KU
THE UNIVERSITY OF KANSAS

Chancellor's Report 2016

"My call to you:
Use your time at KU
to begin addressing
the world's
challenges."

Chancellor Bernadette Gray-Little, Convocation, August 2015

As we celebrate the sesquicentennial of the University of Kansas — 150 years of growth, academic excellence, and research breakthroughs — Chancellor Bernadette Gray-Little has issued a challenge for our future.

In this Chancellor's Report, we reflect on her challenge and how Jayhawks are responding to her call.

Building a foundation

THE FOUNDATION DISTINGUISHED FACULTY INITIATIVE HAS HIRED 11 PROMINENT SCHOLARS AND RESEARCHERS TO SUPPORT KU'S BOLD ASPIRATIONS STRATEGIC PRIORITIES — BUILDING COMMUNITIES, PROMOTING WELL-BEING, HARNESSING INFORMATION, AND SUSTAINING THE PLANET.

Two Foundation Distinguished Professors will join KU's faculty next summer: **Steven Soper**, chemistry and biomedical engineering, and **Yong Zhao**, educational leadership and policy studies.

One more Foundation Distinguished Professor will be announced in the coming year to fulfill the initiative's goals.

Beth Bailey

HISTORY

Expertise in U.S. military history will strengthen KU's partnerships at Fort Leavenworth.

K. Christopher Beard

ECOLOGY & EVOLUTIONARY BIOLOGY

Has uncovered fossils in Libya and helped secure NSF funding for research in Turkey.

David Roediger

HISTORY, AMERICAN STUDIES

Recent book examines how slave emancipation set a precedent for human rights movements in America.

Dennis O'Rourke

ANTHROPOLOGY

Pioneer in molecular genetics and an expert in the use of ancient DNA in reconstructing human settlement.

William Picking

PHARMACEUTICAL CHEMISTRY

Establishing KU as a leader in worldwide vaccine development.

James Bever

ECOLOGY & EVOLUTIONARY BIOLOGY

Researches the soil biosphere and its role in climate change, conservation, and human health.

Christophe Royon

PHYSICS & ASTRONOMY

Research in forward and diffractive physics has led to advancements in drone aircraft and medical imaging.

Cecilia Menjívar

SOCIOLOGY

Focuses on the legal, social, and economic aspects of immigration and U.S. border militarization.

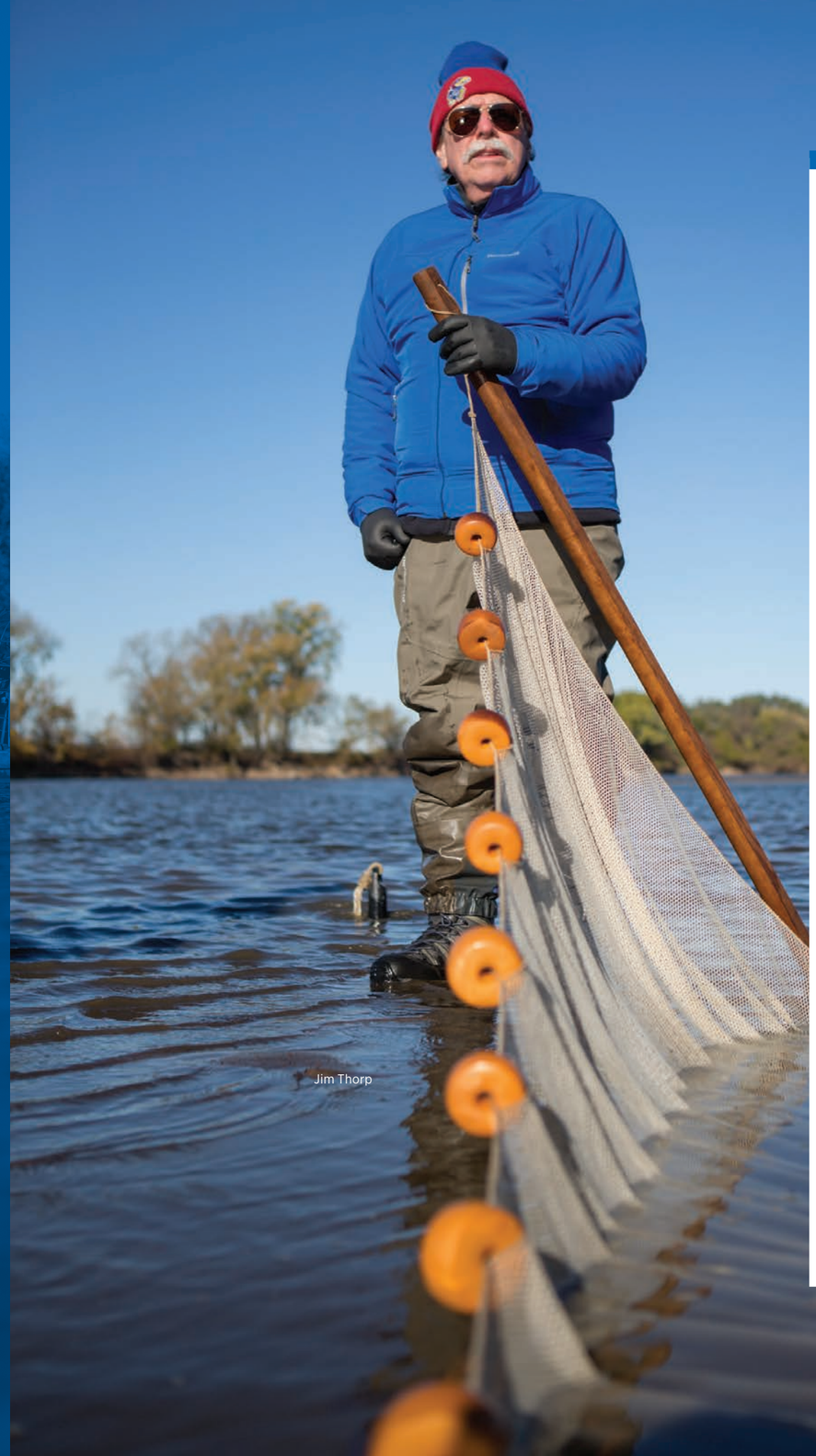
Victor Agadjanian

SOCIOLOGY

Researches social, health, and religious aspects of human immigration.

"KU has a special responsibility to make discoveries that improve lives, create prosperity, and help us better understand the world."

Chancellor Bernadette Gray-Little, Message to Faculty and Staff, September 2015



Jim Thorp

Testing the waters

A KU scientist is leading a team of ecologists on a one-of-a-kind expedition — to map out the chain of life in the world's river systems and the changes they are experiencing because of rising temperatures and man-made development.

"To study rivers, you have to understand the river in its entirety, from the smallest streams to the largest channels," says the expedition's leader, Jim Thorp, professor of ecology and evolutionary biology and senior scientist at the Kansas Biological Survey.

Researchers from nine universities will map out the ecosystems in 18 rivers in the United States and Mongolia to find out the interconnectivity of the species that live there, including trout, insects, and even algae.

The project is the largest-scale research of its kind. Thorp and his team plan to take samples from river systems that span hundreds of miles, including the Eg River in Mongolia and the Snake River in the northwest United States.

Their goal is to draw conclusions about species' biodiversity, food webs, and oxygen metabolism of entire macro river systems.

Thorp's lab is also pioneering a new scientific technique that traces the source of essential amino acids to specific plants. The technique will give researchers new insights into the role

TESTING continued on next page

Jim Thorp (far right) works with students to prepare for research at the Kansas River.

Grant partners

KU is the lead institution on the grant, in partnership with Kansas State; Ball State; Drexel; Rutgers; South Dakota School of Mines and Technology; University of Nevada, Reno; Wayne State; and the National University of Mongolia.

