

Now, more than ever, the challenges of today's world

require greater facility with, and comfort in, the worlds of science, technology, and engineering. The time is right to do everything possible to improve students' academic achievement in these areas. New forms of engaged learning promise to improve student achievement in the sciences and attract more students to major in these essential fields.

At the opening plenary for the 2005 AAC&U Annual Meeting, Lee S. Shulman, President of The Carnegie Foundation for the Advancement of Teaching, spoke on the need for classroom engagement, observing that student "invisibility breeds disinterest, [which] leads to zoning out." And, of course, encouraging active learning is just one step toward true engagement. For the proverbial light bulb to come on, most students must find some connections with the subject to truly engage.

This light bulb allusion brings to mind a man who began his career as a mechanical artist and, once engaged, used his engagement to make key contributions to science and technology as one of the inventors of the light bulb. This innovator, who took a nontraditional path toward becoming a scientist, was Lewis Latimer, an African American draftsman who was hired in 1880 by U.S. Electrical Lighting to work for Hiram Maxim, Thomas Edison's chief rival in the development of the incandescent light bulb. While Edison patented the first light bulb, Maxim endeavored to improve the product. Edison's bulb only lasted a few days because the bamboo, paper, or thread filaments burned out so quickly. Although his background was in art, Latimer was encouraged by his employer to become engaged in the invention process. He enthusiastically took on the challenge and explored every aspect of electric light design. Through trial and error, Latimer devised a filament that was encased in a cardboard envelope, which allowed the bulb to burn longer. This improvement made the light source more efficient and affordable and, in concert with the improvements suggested by others, gave us the precursor to the lighting that we know today.

Latimer's story provides but one example of the way that even traditionally underrepresented students can succeed in science and technology when encouraged and engaged. In today's science

classrooms, all students can become engaged through a host of new teaching methods discussed in this issue of *Peer Review*. Whether they choose to major in science or not, every student should leave college ready to make informed decisions in a world that presents its citizens with daily science and technology dilemmas.

The composition of the House of Representatives committee that oversees all of the major federal government science and technology agencies (such as NASA, NOAA, DOE, NSF, and EPA) provides an interesting test case for the significance of engaged science learning for all college students. Over half of the present committee members were government and political science majors; only a handful reference a science major or science-related career in their official biographies. Did they get enough engaged science learning in college to do their jobs well? As the committee "tackles some of today's toughest issues and proposes ways in which research and development can solve some of our nation's most pressing problems," its members make recommendations on matters that have a profound effect on our present and future world. Their understanding of fundamental scientific principles and practices is crucial. Whether future members of this committee will have the skills and knowledge they will need depends on our success with engaged science learning today.

As the new *Peer Review* editor, I am pleased that my first major project has been editing this issue on Science and

Engaged Learning. I came to AAC&U after fifteen years of working with many dedicated K-16 teachers while managing journals produced for science educators. Starting my editorship with a journal on this theme seems a natural place for me to begin—sharing key strategies to engage the hearts and minds of science students. —**SHELLEY JOHNSON CAREY**

ONLINE FORUM

Join us online to expand the discussion. Respond to articles in this issue of *Peer Review*, share your thoughts, and read what your colleagues are saying about this topic.

www.aacu.org/peerreview