

# THE CALTECH ALUMNUS

## I. His Origin, Background and College Career

by JOHN R. WEIR

*This is the first of a series of articles discussing various aspects of the questionnaire survey of alumni which was conducted last year. It deals with the statistics concerning the alumni when they were students at Caltech. Articles to be published in future issues of E&S will be concerned with political and religious affiliations, opinions and attitudes, income and occupation, and a comparison of science and engineering as occupational fields.*

IN A RECENT BOOK titled *They Went to College*, Ernest Havemann and Patricia West were able to make a good many interesting observations concerning the college graduate in America today. Their conclusions were based on a questionnaire survey of U. S. college graduates conducted by *Time* magazine and analyzed by the Columbia University Bureau of Applied Social Research. The circulation of the same questionnaire to the Caltech alumni now makes it possible to compare the Caltech graduate with this broad sample of college graduates from all over the United States.

The typical U. S. graduate is distinguished by his youth. Havemann and West found that one-fifth of the living graduates are past fifty, a fifth in their forties, and the majority, three out of five, in their twenties and thirties.

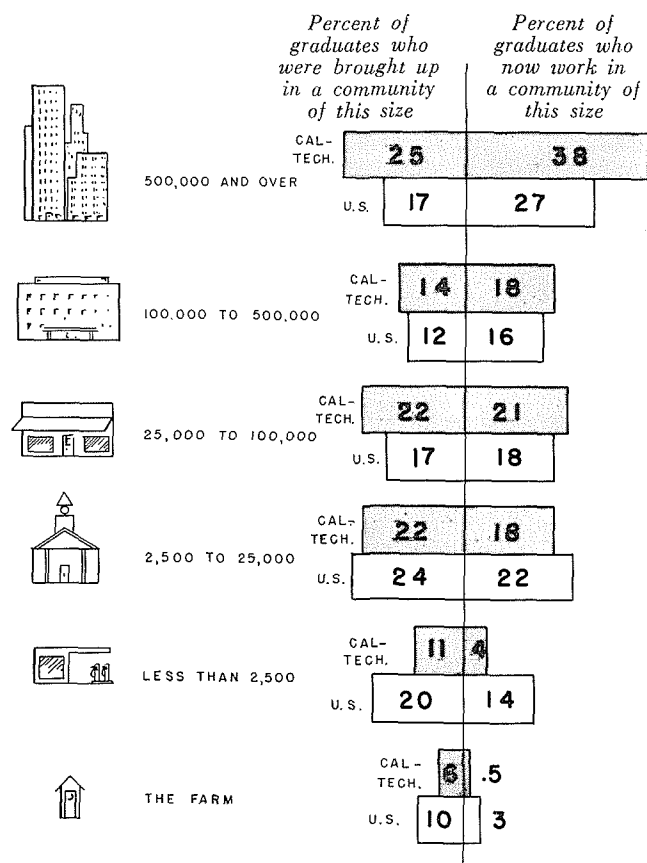
When compared with this group, the Caltech alumni are even more youthful. Less than one-tenth are past fifty, one fifth past forty, and almost three-quarters in their twenties or thirties.

This youthfulness is indicated even more dramatically when the Caltech alumni are grouped according to the year they obtained their degrees. Over half of them have received their bachelor's degree since 1940. Sixty-six percent, or two-thirds, have received their highest degree since 1940. And 50 percent have received their highest degree since the end of World War II!

This remarkable youthfulness is, of course, accounted for by the relatively recent establishment of Caltech as

an institute of science and engineering in the early 1920's. The youth of the Caltech alumni should be kept in mind when reading subsequent articles in this series, in which such matters as financial success and occupational satisfaction are considered, and comparisons made with the Havemann and West sample; for the Caltech graduate has not yet had as much time to make his mark in the world as has the typical U. S. graduate. The unusually high occupational incomes of the Caltech alumni,

### GETTING A DEGREE MEANS A MOVE TO THE CITY



to be reported in future articles, will undoubtedly be even more impressive when these graduates have had another decade or two to realize their maximum potentialities.

Caltech is a western school, and the origins of its alumni reflect this fact very clearly. While 70 percent of U. S. college graduates come from the East and the Midwest, only 23 percent of Caltech graduates do so. Barely 10 percent of U. S. graduates come from the West, but 66 percent of Caltech graduates come from here.