"I've had people tell me it's not possible to do experiments in rivers. Now I'm doing the world's largest river experiment."

— Jim Thorp

The Orkhon (top) and Eg rivers in Mongolia.

Emily Arsenault (above) came to KU because of Thorp's multi-continent project. "Observing the river systems of a different ecoregion firsthand, collaborating with researchers from around the world, and using the latest techniques in food web studies are just a few of the invaluable experiences that this project offers to graduate students," Arsenault says. She is working on a master's in ecology and evolutionary biology.

TESTING continued

algae play as a source of carbon in the food web of rivers.

They have already discovered algae are the most important source of carbon in two large U.S. river systems, the Ohio and the Upper Mississippi.

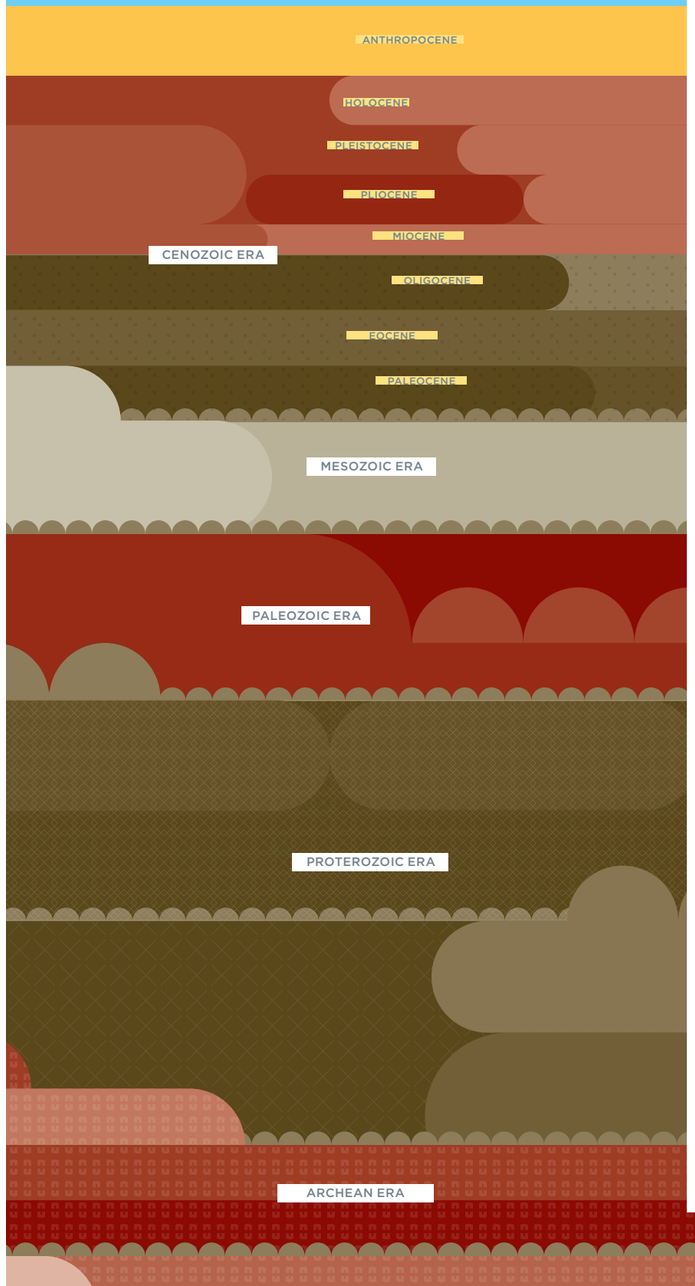
They are also seeking funds to extend their research to test the importance of algae in other parts of the rivers, such as headwater streams, which could challenge a still-popular 35-year-old theory.

The research project, funded by a $4.2 million National Science Foundation grant, has three goals.

One is to study the rising temperatures of Mongolian rivers to predict how climate change might affect U.S. rivers. They also plan to study U.S. rivers to predict what will happen if the currently untouched Mongolian rivers are dammed and developed. Thirdly, they want to learn how the physical structures of rivers affect their ecology.

For more, **report.ku.edu/rivers**

The epoch that humans built



For more than a decade, Earth scientists have been studying a new geologic epoch they call the Anthropocene — the physical changes made by humans on the land, oceans, and atmosphere and to the ecosystem.

Now environmental historians like Gregory Cushman want to look beyond geology. Cushman, associate professor of history and environmental studies, is on a worldwide quest to trace the Anthropocene back to its social, cultural, and political beginnings.

What he finds could help answer environmental questions as simple as "Paper or plastic?" or as complex as whether to allow coal mining.

"It can provide us new insights about humanity's ability to dominate the Earth and all the ramifications of the past," Cushman says.

As Cushman taught about the Anthropocene in his KU environmental studies classes, he found the topic was so new that it was difficult to find integrative perspectives. So he began creating a base of research himself.

Receiving a Carnegie Fellowship is allowing him to take two years off his teaching duties to travel around the planet to make new discoveries and add to interdisciplinary scholarship on the topic.

As he pores through documents and manuscripts in European and Latin American archives and travels to talk to indigenous people in the South Pacific, Cushman has found a theme: Not all of humanity has contributed equally to the changes seen by Earth scientists.

Cushman contends the Anthropocene is the result of the willful domination of the planet by industrialized societies during a period that had its beginnings in what historians call the "Age of Revolution."

One place the Anthropocene began was with the colonization campaigns in the Americas that led to the formation of the United States. Along with a new spirit of political liberty and freedom, those societies also fostered another sense of freedom — an attitude of being free to tap into the Earth and all its resources.

Much of the economic and social progress over the last couple of centuries was based on exploitive environmental practices. Those included unprecedented scales of mining and industrial production, large-scale agriculture and deforestation, and the use of fossil fuels for energy production.

Today's environmental problems of climate change and pollution can be traced back to the Age of Revolution — especially to the ways we extract resources from the rocks and soil beneath our feet, Cushman argues.

"That's where we should be looking for solutions."

Carnegie Fellowship

The Carnegie Corporation of New York decided Gregory Cushman's research project not only had popular interest, but also had ramifications for national and international environmental policies.

Cushman received one of Carnegie's first social sciences fellowships — $200,000 to continue research for his book *The Anthropocene and the Age of Revolution: A People's History of the Earth Under Human Domination.*

The funding allowed him to do historical research last summer in the British Library in London and the Spanish & National Library in Madrid. Last fall he continued his research at the Rachel Carson Center for Environment and Society in Munich — among the top think tanks for environmental studies in the world.

Moustached kingfisher

Bird's eye view of Guadalcanal

For Rob Moyle, what started as a groundbreaking opportunity to look for new species in the Solomon Islands has burgeoned into something even greater.

In September, Moyle and a team of researchers helicoptered into a remote mountain range on Guadalcanal Island to explore whole communities of species — the first time since the 1950s.

"Everyone in the group was finding new species to science," says Moyle, who photographed a male moustached kingfisher for the first time. "That was a big part of the rationale behind the trip — to get all of these scientists up into this place where they had never worked before."

Now, Moyle and Rafe Brown, both associate professors of ecology and evolutionary biology and curators at the Biodiversity Institute, have parlayed their fieldwork and a strategic initiative grant into a major research proposal for the National Science Foundation. The project would focus on education and conservation efforts for a largely untouched area of the Southwest Pacific.

"It is all about the work we do — the grant would tie it all together," Moyle says. "It's five years of fieldwork and lots of genomic sequencing of birds, mammals, reptiles, and amphibians to look at their diversification."

For more, **report.ku.edu/Guadalcanal**

Sustainable by design

Solving the problem of climate change is a science — and an art.

Wes Jackson, KU alumnus and co-founder of the Land Institute — an environmental organization that specializes in alternative agriculture — addressed both when he spoke at The Commons at KU about pressing ecological issues.

