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Why National Science Academies?

NEXT WEEK MARKS THE 150TH ANNIVERSARY OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES. In the midst of the Civil War, a bill introduced by Congressman Henry Wilson of Massachusetts was passed on 3 March 1863 and signed into law by President Abraham Lincoln the same day. The Academy's charter thus created stipulated that a new Academy, formed by a group of not more than 50 of the nation's best scientists, "... shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art ... but the Academy shall receive no compensation whatever for any services to the Government of the United States." Lacking funds, the new Academy got off to a very shaky start.* But today it thrives as part of the influential National Academies, the name given to the expanded institution that now includes the National Research Council, the National Academy of Engineering, and the Institute of Medicine. Why has this organization prospered and grown over the course of the past 150 years? Critical to success is its unique mission to provide independent, evidence-based scientific advice to the nation's policy-makers.

I was the full-time president of the National Academy of Sciences from 1993 to 2005, and I am a strong believer in its value. Whom it elects to membership and honors with its prestigious awards sets a standard for scientific excellence that has important implications for the future, as those selected often become empowered as leaders in their own institutions. Moreover, the membership of the Academy, now numbering 2200, plus the nearly 4000 members of the National Academy of Engineering and the Institute of Medicine, serves as the foundation for the many committees of experts convened to advise the government. The subjects range from improving medical care or educating students in science, to prioritizing investments in the large instruments required to better understand the universe. Thousands of such reports—many highly relevant and beneficial to all nations of the world—are freely available and readily searchable on the Web site of The National Academies Press (www.nap.edu).

An academy's advisory roles are crucial because science's remarkable understandings about how the world works have profound implications for policy-makers. Science enables humanity to benefit from knowing the future consequences of today's activities. Thus, for example, through detailed analyses of what science can confidently predict about the impact of greenhouse gas emissions on climate change, the National Academies are increasingly issuing wake-up calls that demand coherent action (see nas-sites.org/americasclimatechoices). Science needs to achieve a louder voice in this, and many other areas, if we are to counteract the short-term political expediency that too often prevents nations from doing the right thing for our grandchildren.

There are now academies of science in more than a hundred nations of the world. Some, like the Royal Society in the United Kingdom, are much older than the U.S. Academy. Many of these academies were founded to improve the communication and science of their members, with no responsibility to provide advice to their nations. But this has been changing in the past two decades, due to the formation of the InterAcademy Panel (IAP)—the Global Network of Science Academies, which explicitly focuses on helping its member academies become more proactive in their nation's policy-making. An even newer organization, the InterAcademy Council, provides worldwide scientific advice to international organizations such as the United Nations.† This is good news for the world's future. And it is not too far-fetched to claim that the mission of these two new international organizations derives from the "whenever called upon" responsibility that was thrust upon the U.S. National Academy of Sciences in its unique charter, exactly 150 years ago.

— Bruce Alberts

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*D. J. Kevles, *Issues Sci. Technol.* **29**, 37 (2013). †Y. Quéiré, *Nature* **465**, 1009 (2010).

