CORRESPONDENCE

Role of US Academy

SIR — Your editorial of 30 April (page 723) commenting on the recent history of the National Academy of Sciences under the leadership of Philip Handler was generous indeed. Nevertheless, it calls for some supplementation, lest your readers carry away a seriously deficient understanding of this institution's present concerns. The editorial urges the Academy to undertake study of a range of problems, both old and new, when — in fact — such studies are long underway. Some have already been completed.

"The education of students in schools and colleges?" or "The problem of university scientists, with or without tenure, engaged in the hazardous gamble of the pursuit of scholarship?". Our Commission on Human Resources has provided major studies of both these areas to the Federal Government within the past year.

"The relationships that should obtain between universities and the federal government with respect to the support and conduct of research? The impact on education of the new strict interpretation of rules prohibiting the export of military material?" The appointment of blue-ribbon committees to examine all aspects of these issues and to report to the Council of the Academy was announced several months ago.

In addition, a committee is being formed to look into the propriety of the arrangements academics make with universities to share in the profits of extramural commercial enterprises. With regard to new regulations from the Office of Management and Budget on time-accounting, the officers of the Academy and the membership at large have taken several steps to present their views to appropriate government officials, both publicly and privately.

Most baffling to us is the final question, "whether . . . to protest at Sakharov's exile and, if so, how?". Although many individuals and institutions have registered strong protests against the official harrassment of Andrei Sakharov, surely the National Academy was among the first to express its grave concern over the treatment of its distinguished foreign associate — first privately and, since 1973, most publicly. Following Sakharov's internal exile, the Academy Council cancelled a symposium planned jointly with the Soviet Academy and deferred all other such symposia for a period of six months. With Sakharov's status unchanged, the Academy Council reaffirmed that position in August 1980 and just over a month ago.

Permit me one further observation. No one could disagree with your observation that the Academy should arrange to "shuffle off commissions for studies which are either pointless or untimely". Indeed, to reduce that likelihood, President Handler reorganized the National Research Council early in his first term to insure that all new activities of the Research Council had first been evaluated and authorized by appropriate bodies composed primarily of Academy members. Even so, there will always be disagreement over the relative significance of new studies. What is significant to A may appear quite trivial to B. For example, if your editorial meant to cite as pointless and untimely the study of chlorofluouromethanes and the ozone layer, and of the health effects of dietary cholesterol and low-level ionizing radiation, Dr Handler, I know, would strongly disagree.

Even more fundamental is our belief that in a pluralistic society an institution is not likely to be permitted to answer only important questions.

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Questionable results

SIR — In answer to your editorial question "Who, not Congress, should police fraud?"[1], a recent proposal by Donald Goodwin[2] deserves consideration. He suggested that a Committee for Replication composed of scientists should be established. Each year the committee would select one or two findings they deemed important and surprising enough to warrant a special type of replication: replication at the laboratory from which the original finding came, but with an independent investigator present as a researcher, witness, and reporter. The independent investigator would be a scientist chosen by the committee from within the same field of research but from a different laboratory.

Goodwin's proposal has several merits:

(1) The process is directed towards establishing the reliability of dramatic new findings — the primary concren for scientists — and not specifically towards the discovery of fraud. Incorrect findings may occur in print for a variety of reasons, probably the rarest of which is fraud; the procedure would help expose incorrect findings regardless of cause.

(2) The process is more accurate in some ways than replication at other laboratories: for example, there may be critical differences between the procedures used at different laboratories that are not clear from the published accounts. Furthermore, in many fields it is rare that a pure replication is attempted; usually there are modifications, "improvements", introduced by the other laboratories. There has been generally only a low reward for conducting replications and perhaps as a consequence, many experiments were not duplicated[3]. The ratio of reward to effort for the independent investigator would probably be much higher with Goodwin's procedure, which also would assure the replication of the important experiments the committee selected.

(3) As mentioned in your editorial[1] "the scales are already too powerfully weighted against the heterodox". This procedure would not add to the weight against surprising findings and might help to correct the balance. Confirmation of a dramatic result by on-site replication would increase its acceptability and help to communicate the finding to a wider audience. It would also usually produce faster replications than relying on other laboratories.

(4) The process avoids the stigma of the witch-hunt. It would be an honour to have one's research choosen for on-site replication, a demonstration that the scientific community recognizes the great importance of the results. It would provide an opportunity for an honest researcher to show the reliability of the results to sceptics. Nevertheless, the procedure would still act as a deterrent to fraud.

(5) Although the process would need to be funded, probably by a government agency, the actions would still be controlled by scientists. It would still be in the realm of peer review.

Such on-site replication is not, of course, a panacea, and there are several difficulties associated with it. From my own experiences as the independent investigator in the on-site replication attempt[4] that initially stimulated Goodwin's proposal, I am quite aware of some of these dificulties, but I also can vouch for the overall feasibility of the procedure.

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1. *Nature* **290**, 433–444 (1981).
2. Goodwin, D.W. at *XII Annual Nordic Meeting on Biological Alcohol Research*, April 21–23, 1981 Stockholm, Sweden.
3. Broad, W.J. *Science* **212**, 421 (1981).
4. Sinclair, J.D. at *XII Annual Nordic Meeting on Biological Alcohol Research*, April 21–23, 1981.

Film loop evolves

SIR — In his review of the Natural History Museum's new exhibition, *Origin of Species*, Professor Cox (*Nature* 4 June, p.373) refers to a "film loop" dealing with the status of the theory of evolution by natural selection. He regards this audio-visual programme as a failure and, apparently, misconceived.

In producing this audio-visual we were trying to avoid dogmatism in our presentation of the theory of evolution by natural selection. The intention was to reproduce the arguments set out in Chapter 12 of Colin Patterson's book, *Evolution* (British Museum (Natural History), 1978). Before the opening of the exhibition the Museum was aware that as a consequence of compression of the subject matter and transference to a new medium the audio-visual might give an impression other than that intended. Subsequent experience of the audio-visual as part of the exhibition has shown this misgiving to have been justified. A new version is being prepared.

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Had enough too?

SIR — It is high time that you terminated the correspondence on the "philosophical" status of evolution. If some learned and pompous ass asserts that Darwin's theory is not "really" scientific, or that it is "socially embedded" or that holders of conflicting theories cannot "really" talk to one another about the same phenomena, then the necessary and wholly sufficient reply is one good old word that you probably wouldn't print.

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