After his lecture, Jackson met with students from Matthew Burke's Social and Sustainable Art Practices course — one of two new classes the university offers on the relationship between sustainability and art.

The students spent a portion of the semester studying the writings of Jackson and his environmentalist contemporaries and the rest of the semster working with their hands: researching locally sourced art materials, creating eco-art final projects, and sculpting hives to support bee populations.

"The students were presented with a picture of climate crisis, so I gave them assignments to act in the face of this information," says Burke, associate professor of visual art.

"Action is powerful because — let's face it — what these issues tend to do is shut us down."

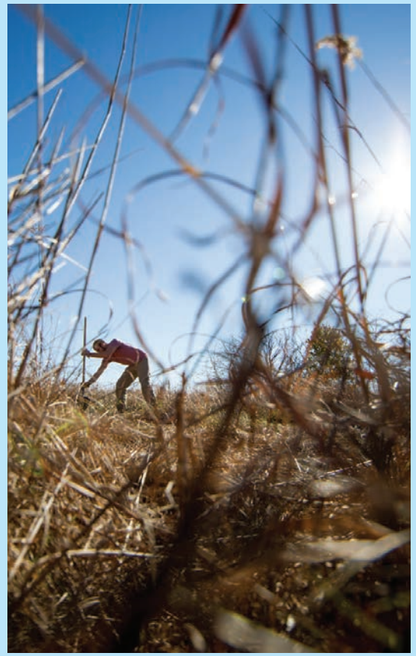
During their Q&A with Jackson, Burke's students didn't shut down — they began firing questions. Some questions had no clear answers, and one question — about developing countries that export meat — completely stumped Jackson (and pleased him to no end).

"That's what we need — questions that go beyond the available answers," Jackson says. "If you're asking the kind of question that has an answer, you may not be asking the right question."

According to Burke, artists may be especially equipped to tackle the climate crisis — for which there are no easy answers — because art is about moving into mystery and the unknown.

Burke hopes to create a new program around sustainable art so his students can continue to ask questions about and find solutions to today's environmental challenges.

For more, **report.ku.edu/sustain**



A student creates an earthwork sculpture.

In 1976, Wes Jackson co-founded the Land Institute in Salina. The nonprofit organization is committed to researching sustainable food production methods and transforming agriculture in the United States.

Jackson is one of seven KU alumni to receive a MacArthur "genius" grant.

The future of plastics

There's no avoiding it — plastic is now intertwined in your life, from your plastic water bottle to the toothbrush you used this morning.

We know that by 2050, the world's demand for plastic will double. That means we'll need twice the raw material and far more energy to make plastic products, says Bala Subramaniam, Dan F. Servey Distinguished Professor of chemical and petroleum engineering.

Subramaniam is leading KU's effort, funded by a new four-year, $4 million National Science Foundation grant, to meet that demand by creating processes to make plastics from plant-based biomass — grasses, crops, and after-harvest leftovers — rather than petroleum crude.

"What if I told you that Kansas can take the lead in this evolving, emerging industry — which is expected to be $100 billion by 2020 — and capture easily 10 percent of the market?" he says.

Subramaniam, who is also director of KU's Center for Environmentally Beneficial Catalysis, says Kansas is fourth among all the states in potential for plant-based biomass production. It's ripe for using CEBC's innovative processes to make green products.

"There's a real opportunity for Kansas to be a major technology developer, a manufacturer, and a global supplier of renewable products for the decades to come."

Bala Subramaniam

Refining the process

The National Science Foundation award supports an interstate team of researchers from KU and the University of South Carolina.

Their challenge is to reconstruct — not burn — naturally occurring lignin to make petrochemical-equivalent chemicals. Lignin, a class of complex organic polymers found in many kinds of plants, is a major by-product of agricultural processing.

KU partner Archer Daniels Midland Company is supplying the lignin samples for the research.

"It is our duty to bring together people, to help them work past their differences in a thoughtful and respectful way."

Chancellor Bernadette Gray-Little, Commencement, May 2015

Goran Ghafour

War coverage

As a reporter in Kurdistan, Goran Ghafour covered wars, bombings, and stories of kidnappings and torture in Iraq. Though he and his colleagues often faced violence — even received death threats — they didn't stop reporting the news.

However, the constant threat of peril takes its toll on many journalists — they often experience the same kind of post-traumatic stress as military personnel who have been in combat zones.

COVERAGE continued on next page

Barbara Barnett

Now a journalism doctoral student at KU, Ghafour and Barbara Barnett, associate professor of journalism, recently conducted extended interviews with nine Iraqi news professionals who have dealt with a harsh wave of violent backlash against journalists during the emergence of ISIS.

Barnett has also conducted workshops on post-traumatic stress for journalists in Washington, D.C. She learned that journalists who cover violence or work in combat zones have similar experiences as military veterans.

Their research highlights the need for more mental health resources to help journalists covering violence every day.

While soldiers have resources for help with post-traumatic stress, journalists have no place to go. "They just go home and are really lost," she says.

In fact, Barnett and Ghafour learned that there is no chance for respite for the journalists because the violence happens in their neighborhoods or close to where they work.

"They are in everyday war zones," Ghafour says.

Their symptoms also include insomnia, constant fear, and "hyper-vigilance," where they are always watching for danger. For them, the stress is not post-traumatic, but constantly traumatic, Barnett says.

Their project calls on media advocacy organizations to provide assistance for journalists in terms of programs and online resources, to learn how to deal with the aftermath of covering and experiencing violence.

Their research also points out the importance of the free speech rights protected by the First Amendment.

"Even if you don't like what people say, if you don't agree with it, it's imperative," Barnett says. "You want to have that information to make important choices."

For more, **report.ku.edu/stress**

"Journalists told us they have nightmares, that they have fear all the time. One said he had fear of dark places, of the shadows."

— Goran Ghafour

Goran Ghafour

Building better health education

Construction will continue through June 2017 on the $75 million, 171,000-square-foot Health Education Building at the KU Medical Center in Kansas City. The building will be the primary teaching facility for the schools of Medicine, Nursing, and Health Professions, housing a simulation center and flexible, state-of-the-art learning space to support new models of teaching.

The building will accommodate about 50 more medical students per year, up from 211 annually. It will house 47 classrooms, 32 clinical and simulation labs, and numerous community life areas.

Kristy Johnston

Working together to heal

SISTER'S EXPERIENCE INSPIRES COLLABORATIVE PROGRAM

KU Medical Center's new Health Education Building is being built mostly to help solve a growing doctor shortage across Kansas.

However, Kristy Johnston is working on another goal for the new building — using it to train physicians, nurses, pharmacists, therapists, and other health care professionals to work together for their patients.

"I'm in this because of my sister's story," says Johnston, director of the medical center's Center for Interprofessional Education and Simulation.

Johnston's sister required complicated care. In her sickest moments she needed help to sort through complex lists of instructions and medications from multiple doctors and caregivers. But she had to do it alone.

Johnston wants to change that. She's leading the effort to teach KU medical, nursing, pharmacy, and health professions students about each other's jobs. Small interprofessional teams are given actual case studies. They learn to coordinate patients' overall care.

Once the new Health Education Building is completed, students will work together in simulated settings — such as a hospital, a clinical lab, a pharmacy, or a home.

The ultimate goal: a new generation of health care professionals who collaborate and communicate to improve the overall quality of health care in Kansas.

For more, **report.ku.edu/health_education**

Upward momentum

SALINA MED SCHOOL BOOSTS RURAL MEDICINE

The KU School of Medicine–Salina, created to address the shortage of physicians in rural Kansas, graduated its first class in 2015. With only eight students admitted each year — it's the smallest four-year medical school campus in the country — KU is spearheading an entirely new model of health care education that is both progressive and personal.

2015 graduates, KU School of Medicine–Salina

Genetic reform: Finding a cure for polycystic kidney disease

Polycystic kidney disease has no cure. Yet.

