

A Nation of Science from the Very Beginning

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IN NO OTHER COUNTRY have the great founding figures staked so much on science. At his death, George Washington left a bequest of 50 shares of stock in a canal-construction company to support the founding of a national university where the new nation's youth would be educated in the arts and sciences and would study "the principles of politics and good government." Washington was, of course, a surveyor by trade, considered a highly technical craft in its time.

Benjamin Franklin's intensive study of natural phenomena such as such electricity, meteorology, and refrigeration is less appreciated than his particular inventions, like the lightning rod. But Franklin clearly understood that technological innovation should be based on careful, systematic observation and experimentation, a remarkable intuition that would fully flower only well into the next century. His concrete institutional legacies—the American Philosophical Society, the Franklin Institute, and the University of Pennsylvania—all embody Franklin's enthusiasm for inquiry and innovation.

Thomas Jefferson, whose inventions still fascinate visitors to Monticello, said of himself that "Nature intended me for the tranquil pursuits of science, by rendering them my supreme delight." In more practical terms, Jefferson's founding and stewardship of the Patent Office reflected his view that America must reward creativity in order to achieve its great destiny.

And Jefferson's great and equally complex rival, Alexander Hamilton, was set on a career in medicine in college and attended as many lectures on science as he could. As the architect of the American economy, Hamilton shared with the other founders a vision of the importance of invention as a key to the country's greatness, and sought to facilitate his extraordinarily modern conception of investment, industry, and commerce as an organic system.

In the late 18th century the term science was still virtually interchangeable with natural philosophy. Yet these founders sensed that the trajectory of human knowledge was on a sharply upward course. Influenced by the Scottish and English empiricists, especially David Hume and John Locke, they also seemed to believe that America's aspirations were naturally implied by human nature, an inborn temperament that included certain inherent capacities for inquiry and understanding.

In the 19th century these notions crystallized into a conception of material progress as inevitable, facilitated by science and industry, and indeed from the perspective of the early American progressives—among them Theodore Roosevelt, Robert LaFollette, Woodrow Wilson, William Howard Taft, and William Jennings Bryan—it seemed hard to argue with the idea that progress was steamrolling through history, for all its virtues and vices.

But is material progress also spiritual progress? And in either case is it inevitable? Not all progressives bought into the notion of progress as connected with industry, or do now. Vannevar Bush's famous post-war characterization of science in 1945 as "the endless frontier" was perhaps the high-water mark of American optimism about scientific research as the foundation of a limitless, bountiful American future. As historians have amply documented, social movements of the succeeding decades have called into question both the inevitability and the spiritual satisfactions of scientific progress expressed by Bush, one of the founding fathers of the military industrial complex.

Thus we have on one hand America's astonishing ascent, built to a great extent on the intimate relation between energetic scientific inquiry and a powerful modern state that the founders appear to have intuited. And on the other hand, we have grave doubts that true progress as an outgrowth

of material improvement can be taken for granted, or even that it has any meaning. What then is the American narrative of science and progress for the 21st century?

In the largest sense, developing this new narrative is the intellectual challenge that *Science Progress* has set for itself. This effort could hardly be more timely. The impetus for *Science Progress* is the sense within the scientific community that, at many levels, American science policy has lost its way: from doubts about the current administration's commitment to evidence, to concern about political movements that call evolution itself into question, to worries about our ability to sustain our historic lead in basic research. Since our Web launch in October 2007 we have been gratified by the enthusiastic response of scientists, experts in science policy, and leaders in financing innovation.

Our overarching aim is to continue to work out the founders' vision of an American future that remains a great and unfinished experiment and thus is, at its core, a nation of science. [sp](#)

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