturday, 6:30 p.m.**

Choose One per Guest: Name _____ ____ Non-Vegetarian Meal _____ Vegetarian Meal

Choose One per Guest: Name _____ ____ Non-Vegetarian Meal _____ Vegetarian Meal

Pay by Credit Card
Charge my VISA, MASTERCARD, DISCOVER, or AMERICAN EXPRESS

Contribution to Berea Fund: $_____

Ticket Costs: $_____

TOTAL: $_____

Card Type: _____

Expiration Date:_____ Card Number: _____

Signature of Card holder: _____

Print Name: _____

Pay by Check
Payable to Berea College

Contribution to Berea Fund: $_____

Ticket Costs: $_____

TOTAL: $_____

Check # (if applicable):_____

**** For a pre-printed name tag and registration packet, early reservations must be made by* ***June 4, 2010.*** *Registration packets will* ***not*** *be mailed, but will be available for pick-up at the Alumni Building beginning June 11, 2010.* ***A limited number of tickets will be available for purchase at the registration desk during Summer Reunion.*** **Tickets purchased and refund requests made after June 4, 2010 are non-refundable.** Registration forms must be postmarked by **June 4, 2010**.

Berea, Berea Beloved:

"Berea, Berea Beloved" was the theme for the 2009 Homecoming (November 13-15). Over 600 alumni from Kentucky, all across the United States, and as far away as India attended the festivities, where the classes of '84, '89, '94, '99, '04, and '09 were honored.

More than 200 people mingled during Friday night's Young Alumni Happy Hour at PapaLeno's where they were treated to the stand-up comedy of Chris Thomas Hayes, '06. Saturday held excellent weather for BereaFEST. Campus organizations raised funds by selling food from around the world. Students for a Free Tibet offered Tibetan dumplings, while the Cosmopolitan Club featured Middle Eastern baklava. Musical and dance performances included the Berea Middle Eastern Dancers.

First place in the Homecoming poster contest went to Students in Free Enterprise, second place to Baptist Campus Ministries, and third place to the Concert Choir.

Women and men's basketball teams blew out their opponents, Ohio Mansfield, in record-shattering homecoming night victories (119-43, women; 151-75, men).

The Mountaineers broke five records: most points in a half (76), most points during a game (151), most rebounds (83), most assists (33), and the most field goals (66).

During half-time, Christian Motley, '10, and JoAnna Bennett, '10, were crowned homecoming king and queen, with Anthony Holmes, '10, and LeAnna Kaiser, '12, as prince and princess.

photos by John Harmon, '95, Aaron Gilmour, '12, and Chris Hayes, '09

Homecoming 2009

Photos and names of alumni may be found at: www.berea.edu/alumni/homecoming/gallery/classphotos/classphotos.asp

photos by Chris Hayes, '09

ABOUT BEREA PEOPLE

Alfreda Turner Receives a Healthy Reward for Caring

By Libby Kahler, '11

When clients call the Charter Oak Health Center of Hartford, Connecticut, the recorded introductory message segues from English into Spanish, without asking a caller to press two "para Español." This is because more than half of the patients who seek medical care at Charter Oak are native Spanish speakers. The center's director, Alfreda "Freda" Turner, '72, keeps an open door, where the lack of insurance or economic disparity is ignored, and the individual is treated with respect.

Charter Oak does not turn away clients who cannot pay and, in this town where fully one-third of its population lives at or below the poverty line, many cannot pay. Charter Oak offers an income-based sliding scale that focuses on serving the "medically underserved...who are members of racial/ethnic minorities and who live in poverty."

Freda's center recently attracted the attention of President Obama. She was invited to the White House to receive $10 million from a $600-million grant to improve existing health care facilities. The Center provides a full complement of primary and preventative medical, dental, and behavioral services for all ages. They will refer patients who need hospitalization or complex diagnostic procedures.

A graduate of Berea College's nursing program, she credits the College for influencing her life. "My Berea experience launched a life career. The great commitments of Berea College were in line with my ultimate career choices," Freda says. "Caring for people is an innate part of my being, and, I believe, a part of my purpose in the universe."

