

LAS NEWS

COLLEGE OF LIBERAL ARTS & SCIENCES | SPRING 2014

Brad Pitt, Take Notice

Statistics alum lands job in
**MAJOR LEAGUE
BASEBALL**

Page 10



INSIDE THIS ISSUE

- Gallery of Excellence Expands, page 1
- The Deans of LAS, page 2
- Evolutionary Ideas, page 6
- Alma Mater: Long-Awaited Homecoming, page 8
- Father (Deep) Time, page 12
- Flesh & Bone, page 14
- A Change of Heart, page 16
- Going Out on a Limb, page 18



- 1 **Centennial Gallery of Excellence**
Another round of honorees is announced.
- 2 **The Deans of LAS**
A variety of personalities have steered the college since 1913.
- 4 **Around the College**
A selection of recent news and happenings from faculty, staff, and students.
- 6 **Evolutionary Ideas**
Faculty member Karen Sears explores the forces of history that shaped life as we know it.
- 8 **Long-Awaited Homecoming**
The restored *Alma Mater* returned this spring in all of its bronze glory.
- 10 **Brad Pitt, Take Notice**
Statistics alum lands *Moneyball* job for the Cleveland Indians.
- 12 **Father (Deep) Time**
More than 50 years after arriving at Illinois, Tom Phillips is still unlocking the secrets of ancient Earth.
- 14 **Flesh & Bone**
Leukemia survivor creates artificial bone marrow, brain tumor in the hunt for cures.
- 16 **A Change of Heart**
Young LAS entrepreneur creates innovative heart-health system.
- 18 **Going Out on a Limb**
LAS students cross oceans, cross cultures—and even cross canyons.
- 20 **Connect with LAS on Social Media**
Get more, share more.

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After a particularly cold and snowy winter in Urbana-Champaign we are enjoying the beautiful spring that is emerging in our community. Temperatures are warming, the days are longer, and the Quad is beginning to green and flower. It is indeed a wonderful time to enjoy the sights and sounds of our campus.

This spring our campus also welcomed home our beloved *Alma Mater* (see story on page 8). This iconic sculpture had been away getting some much-needed refurbishing. *Alma* is now back on her pedestal—with Labor and Learning—and back to her original bronze color.

This issue's cover story honors a time-honored spring tradition: baseball. We feature Sky Andrecheck, an alumnus of the Department of Statistics, who is combining his love of baseball with his love of crunching numbers for the Cleveland Indians. We also have a feature on a young alumnus who is forging his path as an entrepreneur. Muhammed Fazeel (integrative biology, BS '12) is creating an innovative system that will help adults maintain a heart-healthy lifestyle. It is amazing to learn about alumni like Sky and Muhammed who are doing things they are passionate about with their degrees from LAS.

Our celebration of 100 Years of LAS continues through this academic year and this issue shares with you another round of selections for our Gallery of Excellence. This growing online gallery includes literary giants, biotechnology pioneers, and a number of prominent people, places, and events that have shaped the college for a century.

At LAS we have a long tradition of excellent faculty and this issue profiles two of our very best: Tom Phillips (plant biology) and Brendan Harley (chemical and biomolecular engineering). We also hope you enjoy learning about how some LAS students are crossing cultures and oceans to get global experience in places including Ecuador and France. This kind of global experience not only opens students' eyes to new cultures, it provides just the kind of global experience that many employers are looking for today.

Enjoy perusing the variety of stories we have included in this issue. Perhaps it will inspire you to make a visit to campus in the near future. We would love to see you!

Sincerely,

Brian Ross, Interim Dean
COLLEGE OF LIBERAL ARTS AND SCIENCES

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Prominent people, places, and events from the first 100 years of the college added to list.

Literary giants, biotechnology pioneers, and a famous insect festival are among the latest additions to the College of Liberal Arts and Sciences' Gallery of Excellence. Created in honor of the college's 100-year anniversary, the virtual gallery features noteworthy people and ideas throughout LAS history, dating back to 1913.

The gallery features faculty, staff, alumni, places, and events that have inspired enduring and meaningful change to campus and society. With the college's broad range of academic disciplines, the gallery features breakthroughs in research, education, and understanding in fields from chemistry to classic literature.

Ralph Wolfe, a pioneer in microbiology still researching in his 90s;

Jesse Delia, former dean of LAS and renowned professor and administrator;

Luis Leal, who brought overlooked literature to light;

Rolando Hinojosa-Smith, renowned Chicano author;

Lincoln Hall, symbolic of the University of Illinois' commitment to higher education;

Richard Powers, National Book Award-winning author of fiction;

Richmond Lattimore, a prominent translator who converted ancient texts to English;

Insect Fear Film Festival, led by May Berenbaum, a famous example of taking outreach to a whole new level by debunking myths about bugs in a creative fashion;

COLLEGE OF LIBERAL ARTS AND SCIENCES EXPANDS ITS

CENTENNIAL GALLERY OF EXCELLENCE

The entries listed in the Gallery of Excellence have been selected by a college committee following a call for nominations within LAS. Those included in the exhibit are highlighted with photos and descriptions. The initial 25 entries were released in fall 2013. The second installment includes:

Carol Lee, an educational scholar and co-founder of schools;

Phillip Sharp, Nobel laureate and leader in biology and biotechnology;

Robert Dietz, a pioneering researcher of ocean floors and meteorites;

Molly Melching, noted for fighting a shocking custom in Africa;

Howard Griffith, former star NFL player who has moved on to a broadcasting career;

Thomas Siebel, a giant in the software industry and philanthropy;

Maudelle Tanner Brown Bousfield, the first African American woman to graduate from Illinois;

Edna Greene Medford, a preeminent scholar on slavery and the Emancipation Proclamation;

Joseph Love, who positioned LAS as a leader in Brazilian studies;

Henry Kahane, founder of the Department of Linguistics at Illinois;

Arnold Beckman, a philanthropist and maker of revolutionary scientific tools;

Roger Adams, former head of the Department of Chemistry and one of U of I's most influential campus figures;

William Rutter, who has led the development of life-saving pharmaceuticals;

Larry Faulkner, who led LAS and the University of Illinois through key changes in education and administration;

R. Tom Zuidema, an anthropologist who brought new understanding to a lost empire;

All members of the LAS staff, who are vital to the success of the college.

"This expansion of the Gallery of Excellence reflects the College of Liberal Arts and Sciences' broad impact on society," says Interim LAS Dean Brian Ross. "Indeed, no list could ever capture the full extent of great ideas and innovations that have emerged from LAS, but we hope that the Gallery of Excellence at least gives people a sense of all that our faculty, staff, and alumni have achieved in the past century."

The Gallery of Excellence can be found at las.illinois.edu/100. ■

A Variety of Personalities Have

Few on campus at the University of Illinois have more responsibility than the dean of the College of Liberal Arts and Sciences. As former Harry E. Preble Dean Ruth Watkins described it, managing LAS—with more than 60 academic units, roughly 600 faculty, and some 14,000 students in programs from history to biology—can feel like taking a bull by the horns.

Since 1913, 17 people have served the position of dean in either an interim or permanent basis. The college hasn't always been as big and complex as it is today, but during the past 100 years, all the deans have strived to maintain the liberal arts and sciences as a cornerstone of higher education.

Here is a look back at who led LAS to where it is today:

Kendric Charles Babcock (1913-1931)

Several people on campus were qualified to be the first dean of the College of LAS when it formed in 1913, but the University opted for a new face to lead the college through its infancy. Dr. Kendric Charles Babcock would serve as dean for the next 18 years—which remains the longest term anyone has ever served in the position.



Babcock arrived on campus with impressive credentials. Born in 1864 in New York, he earned degrees at the University of Minnesota and Harvard before serving as an instructor at the University of Wisconsin, a professor of history and political science at the University of California, and president at the University of Arizona from 1903 to 1910. He was a specialist in higher education at the U.S. Bureau of Education when he became dean of LAS.

During his last six years as dean, the well-known educator also served as provost at the University of Illinois. He died a year after his retirement in 1931.

Arthur Daniels (1925-26; 1927-28; 1931-33)

While never appointed as a permanent dean of the College of LAS, Arthur Daniels served as acting dean when the post was vacant, including the trying times when Illinois was in the grips of the Great Depression. It was just one of many posts that Daniels served during his long career at Illinois.

