

New Challenges, New Ideas, New Policies

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OUR NATION TODAY faces unprecedented challenges to our global political and economic leadership, our national prosperity, our health and well-being, even our once unquestioned post-war dominance in science and technology. Our political leaders on both sides of the aisle claim these challenges can be met with the application of some good old American ingenuity and lots of money. History is on our side, of course, but the challenges are myriad and their complexities unprecedented.

The pages of *Science Progress* now in your hands brim with confidence (we're progressives, after all) in our country's future—optimism that is matched by clear-eyed analysis and complementary policy proposals to meet the many interlocking challenges of the 21st century. Our staff, our advisory board members, and our array of policy experts have embraced *Science Progress* as a unique platform to guide U.S. science, technology, and innovation policymaking in age of overlapping scientific disciplines and almost overwhelming interconnectedness. Above all, though, we have all come together in search of new ideas and new policies that ensure scientific innovation offers all Americans the opportunity to contribute to the national and global common good.

That's why the inaugural edition of this journal begins with the section Innovation and Economic Opportunity. We open with an essay on the seemingly arcane but crucially important question of public policy quality management, followed by a telling examination of the efficacy of diversity in our quest for more innovation and higher productivity. These two essays—and the ones that follow in this section on competitive grants, venture capital, and computer gaming—highlight the importance of encouraging out-of-the-box thinking to boost economic prosperity for all Americans. Money, though, is equally crucial, thus our case for a national innovation agenda, which rounds out the journal's first 20 pages.

Sometimes science best presents itself in classic form—through direct dialogue, or questions and answers to elicit the voice as well as the knowledge of the research at hand. We open our Energy and the Environment section and close our Life Sciences and Public Health section with Q&As to explore directly the latest advances in biofuels and genetics. These discussions also explore new policy proposals germane to progressive ideals of clean and equitable economic and social

growth. The Q&As bookend two sections replete with forward-looking analysis of other key science and technology issues, among them water management, green technologies, drug development, contraceptives, and electronic medical records.

In the middle pages of this, our first print edition—visit our online magazine at www.scienceprogress.org—reside our most comprehensive pieces of science and technology policy work, focused on national security. But like the rest of the articles in this journal, these more lengthy reports look beyond the traditional borders of national security to embrace more encompassing definitions of the term befitting the new threats faced by our nation.

This edition's signature policy proposal—"Ubiquity Requires Redundancy: The Case for Federal Investment in Broadband"—calls for multiple broadband connections stretching across the length and breadth of our nation to cope with national security threats posed by radical terrorists, pandemics, and the consequences of more devastating natural disasters spawned by climate change. This detailed focus on telecommunications policymaking to match 21st-century threats is followed by a smaller report on the dual use dangers of biotechnology in military and commercial technologies today at home and abroad, complete with practical policy proposals to bring about global enforcement of realistic oversight mechanisms of the science that will likely dominate the 21st century. We close out the national security section with a report on a 21st-century technology—new high-tech sensors—which could secure the safety of our crumbling 20th-century national infrastructure.

We end this issue of *Science Progress* with perhaps the least discussed but most crucial long-term aspect of science and technology policymaking—how to educate the American people about the importance and relevance of science. Communicating science today is vastly more complicated

than it was at any time in the past century, when the certainty of scientific facts and those who discovered them came to reign supreme. Alas, most scientists today still communicate their facts and conclusions from on high to the American people, who increasingly find these arguments understandably unpersuasive due to the cacophony of often contradictory scientific studies.

The series of essays in the Science Communication and Education section challenge scientists and policymakers to do better—to actually engage with the American people in a dialogue when the public expresses concerns about new technologies such as synthetic biology and nanotechnology, and to explain why dueling theories about, say, the possible causes of a particular cancer are as important to understand as the possible cures to which the theories may point. In this way, manufactured controversies about the efficacy of the scientific method by anti-science proponents of, say "intelligent design" over the theory of evolution, can be effectively dismissed by a more scientifically engaged American public.

Communicating the importance of science and technology to the American people helps ensure the innovation policy proposals so key to our country's future prosperity find a willing audience on Capitol Hill and in statehouses around the country. *Science Progress* is designed to tackle both tasks, so take a glance at our Table of Contents, dip into those issues that first catch your eye, but don't limit yourself to what you know and understand. Our purpose here is to shake up U.S. science policy by offering new ideas to new challenges, drawing strength from a diversity of opinions across a range of disciplines. This approach is inherently progressive. It is science progress at its best. sp

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