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Source: BioScience, 60(5) : 394-397

Published By: American Institute of Biological Sciences

URL: https://doi.org/10.1525/bio.2010.60.5.13

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AIBS*news*

MAY 2010/VOLUME 60 NUMBER 5

BioScience Welcomes Three New Editorial Board Members

AIBS is pleased to announce the addition of three members to the *BioScience* Editorial Board. Editorial Board members advise the editor in chief about all aspects of manuscript selection and editing. These new members will strengthen *BioScience*'s presence in important areas of biology.

The new Editorial Board members are Rita R. Colwell (a past-president of AIBS), David L. Evans, and David M. Leslie Jr. All have expertise in editorial work and have made distinguished contributions to biology. They will provide input and guidance for *BioScience* particularly in the areas of environmental microbiology, human biology, and mammalogy. AIBS is grateful for their willingness to serve.

Blast Physics and Brain Injury Peer Review: Better Helmet Design

Traumatic brain injury (TBI), perhaps the defining injury of the US wars in Iraq and Afghanistan, was diagnosed in 43,779 patients by the Military Health System between 2003 and 2007. TBI can cause a stunning range of immediate and delayed functional brain changes that affect memory, language, learning, emotion, and behavior. These sometimes-unidentified injuries can cause phantom sensation and epilepsy, and seem to increase the risk for Alzheimer's disease, Parkinson's disease, and other age-associated brain disorders.

Although TBI is devastating to individuals, families, and society, the biomechanical mechanisms behind what happens when a blast wave meets a human head are incompletely understood.

In 2007, AIBS SPARS (Scientific and Peer Advisory and Review Services) recruited neurophysiologists and blast experts to review research that sought to describe how the blast-wave energy is transferred to the human head at different blast strengths and head angles.

That research explained mathematically that shock waves can be focused in the orbital cavities—the eye sockets—and that the strength of the blast can be amplified by 10 times or more, "like the headlights of a car, a parabolic mirror," according to the principle investigator.

The resultant model showed that the blast hits the inner part of a soldier's helmet, travels through the space between the head and helmet, and then washes up and over the skull to hit the back of the soldier's head. Using information culled from this research, engineers may change the shape of military helmets to mitigate the effects of the wave. What's more, associated research used the original data to continue to describe the physiology of blast-induced brain injury—not just what happens in the instant of the blast impact but also what occurs in the brain for minutes, even hours, after the blast. This is knowledge that will guide immediate treatment and subsequent therapy.

AIBS Names Emerging Public Policy Leaders

AIBS has selected Meredith Niles, a graduate student at the University of California, Davis; Ryan Richards, a graduate student at the University of Maryland, College Park; and Leslie Smith, a graduate student at the University of Rhode Island, to receive the 2010 AIBS Emerging Public Policy Leadership Award.

"AIBS is committed to fostering a productive dialogue between policymakers and scientists," said Richard O'Grady, executive director of AIBS. "We applaud Meredith Niles, Ryan Richards, and Leslie Smith for exemplifying this commitment through their work."

Since 2003, AIBS has recognized the achievements of biology graduate students who have demonstrated an interest in and aptitude for contributing to science and public policy. AIBS brought Niles, Richards, and Smith to Washington, DC, in April to meet with their congressional representatives and to attend a briefing on the federal budget for scientific research. These events were in conjunction with the annual Biological and Ecological Sciences Coalition Congressional Visits Day. Niles, Richards, and Smith also received also a certificate and one-year membership in AIBS, which includes a subscription to the journal *BioScience*.

"By participating in the 2010 Congressional visits event, Meredith, Ryan, and Leslie are playing an important role in bridging the com-

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Recent Executive Director's Blog Entries Online at *http://blogs.aibs.org/richardogrady*

Recent Article Online at *www.actionbioscience.org*

Recent Public Policy Reports Online at *www.aibs.org/public-policy-reports*

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munication gap between our nation's policymakers and the scientific community," said AIBS Director of Public Policy Robert Gropp.

"Engendering collaborations between scientists and policymakers is vital for the continuation and success of both disciplines," Niles said. "I hope to be a part of the future generation making such efforts possible."

Niles is a former Fulbright scholar who is pursuing a PhD in ecology at the University of California, Davis. Her thesis research on sustainable agriculture practices has implications for climate change mitigation and adaptation. She is a trainee of the National Science Foundationís Integrative Graduate Education and Research Traineeship (NSF IGERT) program. Her work has included directing a national campaign to increase public awareness of the effects of climate on food production. Niles is a former employee of the US Department of State, where she worked on policy and public affairs relating to the international fight against AIDS. She earned a bachelor's degree in politics from Catholic University of America.

Richards, who is pursuing dual master's degrees in conservation biology and environmenta policy at the University of Maryland, said "Congressional Visits Day will provide a valuable opportunity to interact with elected leaders and relate the importance of science and federal funding for research."

Richards's research has taken him to Namibia to study the impacts of bush encroachment on rangeland. As part of his graduate work, he is developing guidance for the Namibian government to address invasive species. Richards has worked on wildlife conservation policy at a number of scientific and conservation-focused organizations, including the Society for Conservation Biology and the Association of Zoos and Aquariums. Richards earned a bachelor's degree in wildlife, fish, and conservation biology from the University of California, Davis.

