NSB NATIONAL SCIENCE BOARD NEWS
NATIONAL SCIENCE FOUNDATION

NEWS RELEASE NSB/VB-2007-3

Immediate Release:

Transformational Leader in Higher Education and Government, Shirley Ann Jackson, to Receive the Vannevar Bush Award

Science Board cites her leadership by example in science, public policy, education

Shirley Ann Jackson, who has led a national movement to respond to what she calls a "quiet crisis" in the science and engineering work force that has the potential to severely impact the nation's innovative capacity, will receive the Vannevar Bush Award for a lifetime of achievements in scientific research, education and senior statesman-like contributions to public policy.

Jackson also is being recognized for her advocacy on global energy security, and for innovations she implemented as Chairman of the U.S. Nuclear Regulatory Commission (1995-99), and for her role in leading an institutional transformation at the nation's oldest technological university.

"Shirley Ann Jackson has been a leader on many fronts, and she has incorporated scientific approaches into all of her work, especially on policy issues of international importance and in reforming one of the nation's important educational institutions," said Steven C. Beering, chairman of the National Science Board. "She's a national treasure deserving of the Vannevar Bush Award for her widely valued public service and contributions to the nation and the international community."

The National Science Board will honor Jackson May 14 in an awards ceremony at the State Department in Washington, D.C., where she was born and raised.

Waking the Nation To A "Quiet Crisis"

Jackson, who is president of Rensselaer Polytechnic Institute in Troy, N.Y., has been stating her concern about impending retirements in fields of science, technology, engineering and mathematics in both academe and industry for almost a decade, saying that there are not enough students in the pipeline to replace the record number of retirements on the horizon in these fields. She notes that the country's economic and national security is dependent upon its capacity for innovation, and innovation is driven by people -- scientists, engineers and mathematicians whose numbers will dwindle over the next decade unless something is done to reverse the current trend.

She believes that waking up to the "quiet crisis" requires engaging everyone, including women and minorities who have traditionally been underrepresented in STEM fields.

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The crisis is "quiet," Jackson says, because it takes decades to educate future scientists and engineers, so "the impact unfolds gradually."

She says science is in a "crisis" because "without innovation we fail - as a nation and as a world." And she reasons that the ebbs and flows in science funding across disciplines have a "deleterious impact on the creation of a new generation of scientists and engineers" – and, therefore, our innovative capacity against a backdrop of increasing capabilities abroad.

Jackson has lectured on this topic extensively around the country and the world. In 2002, she authored a major report on "The Quiet Crisis," then brought her campaign to Washington when she became president of the American Association for the Advancement of Science (AAAS) in 2004. She was actively involved in the Council on Competitiveness' National Innovation Initiative, was among the authors of the National Academies "Rising Above the Gathering Storm" report, and is on the National Governors Association Innovation America Task Force.

Jackson says it is now "time to turn rhetoric into reality," and says the solution must come from all sectors: government, business and academe.

Jackson believes global energy security is the greatest challenge of our time, and has suggested energy research as a national focal point to address the nation's "quiet crisis," much like the influx into science and engineering that resulted from President John F. Kennedy's post-Sputnik call to action. Dr. Jackson says "energy security is the space race of this millennium."

Leading a Renaissance at Rensselaer Polytechnic Institute

Jackson's legacy at Rensselaer has grown swiftly and assuredly. In seven years, she has revitalized and transformed the 183-year-old university into a financially solid, broad-based academic institution with a much greater diversity in the sciences and technology and a much enhanced concentration of multidisciplinary academic programs – a true renaissance for the oldest technological university in the nation.

The transformation of Rensselaer under Jackson's Rensselaer Plan has been spectacular. Her $1.4 billion-dollar campaign has already achieved more than $1.2 billion in gifts and gift commitments, including an anonymous, unrestricted gift of $360 million. The work has helped Jackson deepen research activities through a tripling of awards, attracting a much broader array of faculty and intellectual leaders, and stimulating entrepreneurial educational activities. Jackson had developed a sound managerial plan linking programs, plans, and resource budgeting and allocation. Her results have helped Rensselaer become a national model for the transformation of higher education, while the 2007 Kaplan/Newsweek "How to Get into College Guide" cites the institution as one of 25 schools on an elite "new Ivies" list. As of the end of February, Rensselaer received more than 10,100 enrollment applications for the 2007-2008 school year, 46 percent more than the previous year, and 81 percent greater than the pool for 2005-2006. Over the past two years, applications from women increased 96 percent, and from historically underrepresented students, 147 percent. (See: http://news.rpi.edu/update.do?artcenterkey-1947&setappvar=page(1))

The Vannevar Bush Award will honor Jackson's work at Rensselaer. However, the award is broader, honoring an individual for lifetime of achievements in science and technology (S&T), such as: success in pioneering exploration; leadership and creativity that inspires others into S&T careers; notable public service; and contributions to the nation and mankind.