After arriving at Illinois in 1893 as a philosophy instructor, Daniels became dean of the College of Literature and Arts from 1911 to 1913, when it merged with the College of Science to form LAS. He was later named dean of the graduate school, where he was a guiding influence in its early years. He served as dean of LAS during Dean Kendric Babcock's leaves of absence, and Daniels also served as acting president of the University from 1933 to 1934.

Matthew McClure (1933-1948)

Born in Spottswood, Va., in 1883, Matthew McClure served as a professor of philosophy at Tulane University before joining the Department of Philosophy at Illinois in 1921. He rose quickly and became department head in 1926, and in 1933 he was appointed as dean of LAS.

Known as one of the most scholarly faculty members on campus, he is remembered for his "dignified and polished" writings and lectures. In 1945, he was renamed head of the Department of Philosophy and later resigned from his position as dean to devote all his time to the department.

Having served the college through World War II, McClure was recalled by former Illinois President George Stoddard for his "unfailing cooperation and courtesy." Philosophy was Stoddard's "first professional interest," Stoddard added, upon McClure's resignation as dean.

Henning Larsen (1949-1953)

After the resignation of Matthew McClure as dean of LAS, Henning Larsen chaired the committee to find his replacement. In the end, against his own suggestion, Larsen himself was named dean.

Born in 1889, Larsen served as an infantry officer in World War I and an English professor at the University of Iowa before arriving at Illinois in 1939. An authority on Scandinavian literature, he was named head of the Department of English in 1945, and he later became the dean of LAS. He would become provost of Illinois in 1953, and vice president in 1957.

"In this day of highly specialized training, it's exceedingly important to have a good center of liberal education," Larsen once said. "To make this possible, there must be freedom of speech and freedom of teaching."

Joseph Smiley (1954-1958)

Texas native Joseph Smiley served in the U.S. Navy during World War II before arriving at Illinois in 1947 as a professor of French. In 1951, he became department head, and he was serving as dean of the Graduate College when he was named dean of LAS.

Smiley operated the college when it was a fraction of today's size, at around 4,000 students. His Texas roots proved too hard to resist, however, and he left Illinois in 1958 to twice serve as president of Texas Western College at El Paso (1958-1960 and 1969-1972) and also vice president and provost at the University of Texas at Austin (1960). He served as president of the University of Texas at Austin (1961-1963), and president of the University of Colorado (1963-69).

Lyle Lanier (1959-1960)



Born and raised in Tennessee, Lyle Lanier's education began in a one-room school house. Before his career ended, he would become one of the most influential figures at the Illinois, including a year spent as dean of the College of LAS.

Lanier was serving as head of the Department of Psychology when he was appointed dean of LAS. In 1960, he was appointed provost and executive vice president and became a central force in the academic development of the University's Chicago campus and the University's expansion in the health field.

He earned a master's degree in 1924 and PhD in 1926 from George Peabody College in Nashville. He served on the faculty of Vanderbilt University and Vassar College before coming to Illinois. Lanier received an honorary degree from Illinois in 1977.

Jack Peltason (1960-1963)

Illinois President David Henry once told Jack Peltason that appointing him as dean of LAS was against "all my instincts," because of Peltason's relatively young age of 37. Just seven years later, however, Henry would appoint Peltason as the first chancellor in the Illinois' new chancellor system (with the advent of the Chicago campus).

A political scientist, Peltason arrived at Illinois in 1951 as a professor. He wrote influential books in the field, such as *Fifty-Eight Lonely Men*, and *Government by the People*, before being named dean in 1960.



In 1964, he left for the University of California at Irvine, where, as a faculty member, dean, and vice chancellor, Peltason was influential in the new campus's development. He returned to Illinois to serve as chancellor from 1967 to 1977. In 1984 he returned to UC-Irvine to serve as chancellor. Peltason served as president of the University of California from 1992 to 1995.

Robert Rogers (1964-1978)

Robert Rogers is remembered as a steady hand throughout one of the most turbulent eras in history. Arriving at Illinois in 1948 to teach and study English literature, he was named dean of LAS in 1964 and became one of the more prominent campus figures during the unrest of the Vietnam era.

Steered the College Since 1913

By Dave Evensen

During the 14 years of his tenure as dean, Rogers became known for compromise without jeopardizing the teaching and research missions of the College of LAS.

"In my view, a university is not a church, a psychiatric clinic, a political enclave, a social welfare agency or a playpen for life adjustment," Rogers told new faculty in 1970, in a speech that was quoted around the country. "It is a center of learning where the acquisition of knowledge and the transmission of knowledge takes place."

Lloyd Humphreys (1979-1980)

Lloyd Humphreys arrived at Illinois in 1957 as a professor of psychology. He was named head of the Department of Psychology from 1959 to 1969, and he served as an assistant director of the National Science Foundation from 1970 to 1971, before assuming the dean's post in 1979.

He received many awards for his research on intelligence. Prior to arriving at Illinois, he received his doctorate at Stanford, and he taught at Northwestern University, the University of Washington, and Stanford. Humphreys served as research director at the U.S. Air Force's Personnel Laboratory from 1951 to 1957, before spending the rest of his career at Illinois. He retired in 1984.



William Prokasy (1980-1988)

William Prokasy earned a bachelor's degree at Baldwin-Wallace College, a master's degree in clinical psychology at Kent State University, and a doctoral degree in experimental psychology and statistics at the University of Wisconsin at Madison before launching his career. He worked at Penn State University and the University of Utah before arriving at Illinois, where he served as dean of LAS from 1980 to 1988.

He is the origin of the William Prokasy Award, the highest award for teaching in the College of LAS. After Illinois, Prokasy served as vice president for academic affairs at the University of Georgia from 1988 to 1998. That time included a stint as interim university president.

David Bright (1988-1989)

David Bright arrived at Illinois as faculty in 1970, and he went on to serve as chair of the Department of Classics, acting director of the School of Humanities, and director of the Program in Comparative Literature before being named dean of LAS in 1988.

Prior to Illinois, he earned degrees at the University of Manitoba and the University of Cincinnati before serving as a professor of classics at Williams College. After his tenure as dean at LAS, he served as dean of the College of Liberal Arts and Sciences at Iowa State University. He went on to serve as vice president for arts and sciences at Emory University, where he remains a professor emeritus of classics and comparative literature.

Larry Faulkner (1989-1994)

Larry Faulkner arrived at Illinois in 1973 as a chemistry



professor. He quickly became known for his teaching and research, and after serving as department head in the mid-1980s, he was named dean of the College of LAS in 1989. He continued to teach and research in these

positions, winning numerous awards and recognition. Few have had a wider impact on the many aspects of Illinois than Faulkner—his service to the College of LAS continued when he left the post to serve as provost and vice chancellor of academic affairs from 1994 to 1998. He was instrumental in supporting the new Chemical and Life Sciences Laboratory, constructed in 1997, and the Japan House, dedicated in 1998.

He was also known for increasing diversity hires in faculty, improving environmental, international, and teaching programs, and improving computer technology on campus. After leaving Illinois, he went on to serve as president of the University of Texas at Austin.

Jesse Delia (1994-2004)



In his long career at Illinois, Delia has served as professor and head of the Department of Communication, dean of the College of LAS, interim provost, and an international ambassador for the University. He earned a reputation for

excellence in all roles.

From 1978 to 1994, Delia served as head of the Department of Speech Communication (now called Communication) and helped it become one of the country's top programs. He served as dean of the College of LAS from 1994 to 2004, during which time he oversaw \$170 million in renovation and construction projects (including Spurlock Museum), secured \$200 million in private support and commitments for endowed chairs and professorships, and strengthened a wide array of programs.

Delia went on to serve as interim provost and vice chancellor for academic affairs from 2004 to 2007. Today, he serves as Illinois' executive director for International Research Relations.

Sarah Mangelsdorf (2004-2008)



Sarah Mangelsdorf arrived at Illinois from the University of Michigan in 1992 as a professor of psychology. She served as head of the Department of Psychology and associate provost before being named acting dean of LAS in 2004. She was named

permanent dean in 2006, becoming the first female dean of the college.

She received her BA in psychology at Oberlin College and her doctoral degree from the University of Minnesota in 1988. At Illinois, she received the William Prokasy Award, the highest award for teaching in the College of LAS. She is a member of the American Psychological Association and has served on the editorial boards for several journals.

