Geologists unlock mysteries of the Earth’s inner core

By Liz Ahlberg
Physical Sciences Editor

Sismic waves are helping scientists to plumb the world’s deepest mystery—the planet’s inner core.

Thanks to a novel application of earthquake-reading technology, a research team at the University of Illinois at Urbana-Champaign has found that the Earth’s inner core has an inner core of its own, which has surprising properties that could reveal information about our planet.

Led by Xiaodong Song, a professor of geology at the U. of I., and visiting post-doctoral researcher Tao Wang, the team published its work in the journal Nature Geoscience on Feb. 9.

“Even though the inner core is small—smaller than the moon—it has some really interesting features,” said Song. “It may tell us about how our planet formed, its history, and other dynamic processes that have shaped our planet. It shapes our understanding of what’s going on deep inside the Earth.”

Researchers use seismic waves from earthquakes to scan below the planet’s surface, much like doctors use ultrasound to see inside patients. The team used a technique that gathers data from the planet’s surface, but sends the waves that resonate in the earthquake’s aftermath. The earthquake is like a hammer striking a bell, much like a listener hears the clear tone that resonates after the bell strike, seismic sensors collect a coherent signal in the earthquake’s coda.

“It turns out the coherent signal enhanced by the technology is clearer than the ring itself,” said Song. “The basic idea of the method has been around for a while, and people have used it for other kinds of studies near the surface. But we are looking all the way through to the center of the Earth.”

Looking through the core revealed a surprise at the center of the planet—though not of the type envisioned by novelist Jules Verne.

The inner core, once thought to be a solid ball of iron, has some complex structural properties. The team found a distinct inner inner core, about half the diameter of the whole inner core. The iron crystals in the outer layer of the inner core are aligned directionally, north-south. However, in the inner inner core, the iron crystals point roughly east-west.

Not only are the iron crystals in the inner inner core aligned differently, they behave differently from their counterparts in the outer-inner core. This means that the inner-inner core could be made of a different type of crystal, or a different phase.

“The fact that we have two regions that are distinctly different may tell us something about how the inner core has been evolving,” Song said. “For example, over the history of the Earth, the inner core might have undergone very dramatic changes in its deformation regime. It might hold the key to how the planet has evolved. We are right at the center—literally, the center of the Earth.”

The U.S. National Science Foundation and the National Science Foundation of China supported this work.

Urban farming behind Extension’s Cook County expansion

By Sharita Forrest
Education and Social Work Editor

W ith consumer interest surging in local foods, urban farming and sustainable agriculture, the time is ripe for the University of Illinois Extension to cultivate Cook County, Illinois.

Extension recently expanded its Local Food Systems/Small Farms team of educators to include Zack Grant, who was the manager of the Sustainable Student Farm on the Urbana campus. Grant was the assistant dean and the director of U. of I. Extension at the beginning of February.

Grant is passionate about agriculture, working with growers and sharing his knowledge with others interested in gardening and small-scale farming.

When Extension began looking for an educator to grow its urban agriculture program in Cook County, Grant was the natural choice, said George Crapar, associate dean and the director of U. of I. Extension and Outreach.

“Agriculture is a big economic benefit to our state, and urban farming and local food production are ways to reach new audiences,” Crapar said. “It’s a pretty exciting time, with the interest people have in knowing where their food comes from and even getting involved in producing it. We view this as generating a whole new generation of farmers interested in growing food.”

Grant is one of 16 educators statewide affiliated with the program, which was established as part of Extension’s reorganization process in 2011. Ten of those educators, including Grant, were hired since the reorganization.

“We have a lot of new, young people on this team who have really worked well and jelled together nicely,” said crop sciences professor Mike Gray, who also serves as the assistant dean for agriculture and natural resources with Extension. “Quite honestly, these are busy folks. There’s a lot of interest and the dynamic processes to stimulate food grown locally. There’s a strong demand.

“I’m certain we did the right thing in establishing this team.”

Urban farming is a new focus for Extension, an organization that traditionally concentrated on large-scale commercial agriculture production in Illinois, especially corn and soybeans, Gray said.

“There are other land-grant schools that have similarly themed urban agriculture teams, but having the type of educator in the urban, concentrated area like Cook County is relatively new,” Gray said.

When state budget constraints prompted Extension’s reorganization in 2011, Gray saw opportunity for growth.

“I didn’t want University of Illinois Extension to just get smaller,” Gray said. “I said, ‘Let’s look toward the future. There’s tremendous interest in urban agriculture and local food production, and there are increasing numbers of folks who want to engage with small urban farming.’”

The Cook County region—and Chicago, in particular—is especially fertile ground for these types of programs, Grant said.

“Cities such as Detroit are investing heavily in functional production of foods within the city confines,” Grant said. “And in Chicago, there are food deserts, underserved areas where urban food programming is really relevant, and numerous vacant lots that could accommodate community gardens, as well as actual food production businesses.”

“There’s also the whole environmental, urban green space, sociocultural aspect of urban agriculture. I think there’s always going to be a need for that, in addition to giving people within the city limits access to locally grown foods and connections with their communities.”

Crop sciences professor Sarah Taylor Lovell and Sam Worton conduct research on the environmental challenges of urban agriculture—such as soil contamination, soil remediation and water quality—in Chicago neighborhoods.

