

## INDUSTRIES' VIEWS OF CURRENT CHEMICAL ENGINEERING EDUCATION

by

Maurice W. Mayer  
Esso Research and Engineering Company

In preparation for a paper presented at the Philadelphia meeting of ASEE, an extensive survey was undertaken in order to determine the industrial attitude toward current chemical engineering education. The result is a monumental 161-page report which has been distributed to all collegiate chemical engineering departments in the United States.

Results of the survey were summarized at the Philadelphia ASEE meeting, and the conclusions certainly will give chemical engineering educators food for thought. A few of the salient conclusions are quoted in the following paragraphs.

"There was a strong plea from industry for more chemical engineering and less engineering science. Industry does not expect a scientist when he hires an engineer. The engineer must have utilization and not knowledge as his goal."

"Industry is less displeased with undergraduate training than with graduate training, even though some schools are neglecting undergraduate activities in order to emphasize graduate work, too often of a research or pure-science flavor. Worse than this, good B.S. engineers interested in industrial careers in operations, management, and engineering are directed into graduate work simply because they are highly capable students. Industry has no objections to research-oriented graduate work for men headed for research or teaching. But it doesn't like a situation where all available B.S. men for industry are mediocre or poor students while the best students are enticed into doing graduate work in which they might not happen to be particularly interested. The problem is further aggravated when industry hires Ph.D.'s groomed in research, to do B.S. work in operations. Neither the man nor the company will be happy with this type of arrangement. And I won't even get into the problem that this causes with salary administration."

"Some comments from industry refer to the possibilities of graduate work leading to a Doctor of Engineering degree. This degree would differ in its objectives from the Ph.D. degree and proficiency in research alone would not qualify a man for it. What is really being said here is that extra schooling can be used to good advantage if it is used to reinforce the basic training of the first four years. Broadening the student, counselling him, and exposing him to the types of complex multi-answer problems that he will encounter in industry appeals to many of the industry people. Many companies have had good experience with M.S. graduates whose training was geared to industrial work. Likewise, industry has need for Ph.D.'s for research work or highly specialized engineering work, as well as Doctors of Engineering for design, operations, and management functions. The big problem is to get the proper types of individuals into the correct type of program under the proper group of teachers."

"One of the things that is so distressing to technical people in industry who are employing new engineers is the fact that so many of these new men come to work without being aware of the fact that good writing and good speaking are very important requirements vital to their success in their professional careers."

"Industry comments on improvement of chemical engineering faculties followed a definite pattern. One of the biggest objections is that too few faculty members have had industrial experience or are able to fully appreciate the situations with which the student will be confronted after he gets into industrial work. There is a feeling that industry could help with this problem by improving liaison between faculty and industry, by having members of industry visit the schools and talk with the students, and by having faculty members actually work in industry on going problems."

Copies of the complete report may be obtained by writing M. W. Mayer, Esso Research and Engineering Company, P.O. Box 209, Madison, New Jersey.