The Caltech grad comes not only from the West, but from the big city. As the chart on page 30 shows, almost two-thirds (61 percent) come from cities of 25,000 or more, compared with 46 percent for U. S. graduates. Furthermore, this tendency to concentrate in the big city is continued after graduation, for nearly 80 percent of the C. I. T. grads are now working in cities of 25,000 or more, compared to 61 percent for the U. S. grads.

It would seem apparent from this that it is the city-reared boy who is most aware of the desirability of obtaining a scientific or technical education. And one might also conclude that being a scientist or engineer means living in a fairly large city.

In addition to this movement toward the large city, there is also a migration to the West, revealed by the fact that 48 percent of our alumni were born in California or west of the Rockies, and 66 percent spent most of their post-college years there.

Probably the simplest and most obvious interpretation of these figures would be to consider them a reflection

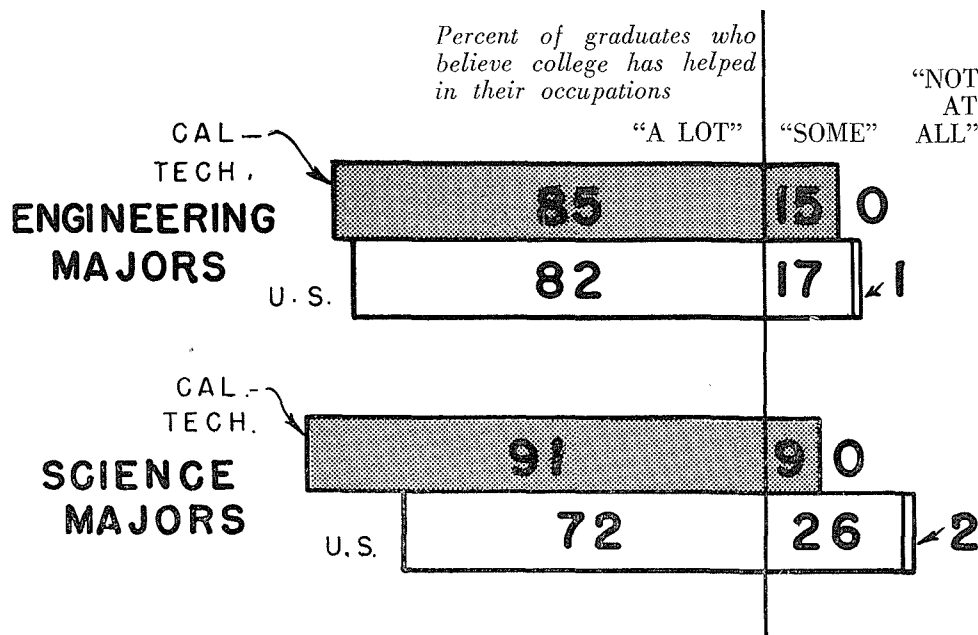
of the tremendous increase in the population of southern California and the Los Angeles area in the last two decades.

Havemann and West make the point that only about 6 percent of all Americans old enough to have a college degree actually do have one. Moreover, it is generally assumed that college graduates are not the big breeders in our society. So, one would not expect the parents of college graduates to have college degrees themselves. Of the men graduates in the Havemann-West sample, however, 32 percent came from families in which at least one parent had gone to college. At this rate, we might expect that about a third of our Caltech alumni would have at least one parent who had attended college. But surveys contrasting the educational background of the parents of engineering students with those of liberal arts students reveal, almost without exception, that fewer parents of engineering students have obtained college degrees than have those of liberal arts students. Therefore, we should expect that considerably fewer than 32 percent of our alumni will have come from families where at least one parent has attended college.

This is not the case at all. Not fewer, but *more*, of our alumni (50 percent, in fact) report one or more of their parents having attended college. Apparently the college-educated parent is more cognizant than the non-college parent of the benefits of having his son obtain a Caltech degree.

The old myth about college being a pleasant way for a young man to waste four years while his parents support him until he has his degree really *is* a myth. For Havemann and West report that of all the U. S. graduates in their sample, only 29 percent never worked at all during their college career. The remaining 71 percent

**COLLEGE IS A HELP IN YOUR OCCUPATION**



# CALTECH ALUMNUS . . . CONTINUED

worked their way in whole or in part, with more than half of them holding jobs after classroom hours during the school term. As they say, it is the rule rather than the exception for the student to pay at least part of his expenses through his own labor.

This statement is even more true when we look at the Caltech figures. Only 4 percent did not work at some time during their college years. Of the 96 percent who did work, two-thirds had jobs right through the school term. These figures are doubly impressive when one considers Caltech's heavy scholastic requirements and relatively long classroom and study hours.