Grant, who has worked with both facets of Extension, joined the team in January.
Senators approve engineering-focused college of medicine

ON THE WEB
Proposal to Educational Policy Committee: go.illinois.edu/EP1533

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peakers at the Urbana-Champaign Senate’s Feb. 9 meeting said engineering students wouldn’t be the only ones who would benefit from a new engineering-focused college of medicine.

The speakers, almost all espousing the collaborative benefits that would reach to most every academic corner of the campus, preceded an overwhelming senate vote in favor of a medical school proposal first championed in April by Urbana Chancellor Phyllis M. Wise.

The next step in the approval process will be the U. of I. Board of Trustees, which is expected to take up the issue at its March 12 meeting on the Urbana campus.

“The senate’s support was encouraging, but we still have much work to do to make this a reality,” Wise said after the senate meeting.

Wise said the proposal, which was vetted through several campus committees and ultimately forwarded to the senate by the Education Policy Committee, was the result of many hours of work by university staff members.

“There have been a lot of people working diligently on this for months,” said Wise. She also thanked members of the senate committees who reviewed the plan and made suggestions, as well as the unanimous support of the campus’s college deans.

“The discussion has made the plan better,” she said. “We will be able to create a college of medicine like no other in the country. It is Illinois at its very best.”

Ilesanmi Adesida, the provost and vice chancellor for academic affairs, said a medical college would not only revolutionize medicine, but also become integrated into many other disciplines – becoming a “test bed” producing collaborations “across the spectrum.”

“It is something that’s been percolating on this campus for the last 50 years,” he said. “This is something we can do, and the risk of not doing it is unimaginable. The senate shouldn’t be looking at now or tomorrow, but 50 years ahead.”

Neal Cohen, a professor of psychology and of neuroscience, and the director of the Interdisciplinary Health Sciences Initiative, a group that represents seven colleges and 11 departments, said the benefits would include expanded clinical studies conducted in this area using patients from the region.

“Right now, almost none of the patients we’ve studied have been from here because of the absence of an academic medical center,” he said. “Mime is just one example of many.”

Tom Anastasio, a professor of molecular and integrative physiology and a faculty member of the Beckman Institute, said the engineering focus on medicine would add a conceptual strategy that would lead to groundbreaking discovery.

“Biological systems are incredibly complicated, and we still don’t understand them,” he said.

The medical school proposal is dependent on a partnership with Carle Health, which has pledged $100 million in the first 10 years, including $34.5 million for startup costs and an additional $1.5 million annual contribution extending beyond that.

The university’s plan predicts annual receipts of $1.2 million from tuition, $5.6 million from research funding, $1.7 million from the clinical enterprise, and $1.5 million from philanthropy and other income. It also calls for fundraising of $135 million in the first eight years, a figure Wise has said is “highly achievable.”

The board of trustees also will consider at their meeting an alternative proposal from UIC. Both proposals are being reviewed by U. of I. President Bob Easter, who was asked by trustees last year to make a recommendation on whether to adopt the paradigm-shifting medical school approach at a new Urbana-based college or through the existing UIC College of Medicine.

Medical lobby

Martin Burke, left, a professor of chemistry, and Neal Cohen, a professor of psychology and neuroscience, and the director of the Interdisciplinary Health Sciences Initiative, each make supportive arguments for the proposed medical college to senators at the Feb. 9 senate meeting. Cohen, whose group represents seven campus colleges and 11 departments, said a new medical college would benefit everyone.

A critical need

On Feb. 9, the Urbana-Champaign Senate approved the concept of creating an engineering-focused college of medicine, with presenters espousing the collaborative benefits that other disciplines will reap because of the new approach. Ilesanmi Adesida, left, the provost and vice chancellor for academic affairs, alongside Chancellor Phyllis M. Wise, told senators: “It’s something that’s been percolating on this campus for 50 years...the risk of not doing it is unimaginable.” The proposal will be on the U. of I. Board of Trustees’ agenda at the March 12 meeting on the Urbana campus.

Re-review of Salaita

Since then, the board of trustees voted 8-1 not to hire Salaita into a tenured faculty position, the chancellor has clarified her statement, the AAUP has publicly opposed the idea of a professional fitness review and Salaita has filed a federal lawsuit.

Because of that, many at the senate meeting argued that creating an LAS faculty re-review committee is counterproductive.

“IT’S NOT GOING TO DO ANYTHING IN THE LONG RUN,” said Kam Graeter, a professor of kinesiology and community health and a member of the Senate Executive Committee.

The Campus Academic Freedom and Tenure report can be accessed on the senate website.

Inside Illinois

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Academic freedom resolution passes despite quorum call

By Mike Helenthal Assistant Editor

A resolution on shared governance and academic freedom passed easily following a detailed discussion by the Urbana-Champaign Senate at its Feb. 16 meeting, though the rest of the senate’s business was tabled after senators discovered they were three senators short of a quorum.

The quorum call forced senate leaders to adjourn the meeting and extend the agenda’s remaining business to a reconvened March 9 meeting.

The Feb. 16 meeting was a continuation of the Feb. 9 meeting, which went well beyond the allotted time because of the discussion of the proposed Urbana college of medicine and the report on the Steve Salaita situation.

The 60-24 vote in favor of the resolution carried the day, but a count of senators afterward revealed there were only 97 senators present, short of the minimum 100 senators required to officially conduct business.

Last year, the senate attempted to resolve the perennially low senate meeting turnout problem by passing a resolution reducing the quorum to 75. However, the measure was never considered by the U. of I. Board of Trustees.

