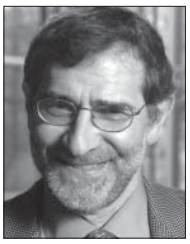
Biophysical Society

NEWSLETTER

March 2009

Henry Lester Becomes BPS President



On March 3, 2009, *Henry Lester* of the California Institute of Technology became the Society's 51st President. Outgoing President *Harel Weinstein* of Weill Medical College of Cornell University passed the gavel to Lester at the Annual Business meeting, which was held in Boston. For a profile of the new President, see page 2.

Online Job Board

Take advantage of the influx of position and candidate listings that were posted during the Society's Annual Meeting, which will remain online for 30 days. To acesss the Job Board visit www.biophysics.org. From the main page click 'Career Center' and then 'Job Board'.

Summer Course in Biophysics

The application for the Summer Course in Biophysics is now online at http://www.biophysics.org/tabid/88/Default.aspx.

The 11-week course, which will be held at the University of North Carolina, Chapel Hill, May 19–August 9, is open to all minority undergraduate students. Application deadline is March 23.

2010 Awards Nominations

All nominations for the 2010 Society awards are due on April 1, 2009. For a description of the awards and what is needed to make nominations, visit www.biophysics.org.

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Biophysicist in Profile

Henry Lester

Henry Lester, the Biophysical Society's newly-inducted President, has always been fascinated by gadgets and how they work. So when, at a high school science fair, he heard research scientists say that the brain was the most complex gadget of all, his imagination was captured. He needed to know, at the most basic level, how the brain works.

That lifelong enthrallment with gadgets leads Lester to correlate the progress of his career with the size of computer he used for research. As a Harvard undergrad studying chemistry and physics (a neurobiology major did not yet exist), he worked at a particle accelerator, programming in FORTRAN on a computer that filled an entire building. Graduate studies in biophysics found him in the lab of *H. K. Hartline*, *Floyd Ratliff* and *Frederick A. Dodge* at the Rockefeller University. Hartline, who had just won the Nobel Prize for his pioneering discovery that eyes use a code consisting of nerve impulse frequencies, employed the first online computer for electrophysiology— a computer which, Lester says, "merely filled a room."

After doing his postdoc work at the Institut Pasteur in Paris, Lester started his own lab at the California Institute of Technology, where he remains as the Bren Professor of Biology. When his lab opened in 1973, he notes, "electrophysiology was still the only quantitative way to approach neuroscience, but progress allowed me to install a 'minicomputer' in a single cabinet." In 1981, he and colleague *Jerry Pine* received Pasadena's first IBM Personal Computers, which, he says, "we happily integrated into our electrophysiology rigs." As PCs continue to shrink, Lester jests that he looks forward to someday running experiments with his cell phone.

Best known, perhaps, for his landmark work on various ion channels and receptors—including identification of a specific nicotine receptor protein, called an alpha4 subunit, as key to addiction – Lester's career is marked by originality and productivity. In addition to an array of research interests, Lester also writes journal reviews, serves on four editorial boards, reviews grant proposals for the NIH, holds eight US patents, has published more than 240 scientific papers, recently served as Chair of Caltech's Faculty Senate, and taught required freshman biology to Caltech non-biologists.

Despite the breadth of his interests, Lester does not appear to lose his focus or leave a work unfinished. His first NIH grant is now in its 33rd year, and the California Tobacco-Related Disease Research Program has funded Lester's research for all but two of the past 18 years. Lester and his colleagues look forward to better drugs becoming available for smoking cessation, as well as safe ways to exploit the "broad therapeutic hint" from the inverse correlation

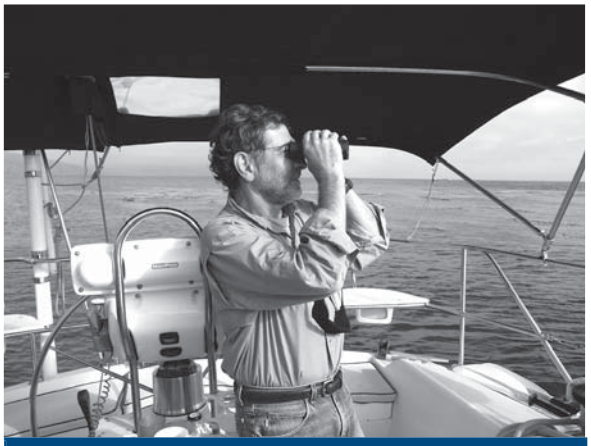
between tobacco use and Parkinson's disease. "If present hypotheses pan out," Lester says, "we may soon understand the molecular, subcellular, cellular, and circuit-level changes that occur in response to chronic exposure to nicotine." One such hypothesis: chronic nicotine becomes a "pharmacological chaperone" for its own receptors, "a topic important to study with biophysical rigor."

