

Letters

Nurture of the Entrepreneurial Spirit

Johnson has indicated that the "sources of new-company formation have been university and government laboratories, and industrial corporations" ("Education for management and technology in the 1970's," 10 May, p. 620). But he is disturbed by the entrepreneurial brain drain from the corporation and rightfully warns that it tends to weaken the business corporation. One cause of the brain drain is the failure of the corporation to adequately motivate and challenge the scientific entrepreneur to develop within the corporate framework. Another is that attitudes and policies in the large corporation often work to defeat the entrepreneurial spirit and efforts of the scientist. Consequently, many leave to set up their own businesses.

I do not argue with these observations. However, the university is also at fault in failing to nurture the entrepreneurial spirit in those same technicians or scientists Johnson refers to. The American university undoubtedly does much to nurture the scientific mind, but no encouragement is given to develop managerial or executive skills. As a matter of fact, the attitudes of many academicians discourages those values which lead toward the development of entrepreneurial skills in the young scientist. Several years ago, Snow created a furor in England when he pointed to the existence of two cultures. On the American campus, Sir Charles would undoubtedly find not two, but three cultures: scientific, literary, and business administration. Unfortunately the three entities are uninformed as to each other's contents and values, all to the detriment of the student.

Both the corporation and the university are at fault in putting up barriers against the entrepreneurial spirit, but for different reasons. It is a wonder that anyone at all can be found these

days willing to engage in the risk-taking behavior so characteristic of the entrepreneur. Are we becoming more and more a nation of dependent conformists?

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French "Expert" on Vietnam

Greenberg ends his review of the State Department's refusal to grant Laurent Schwartz, celebrated French mathematician, a visa for the United States with the question asked by the State Department in response to an inquiry from *Science*: "What do you think?" (10 May, p. 630). Schwartz had been scheduled to speak on mathematics at the Berkeley Centennial. To answer that question, I think "Amen" to the State Department's request that Schwartz not enter into political activity or speak on Vietnam, to which he refused to agree.

U.S. mathematicians would undoubtedly derive considerable from the mathematics address. How about Vietnam? Has Schwartz been in Vietnam in the last year or two or three? Are there any authorities on Vietnam in France? We can hear or read from certain "experts" on this subject every day. I could talk any day with several local people who have been in Vietnam recently. The college registrar could round up a hundred, more or less, students recently home from Southeast Asia. They have some rather independent ideas about their homeland politics, ideas that may not be in full accord with those of their leaders or the leaders of Asian, European, or American countries, but at least they have lived in the land with the natives. . . .

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Drug Habits and Immaturity

I'd like to make a candid reply to the critics of Abelson's editorial "LSD and marihuana" (15 Mar., p. 1189). The four critical letters (7 June) cast some sharp and even scientific arrows, but they all missed the main target. The truth is that the habitual use of marihuana can and does seriously alter the behavior and personality of immature young people. If your youngster rather suddenly (i) becomes alienated against you, (ii) drops his old friends and acquires a new and different sort, (iii) has a sharp drop in school grades, and (iv) abandons his commitments and plans for the future; then you had better find out what is going on.

I don't pretend to know the solution, but the scientific and sociological hairsplitting in the four critical letters will not be helpful. It will do little to assuage the heartbreak and agony of parents, doctors, and guidance counselors who are trying to help young people. Neither will it help the youngsters. Certainly we don't know all the answers, but we do know that these drugs can destroy young people. We need more evidence of the effects of drugs, but not so much as we need some rational method of control of their use. In these days we have education for the "whole man" so why not include drugs?