Patients with this genetic disease develop clusters of fluid-filled cysts, primarily within their kidneys. The cysts are not cancerous, but they can become so large and abundant that they cause kidney failure.

The Kidney Institute at KU Medical Center will use a five-year, $5.4 million grant from the National Institutes of Health to fund the Kansas Polycystic Kidney Disease Research & Translation Core Center — aimed at advancing the search for treatments and a cure.

PKD research at KU will focus on slowing the growth of these cyst cells.

The grant was awarded to James Calvet, professor of biochemistry and molecular biology, and his colleagues at the Kidney Institute, a world-class, internationally recognized research center. It is one of only four centers nationally to receive this type of PKD research funding from the NIH.

"It's a big, big help," Calvet says. "It really provides a shot in the arm in terms of giving us an opportunity to further develop our PKD expertise."

New deans foster leadership

As a flagship research university, KU's mission is to educate students who will contribute to our state and society. This year we are pleased to welcome four new deans to our community.

Carl Lejuez

Dean of the College of Liberal Arts & Sciences

Sally Maliski

Dean of the School of Nursing

Abiodun Akinwuntan

Dean of the School of Health Professions

Paul Smokowski

Dean of the School of Social Welfare

A KU student teaches a child with autism how to swim at the Kirmayer Fitness Center.

Ripple effects

Tristen, a kindergartner from Olathe, used to hate water so much he wouldn't go outside when it rained. Now he is learning the back float.

He is the 100th student in the KU Sensory Enhanced Aquatics Program, developed by Lisa Mische Lawson in the Department of Occupational Therapy Education in 2011 to teach swimming and water safety skills to children with autism spectrum disorders.

Children with autism are often challenged by traditional lessons because of how they experience sensory stimuli.

But in this program, teaching methods are matched to each child's special needs. Children may be taught in small groups or even individually, for example. Or they may wear earplugs, goggles, or wetsuits to feel more comfortable in the water.

Besides providing health benefits and water safety skills — drowning is the leading cause of death among children with autism — swimming also reduces stereotypic behaviors and increases social behaviors.

Recognizing the best of KU

THE ACHIEVEMENTS OF THESE UNDERGRADUATES HAVE EARNED THEM GRANTS AND SCHOLARSHIPS TO PURSUE THEIR STUDIES AND CONTRIBUTE TO KU'S MISSION — EDUCATING LEADERS, BUILDING HEALTHY COMMUNITIES, AND MAKING DISCOVERIES THAT CHANGE THE WORLD.

For more, **report.ku.edu/scholars**

Jessica van Loben Sels

MICROBIOLOGY
Albuquerque, New Mexico

Goldwater Scholars receive up to $7,500 annually for undergraduate study in science, technology, engineering, or math.

Aidan Dmitriev

MICROBIOLOGY
Lakewood, New York/ Lawrence, Kansas

Astronaut Scholarship recipients receive $10,000 to pursue scientific endeavors and help the United States retain its world leadership in technology.

Jennifer Stern

ECOLOGY & EVOLUTIONARY BIOLOGY
Lawrence, Kansas

Beckman Scholars receive a $21,000 stipend to participate in long-term research in chemistry or molecular biosciences. KU is one of 12 universities in the country chosen to participate.

Bryce Tappan

CHEMISTRY
Brookings, South Dakota

Udall Scholars, chosen for their commitment to studying and protecting the environment, receive up to $5,000 for undergraduate study.

Ashlie Koehn

ENVIRONMENTAL STUDIES, ECONOMICS, AND GLOBAL & INTERNATIONAL STUDIES
Burns, Kansas

Truman Scholars receive up to $30,000 for graduate study and have opportunities to develop leadership skills and prepare for careers in public service.

Michael Cory

BIOCHEMISTRY
Wichita, Kansas

“We’ve made it through some hard times, but we’ve laid a new foundation, Jayhawks. …The young people here are going to write a new future for America.

“Let’s get started right now.”

President Barack Obama, speaking at KU, January 2015

Alyssa Cole

Succeeding by degrees

A couple of years ago, Alyssa Cole wrote a letter to President Obama. She told him about her personal challenges as a full-time student, minimum wage earner, and single mother. She was a McNair Scholar but still struggled to afford college and find day care for her three children.

She expected, at the most, a return letter. Instead, she was invited to introduce the president to the crowd at Anschutz Sports Pavilion.

“I’ve made sacrifices to get an education, but so have my children,” Cole says. “They’re at day care while mom is at school trying to make a better life. For my kids to see me on stage — it was an honor.”

Cole received a bachelor’s degree in history in August and is now working toward her master’s in African and African-American studies at KU.

When President Barack Obama issued a call — for affordable child care, affordable higher education, and an economy built on job creation — Jayhawks responded. We’re already **writing our new future.**

For more, **report.ku.edu/Obama**

Growing our economy

34 The Bioscience & Technology Business Center houses 34 companies that provide 180 jobs and have a payroll of more than $10 million.

18 KU is one of 18 public institutions named to the 2015 class of Innovation & Economic Prosperity Universities by the Association of Public & Land-grant Universities.

Nick Krug/LJ World

Saving early

Like President Obama, a KU professor wants to make college more affordable — and more achievable.

William Elliott, associate professor of social welfare, calls for expanding Children’s Savings Accounts and leveraging federal financial aid.

CSAs are typically set up at birth with an initial deposit. Elliott has found that setting up CSAs early in a child’s life can change family expectations of what’s possible by creating a “college saver identity,” even for those with low incomes.

“They expect to go to college, but they need a strategy for paying for it,” Elliott says.

Elliott, founder of KU’s Center on Assets, Education & Inclusion, wants to take it another step. He proposes jump-starting those CSAs by distributing federal Pell grants to fifth-graders.

William Elliott

By the time those fifth-graders are ready to start college, the Pell grants in their CSAs will have had time to grow substantially. Those CSAs would reduce the amount they would need to borrow — and reduce their college debt.

The benefits of Elliott’s plan go beyond making college affordable.

“Kids who start saving early are more likely to have stocks, retirement accounts, and real estate later in life,” he says.

Debt limits

KU researchers are working with other universities to solve a financial problem beyond the college loan crisis — student credit card debt.

Researchers from the School of Social Welfare’s Center on Assets, Education & Inclusion have learned a student’s hometown is the biggest factor in how much — or how little —credit card debt they will rack up.

Terri Friedline, assistant professor of social welfare, says a survey of 2,000 students from a southwestern university indicated the higher the average amount of debt in a community, the less likely college students were to use credit cards.

The research shows college students may have benefited from the credit or debt accumulated within their communities. It also indicates a community’s debt might have protected students from using credit themselves.

Policymakers often focus on getting individuals or families to make good financial choices. The research shows that focusing on improving the overall financial health of communities can be just as important, Friedline says.

Clinton accepts Dole award

As president, Bill Clinton built a legacy of strong leadership and bipartisanship. Since leaving office, he has worked around the globe to strengthen economies, promote health and wellness, and protect the environment.

In November, Clinton came to KU to accept the 2015 Dole Leadership Prize, awarded annually by the Robert J. Dole Institute of Politics to recognize those whose public service leadership is an inspiration to others.

"Much of his work as president — including his balancing of the budget and efforts to reach across the aisle — mirrors the mission of the Dole Institute and the values of Senator Dole," says Bill Lacy, director of the Dole Institute.

Dole represented Kansas in Congress for 35 years and was the Republican presidential candidate in 1996.

For more, **report.ku.edu/Clinton**

"I've always liked Bob Dole, and I've always admired him. Even when we were running against each other for president, we found a way to work together."

Former president Bill Clinton, speaking at KU, November 2015

Gala Korniyenko

Street smart, world wise

For Gala Korniyenko, a well-designed city is about dignity.