Jessica Hill

Don Langer, CEO of AmeriChoice presents Alfreda Turner, '72, with a plaque to commemorate the center's 30 years of service.

The Berea College Alumni Association enjoys hearing from Bereans from all over the U.S. and the world. The "About Berea People" section of *Berea College Magazine* reports verifiable news that has been sent to the Association by the alumni. BCM reports the news you wish to share with your alumni friends and associates. "About Berea People" reports careers, weddings, retirements, births, changes in addresses, and other items of importance to our alumni. Please include your class year and name used while attending Berea. Notes may be edited for style and length. Our print deadlines may delay the appearance of your class news. While we will make every effort to put your information into the next issue, due to printing schedules, some delays are typical. We appreciate your understanding. For more information on how to submit class notes and photographs, call 1.866.804.0591, e-mail diana_taylor@berea.edu, or log on to www.berea.edu/alumni.

1939

Grant Begley has written a book, *Hewn from the Rock*, which includes a chapter about Berea and reviews by **Loyal Jones**, '54 and Chad Berry. He and Joy, his wife, reside in a high-rise retirement/lifecare facility in Ft. Worth, TX.

1942

Ruth V. Cornett Fierros has completed her fifth book, *Born to Inspire*. Her autobiography, *The Coming of Roses*, was published in 2004 and a copy is available in the Berea College library. She is a retired teacher and resides in Laredo, TX.

1946

Mary K. Fielder Kauffman, Cx'46, was appointed the historian for Kentucky Society Daughters of the American Revolution. This past summer she served as a Berea volunteer ambassador for Berea tourism trolley service. She resides in Berea, KY.

Ormand C. Williams and **Daphne Miller Williams**, Cx' 47, are retired. They have been married 62 years and reside in Weaverville, NC.

1950

Dr. Grover C. Miller is commander of the American Legion Post 132, volunteers in the County Heritage Library, and is active in his church. He and Judy C. Miller, his wife, reside in Smithfield, NC.

1951

Marie Day Butler, Cx '51**,** is a retired art teacher. She paints, writes, and is learning the Cherokee language. She resides in Madison, WI.

1953

Sam Jennings is a retired teacher and member of Churches for Middle East Peace. He and Hilda, his wife, have a grandson born in 2008. They reside in Clinton, TN.

Calvin Phipps is retired from the Boy Scouts of America. He is a U.S. Navy veteran of World War II and is involved in many community and church activities. He and Esther, his wife, celebrated 55 years of marriage on September 4, 2009. They reside in Hendersonville, NC and have three children.

1958

Sylvia Newsome Corey resides in Somerset, KY.

Jerry P. Perry is retired. He and Barbara, his wife, have been married two years. They were high school sweethearts. They spend part of the year in Holmes Beach, FL and the other in Little Rock, AR.

1959

Bill Best has written a new book, *The Appalachian Renaissance at Berea College 1944-1994*. He autographed books at Homecoming 2009. He and **Irmgard Schneider Best**, '71, reside in Berea, KY. Reach him at bill_best@heirlooms.org

Harold Branam has four review articles in *Magill's Literary Annual*, (Salem Press, 2009), and an article on language and Quaker witness in *Friends Journal* (Oct. 2009). His recent poems have appeared in *Appalachian Journal*, *Friends Journal*, *SEYM Newsletter*, and *Spectrum*. He and **Sandy Conover Branam**, Cx '60, reside in Savannah, GA.

1963

Rod Bussey is the contact for the "Dana I Reunion" during the 2010 summer reunion. Dorm members of Howard Hall, Bingham, Dana 2, 3, and 4 and Town are invited to attend. Contact Rcbussey@aol.com for more information.

1965

Jerry J. Cox is the new treasurer of National Association of Criminal

Defense Lawyers. He is a sole practitioner and has practiced criminal defense law for over 40 years. He resides in Mount Vernon, KY.

1969

Carolyn David Garrison completed her doctorate in curriculum instruction in 2007 from the University of Kentucky. She is a full professor at Campbellsville University. **Bruce Garrison** retired from public school teaching after 38 years. They reside in Campbellsville, KY.

