

information can be much more than just "a little more knowledge of life." Perhaps this is the time to explain my dislike for the term "exobiology." Biology, wherever we find it, is still biology and need not be segregated into a separate subject, and knowledge of life elsewhere will teach us much about our own life on earth.

The question before us is not whether or not to pursue exobiology as an exotic subject; the question is whether, given the opportunity of space exploration, we should exploit it or should throw away the chance of ever doing so.

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Vishniac is not one of those to whom I referred as having selfish interests or as being ex-biologists, so we agree that in his case the shoe does not fit. His statement of his own objectives is admirable. It is, however, largely irrelevant to my thesis, which he has misconstrued and which I therefore restate very briefly as far as it involves the space program.

The possibility of finding extraterrestrial life is frequently advanced as a justification for the space program. That the space program is widely supported in that way is a plain fact, regardless of other reasons for supporting or opposing it and regardless of how much or little of it is now directly devoted to the search for extraterrestrial life. The exobiological argument covers a wide spectrum, from possible microorganisms on Mars to possible humanoids somewhere. I adduced reasons for concluding that the outlook at *all* levels is much dimmer than is commonly claimed in support of the space program. (Of course I did not suggest that anyone is now out hunting humanoids within our solar system, or that humanoids anywhere are the only exobiological topic. It is a fact, however, that exobiologists often stress this one, extreme aspect of their speculations.)

Incidentally, I have no objection to the term exobiology, as a term. It makes a useful distinction from *space biology*, which is not the same thing. I do have qualms about a "science" without known subject matter.

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## Ph.D. or M.D.—A Choice

### Freely Made

D. Brancato's letter (13 Mar., p. 1120) reflects a point of view encountered by many physicians during their military service. Physicians, as a group with special abilities, have special responsibilities (hence the "discriminatory" doctors' draft laws) and enjoy special rewards. Those without postgraduate training who object to the physicians' pay advantages are answered easily: if you want to go through the apprenticeship and join the union, you too can get union pay.

The case of the Ph.D. is perhaps more cogent. Still, it must be clear that realistic considerations of supply and demand must enter into the determination of these pay scales; I do not believe that a Ph.D. draft law has ever been necessary. Further, we might ask whether the income of physicians in federal employment compared with that of physicians in private practice is not lower than the income of Ph.D. scientists similarly compared.

Many will disagree with Brancato's implication that respect is to be measured in terms of monthly pay. Many physicians choose to spend several years in poorly paid specialty-training programs and in research fellowships; those who merit respect are well respected by the medical, scientific, and lay communities. Some of the scientists for whom I have the greatest admiration are university faculty members earning less than they would earn in the Public Health Service. No: respect has more to do with value than with money.

What it all boils down to is this: those of us who choose a job with a lower income than we could have gotten elsewhere do so voluntarily, because other considerations make our choice seem appropriate. How can we complain of the results of such a choice, freely made?

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## Reviewing Educational Films

Sherburne's comments on the difficulty of reviewing films (21 Feb., p. 792) seem to me to be worthy of further thought and discussion.

In his observations on a series of films for TV use he reports that "This

is the second time that an educational TV series has been reviewed in *Science*," and goes on to describe the problems of equipment and time in reviewing films. It seems strange that a publication devoted to reporting and evaluating the latest in scientific developments—including communications—should take such a conservative approach to films and television. Surely the implications of these new media in science teaching and reporting are now apparent. Almost every new curriculum-study and development program in the sciences includes, in addition to text materials, visual aids in the form of films and filmstrips. In most cases the films are produced because it is believed that they perform a unique function essential to the program. It does not seem logical to review the texts and ignore the films.

In addition to films and other visual aids produced for the big science-curriculum programs, there is a steady flow of individual documentary and teaching films in many areas of scientific interest. These come from institutional as well as commercial sources, and they have greatly improved in quality in recent years. Materials produced for educational TV are often very useful, as Sherburne notes, and unlike the programs used on commercial TV they are available for later use.

The very problem to which Sherburne points—the difficulty of screening and evaluating films—might well suggest to the editors of *Science* and other scientific journals that greater effort be made to establish reviewing procedures and provide adequate evaluations and film-TV listings. Readers of *Science* look to the thoughtful comments of its reviewers for guidance in selecting books. It is no less time-consuming to read them all and choose the most likely than it would be to try to locate and preview all the film and TV materials. I believe that regular listings of new scientific and educational film and TV releases and frequent reviews of timely materials for projection would be a useful addition to the pages of *Science*. Sherburne makes the point when he indicates that the audience to these materials is remarkably large. This is surely a reflection of the degree of interest in them.

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