The Feb. 16 resolution was debated vigorously for around an hour and survived several amendments, with senators finally voting 60-24 in favor of a version that added wording referring to the American Association of University Presidents’ 1940 landmark statement on academic freedom.

The resolution was presented as a consensus-producing transitional document that involved the work of sponsoring professors Ben McCall (chemistry), Randy McCarthy (mathematics), Joyce Tolliver (Spanish/Portuguese) and Nicholas Bur- rules, (education policy, organization and leadership). It outlines three outstanding issues they found in the Salaita case and recommends addressing them.

The first issue, a conflict within Provost Communications 2, 3 and 9, “apparently give[s] conflicting advice about the roles of the chancellor and president, once a hiring and/or promotion case has been reviewed by the provost.”

Recommendations include fixing the language in the communications, and “It is judged that an independent review of the language and dependent roles of the chancellor’s level should be pre- served, the Office of the Provost should de- velop quick processes for consultation with unit administrators, and with relevant faculty committees, to be followed during the criminal code rewrite is, ‘Nowhere in the statutes or other governing documents are there guidelines about what process of con- sultation, including consultation with facul- ty, the chancellor should follow.’”

The governor said he would like a 20 percent of adults and 53.5 percent of the prison population by 2025. Based on your experience as U. of I. professor in the offices of the attorney general of Alaska (1990-2001) and New York (2001-04), spoke with News Bureau business and law editor Phil Ciciora about what issues he would like to see the commission tackle.

“Interesting times in the rewrite,” he said. “This year was an independent re- view at the chancellor’s level should be pre- served, the Office of the Provost should de- velop quick processes for consultation with unit administrators, and with relevant faculty committees, to be followed during the criminal code rewrite is, ‘Nowhere in the statutes or other governing documents are there guidelines about what process of con- sultation, including consultation with facul- ty, the chancellor should follow.’”

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“As a former prosecutor, what do you think are the most important issues facing the criminal justice system in Illinois?”

“I’d like to see the commission start with the Illinois criminal code, in part because the code’s shortcomings would be rela- tively easy to remedy. When the code was adopted in 1961, it was basically a strong code. It was comprehensive without be- ing unduly complex. In the intervening years, though, the Legislature has added a multitude of unnecessary and duplicative provisions, a result of which is the Illinois criminal code now is among the worst in the country. It lacks precisely those qualities that Gov. Rauner, in his executive or- der, identified as critical to the fairness of the criminal justice system: ‘uniformity, certainty [and] consistency.’”

Moreover, reforming the criminal code would be relatively easy. In 2003, the Illi- nos Criminal Code Rewrite and Reform Commission, which had been created in 2000 by then-Gov. George Ryan, published a comprehensive proposed rewrite of the criminal code. The commission’s proposed rewrite was, unfortunately, ignored entirely by the Illinois General Assembly. But it’s a really outstanding piece of work. Particip- ants in the rewrite included several of the country’s leading criminal law scholars, among them Paul Robinson, who oversaw the project, and U. of I. law professors Wayne R. LaFave and Andrew D. Leipoldt, who served as special counsel to the com- mission. As an easy first step, Gov. Raun- er’s commission ought to revise this earlier effort would be relatively easy. In 2003, the Ill- illinois Criminal Code Rewrite and Reform Commission, which had been created in 2000 by then-Gov. George Ryan, published a comprehensive proposed rewrite of the criminal code. The commission’s proposed rewrite was, unfortunately, ignored entirely by the Illinois General Assembly. But it’s a really outstanding piece of work. Particip- ants in the rewrite included several of the country’s leading criminal law scholars, among them Paul Robinson, who oversaw the project, and U. of I. law professors Wayne R. LaFave and Andrew D. Leipoldt, who served as special counsel to the com- mission. As an easy first step, Gov. Raun- er’s commission ought to revise this earlier effort it was basically a strong code. It was comprehensive without being unduly complex. In the intervening years, though, the Legislature has added a multitude of unnecessary and duplicative provisions, a result of which is the Illinois criminal code now is among the worst in the country. It lacks precisely those qualities that Gov. Rauner, in his executive order, identified as critical to the fairness of the criminal justice system: ‘uniformity, certainty [and] consistency.’”

Moreover, reforming the criminal code does that look like to you?

For me, a holistic approach means tar- geting social problems that, at first glance, might appear to have relatively little to do with criminal justice. It means, for exam- ple, improving educational opportunities and social services in communities where crime is common.

The governor is right to target these broader social problems, of course. But it’s important to recognize that crime itself also is among the social conditions that give rise to crime. I’m not a sociologist, but my work as a prosecutor always was informed by the recognition that some forms of crime – domestic violence, for example, and drug crime – harm other people not just directly but indirectly, too, by destroy- ing the social fabric. If they’re to re-make right choices, children require not just educational opportunities and decent social services but a sense of personal identity, as well. Unfortunately, in some communi- ties, large-scale imprisonment of violent and repeat offenders may be the only way to provide that physical security.

According to the executive order, recidivism in Illinois is high – 48 percent of adults and 53.9 percent of juvenile convicts return to prison within three years of release. One of the goals of the commission is to reduce Illinois’ prison population by 25 percent by 2025. Based on your experience as a government attorney, does that seem realistic?

It would be wonderful, of course, if the governor were able to reduce the state’s prison population by 25 percent without, at the same time, making our communities more dangerous. But I’m skeptical. What’s behind our current high level of imprison- ment are lots of individual sentencing deci- sions by individual judges, who usually have broad discretion in deciding whether, and how much, imprisonment is justified in a particular case. From this up-close perspective, the judges’ decisions generally seem right.

