Ohio State faculty elected to American Academy of Arts and Sciences

Some of the world’s most accomplished leaders from academia, business, public affairs, the humanities, and the arts have been elected members of the American Academy of Arts and Sciences (AAAS). Among those elected this year from Ohio State are Ellen Mosley-Thompson, director, Byrd Polar Research Center and Distinguished University Professor of Geography; Clara Bloomfield, Distinguished University Professor, William G. Pace III Professor of Cancer Research, and cancer scholar and senior advisor, OSU Comprehensive Cancer Center; and Peter W. Culicover, Humanities Distinguished Professor in Linguistics. Founded in 1780, the American Academy of Arts and Sciences is an independent policy research center that conducts multidisciplinary studies of complex and emerging problems and honors intellectual achievement, leadership, and creativity in all fields. The Academy has elected as fellows and foreign honorary members the most influential leaders of each generation, including George Washington and Benjamin Franklin (18th century), Daniel Webster and Ralph Waldo Emerson (19th century), and Albert Einstein and Winston Churchill (20th century). A complete list of this year’s newly elected members is available at http://www.amacad.org/news/alphalist2011.pdf.

Ohio company’s molecularly-engineered boat completes sea trials

The Center for Multifunctional Polymer Nanomaterials and Devices (CMPND), an Ohio Wright Center for Innovation housed at Ohio State, has been instrumental in moving Ohio to the forefront of nanotechnology research and commercialization opportunities. CMPND targets markets that build on the research strengths of its participating universities and national labs and develops manufacturing protocols and nanostructures for near-term industrial polymeric nanocomposites, emerging polymer photonic components and devices, and more futuristic biomedical devices and systems with nanoscale functions. One of CMPND’s active industry partners is Columbus-based Zyvex Technologies, the leader in unlocking the power of the carbon nanotube (CNT), the strongest material in the world. Working with CMPND, Zyvex was able to identify Ohio vendors and local supply chain partners to build the “Piranha,” the largest unmanned surface vessel (USV) manufactured entirely from molecularly-engineered materials. Measuring 54-feet and weighing nearly 8,400 pounds, the Piranha was constructed in two pieces (hull and deck) designed to “pop” together, making transportation more feasible and greatly reducing the labor required for assembly. In April 2011, the Piranha completed a successful sea trial near Puget Sound in the Pacific Ocean, sailing approximately 600 nautical miles in rough weather seas. While a conventional boat made of aluminum or fiberglass would have consumed at least 50 gallons of fuel per hour at cruise speed, the Piranha demonstrated record level fuel efficiencies by consuming only 12 gallons per hour at 25 knots. Defense contractors are now evaluating the Piranha for use as an unmanned platform with a variety of mission applications, including anti-piracy, harbor patrol, and oceanographic surveying.

Research team wins OARDC’s Innovator of the Year award

A team of researchers at Ohio State received the Ohio Agricultural Research and Development Center’s (OARDC) 2011 Director’s Innovator of the Year Award, an award that honors innovation and entrepreneurship among OARDC scientists. Parwinder Grewal, professor of entomology and director of OARDC’s Center for Urban Environment and Economic Development; Warren Dick, professor in the School of Environment and Natural Resources (SENR); Edward McCoy, associate professor in SENR; and Hanbae Yang, a former OARDC graduate research associate, developed and patented a biphasic bioretention system. The system is an advanced type of rain garden that manages the volume and quality of stormwater, which tends to cost cities billions of dollars each year to manage. Under simulated runoff conditions, the biphasic rain garden reduced peak flow by 75 percent and runoff volume by 60 percent, and removed large amounts of pollutants from the water. Because the system can be used in a variety of settings including home landscapes, city streets, parking lots, and urban and animal farms, the system has significant commercialization potential. According to Steve Slack, OARDC director, potential revenue from the system could range from $57 million to as much as $770 million a year. Several of the new systems are already in place along Wooster’s recently renovated Secrest Road, which borders the OARDC campus.
Kimball awarded Guggenheim Fellowship

Bruce Kimball, professor in the School of Educational Policy and Leadership, has been awarded a Guggenheim Fellowship for 2011-12. He is one of 180 fellows named this year by the John Simon Guggenheim Memorial Foundation from a pool of nearly 3,000 applicants representing a diverse group of scholars, artists, and scientists. The complete list of winners is available at http://www.gf.org/news-events/2011-Fellows-United-States-and-Canada/. Guggenheim Fellowships are awarded to men and women who have demonstrated exceptional capacity for productive scholarship or exceptional creative ability in the arts. Kimball’s research project is entitled "The Inception of 'Free Money' Ideology, Fundraising, and Endowments in Higher Education, 1870-1930." He will examine the emergence of fundraising, endowments, and the interest in accumulating financial capital among colleges and universities in the United States. To date, 35 alumni and faculty members from Ohio State have been recognized as Guggenheim Fellows. Kimball is the only fellow from Ohio State named this year.