Dennis Dougherty, Hoag Professor of Chemistry at Caltech, knows Lester as "an enthusiastic and generous collaborator," noting that Lester's wide range of interests and talents enable him to interact with many different kinds of scientists. "He brings first-rate scientific standards, creativity, and an ability to see how different viewpoints can make the whole greater than the sum of the parts." That perspective engendered his receiving a 2008 McKnight Technological Innovations in Neuroscience Award. The grant supports unique approaches to understanding the brain and the development of technologies that will be made available to other neuroscientists.

Princess Imoukhuede, a graduate student in Lester's lab from 2003 to 2008, was inspired by his ability to make the theoretical real and to ask the right questions to get to the heart of any experiment. She watched with fascination the first time she saw Lester and a postdoc take apart a physiology rig, examining PMTs, lenses, and any component of interest—asking as he worked if she understood why he checked components. "I found it exciting to participate in science that required me to understand fundamentally each system, each instrument, and each process I was studying or using," says Imoukheude, who carries the approach with her as a postdoctoral fellow at the Johns Hopkins University School of Medicine.

Alan Finkel, now Chancellor of Australia's largest university (Monash), began working with Lester 25 years ago. As founder and CEO of Axon Instruments Inc., Finkel tapped Lester's vast scientific technology skills to help grow Axon into the world's leading supplier of electrophysiology equipment and software. Finkel remarks that on consultant visits, "Henry consistently allowed extra time to spend with the engineers discussing their projects and, most importantly, giving them context to help make their design projects more relevant and hence more exciting." Finkel recruited Lester to join his company's Board of Directors as their only external director, because "Henry's advice was always sage and fearless."

Busy as he is, Henry Lester also enjoys physical and social activities, often with his family. When his son, Ben, was "a taciturn teenager," Lester found SCUBA diving to be the perfect bonding activity. "Underwater, you don't have to try to talk to each other; you just flash each other the occasional OK sign." Now he tries to work out frequently with his wife, Margaret, who is a nurse practitioner in pulmonary disease. When Lester isn't traveling for science conferences or visiting one of his children—Ben, a science journalist, or Beth, a market research director—he often bikes to and from work.



Henry Lester boating.

Assuming leadership of the Biophysical Society at "the worst funding environment in 40 years," he urges pressing for President Obama's pledge to "restore science to its rightful place" to include expanded support for basic biomedical research. "*Roger Tsien's* Nobel Prize and *Steve Chu's* appointment as Energy Secretary," he continues, "bathe all us biophysicists in a bit of reflected glory. Importantly, their success also creates opportunities; we need to use our enhanced stature to work on research, education, advocacy and outreach." He also wants to ensure that foreign members of the Society see themselves as valued and important. "Gadgets are fun," he says, "but empowering people to produce better science is the best goal of all."

How the Society Works

"Open Access" to the Biophysical Journal

The *Biophysical Journal (BJ)* publishes semi-monthly, original articles, letters and reviews on biophysical topics, emphasizing the molecular and cellular aspects of biology. These articles can only be viewed by current members of the Society and subscribing institutions for the first twelve months.

As a service to its authors, *BJ* provides the NIH with all final, published papers at the time of publication, which are then released to the public on PubMedCentral (PMC) after 12 months. This policy meets with all NIH-funded research requirements.

There is, however, an option to make one's accepted work freely accessible upon publication. This option is called "Open Access" by the Biophysical Society. BJ authors who pay $1000 in addition to the page charges have their manuscripts marked "Open Access" on the BJ website as well as on PMC. Anyone, regardless of whether they are a member or have a subscription, can read an "open access" article in its entirety immediately upon publication.