In 2008, Mangelsdorf was named dean of the Weinberg College of Arts and Sciences at Northwestern University.

Philip Best (2008-2009)



A graduate of Duke University and the University of Washington, Philip Best arrived at Illinois in 1979. He is a professor of molecular and integrative physiology, biophysics, bioengineering, and neuroscience, and associate dean for biological, physical, and social and behavioral sciences in LAS. He served as interim dean of LAS from 2008 to 2009.

Best also served as head of the Department of Molecular and Integrative Physiology. His research focuses on understanding the regulation and function of voltage-dependent calcium channels, particularly those expressed in the heart.

Ruth Watkins (2009-2013)



Ruth Watkins arrived on campus in 1993 as an assistant professor in the Department of Speech and Hearing Sciences. She became an associate dean in the College of Applied Health Sciences in 2000. In 2003, she was named an associate provost, and then

named vice provost in 2006. In 2009, she was named dean of the College of LAS.

Under Watkins, the college created new academic programs for interactive and interdisciplinary teaching, and she was instrumental in creating new scholarship programs, including the growing Lincoln Hall Fund for Scholarships. Watkins also oversaw the long-awaited renovation of Lincoln Hall.

Watkins earned her bachelor's degree at the University of Northern Iowa and her doctorate at the University of Kansas. She left LAS in 2013 to serve as provost and senior vice president for academic affairs at the University of Utah.

Brian Ross (2013-)



Brian Ross joined the faculty in the top-ranked Illinois Department of Psychology in 1982 after earning his PhD from Stanford University. He served as an associate dean within LAS, working primarily with science departments to promote research,

teaching, and public service. In 2013, Ross was named interim dean of LAS after the departure of Ruth Watkins.

Ross is also an original member of the Beckman Institute, the highly respected interdisciplinary research center at Illinois, where he joined the faculty in 1989. He is very active in his field, with his research focused on how people learn, reason, and understand in complex domains. He also has a background in mathematics and statistics, with undergraduate and graduate degrees from Brown, Yale, and Rutgers, in addition to Stanford. ■

AROUND THE COLLEGE

William T. Greenough (1944-2013)

Professor emeritus of psychology, early explorer of brain plasticity, dies.



William T. Greenough, a professor emeritus of psychology at the University of Illinois and a pioneer in studies of brain plasticity and development, died December 18 in Seattle, of complications associated with Lewy Body Dementia. As a researcher at Illinois, Greenough explored the neural basis of learning and memory and the effects of aging, exercise, injury and environmental enrichment on the brain.

“Bill was one of the towering figures in neuroscience, not only on this campus but around the world,” says Neal J. Cohen, a professor of psychology at Illinois and the director of the Neuroscience Program once led by Greenough.

“His research revealed that environment, exercise, and training continued to shape the brain throughout the lifespan,” Cohen says. The work led to new insights into the signaling and

regulatory mechanisms at work in the brain and how those functions can go awry in conditions such as Fragile X syndrome, the most common cause of inherited mental impairment.

Greenough joined Illinois in 1969 after earning a doctorate in psychology at the University of California at Los Angeles. By the time he retired in 2009, he held a Swanlund Endowed Chair and was a Center for Advanced Study (CAS) professor of psychology, of psychiatry, and of cell and developmental biology. He had served as the director of the Neuroscience Program and the director of the CAS, and he played a critical leadership role in the establishment of the Beckman Institute for Advanced Science and Technology, the first multidisciplinary institute on the Urbana-Champaign campus. ■

Making Their Best Move

A team of LAS students is beating expectations in chess—again.

If you can't resist an underdog story, look no further than the **Illini Chess Club**. With no coaches, scholarships, or grand masters—trademarks of today's powerhouse university chess teams—the club sent a team to the national “Final Four” tournament for the second year in a row.

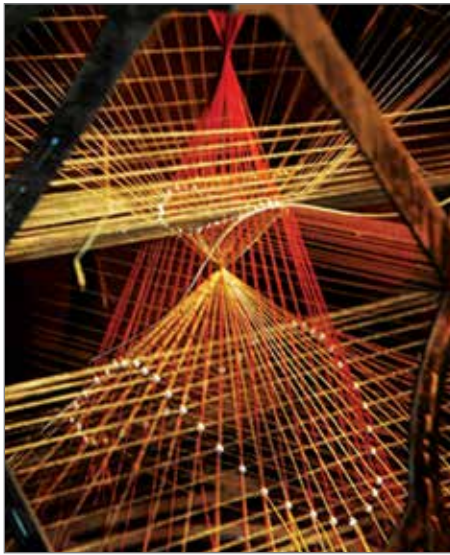
The team of four LAS students played in the President's Cup in Manhattan in April, after they placed third at the Pan American Intercollegiate Team Chess Championship in December. They did so by upsetting teams from Texas Tech, Columbia University, and Lindenwood University, all with ratings of 200 or more points higher than the Illini.

They placed fourth at this year's Final Four. Prior to last year, Illinois hadn't sent a team to the Final Four since 1991.

“It's the team chemistry that we have,” says Michael Auger, a junior in communication and team president, in explaining the victories that have intrigued the chess world (the moves of one team member, Eric Rosen, at the Pan American tournament were published in the *New York Times*). “We're very much playing as a team. And I think we all care a lot, and I think that's really big for us.” ■



Above: (from left) Xin Luo, Akshay Indusekar, Eric Rosen and Michael Auger competed at the 2014 President's Cup.



Models of a Bygone Era

Display reveals how mathematics was taught in the pre-digital age.

The principles of mathematics have not changed. The tools used to teach them during the past century, however, have changed drastically, and it so happens that the University of Illinois has the second largest historical collection of math models in the world. They're now on display for anyone curious about the evolution of this discipline.

Some 355 **math models** dating back to the early 20th century are being displayed on each level of Altgeld Hall and online at www.mathmodels.illinois.edu. Constructed primarily in Germany, the oddly shaped models indicate how Illinois students learned mathematics long before the advent of calculators and computers.

Wendy Harris, director of budget and resource planning for the Department of Mathematics has worked with a team of undergraduate students to determine the model manufacturers along with the formulas they represent.

"So far, we have completely identified 136 of the models, although nearly the whole collection is on display," Harris says. "They are an important part of our department, and we have been working to keep them preserved." ■

Growing a New Solution

A prolific plant could be a source of renewable biofuels.



A researcher at Illinois says that one of the most productive crop plants ever known—**sugarcane**—can be modified to become even more viable and help reduce dependence on fossil fuels.

Using genetic engineering, Stephen Long, professor of plant biology, and his researchers increased photosynthetic efficiency in sugarcane and sorghum by 30 percent, Long says. And to boost cold tolerance, researchers are crossing sugarcane with *Miscanthus*, a related perennial grass that can grow as far north as Canada. The new hybrid is more cold-tolerant than sugarcane, but further crosses are needed to restore the other attributes of sugarcane while preserving its cold-tolerance, Long says.

Working first with the laboratory-friendly plant *Arabidopsis* and later with sugarcane, the team, which included scientists from Brookhaven National Laboratory, the University of Florida, and the University of Nebraska, introduced genes that boost natural oil production in the plant. They increased oil production in sugarcane stems to about 1.5 percent.

"That doesn't sound like a lot, but at 1.5 percent, a sugarcane field in Florida would produce about 50 percent more oil per acre than a soybean field," Long says.



The work is part of a larger initiative to turn sugarcane and sorghum into oil-generating plants. The researchers' goal is to meet 147 percent of the U.S. mandate for renewable fuels by growing modified sugarcane on abandoned land in the southeastern U.S. (about 20 percent of the green zone on the map.) ■

Thinking outside the Walls

Mellon grant gives cross-campus humanities initiative a major boost.



An initiative in the College of LAS to strengthen the study of humanities is gaining steam, thanks to a \$3 million grant from the Andrew W. Mellon Foundation aimed at cross-campus collaboration.

The grant, announced in January, will support the **Illinois Program for Research in the Humanities (IPRH)**, which has been working to create new avenues for research and teaching through joint efforts across several campuses.

Some 15 universities across the Midwest have joined the "Humanities Without Walls" program since it launched at Illinois in 2012.

