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Employment Opportunities for Scientists

Universities are in the midst of a prolonged era of adjustment to changed circumstances. During the 1960's they enjoyed growing enrollments, and increased budgets, but they are now experiencing financial pressures and they note that demographic factors guarantee smaller student bodies during the next decade. At the same time job opportunities are changing for their students.

The contrast between the past and the present is especially painful for some science departments. Following Sputnik, enrollments increased, large numbers of graduate fellowships were made available, research grants were readily forthcoming, and teaching loads were diminished. These factors combined to create a large number of openings for tenured faculty. New Ph.D. granting programs were established at many schools. A principal activity of science departments was to train an ever-increasing crop of Ph.D.'s to become professors at universities. A prevalent expectation was that rapid expansion of research budgets and faculties would go on indefinitely. But, as has been observed in many other instances, fast exponential growth always comes to an end and often a painful one.

The graduate fellowships were first to go. They vanished soon after some space engineers became unemployed and one of them was photographed driving a taxi. About that time enrollments began to level off. In the intervening years, research grants have become more difficult to obtain and there has been a tendency to increase teaching loads. In consequence, only a relatively small number of tenured positions are now open. For example, last year chemistry departments granted more than 1500 Ph.D. degrees. At the same time, less than 300 tenured places became available. About 100 suitable positions occurred in government. Some of the Ph.D.'s obtained postdoctoral fellowships, but that is only a temporary expedient. If holders of advanced degrees are to find employment, a large fraction of them must be hired by business and industry.

In some respects opportunities in industry are more limited than at the universities; in other respects there is more choice. A few of the companies maintain excellent fundamental research programs. The limited number of scientists so engaged have access to the best of new research equipment. However, only a small fraction of scientists entering industrial employment can expect to conduct the kind of research that they performed at universities. Instead they must engage in activities for which their training has not been ideal, such as applied research, engineering, and management.

In view of the changed job opportunities for their graduates, science departments may find it desirable to offer alternatives to their present curricula. Personnel officers in industry whom I have interviewed are very complimentary about the quality of graduates with respect to training in science. However, they find the young people to be ignorant about business. Most of the graduates are also deficient in communication skills. For scientists, some training in engineering would be useful. A measure of its value is given by the disparate starting salaries of B.S. chemists and chemical engineers. Beginning engineers receive about 30 percent more (a total of $1500 per month) and their advancement to high positions in the companies is more probable.

At one time many professors in the physical sciences at leading universities were consultants to industry. They obtained support for their research and often for graduate students. They were in a position to place their students in jobs. When large-scale government grants became available, industry largely withdrew its support and there was less interaction with academia. The present and prospective circumstances seem to call for a resumption of closer ties. That is not to say that the universities should become subservient. However, unless faculties are somewhat responsive to their students' needs, the young people are likely to vote with their feet.

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