Catherine Stewart Johnson and **John Johnson** are retired and reside in Lexington, KY.

Barry N. Wood received the Dr. Howard Jack Outstanding Public Educator Award in 2009. He is an English and theater teacher at Peters Township High School in McMurray, PA. He resides in Houston, PA.

1971

Teddy Grovac Parker is a producer with ABQ Studios, the third largest studio in North America and the newest. A tour of the studios can be viewed online. She resides in Albuquerque, NM.

1972

Sally Robinson is a finalist for Kentucky High School Teacher of the Year. She has taught history and government at Berea Community School since 1978. Classroom visits and personal interviews will lead to final selection of the 2010 Kentucky Teacher of the Year, who will then represent Kentucky in the National Teacher of the Year competition.

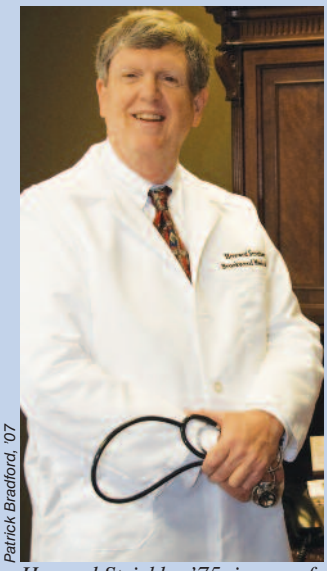
David B. Sloan is a partner in the law firm of O'Hara, Ruberg, Taylor, Sloan & Sergent and was appointed to the Eastern Kentucky University Board of Regents by Governor Steve Beshear. He and Cheri, his wife, reside in Fort Mitchell, KY. They have two children and two grandchildren.

1973

Dr. Betty Smith Coffey is a professor of strategic management and chair of the department of management at Appalachian State University in Boone, NC, where she resides. She has traveled to China many times to lead study abroad programs for MBA students in the college.

1974

Roger L. Marcum is executive vice president of St. Catharine College in KY. In June 2009 he retired from



Patrick Bradford, '07

Howard Strickler,'75, is one of the nation's first addiction treatment specialists.

Howard Strickler Helps Others Combat Addiction

By Morgan Smith, '12

Dr. Howard Strickler, '75, knows the destruction that drug and alcohol addiction creates, and for the last 20 years he has worked to combat the disease. After earning a biology degree from Berea College and his medical degree from the University of Louisville, Howard now lives in Birmingham, Alabama, where he is president and medical review officer at Employers Drug Program Management (EDPM), a drug testing company he co-founded with Chuck Ash. In addition to work with EDPM and its clients, Dr. Strickler helps people of all backgrounds to recover from their addictions, through the detoxification process.

The new, official face of addiction research and treatment—The American Board of Addiction Medicine—recently certified Dr. Strickler in the field, making him one of the first physicians in the country to be officially approved to offer addiction-specific treatments. In the past, addicts seeking recovery often found themselves shuffled through programs that sometimes misdiagnosed their addiction and were often unable to offer appropriate treatment. Dr. Strickler's recent certification by the Board will enable potential patients to locate addiction-specific treatment facilities and physicians, rather than find themselves mired in a broken system.

Currently, few courses exist to train physicians in addiction treatment, and residencies in addiction-specific facilities were also lacking. Dr. Strickler's years of experience in the field of addiction medicine will help to standardize the methods and curriculums of future physicians, as well as offer a means to provide continuing excellent treatment opportunities for patients.

WEB LINKS

p. 5
The Interactive Autism Network
www.IANproject.org

p. 16
The Pedouins Bicycle to Alaska
www.pedouins.org

p. 22
Sanders-Brown Center on Aging
www.mc.uky.edu/coa/history

p. 30
For information on the NASA certificate program
http://marsparticipate.jpl.nasa.gov

Marion County Public Schools after 10 years as superintendent and 34 years as a Kentucky public school educator. He resides in Bardstown, KY.

Ira Dean Newman was appointed by Governor Steve Beshear as circuit judge for the 25th Judicial Circuit Family Court, Division 3, consisting of Clark and Madison counties. He previously practiced with the Appalachian Research and Defense Fund of Kentucky, Inc. He resides in Richmond, KY.

