



(U.S. Army)

The Job Market

Taken for Granted: Doing Something About the Postdoc Mess

For years now, postdocs' plight has resembled the weather, at least according to Mark Twain's famous description: Everybody talks about it, but nobody does anything about it. The misery of young scientists toiling in supposed preparation for nonexistent

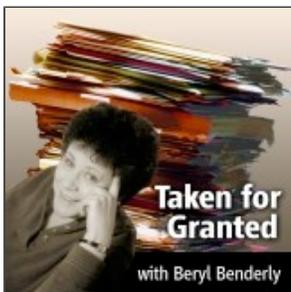
university posts is as familiar as the signs of impending rain. Ditto the inability of many of their professors, imbued with academic culture, to impart the skills needed for success off campus.

But this fall, two institutions, the **Ewing Marion Kauffman Foundation** (<http://www.kauffman.org/>) in Kansas City, Missouri, and the **Keck Graduate Institute** (<http://www.kgi.edu/>) of Applied Life Sciences (KGI) in Claremont, California, will undertake innovative initiatives aimed at helping postdocs grasp opportunities in industry. Though small and experimental, these efforts embody new departures in career development for science Ph.D.s.

Neither the programs nor the organizations sponsoring them fit the traditional academic mold. Kauffman styles itself "the foundation of entrepreneurship" and aims to foster the founding of new businesses. This month, it announces its first class of **Entrepreneur Postdoctoral Fellows** (<http://www.kauffman.org/newsroom/entrepreneur-fellows-program.aspx>), a dozen young scientists chosen from more than 100 applicants for their interest in learning how companies are founded, with an eye to possibly becoming founders themselves. Over the coming year, as they continue to work as postdocs, they will also be mentored by successful businesspeople and attend workshops on various aspects of business formation. Kauffman is also partnering with the **National Postdoctoral Association** (<http://www.nationalpostdoc.org/>) on another program: an **awards competition** (<http://www.nationalpostdoc.org/programs-resources/postdoctoral-entrepreneur-awards>) that will culminate in a \$10,000 prize for an established entrepreneur who has been a postdoc in the United States and a \$2500 prize for an "emerging postdoctoral entrepreneur." Applications are due 2 November.

KGI, which claims to be "the only American graduate institution devoted solely to bioscience education and discovery," has announced a 9-month program designed for postdocs and other Ph.D.s leading to a new degree, the **Postdoctoral Professional Masters (PPM) in bioscience management** (<http://www.kgi.edu/x9702.xml>). KGI has been a leader in the effort to establish the new **Professional Science Master's** (http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2009_07_03/credit.a0900083) degree that trains college graduates for careers in scientific industries.

Founder effect



(Kelly Krause, AAAS)

These new programs' strong practical bent reflects the history and values of two men who each built a large, science-based business and a sizable philanthropy. Neither Ewing Kauffman nor William Keck had even a college education, but both deeply respected the science at the basis of their respective fortunes. The Kauffman Foundation's founder was a pharmaceutical tycoon who started out manufacturing and marketing medications from his basement and ended up selling a billion-dollar company. KGI's namesake began in the California oil fields and went on to establish both the Superior Oil Company and the **foundation** (<http://www.wmkeck.org/>) that bears his name. A well-known funder of scientific ventures such as the **Keck Observatory** (http://keckobservatory.org/about/the_observatory) on Mauna Kea in Hawaii and the **National Academies' Keck Futures Initiative** (<http://www.keckfutures.org/>), the W. M. Keck Foundation provided \$50 million to start KGI in 1997.

Kauffman will fully support its fellows as postdocs at their home universities for an entire calendar year starting in October, explains program director Sandra Miller in an interview: "As part of our funding agreement, they have to agree to spend at least 20 hours a week pursuing our program." And as part of the application process, "their PI [principal investigator] has to agree and be supportive of this activity."

An "obstacle" facing a number of postdocs who inquired about the program was an "adviser pushing back against the 20 hours a week," Miller noted. "That's just really sad, because that means that while they are obviously very productive people, they don't have an adviser who is really able to think a little bit about the postdoc's career. We certainly have that barrier to deal with to try to help the postdocs."

Kauffman will arrange appropriate business mentors and industry internships for the fellows and help them build "their personal networks," Miller says. It will also bring them together at foundation headquarters each quarter for intensive, 3- to 4-day workshops. A key goal will

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be teaching about the critical role that scientific, clinical, or technical founders and co-founders play in starting technology companies, she continues. "We want ... to train people who can take all the special skills that they have, that they use in the lab, and unleash the entrepreneurship side of things and broaden those skills."