The Mellon grant will support the development of summer workshops to help students in the humanities pursue careers after college. It will also support a second initiative, called "Global Midwest," intended to stimulate collaborative research across campuses that reveals the role of the Midwest in shaping global economies and cultures.

"This is an enormously exciting opportunity that will increase the impact and visibility of the humanities and arts at the University of Illinois and throughout the Midwest," Dianne Harris, director of IPRH, says. "I have outstanding partners in this consortium. Working together, we developed a set of initiatives that will allow us to experiment at a very large scale, and to stimulate new research practices and the creation of new knowledge across some of the world's most esteemed research universities." ■



EVOLUTIONARY

Karen Sears EXPLORES THE HISTORY THAT SHAPED LIFE

LET'S LOOK PAST THE FLESH-EATING BEETLES, shall we, and focus on the big picture of what's happening in the laboratory of Karen Sears: She's examining the evolutionary forces that influence what she calls the "morphological diversification" of mammals, from ear bones to limbs...

Okay, so maybe it isn't so easy to look past the flesh-eating beetles. Truth be told, the work of Sears, a professor of integrative biology in LAS, is not for the squeamish, nor can you call it a typical career path. Sears's mother likes to recall how, when Sears was just a girl, she was asked what she wanted to be when she grew up.

"A paleoanthropologist," came the reply, and though that's not exactly what she turned out to be, it's along the same lines as her work today as an evolutionary biologist.

"Most kids go through the dinosaur phase, and those of us in paleontology, we just never outgrew it," jokes Sears in her laboratory in Morrill Hall.

Today, Sears has become one of the more well-known evolutionary biologists in her field. That beetle colony in her laboratory, though it may make the skin crawl, is in fact a vital tool by which Sears examines the skeletons of rodents and other animals. Those skeletons and other features are helping her shine new light on how mammals—including humans—have evolved over millions of years.

Her work has gained widespread attention.

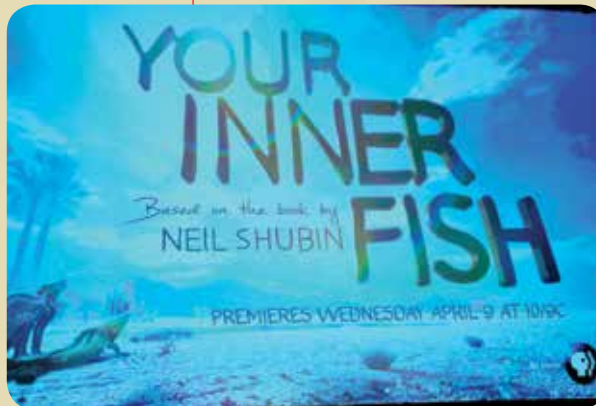
Sears's research has been featured in *Extreme Mammals* a national touring exhibit through the American Museum of Natural History, and in April she appeared on PBS in *Your Inner Fish*, a three-part series exploring how "hidden within the human body is a story of life on Earth," according to PBS.

Sears's contribution to the series (in the second episode, subtitled *Your Inner Reptile*) is an exploration of how humans have ancient connections to reptiles. Sears explores how the reptilian ear evolved into a mammalian ear, with parts that reflect the modern human ear.

Millions of years ago, Sears explains, the reptiles that evolved into the first mammals had jawbones comprised of many bones put together. During the evolution of mammals, three of those bones migrated up the creature's head to form the malleus, incus, and

stapes, a more effective combination of bones otherwise known as the "definitive mammalian middle ear," she says.

That's merely a description of the evolution that occurred, however, so Sears turned to the gray short-tailed opossum to help determine how it happened. It turns out that the opossums are born with a reptilian jaw



joint that undergoes the same process that took place during the evolution of reptiles into mammals. As the opossums grow, three bones migrate, reptilian-like, from their jaw to form the middle ear.

With that in mind, Sears and her lab members (graduate student Dan Urban in particular) have been studying opossums in hopes of explaining what happened at the very dawn of mammals.

"We think that perhaps some changes in cell behavior, perhaps cell death, might have been involved in the breaking off [of bones] from the jaw," she says. "We're currently starting to look at some of the genes that might be involved in that process."

The middle ear is just one of the many projects Sears is working

IDEAS

FORCES OF as we know IT

By Dave Evensen



on. She works with a team of four graduate students, and, with funding from grants from the National Science Foundation and other sources, Sears explores how various aspects of mammals have evolved. They travel as far as Trinidad to study bat wings, for example, and they are currently examining how hands and feet in mammals evolve to reduce the number of digits. For example, they see evidence that in prehistoric times, as choked jungles gave way to open grasslands, animals such as horses reduced digits in their feet to become better runners.

Sears's lab also conducts research with biomedical implications. They are studying thalidomide, the drug that was introduced in the 1950s to reduce morning sickness in pregnant women but actually resulted in thousands of deaths and gruesome birth defects. What Sears noticed, however, is that while humans and primates respond very strongly to thalidomide, rodents do not.

"We want to understand what goes wrong during development when it's introduced, and why different organisms respond differently," Sears says. "Actually, thalidomide is the drug of choice now for leprosy in many areas of the world. So it's being used again, and we're starting to see more babies being born with thalidomide-generated defects. It's still a global problem that we're facing."

With the PBS series, however, her research on the ear garnered more attention than any other project so far. She realized it at a recent press event in California, where PBS rolled out its upcoming shows, and Sears was asked to participate in a press conference to promote *Your Inner Fish*. Her comments were blogged by *TV Guide*, and she brushed past members of *Sesame Street* and *Downton Abbey*.

After all that, however, Sears appears most excited about simply continuing her work.

"What really excites me now with the rise of evolutionary biology is being able to look at patterns and explain them, and explain why they happen, and why did *this* happen instead of *that*," she says. "What really drives me is understanding not only the history of mammals on our planet, but our own evolutionary history, because we are mammals too." ■



Long-Awaited Homecoming

The restored **ALMA MATER** returned this spring in all of its bronze glory.

Photos by **Todd Hearn, University of Illinois Facilities and Services.**



As good as new: The *Alma Mater* was originally placed south of Foellinger Auditorium from 1929 until 1962. A home movie submitted to LAS by Dan Kallal, shot in the 1940s by his uncle Robert Kallal (BS '43, MS '46, chemical engineering), is currently one of the only color images of the statue found before it had a green patina. (See the video at lincolnhall.illinois.edu/storyography.)



After examining the 5-ton, 13-foot tall bronze sculpture, lead conservator, Andrzej Dajnowski determined the deterioration of the sculpture was more extensive than just the exterior surface. The majority of the iron bolts, holding the sculpture together, were severely corroded. This significantly delayed its return date and added to the scope of the repair work (increasing the project cost from \$100,000 to about \$360,000). The project is being paid for with gifts from alumni and friends to the Chancellor's Fund.



The *Alma Mater* sculpture, created by University of Illinois alumnus Lorado Taft, was removed from its granite base north of Altgeld Hall on August 7, 2012. It was transported to the Conservation of Sculpture and Objects Studio in Forest Park, Ill., whose lead conservator, Andrzej Dajnowski, also restored Taft's *Fountain of Time* in Chicago.



The heads of “Alma Mater,” “Labor,” and “Learning” are shown in different stages of cleaning and repair at the studio.



Workers replaced about 1,000 decayed bolts and removed the sculpture's green oxidation through laser cleaning, helping to return the *Alma Mater* to its original bronze color. They spent more than a year and a half restoring the statue. The last time repairs were made was in 1981 under the supervision of Robert Youngman, an art professor at U of I.



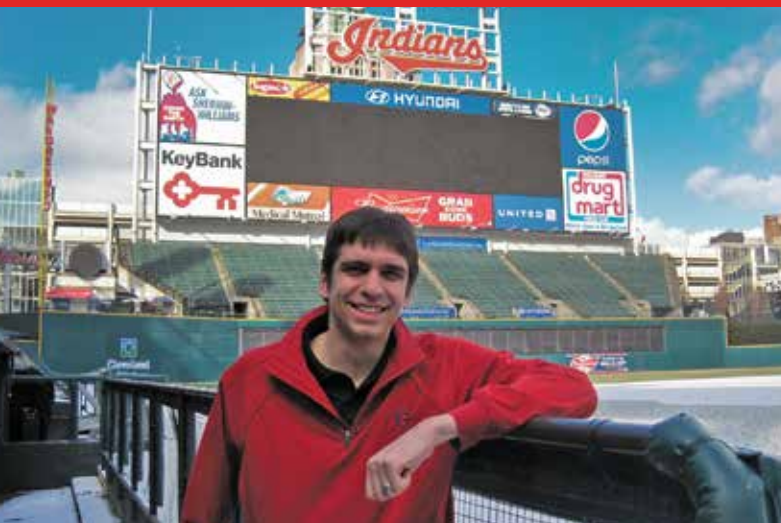
The 85-year-old campus landmark returned to its pedestal at Green and Wright streets on Wednesday, April 9, in time for the most popular occasion for students to take photos with the *Alma Mater*—commencement. In the future, the statue will be treated regularly with a wax compound to help maintain it.