The visiting Fulbright Scholar plans to use her graduate education in urban planning to make cities in her native Ukraine more accessible for wounded soldiers returning from the ongoing Ukrainian-Russian conflict.

She's doing her research from halfway across the world, using Google Street View in a KU classroom.

Signs without braille, broken sidewalks, a lack of curb ramps, and intersections too wide to cross between lights — these are the kinds of problems Korniyenko sees on a virtual tour of her hometown, Cherkasy.

STREET continued on next page

"Engaging with these topics will at times make you uncomfortable. That's precisely why you're here."

Chancellor Bernadette Gray-Little, Convocation, August 2015

The Fulbright Program fosters mutual understanding among nations through education and cultural exchanges.

Seven KU students were selected for 2015-16 to receive the prestigious award for research, study, or teaching English abroad. They are among the 454 KU students who have received this award since 1946, when Congress established the program.

Each year about 35 Fulbright Scholars from around the world study at KU.

STREET continued

Korniyenko is comparing Cherkasy's accessibility with Columbus, Ohio — one of several American cities that have adopted a "complete street" policy.

Complete streets, a term used by transportation engineers and urban planners, are roadways designed for everyone — pedestrians, motorists, bicyclists, and people with disabilities.

As younger generations move to the cities, looking to transform the urban core into walkable, livable neighborhoods, a complete street movement has emerged across the United States. Korniyenko wants to initiate a similar movement in Ukraine, where she says cities are less accommodating.

"The time for strengthening our cities is now," she says. "And that is what I see the younger generation doing."

Adopting legislation or creating policy won't be enough to create change in Ukrainian cities, according to Korniyenko. Civic empowerment is a relatively new concept for citizens who have spent years under Soviet rule.

Profirio Fernandes Xavier, from Dili, East Timor (top left), and Mohammad Sameem Raheemi, from Kabul, Afghanistan (above), are also Fulbright Scholars studying urban planning at KU. *Read their stories at* **report.ku.edu/Fulbrights**

Living under empire and oppression can cause people to become passive and cities to decline.

"We need to change the attitudes of Ukrainians," Korniyenko says. "Our tendency is to address the problems of the wounded medically. 'Fix the person,' we say. But it's more than fixing a person. We need to fix the culture — fix the city — so they can live well here."

For more, **report.ku.edu/Fulbrights**

Todd Crespi

Case study

LAW PROFESSOR PRACTICES WHAT HE TEACHES

Two highly dissimilar constitutional cases — one about banking discrimination, the other over the death penalty. Distinguished law professor Stephen McAllister argued both in early October before the U.S. Supreme Court.

Then he returned to his KU classroom, where students learn constitutional law from a professor who practices it at the highest level.

McAllister, who has now appeared nine times before the Supreme Court, says doing so makes him a more effective teacher because he has not just read the end product — a Supreme Court opinion — but helped to shape it.

"Standing in front of the justices, looking them in the eye and responding to their questions, gives one a deep appreciation of the human aspects of Supreme Court litigation, aspects that I hope to convey to my students," he says. As a KU law school graduate, McAllister says his appearances also show students that KU's law school can equip them to appear before the Supreme Court.

McAllister most recently argued for the Community Bank of Raymore in a test of the Equal Credit Opportunity Act and, as Kansas solicitor general, he argued to uphold the death sentences for two Wichita brothers convicted of four murders.

Proving innocence

Floyd Bledsoe can thank KU Law's Project for Innocence for his freedom.

Bledsoe, who had been in prison for 16 years for the shooting death of his sister-in-law, was recently released after his brother, Tom Bledsoe, facing new incriminating evidence, confessed in a suicide note.

Numerous KU law students had worked on the case since 2006 — and had advocated for new DNA testing that showed Floyd Bledsoe's innocence.

"His release was one of the happiest days of my life thus far," says Kaiti Smith, who practically lived with the case for two years as a KU law student.

Smith pored through court transcripts, notes, and evidence, even taking boxes of documents home with her. She chased random leads, met with the KBI, reviewed physical evidence, and eventually filed a motion in 2012 for DNA testing.

Smith, who received her KU law degree in 2013, remained interested as other KU law students continued to work on the Bledsoe case.

"I was lucky enough to be able to fly in for Floyd's hearing and see him walk out of the courthouse a free man. It was an amazing feeling."

Smith, an assistant public defender in Louisville, Kentucky, says the Project for Innocence opened her eyes to many issues and problems within the legal justice system and solidified her passion to be a criminal defense attorney.

The Project for Innocence — founded as the Defender Project — is in its 50th year. The program has won more than 40 direct appeals, constitutional challenges, and actual innocence cases since 2008. The project receives financial support from the Midwest Innocence Project.

Kevin Willmott

Lights, camera, action

Kevin Willmott, associate professor of film and media studies, has made a name in indie circles for movies like *C.S.A.: Confederate States of America* and *Jayhawkers*.

Now he has Hollywood's attention. Willmott co-wrote — with Spike Lee — the script for *Chi-Raq*, starring Samuel L. Jackson, John Cusack, Wesley Snipes, and Teyonah Parris. *Chi-Raq* is Amazon Studio's first feature film.

For more, **report.ku.edu/Willmott**

Pulling over

BOOK STUDIES REALITIES OF POLICE STOPS

You see flashing red lights. You pull over.

Why you were stopped and what happens next depends on your race — that's what three KU professors found in interviewing 2,329 Kansas City area drivers for their book, *Pulled Over: How Police Stops Define Race and Citizenship.*

The award-winning book presents the finding that police use minor traffic violations to disproportionately stop blacks and minorities to check for criminal activity — even with no evidence.

Pulled Over authors — Charles Epp and Steven Maynard-Moody, both professors of public affairs and administration, and Don Haider-Markel, professor of political science — call for police departments to prohibit such institutionalized racial profiling practices.

Their research was funded by the National Science Foundation.

Eric Welch

Digging into the unknown

Eric Welch made a Goliath-sized discovery this summer.

A visiting assistant professor of Jewish studies, Welch has spent the past decade uncovering layers of history at Tell es-Safi, Israel. But his team's most recent discovery — the gate to the biblical city of Gath and home to Philistine giant Goliath — has a distinct significance.

"Everybody knows David and Goliath," he says. "We know the Philistines are bad guys in the Bible, but who are they?"

Welch says, now that they've found the gate, his team can hunt for specific clues about the Philistines' origins, like what language they spoke, what religion they practiced, and even what they ate.

Answering questions like these is just one of many opportunities at Tell es-Safi — the site of 4,500 years of human settlement. Welch says the remains provide insights not only into biblical history, but also the rise of urbanism and early agricultural and warfare practices.

"When we look closely at the lives of these people from 3,000 years ago, we start to see that we're not really that far apart," he says. "Their daily needs — from food to security to religion — are something we can relate to today, and I think that gives us incredible perspective on the human experience."

For more, **report.ku.edu/Goliath**

Engineering growth

FULBRIGHT SCHOLAR BUILDS ON KU EXPERIENCE

Getting to see President Barack Obama up close when he visited KU's Lawrence campus was an unexpected experience for visiting Fulbright Scholar Netty Malca Pérez.

"It changed my life," says the Peru native, who sat on stage behind Obama when he spoke Jan. 22, 2015, at KU.

Malca Pérez, a graduate student in the engineering management program at KU's Edwards Campus, says she had other life-changing experiences at KU: She volunteered. She lived with an American family to give her a better understanding of the culture. She learned to swim through the KU Swim Club and actively competed.

Now Malca Pérez wants to change the lives of others. When she receives a master's degree in May, she will take her engineering and management skills back home to Cajamarca, Peru.

One of her dreams is to help improve her hometown's economy with aquaponics, a system that allows the cultivation of both fish and vegetables within a controlled ecosystem.