1977

Rita Ellen White is priest-in-charge of the historic St. Anne's Parish (Episcopal) in Scottsville, VA. She relocated from the Berkshires of Massachusetts to the Charlottesville area.

1980

Leonard Lauriault was a forage agronomist at New Mexico State University for 13 years and has been promoted to professor. He resides in Tucumcari, NM.

Jeffry S. Miller, PhD, is chairman of the agriculture department of Southern Arkansas University in Magnolia, AR, where he resides.

1981

Dr. Annalisa "Lisa" Lewis Raymer is a new faculty member at Emory & Henry College in the department of public policy and community service. Dr. John Lewis, her husband, was the former director of the Berea College Appalachian Museum and is a new faculty member in Appalachian Studies at East Tennessee State University. They reside in Emory, VA.

1982

Married: Terri Fluker-Gilman to Kerry Gilman on May 9, 2009. She completed costume work on two minotaurs and a satyr for the upcoming film, *The Chronicles of Narnia – The Voyage of the Dawn Treader.* She is working on a vampire costume for *Priest* and the creature costumes for another *Predator* movie. She also did the costume for the new *Uncle Creepy* seen on YouTube. They reside in Los Angeles, CA.

David Taylor is a botanist at the Daniel Boone National Forest in Kentucky. He was featured in a front page story of the *Lexington Herald Leader,* July 20, 2009. He resides in Berea.

1984

Lynne Wright Cipro is a third grade teacher at Veritas Christian Academy, a private classical Christian school in Fletcher, NC. She and Gary, her husband, reside in Arden, NC.

1987

Sandy Davis-Cook, Cx' 87, is a member of International Alliance of Theatrical and Stage Employees. She and Daniel, her husband, have worked with David Byrn, the *American Idol 2009 Summer Tour*, *Nine Inch Nails*, as well as provided technical support for Broadway tours such as *Spamalot.* She is installing her third photography show featuring scenes from around Oregon. They reside in Portland.

1989

Steve Davenport was the associate director of the U.S. Military Academy Library at West Point and is now a reference specialist in U.S. history at the Library of Congress. He began his library career in 1985 as a circulation assistant at Hutchins Library in Berea. He resides in Washington, DC.

Keven McQueen's eighth and ninth books, *Forgotten Tales of Indiana* and *Strange Tales of Crime and Murder in Southern Indiana,* were published by History Press in October 2009. He teaches at Eastern Kentucky University and resides in Berea, KY.

1996

Leonard Poage received a master's degree in classroom studies from the University of Rio Grande in Rio Grande, OH. He teaches English at Gallia Academy High School. He and Jennifer, his wife, reside in Huntington, WV.

1997

Todd King directed and starred in the Berea Arena Theater production *Monty Python and the Flying Circus* in August 2009. He and Angel, his wife, reside in Richmond, KY.

Birth: a daughter, Madeline Roe, to **Kristi Pedigo Tronc,** Cx '97 and Jon Tronc on August 26, 2009. The family resides in Indianapolis, IN.

1998

Sarah Stricklen Schilens was nominated for teacher of the year in 2009. She is vice president of the new Pasco (County) Association of World Languages Educators. She resides in New Port Richey, FL.

1999

Brian D. Reed has two book chapters forthcoming, "Authentic Masculinities: A Gender-Aware Approach to Leadership Development and Mentoring," and "Socio-Economic and Work Identity Intersections with Masculinity." He presented at an Association for the Study of Higher Education Conference and is a doctoral student in higher education at the University of Virginia. He and **Laura Beth Reed**, '01, reside in Charlottesville, VA.

2002

Edd Easton-Hogg is working on his clinical psychology doctorate at Spalding University. He owns and manages Canoe By You, a Louisville business that teaches individuals how to build canoes. **Rebekah Easton-Hogg**, '01, earned her MS nursing degree from the University of Louisville and finished her first year practicing as a nurse practitioner. They reside in Louisville.

