

authors. The emphasis is academic so that most educationists or training officers will need to be very theoretically inclined to find it readable. It is assumed that skill is the prerogative of the human.

All this is not to deny that many of the chapters are interesting and well written and form useful critical reviews of recent literature, and in this sense the claim that it will be of service to students is a fair one. The student looking for new concepts or new evidence or a balanced view of human skill, however, would be well advised to look elsewhere. Topics covered include tracking, information feedback, transfer of training, retention, practice, motor learning and work/rest problems. Topics not covered include social skills, creativity, decision making, languages, pictorial learning, motivation and arousal.

W. T. SINGLETON

<sup>1</sup> Melton, A. W. (ed.), *Categories of Human Learning* (Academic Press, New York, 1964).

<sup>2</sup> Fitts, P. M., and Posner, M. I., *Human Performance* (Brookes-Cole, Belmont, 1967).

<sup>3</sup> Welford, A. T., *Fundamentals of Skill* (Methuen, London, 1968).

<sup>4</sup> Bilodeau, E. A. (ed.), *Acquisition of Skill* (Academic Press, New York, 1966).

## Correspondence

### More Alarms and Excursions

SIR,—We wish to reply to your comments (*Nature*, **224**, 834; 1969) on the publicity surrounding the appearance of our article on the isolation of pure *lac* operon DNA (*Nature*, **224**, 768; 1969). To a certain extent your comments were perfectly correct. The press greatly inflated the importance of our particular piece of work. This was due in part to some of our own statements, which were misleading. It is true, however, that progress in the field of molecular genetics in the last few years has been extraordinary. We felt that the isolation of pure *lac* operon DNA was a graphic, useful and easily understood example of that progress.

We did not publicize our work in order to add to our own or Harvard's prestige or to make a plea for more money for basic research. In a country which makes a prodigious use of science and technology to murder Vietnamese and poison the environment, such an enterprise would be at best terribly irrelevant, at worst criminal. On the contrary, we tried to make the following political statement. In and of itself, our work is morally neutral—it can lead either to benefits or to dangers for mankind. But we are working in the United States in the year 1969. The basic control over scientific work and its further development is in the hands of a few people at the head of large private institutions and at the top of government bureaucracies. These people have consistently exploited science for harmful purposes in order to increase their own power.

The reality of the dangers we and others point out should not be minimized. Social agitation does not arise in a vacuum, as you seem to think. In Los Angeles, air pollution is often so bad that school children are prevented from taking physical exercise. Breast feeding in the United States, Sweden and Britain has become a serious health hazard because of the high concentrations of DDT and other pesticides in human milk. The American Indians, the Jews, the Biafrans, the Vietnamese and the Palestinians are no strangers to the use of technology as an instrument of genocide. The survivors of Hiroshima and Nagasaki and the parents of thalidomide babies can testify to the horrors of the uncontrolled use of science by governments and private corporations. The list is virtually endless. We do not need to expand on it here. Let us simply point out to those who feel we have ample time to deal with these problems that less than 50 years elapsed between Becquerel's discovery of radioactivity in

1896 and the use of an atomic weapon against human beings in 1945. As to the specific issue of genetic engineering, we cannot predict the future. But who in 1896 could have foreseen the weapons of mass destruction which now threaten us all?

What we are advocating is that scientists, together with other people, should actively work for radical political change in this country. If we do not, we will one day be a group of very regretful Oppenheimers. Scientists have no right to claim a special position of intellectual leadership in this political effort. We differ from other members of society only in that our working conditions are generally more free than theirs. This is so because governments and industry realize that science and technology develop more efficiently without stringent controls. As we see it, scientists are obligated to inform the public about what is happening in their secluded fields of research so that people can demand control over decisions which profoundly affect their lives. If our arguments mean that "the progress of science itself may be interrupted", that is an unfortunate consequence we will have to accept. It certainly should not inhibit us from speaking out on crucial issues.

Permit us to contradict one of your statements ("Miscellaneous Intelligence", *Nature*, **224**, 842; 1969). You said that you published our article as it was received. This is not so. On our manuscript there were nine authors listed at the head of the article. You saw fit to relegate three of them to the acknowledgments without informing us: Bill Reznikoff, Rita Arditti and Ronnie MacGillivray. (On the manuscript the authors were listed as "Jim Shapiro, Lorne MacHattie, Larry Eron, Garret Ihler, Karin Ippen and Jon Beckwith after discussions with Bill Reznikoff and Rita Arditti and with the technical assistance of Ronnie MacGillivray".) We see now that it was a mistake to make any distinction at all between various authors in our manuscript. It is an almost universal fiction in modern science that the only people responsible for a given piece of work are the professionals and students who sign the article.

The signatories of this letter were responsible for the various statements which appeared in the press. This letter represents their views. Some of the other authors of the original article agree with these views, some disagree, and some have not been contacted.

Yours faithfully,

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### Thomas, Richard and Harold

SIR,—A recent article in *Nature* (**224**, 768; 1969) by Shapiro *et al.* acknowledges the contributions of, *inter alia*, Bill R . . . , Dick B . . . , Bob S . . . and Jeff R . . . . This sociability is all very jolly, but it is out of place in a scientific report because it is inefficient communication. Is Bill R . . . referenced elsewhere as B. R . . . , W. R . . . , W. X. R . . . , or what? Is Dick B . . . , R. B . . . , or is he actually R. R. B . . . (as we suspect from internal evidence)? The club members know, but what about the rest of us? Authors should use the same form in their text as in their references: A. B. Smith, Y. Z. Jones, *et al.*

Yours faithfully,

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