"I'm going back to Peru with knowledge and a lot of dreams."

For more, **report.ku.edu/aquaponics**

Netty Malca Pérez

Lines of succession

REDTIRE MATCHES NEW OWNERS WITH ESTABLISHED BUSINESSES

For Doug and Kathy Funk, former owners of Funk Pharmacy in Concordia, Kansas, finding a buyer for their business was easy and stress free, thanks to KU's Redefining Retirement program, or RedTire.

RedTire matches graduates of Kansas Regents institutions with owners of small and medium-sized rural businesses looking for a successor. The service is free to business owners and is financed by the KU School of Business and a grant from the U.S. Economic Development Administration.

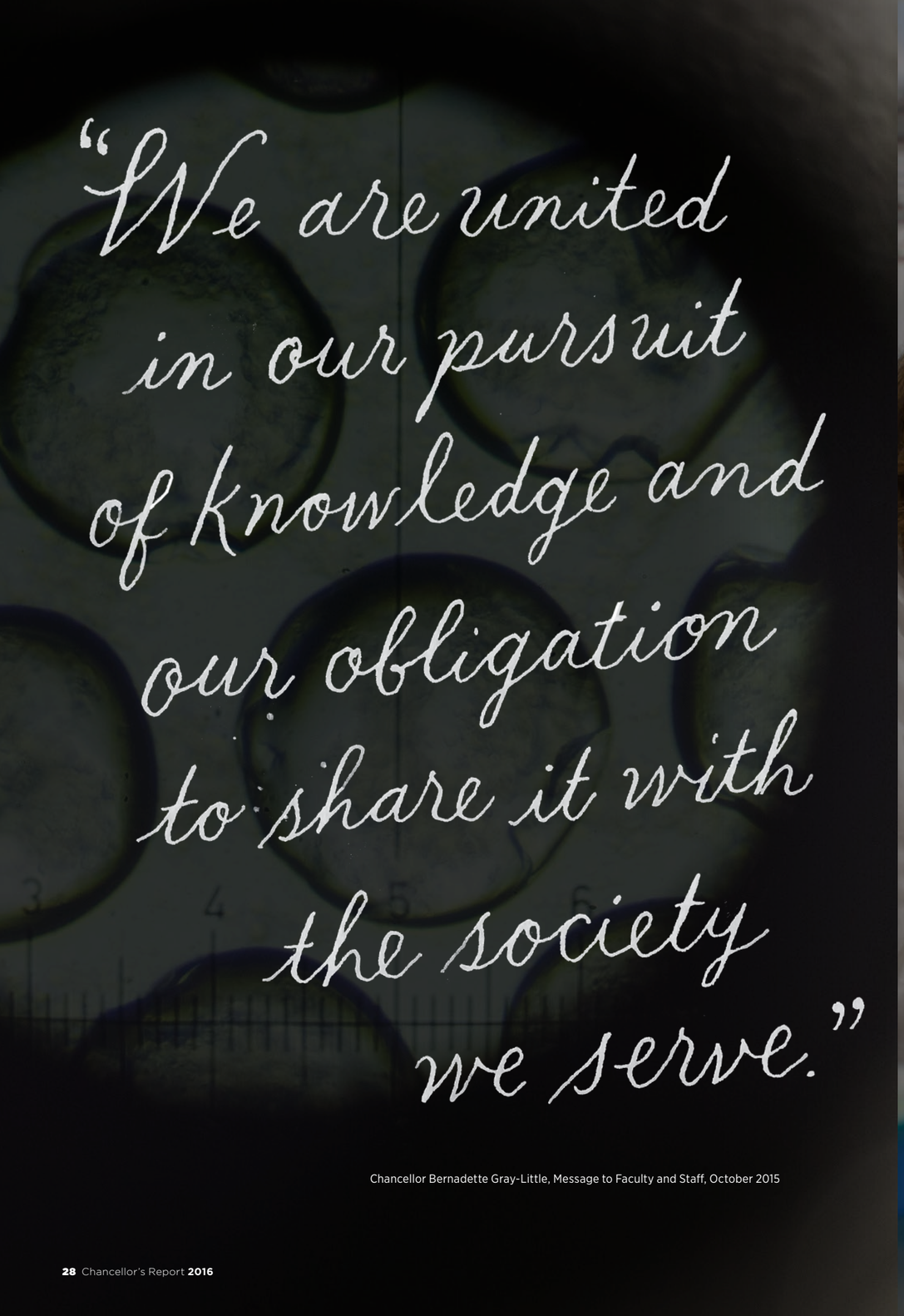
Forbes.com calls RedTire a "national model" for addressing rural small business succession.

"RedTire was a real service to us," Doug Funk says. "It took away some of the anxieties of talking to potential buyers."

On July 1, after six months of negotiations, Robb Rosenbaum, a graduate of the KU School of Pharmacy, and his wife, Meredith, took ownership of the pharmacy.

"RedTire helped each step of the way," Rosenbaum says. "I felt comfortable and had faith knowing that RedTire works independent of the buyer or the seller."

Funk Pharmacy is the seventh business to complete a rematch since RedTire was launched in 2012. The program is currently assisting more than 100 business owners as they seek new ownership to preserve businesses in rural Kansas communities.



Chancellor Bernadette Gray-Little, Message to Faculty and Staff, October 2015

Microscopic management

Health care technology is a complex field, but KU Medical Center's Lisa Stehno-Bittel has learned not to overlook what is small or simple.

Stehno-Bittel, professor of physical therapy and rehabilitation science and one of the world's leading diabetes researchers, focuses on islets, cells that produce insulin in the pancreas. While working on islet transplant experiments, her lab manager, Janette Williams, pointed out something — something simple they hadn't noticed before.

Smaller islets behaved differently than larger islets. The small islets were more robust and produced more insulin than larger islets. And when they transplanted only small islets into diabetic rats, the rats were cured. If they transplanted only large islets, the rats were never cured.

But this breakthrough presented another problem — how to re-engineer the large islets to make them function like small ones. They couldn't just throw away healthy tissue. They investigated complex solutions for five years, until Karthik Ramachandran, then a KU

MICROSCOPIC continued on next page

Karthik Ramachandran (center) and Lisa Stehno-Bittel (right) work with a Likarda lab technician.

Likarda, a startup company located at the Bioscience & Technology Business Center at KU Medical Center, has successfully cured diabetes in laboratory rats by transplanting its engineered cell clusters, known as Kanslets.

MICROSCOPIC continued

"The next time … you put out an idea and somebody says, 'Oh that will never work, it's too simple,' I want you to stop and tell them the story of the Kanslet."

— Lisa Stehno-Bittel

bioengineering doctoral student, invented a simple answer.

Ramachandran made a "micro-mold," a small plate of glass with microscopic divots.

He took the large islets down to their simple cells and loaded those into the micromold. The cells fell into the microscopic divots, found each other, combined, and grew three-dimensionally into cell clusters. The clusters became new small islets — and began producing insulin.

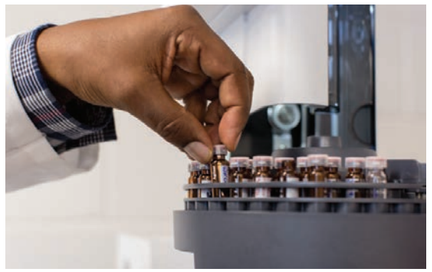
When the new lab-grown small islets were injected into diabetic rats, the rats were cured. The researchers named their new islet the "Kanslet."

The micromold was the basis of Ramachandran's doctoral dissertation, and after he and Stehno-Bittel presented their findings at a national islet meeting, scientists from a major pharmaceutical company approached them. They wanted to use their technique — and the micromold's ability to grow almost any type of cell clusters — to screen new drugs.

After a few months, Stehno-Bittel and Ramachandran licensed their patents from KU and co-founded a new biotech company, Likarda LLC.

