

Reshaping Basic Research

Donald Kennedy

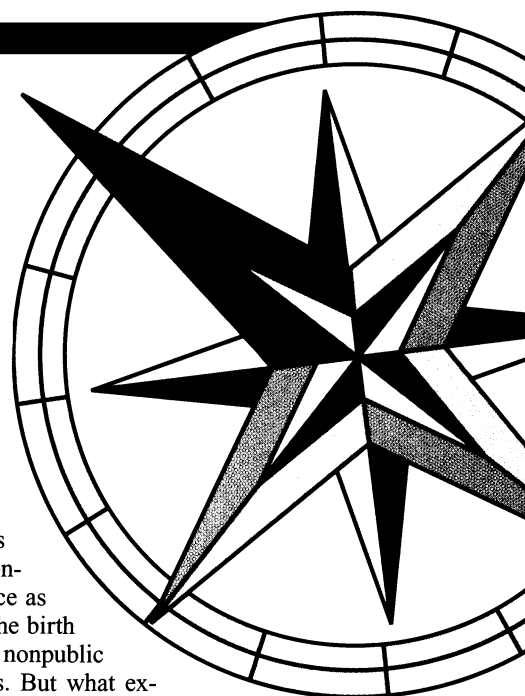
Something surprising is going on in U.S. science. The following news items tell the story: Harvard dedicates \$150 million to \$200 million to two new centers—one for genomics and one for imaging and microscale structures; Yale commits \$500 million in next-decade fundraising to strengthening science departments and a similar amount to medical research; Stanford gets a gift of \$150 million from Jim Clark for an interdisciplinary center focusing on physical methods in molecular biology and raises \$200 million for graduate fellowships; and a high-level University of Virginia committee proposes three new interdisciplinary basic research centers that would require over \$500 million in new endowment. More than half a century after Vannevar Bush established the infrastructure for fundamental science as a public responsibility, one is tempted to wonder whether we are witnessing the birth of a successor to the “endless frontier.” The sustainability of this new level of nonpublic support will depend, among other things, on the health of financial markets. But what explains this sudden torrent of private money?

Several forces seem to be acting together. First, some of the universities in which this spending is taking place are, let's face it, really rich. Harvard's endowment this year reached an astonishing \$19.2 billion, Yale's and Stanford's are around \$8 billion, and annual fundraising at the most successful institutions is now pushing half a billion. For more than two decades of a historic bull market, these endowments have been managed conservatively, paying out only 5% or less of each year's yield and gain to support current expenditures. Faculty members are now recognizing that these policies have favored the future over the present and argue that it's high time to start meeting current needs. The response has been encouraging and sometimes—as in the commitment of Yale's president, Richard Levin—downright electrifying.

A second explanation lies in the declining relative state of scientific equipment and facilities in the research universities. I say relative because the equipment and the buildings aren't really that bad, except in comparison with what is available in the new companies, many of them startups, that now perform an increasing fraction of the kind of basic research that used to be an academic monopoly. The availability of venture capital and the liveliness of our entrepreneurial culture have radically altered the character of commercial science, attaching financial opportunity to the nascent front end of the innovation cycle. Molecular and cell biology, nanotechnology, and computer science are among the disciplines that have been transformed by this migration.

To explore what is going on, I occasionally visit such places. Recently, at a new East Bay biotech facility in a rather unpromising location, I found a lively operation run by several bright escapees from a research university. I asked what they found attractive about their present work. They mentioned the freedom to work full time on what interested them, but most of all they compared the quality of equipment and infrastructure. Contrasted with what they had here, their former university setting was “pathetic.” I found their term a little provocative, but similar sentiments have been echoed by many of the scientists to whom I have talked.

Both ends of this story—the explosion of industry interest in basic research and the increased private support for research infrastructure in the universities—are good news for the scientific enterprise. But good news sometimes precedes unexpected future consequences, so here are two possible sequelae worth worrying about. First, it would be unfortunate if the new levels of private support persuaded the federal government that the tools of fundamental science were no longer its responsibility. Federal support for academic science buildings has been virtually absent since the last gasp of the Health Research Facilities Act in 1968. It would be a shame if support for major equipment were to follow it out of the picture. Second, it has long been federal policy to reimburse universities for depreciation and use costs associated with buildings and equipment financed by private capital for use in government-sponsored research. A recent Rand study shows that universities are now receiving less indirect-cost reimbursement than they are entitled to under current rules. When indirect cost rates go up, as I know from painful experience, Congress doesn't like it. Reimbursement for facilities costs has historically been the major driver of increases, and the present wave of new construction is bound to have a significant impact on future rates. Getting new private capital into the funding mix for basic research is a good deal for the government. It should be prepared to accept and support the consequences.



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