

# THE CALTECH UNDERGRADUATE

## —and What You Can Do With Him

**S**TUDENT DISSATISFACTION and apathy are so recurrent around Caltech that they hardly need describing. For the record, though, let's mention such current manifestations as the recent editorial in the *California Tech*, asking the administration, "Why aren't you doing something for the student?"; the constantly repeated query, "What am I getting out of this place?"; the number of people becoming uninterested in science during their stay at the Institute; the increasing number of "extra-curricular" majors.

In three words: We got problems.

I don't presume to be able to solve these problems, but I would like to take a square look at them, and put forth my own views in as frank and unclouded a manner as possible.

First, I should state that I myself am unclear as to just how many fundamental problems are represented by the manifestations cited in the first paragraph. Is there really only one big problem to solve, or are there, say, two or three—or are there a whole flock of them?

### Maybe not many—but major

I tend to favor the idea that we have only a few major difficulties; and I also feel that, in the past, we have been running around trying to alleviate a multitude of minor grievances without getting at the heart of the situation. In a sense, we have been trying to shore up the individual ceilings of a many-storied building, when we ought to be trying to keep the whole structure from falling on its face.

We've had physics and math clubs grow up in an effort to make students interested in physics and math. The administration has gone all-out to stimulate the faculty advisors program. The Leaders of America program has come about in an effort to acquaint students with some of the big men of our country and the big problems that they face. Student leaders initiate many new and unusual social events and then spend endless hours cooking up ingenious ways to get other students to go to them.

Now, all these things are good, and some are so unique and so worthwhile that they represent really outstanding achievements. But they don't—and by themselves, won't—solve the problem of student dissatisfaction and apathy.

One of the real big problems is Caltech's own uniqueness, and the ivory-tower regard which the general public seems to have for science. Student feeling goes something like this: "The outside world thinks that, if you go to Caltech, you're queer unless proven otherwise; but, by God, *we'll* show them."

And so the rat race starts, with the students outdoing themselves to prove that they are perfectly normal human beings. They study as little as possible, and sometimes even less than that; they have a fantastic number of social events; they have an almost unheard-of turnout for athletics; they have boundless criticism of science, the administration, and Caltech in general.

Some of these things are to be fostered, and some are a crying shame, but all, I believe, are a result of the fact that the students want to prove that they are normal human beings.

Now let us look at the other side of this picture. It is one thing to be proud of Caltech, but you don't have to be around the Institute long before you become aware of the unusually high opinion students have of themselves with regard to the fact that they are "Tech men." This seems to be an attempt to reap whatever harvest can be made off the general public regard for Caltech and its students. For example, I heard the following in a recent bull-session: "But we're engineers and we wield much more general influence than the average man in the street." I don't want to debate the validity of the statement here, but I do shudder a bit at the matter-of-fact way in which it was tossed out.

### Double-reversible reactions

So we have these two somewhat ambivalent reactions arising out of the general public impression of Caltech—one of trying to disprove that impression and the other of trying to make hay while the sun shines.

The other really big problem confronting most students here can be summed up most succinctly by, "Where in hell am I going, anyway?"

This seems, quite clearly, to be a result of the fact that students don't really come to understand what science is all about, or how rewarding it can be, during their undergraduate careers. Going to school is a long hard grind, which nobody will deny; what's more, it looks as if it will get worse. Scientific education today is harder than it was for our fathers by just the factor

that describes the 25 years of scientific advancement that has taken place since they were in college. Thank God that we aren't our children; 25 years from now it's *really* going to be rugged!

Getting back to the present problem, however, I think the situation goes something like this: New students come here all fired up about science and Caltech. Their one major goal in life is to become educated scientists or engineers. The trouble is that they come here to get educated, but they don't come prepared to wage the long, nasty psychological war that goes along with it; so somewhere along the way in their Caltech career they lose interest in the thing that was once their chief aim in life! When this happens, there is no reason why they shouldn't become uninterested and apathetic about almost everything else.

### Where do we go from here?

As I said, we got problems. What do we do about them? (Having stuck my neck out this far, I see no reason not to keep on going).

One of the things I think we can do is to completely deemphasize whatever outstanding academic talents our students may have. Perhaps we can't do much about how the general public feels, but we certainly can do something about the approach to students, particularly new students, taken here on the campus. The first thing I heard when I went to Freshman Camp was what a brilliant student I was. Why, my being a Caltech freshman meant that I stood in the 90-nth percentile of all students in the nation!

That kind of thing should be strictly taboo on this campus. I think that a much more fruitful general approach would be something like this:

"We certainly welcome all of you here, but we want to point out that, individually, you are all of roughly equal intelligence, and as a class you are about par for the course. Also we want to point out that Caltech is not a place where we train brilliant young men to be outstanding scientists; it is a school where normal young men can come to get an education if they want to work for it."

### A new approach

The approach to students throughout their career should not be that Caltech is here to train men who are already brilliant, but rather that Caltech is here to develop men's personalities and wits through the medium of a technical education.

There are doubtless those who will hasten to point out that all this is just a denial of the truth. To these I would answer that most of the seniors that I know feel, at long last, that they don't know a damned thing! They haven't been trained for anything.

It's not a particularly uncomfortable feeling, it's just

the way the world is; and the more I consider the situation, the more I feel that nobody is so bright or knows so much that he needs feel self-conscious about it or that he can afford to carry a chip on his shoulder. I know plenty of people who know next to nothing about science and who possess only a casual interest in the field, but whom I consider to be more intelligent, more productive and better adjusted than I. To pick a case in point, look at some of the men in our own Humanities Division.

### A question of experience

In discussing the problem of keeping students interested in their work I should like to use an analogy. If, as has happened all too frequently in the history of warfare, a prisoner is placed on the torture rack in an attempt to extract information from him, his ability to withstand the ordeal and keep his mouth shut is a direct function of his intestinal fortitude, the stability of his personality and the strength of his convictions. You could talk patriotism to him a mile a minute and it wouldn't do one bit of good. What counts is what is already inside of him, based on his own *personal* past experience. Likewise for the student who must run the four long miles through his undergraduate career. You can stand there and preach the wonders of science to him until doomsday, but unless he has experienced them himself it won't help a bit.

### Time to get excited

What must be done is to give the student a chance to participate in some field of scientific endeavor when he is not under the strain of going to school, when he has the time to get excited about it. What I am advocating is an all-out effort on the part of the administration and faculty to assist and encourage (I almost want to say *force*) students to take summer jobs in a technical industry. It seems to me that, between the Institute and the alumni, some program of summer technical work could be set up. I know that we all like to think that students are far enough along to take care of things like summer jobs by themselves. But if the thesis of this dissertation is correct, these students need help.

In closing I should like to point out that I—at one time or another, and usually more than once—have had every one of the problems mentioned herein, and I have made an ass out of myself a good many times as a result. There will be those who don't agree with either the premises or the conclusions reached here. That's fine; let's generate some new ones. Somehow, some way, we can beat this problem, and students, faculty, administration, alumni and friends of the Institute can all lend a hand.

—Fritz Trapnell '56