In these areas, Jackson's achievements also speak volumes.

A theoretical physicist at Fermilab for two years, then at the former AT&T Bell Laboratories in New Jersey from 1976-91, Jackson distinguished herself in studies and papers published in the fields of solid state and quantum physics, and optical physics. Her particular contributions were in her work on optical and electronic properties of layered materials.

In 1985 she was tapped by the first of three New Jersey governors who sought her service on various commissions and task forces in the state, beginning with her appointment to the New Jersey Commission on Science and Technology, on which she served for a decade.

In 1991, Jackson turned to education, joining Rutgers University as a physics professor. There, her reputation became known as a researcher, teacher, manager and policy advocate.

Leading Change at the NRC

Jackson's work at Rutgers got the attention of the White House, and in 1995, President Clinton swayed Jackson into public service at the national level by appointing her to the U.S. Nuclear Regulatory Commission (NRC), where she stayed until becoming president of Rensselaer.

At the NRC, Jackson instituted comprehensive regulatory and management changes. Coming into an agency often criticized for being too closely linked to industry, Jackson toughened standards of safety, and instituted an entirely new framework for managing the safety and security of U.S. nuclear power plants. The concept Jackson introduced, called "risk-informed, performance-based regulation," was a science-based policy that was implemented across NRC regulatory programs.

Jackson tenaciously and effectively managed the new system, which is credited with improving the safety and economy of nuclear power production nationwide and laying the groundwork for the recent re-emergence of nuclear power in the United States. Elements of this system were adopted by other nations, and Jackson's impetus on this new cooperation allowed her to expand the NRC's international influence. She spearhead the formation of the International Nuclear Regulators Association (INRA),for which she served as its first chairman from 1997 until 1999. In 1999, she left the NRC for her presidential post at Rensselaer.

Opening Doors for Others - A Lifetime of Firsts

Described by Time Magazine (2005) as “perhaps the ultimate role model for women in science,” Jackson achieved many firsts in her career.

In 1973, she completed an historic first -- a doctoral degree in physics from the Massachusetts Institute of Technology, the first African-American woman to receive a doctorate of any kind from MIT. At the NRC, Jackson was the first African-American to be a commissioner on, and first woman to chair, the commission. She also was the first African-American woman to be elected to the National Academy of Engineering and to preside over a major national research university (Rensselaer). She is the first African-American woman to be presented the Vannevar Bush Award in its 27-year history, providing an exclamation point to her list of firsts.

But Jackson, though proud of her groundbreaking achievements, prefers to focus on her track record in public policy and as an advocate for science and education. She speaks publicly of the nation's need to invest more heavily in basic scientific research and for other scientists to become more actively engaged in public policy as an important facet to encourage the public's buy-in to what they do.

Jackson recently told a gathering at the John F. Kennedy School of Government at Harvard University that "the exponential rise in the volume and availability of information" influences the perception of science and scientists' roles, and the "acceptance of both." Her concerns focus on how this glut of information affects the public in "choos(ing) its truth and settl(ing) upon what it will accept as fact." Jackson says it is an imperative for scientists to exert consistent leadership to counter confusion over science and mistrust of their work.

The Vannevar Bush Award was established in 1980 to honor the unique contributions of a prominent World War Two-era scientist and presidential adviser.

In 1945, at President Franklin D. Roosevelt's urging, Bush reported a series of recommendations for a post-war system of federal research and education to broaden the nation's scientific and technological expertise in many fields. His book, *Science: The Endless Frontier*, is often cited as the document spurring the eventual formation of the National Science Foundation in 1950. NSF is the federal agency that supports primarily university-based research across almost all fields of science and engineering.

The National Science Board is an independent 24-member body of policy advisors to the president and Congress on matters of science and engineering research, and is the policy making and oversight body for the National Science Foundation (NSF), an independent federal agency that supports almost all areas of fundamental research nationwide.

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