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Aldemaro Romero Jr.
CUNY Bernard M Baruch College

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The war on science grows deeper

Dr. Aldemaro
Romero Jr.
Letters from Academia

In 2005, journalist Chris Mooney published a book titled “The Republican War on Science,” which documented the persistent tendency among many conservatives to reject any science that runs contrary to their ideological principles, whether it is climate science, evolutionary biology, or health-related findings that challenge industry interests.

Since then, things have gone worse in cases that remind us of the evil experiences from recent authoritarian regimes.

In the aftermath of the bioterrorist scares with the mailing of anthrax spores to liberal politicians beginning in the early 2000s. Climate scientist Michael Mann, a professor of atmospheric science at Pennsylvania State University, received in August 2010 a letter that contained a white powder. It was cornstarch, not anthrax, but threats to Mann were not new. He had received since the late 1990s a number of intimidations because his research had demonstrated how human-related activities were producing a rise in global temperatures. He even received an email that said that he and his collaborators “ought to be shot, quartered, and fed to the pigs along with [their] whole damn families.”

An incident in which the U.S. government was directly involved was the case of physicist Xiaoxing Xi. On the morning of May 21, 2015, about a dozen armed federal agents entered his home with guns drawn and an arrest warrant. He was handcuffed and escorted away in front of his wife and daughters. Xi, a naturalized US citizen and then interim chair of the physics department at Temple University in Philadelphia, is considered among the world’s leading experts on supercon-

ducting thin films, which carry electricity without resistance at very low temperatures.

The arrest warrant charged that Xi had violated a nondisclosure agreement he had signed in 2006 in order to conduct research with a pocket heater, a patented device that makes thin films of the superconductor magnesium diboride. Xi had sent four emails to scientists in China inquiring about establishing labs and about a collaboration involving a thin-film deposition device that the government charged was a pocket heater. Xi faced 80 years in prison and a \$1 million fine, but before a trial date was set the charges were dropped. What happened was that the devices Xi had discussed with Chinese colleagues did not include a pocket heater and the exchanges posed no threat to U.S. interests. Xi has now filed a civil suit charging malicious prosecution.

And since the presidential elections of 2016, the atmosphere has become only worse for higher education in general and science in particular.

One of the reasons why the U.S. has for decades maintained a leadership position in science is because it has been able to attract people from around the world to contribute to our progress. According to a 2013 report by the National Science Foundation, more than five million of the 29 million scientists and engineers in the United States were born in other countries. Approximately 25 percent of U.S.

Nobel Laureates and 25 percent of the members of the National Academies of Sciences, Engineering, and Medicine immigrated to the United States as students or senior scientists.

The anti-immigration policies of the current administration have now resulted in less interest by these bright people to immigrate to the U.S., as evidenced by a drop in the number of foreign-born students coming to the U.S. this year. This decline has further hurt the enrollment crisis that many institutions of higher education are now facing. And it is also creating a chilling effect for future collaborations between American-based scientists and international scientists for fear of being accused of treason or espionage.

The contempt toward science by the current administration is evident in many forms. Almost a year after taking office, the president has yet to name a science adviser for the White House. The budgets for scientific research are being slashed. The executive’s request for the National Science Foundation (NSF) for the 2018 fiscal year is \$6.653 billion, a decrease of \$840.98 million (or 11.2 percent) compared with the 2016 fiscal year. Cuts to NASA’s budget from \$19.7 billion to \$19.1 billion are specifically targeted to research on climate science.

Add to the cuts the appointees Trump has made to major science-based organizations. The Environmental Protection Agency (EPA) administrator, Scott Pruitt, is a self-described “Leading advocate against the EPA’s activist agenda,” who has sued the agency 14 times and rejects the scientific consensus that the current climate change is the result of human activities. Trump’s nominee to lead the National Aeronautics and Space Administration (NASA), Jim Bridenstine,

has no background in either science or engineering, and he also rejects the influence of humans on climate change.

As I mentioned last week in this column, there is a legislative proposal to undermine the peer-review process that leads to grants for federally funded research. This proposal was made with the clear intention of reducing funding for projects that challenge certain ideologies or economic interests.

And now comes the new tax codes being proposed by the House of Representatives and the Senate, both of which will undermine higher education and scientific research.

Besides the economic advantages provided by federal funding to science, we tend to forget the impact that these pro-science policies have on U.S. national security. In a report published this month by the American Association of University Professors (AAUP) titled “National Security, the Assault on Science, and Academic Freedom,” the link between a strong scientific establishment and academic freedom with national security is very well documented through numerous examples.

When it comes to science and scholarly inquiry in general, a democracy can only survive with a strongly supported academic infrastructure. When this country faced one of its major threats after the launching of Sputnik in 1957, the response from the U.S. government was more support for science, not less. And that is what made us great.

Dr. Aldemaro Romero Jr. is a writer and college professor with leadership experience in higher education. He can be contacted through his website at: <http://www.aromerojr.net>