EDITORIAL

Our science, our society

We live in a scientific golden age. Never has the pace of discovery been so rapid, the range of achievements so broad, and the changing nature of our understanding so revolutionary. Science today has extraordinary powers. It reveals fundamental phenomena of our universe, catalyzes new technologies, powers new businesses, fosters new industries, and improves lives. This month's annual meeting of the American Association for the Advancement of Science (AAAS, the publisher of *Science*) in Austin, Texas, celebrates this golden age. More than 10,000 scientists, students, teachers, business people, journalists, philanthropists, science enthusiasts, government officials, and others will come together to hear and discuss talks by experts on such topics as immuno-oncology, exoplanets, election polling, and much more. Today's advances and innovations presage a future that most of us have not yet imagined.

Lamentably, we also live in a new heyday of anti-science activism. Fake news and "alternative facts" abound. Climate-change deniers occupy political office and determine environmental policy. Fears of unsubstantiated dangers delay the deployment of genetically modified foods in starving nations. The risks of nuclear power are overstated rather than carefully weighed. The anti-vaccination movement endures, and there are claims that science is as culturally determined and subjective as any other endeavor. Public figures cynically dismiss scientific findings, fostering a popular distrust of expertise and experts. All this, too, presages a different future that most of us would not want to imagine.

In this environment, how can we ensure that science prevails and continues to flourish? What can be done to get the most from this scientific golden age? We can start by recognizing the critical role of institutions in nurturing the scientific enterprise. All too often science is viewed in terms of individual achievements: what someone did to win the Nobel Prize or a MacArthur "genius" award; what someone else did to achieve tenure or to launch a billion-dollar business. This isn't surprising. The institutions that support scientific inquiry—universities, research centers, federal funding agencies, and private philanthropies—are designed to foster individual achievements, amplify individual abilities, and protect individual efforts. Stories of discovery and success tend to focus on individuals and individual accomplishments. But achieving success in science is a team sport, and a nation's institutions make it possible for its scientists to play. For example, in the United States, embedding much of the scientific enterprise into institutions of higher education has catalyzed productive collaborations between new and seasoned scholars, and between the discovery and the transmission of knowledge.

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When the focus of science is placed on individual achievement, it can neglect the importance of the institutions that make the work of science possible. That leaves our institutions open to attack. And, indeed, both science and its institutions are under attack today, with rampant skepticism about the utility of the research enterprise and higher education. Also under attack are the core principles that unite scientists and science enthusiasts: that objective reality can be discovered; that anyone can compete in a game governed by ideas; that disagreements are best resolved by assembling facts to test competing views; and that science and the application of scientific principles have the capacity to improve lives. What's more, science's universal truths call together people from any background, any nation, any phenotype or genotype. These principles have guided us for centuries along the road to discovery and understanding.

The very institutions that support individual inquiry also guard democratic principles and foster human advance. They convene people with shared purpose and amplify their impact. It is easy to assume that these institutions can stand on their own, but they cannot. None of science's successes is solely "mine" or "yours." They are all "ours," and it is our shared responsibility to actively defend the institutions that enable them.

–Susan Hockfield

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