As the base proclaims: “To thy happy children of the future those of the past send greetings.” Literally. Campus solicited greetings from students, faculty, staff, and alumni for a time capsule that won't be opened for at least 100 years. Items representative of the colleges, institutes, and students were also included, as well as a letter from Chancellor Phyllis Wise and President Robert Easter. An official rededication ceremony is scheduled for the *Alma Mater* on Friday, June 6. See the statue at go.illinois.edu/almacam. ■

Brad Pitt, Take Notice

Statistics alum lands
Moneyball job
for the
**CLEVELAND
INDIANS**

By Doug Peterson



Sky Andrecheck will never forget his first day with the Cleveland Indians as he approached the baseball stadium in anticipation of a game against the Chicago White Sox. He'll also never forget the first time he stepped onto the stadium's gem of a diamond, with the greenest of Kentucky bluegrass outfields meticulously manicured.

Andrecheck had dreamed of this day since his middle school years growing up in Elmhurst, Ill. However, while many boys in the 1990s dreamed of making the big play, robbing Ken Griffey, Jr., of a home run on the warning track in the final inning of the World Series, his dream was a little different. He dreamed of working in a baseball team's front office.

And that is exactly what happened.

Andrecheck, an LAS alumnus in statistics, has been a data analyst for the Cleveland Indians for four seasons now. He spends his days watching baseball and crunching numbers, trying to squeeze whatever advantage the team can get from the massive amounts of data collected on each player's ability to hit, pitch, or field.

Andrecheck's field of dreams is more like a field of data. His specialty is known as "sabermetrics"—the study of baseball using data—popularized by the best-selling book, *Moneyball*, and the movie by the same name starring Brad Pitt and Jonah Hill. In *Moneyball*, Brad Pitt played Billy Beane, the Oakland A's general manager who used statistics to boost team performance without the big-money backing.

"We're in the same boat as the Oakland A's," Andrecheck says of the Indians. "We don't have the money and resources of the New York and Chicago teams, so it's important for us to squeeze every efficiency out of the game."

Growing up in the Chicago suburbs, he was once a long-suffering Cubs fan (last World Series title: 1908), and he says he wasn't very good as a Little League outfielder, playing baseball until seventh grade. But he was good at math, so he became fascinated with the convergence of numbers and baseball.

More than any other professional sport, baseball has its fair share of iconic statistics, such as the number of Roger Maris's home runs in a single season (61), the consecutive-game hitting streak of Joe Dimaggio (56), and the magic .300 batting average that every hitter aims for (.400 if you're Ted Williams).

"Historically there has been that link between numbers and baseball because the game can be broken down into individual components—individual match-ups," Andrecheck says.

Every time a particular batter faces a particular pitcher, you can go to the data to find out what that player did at the plate and what that pitcher did on the mound. Every single pitch thrown and ball hit is tracked. In other sports, there is so much interaction among multiple players that you cannot isolate individual match-ups.

But how did a statistics alum even wind up in professional baseball?

After receiving his bachelor's in statistics in 2004 and his master's in 2006 from the University of Illinois, Andrecheck took a job as a statistician for a data research company in Washington, D.C. But he still had a passion for baseball, so he began writing his own



Sky Andrecheck in the Cleveland Indians dugout.

baseball statistics blog in 2009. Because he had only a few readers, he tried to drum up business by linking with other sites, and that's when his work was noticed by baseballanalysts.com.

The Baseball Analysts website invited him to write a weekly blog, which soon led to writing a playoff blog for *Sports Illustrated*—all on top of a full-time job. When he saw that the Indians were hiring a new analyst, he jumped at the opportunity and landed the job just before the 2010 season. This past 2013 season was especially exciting, he says, because it was the first time the Indians made the playoffs since he joined the organization.

During a typical game, Andrecheck puts on his team badge and finds a spot in special seats directly behind home plate, or up in the team suites—dream seats for a lifelong baseball fan. He has been on one road trip, but he attends every single home game, driving in from his home in Shaker Heights, just outside of Cleveland.

According to Andrecheck, he does not have much direct contact with players. Most of his contact is with General Manager Chris Antonetti, Assistant General Manager Mike Chernoff, and Manager Tony Francona. The team boasts three analysts, more than most teams.

Baseball has its long-standing statistical measurements, such as batting average, RBIs, and ERA, but today's teams also have their own confidential data analysis systems. In addition, they use cutting-edge statistics in the public domain, such as Pitch FX and Hit FX.

Because a professional stadium has cameras mounted everywhere, he says they can track the movement, location, and speed of every single pitch. Using Pitch FX, analysts can then

analyze the pitches and what happened at the plate.

Hit FX, meanwhile, measures the ball coming off the bat, making it possible to analyze whether the at-bat had all of the properties of a solid hit, even if a fielder caught the ball. Measuring defense is tougher, but analysts can determine exactly where a ball lands and judge whether a fielder should have been able to reach it.

Andrecheck says he loved the movie *Moneyball*, even though it overlaid the tension between data analysts and traditional scouts; he says his office works well with scouts, who appreciate the data provided.

In addition, he says the scene in which Jonah Hill and close to a dozen guys pack the general manager's office while a crucial trade is taking place just wouldn't happen in real life. In fact, he says it's surprising how much trade negotiating goes on through texting—not through phone conversations or face-to-face contact.

Despite the massive amounts of data collected in baseball, he says there are still intangibles that cannot be measured. The “outliers” principle says that really successful people are not only talented but they also have some good fortune and help along the way. Such luck cannot be measured.

Andrecheck certainly feels like he benefited from good fortune. “I came around at the right time,” he says. “Ten or 20 years earlier, there just wouldn't have been these opportunities.”

So is the job as glamorous as Brad Pitt made it look like on the big screen?

“I don't know if I'd say it's quite as glamorous,” he says. “But it's close.” ■



The inside of a coal ball.



Father (Deep)

Time

More than 50 Years after Arriving at Illinois, Tom Phillips Is Still Unlocking the Secrets of Ancient Earth

By Dave Evensen

What's a half-century to a paleobotanist?

It's the blink of an eye. Since Tom Phillips arrived at Illinois in 1961, maybe a few centimeters of peat formed in the swamps, and that's it. When you spend your career looking back 300 million years, anything that happened since the Eisenhower Administration barely scratches the surface of history—and maybe that's why Phillips feels like he's still got so much to do.

Every day, barring wintry weather, Phillips, professor emeritus of plant biology, marches with armfuls of books and field samples to his laboratory in the basement of Morrill Hall. On one wall is a proud array of photos of former students, several of whom have become foremost experts in the field of paleobotany, after Phillips himself.

The rest of the lab is literally packed with hundreds of binders of data, and thousands of carefully processed samples of ancient coal balls. These coal balls, formed under certain conditions during the Great Coal Age, are the bane of coal miners (they can be such a nuisance that they shut down coal mines), but they've fueled Phillips's entire career.

He remembers the first time he heard of them. He was an undergraduate at the University of Tennessee, not far from where he was raised. He signed up for a strange-sounding course called paleobotany, and one day the professor told them how coal balls contained plants from the Pennsylvanian Age.

The statement grabbed Phillips's imagination by the collar. Incredulous, he approached the professor after class to ask if he had heard the man correctly.

"And he said, 'Well, yes, so far as I know the plant is still there,'" Phillips recalls. "I thought, 'My goodness, if you have the anatomy of the plant, we're going back about 300 million years in time!'"

That was some 60 years ago, and the rest of the story can be found everywhere you look: In his 53-year career at Illinois, in his election to the National Academy of Sciences, and in what BBC once called his *Raiders of the Lost Ark*-esque barn built to accommodate his vast collection of coal balls. He has 40,000 of them, ranging in size from a pea to a barrel, hauled out of the ground from about 80 coal seams around the world. They are the largest such collection anywhere.