2003

Andrew Ammons is an assistant professor of biological sciences at Goshen College in Goshen, IN. He continues research in honeybee genetics, his doctoral thesis topic.

Birth: a daughter, Adelaide Taylor, to **Crystal Wayne Taylor** and Stephen Taylor on September 7, 2008. The family resides in Fayetteville, NC.

2004

Married: Emily LaDouceur Ponnie and **Teah Ponnie**, '05, on May 29, 2009. They have a son, Telson, and reside in Montclair, NJ.

2005

Married: Kara Oran to Andrew O'Neil on July 14, 2009. They reside in Knoxville, TN.

2006

Gyude Moore was appointed as a policy advisor to the cabinet of Liberian President Ellen Johnson-Sirleaf. In 2009, he gave the commencement address to the graduating class at Georgetown University.

2007

Married: Jimmie Blevins and **Emilie Throop** on September 6, 2009. Jimmie received his master's degree in English from Kansas State University (KSU) in 2009. Emilie is completing her master in biology at KSU. They reside in Manhattan, KS.

Anastasia Shegay interned last summer at the United Nations Headquarters in New York City. She completed the first year of her master's degree in international relations at John Hopkins University in Bologna, Italy. In the fall she began her second year in Washington, DC.

2008

Amanda Keeton is in her first year of studies at West Virginia School of Osteopathic Medicine in Lewisburg, WV.

2009

Cory Schlesinger is an assistant strength and conditioning coach at Campbell University in Buies Creek, NC. He is working on his master's degree in education with a concentration in exercise science. He resides in Garner, NC.

Terri Fluker-Gilman, '82, and Kerry Gilman

Keven McQueen, '89

Gyude Moore, '06

Amanda Keeton, '08

IN MEMORIAM

The "In Memoriam" section of the *Berea College Magazine* honors Bereans who have passed away. If you know of a Berean who has died, please let the Alumni Association know by sending a copy of the obituary to CPO 2203, Berea, KY, 40404. Or you may e-mail diana_taylor@berea.edu. We make every effort to put your information into the next issue. Due to printing schedules, some delays are typical. We appreciate your understanding. Please include the person's class year or connection to Berea, and the day and place of death.

Faculty & Staff

Ida Owens Cass, of Berea, KY, died August 6, 2009. She was a former personnel director for Berea College Food Service. She is survived by **Linda Owens Jennings, Cx '80,** and Jane McKinney Davidson, her nieces, and Edgar E. Dyer, her nephew.

William J. Schafer, of Berea, KY, died August 17, 2009. He taught English at Berea College from 1964 to 2004. He was chair of the English department from 1984 to 1994 and received the Seabury Award for Excellence in Teaching in 1971. He is survived by Martha Schafer, his wife, a son, and a daughter.

1920s

Lois Learoyd Barkley, of Raleigh, NC, died May 31, 2009. She was a homemaker and preschool teacher and the widow of **Dr. Key Lee Barkley, '26.** She is survived by Robert W. Learoyd Jr., her son, and Carl, George, and Alan Barkley, her stepsons.

1930s

Katherine Watson Moler, of Charles Town, WV, died May 25, 2008. She was a retired school teacher and the widow of **Dr. James M. Moler, '32**. She is survived by Leighton Watson and Richard Watson, her brothers.

William J. Schafer

Hope Souder, of Topsham, ME, died August 9, 2008. She was a retired elementary teacher and the widow of **Jason C. Souder, '33**. She is survived by Otto E. Souder, her son.

Charles O. Bertram, '34, of Lawrenceburg, KY, died August 28, 2009. He taught school for 38 years and worked for the Kentucky Department of Agriculture. He is survived by Ruth B. Herndon, his daughter.

Lillian Carpenter Jones, '36, of Phoenix, AZ, died January 15, 2009. She and her late husband operated a music store in Phoenix. She is survived by Jennifer DeGroot, Chuck Jones, and Joyce Miller, her children.

Nelda Anderson Evans, '39, of Morgantown, WV, died September 18, 2009. She worked for Farmers Home Administration from 1939-1947. She is survived by James Boyd Evans and Joe Evans, her sons.

