EDITORIAL

Empowering science advice

President Trump and his administration's leaders should learn from history and embrace science advice as critical to U.S. national interests. The nascent administration has yet to identify a science and technology (S&T) adviser to the president, a central figure in fortifying American preeminence in science, technology, and innovation. But the president's science adviser is just one member of a traditionally robust effort to ensure that U.S. policies leverage the nation's signature S&T strength. In today's world, S&T issues are international in scale and scope.

Given this reality, the need for science advice focused globally takes on greater importance. This realization, with a recommendation by the U.S. National Academies of Sciences, Engineering, and Medicine (NASEM) in 1999, led to the creation of the Science and Technology Adviser to the Secretary of State (STAS) in 2000 and its codification in legislation that same year. Since then, five such advisers have worked to better connect and mobilize the vast resources of the S&T community in service of U.S. foreign policy and diplomacy. In nearly two decades, the STAS has worked throughout the Department of State (DOS) to bring on scores of Ph.D. scientists through numerous fellowship programs. These fellows bring their connections and expertise to increase the strength and power of the United States in discussions related to such critical economic and national security issues as weapons of mass destruction, cybersecurity, transnational pollution, bioeconomy, and counterterrorism, to name a few.

In 2016, the STAS, in partnership with NASEM, connected senior DOS leaders with experts in rapidly emerging fields such as gene editing and artificial intelligence. These technologies have the potential to upend the economic, social, political, and security landscape in ways unimaginable a decade earlier. The DOS's competitive advantage in S&T is not guaranteed. Indeed, deliberations about departmental reorganization (following proposed massive cuts in U.S. diplomacy) have brought great uncertainties about the existence and stature of the STAS position. One of the greatest values of the STAS has been its ability to work innovatively with bureaucracy without itself being inhibited by it. Talk of consolidating all "special" offices within existing structures would undermine such innovation and nontraditional thinking.

"The nascent administration has yet to identify a science and technology adviser to the president..."

The hiring freeze that was initiated by the administration upon entry to office has affected access to scientific talent. The hiatus in bringing on a new class of Jefferson Science Fellows is evidence. These tenured professors are selected by a rigorous process overseen by the NASEM and DOS. They serve as experts for 1-year terms within DOS offices, which benefit from having access to internationally renowned American scientists and engineers. The salary and benefits of fellows are covered by their respective universities. Yet, nonrenewal and limits on hiring of experts have reduced access to valuable scientific and engineering talent within the DOS.

While Secretary of State Tillerson and his senior officials evaluate the need for various DOS positions, including STAS, other countries are recognizing the benefits of linking science to diplomacy. In 2016, the STAS launched a limited network of four science advisers in foreign ministries. In less than 2 years, 10 countries have either created the position or are taking steps in that direction. When the expanded group of these advisers meets later this year, it should include the science adviser to the U.S. secretary of state. For a department whose first secretary of state, Thomas Jefferson, was an accomplished agricultural scientist, and whose current secretary is an elected member of the U.S. National Academy of Engineering, maintaining S&T leadership is critical.

–Vaughan Turekian

Vaughan Turekian is the former Science and Technology Adviser to the Secretary at the U.S. Department of State and is a senior board director at the U.S. National Academies of Sciences, Engineering, and Medicine (NASEM). vturekian@nas.edu*

*Opinions expressed here are those of V.T. and do not represent NASEM positions.

10.1126/science.aao6889

CREDITS: (INSET) DAVIDE BONAZZI/@SALZMANART; (RIGHT) RODNEY CHOICE/CHOICE PHOTOGRAPHY

Downloaded from http://science.sciencemag.org/ on May 23, 2019

Published by AAAS

Science

Empowering science advice

Vaughan Turekian

Science **357** (6353), 735.
DOI: 10.1126/science.aao6889

ARTICLE TOOLS http://science.sciencemag.org/content/357/6353/735

PERMISSIONS http://www.sciencemag.org/help/reprints-and-permissions

Use of this article is subject to the Terms of Service

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.

Downloaded from http://science.sciencemag.org/ on May 23, 2019