Coal balls were formed between 300 million and 320 million years ago, when North America, Europe, and Asia were one continent, covered with vast swamps and tropical ferns. As plants were covered with debris, locally they would become embedded by calcium carbonite (calcite), resulting in coal balls.

Today, if you cut one open with a saw, you can find preserved roots, stems, and leaves from a time before dinosaurs. Some of these plants, he once said, appear so perfectly preserved that it seems you could add water and they would come back to life.

One day recently, Phillips led a visitor through his laboratory. Inside was an array of coal balls, cut open like cantaloupes and cut into slices. With a practiced eye, he showed how one of these slices, held up to the light, can provide a record of not only plants and coal, but also the environment. In 1975, his research made the cover



Tom Phillips working on location. (circled above)



A 'peel' from the inside of a coal ball found by Tom Phillips in Illinois reveals the trunk structure of ancient cordaites, extinct relatives of conifer trees.

of *Science* magazine when he noticed a gap of certain types of plants in his collection during a time period about 300 million years ago. He had discovered a mass extinction.

"He's one of the most prominent paleobotanists in the world," says Feng Sheng Hu, head of the Department of Plant Biology at Illinois, of Phillips. "In the world of paleoscience, we have shallow time people, who might study periods from 10,000 to 2 million years ago, and we have deep time people. He is like the deep time person."

Hu is in the process of creating a lectureship named after Phillips, in recognition of his contributions to paleoscience and teaching. With funding, Hu envisions bringing a prominent expert to campus once or twice a year to help highlight the programs here.

Phillips was one of the major reasons Illinois became known in the 20th century as perhaps the top school in the country for paleobotany, Hu says. He adds that LAS programs recently have expanded on that reputation and experienced a regrowth in paleosciences, with numerous faculty and students in animal and plant biology, geology, anthropology, atmospheric science, statistics, and the Illinois Geology Survey studying "paleorecords" in the context of global change.

"Some of the very best paleobotanists either trained here or were students of alumni," he says. "Some of the very best in the country went to top-notch universities, such as Cornell, Ohio State, and Indiana University, and the Smithsonian Institute, and Tom of course had a lot to do with that. He is really an incredible mentor."

Phillips is in his 80s now, and he's conceded that he will no longer be out scrambling among the rocks and mines for more coal balls. But with much of his collection yet to be examined,

Phillips figures he has enough to keep him busy for a while longer.

Currently, he's working with colleagues on a book to be published by the Smithsonian Institution about what happens to a plant from the time it dies to when it's discovered millions of years later as a fossil. He's also working with the Illinois Geological Survey, a longtime partner on his research, to create a digital archive of his coal ball samples (called peels for the way that they're lifted from the coal ball surface) to ensure that they remain accessible and useful.

Scott Elrick, a geologist at the Illinois Geological Survey who is digitizing images of the peels with Phillips, estimates that there are at least a quarter-million peels to archive, though nobody has an exact count. (Elrick is also co-authoring Phillips's upcoming book along with Bill DiMichele, a former student of Phillips who now works at the Smithsonian Institute as a widely respected paleoscientist.) Twice a week for the past three years, Elrick gets on instant chat with Phillips through their office Macs, and they go through peels together.

"You just feel like your IQ is 1,000 points higher when you're talking to him," Elrick says. "He's a force amplifier, a learning amplifier, and just being with him makes you want to learn more."

That observation seems to be a theme among those who know Phillips. Karl Niklas, a prominent professor of botany at Cornell University and leading expert on paleobiochemistry who studied under Phillips, says he considers Phillips his mentor and "academic father," who allowed him and others freedom to explore their own ideas.

"The atmosphere he created was creative and unique," Niklas recalls. "So many professors then and now make their students into rubber stamps

of themselves. Dr. Phillips never did. He enjoyed seeing us walk along our individual pathways as he was creating his own important contributions to science. . . . He was kind to me in every possible way."

Phillips, after all, knows how your experience as a student affects your entire career. He was a graduate student at Washington University when a professor from Illinois invited Phillips for a four-day visit where he was free to pore over the University's coal ball collection in the bowels of the Natural History Building. It was, he recalls happily, "like going to the grocery store."

Later, he took the first opportunity he had to come back to Illinois. He increased U of I's collection of coal balls tenfold—enough, he figures, to last several lifetimes of research. As he sees it, he's working on his second. ■

The Phillips Lecture in Paleobotany

The Department of Plant Biology has established a lectureship in recognition of Tom Phillips's contributions to paleobotany and teaching. The first lecture will be on October 30, 2014, featuring Andrew Knoll, Fisher Professor of Natural History at Harvard University.

For more information regarding the lectureship, or how your gift can help, please contact Feng Sheng Hu, department head, at fshu@life.illinois.edu.

Flesh & Bone

A “high-stakes situation” is how **Brendan Harley** describes the perilous position he found himself in 19 years ago. When he was only a junior in high school, he was diagnosed with a particularly virulent form of leukemia, and he faced the harrowing ordeal of a bone marrow transplant.

This experience was pivotal and formative, inspiring his life’s work. Today, Harley is an LAS professor of chemical and biomolecular engineering, and he and his team develop “biomimetic” engineered tissues. This work includes an artificial bone marrow that might someday help improve the odds for leukemia patients. He is also working on implantable biomaterials to regenerate the connections between bone and tendons or cartilage, as well as an artificial brain tumor biomaterial to screen for effective therapies to treat virulent forms of glioma—a type of brain tumor.

While being treated for leukemia, Harley was in and out of the hospital throughout his junior and senior years of high school. He says he underwent myeloablative therapy, with high doses of chemotherapy and full-body radiation. While this therapy effectively treated his leukemia, it also destroyed his entire blood and immune (hematopoietic) system, so he had to follow up the radiation and chemotherapy with a risky bone marrow transplant.

Even today, almost two decades since his treatment, the survival rate after bone marrow transplants is about 50 percent. But Harley found a good match in a bone marrow donor—his own brother.

“I was incredibly lucky,” he says, “because there are so many things that can go wrong when you’re treated for any kind of cancer.”

After going through the rounds of chemotherapy leading up to his transplant and then the transplant itself, Harley was kept in isolation throughout his entire senior year of high school as his immune system recovered. Growing up outside of Boston, he was treated at a teaching hospital affiliated with Harvard

Medical School; this put him in contact with many young medical students and interns who were training to perform procedures such as taking his blood pressure and bone marrow biopsy. As they did, he found that many of them had similar interests in engineering and biology like him, and were applying those interests in the hospital.

This experience in the hospital pushed him in the direction of biomedical engineering work. But he was also inspired by a photograph in the *Boston Globe* of the infamous “ear mouse.” Medical researchers had developed a way to integrate a biomaterial scaffold shaped like a human ear, and they seeded it with cow cells onto the back of a mouse to grow an artificial ear. The Vacanti mouse, as it was technically called, left Harley imagining how he might be able to grow organs and tissues in the future for a wider range of human diseases.

Therefore, it was only fitting that when Harley came to Illinois in 2008, one of the first projects he embarked upon was an effort to develop artificial bone marrow.

The bone marrow transplant relies on getting a rare population of donor cells—hematopoietic stem cells—to successfully produce a new blood and immune system within the recipient. As he knew from experience, one of the great risks in a bone marrow transplant is whether the donor cells successfully “home” and “engraft” into a patient’s bone marrow.

The donor’s stem cells are injected into the recipient’s bloodstream and must “home” back to the marrow—moving into the bone marrow cavity. They then must “engraft,” continuously producing functional hematopoietic cells for the remainder of the recipient’s life. However, only a small fraction of these hematopoietic stem cells will successfully home and engraft—one reason for the high mortality rates associated with bone marrow transplants. That’s also why it is important to have large numbers of donor stem cells with which to work.

LEUKEMIA SURVIVOR Creates Artificial Bone Marrow, Brain Tumor in the HUNT FOR CURES

By Doug Peterson



One of the goals of the artificial bone marrow is to develop a system able to significantly expand the number of available stem cells. To do this, Harley's team has created a 3-D artificial culture that mimics the environmental conditions of bone marrow. Using this environment to nurture hematopoietic stem cells, they hope to be able to generate larger numbers of donor cells as well as explore the use of specialized helper cells, also found in the marrow, to improve engraftment. They believe their artificial bone marrow can even be used as a platform for studying the process of homing and engrafting—events too rare to observe directly.