It’s not my impression that the state’s trial judges are imposing long terms of im- plication: "uniformity, certainty [and] consistency."
Institute for Genomic Biology renamed for Carl R. Woese

By Diana Yates

Life Sciences Editor

The U. of I. Institute for Genomic Biology has been renamed in honor of a microbiology professor who changed the course of science with his discovery of a third major branch of the tree of life. That professor, Carl R. Woese, died in late 2012.

“We are now the Carl R. Woese Institute for Genomic Biology,” said Swanlund Chair of Engineering Yuliy Baryshnikov, who is also director Gene Robinson. “By changing our name, we honor an individual who has made contributions to science, who served as an Illinois microbiology faculty member for nearly 50 years and who, as a result of his contributions, paved the way for us to emerge as a leader in advancing life sciences.”

In 1977, Woese and his colleagues overturned a universally held assumption about the basic structure of the tree of life. They discovered that there were three distinct branches, or “domains,” of life—not two, as had been previously thought. The new class of organisms they discovered looked superficially like bacteria, but their evolutionary history was completely different. These microorganisms are now known as archaea (arch-e-kuh), and are genetically and evolutionarily as distinct from bacteria as plants and animals are. Woese made his discovery by comparing the molecular sequences associated with the cellular machinery that translates the genes of individual organisms into proteins. In doing so, he pioneered the practice of using molecular sequences to gain insights into biology, an approach that has now become standard in biology and is the precursor of today’s genomics.

“Carl Woese’s discoveries in evolutionary biology have had revolutionary implications for all branches of biology, and no more so than in the emerging science of genomics, which owes its foundation to Carl’s work. It is very fitting indeed that the IGB will forever be associated with his name, and it will be an inspiration to all who work here,” said Illinois Swanlund Chair of Physics and renowned genomics expert Nigel Goldenfeld, a long-time colleague, collaborator and friend of Woese.

“Since our dedication in 2007, this institute has carried on the spirit of discovery and dedication to Woese’s research,” Robinson said. “His legacy is now an indivisible part of our institute.”

Center for Advanced Study associates and fellows named

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wenty U. of I. faculty members have been named Center for Advanced Study associates or fellows for the 2015-16 academic year. The faculty members are among the nation’s best and are recognized for their creative or projects in the coming academic year. The winning proposals are selected by the Center for Advanced Study’s permanent professors.

“In accordance with the center’s mission, these appointments provide an incentive to pursue an elevated level of scholarly achievement,” said Tamer Basar, the director of the Center for Advanced Study and a professor of electrical and computer engineering. “CAS support is unique in the sense that it is not limited to one area of study or discipline but cuts across these lines to provide all faculty with an unusual opportunity to explore new ideas and demonstrate early results.”

CAS associates are professors or associate professors and CAS fellows are assistant professors. In addition, four of the CAS fellows were designated as Beckman fellows, which supports “outstanding young scholars.”

CAS associates for 2015-16 and their research projects:

• Yevli Bayshynskov, mathematics/electrical and computer engineering, “Applied Computational Geometry and Topology”
• Howard Berenbrink, psychobiology, “I Feel I Believe”
• Jakob Brokamp, linguistics, “Multilingualism in Africa: Sociolinguistic and Cognitive Dimensions”
• Weng Cheng, electrical and computer engineering, “Computational Electromagnetics for Quantum Optics and Casimir Force Study”
• Sara Finnegan, communication sciences and disorders, “The Camera Politic: American Presidents and the History of Photography from the Daguerreotype to the Digital Revolution”
• Farzad Kamalabadi, electrical and computer engineering, “Computational Spectral Imaging: Theory Algorithms and Fundamental Performance Limits”
• Jean-Pierre Labuton, electrical and computer engineering, “Genomics with Seismic Sensor Nanotechnology”

CAS fellow for 2015-16 and their research projects:

• Nora El-Gohary, civil and environmental engineering, “Big Data Fusion and Analytics for Reservoirs for Improving Urban Infrastructure”
• BECKMAN FELLOWS

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Symmetry Geometry and Topology in Crystalline Phases of Matter (also a Beckman fellow)
• Charles Ledford, journalism, “The Cultural Geography of Firearms: Illinois as Microcosm of the Nation”
• Jian Ma, bioengineering, “Evolutionary Annotation of Regulatory Sequences”
• Sho-Ichi Rya, physics, “Topological Phases of Matter and Quantum Anomalies” (also a Beckman fellow)

Beckman fellows are funded through the Beckman Endowment, named for UI alumnus and benefactor Arnold O. Beckman, in recognition of outstanding young faculty members’ scholarly contributions.
Illinois trails others in rates of girls studying science, math

By Sharita Forrest
Education Editor

A new study found Illinois educators and lawmakers have homework to do to figure out why fewer girls at the state’s high schools study subjects associated with careers in the science, technology, engineering and mathematics fields than their peers in other states.

Compared with girls nationwide, fewer Illinois girls enroll in all career cluster areas that Illinois policymakers have identified as being associated with STEM fields, including finance, information technology and agriculture, food and natural resources.

However, the greatest disparity is in the science, technology, engineering and mathematics cluster, where females represent 15 percent of enrollments in these courses at Illinois schools compared with about 31 percent of enrollments nationwide, according to a brief written by scholars at a U. of I. research center.

