



THE WALL STREET JOURNAL.

This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers visit <http://www.djreprints.com>.

<http://www.wsj.com/articles/michael-s-malone-the-disappearing-young-scientists-1423179541>

OPINION

The Disappearing Young Scientists

Grant recipients younger than 36 fell to 3% in 2010, from 18% in 1983. Older scientists now compete for the same money.

By **MICHAEL S. MALONE**

Feb. 5, 2015 6:39 p.m. ET

The National Academy of Sciences warned a decade ago that young scientists in biomedicine were struggling to launch careers for lack of research money. A NAS report released in January says the situation has grown more “arresting” in all fields: “Without their own funding, young researchers are prevented from starting their own laboratories, pursuing their own research,” writes Johns Hopkins University President Ronald Daniels.

Few would disagree. Research money has been drying up at universities and government research labs since the turn of the century, and young scientists have suffered in particular. Many budding researchers are jumping to the corporate world and applied research, where money and opportunities are more certain. A 2013 study by the Brookings Institution showed a huge, unmet demand for science and math-oriented applicants with advanced degrees. It found workers earning 21% more in jobs requiring STEM skills, and five job openings for every unemployed computer worker compared with one for most other industries. Why not go where you’re wanted?

According to Mr. Daniels, a researcher now lands her first National Institutes of Health grant at 45 years of age, compared with age 38 in 1980. The number of grant recipients younger than 36 in 2010 fell to 3% from 18% in 1983. How many important discoveries haven’t happened as a result?

What's behind the shortage? Mr. Daniels suggests several reasons, including longer postdoctoral training; a system of applications, demonstrable data and peer review, and a shift in research costs to universities—which typically narrows awards to seasoned, tenured researchers. But perhaps the simplest explanation came from Nobel laureate Michael Levitt of Stanford, who said last year that senior scientists were once able to renew their existing grants and let young scientists compete for unawarded grant money. Now after budget cuts, older scientists are competing “against the kids,” and usually winning.

Mr. Daniels's proposed solutions are all too predictable: more government investment in research, extended grant periods, more studies on young researchers and a new government committee. The prospect of these solutions working is nil. There simply isn't enough government money to cover every grant application. Even if the current economic “recovery” continues, it will take years to return to the golden days of government grants in the late 1980s.



PHOTO: GETTY IMAGES/BLEND IMAGES

Amid trillions in national debt, there will not be much interest in spending more on obscure scientific research. If a Democratic Congress didn't spend more in the decade after the original NAS report, it's hard to believe a GOP Congress—which understandably believes the federal government can't do much of anything right—will increase grant funding.

So let's consider some plausible alternatives. One possibility was on display in November at the annual meeting of the Northern California Chapter of the Achievement Rewards for College Scientists Foundation, Inc., a national nonprofit of women volunteers that delivers grants to U.S. scholars in science, engineering and medical research.

Since its founding in 1958, ARCS has awarded nearly \$90 million to some 9,000 ARCS Scholars in more than 50 U.S. universities. This year's recipients are researching everything from ways to store and process the variations in the genomes of thousands of people to discovering how algae does a better job than land plants at fixing carbon to improve farm yields. It was a reminder that young scientists, seeing with fresh eyes, are more likely to make the truly great discoveries.

At the awards ceremony, 63 fellows from the Bay Area marched into the ballroom to the applause of donors, including San Francisco civic leaders, Silicon Valley executives

and venture capitalists. For those few minutes, one could feel hopeful about the future of U.S. science.

The financial need is far greater than any foundation could meet, yet organizations such as ARCS may offer at least a temporary solution until robust economic growth returns. The foundation's work shows there is a widespread interest, particularly among the wealthy, in supporting science—especially research that may one day save lives or lead to a new technology around which they might build a business.

But these individuals are also faced with a wide range of worthy choices for their money. The key is to encourage them to support scientific research. ARCS does it by connecting individual donors to the young scientists they support. Why can't this matchmaking be done on a national scale through the creation of an exchange? Mr. Levitt's fellow Nobelist at Stanford, markets guru Al Roth, could help design it.

Moreover, given the importance of this research to the nation's long-term economic health, why would even fiscal conservatives object to giving special tax breaks to private citizens who support scientific research at a national laboratory or their alma mater?

Finally, why not encourage young scientists to reach out to everyone interested in supporting scientific research? If Hollywood can crowdfund indie movies, surely a doctoral candidate could raise money for cutting-edge research. Let the market decide whether investors get a piece of any resulting patents, or public credit or just the satisfaction of being able to help. When it comes to crowdfunding, younger scientists may have an advantage over the veterans.

We can continue to wring our hands about scientific research and hope for more government help—or face reality and look for practical solutions. Those marching students and their cheering supporters in San Francisco point the way.

Mr. Malone writes often for the Journal about technology. His latest book is “The Intel Trinity: How Robert Noyce, Gordon Moore and Andrew Grove Built the World’s Most Important Company” (HarperBusiness, 2014).