Engineering: Renew Its Luster

The percentage of college freshmen entering engineering is steadily falling, while student unrest is rising. Is it pure coincidence or natural concomitance? Engineering has long lost its luster on the campus. To the student, engineering at best appears as a maidservant to science. But physical sciences fare no better. This is not surprising considering that the public has been led to identify science with technology. Unfortunately for science, what youth sees in technology are not the benefits to civilian life but the ugly manifestations in warfare.

It would be a mistake to blame our military involvement in Vietnam as the only cause of student unrest. Dissatisfaction with the academic establishment goes much deeper. It does little good for some university presidents to remind students that the "primary function of the university is the transfer of the intellectual treasure of mankind to the next generation" (*1*). Most students care little for the intellectual treasure. What they expect from the university, what they have been led to expect from the all too glamorous accounts of the omnipotence of science and technology, is a prospect of a better life: better jobs and also better solutions to the problems which make their lives insecure—threats of war, poverty, and discrimination. Instead, what they find, or believe they find, are the parochial scholarly pursuits of the academic community: a dissemination of knowledge (and its advancement) in small bits, each faculty member engrossed in his particular field with little regard to the broader issues.

Nor are the students alone in demanding greater involvement of the universities in real life. It is a fair bet that future federal contracts will show distinct preference for proposals with clearly stated social objectives. University administrators are calling for this kind of research. Yet the interdisciplinary programs for graduate students which are less specialized and intended to be more socially significant fail to meet the students' expectations. By nature and tradition engineering is, or ought to be, socially oriented if mankind is to be saved from the excesses and side effects of a technology running riot. It is not too late for engineering departments to rally both engineering and nonengineering students around problems of true social significance. One is the rehabilitation of the physically handicapped. Aside from the obvious problem of physical adaptability, a worthy subject of study for engineering and medical students, there is the equally serious problem of social acceptability—a gratifying challenge to social science majors. This and similar studies in other areas, such as sanitation and safety, admittedly do not possess the scope and appeal of the burning issues of today, but they do have an interaction between technical feasibility and social acceptability and they should attract students who want experience in minor present day problems in order to prepare themselves to cope later with the major crises of our times.

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Reference

1. K. S. Pitzer, *Science* **162**, 228 (1968).

Descent of Man

The truly fascinating article by Kellogg ("Communication and language in the home-raised chimpanzee," 25 Oct., p. 423) prompts us to record remarkably similar gestural communications in laboratory-raised *Homo sapiens* (var. *postgraduatensis*) observed over a period of years in this and similar institutions, and tabulated in summary form below.

Gesture signals of experimenter.

Behavior pattern	Interpretation
Biting or chewing at clothing, fingers, or ball points	It worked last time
Protruding lips toward cup	Coffee break
Concealing cup	Here comes the boss
Climbing into high chair	I am the boss
Removing white coat	I quit
Taking hand of (visiting) experimenter, and hanging on to it	I need a job
Putting hand to bottle	What the hell
Throwing self to floor	Reaction is highly exothermic

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Malaria: A Problem for All Time

A note was struck in the subtitle of my article ("Malaria and victory in Vietnam," 20 Dec., p. 1346), "The *first* battle against drug-resistant malignant malaria . . ." which, much too soon, proved to be prophetic. The article was up-to-date when I corrected galleys, but on 16 December unpublished information was brought to my attention which indicates that the *second* battle of malignant malaria is much closer than I believed.

In the first place, while I reported resistant malaria as having been identified only as far east as Singapore, it has recently been reported in many areas of the Philippines, and widely over northern South America. It is clear that resistant malignant malaria is on the march.

In the second place, the history of the changing character of the *Plasmodium falciparum* has already been repeated by the appearance, in southeast Asia, of cases of malignant malaria caused by strains of *P. falciparum* which do not respond to the treatment which I so recently described as being remarkably effective. The reasons are not known.

These remarkably prompt developments support the thesis of my article which was that in malignant malaria we not only had a formidable foe which had never absolutely surrendered to any new treatments, but also that this disease would probably be man's problem for all time and that we can never afford to be complacent about malaria. It is imperative, therefore, that we have a continuous full-fledged antimalarial research program in operation in peace as well as in war.

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