Joel R. Malin, Asia N. Fuller Hamilton and Donald G. Hackmann are researchers with the university’s Pathways Resource Center, which helps Illinois school districts develop career and technical education and STEM programming and promote equal access.

The researchers compared enrollment data in CTE courses at all Illinois high schools and career centers during academic year 2012-13 with national statistics for the preceding school year. The Illinois State Board of Education provided the statewide data, while the nationwide statistics were obtained from the U.S. Dept. of Education.

Across Illinois, females were significantly underrepresented in STEM courses at all Illinois high schools and career centers during the academic year 2012-13 with national statistics for the preceding school year. The Illinois State Board of Education provided the statewide data, while the nationwide statistics were obtained from the U.S. Dept. of Education.

Half as many girls in Illinois are preparing for careers in STEM, according to a study by J. Malin, doctoral student Asin N. Fuller Hamilton and director Donald G. Hackmann of the Pathways Resource Center.

STEm. Females represented 91 percent of enrollments in education and training, and 77 percent of students in human services courses. Girls also dominated enrollments in the marketing career cluster and in the hospitality and tourism career cluster, representing 65 percent and 61 percent of enrollments, respectively.

With President Barack Obama identifying STEM education as a national priority, Illinois educators and lawmakers have to determine why so few girls in the state are choosing academic paths and training programs that would prepare them for careers in STEM and nontraditional fields, which typically pay higher wages.

To promote STEM education in Illinois schools, the researchers suggested that Illinois lawmakers provide financial incentives for school districts to develop STEM programs and activities for students.

The researchers also recommended that school districts review and audit their curricula, instructional practices and materials to eliminate gender biases that may discourage children from considering careers in fields considered nontraditional for their gender.

Previous research suggests that stereotyping can happen, and students may get impressions about whether they “fit” into certain fields as early as the age of 6 or 7,” said Malin, a curriculum specialist with the center and the lead author on the brief. “Role models and classroom instructional practices can make a big difference. We recommend several strategies that would reduce gender inequities and make programs appealing and accessible for both males and females.”

We also recommend creating an exemplary program, so that high-performing programs can share information with other school districts to encourage them to adopt similar models,” said Fuller Hamilton, a graduate research assistant with the center.

An example of one of these programs is the Girls in Engineering, Math and Science (GEMS) conference offered by Township High School District 211, northwest of Chicago. The annual event, which targets fifth- and sixth-grade girls, has doubled in attendance – from 100 to 200 students – since it was first held five years ago.

To better evaluate and monitor CTE and STEM education throughout Illinois, the researchers also suggested that state officials consider reviewing the statewide data collection system and expanding the reporting requirements to facilitate analyses of enrollment patterns and student performance by demographic group.

The Illinois State Board of Education funded the research with a federal Race to the Top grant. ©
Female entomologists provide horror for insect film festival

By Diana Yates

Life Sciences Editor

M anything pursuing young mosquitoes or manipulating insects in the lab, female entomologists are a source of horror in many science fiction movies and TV shows. Their roles have shifted over the decades, however, making them a worthy focus of the 2015 Insect Fear Film Festival at the U. of I.

In 1991, I did an informal survey of female entomologists in the movies and it was not pretty—they may have been, but the characters were not,” said U. of I. entomology professor and department head May Berenbaum, who founded the Insect Fear Film Festival in 1994. Unlike their male counterparts, who nobly labored to save humanity from hunger or plague, female entomologists tended to use their buggy knowledge “to prolong their existence from hunger or plague, female entomologists, as their male antecedents in the lab, female entomologists are themselves a source of horror in many science fiction movies and TV shows. Their roles have shifted over the decades, however, making them a worthy focus of the 2015 Insect Fear Film Festival at the U. of I.

In 1991, I did an informal survey of female entomologists in the movies and it was not pretty—they may have been, but the characters were not,” said U. of I. entomology professor and department head May Berenbaum, who founded the Insect Fear Film Festival in 1994. Unlike their male counterparts, who nobly labored to save humanity from hunger or plague, female entomologists tended to use their bug knowledge “to prolong their own personal youth and beauty for as long as possible,” Berenbaum said. The character Janice Starlin in the 1959 movie “The Wasp,” who believed that royal jelly from wasps would give her eternal youth. “Instead, it turned her into a large, furry, bloodthirsty creature,” Berenbaum said.

In the 1970 movie "Flesh Feast," Dr. Elaine Frederick (played by Veronica Lake) "conducted rejuvenation treatments that involved unshathing flesh-consuming maggots to eat the dead skin from people's faces," Berenbaum said.

But TV and movie depictions of the human兵器 half-mosquito – and bad things happen,” Berenbaum said.

In "Mansquito" (2005), a female entomologist finds a mosquito-borne viral disease “has a laboratory accident that ends up turning male scientists into half-mans, half-mosquito – and bad things happen," Berenbaum said. "Now, female entomologists can be just as self-absorbed, irresponsible and careless as their male antecedents in the movies," she said. "So I guess we've achieved some sort of parity, something to be proud of now that well-meaning women entomologists are equally capable of unleashing horrific disasters on humanity."

The 2015 Insect Fear Film Festival opens its doors at 6 p.m. Saturday, Feb. 28 at Foellinger Auditorium on the Urbana campus. The evening will begin with activities for children, including face painting, the Beckman Institute's Bug scope, and an insect petting zoo. Opening remarks will begin at 7 p.m., followed by two family-friendly animated shorts from the 2006-08 Disney Kids TV series "Growing Up Creepey," which follows the adventures of a human girl who was raised by insects. A full-length thriller-horror feature will follow: the 2005 Syfy feature "Mansquito."

