

LOOKING BACKWARD

A senior reflects on what he's been through

MUCH HAS BEEN WRITTEN in recent issues of *Engineering and Science* about Caltech undergraduates and the education they receive. This column is devoted to the same subject for certain very special reasons: first, some important things were left unsaid; and second, the topic appeals to this writer as the subject of his last column before graduating. It may be that the goldfish is not in the best position to get a perspective on the goldfish bowl, but his views at least deserve to be considered.

Caltech, in common with all other institutions of higher learning, is not perfect. The first and most serious drawback to an undergraduate education here is the fact that students are so busy doing home-work, keeping up with courses, and worrying about grades that they find themselves in a mad race to graduate before they lose all their interest in science or engineering. They do not have enough time to think; they have insufficient leisure to contemplate the world around them or even to realize the significance of their own studies.

The successful student

The successful student is the one who can answer the right questions; and Caltech students are generally successful as students. But the truly creative scientist, while knowing how to *answer* questions, must, in the course of his work, be able to *ask* the right questions. The extent to which the rush, pressure, and grinding competition of a student sojourn at the Institute foster the type of creative thought indispensable to real achievement in science is at least open to question.

On the personal side, the fact that an undergraduate participates in some extracurricular activities in no way guarantees that he is learning anything from them; extracurricular activities are ultimately more profitable from the experience gained than from their value as an escape mechanism for relaxation. And leisure time is as necessary for the proper conduct of extracurricular activities as for the proper assimilation of the theories and facts of the classroom.

In response to the argument that Tech students cannot find sufficient leisure time, it can be said that a person cannot ask the right questions unless he knows what he is talking about. Thus everything an undergraduate studies would correspond to the long lists of vocabulary a first-year German student must memorize before he can sink his teeth into Goethe. In other words, to eliminate this greatest defect in our undergraduate education would take the "Caltech" out of Caltech.

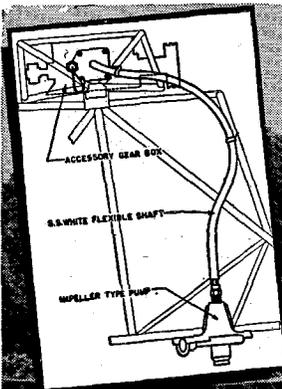
It's homogenized

The second major drawback to an undergraduate education at Caltech lies in the intellectual homogeneity of the student body, collectively speaking. It may be that the average Caltech student is more well-rounded intellectually than the average science or engineering major in other schools—and recent examinations strongly suggest that he is more well-rounded intellectually than the average college student in *any* field. This does not mean, obviously, that the entire undergraduate student body is more well-rounded. The Caltech student body can be compared to a magnet in which no particular molecule seems different from any other, but when considered collectively they tend to have a common orientation, and can even produce an effect on other molecules. The fact that this writer uses a scientific analogy serves to illustrate the point.

This criticism can easily be answered, but not denied, by pointing out that it would be impossible to have a school with non-technical students, and with Tech's standards in technical subjects, without sacrificing the many advantages offered by Tech's small size. Once again we see that for every "heads" there must be a "tails."

Of the three major drawbacks of a Tech education, perhaps the least important in the long run is the absence of coeds. This is most easily rationalized away by trying to imagine what the girls would be like if they were interested enough in science and engineering to come to a school like this.

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This column very rarely draws conclusions, even when it does say something. But we are forced to the conclusion that these shortcomings of our education are inherent in the very nature of the *raison d'être* of Caltech. One possible defect has not been mentioned: the quality of the teaching. Because quality of teaching is seasonal as well as subjective, it would be difficult to prove that there is any real cause for griping. It must be remembered that because of the greater pressure of studies at Tech, students would be expected to be hypersensitive to deficiencies in their teachers. This idea is corroborated by the observation that students here can tolerate and almost like a poor teacher who grades easy, whereas an equally poor or slightly better teacher who gives lower grades is a pedagogical ogre.

They all come back for more

The last point to consider is that Caltech students, despite their griping, almost always seem to come back for more (when they are allowed to). Even if Tech students gripe more than students in other colleges, it does not necessarily mean that there is more to gripe about here. It is significant that Tech students spend more time talking (and writing) about what is wrong with our school than what is right with it. No matter what school a person attends, he will be missing something.

If it is true that a chain is as strong as its weakest link, then Tech undergrads know where the weak links lie, and can thus compensate for them. If we have been exposed to a one-sided environment, nothing is more healthy than to politely and carefully revolt from it. This helps to explain the existence on our campus of a team for every major sport and most accepted minor ones, a drama club, a glee club, and even a literary magazine. This also explains the very sensible and healthy attitude of our students toward many of these activities, especially athletics. To pursue this line of reasoning any further would take us into the advantages of a Caltech education, which, as the reader may have guessed, were not chosen as the theme of this essay.

An optimistic note

We can, therefore, end this discussion on a note of optimism: Caltech students are at least keenly aware of what they are missing. It reminds one of the story of the former office girl who returned to the office after her honeymoon and said to her girl friend: "Married life is really wonderful. You just don't know what you are missing!"

To this the girl friend replied, "Oh, yes I do."

—Al Haber '53