

## EDITOR'S JOURNAL

# No Longer Free of Strings

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Over the last four decades, this magazine has hosted many articles discussing science's "social contract" and how it should be conceived. In 1988, the physicist Harvey Brooks articulated the contract as "a promise of social benefits in exchange for an unusual degree of self-governance and financial support free of strings." An implicit part of the agreement, he explained, held that "if the country created and sustained a first-class science establishment based primarily in the universities, the generation of new technology for national security, economic growth, job creation, and social welfare would follow almost automatically."

The social contract, despite its legendary stature, was never an actual written contract. And today it is clearly defunct: The federal government has cut funding for science, prioritized investment in industry and defense-related research outside the university system, and cast doubt on scientific findings. Whatever the future of federally funded science is, it's no longer "free of strings." As the scientific enterprise tries to decide how to respond, it first needs to figure out what happened.

For the last few weeks, I've gone on a forensic journey through the *Issues* archives and beyond in search of new perspectives on the current predicament. I set out intending to find traces of how the social contract frayed, but have ended up fascinated by why it had a hold on scientists' imaginations for so long.

As you might expect, many *Issues* writers have been contract skeptics. The Summer 2000 issue contained an essay by philosophers Robert Frodeman and Carl Mitcham, who called the concept a myth wherein "the language of a contract demeans all the parties concerned and belittles human aspirations (not to mention political discourse)." In another essay in that issue, political scientist David Guston announced its demise. Tracing the idea to policymakers in the 1880s who were struggling to judge the integrity and productivity of the government's science investments, Guston says the laissez-faire attitude toward university research extended into federal contracting after World War Two. But after Congress investigated misconduct in the 1970s and '80s, it enacted formal oversight and passed legislation like the Bayh-Dole Act to create incentives for universities to do productive research. "Such institutions," Guston wrote, "spell the end of the social contract for science, because they replace the low-cost ideologies of self-regulation and the linear model with ... monitoring and incentives."

When the Cold War ended, the rationale for science funding became a much looser claim that "science-based innovation is the essential ingredient of the elixir that will revive the nation's economy and restore it to an internationally competitive position," Guston and social psychologist Kenneth Kenniston explained in a 1994 book. The elixir gambit, however sketchy, worked pretty

well. A recent analysis found that federal science funding stayed on a generally upward trend from 1980 to 2020, with Republicans allocating more funding over time than their Democratic counterparts. Universities also became a central part of more Americans' lives, with the number of workers without a college degree peaking in 1990.

But if the social contract was dead (and demeaning), why are we still talking about it? In one of the 10 Forum letters responding to Frodeman, Mitcham, and Guston's essays, political scientist James D. Savage pointed out that the social contract "offered a framework and a language for policymaking that has enabled academic science to assert for itself many of the rights of an equal or principal in the contract."

In addition to awarding science a special stature, the social contract also drew a chalk circle around scientists' responsibilities, setting them distinctly apart from politics and public concerns. As philosophers Heather Douglas and T. Y. Branch have argued, "within the frame of the mid-twentieth century social contract for science, social and ethical concerns were not to play a role in scientific inference in basic research, because basic research scientists are not responsible for the societal impacts of their work, and thinking about those impacts would only be distracting from the pursuit of truth."

When I called Douglas a few weeks ago, she reflected on the durable affection the science enterprise has had for the concept of the social contract. "The social contract was a useful myth, but it was corrosive for the relationship between science, politics, and publics," she told me. "What made it attractive was that the old social contract functioned as a shield for science—it kept the money coming while it protected science from politics. Everybody could hide behind it. But a shield can also turn into a weapon."

In hindsight, it's possible to see how the shield that had protected science from politics later made it vulnerable to political forces. Interest in revitalizing the social contract flourished around the turn of the twenty-first century. By 2007, scientist and scholar of science policy Elizabeth C. McNie counted nearly a dozen different proposals intended to reinvent the social contract of science—all, she observed, coming from the science side. These notably included ecologist Jane Lubchenco's 1997 presidential address to the American Association for the Advancement of Science, which called for scientists to define a new social contract in response to human effects upon the planet. The speech got a standing ovation.

This wasn't the old unwritten social contract that separated scientists from the politics of their federal patrons; it was a new rhetorical one that redrew the lines of the chalk circle to contain the aspirations (and politics) of the scientific community.

Meanwhile science's position as a mostly benign force in American society shifted. In an essay in 1997, science policy scholar—and later *Issues'* editor-in-chief—Daniel Sarewitz foresaw the strains that would threaten the enterprise: "Continued innovation in information and communication technologies fuels economic growth and creates many conveniences, but it also undermines traditional community institutions and relationships that may be crucial to the welfare of the nation. The resulting disaffection can fuel social movements that are antagonistic to science and technology."

Even science-led activities that seemed good for the nation—like the success of the tech sector and research collaboration with China—turned out to be less great for science itself. "In view of the increasing sophistication of the scientific contributions of other nations, the United States has become a high-cost place in which to do science," public policy and technology researcher Christopher Hill wrote in *Issues* in 2006. He predicted a "post-scientific society" when research would no longer be seen as the elixir of economic growth. "We will continue to need and nurture science, but it will, like the dominant cultural developments that preceded it, recede into the background as a necessary but no longer defining characteristic of our age."

And as the Cold War receded into memory, the national interest and the interests of science were conflated. Observing that in 2001, American universities awarded 5,028 PhDs in physical sciences and engineering to non-US citizens but only 401 to underrepresented minorities, mathematician Shirley McBay wrote: "Many underrepresented minorities see this disparate production as a lack of commitment to their education and a devaluing of their potential to contribute to the advancement of US society.... The United States must fully educate its own people and depend more on its own citizens for its continued global leadership and national security."

To continue to benefit from federal funding, science will need to leave its problematic shield behind. It is hard to imagine what this will look like—science, even the scientific enterprise, is not one thing—but collective action is possible. Among the stories in this issue is that of former presidential science advisor Kelvin Droegemeier, who shares how 13 organizations representing the country's research institutions came together to hammer out a new model for federal reimbursement of so-called indirect costs in the early months of 2025. Hundreds of meetings later, after engaging with more than 10,000 members of the research community and responding to more than a thousand queries, the community was able to speak with a single voice. "I've never had an experience like this in my whole career," he told us.