How Engineering Faculty Members Rate Each Other

Faculty members in the chemical engineering program at the University of Minnesota have the best academic reputations in their field, according to a survey of their peers. In most other areas of engineering, however, the faculty at Massachusetts Institute of Technology, the University of California at Berkeley, and Stanford occupy the top spots.

These rankings can be found, with some effort, in the latest volume in a series of assessments of the quality of graduate programs at U.S. universities, published by the National Academy of Sciences.* Previous volumes covered mathematical and physical sciences (*Science*, 8 October, p. 140) and the humanities; yet to come are assessments of programs in biological sciences and social and behavioral sciences.

The assessments list 16 different measures of graduate programs, ranging from the number of their faculty to the size of the university library. The most interesting, and controversial, measures result from an opinion survey in which faculty members were asked to rate the quality of faculty in individual programs on a scale of 0 (not sufficient for doctoral education) to 5 (distinguished).

The report deliberately avoids ranking the programs according to the results of this survey, but since that is the first thing most readers will do, here are the top-ranked schools in each discipline. Scores on the 0 to 5 scale are given in parentheses.

Chemical Engineering: Minnesota (4.9), Wisconsin (4.8), Caltech (4.7), California at Berkeley (4.6), Delaware (4.5), Stanford (4.5), and MIT (4.3).

Civil Engineering: California at Berkeley (4.8), MIT (4.7), Caltech (4.5), Illinois (4.5), Texas (4.2), Stanford (4.1), and Cornell (4.1).

Electrical Engineering: MIT (4.9), California at Berkeley (4.8), Stanford (4.8), Illinois (4.6), California at Los Angeles (4.1), Southern California (4.1), and Cornell (4.0).

Mechanical Engineering: MIT (4.8), California at Berkeley (4.6), Stanford (4.6), Caltech (4.3), Minnesota (4.1), Michigan (4.0), and Princeton (4.0).

Faculty members were also asked to rate graduate programs in terms of their effectiveness in educating students. Not surprisingly, effectiveness is closely correlated with the prestige of the faculty. In each discipline, however, a handful of programs were rated less than "minimally effective." Given the fiscal drought afflicting many campuses, such a rating is not going to help them compete for funds.

—COLIN NORMAN

An Assessment of Research-Doctorate Programs in the United States: Engineering (National Academy of Sciences, Washington, D.C., 1982).

Recollections of the Nuclear Dawning

Reminiscences by a panel of eminent nuclear pioneers at an American Nuclear Society (ANS) symposium on "Historical Perspectives, the Dawn of the Nuclear Age" produced no startling revelations but a number of interesting footnotes.

The leadoff panelist, fittingly enough, was physicist Eugene V. Wigner, one of the instigators of the famous Einstein-to-Roosevelt letter that led to authorization of the Manhattan Project. Wigner was also on hand when Enrico Fermi's group at the University of Chicago achieved the first controlled nuclear chain reaction. The 40th anniversary of that event on 2 December was the main occasion for the symposium at the ANS meeting in Washington, D.C. In his remarks, Wigner put something of a damper on the popular impression that excruciating suspense surrounded that first chain reaction. In fact it went according to plan. "It did not surprise any of us," said Wigner, "we expected it."

I. I. Rabi, like Wigner a Nobel Prize winner in Physics, had been in the know about the Manhattan Project but worked on radar development at the Radiation Laboratory at MIT. At the symposium, Rabi recounted how early in the war Arthur Holly Compton, a kingpin in the Manhattan Project administration, arrived at the Rad Lab on a talent hunt for promising scientists for his program. The Rad Lab at the time was engaged in the urgent task of developing radar for night fighters in Britain. Rabi said he figured that the bomb project already had more brilliant scientists than it needed. He admits he disingenuously downplayed the abilities of the Rad Lab staff, many of whom became stellar names in American science. Apparently convinced, Compton continued on his way, and Rabi remembers that "more or less by a trick we saved microwave radar for the war effort."

General Kenneth D. Nichols, a leading figure among the Army brass that oversaw the project and general manager of the Atomic Energy Commission in the 1950's, enumerated the factors he felt made the project successful. High on his list was security. It was not, however, keeping the Axis in the dark that Nichols stressed. "One of the big advantages of secrecy," he said, was that "people in Washington who liked to kibitz didn't know about it" and therefore couldn't "help" with the project.

A similarly liberating factor was that those in the project were "not bothered by excessive paper work." There were "practically no written directives." Nichols said that when he looked at the total collection of progress reports that were the basic record of the project, they fitted comfortably into one file folder.

Princeton physicist Henry D. Smyth offered his own modest version of how the first official description of the A-bomb became known as the Smyth report. Smyth had been commissioned to explain the origins of the project and the basic science and technology that produced the bomb to a press and public almost totally uninformed about nuclear science. It was released on 11 August 1945, three days after the Hiroshima bomb was dropped, and thus became perhaps the longest and most important press release in history.

A debate about whether to release the report at all was finally settled by an affirmative decision by President Truman. As Smyth told it, the subject matter was so sensitive that the title of the pamphlet, which was to identify the A-bomb project as the subject, was not printed on the cover. It was to be stamped on individual copies when the report was released. The stamp went astray so that the pamphlet was distributed under a long, unilluminating subtitle. And that, Smyth surmised, is why it became known as the Smyth report.

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