SCIENCE

24 MAY 1991
VOLUME 252
NUMBER 5009

Careers in Science

Woody Allen once said that a job is an invasion of privacy. To most scientists the invasion is welcome because scientists enjoy the challenges and stimulation of problem-solving. Indeed, it is fortuitous that society considers science valuable because the work of other creative professionals, such as artists, writers, and musicians, is in general not as systematically supported as that of scientists. The idyllic view of a career involving butterfly collecting or looking through telescopes punctuated occasionally with discoveries of the evolution of species or the origin of the Big Bang soon evaporate under the necessity of earning a salary and obtaining laboratory funding. Being a scientist can be lots of fun, but it requires hard work and is not free of anxiety.

To those who are embarking on careers in science and to those who in mid-passage are navigating through the straits that connect an old and a new vocation, this issue of *Science* presents a careers section that is designed to provide helpful information. The information is episodic and fanciful rather than comprehensive and conventional. By episodic is meant that we have made no attempt to cover every aspect of every scientific discipline and every type of job opportunity within that discipline. We have chosen to provide illustrative examples of jobs, salaries, areas of research, opinions of leading scientists, and guesses as to the hot areas of the future. By fanciful is meant that we present interviews and advice from practitioners of the art of science that provide anecdotal insight rather than tables of documentation, which are often provided in such career analyses. A brief reading of the advice of career scientists shows that there is no monolithic opinion on the straight and narrow path for a young scientist. The many choices of industry versus academia, of physics versus biology, of production versus research, will have to fit personal predilections, but the ideas of those who have been successful in their chosen paths can provide flashes of light that illuminate at least part of the landscape.

An interesting feature of modern careers is that they have become more reversible. The flow between industry and academia goes both ways in this era. The flow among disciplines also occurs: physicists have become biologists, chemists may work with ecologists, and mathematicians are useful in all fields. The rapid pace of modern science means that few people today are doing exactly what they were trained to do when they completed their degrees. New instruments, new concepts, and new protocols make yesterday's training obsolete at an alarming rate. The number of scientists applying their powerful methodology to a problem means that problems get solved at breathtaking speeds. Consequently, the scientist of the future who already has a job must keep his or her eyes open for new areas of opportunity. Hence new tools and hot tips are presented to illustrate these developments for individuals looking for new positions and also for those looking for a reorientation of a career.

Because this is the first of what we hope will be an annual event, we feel less prone to be comprehensive. What is left out this year (for example, there is greater emphasis on academia than on industry in this issue) can be balanced by a shift next year. To fill in these holes and to allow you to express indignation if your favorite area was not mentioned, we have included a questionnaire to be filled out by those who would like to help us supplement and expand our coverage next year.

In a tightening job and funding atmosphere, dark fears get exaggerated and inherently silly rumors are believed. Science is going through a tough period but the added information and insight of those who have lived through previous tough eras may be helpful to those who are starting out or changing directions at this point. As one veteran reported, "I have had many worries in my life and most of them never happened."

Despite current vicissitudes, a scientific career is unusually attractive. The rate of technological unemployment among scientists is extremely low, and job security is generally high. There is an enormous range in the type of jobs available, and in most cases the scientist's reward in psychic income is an incalculable fringe benefit. If this issue of *Science* can be helpful in guiding voyagers into the appropriate harbors, it will have served its purpose.—DANIEL E. KOSHLAND, JR.