"A 2014 feature film, 'The Duke of Burgundy,' would have been a good fit for the festival in that it features two female entomologists, but it's an R-rated ruling it out, as did the fact that it's been favorably reviewed by critics," Berenbaum said. "Very few art house favorites make it onto the screen at our festival."

The event is free and open to the public.
Why do some challenge reading material in schools, libraries?

By Jodi Heckel
Arts and Humanities Editor

While it may be tempting to dismiss as a censor anyone who wants to restrict access to a book, such individuals understand that books are powerful and have the potential to change lives, said Emily J.M. Knox, who recently wrote about the people who raise challenges to reading material.


Unlike other books that have focused on the history of book banning, the legal issues that arise or the policies of public institutions regarding access to books, Knox talks with the people who are raising challenges to the books and looks at why, in a culture that values freedom, they argue for restricting access to books.

“I take the point of view that, for all of us, reading is really powerful,” she said.

Knox looked at 15 case studies of book challenges across the country. The books being challenged included “The Absolutely True Diary of a Part-Time Indian,” by Sherman Alexie (challenged in three places), and “Invisible Man,” by Ralph Ellison. Knox said books are often challenged on the basis of sexual or political content.

She found several common aspects to the people who raised challenges. Most were parents or caregivers of children between the ages of 4 and 6 or 12 and 16 – periods of major transitions in the lives of young people.

Knox said challengers want public institutions – schools and libraries – to reflect their values, and they see the roles of those institutions as aiding parents in the moral development of their children.

“One aspect of school challenges that make them somewhat different from public library challenges is the issue of coercion,” Knox wrote. “Challengers often take issue with the idea that their children are required to read books with which they disagree,” Knox wrote.

Children’s innocence and their need for protection to preserve that innocence are taken as givens by challengers, she said.

“The issue of protecting children is ubiquitous in the discourse of challengers. For many of them, this is why they challenged a particular book in the first place – to safeguard the minds of the innocent,” Knox wrote.

She looked at how those challengers talk about reading. Some worry that children will want to mimic the actions portrayed in a book – for instance, drug use – in their own lives. But more than that, Knox said, challengers believe that children are unable to distance themselves from what they are reading, and that imagining the events in the book is the same as living it.

Knox said the challengers tend to believe that everyone reacts in the same way to reading a particular book, rather than bringing individual viewpoints that would change the way they interpret a book.

“The idea that each person brings their own personal baggage to the text is not something challengers accept,” she said. “They believe children all bring the same thing to the text, because they lack the skills to interpret a text.”

Knox said she took the challengers and their viewpoints seriously. While she didn’t necessarily agree with the challengers she talked with, she saw them as caring parents and community members.

“I felt so much empathy for a lot of the parents, particularly one parent who was worried about the violence in a book,” Knox said. “In some ways, this is just a clash of worldviews.”

She also was struck by the difficulties the challengers described to her in carrying through with a challenge to a book, and how it can tear apart a community.

“More than anything, it’s helped me in my teaching, because I’ve talked with people who are challengers,” Knox said. “I can help my students, when they get professional jobs, be better about responding to people who are challenging a book. I really insist they see them as people, not just people trying to make their lives difficult.”

Knox said she hopes the book will appeal not only to scholars in her field and those interested in contemporary reading practices, but to a general audience, as well.

“Anybody interested in where the culture wars are in contemporary society might be interested in it,” she said.
What led you to the Robert Wood Johnson Foundation?

I was raised in Seattle by parents who both were practicing physicians, and I knew I wanted to be a doctor since I was a girl. After completing my residency in Boston, I came to Penn, where I trained in geriatrics, then earned an MBA from the Wharton School. Wharton wanted to create physician-MBAs capable of managing the policies, politics and economics that shape how America delivers and pays for health care. I also became a Robert Wood Johnson Foundation Clinical Scholar. Although I hadn’t thought much about leadership when I was in my 20s and practicing medicine, I found that in academic medicine there always is an interface with policy questions.

During the time the Clinton administration was trying to reform our health care system, I spent a few years in Washington as deputy administrator of what is now the Agency for Health Care Research and Quality, and I worked on the White House Health Care Reform Task Force, co-chairing the Working Group on Quality of Care. I took from that experience that we didn’t have good answers.

I came to the foundation in 2003. While working in Washington, I realized that organizations like RWJF have a strategic approach to social change and a really important role to play that could be more creative and innovative than what can be done in government. I thought that being in a foundation was more creative and innovative than what can be done in government, and RWJF’s change agenda was of interest to me.

What is your role there? What is the foundation’s societal role?

As the CEO, my role is to focus on refining and developing our vision. The CEO is the main interface between the board of trustees and the staff. I translate the strategy, and I make sure we are working as a unified body. I’m also one of the key spokespeople for the foundation.

RWJF is the largest U.S. foundation devoted to health; over our 43-year history we’ve had the opportunity to help shape key efforts to improve the nation’s health and health care, ranging from the development of the 911 emergency call system, to the improvement of care at the end of life, to bringing down the rate of tobacco use, to making sure that everyone in America has access to affordable, quality health care. Now we have refined our vision and are working to build a culture of health that addresses all of the socioeconomic factors that impact health – both inside and outside the clinic. Our goal is to ensure that everyone – no matter where they live or how much money they have – has the opportunity to make healthy choices and live a healthy life.