The Caltech student is apparently highly motivated to get his training here, and is willing to make a considerable sacrifice to do so. That this determination and dedication to purpose is recognized and rewarded by the Caltech faculty is indicated by the fact that 42 percent of our alumni report having received a scholarship some time during their attendance at the Institute.

The most important comments about grades will be made in connection with later articles where occupational success in relation to college grades will be discussed. However, one interesting aspect may be mentioned here. The alumni were asked whether they got mostly As, Bs, Cs or Ds in school. Twenty-two percent reported getting mostly As; 50 percent got mostly Bs, and 28 percent mostly Cs. Only one person reported getting mostly Ds. These percentages indicate that the grade point average for the total Caltech alumni body would be a B. I am sure it is unnecessary to remind alumni of the toil and anguish requisite to the attainment of a B, for it is popu-

larly declared that a B at Caltech is the equivalent of an A elsewhere.

We accept this view, then, that 72 percent of the Caltech alumni got grades that would have made them A students and Phi Beta Kappas anywhere else, or to paraphrase the immodest claim of a well-known women's college: "A bachelor's degree from Caltech is the equivalent of a doctorate anywhere else." (But where did that D fellow come from anyway?)

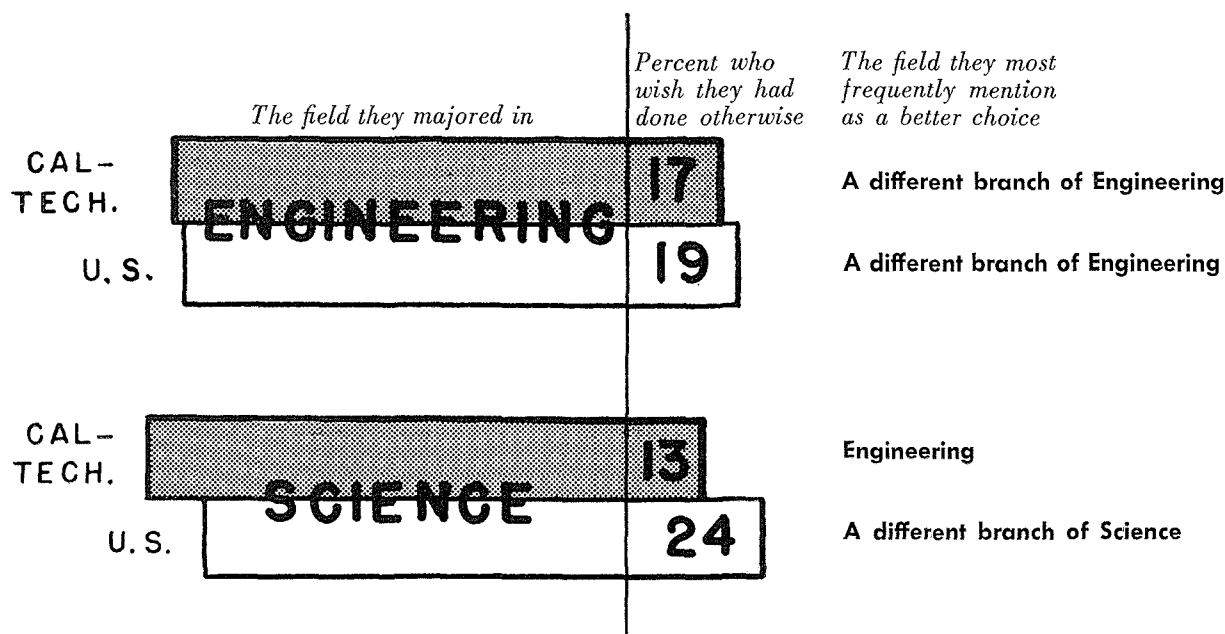
We will also have some interesting things to say about extra-curricular activities when we come to consider occupational success. However, we may comment in passing that, although the Caltech student does work very hard under a heavy scholastic load, and gets very good grades while doing so, he still has time for other activities. In fact, 87 percent of our alumni report having participated in some type of extra-curricular activity, whether it was sports, publications, music, politics, or what-have-you.