Likarda is now creating diabetes treatments for pets, providing technology to screen drugs for cancer cures, and — after only three years — is no longer a "startup company," but a profitable and growing small business. As Stehno-Bittel says, "Simple can be successful."

For more, **report.ku.edu/diabetes**



Alzheimer's protection

With a lot of innovative ideas and white-coat detective work, a team of KU pharmacy school researchers has made a significant breakthrough on the mystery of Alzheimer's disease.

Liqin Zhao, assistant professor of pharmacology and toxicology, and her fellow researchers recently published a paper on human ApoE2 — a rare ApoE genetic isoform whose carriers are resistant to Alzheimer's disease.

Because brains that produce the ApoE4 form have the greatest risk factor for late-onset sporadic Alzheimer's disease, it has been the focus of most ApoE research.

The KU team, however, decided to take a different approach — they looked at ApoE2, which is uncommon, but actually protects the brain from Alzheimer's.

Their goals: first learn how the ApoE2 protection works, then come up with a way to make aging ApoE4 brains act like ApoE2 brains — and protect them from getting the disease.

Jump-starting research

Zhao received $500,000 in startup funds when she was recruited to KU in fall 2013. These funds helped establish her lab by purchasing research equipment and supplies and supporting lab personnel. Since then, the lab has mentored six researchers, including one postdoctoral fellow, three graduate students, and two undergraduate students.

The Alzheimer's Association, the KU Alzheimer's Disease Center, and KU general research funds are also supporting the research. The data they have generated so far are the basis of an application for National Institutes of Health funding to move these projects forward.

Investigating. Discovering. Elevating.

KU EVENT FEATURES ENLIGHTENING INNOVATORS

They talked of game-changing innovations: Of producing plastic from plants. Of curing cancer and diabetes. Of making guide maps for teachers. And of making college more affordable.

In TED Talk-style presentations, four KU researchers spoke last fall at "KU Elevate: Innovation in Action" on KU's Edwards Campus:

- Bala Subramaniam, distinguished professor of chemical and petroleum engineering and director of KU's Center for Environmentally Beneficial Catalysis, told how Kansas could improve its economy by using plant biomass to manufacture sustainable plastic.
- Lisa Stehno-Bittel, professor of physical therapy and rehabilitation science, explained how KU discoveries led to the creation of Likarda LLC, a Kansas City biotech firm that works on cures for cancer and diabetes.
- Neal Kingston, director of KU's Achievement & Assessment Institute, spoke about how new complex "learning maps" help teachers choose the right instruction path for specific students.
- And William Elliott, associate professor of social welfare and founder of KU's Center on Assets, Education & Inclusion, talked of investment innovations that can make higher education a reality — without crippling college debt.

KU Elevate also featured a 1986 KU engineering graduate, Brian McClendon, vice president of advanced technologies at Uber Technologies Inc.

McClendon talked of Uber's ultimate game-changing goal: getting more people to give up their cars.

For more, **report.ku.edu/elevate**

Going places

The KU alumnus who put Lawrence, Kansas, on the map — and right at the center of Google Earth — is now working to enhance and expand Uber, the app-based ride-sharing business.

In October, Brian McClendon was inducted into the National Academy of Engineering, one of the highest honors in the field. The official citation honors him for strategic, technical, and managerial leadership that resulted in widespread accurate and useful geographic information.

McClendon received an electrical engineering degree from KU in 1986. He worked at Google from 2004 to 2015, where he co-created Google Earth.

Smashing success

KU PHYSICISTS SUPERCHARGE SUPER COLLIDER CAMERA

Alice Bean

The shutter speed on Alice Bean's camera is so fast it captures images of protons moving at nearly the speed of light.

The pixel detector is so precise it sees the footprints of these protons as small as one-tenth the diameter of a single strand of hair.

And the readout chip she and her team developed is so advanced it sifts through millions of snapshots to find only the most significant data.

Bean, professor of physics and astronomy, led a team of KU physicists during a recent upgrade of the Large Hadron Collider, the super collider in Geneva, Switzerland, regarded by scientists as the most complex and powerful machine ever created.

By studying subatomic particle collisions, scientists gain a better understanding of how the physical world works and see the universe in new ways.

SMASHING continued on next page

KU physicists (left and below) work on updates to the Large Hadron Collider.

SMASHING continued

"The video on your iPhone takes somewhere around 30 frames a second, while our cameras take 40 million pictures per second."

— Alice Bean

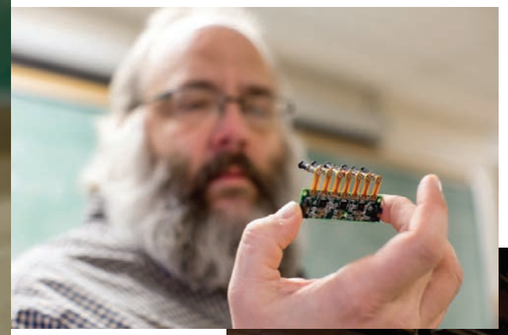
Scientists cranked up the collider's energy level in early 2015, allowing them to smash protons together with record-breaking momentum and create nearly twice the number of particle collisions. They needed a way to capture the avalanche of data.

That's when Bean's team went to work.

The equipment Bean's team created not only handles the collider's "new normal" — 50 collisions per test run instead of 20 or 30 — but also captures the collisions' higher energy. The improved reader then filters the data down to only the most relevant results. Only 100 of the 40 million images captured per second "make it to tape."

Among those images, Bean says, may be data that one day help verify the Higgs discovery, find new supersymmetric particles, or identify microscopic black holes.

For more, **report.ku.edu/Bean**



Solar paneling

Powerful research defines KU. And now it's spelled out — in solar panels — on one of the newest buildings in KU's engineering complex.

Westar Energy recently awarded the university a $48,473 grant to install solar panels on the roof of the Measurement, Materials & Sustainable Environment Center (M2SEC), a cutting-edge learning facility.

The 10-kilowatt solar array, which forms the letters K-U, does more than generate energy — it will also generate research findings. An educational tool for faculty and students, the panels will soon begin publishing real-time solar data on a monitor in the M2SEC lobby and on the Center for Sustainability website.

Ready for takeoff

With over 30,000 drones expected to be in the sky by 2020, Lei Shi's entrepreneurial ambitions are taking off at just the right time.

As the Federal Aviation Administration is trying to determine how to ensure safety for all aircraft, Shi is developing a sense-and-avoid radar to keep drones from crashing into each other — or anything else.

The few collision avoidance systems on the market use camera sensors that require light. Shi's radar system would operate even in the dark or poor weather conditions.

Shi, an electrical engineering doctoral student, launched his own drone technology startup company, UAVradars LLC. Thanks to the help of NASA's Small Business Innovation Research grant, the company has successfully completed its first phase of work and is proposing Phase II. UAVradars is one of five startups that occupy space in the Bioscience & Technology Business Center in KU's West District.

"What started as a small college on the Hill has become a multicampus international research university."

Chancellor Bernadette Gray-Little, Convocation, August 2015

Jayhawk Boulevard, about 1900.

KU 150

We are in the midst of KU's sesquicentennial celebration. Generations of Jayhawks have found their calling here — and have met our mission of educating leaders, building healthy communities, and making discoveries that change the world.

1866
55 students attend first day of classes at KU

1873
KU holds first Commencement

1886
The science club introduces the cheer that will become the Rock Chalk Chant

1903
The Panorama of North American Mammals opens in Dyche Hall

1905
The KU School of Medicine is established in Kansas City

1905
KU chemistry professors isolate helium from natural gas

1909
KU joins the prestigious Association of American Universities

1945
Postwar period sees boom in enrollment and building on campus

1970s
Takeru Higuchi develops time-release drugs

1971
School of Medicine branch is established in Wichita

1992
The Edwards Campus is established in Overland Park

2011
School of Medicine branch is established in Salina

2012
KU Cancer Center receives National Cancer Institute designation

KU's first campus master plan was designed in 1904 by George Kessler and Henry Wright of St. Louis.

