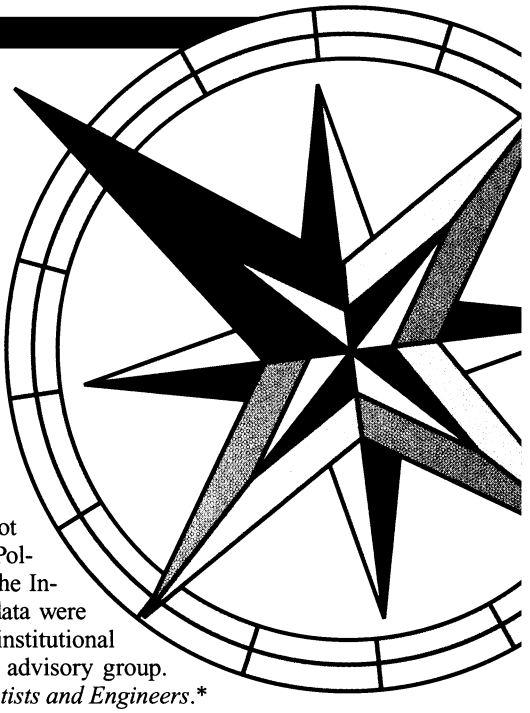

Enhancing the U.S. Postdoctoral Experience

Maxine F. Singer

U.S. science and engineering research depends increasingly on the efforts of postdoctoral scholars. They carry out much of the sometimes exhilarating, sometimes tedious, day-to-day work of research. Many of them make important new discoveries, and from their ranks will come the future leaders of science and engineering. Several reports from various organizations, however, have suggested that reforms might be needed to improve the lot of the postdoc. Therefore, the Committee on Science, Engineering, and Public Policy (COSEPUP) of the National Academies of Science and Engineering and the Institute of Medicine examined the postdoc experience. Because few relevant data were available, COSEPUP carried out its own extensive investigation, including institutional surveys, focus groups, a workshop, and consultations with a knowledgeable advisory group. Our findings were released in *Enhancing the Postdoctoral Experience for Scientists and Engineers*.*

We found that many postdocs have stimulating, well-supervised, and productive research experiences. However, for many the postdoc years could be significantly improved. Too often they provide only a narrow range within the broad complement of skills needed in our changing world. Most troubling to me, COSEPUP also heard from postdocs who are neglected, underpaid, and even exploited. Some remain postdocs for 5 years or more before embarking on their own independent careers and acquiring the benefits of regular employment. Some are given little guidance by their mentors and few opportunities to grow toward independence.

These shortcomings are associated with the rapid expansion of the U.S. postdoc population in the past 20 years: roughly a doubling, to an estimated 52,000. About 50% are foreigners and 80% work in university settings, where their status is most likely to be uncertain; although postdocs in industry and government labs tend to fit smoothly into existing job categories, academic postdocs may work in situational limbo, being neither faculty, staff, nor students. Consequently, there is little administrative oversight to ensure their fair compensation, benefits, job security, or assistance in career planning. Often the sole person to whom they can turn to redress grievances is the researcher who hired them and on whom they depend for their current and future positions. Annual compensation for first-year postdocs can differ by tens of thousands of dollars, even when levels of talent, responsibility, and output are virtually the same. At the lower end of this range, which is typical in academia for life sciences and some physical sciences, pay is embarrassingly inadequate: The beginning annual National Institutes of Health stipend, a common benchmark, is $26,916. Postdocs often have no standard health benefit package; many receive no coverage for their families and some must arrange coverage for themselves.

"[T]he postdoc years could be significantly improved."

Based on our findings, COSEPUP defined a set of principles to guide the enhancement of postdoc appointments. The experience should be an educational apprenticeship whose purpose is to gain scientific, technical, and professional skills. Postdocs should receive compensation and benefits that permit a decent standard of living for themselves and their families. Postdocs should receive professional recognition for their contributions to research. The concerned parties, including the postdoc, adviser, host institution, funding organization, and disciplinary society, should agree on the nature and purpose of the experience to ensure that it is beneficial to all. With these principles in mind, the guide recommends specific actions by each of the concerned parties, including the following: Give postdocs institutional status and compensation packages commensurate with their contributions. Postdoc advisers should recognize their responsibility to provide training, oversight, and career support in return for the postdocs' contributions. Give postdocs opportunities to acquire diverse skills, including writing, teaching, refereeing, supervising, and grant proposal preparation, so that they can compete for the broadening range of jobs. Limit the time spent as a postdoc to a total of about 5 years. Improve and facilitate communication between all parties.

The future health and productivity of the U.S. research enterprise will depend on today's postdocs. Only if postdocs are recognized as the core of tomorrow's research leadership can they reach their full potential and serve as positive role models for future generations.

Maxine F. Singer is the chair of COSEPUP.

**Enhancing the Postdoctoral Experience for Scientists and Engineers* (National Academy Press, Washington, DC, 2000). Available at nationalacademies.org/postdocs.