Another significant biomaterial project in the Harley laboratory is studying non-uniform tissue between tendons and bone. Tendons are connected to bone by an intermediary zone, in which the tissue progressively changes from tendon to bone. The problem, he says, is that after an injury, in which the tendon tears away from the bone, this intermediary zone is lost during current treatments and the risk of re-injury is great.

“Our goal is to create a material that can be inserted between the tendon and the bone, where the tendon is torn off, to facilitate biological healing,” he says.

Harley's team also hopes to apply the biomaterial fabrication techniques they have developed for this project to reconstruct craniofacial defects. For example, by working with Matthew Wheeler in animal sciences, they hope to create an approach to regenerate tissue lost to soldiers from blast injuries. The types of injuries suffered by military personnel have changed substantially, he says, with today's soldiers experiencing—and surviving—traumatic blast injuries to the face at higher rates than ever before.

The biomaterial they develop may even be used someday to treat civilian populations, such as to replace jaw tissue removed during cancer treatments. This biomaterial has “come along quite a bit due to the strength of our collaborative team,” he says, and they are about to begin preclinical trials to demonstrate its efficacy.

The third major project coming from Harley's lab is an artificial brain tumor. Cancer cells isolated from the patient may one day be cultured in an artificial brain tumor so that doctors can test and refine treatment protocols in real time. That way, the treatments can be targeted to a person's specific cancer cells.

Right now, Harley is working with Mayo Clinic in studying glioblastoma, one of the most deadly forms of brain cancer, but this system could eventually be adapted to test treatments on a wider range of cancers.

With such a unique combination of personal and professional experiences, Harley has become a regular speaker at Relay for Life events and other programs organized by the American Cancer Society (ACS).

“I have seen both sides,” he says. “I talk as someone who had been a patient and is now a researcher. I can also speak to the fact that progress in cancer research cannot be measured in days or months, but rather requires sustained commitment to research excellence. Some cancers that were almost ubiquitously fatal a generation ago are now regularly treated.”

Harley says he is a committed supporter of ACS because he has benefited from their work firsthand. Some of the earliest funding for bone marrow transplant research came from the ACS in the 1950s and '60s. The ACS also focuses on supporting the research of young investigators, and the organization is proud to have funded the early work of more than 40 Nobel Prize winners.

“My dual experience as survivor and bioengineer is something I reflect on a lot,” he says. “I don't necessarily attack research problems any harder because of the treatment processes I went through. But it was an important part of my life; it shaped my life, and everything I do is impacted by it.

“It's a part of me,” he says. ■



Muhammed Fazeel woke to hear his mother screaming from the other end of the house. Throwing aside the covers,

he sprinted to his parents' room, where he found his father unconscious on the floor.

Seized by panic, Fazeel remembers calming his mother while his sister phoned for emergency services. This moment became a turning point in the life of Fazeel, who had just graduated from high school and was living in Dubai when the emergency occurred in 2008.

Fortunately, his father survived, for it turned out that he had suffered a minor internal bleed, not cardiac arrest. But the incident inspired Fazeel to find a way to reduce the risk of cardiac emergencies. That is why this young entrepreneur, a 2012 LAS graduate, has founded Benecure—a company developing an innovative monitoring system to help people live a heart-healthy lifestyle.

Benecure guides users in making healthier lifestyle choices, he says. People use smart devices that gather data

the system manually.

Fazeel, Indian by nationality but raised in Dubai, discovered his entrepreneurial talent early, honing his salesman skills in high school by selling deluxe fountain pens. As he approached college, he debated between medical school in England or India, and engineering in the United States.

“I wanted to make an impact on a large set of people, and I thought I could do that through engineering,” he says.

So Fazeel came to the U.S. and majored in biomedical engineering at the Illinois Institute of Technology in Chicago. His entrepreneurial instincts remained strong, so Fazeel and a fellow student began thinking of ways they could improve the interactions between students and their professor during class.

Most students have a laptop, tablet, or smart phone in class, and he says, “We wondered if we could use that processing power. We wanted to help students communicate with the teacher during class, instead of watching *South Park* episodes on their laptop.”

The result was his first business venture—Tabule.

A Change of Heart

Young LAS Entrepreneur Creates

INNOVATIVE HEART-HEALTH SYSTEM

By Doug Peterson

on various factors, including activity level, calorie intake, and blood pressure. The system also sets simple goals, and users sometimes receive rewards for meeting these goals; the incentives could be anything from a free healthy meal delivered to the house, to a free session at a nearby gym.

As an example of a typical routine, he says people would get up in the morning and step on a smart scale that automatically sends their weight to the Benecure system through a Wi-Fi connection. Then, while they wait for coffee to brew, they could take a few minutes to use a blood pressure monitor that connects to their smart phone, once again sending the readings to the Benecure system. Finally, they head out the door with an activity tracker in their pocket, which monitors how much they walk, run, and hike up stairs throughout the day. All information would be tracked automatically, except for food, which would be entered into

Tabule allows students to use their devices to ask questions of the instructor during class, rather than waiting for the professor to solicit questions at the end of the period. They simply type their questions—less intimidating than raising a hand—and the teacher sees the queries pop up on the computer screen.

“The system increased engagement in class by four or five times,” Fazeel says. They tested the system in seven classes at IIT and eight classes at the University of Illinois because by this time Fazeel had transferred to Illinois, where his major became integrative biology.

Tabule still exists, but Fazeel left the business so he could concentrate on his new venture: Benecure. Initially, Benecure focused on an alert system that could automatically detect a cardiac emergency. However, he realized it would be even better to keep people from going to the emergency room in

Muhammed Fazeel
Photo by Shaheryar
Masood

the first place. So he began working on a system that would help people make lifestyle changes that protect their heart—a healthy change of heart.

Even while he was an undergraduate, Fazeel garnered significant attention for his innovations. In 2011, for instance, he was named one of the top 50 technology students in Illinois, and in 2012 he was one of five finalists for the prestigious Lemelson-MIT Illinois Student Prize—the only undergraduate honored. Meanwhile, other members of the Benecure team have received accolades such as the Motorola Fellowship Award and the Aileen S. Andrew Foundation Fellowship Award.

Their system is tentatively called Project Honey because it is a high-tech way of sweet-talking people into taking simple steps to improve their health—plus, honey was once touted for its medicinal benefits. He says the system is aimed at anyone seeking to keep their heart healthy, but it will be especially valuable for those suffering from hypertension. According to Fazeel, about 70 percent of people who suffer from their first heart attack or stroke have hypertension.



Fazeel (center) filming at a fire station with his interns.



Fazeel giving a TED talk at IIT.
Photo provided by IIT



Fazeel teaches a customer how to cook healthy.

Fazeel (above right) talking to potential corporate customers in NYC. Photo by Hemali Thakkar, Pilot HealthTech NYC

Fazeel stresses that the system does not make any claims to reduce blood pressure, and it does not tell patients to make any changes to their medication. But if health numbers improve, people who use the system can consult with their physician to find out if they should make any changes to medication.

“We’re trying to tell people we understand that they have to make significant changes to their lifestyle, and that it’s not easy,” he says. “So our system breaks it down into smaller goals they can achieve.”

To help users meet the recommended goals tailored specifically for them, the system will also supply ideas on healthy lifestyle choices—information based on research from the American Heart Association and the Centers for Disease Control.

As Fazeel explains, “The word ‘benecure’ means ‘to cure with knowledge.’ And that’s the idea.” ■



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Going Out on a Limb

LAS STUDENTS CROSS OCEANS, CROSS CULTURES—AND EVEN CROSS CANYONS

Written by Doug Peterson / Photos provided by Dariusz Hareza and Amy Lin

Dariusz Hareza and six other University of Illinois students squeezed into a metal carriage that was open on the top—a particularly tight fit. “Think of the carriage as a Jeep without wheels,” Hareza says.

Oh yes, and one other thing. The carriage zipped across a deep chasm in Ecuador as it moved at incredible speeds along a single cable strung from one cliff to another.

“We went flying across the canyon, and it was awesome. I loved it,” Hareza says. However, to the chagrin of some aboard, the only way back was to repeat the high-wire journey in the opposite direction.