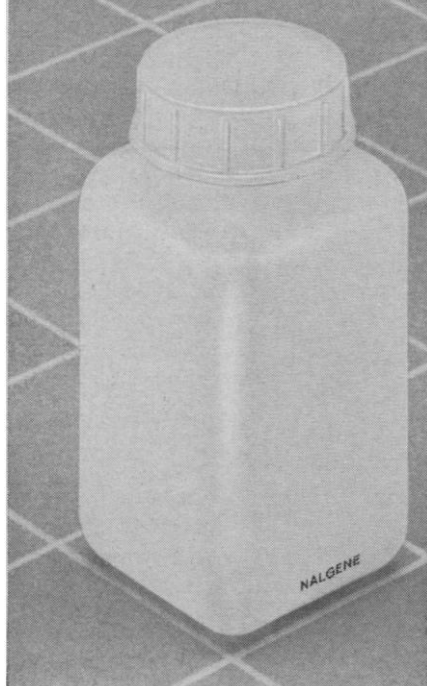
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Plea for Fundamental Training

In his editorial on "Matching education to jobs in developing nations" (7 June, p. 1067), Singer makes an eloquent plea for developing nations "to plan quite carefully the training and utilization of their human talent." I agree with this, but disagree that planned specialization is the pragmatic solution. On the contrary, there should be minimum specialization in the training of engineers and scientists in such countries. Instead, the training should emphasize the fundamentals of engineering, science, and economics with specialization only in broad areas; for example, electrical, civil, and mechanical engineering, and organic, inorganic, and physical chemistry. The reason for this is that, in spite of what would appear to be good planning, the future needs and trends of developing countries cannot be foretold accurately

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enough to allow efficient use of specialists. Therefore, for a period, there is going to be a great need for technical people who can readily shift from one specialized task to another until the marketplace or politics becomes sophisticated and established enough to influence and to justify the training of specialists. One needs only to look into the past of this country to verify this tenet. Specialization in science, engineering, and medicine took place here only after a period of generalized training in these fields. All in all, training of specialized technical persons in a developing country, especially at an early stage, can lead to a greater waste of trained manpower than would a broad education in fundamentals.

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Measuring Racial Differences

In connection with Clark's letter, "In defense of dissent" (5 July), a scientific investigation of possible racial differences in intelligence may be of interest, but I wonder if a truly scientific investigation is possible in present human society? Human beings cannot be gathered into isolated and well-defined categories, as can bacteria, insects, or other types of animals. Every man and woman is a product of the human community and is influenced by it, through education or lack of it, through the media of communication, as well as through encouragements and through threats. Intelligence is not a function of the isolated person, but is a combination of cooperations and antagonisms. Every respondent will bias his replies to investigations or questionnaires according to his conception of the use that he believes will be made of the results. Since problems of racial difference are being so hotly debated, the application of the term "scientific" to a study undertaken in the present epoch of history will be illusory. Such studies should wait until it has been possible for our society to achieve conditions for unbiased research and in which, perhaps, the questions can also be better formulated. Sometimes scientific techniques do well to step aside for a while and give way to discretion until newer insights have developed.

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Teaching: Who Is Being Rigid?

Albert Weiner suggests that engineers and scientists who are contemplating retirement might welcome the opportunity to teach science or math (Letters, 14 June). This letter, like many others, represents what I believe to be wishful thinking on the part of engineers and scientists. I never see letters like this from academicians. For example, I have personally found there is no university or state college in California interested in the services of an individual with a new Ph.D. in applied science and over 20 years of previous experience in engineering and scientific work. They "justify" this view with such comments as "too old," "no teaching experience," "insufficient publications," "too much management experience," "concern about rigidity."

I respectfully submit that anyone who can return to school after 20 years away and get a Ph.D., in competition with the outstanding young men currently enrolled in any good graduate school, cannot be rigid. However, the hardening of the arteries of the academic community is quite apparent and has convinced this writer that teaching is not the place to look for constructive creative work with leaders of the future.

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Frederick II, Natural Scientist

In any list of royal personages (Figueira, Letters, 5 July) who have published scientific papers, surely the Holy Roman Emperor Frederick II of Hohenstaufen deserves mention. His *De arti venandi cum avibus* (1245) was one of the few contributions to true natural science between Aristotle and the Renaissance; the description of the uropygial or preen gland, for example, shows a clearer appreciation of its structure and function than some 20th-century work. Surely the grandson of Frederick Barbarossa should head the list of reigning monarchs with scientific publications, by virtue of seniority over Carlos I of Portugal and Hirohito of Japan.

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