Smith is a PhD candidate in biological oceanography at the University of Rhode Island. While interning for Rhode Island Senator Sheldon Whitehouse, she wrote a report on the effects of climate change on coastal ecosystems in Rhode Island. She later presented this information to government agencies, nonprofit organizations, and local schools. For her graduate research, Smith is studying the environmental impacts of pollution on coastal waters. The models she is developing could be used by state managers to better anticipate and prevent episodic events of poor water quality. Smith has also participated in the NSF IGERT program. Her undergraduate degree in biology is from Davidson College in North Carolina.

"This experience will give me the opportunity to communicate first hand with federal decisionmakers, not just on the facts of the present state of science, but the necessity of scientific research itself," Smith said.

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Recent Executive Director's Blog Entries Online at *http://blogs.aibs.org/richardogrady*

- AIBS replacing annual meeting format with smaller, topical conferences

Recent Article Online at *www.actionbioscience.org*

Original article in English

- "Mountain Pine Beetle Devastates Forests," by Jesse A. Logan, of Utah State University. In this article, Logan describes how the warming climate has allowed a massive outbreak of mountain pine beetles in the greater Yellowstone ecosystem with important ecological consequences. Read the article at *www.actionbioscience.org/environment/logan.html.*

Recent "Technology: An Educational Issue?" blog posts

This blog, about issues in educational technology, discusses ways to learn and teach the biological sciences using technology at *http://teachissues.blogspot.com/*.

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- Learning by Avatar
- Zine the Science
- Virtual Labs

Recent Public Policy Reports Online at *www.aibs.org/public-policy-reports*

Public Policy Report for 15 March 2010

- **Support the National Science Foundation: Write your representative today.** Congress is now considering appropriations for the federal agencies for fiscal year 2011. It is vital that members of Congress understand why federal investments in the National Science Foundation are important to the nation and their district.

- **Comments sought on strategic plan to digitize biological collections.** A strategic plan is being developed for a 10-year national effort to digitize and mobilize images and data associated with biological research collections. The plan aims to create a publicly available, comprehensive collections resource that will increase access to biological collections across the country. The plan was drafted by workshop participants at the National Evolutionary Synthesis Center in February 2010.

- **House passes bill to study harmful algal blooms.** On 12 March, the House of Representatives passed legislation that would expand research on harmful algal blooms and hypoxia in US coastal and fresh waters. The Harmful Algal Blooms and Hypoxia Research and Control Amendments Act of 2009 (HR 3650), sponsored by Representative Brian Baird (D–WA), was passed by voice vote after falling two votes shy of passage under expedited consideration earlier in the week. If enacted, the bill will double authorizations for harmful algal blooms and hypoxia research programs at NOAA (National Oceanic and Atmospheric Administration) and the Environmental Protection Agency, to up to $41 million a year.

- **NSF BIO program launches online tool to enable science partnerships.** The National Science Foundation (NSF) Division of Integrative Organismal Systems has launched a Wiki to facilitate partnerships between researchers and end users of science. "NSF intends to use a Wiki, a social networking vehicle, to facilitate and increase the number of collaborations between end users and investigators who develop tools and resources, and to promote downstream dissemination and development of outcomes," according to Joann Roskoski, acting assistant director of the Biological Sciences Directorate.

- **NRC report calls for exploration of connections between climate and human evolution.** A new report by the National Research Council, *Understanding Climate's Influence on Human Evolution*, considers the research needed to answer fundamental questions about impacts of Earth's climate on human origins. "Significant progress into the question of whether past climate changes influenced human evolution will require a coordinated, focused, and cross-disciplinary research program designed specifically to address this problem," the report states.

- **Back to school: Education policy discussions start.** The Obama administration has released its plans for reauthorization of the Elementary and Secondary Education Act (more recently referred to as No Child Left Behind). According to Department of Education documents, the administration's plan will "help states raise expectations of students and reward schools for producing dramatic gains in student achievement. The blueprint provides incentives for states to adopt academic standards that prepare students to succeed in college and the workplace and create accountability systems that measure student growth toward meeting the goal that all children graduate and succeed in college."

Public Policy Report for 1 March 2010

- **Universities need funds for research infrastructure.** A growing backlog of renovation projects at US universities could be hampering American innovation and international competitiveness, according to witnesses at a recent hearing of the House Committee on Science and Technology Subcommittee on Research and Science Education. On 23 February, Subcommittee Chairman Daniel Lipinski (D–IL) addressed the need for federal support for renovation and maintenance of academic research facilities.

- **National Science Board urges action to maintain international science lead.** Action must be taken to maintain the nation's global leadership in science and engineering, according to a new report by the National Science Board (NSB), the advisory body for the National Science Foundation. *Globalization of Science and Engineering Research,* the companion to the January 2010 *Science and Engineering Indicators* report, outlines several recommendations from the NSB in light of growing international competition in science.

- **Majority of Texans don't believe in evolution.** Nearly one third of Texans believe that humans and

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dinosaurs lived at the same time, and more than half disagree with the theory of evolution, according to a new poll conducted by the University of Texas and the *Texas Tribune*.

- **The NIH to redefine "stem cell."** The National Institutes of Health (NIH) have proposed a change in how they define "stem cell" in their guidelines for human stem cell research. The new, broader definition would allow several additional types of human stem cells (hESCs) to qualify for federal research funding. According to the NIH, the definition included in their July 2009 guidelines "had the unintended consequence of excluding certain hESCs which may otherwise be appropriate for federal funding. For example, the current definition excludes hESCs from an embryo which fails to develop to the blastocyst stage."

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