Lenora Estelle Miller Skeenes, '39, of Alum Creek, WV, died September 9, 2009. She spent her entire life promoting music excellence in many communities throughout West Virginia, including teaching voice and piano. She is survived by Sandra L. Skeenes, Jerry W. Skeenes, Edward A. Skeenes, and Barry D. Skeenes, her children.

1940s

Susan Atchley Anderson, '40, of Anderson, SC, died July 14, 2009. She is survived by Jamie Davis, Suzanne Wilson, Dr. Bruce Davis, Dr. Andy Davis, and Dr. Eric Davis, her five children.

Catherine Sutherland Gilbert, '41, of Clintwood, VA, died July 14, 2009. She was a high school teacher and librarian. She is survived by Benjamin Sutherland, William Sutherland, Fred Sutherland, Louise Sutherland, and Jane Lyon, her siblings.

Charles "Chuck" Louis Wall, '42, of Netarts, OR, died March 28, 2009. He was a career officer in the U.S. Navy for 23 years, commanded ships of the line in two wars, and served as assistant comptroller of the Navy at the Pentagon. After the Navy, he managed contracts for Computer Science Corporation. He is survived by Terry H. Wall, his wife of 62 years, two daughters, and three sons.

Edna Wilson McKenney, '42, of Foxfield, CO, died March 12, 2008.

Frankie Mantooth Rice, Cx '43, of Morehead City, NC, died July 24, 2009. She was a teacher. She is survived by **Dr. Ted Rice, '41**, her husband, and three sons.

William "Bill" E. Collins, Navy V-12 '43-'44, of Woodstock, GA, died July 31, 2009. He was a U.S. Navy veteran of World War II, served in the Pacific Theater, and retired as lieutenant in the U.S. Naval Reserves. After the service he worked as a human resources professional. He is survived by **Marjorie Harrison Collins, Cx'49**, his wife of 55 years, and four sons.

Colonel Claude Rufus Nelon (retired), Cx '44, of Lake Lure, NC, died August 30, 2009. He was a veteran of three wars, serving 32 years from 1942-74 in the U.S. Army Air Corps and U.S. Air Force as a command pilot, professor of aerospace studies, and commander of the Air Force ROTC program. He is survived by Helen Mary Ganey Nelon, his wife. He had two daughters and six sons.

John "Jack" Hamlin Porter of Columbus, NC, died June 15, 2009. He was a U.S. Army veteran of World War II. He was a research and development chemist and later a leather finish chemist and salesman for Prime Leather Finishes Company. He is survived by **Fern Goode Porter, '45**, his wife, two sons, a daughter, and two step-sons.

David Hugh Stewart, Navy V-12 '44-'45, of Bozeman, MT, died August 4, 2009. He was a U.S. Navy veteran of World War II and spent a year in the Merchant Marines. He was a gifted English scholar and respected leader in his profession. He is survived by Diane Silva Stewart, his wife of 60 years, and two sons.

Paul A. Fletcher, '46, of Bristol, TN, died September 12, 2009. He was a U.S. Navy veteran of World War II and served aboard the USS Louisville. He taught math and science at Council High School in Virginia and retired from Raytheon Company in Bristol after 28 years of service. He is survived by Margaret Jane Compton Fletcher, his wife, a daughter, and a son.

Richard H. Comer, '47, of Havre de Grace, MD, died September 20, 2009. He was a U.S. Navy veteran of World War II. He was a certified health physicist and retired as chief of the deflagration physics branch at the Aberdeen Proving Ground after 32 years. He became a consultant and served on the Blue Ribbon Panel on Liquid Propellants under the administration of President Jimmy Carter. He is survived by **Doris Davies Comer, Cx' 47**, his wife of 64 years, and two daughters.

Virginia King Norris, '47, of Statesville, NC, died August 25, 2009. She served at Maryland Community College as a nursing instructor and worked as a registered nurse in her husband's medical practice. She was Avery County "Woman of the Year" in 1983. She is survived by Jennifer Snyder and Bill Norris, her children.

Margaret Susong Ranger, '47, of Gray, TN, died July 17, 2009. She was a retired school teacher. She is survived by Dale Ranger, her husband.