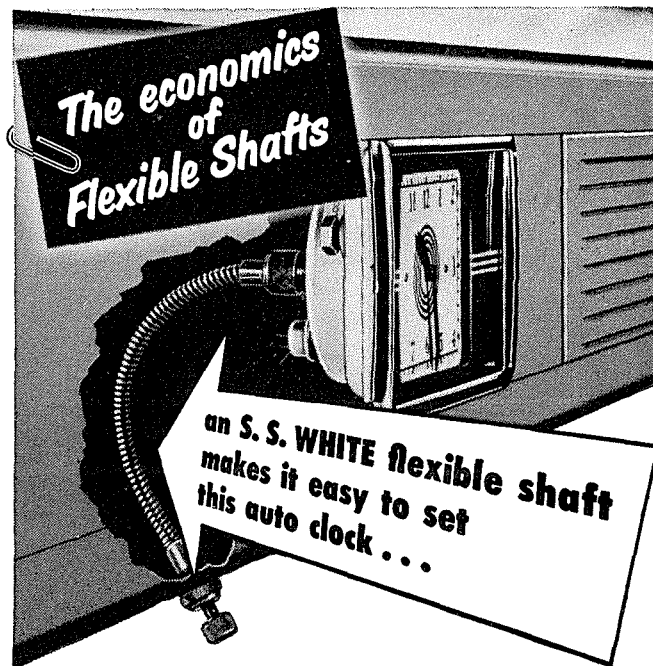
Of this 87 percent who were active, 68 percent concluded that it was of value after college. Of those who did not participate, half said they would if they were to return to college and do it all over again. These figures would indicate that seven out of ten alumni feel that extra-curricular activities in college are worthwhile.

Sixty-eight percent of our alumni majored in engineering and 30 percent majored in science. These figures are in interesting contrast to the U. S. graduate in the Havemann and West survey, where 47 percent of the engineering and science students majored in engineering and 53 percent in science. They also contrast with the current roughly 50-50 distribution of Caltech students between science and engineering.

These contrasts probably reflect a generally increased

## ANOTHER MAJOR MIGHT HAVE HELPED EVEN MORE





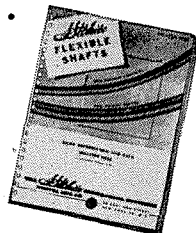
When this automobile clock was designed, its manufacturer had in mind the probability of varied instrument panel locations with the resultant need of an adaptable coupling to the control knob. He chose an S.S.White flexible shaft to do the job. As the illustration shows, this simple hook-up permits both the clock and the control knob to be located in its most advantageous position.

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## CALTECH ALUMNUS . . . CONTINUED

interest in science, as well as a tendency for the successes of Caltech science graduates in their own fields to lend prestige and honor to the California Institute—thus attracting more science students.

When we look at the highest degree obtained by our alumni, Caltech emerges as an outstanding center of advanced thought, for the number of alumni who have received advanced degrees (55 percent) is larger than the number who stopped at the bachelor's level (45 percent). Caltech is by no means primarily an undergraduate school. In terms of the degrees of its alumni it might be more accurate to call it a graduate school with a large undergraduate student body.

What does the alumnus think of his education, now that he's had it? Well, 88 percent of Caltech alumni would rather go back to Caltech if they had it to do over again, whereas only 81 percent of technical school graduates in general would return to their alma mater. Eighty-five percent of Caltech alumni are satisfied with their selection of a major subject, compared to 75 percent for the U. S. graduate.

This satisfaction with their education is also reflected in the fact that 84 percent of our alumni have followed the occupation they planned to follow when in college. Eighty-six percent feel that college has helped a lot, and 14 percent feel that it has helped to some extent in their present occupations. So apparently the vast majority of Caltech alumni are satisfied with their major, feel that it helped them materially in reaching their vocational objectives, have spent the time since they have been out of college working in their chosen jobs, and would go back to Caltech if they had to do it over again.

### In general

We can now summarize all these statistics with a few broad generalizations. When one compares the Caltech graduate with the average U. S. college graduate, he appears in a very favorable light. He comes from an educated family; he has been sufficiently motivated to help put himself through school, and is most apt to get some financial assistance from the Institute in order to do so.

It is very likely that he will go on for an advanced degree, and will continue to work in the field of his major for the rest of his life. He will be satisfied to do so, will consider himself more successful than the average person, and would go back to the same school to study the same major if he had it to do over again.

Even in the rare instance when he is dissatisfied, he would only change his major within the fields of science and engineering. Such satisfaction with one's lot in life is not at all common today. Perhaps all the toil and frustration one has to go through to obtain a degree from a school as rigorous and thorough as Caltech is more than compensated for by an extra measure of success and satisfaction in later life.