

Letters

Time and Effort Reports Defended

It is easy to agree with Lang (Letters, 8 Dec.) inasmuch as he regrets the necessity of writing time and effort reports. It is uncomfortable to put down on paper statements about one's work which goes on, after all, informally and even to some degree in our subconscious. Also it is not clear what good such reports do. However, it does seem that he goes too far when he demands that the writing of such reports should be absolutely refused.

The research grants which we receive help us and our collaborators a great deal to follow our inclinations and engage in the type of activity that gives us real pleasure. It is very small compensation to write a time and effort report—the writing of such reports takes a couple of hours at most. I consider that I have a great deal of self-respect even if I do make such a sacrifice—a very small return for the benefits received by my collaborators as well as by me. I did write such a report just a short time ago, not for the government but for our university's dean.

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Survey: Justifying Research Support

In a study of the justifications offered by scientists for continued federal support of basic research, I found five major themes: (i) the intellectual and cultural contribution of science; (ii) the utility of science as the basis of technological development; (iii) the contribution made by academic research to graduate education; (iv) the high cost of research; and (v) the political values of science—its contributions to democracy, to international understanding, and to national power and prestige.

I would now like to survey the opin-

ions of as many scientists as possible (by means of a postcard response to this query) regarding which of these (or what other) justifications are considered to constitute the strongest arguments, intellectually or politically. I shall report the results in a later letter. When you respond, please indicate your discipline and whether your institutional affiliation is university, government, or industry. Names are not necessary.

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Clarke's Third Law on UFO's

I'm sure my good friend Ike Asimov will gladly waive the credit (?) attributed to him (Letters, 8 Dec.). Meanwhile, Clarke's *Third Law* is even more appropriate to the UFO discussion: "Any sufficiently advanced technology is indistinguishable from magic." I deal with the subject at some length in widely available references (1-3) so merely remark here that any really competent extrapolation shows interstellar travel to be a rather simple engineering accomplishment, to be expected within a mere two or three centuries of the control of thermonuclear fusion. The real mystery is the apparent absence of genuine UFO's.

ARTHUR C. CLARKE

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References

1. *Playboy* (January 1968).
2. 2001: *A Space Odyssey* (Stanley Kubrick and Arthur C. Clarke, Metro-Goldwyn-Mayer, April 1968).
3. A. C. Clarke, *The Promise of Space* (Harper & Row, New York, 1968).

My own feeling is that I will believe in extraterrestrial visitors when one makes his appearance in an incontrovertible manner and not until then. I

don't think I am being reactionary in this. I extend the same attitude toward angels, demons, poltergeists, Valkyrie, and the spirits of the dead—all of whom have been believed in far longer and with far more numerous eye-witness reports than flying saucers have been.

Isabel Garcia is wrong in attributing to me the comment that when a respected aged scientist said that something was impossible, he was probably wrong. The statement is to be found in an excellent book called *Profiles of the Future*, and it was made by my good friend, Arthur C. Clarke (Harper & Row, New York, 1963).

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Spreading the Stipends

Gruner's article, "Graduate student stipends" (29 Sept., p. 1530) recognizes a serious problem and suggests a solution that should be endorsed by most academic scientists.

Our department also has been concerned with reforming existing graduate student financial support programs. We have proposed to our administration that our current financial support system be revised for the following reasons:

1) Many of our best potential teaching assistants are eliminated from teaching positions because they hold scholarships, fellowships, or research assistantships. Consequently our undergraduates are deprived of some of the best teaching talent we have available.

2) Our students holding scholarships or research assistantships can best afford to devote time to teaching as they are academically our strongest students.

3) The stress for "prestige of research" at the graduate level denies the balance between research and teaching that now concerns many educators.

4) The first year of graduate training is a difficult year for many students. A more equitable distribution of the undergraduate teaching load would assist our students during their initial adjustment.

5) We find that graduate students who teach become involved with the university and the department much more rapidly than those supported by other means.

6) Teaching is a valuable experience for all graduate students. Certainly

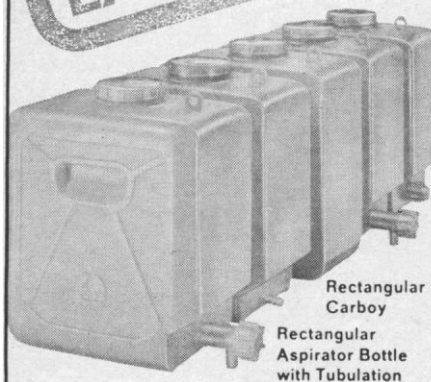
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teaching a subject develops a greater depth of knowledge than merely "taking courses." In addition, students who teach gain maturity and poise and should develop the ability to express themselves before a critical audience.

7) Many of our recent applications for faculty positions reveal that the individual has had *no* teaching experience. We should not be encouraging this same shortcoming in our better students.

8) Our teaching-assistant budget has been unable to provide funds for teaching assistance in advanced courses. Additional help would allow the faculty time for more meaningful teaching, for needed revisions, and for laboratory improvements.

9) Differentials in the dollar value of various types of support have led to a certain amount of discontent on the part of some of our students.

10) Departmental allocation of various types of support has proved difficult and complex.

Because of these concerns, we proposed to our administration that a Teaching Fellow Program be initiated and suggested the following procedures:

1) All graduate support funds (scholarships, fellowships, traineeships, NDEA's, NASA's, teaching assistantships, and various types of research assistantships) would be considered as one budget. This budget would determine our total support level. Individual stipends would be set at a level midway between the current experienced teaching assistantships and inexperienced teaching assistantships, less state and federal taxes. (The stipends should be tax-free as teaching would be made a degree requirement.)

2) Teaching and research assignments would be made equitably (research assistants would teach less) with everyone doing some teaching. Ideally, new graduate students would be assigned lighter teaching loads to speed their academic adjustment.

3) Annual raises for teaching fellows would be based on merit, *not* automatically awarded for "experience" as is done now. Another possibility would be to set aside a percentage of raise money to be administered automatically for "experience" while the rest would be awarded on "merit."

The proposed system, as outlined above, was tested "on paper," using our current budget, and it actually increased the number of graduate students we could support. In addition, the system proved easier to administer

at the departmental level. Various federal and state regulations prohibit our proposal from being tested locally, but there is a possibility that such a system might be funded by a granting agency on an experimental basis with the state of Wisconsin providing the financial support currently provided for the teaching assistant budget. Such an experiment should improve both undergraduate and graduate education.

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The Draft: Tormenting Uncertainty

Abelson's conclusion that the draft is the "focal source" of discontent ("Student anxiety," 1 Dec., p. 1139), coincides with my own observations. Many of the students themselves do not fully realize the degree to which the draft disturbs them. I believe the draft is at the root of an anxiety and disturbance which spreads to all youth. Although a professional army at the enlisted as well as officer level seems to me to be the best solution, there are alternatives. At any rate, the present draft program is unsatisfactory and a menace to our social equilibrium now and for the future.

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Unrest on our college campuses . . . may very well result from our present draft policy, which exempts young men from military service while they remain in college. The immorality of this policy, especially during a war which, we must assume, is of limited duration, and which therefore will result in some youths' permanent exemption from the rigors of warfare, is very likely having a more profoundly disturbing effect than any question of the validity of the war itself. It is not easy for men to live with the knowledge that their lives are being spared because they have been born into a social class that achieves college. It is easier to grow cynical about everything, than to face that reality, and the tragedy is that the deeper the sense of justice, the greater the urge to self-abasement. . . .

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