This option allows authors whose work is funded by organizations such as Howard Hughes Medical Institute (HHMI) and Wellcome Trust to meet their embargo policies, which differ from those of the NIH.

Authors can select the "Open Access" option during the submission process.

For questions about "open access," contact the Biophysical Journal Editorial Office at 301-634-7255 or bj@biophysics.org.

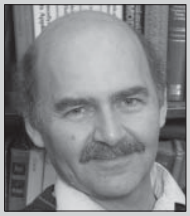
Grants & Opportunities

Name of the Program: Scientific Education (SE)
Description: Grants for travel expenses of foreign speakers
Eligibility: Organizers of conferences in the USA and Canada
Deadline: March 9–April 17, 2009
Website: http://portal.acs.org/ Select "funding & awards"

Name of the Program: New Directions (ND)
Description: Grants for new directions in research
Eligibility: Faculty from PhD–granting colleges and universities
Deadline: March 2–27, 2009 (subject to change)
Website: http://portal.acs.org/ Select "funding & awards"

Members in the News

Wayne Hubbell of the University of California, Los Angeles, School of Medicine and Society member since 1979 received the 2009 Christian B. Anfinsen Award sponsored by the Aviv Family Foundation and given by the Protein Society.



Abraham M. Lenhoff of the University of Delaware and Society member since 1996 received the American Chemical Society Award in Separations Science and Technology awarded by the Protein Society.

Sujit S. Datta (not pictured) of the University of Pennsylvania and Society member since 2008 received the 2008 LeRoy Apker Award, given by American Physical Society.

Fourteen Biophysical Society Members Elected Fellow of the AAAS

In the Section on Biological Science:
Kenneth A. Jacobson of the University of North Carolina and Society member since 1979; *Jennifer Lippincott-Schwartz* of the National Institutes of Health and Society member since 2000; *Eugene A. Nothnagel* of the University of California, Riverside, and Society member since 1979; *Gabor Szabo* of the University of Virginia and Society member since 1980; and *Susan S. Taylor* of the University of California, San Diego, and Society member since 2000.

In the Section on Chemistry:
Bridgette A. Barry of Georgia Institute of Technology and Society member since 1988; *Robert G. Bryan*t of the University of Virginia and Society member since 1979; *Graham R. Fleming* of the University of California, Berkeley, and Society member since 1996; *Jianpeng Ma* of Baylor College of Medicine and Society member since 2001; *Eric Oldfield* of the University of Illinois and Society member since 2009; B. Montgomery Pettitt of the University of Houston and Society member since 1991; *Charles R. Sanders* of Vanderbilt University and Society member since 1992; *Michael Widom* of Carnegie Mellon University, who joined the Society in 2009; and *Huan-Xiang Zhou* of Florida State University and Society member since 1991.

Public Affairs

Stimulus Package Generous to Science

On February 17, President Obama signed into law The American Recovery and Reinvestment Act of 2009 (HR.1). The final bill includes significant investments in science. The chart below outlines the science funding most pertinent to BPS members in the bill.

New Acting Deputy Director at NSF

Cora Marrett has been appointed the Acting Deputy Director for the National Science Foundation. Marrett served as the Assistant Director for Education and Human resources at NSF since February 2007. From 1992-1996, Marrett served as the first Assistant Director for NSF's Directorate for Social, Behavioral and Economic Sciences. In between, Marrett worked at the University of Wisconsin as senior vice president for academic affairs, and at the University of Massachusetts-Amherst as

The American Recovery and Reinvestment Act of 2009 Funding by Agency

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National Institutes of Health	$10.4 billion • $7.4 billion for NIH Institutes and centers for research projects (R01s and similar grants) • $800 million to the Office of the Director "for short term grants that focus on specific scientific challenges, new research that expands the scope of ongoing projects, and research on public and international health priorities" • $1 billion to NCRR for "shared instrumentation and other capital equipment and competitive grants" - billion for competitive grants for construction and renovation of extramural research facilities - $300 million "shared instrumentation and other capital equipment • $500 million for intramural buildings and facilities of NIH $400 million of for Agency for Healthcare Research and Quality allocated funds are to be sent to Secretary of Health and Human Services for comparative research of clinical effectiveness of health care treatments and strategies
National Science Foundation	$3.0 billion • $2.5 billion for Research and related activities - $300 million for Major Research Instrumentation Program - $200 million for academic research facilities modernization - $400 million for Major Research equipment and facilities construction only for approved projects • $100 million education instruction - $60 million for Robert Noyce Teacher Scholarship Program - $25 million for Mathematics And Science Education Partnership Programs $15 million for Professional Science
Department of Energy Office of Science	$2 billion – extramural basic research, DOE laboratory research, facilities upgrades and construction • $400 million for Advanced Research Projects Agency – Energy under the America COMPETES Act $1.6 billion for " Science"