You’ve been at RWJF for more than a decade – what is your daily motivation?

The staff is an incredibly diverse group, with an incredible variety of approaches. Also, here we have the ability to see how the work that we do directly affects individual lives. That is extremely motivating. The people and outcomes that we are a part of keeps me excited every day.

What achievement, either at RWJF or outside, are you most proud of?

One key achievement is when we announced in 2007 that we would commit $500 million to reversing the childhood obesity epidemic. We had to be very clear that we had a strategy for going about this really difficult task. As an executive, I was able to get the board aligned; it was risky because there was a big chance we would fail. We had to make sure that all of the components of the foundation were working together toward this goal. And in the last two years, we have seen signs of progress – obesity rates are reversing nationwide for the very youngest children, and some cities and states are reporting progress in older children and teens. The second defining moment came Feb. 5, when we announced that we were doubling down and committing another $500 million over the next 10 years to ensure that all children in America will reach a healthy weight.

What impact has the Affordable Care Act had on the foundation’s work?

The Affordable Care Act has brought dramatic reductions in the nation’s uninsured rate, and millions more in our country now have access to quality health care when they need it. Health care providers are taking on less financial burden in covering costs to treat uninsured patients, insurance markets are more competitive in the benefits and choices they offer consumers, and the ability for insurers to discriminate against the sick has ended.
A new study finds that smokers and the obese ring up substantially higher annual health care costs than their nonsmoking, non-obese peers. The added costs are highest among women, non-Hispanic whites and older adults, the study reports.

“Health care costs associated with obesity and smoking are substantial, about $1,360 and $1,046 per person per year, respectively,” said U. of I. kinesiology and community health professor Ruopeng An, who conducted the analysis. These numbers reflect the added costs of obesity and smoking above the average annual health care expenditures of non-obese and nonsmoking Americans, he said.

The findings appear in the journal Public Health.

Out-of-pocket medical expenses, inpatient and outpatient care, emergency room visits and prescription drugs all contribute to the added health care expenditures, with inpatient prescriptions contributing the most, An said.

“The added costs were not only large but also increased substantially over the last decade,” he said. Health care costs associated with obesity increased by a quarter and those linked to smoking rose by nearly a third from 1998 to 2011, he said.

“The increase is mainly driven by the increase in expenses on prescription drugs,” An said. “Pharmaceutical expenses associated with obesity and smoking were 62 percent and 70 percent higher (respectively) in 2011 than in 1998.”

To get these numbers, An analyzed individual data from 125,955 participants in the 1996-2010 National Health Interview Surveys (NHIS) who also participated in the 1998-2011 Medical Expenditure Panel Surveys (MEPS). The NHIS is the nation’s largest annual cross-sectional in-person household health survey, An said.

“Data on individual characteristics … in the NHIS 1996-2010 waves were linked to their corresponding annual health care expenditures (reported in) the MEPS 1998-2011 waves by personal identifier and survey year,” An wrote.

For obesity, the added medical expenses were highest among those with the highest body mass index, An reported. And, as expected, older adults with longer smoking histories had “substantially higher medical costs (than) their younger counterparts,” he wrote.

The new study analyzed only health care-associated expenses, not costs to employers and to society that result from absenteeism or reductions in productivity.

“Cost estimates of this study only pertain to short-term health consequences of obesity and smoking,” An wrote.

“Annual per-capita expenses associated with obesity are found to exceed those associated with smoking in nearly all forms of care except for emergency-room services,” he wrote. “However, unlike smoking, which substantially increases the likelihood of premature death (for example, mortality from lung cancer), obesity and associated Type 2 diabetes primarily lead to long-term disability, so that from a lifetime perspective, obesity could tax the health care system even more than smoking.”

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**Deaths**

John O. Corliss, 92, died Dec. 21 in Bala Cynwyd, Pennsylvania. He was a professor of zoology on the Urbana campus from 1954-64, then he was a professor and the head of biological sciences at UIC through 1970.

Donald R. Hodgman, 93, died Feb. 15. He was a professor of economics for 29 years, retiring in 1987 as professor emeritus.

Julius T. Hufmeyer, 66, died Feb. 8 at Northwestern Hospital, Chicago. Hufmeyer was a foreman with the Facilities and Services’ Carpenter Shop. He had worked at the U. of I. since 2004. Memorials: American Lutheran Church, 500 Church Drive, Rantoul, IL 61866, or Easter Seals, www.easterseals.com.
Coordinated University of Illinois

The Community College of the University of Illinois.

The University of Illinois at Urbana-Champaign is a public research university located in Champaign-Urbana, Illinois, United States. It is one of the three universities in the University of Illinois System and is the state's flagship public university. The campus is situated near the Illinois capital city of Springfield and is also part of the larger Champaign-Urbana metropolitan area.

The University of Illinois at Urbana-Champaign is known for its strong programs in science, engineering, and mathematics. The university has a diverse student body and is committed to providing opportunities for students from all backgrounds.

The campus offers a wide range of undergraduate and graduate degree programs, including degrees in engineering, sciences, arts, humanities, and social sciences. The university is also home to several research centers and institutes that conduct cutting-edge research in various fields.

The University of Illinois at Urbana-Champaign is a highly respected institution and is consistently ranked among the top universities in the United States and around the world. The university's commitment to excellence in teaching, research, and service makes it a premier institution for students and faculty alike.

