Letters

Student Motivation

An additional factor relating to talented students' decisions to become scientists is the *source* of the motivation expressed at the end of the high school years that a scientific career is desired. In Alexander W. Astin's article [*Science* **141**, 334 (26 July 1963)] this "career choice" is listed as the first control variable. For the purpose of his interesting and suggestive study this is undoubtedly essential. However, upon reflection it is surely plain that a 17-year-old's stated choice of future career is by no means independent of outside influences, the nature of which may vary from person to person, and, importantly, high school to high school.

A key element, it is suggested, is the extent to which the high school accents training in mathematics and science. In my experience, the quality of high school teaching in science is often higher than that available in other fields. Mathematics in particular is often well taught, and it has the advantage to an able student of offering—at the high school age level—a limitless and satisfying challenge. Other subjects, such as English and, in particular, the social studies, are often badly taught. They are hardly treated as academic disciplines, serving rather as a means to provide basic training in democracy, civics, and American history. In general, the high school subjects which, by name at least, parallel college and university offerings in the humanities and social studies, are taught with less skill and precision than the high school courses presaging college mathematics and science. A high school graduate starting college courses in English literature, political science, or economics—to name three standard subjects—often makes an intellectual quantum jump from the non-academic high school approach to the rigorous, disciplined, mentally challenging learning experience that these subjects offer at the college level.

The point of this note is not to comment on the quality of high school teaching but to observe that a talented high school student without a pronounced bent toward a particular academic speciality may be moved to favor a scientific career because it is only in science and, particularly, mathematics that he has undergone an intellectually satisfying learning experience. When in college he discovers a similar mental challenge in other subjects—which may in fact be more congenial to his disposition than the discipline of the laboratory—he switches away from a subject to which he was attracted in the first place only because it was better taught.

It would be interesting to examine this thesis, and other explanations that can be offered for college-level switches away from science, by means of a study-in-depth of the reasons given by college students for changes in previously selected career choices. Such a study might shed light on the personal qualities that lead one student to be a scientist, and another, equally able, not to. It can be argued that there is a quality of scientific "temperament" which is to some extent independent of ability and career choices expressed at an early age. It would be interesting to know if this is so.

FRANK A. SIEVERTS
4122 18th Street NW,
Washington 11, D.C.

Identifying Epithets

As a constant and even avid reader I find myself asking myself from time to time such questions as I asked myself today: What is a *Littorina littorea?* [*Science* **141**, 275 (19 July 1963)]. The article itself, which was otherwise quite unexceptionable, told me only that it is an edible mollusk, and that I had already guessed. Perhaps for their purposes the authors had told me all that they felt I needed to know, but now I envisage Viking ships skimming across the Atlantic while small mysterious creatures float? crawl? swim? lie? in the water in the bottom, waiting for their freedom on the farther shore. It is unsettling. It would be most informative for the less specialized or sophisticated reader if some small identifying epithet could be slipped into an article at the first mention of an organism. Sometimes, of course, the nature of the creature is evident from the context or the illustrations, and often (as in this instance) it doesn't make a great deal of difference whether the reader knows what the thing is or not, but I for one feel more comfortable if I know whether the vascular structure being examined with such care is from a common tropical tree or a rare arctic vine, whether the ganglia under observation are from crayfish or cockroaches, whether the threatened infestation is of slimy things with legs or crawly things with none. All too often I never find out.

S. JAMES GOFFARD
Human Resources Research Office,
300 North Washington Street,
Alexandria, Virginia

Publicity Needs of NIH

D. S. Greenberg's comments on the Fountain subcommittee and the NIH [*Science* **140**, 1194 (14 June 1963)] are so irrelevant and misleading that they threaten to spoil his good record in reporting this difficult business.

It seems to be quite true that NIH has not conducted a very active lobbying operation in Washington and has contented itself with a relatively modest publicity campaign on the national scene. The remedy, if one takes Greenberg seriously, is for NIH to adopt the policies of the Armed Forces and NASA. Despite his disclaimers, Greenberg's article implies that the military liaison people and NASA are conducting their operation effectively, and therefore properly, when they establish contact with congressmen by inviting them ". . . to take a ride on a Polaris submarine and to crack the sound barrier in a fighter plane." And as for the space agency, it ". . . is always ready to oblige any winter-weary congressman who feels that a look at sunny Cape Canaveral would put him in a better position, or a kinder frame of mind, to appraise the space program." It is also