Grant Banks Jr., '48, of Inman, SC, died August 25, 2009. He was a retired science teacher and "District Teacher of the Year," in 1979. He is survived by Susan Banks Burdine and Kelly Grant Banks, his children.

Elmer Sanders, '48, of Williamstown, WV, died August 6, 2009. He was a U.S. Navy veteran of World War II and served as beach master in the invasion of Iwo Jima. He was a sales correspondent, national sales manager, vice president, and board member of Airolite Company. As a second career, he was a local radio broadcaster. He is survived by Esther Golden Sanders, his wife of 63 years, a son, and a daughter.

Emily Ann Jarrell Sowers, Acad '48, of Corpus Christi, TX, died July 21, 2009. She is survived by Joe Sowers, her husband of 62 years, and two sons.

Benjamin Link Frye, '49, of Wardensville, WV, died July 23, 2009. He was an U.S. Army veteran of World War II and a postmaster for 33 years. He is survived by **Elizabeth Casto Frye, Cx '50**, his wife of 60 years, and two sons.

Cleone Lucia Sparks Petz, Acad '49, of Sarasota, FL, died September 29, 2008. She is survived by Christopher Petz, Bruce Petz, Brad Petz, Anne Conrade, and Maria Petz Burkes, her children.

Jean Bennear Watson, Cx '49 of Lakeland, FL, died July 19, 2009. She is survived by Rush Bennear Watson, her son.

1950s

Eileen Bentley Banks, '50, of Lexington, KY, died July 19, 2009. She

was a retired school teacher. She is survived by Cheryl Legg and Carole Banks Keller, her daughters.

Eugene "Gene" Howard. '50, of Chattanooga, TN, died September 27, 2009. He was an Army veteran of World War II and saw action at the Battle of the Bulge. He worked 33 years with Kentucky Utilities, first in farm management, and ended his career as a district manager. He is survived by Emily VanSant Howard, his wife of 63 years, two sons, and a daughter.

Robert N. Brown, of Garland, TX died August 14, 2009. He is survived by **Cleo Wilson Brown, '51**, his wife of 57 years.

Paul Gene Hall, Cx '51, of Winchester, KY, died February 12, 2009. He was an Army veteran of World War II and a petroleum and gas engineer for Mobil Oil Company for 30 years. He is survived by Mary "Bootsie" Hall, his wife, two sons, and three daughters.

Jessie Anderson Kidwell, Acad '51, of Harriman, TN, died December 22, 2008. She and her husband co-owned and operated Roane Furniture Company in Harriman for more than 40 years. She is survived by **Estel Kidwell, Acad '51**, her husband, and two sons.

Peggy Brown Bryson, '52, of Virginia Beach, VA, died July 14, 2009. She was an elementary and special education teacher for many years before becoming a principal. She also worked in the personnel office for the Virginia Beach school system. She is survived by **William G. Bryson, '52**, her husband of 55 years, and a daughter.

Elizabeth Wright Ormand, '52, of Columbus, NC, died September 6, 2009. She was a retired school teacher having taught 34 years. She is survived by Robert E. Ormand, her husband, a son, and two daughters.

Virgil Dickerson Blackburn, Cx '53, of Broomfield, CO, died August 15, 2009. He was an Air Force veteran. He is survived by Patricia Ann Smith Blackburn, his wife of 55 years, a son, and three daughters.

Dr. Mack A. Breazeale, '53, of Oxford, MS, died September 14, 2009. He was a retired senior scientist with the University of Mississippi. He is survived by Louise Hanna Scott Breazeale, his wife, one daughter, two sons, and two step-sons.

Mary Virginia Hulburt Parker, '53, of Jonesville, NC, died September 14, 2009. She was a public school teacher for 32 years and was very active in her church and community. She is survived by **William Edsel Parker, '56**, her husband, one son, and two daughters.

Allen Ernest Price Sr., of Whiteville, NC, died December 10, 2008. He was a U.S. Army veteran. He is survived by **Frances Dillingham Price, '53**, his wife, and two sons.