Ohio State Extension targets childhood obesity

Ohio State University Extension’s Family and Consumer Sciences program is part of a $4.5 million grant targeted at reducing the prevalence of childhood obesity across the nation. The “Childhood Obesity Prevention Grant” is one of 24 research, education, and extension grants funded by the U.S. Department of Agriculture’s National Institute on Food and Agriculture. Led by the University of Kansas, with participation from researchers in Ohio, Indiana, Michigan, North Dakota, South Dakota, and Wisconsin, the project will mobilize communities to create and sustain an environment and culture of healthy eating and physical activity to prevent obesity in low-income children in rural communities. Each state will select two rural communities to participate in the project. One community will receive coaching to facilitate implementation of healthy interventions while the other will serve as a control group and receive no additional assistance. The researchers hope to show that coaching leads to adoption of healthy eating habits that will last a lifetime. Karen Bruns, assistant director of OSU Extension's Family and Consumer Sciences program, will serve as the principal investigator for Ohio.

Sparking an interest in STEM careers

“It’s about Discovery,” a partnership between The Ohio State University at Lima, the University of North Carolina at Greensboro, and Fayetteville State University, is encouraging students from underserved rural high schools in Ohio and North Carolina to pursue science, technology, engineering, and mathematics (STEM) studies in high school and beyond. The three-year grant, directed by Dean Cristol, associate professor of teaching and learning at Ohio State Lima, incorporates the Ford Partnership for Advanced Studies (PAS) curriculum, Working towards Sustainability, as the project’s foundation. Technology is integrated into the curriculum enabling students to create inquiry-based projects that cross state lines. For example, students at one Lima high school are building water wheels, wind turbines, and solar cells to learn about sustainable energy and the effectiveness of renewable energy sources. At the same time, students in North Carolina are conducting similar experiments. The two schools will then connect via videoconference to discuss and compare their results. This project will also provide teachers with professional development opportunities and enlist community partners to serve as mentors, host field trips, and engage in on-line conversations with students. This project is funded by the National Science Foundation under the Innovative Technology Experiences for Students and Teachers program.

Strawberries may slow precancerous growth in the esophagus

Researchers at The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute are participating in the first collaborative cancer clinical trial to be conducted in China. Esophageal cancer, which is the third most common gastrointestinal cancer and the sixth most frequent cause of cancer death in the world, is very common in China. Coupled with the fact that China has the largest population in the world, the availability of potential participants for the clinical trial is higher than in any other country. The researchers believe that strawberries may be an alternative, or may work together with other chemopreventive drugs, to protect people at risk for esophageal cancer. Strawberries are safe and easy to consume and preliminary data have shown that six months of treatment with freeze-dried strawberries decreases the histological grade of precancerous lesions and reduces cancer-related molecular events. To be sure, the researchers must complete their randomized placebo-controlled trial. The researchers hope that this trial will open the door for many more clinical trials in China. Tong Chen, assistant professor in the Division of Medical Oncology, Department of Internal Medicine, is the lead author on this study which is supported by the California Strawberry Commission.

Ohio State undergraduate research shines at national conference

Thirty-four Ohio State undergraduate students (29 from the College of Arts and Sciences) attended the National Conference on Undergraduate Research (NCUR) held at Ithaca College in upstate New York last month. NCUR is dedicated to promoting undergraduate research, scholarship, and creativity in all fields of study. The conference, which was organized like a professional meeting, provided the students with an opportunity to develop their presentation skills, meet peers and faculty from around the country working in similar research fields, learn about how research and scholarship is conducted in fields that are different from their own, and learn about graduate school and employment opportunities. Their research will be published in the Conference Proceedings and distributed across the nation.