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Gray, who plays double bass, performs on the recording with legendary jazz drummer Jack DeJohnette, along with Muhal Richard Abrams, Roscoe Mitchell and Henry Threadgill, all major figures in jazz and improvised music. The live recording was made in Millennium Park at the Chicago Jazz Festival in August 2013. Cristhis Tatsaros, a professor of piano pedagogy at the U. of I. School of Music, has been named the 2014 Distinguished Composer of the Year by the Music Teachers National Association. Tatsaros won the honor with his composition “Three Preludes for Piano Solo (A Mytical Triptych),” which was commissioned by the Wisconsin Music Teachers Association, and it was one of 27 entered in the blind competition. Tatsaros will perform the piece at the Music Teachers National Association Conference in March, and the composition will be placed in the MTNA Commissioned Works Library. The work has also been published by the Hal Leonard Corp., the largest music publisher in the U.S. Tatsaros plans to compose another nine preludes, inspired by his home country of Cyprus, to accompany the three that are part of his winning composition.

The Music Teachers National Association is a national organization of music teachers, with more than 20,000 members and more than 500 local affiliates.

The Illinois Public Housing Authority Efficiency Living Program at the U. of I. School of Architecture has been awarded the Midwest Energy Efficiency Alliance’s 2015 Inspiring Efficiency Impact Award. The program is dedicated to helping public housing authorities throughout the state achieve electric and natural gas savings in their properties. Since most public housing authority buildings were constructed more than 30 years ago, this program helps retrofit and update these buildings to increase energy performance and indoor comfort.

The initiative is sponsored by the Illinois Department of Commerce and Economic Opportunity’s Energy Now program. Bestowed annually at the Midwest Energy Solutions Conference, the award is presented to an organization that has made a significant contribution to market transformation, either through the implementation of a specific program or through a policy change. Formed in 2000, the Midwest Energy Efficiency Alliance is committed to advancing sound energy efficiency programs, policies and priorities in the Midwest.

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book corner

Movement to boycott Israeli scholars, universities examined

By Sharita Forrest
Education Editor

Leading scholars and public intellectuals reflect on the social and political forces in contemporary culture that advocate severing ties with Israeli universities in a new volume of essays titled “The Case Against Academic Boycott of Israel.”

In the wide-ranging collection, writers from Britain, Israel and the U.S. provide diverse perspectives on the Boycott, Divestment and Sanctions movement, which seeks to pressure Israel to create a state with a Palestinian majority. The book examines the movement’s repercussions on discourse and political life in academia.

English professors Cary Nelson, of the U. of I., and Gabriel Noah Brahm, of Northern Michigan University, co-edited the book of 30 critical essays, which include explorations of the origins of the BDS movement and prominent academic initiatives and organizations’ responses to it. Authors also discuss the history of Israel, the experiences of a faculty member teaching there, and concepts such as academic freedom and anti-Semitism.

Additionally, the volume provides a listing of online resources and Web-based communities with differing perspectives. According to Nelson, who contributed two chapters, co-wrote a third and wrote the introduction, the book is intended as a resource for people seeking informed analysis and historical and political context on the movement.

“There is no one place to go to find the most relevant information that should inform contemporary discussion,” said Nelson, who is an emeritus faculty member and the Jubilee Professor of Liberal Arts and Sciences at Illinois. “We offer this book to bring reason, history and sound information to campuses confronting the BDS agenda.”

Nelson is a past president of the American Association of University Professors and a current co-chair of The Academic Advisory Council of the Third Narrative, a group of scholars promoting peaceful solutions to the Israeli-Palestinian conflict.

The book was published by MLA Members for Scholars’ Rights, a voluntary organization supporting academic freedom, and is distributed by Wayne State University Press.

Grant had been doing kitchen gardening and small-scale urban farming for several years when he came to Illinois to start the master’s program in natural resources.

In 2008, when Grant was turning in his master’s thesis, the interim department head asked if he’d be interested in managing the Sustainable Student Farm.

The experience of building the farm from the ground up — which included marketing, recruiting and overseeing a small army of 200 to 300 volunteers during the academic year, installing irrigation and high tunnel systems, and collaborating on research and outreach with Extension educators — was good preparation for his new position, Grant said.

Over its first six years, the Sustainable Student Farm flourished, expanding from its original 2-acre plot to its current 6 acres. An additional 10,000 square feet of high tunnels extend the growing season to about 10 months a year.

The majority of the farm’s produce is sold to University Housing’s Dining Services for consumption in campus residence halls, and the remainder is sold directly to consumers through a seasonal farm stand, which operates from May to November on the Quad, south of the Illini Union.

Matt Turino, who was assistant manager of the Sustainable Student Farm, is serving as the farm’s interim manager.

COMMENCEMENT, CONTINUED FROM PAGE 8

Despite this progress, there are still more than 40 million people without health coverage in America. My colleagues and I know that there is a great deal more work to be done, and we remain committed to finding solutions that get us closer to the day when everyone in our country has access to quality, affordable care.

There’s no question that the law has been a transformative development for America. However, it will be several years before we can fully understand its impact on the health care system and our nation’s health overall. In addition to our ongoing investments in expanding access to care, we’re also monitoring the dramatic changes that the health care system is undergoing as a result of the law.

What message will you bring in your commencement address?

The title of my speech will be “It’s Your Turn — Building a Culture of Health in America.”

PAGE 12