Dr. Glynn N. Creamer, of Hilltop Lakes, TX, died July 31, 2009. He was an Air Force veteran of the Korean War. He taught at Eastern Kentucky University in Richmond, Kentucky from 1966 to 1991 and served as director of the university's Office of Teacher Education and Certification. He is survived by **Effie Boggs Creamer, '54,** his wife of 53 years, three sons, and a daughter.

Sam Church, Fd '55, of Pennington Gap, VA, died July 14, 2009. He was a dedicated United Mine Workers of America member and was a former vice-president and president of the organization and served as the coordinator of the Virginia Coal Miners' Political Action Committee. He is survived by Patti Page Church, his wife of 31 years, two sons, and four daughters.

Maryrhea Mullins Morelock, '56, of Lexington, KY, died July 14, 2009. She was a social worker and retired as a professor at the University of Kentucky College of Social Work in Lexington. She is survived by Kolan Morelock, her son.

David E. Parry, '56, of Vancouver, WA, died July 16, 2009. He was a lawyer and was mayor of Arcadia, CA, during Proposition 13. He is survived by Carol Jo Parry, his wife of 47 years, a son, and two daughters.

Carl G. Cunnagin, Fd '59, of McKee, KY, died July 24, 2009. He was a master commissioner. He is survived by Sue Cunnagin, his wife.

Patricia "Pat" Watson Freeman, Fd '59, of Troy, OH, died September 18, 2009. She retired as a school teacher after 33 years of service. She is survived by Tom Richmond, her best friend and companion, and a daughter.

1960s

Winona Tonne Manello, '64, of Somerville, NJ, died March 9, 2008. She is survived by James Manello, her husband, and two daughters.

John Addison Voorhees, '65, of Wilmington, NC, died September 8, 2009. He taught Spanish and anthropology on the college level. He was instrumental in developing and implementing the Spanish curriculum K-12 for the Kings Mountain school system in NC. He is survived by John Haden Voorhees, his nephew.

Jimmie Alan Collins, '69, of Elkridge, MD, died September 19, 2009. He is survived by Claudia C. Collins, his wife, a son, a daughter, and a stepson.

John Randall Lovill, '69, of Ocala, FL, died July 13, 2009. He was a retired high school history and economics teacher. He is survived by **Nina Fairchild Lovill, '69**, his wife, and two daughters.

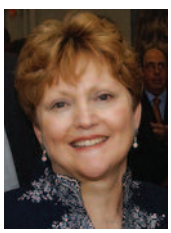
Elizabeth Jones Rhodes, Cx '69, of Kent, OH, died July 23, 2009. She was the director of the Fashion School at Kent State University for the past 15 years. She is survived by Kenneth Rhodes, her husband, a son, and a daughter.

1970s

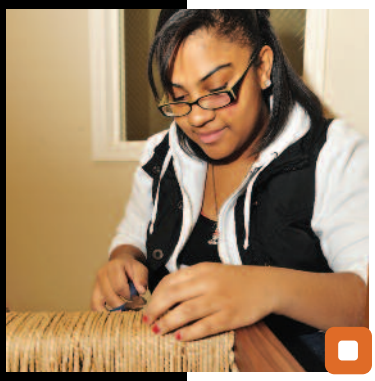
Bonnie Lee Swisher Stringfield, '74, of Naperville, IL, died August 22, 2009. She worked for Viant Health Payment Solutions in Naperville and was a talented artist. She is survived by Steven Stringfield, her husband of 33 years, and two sons.

Eugene "Gene" Howard, '50

Dr. Mack A. Breazeale, '53



Elizabeth Jones Rhodes, Cx '69



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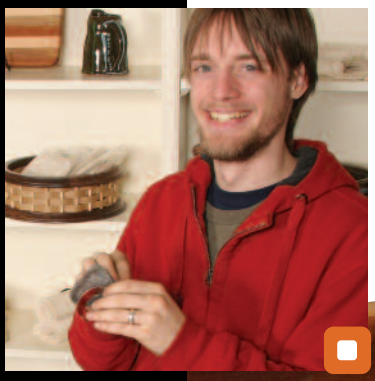

photos by Ray Davis, '11

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