The study abroad group in the plaza of Lumbisi (where the summer camp and host families are located).

This roller-coaster plunge is a fitting metaphor for the experience of hundreds of LAS students who study abroad every year. These students bravely throw themselves into a new culture and environment in a thrill-ride experience that can also be a dramatic, life-changing experience.

Amy Lin, a senior in psychology, describes her study abroad time in Paris as “total immersion.” All study abroad students become immersed in a new culture to some extent, but Lin took it even farther. She went to Paris for the 2013 spring semester, but she made a conscious effort to separate herself from other American students. She wanted to “live the life of a French person,” rather than be seen as just another American in Paris.

Lin spent most of her time in the company of French speakers, cut loose from the comfort of her native language. As a result, she says the first month was lonely, but her breakthrough came when she attended a “Franglish” program, which is styled after speed-dating programs. The activity paired French

speakers with English speakers, and after about seven minutes a signal was given, and the speaking partners would switch.

Through the Franglish program, Lin says she made good friends, and Paris opened up for her.

Roughly 20 percent of LAS students study abroad, and that includes everything from short-term trips to a full school year abroad, says Nicole Lamers, LAS international education specialist. She says study abroad programs on campus had their genesis in the College of LAS many decades ago, because most of the programs at that time had a cultural and language focus.

Today, study abroad experiences vary greatly in subject matter, and they are all coordinated by the U of I’s Study Abroad Office, which offers hundreds of options in dozens of countries. Although students can choose among any of them, LAS highlights a handful of core experiences—two in Austria, two in Paris, one in Barcelona, and one in Kobe, Japan. The Japan program is a full school year, but all of the others can be done in either one or two semesters.

In addition to semester-long or year-long trips, there are shorter-term overseas courses led by faculty in various departments, and the LAS Global Studies 298 course offers three- to six-week courses in such places as Sweden, Ethiopia, Ecuador, and Italy. What all of these core LAS programs have in common is extensive LAS oversight for quality control. The classes are taught and/or supervised by Illinois faculty, and the curricula are under LAS oversight.



Dariusz Hareza atop a volcano looking over Quito.

Hareza, a senior in molecular and cellular biology, has taken two summer study abroad courses through Global Studies 298. In 2012, he went to Sweden and

the Arctic Circle, and in 2013 it was Ecuador. The Arctic trip, which Hareza describes as the “best thing he ever did,” even sent him on a hike across a glacier, and the professors leading the expedition were armed with rifles just in case they encountered hungry polar bears. Hareza studied the geopolitics of the area where countries such as Norway and Russia battle over access to coal, oil, and other natural resources.



The children show their cleaned hands and wait in line for lunch.

His follow-up trip to Ecuador was the polar opposite of the Arctic trip, for he was high in the mountains close to the equator in Lumbisi, a small, secluded village that could only be accessed by a single bridge. Hareza and the other nine Illinois students ran a summer camp for children, ages five to 14—a major challenge since he didn’t speak Spanish very well.

Illinois students in Ecuador also did ethnographic inquiry projects, and since Hareza hopes to enter medical school, he focused on health issues, studying Lumbisi’s dietary habits. He also discovered that his own dining experience could be a bit of an adventure. His host parents served him an Ecuadoran delicacy, guinea pig, complete with bits of fur. He managed to finish that meal but could not get himself to eat the cow’s knees.

Another highlight was a nighttime hike through the rainforest, where they listened to frogs and aimed their flashlight beams at huge spiders with 5-inch-long legs. They also trekked up the side of a volcano—a combination of hiking, driving, and pushing their car. As he explains, there are not many trips where you can say you lost your camera by

accidentally dropping it in a volcano—as he did.

While Hareza did short-term study abroad courses for the past two summers, Lin opted for the semester-long Paris program. She says she has always loved the French culture since her elementary school years—or at least the culture depicted in film and television. In fact, she was afraid that her idealized view of Paris would be shattered when she experienced the city firsthand.

“But the reality was 10 times more beautiful,” she says. She also loved how the French take the time to enjoy life.

“They’re not always looking at their watches or their phones,” she says. “They don’t tell you they can only talk for an hour because they have to rush to another meeting. I would sit down and talk to them for three hours in a café. In France, we had all the time in the world.

“I also remember walking up Saint-Michel, one of the biggest boulevards in Paris, absorbing everything,” she adds. “I took the time to really look at and appreciate the beautiful buildings and look at the



Dariusz Hareza with a butterfly he caught in Mindo.

people around me. I felt like I was in a movie.”

After experiencing what it was like to adapt to a new culture, Lin was inspired to work with international students back at Illinois and help them adjust to the shock of a foreign culture. As one who was born in China but grew up in the Chicago suburbs, she is focusing her efforts on Chinese students. She and several other Illinois students are planning an orientation in China specifically designed to help students who are coming to Illinois adjust to the changes. This summer they will travel to Shanghai to lead the orientation.

In addition to opening students’ eyes to new cultures, a study abroad program provides just the kind of global experience that many employers look for today, Lamers stresses. “These students have a really good story to tell in their first job interview,” she says. “How great is it to say you have designed a program on nutrition for five- to 14-year-olds in Ecuador?”

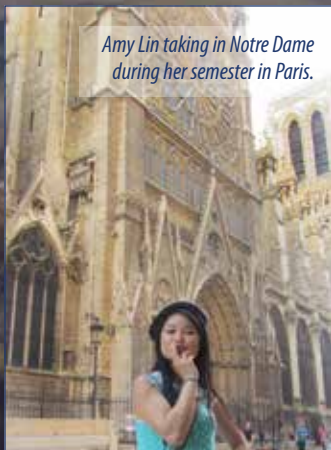
This is exactly the kind of story that Hareza will be able to tell as he aims for medical school and a career in global health. So he says he is thrilled that he took the study abroad plunge, not to mention the ride across the canyon. In fact, if plans hadn’t changed because of volcanic activity, he says they might have even been able to try the infamous Swing at the End of the World, where people swoop out over a deep ravine while perched on a standard swing attached to the limb of a giant tree.

“I just wanted to get out of my comfort zone,” Hareza stresses.

Mission accomplished. ■



A Parisian view featuring the Eiffel Tower by Amy Lin.



Amy Lin taking in Notre Dame during her semester in Paris.



View from Cotopaxi (the volcano Dariusz Hareza’s group climbed) during the descent.

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When you hear students offer such heartfelt sentiments, you want to broadcast them immediately. And we did, on the College of LAS's Twitter account. It was during the campuswide I Love Illinois Week in February, when we celebrated the college's centennial with cookies and LAS freebies.

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“ In the first week of September in 1952, my mother woke me up at 6 a.m. and said we were going to Champaign. I asked her why. She said, ‘You are going to college.’”

—Raymond Dieter, Jr.
(BS '94, chemistry) describes the lifelong impact of a sudden decision to go to college.

“ On December 7, 1941, I was a member of Triangle Fraternity, a fraternity of engineers. We were all stunned when we heard the radio announcement that Pearl Harbor was bombed. It was a time of disbelief. Someone in our group said, ‘Let's have a parade.’ It started at Second and Daniel.”

—Ray Ackerman
(BS '43, civil engineering) recalls the peculiarity of his classmates being together at both the announcement of the Pearl Harbor attack in 1941 and the attacks at the World Trade Center 60 years later on September 11, 2001.

“ We could go out for an hour and gather derelicts like old tires, trophies belonging to clubs from the 1970s, theater props or costumes, misshapen hunks of wood, ancient cassette tapes, and any other strange relics of the past we could find in the basement, attic, or wherever else in the building. We'd then wrap the gift, invent a story, and give them to each other in the room as jokes.”

—Jeff Ginger
(BA '06, sociology) remembers an annual Secret Santa spoof in Lincoln Hall.

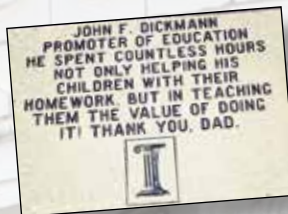
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- LAS Birthday Bash for the Restored Alma Mater—**June 11**
- Arts & Spirits at Bin 36 (Chicago)—**June 14**
- Abraham Lincoln Presidential Museum (Springfield)—**July 19**

las.illinois.edu/alumni/events