senior vice-chancellor for academic affairs and provost. Marrett holds a PhD in sociology from the University of Wisconsin-Madison. Marrett replaces *Kathy Olsen*.

NIH Director Releases First Biennial Report

In January, *Raynard S. Kington*, acting director of the National Institutes of Health (NIH), announced the publication of the first Biennial Report of the Director, a document that provides an integrated portrait of NIH research activities. The report, which was mandated by the NIH Reform Act of 2006, makes it easier for Congress, advocates and patient groups, and the general public to understand the many programs within the agency.

The report contains an assessment of the state of biomedical and behavioral research organized by disease category, investigative approach, or resource. To ensure that the document reflects the work of all 27 Institutes and Centers (ICs), 15 trans-NIH teams gathered, reviewed, and organized information into a standardized format.

The report is available at http://biennialreport.nih.gov. The Web version of the document contains PDFs and links to NIH programs, plans and publications referenced in the report.

Subroups

Intrinsically Disordered Proteins

Intrinsically Disordered Proteins Gordon Research Conference

A new GRC titled "Intrinsically Disordered Proteins" will begin in 2010 and will be held every two years. The first meeting will be chaired by *Keith Dunker* and *Vladimir Uversky*. It will be held July 11-16, 2010, at Davidson College, located 20 minutes outside Charlotte, North Carolina. More information on this exciting new meeting will be forthcoming at www.grc.org. All those interested in IDPs are strongly encouraged to attend.

Papers of Interest

Linking folding and binding. Wright PE, Dyson HJ. Curr Opin *Struct Biol.* 2009 Jan 19. [Epub ahead of print] PMID: 19157855

Induced secondary structure and polymorphism in an intrinsically disordered structural linker of the CNS: solid-state NMR and FTIR spectroscopy of myelin basic protein bound to actin. Ahmed MA, Bamm VV, Shi L, Steiner-Mosonyi M, Dawson JF, Brown L, Harauz G, Ladizhansky V. *Biophys J.* 2009 Jan;96(1):180-91. PMID: 19134474

Large-scale analysis of thermostable, mammalian proteins provides insights into the intrinsically disordered proteome. Galea CA, High AA, Obenauer JC, Mishra A, Park CG, Punta M, Schlessinger A, Ma J, Rost B, Slaughter CA, Kriwacki RW. J *Proteome Res.* 2009 Jan 2;8(1):211-226. PMID: 19067583

Cold stability of intrinsically disordered proteins. Tantos A, Friedrich P, Tompa P. FEBS Lett. 2008 Dec 31. [Epub ahead of print] PMID: 19121309

Malleable machines in transcription regulation: the mediator complex. Tóth-Petróczy A, Oldfield CJ, Simon I, Takagi Y, Dunker AK, Uversky VN, Fuxreiter M. PLoS *Comput Biol.* 2008 Dec;4(12):e1000243. 2008 Dec 19. PMID: 19096501

—*Trevor Creamer*, Secretary/Treasurer (IDPsubgroup@gmail.com)

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Upcoming Events

August 2–6, 2009
Biomimetics and Bioinspiration
San Diego, CA, United States
http://spie.org//app/program

August 20–22, 2009
2nd WSEAS Int. Conf. on Biomedical Electronics and Biomedical Informatics (BEBI'09)
Moscow, Russia
http://www.wseas.org/index.html#upcoming

August 28–September 2, 2009
13th European Conference on the Spectroscopy of Biological Molecules
Palermo, Italy
http://www.ecsbm.eu/

September 3–6, 2009
31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)
Minneapolis, MI, United States
http://www.embc09.org/

Please visit http://www.biophysics.org/ for a complete list of upcoming events.