Letters

NIH Grants: New Policies

We assume that the "directive of the National Institutes of Health" referred to by Allan Bass (Letters, 10 June) is, in fact, the 1 March 1966 Policy Statement issued by the National Institute of General Medical Sciences governing its more than 600 graduate research training programs in the basic medical and clinical sciences. These programs received support totaling more than $41 million in fiscal year 1966.

The NIGMS Policy Statement was issued to all current grantees and is made available to all applicants for graduate research training programs. In no sense does our statement direct that "once a graduate student is put on a fellowship supported by a training program he remain on that program throughout his graduate study" as stated by Bass. On the contrary, the NIGMS Policy Statement contains the statement that "research training grants are intended to provide a continuous source of support for the individual trainee throughout his research training period in order to enable him to concentrate on research training, and thereby shorten the time required." This is a statement of intent, but not a directive. In addition to providing a means for the improvement of graduate research training capability, our objective is to provide the opportunity for training program directors to assure support of a graduate student until his training is completed. Since the NIGMS policy permits a trainee to undertake appropriate course work, teaching, and research while fully supported by the training grant, it assures the very flexibility which is described in Wolfle's editorial of 1 April. (Wolfle's editorial sounds much like a superb justification for training grants!)

The practice referred to by Bass of supporting all graduate students on a training grant for one or two years and then transferring their support to a fellowship or a research grant has several disadvantages. First, when a highly qualified predoctoral trainee, who is already identified as meriting federal support, is forced to compete for a fellowship, or to seek a research assistantship, he is diverted from his (and our) main objective, the doctorate, to coping with the very real problems of obtaining adequate funds with which to complete his training. Second, the paperwork necessary for fellowship applications is an unnecessary waste of trainee, referee, review panel, and NIH staff time, when the training grant has already provided a block of traineeships (fellowships) to a program director. High quality training programs are usually assured of support for a minimum of five years and thus the training grant budget base is much more stable and predictable than the fellowship program.

In addition, it was never our intent to provide support for all of the first-year graduate students in a department, but rather to provide for the support of the carefully selected, most promising ones until their training is completed. Furthermore, the implied use of research grants instead of training grants to support graduate students is a misinterpretation of the purpose of the two types of support. The primary purpose of the NIH research grant is to accomplish medical research, not to train graduate students. Students supported by research grants, moreover, in order to comply with research grant regulations, must perform services not necessarily related to the thesis, thus materially lengthening the time required to complete graduate training. Students supported by research grants are university employees and may lose the freedom they should have in the selection of their thesis projects. The use of graduate students as technicians on research projects, in the face of available traineeships, is, in our judgment, a questionable practice, and is contrary to the plea of Wolfle's editorial. Finally, the budget for training programs is justified to the executive and legislative branches of the federal government primarily on the basis of productivity of well-trained scientists in the shortest possible period of time in order to alleviate known manpower shortages. The use of training grants as a convenient screening device merely to provide support only for first-year graduate students was never an intended purpose of the training programs, and the direct measurable output resulting from such practices is obviously zero.

Bass further states that the "directive will unquestionably reduce the number of graduate students in our department by a third, possibly by a half . . ." This, to us, is an astonishing conclusion. Nowhere does the NIGMS Policy Statement require a reduction of student support; it merely encourages continuous support. If the funds available in Bass' approved training program do not permit him to carry out the intents and purposes of NIGMS training programs, he (and others who might have misinterpreted our statement) is encouraged to apply for supplemental funds, on a competitive basis. It is of interest to note that of over 600 training programs now in existence, currently more than 500 are already operating along the lines suggested in the NIGMS Policy Statement.

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Directing Public Support

E. W. Price (Letters, 22 April, p. 447) scolds scientists for questioning public enthusiasm for the moon mission and claims that decline in public support for it would lead to "the disappearance of a force that has made every American a participant and sponsor of progress." From this and from the "difficulty of placing value in advance on the outcome of exploration" I would not conclude, however, that we should devote the lion's share of our resources to a single highly questionable project.

Unfortunately, programs which are likely to make a major contribution to human welfare are also likely to be controversial just because they really touch a large number of human lives and often deal with inequities from which powerful minorities benefit. It therefore requires a little more political courage and skill to advocate, initiate, and guide them than to promote a safe, remote, and largely irrelevant project such as the moon mission. . . . But to pick a costly

scientific program on the grounds that it is glamorous and can be effectively promoted by some gimmick such as "a man on the moon by 19XX" shows the same kind of irresponsibility and moral failure as is shown by those advertisers and manufacturers who style their products according to popular fancy at the expense of function and durability and even of the personal safety of their users. With such a strategy we may well gain the moon at about the same time as we lose the earth.

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In my letter I did not take the position that the Apollo program was the best choice for allocation of national resources in science and technology, but rather that it is naive to believe that the choice of allocation is simple, or meaningful in the absence of public support. Still more important is (I feel) the enjoinder to scientists to pursue responsible roles in the allocation procedure, with some measure of the objectivity and intellectual honesty that is so essential a part of science.

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Freight Trains

In "Speaking of space" (13 May, p. 875) David McNeill shows how we can try to translate "technical" writing. His suggestion that the word order of nominal compounds be reversed helps, but it does not replace the missing prepositions. Lawyers and physicians may have some reason for speaking in language that laymen cannot understand, but the language of scientific reports should be as simple and direct as possible. Technical terms that have precise meaning are necessary, but jargon should be resisted every time it appears.

Soon after one of my associates started working with an interpreter in order to communicate with Koreans, he asked the interpreter why it took so much Korean dialog to transmit the idea of a simple statement. The interpreter explained that he had to phrase the idea in many different ways so that it would not be misunderstood. My friend learned that Koreans commonly use only two prepositions. He agrees that the nominal compound, as illustrated by McNeill, is typical of Korean construction.

Just as impedance-matching devices couple units in electronic systems effectively, prepositions couple words. The trouble is that we have too few prepositions, and we are sometimes puzzled by the multiple meanings most of them have.

Perhaps the rapid advance of Western civilization is largely attributable to the ease with which precise ideas can be communicated by means of the grammatical structure of Western languages. Expressions like *driveway* are simple and useful, but when we face a long string of words in extended nominal compounds (nozzle gas ejection ship attitude control system) it is like waiting at a crossing for a freight train to pass. When we finally see the caboose we know what the noun is. Frequent use of freight trains is a sign of pompous jargon rather than of correct technical writing.

McNeill only slightly chides the perpetrators of the degradation of the English language. His solution to the problem seems comparable to an M.D. treating a patient with eye trouble by teaching him to read Braille. Many of the entries in the NASA dictionaries should be used only for translating documents that have already been written and as examples of expressions that are forbidden in future documents. I hope NASA officials will consider my suggestion, and I urge editors of scientific journals to be stern. The bad habits are widespread and deeply ingrained. The task will not be easy.

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It is not for the hackles of a general editor like myself to rise as he reads the findings of David McNeill. Or is it? I spend my days with papers by scientists, one of whom saw a message, not only for me but for his colleagues in horticulture, in the article on "space jargon" and its merits. I passed the piece about, for consideration here and there, and drew at least one pointed and positive reply. It is the opinion of a writer of a long list of distinguished papers. I quote at random from his reaction, based on nearly 40 years of experience in scholarly exercises involving the written word:

"I doubt that any grammatical sense is involved in the construction of these 'nominal compounds'—otherwise known