Kauffman does not expect all of its fellows to end up founding businesses, Miller says. "Some of them may very well be starting companies even before the program ends, but we will be equally happy with people who go through the process and analysis and determine that what they thought might be their big idea, their big first company, may not be the best opportunity. Then they can start looking elsewhere in their field." Some will take their new knowledge into jobs with existing companies, helping them "to be innovative and entrepreneurial," she adds; Miller describes such employees as "intrepreneurial." And, should any of the fellows end up in a faculty job, "they could then train their trainees in this stuff."

Another class of fellows will be chosen in 2010, although the program may change somewhat by then, informed by the lessons of the 1st year, Miller says. Up-to-date information will be available via the e-mail list at postdocs@kauffman.org, she says.

KGI, meanwhile, will launch the Professional Postdoctoral Master's program "as a prototype [with] very strong support" from industry, KGI President Sheldon Schuster told *Science Careers*. The full-time program is slated to offer six to eight yet-to-be-chosen "pioneering-spirited, entrepreneurial postdocs" courses in topics such as "financial accounting, organizational behavior, market research, device and biological regulatory affairs, [and] clinical trials," as well as experience managing or mentoring a months-long, industry-related team project. It will also provide orientation to the folkways of the business world. Focus groups with postdocs have revealed "an enormous amount of interest," he says.

Although the Kauffman program is free to the postdoc, the PPM degree is not. KGI "understands that [for many postdocs, money] is a problem," Schuster says. "Our board has said [that] for this first group, we will discount the tuition very, very heavily, and in terms of living expenses, we'll help them in any way we can." Specifically, explains KGI's dean of admissions and financial aid, Daniel Chatham, by e-mail, participants who matriculate in August 2009 will receive "a fifty percent tuition fellowship ... and the entire program tuition will be \$12,600." For the class matriculating in January 2010, "tuition will total \$18,000 for the program." After that, the "normal level" of tuition will be \$25,000.

But, notes Schuster, KGI generally gives "very, very generous tuition scholarships," and many in its programs "don't pay sticker price." In addition, "KGI has extended our loan program to PPM students," Chatham continues. Although earning the PPM will require a financial commitment, he notes, "the degree will be quicker than leading MBA programs, and the lower tuition level also contributes to a high return on the investment."

Schuster also emphasizes that the PPM degree is not yet accredited, although KGI has begun the process of gaining it accreditation through the **Western Association of Schools and Colleges** (<http://www.wascweb.org/>), one of the nation's six regional higher-education accrediting authorities. Schuster sees "no reason" why it should not be granted.

Models for the future?

Of course, major questions about these experiments remain. Will they succeed in launching young scientists into productive industrial or entrepreneurial careers? Will the investment of time and, in the case of KGI, of money pay off in superior long-term outcomes? Can such approaches, if successful on a small scale, expand to free significant numbers of today's trapped postdocs--or at least of trapped postdocs with the right to stay permanently in the United States? Only time can give those answers.

Even--indeed, especially--if the plans succeed spectacularly, programs such as these will provoke another major issue: Who will do the grunt work of American science, and at what wage? If such programs speed large numbers of citizens and permanent residents into good, nonacademic, science-based careers, will American academic research become ever-more reliant on a low-paid, transient, unassimilated work force here on temporary visas and in dead-end jobs?

That's a real possibility, because the fundamental logjam does not arise from postdocs' lack of skills. Rather, it results from the outmoded, inequitable, and deceptive **pyramid system** (http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2008_11_07/caredit.a0800161) that currently exploits grad students' and postdocs' cheap labor and high aspirations. The beneficiaries are the senior scientists and universities dependent on federal grants and a nation that wants important research done but has not devised a labor system fair to the young scientists it asks to do the actual work.

The current postdoc system is "so self-serving, it's just unconscionable. ... We absolutely have to do something about it," Schuster says. "We certainly think that this is a critical area for our country. The postdocs have so much potential, and yet they've really almost been bypassed," Miller adds.

Although the Keck and Kauffman initiatives cannot spark the fundamental reform needed by the entire, increasingly dysfunctional apparatus, they may pioneer ways to salvage the hopes and futures of at least some talented young researchers. Even that degree of change would be welcome, important, and long overdue.

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