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A Retreat from Science?

There appears to be a growing number of editorials and articles lamenting the dwindling number of students who choose careers in science and engineering. Their authors cite such facts as these: the number of 1955 college graduates prepared as high-school teachers of science and mathematics was less than half the number in 1950; since 1900 the number of high-school students taking courses in physics has dropped from 19 percent of the total to less than 5 per cent; and there were only half as many engineering and science majors in the graduating class of 1955 as in the class of 1950.

These figures are accurate enough, but all of them require interpretation. In 1950 the peak of GI graduation was reached. Not only did more students finish college in that year than in any other before or since, but a larger than usual percentage of graduates were men. Given both the abnormally high total and the unusual sex ratio of 1950, it had to be expected that there would be smaller totals in following years and that the decrease would be greater in fields in which men predominate than in those in which men are a minority. Thus the comparison between the 41,000 men who earned bachelor's degrees in science (excluding engineering and other fields of applied science) in 1950 and the 22,000 who earned such degrees in 1954 looks like a rapidly dwindling supply of future scientists. But in percentage terms, each of these figures represents about 12 percent of all men in the corresponding graduating class. This comparison gives no support for fears that undergraduate men are fleeing from science.

In engineering, the situation is somewhat different. With some irregularities, engineering graduating classes grew, both absolutely and in relation to the total, from the beginning of the century to the end of World War II. Since 1950 there has been a large numerical drop, but this trend will be reversed as graduating classes get larger again. As a forecast for the future, it is perhaps less important that the number of graduates has fallen steadily since 1950 than it is that year after year since 1947 smaller and smaller fractions of all graduating men have specialized in engineering. The drop has been from 18 percent of male graduates in 1947 to 12 percent in 1954. Here *is* a trend to cause worry for the future.

While one must be cautious in interpreting some of the figures as evidence of a retreat from science, nevertheless there is a serious manpower problem in the scientific and technologic areas. There has been a decline since World War II in the percentage of students majoring in engineering. There has been a decline in the percentage of students preparing to teach high-school science and mathematics. There is a growing demand in both of these fields. A declining fraction of high-school students is getting adequate preparation in physics, chemistry, and mathematics. These trends justify grave concern for the future supply of scientists.

In considering future supply and demand, a basic point is the accuracy and reasonableness of the statistical information on which plans and predictions are based. The most carefully analyzed figures justify serious concern. The issue is confused and the case for better science education is weakened by using figures that are easily attacked as abnormal, unrepresentative, or subject to alternative explanations.—D.W.