TODAY

Enrollment: 28,091

Students from all Kansas counties, all 50 states, and 103 countries

Campuses

Main campus: Lawrence

Medical Center: Kansas City, Wichita, and Salina

Edwards Campus: Overland Park

373 degree programs

$238.8 million in externally funded research in FY2015

Headquarters of a major NSF research center on polar ice sheets, one of only 11 active NSF Science & Technology Centers

Nationally designated Cancer Center and Alzheimer's Disease Center

"And now each of you is a part of this university, and a part of KU's history."

Chancellor Bernadette Gray-Little, Convocation, August 2015

Excellence on the Hill

Chancellor Bernadette Gray-Little was elected chair of the board of directors of the Association of Public and Land-grant Universities. She was named to the APLU executive committee in 2013.

44

Forty-four KU graduate programs are ranked in U.S. News' "Best Graduate Schools," more than all other Kansas universities and colleges combined.

Tailan Chi, professor of business, was named a fellow of the Academy of International Business, an honor fewer than two percent of AIB members receive.

Journalism major Amie Just was one of six winners of the prestigious 2015 Jim Murray Memorial Foundation scholarship, a national award for excellence in sports writing at the college level.

Lou Loescher-Junge, while interim associate dean of the School of Health Professions, was named a fellow of the Association of Schools of Allied Health Professions.

KU School of Law graduates in the Class of 2015 passed the bar examination in Kansas and Missouri at rates that far exceeded both states' averages.

With 28 U.S. patents awarded in 2014, KU ranks 79th among international universities.

9

Nine technologies invented and developed by KU researchers were featured at the TechConnect World Conference and Expo, a major showcase and accelerator for commercializing emerging technologies.

Junior Janae Hall received the 2015 Elite 90 Award, which recognizes the student athlete with the highest GPA at NCAA championship tournaments. Hall started all matches during the NCAA volleyball tournament, where the Jayhawks reached the Final Four for the first time in KU history.

2

For the fourth time in six years, the School of Pharmacy ranks No. 2 in the nation in National Institutes of Health funding.

6

Six faculty members were named 2014-15 Fulbright Scholars, placing KU among the top five universities in the nation — and at the top in the Big 12.

KU is one of the 11 members of the University Innovation Alliance, which won a four-year, $8.9 million grant in the U.S. Department of Education's First in the World program to evaluate advising efforts for low-income and first-generation students.

Recent graduate Ryan Limbocker was one of only 40 U.S. students to receive a scholarship from the Bill and Melinda Gates Foundation for postgraduate studies at Cambridge University.

KU is one of the top 10 schools in the country for veterans, according to Military Times.

KU received a five-year, $1.5 million grant from the U.S. Department of Education to establish the KU Transition to Postsecondary Education for Youth with Intellectual Disabilities program.

James Bowen, doctoral candidate in the Department of Physics & Astronomy, earned a $38,000 Science, Mathematics, Research, and Transformation Scholarship from the Department of Defense. It also covers tuition and other educational expenses.

The only known audio recording of James Naismith (above), inventor of the game of basketball, was recently uncovered by Michael Zogry, associate professor of religious studies. Naismith describes how roughhousing in basketball's first game led him to draft his 13 original rules, which will soon go on display at the new DeBruce Center, adjacent to Allen Fieldhouse.

To hear the recording, **report.ku.edu/basketball**

KU Jazz Ensemble I (above) and student David vonKampen won top honors in the 38th annual DownBeat Student Music Awards.

100 years of herpetology

The herpetology program celebrates 100 years of research. Today, KU has one of the largest reptile and amphibian collections in the United States, and it ranks among the top doctoral programs for herpetology.

For more, **report.ku.edu/herpetology**

Central expansion

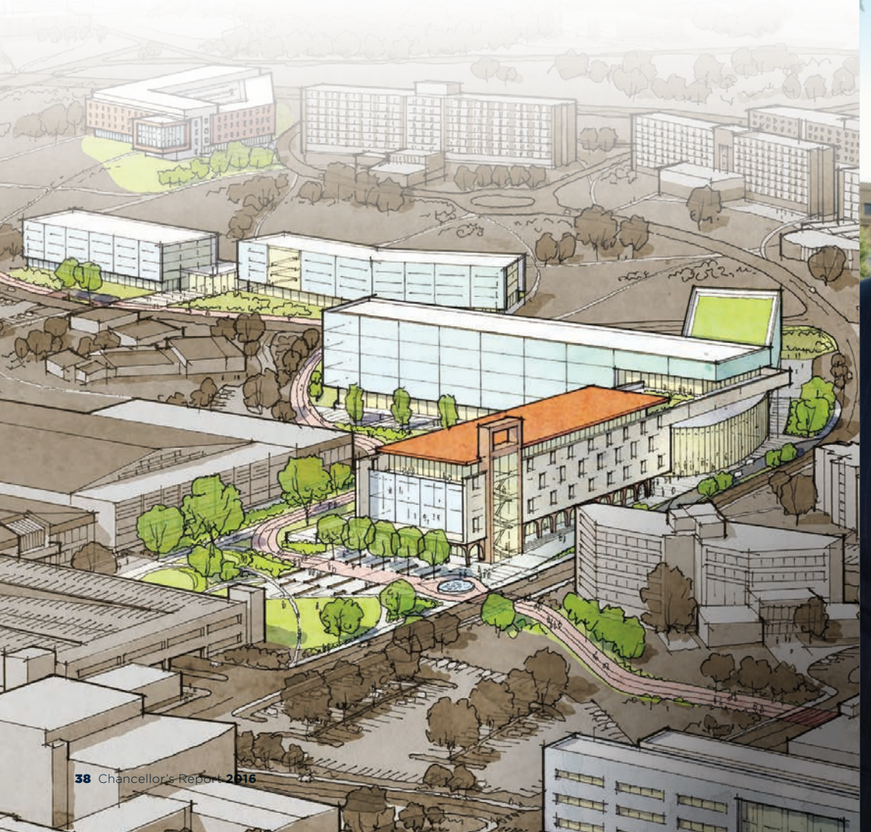
In 2016, the University of Kansas breaks ground on the redevelopment of its Central District. This once-in-a-generation project will bring remarkable new facilities and spaces to the Lawrence campus and transform the way our community of scholars learns, works, and collaborates.

The three-year plan includes innovative academic facilities, beginning with the Earth, Energy & Environment Center. The EEEC, envisioned as a hub for the sciences, will be an information concourse and access way for KU's multidisciplinary research.

The Central District will also include a new integrated science facility and new and renovated learning and living structures such as student residence halls with built-in classrooms, study areas, and advising and tutoring centers.

Open green space, apartments, retail areas, and a new pedestrian and bicycle trail are also included in the redevelopment.

The Central District project will be funded through a combination of savings realized through Changing for Excellence, growth in enrollment, student fees, support from alumni and friends, and business and revenue-generating aspects such as parking and student housing.



In memoriam

Robert Hemenway, chancellor of the University of Kansas from 1995 to 2009, died July 31, 2015.

"Chancellor Hemenway was a visionary leader who guided the University of Kansas to unprecedented successes during his time here," said Chancellor Bernadette Gray-Little. "He took tremendous pride in making the university more student-focused, and under his leadership KU made improvements in how we educate students and provide them a world-class experience."

Jayhawks made tremendous advances and celebrated monumental achievements in 2015 — just as we have for the past 150 years. And we're just getting started.

"There's no limit to what we can do and where we go from here."

Chancellor Bernadette Gray-Little, Convocation, August 2015

KU THE UNIVERSITY OF KANSAS
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