Letters

Aldabra: An Expensive Folly

We in England are grateful to *Science* for sharing our concern over the island of Aldabra north of Madagascar (Letters, 7 July, and Editorial, 21 July). May I call attention to the article by the defense correspondent of the London *Times* (16 Aug.) that America is contributing two-thirds of the cost of buying the islands of the British Indian Ocean Territory and will also pay half the cost of any military development of them. In the present state of its economic affairs the British government could not possibly afford this adventure otherwise; but now we are handicapped in arguing against it by this national commitment to a foreign power. Even as things stand, our contribution seems likely to be more than we can decently afford; and if the base were deflected to the only likely alternative site, Wizar Island in the Cosmoledo group, it would cost twice as much. Public opinion in this country is now increasingly aroused in resentment against this expensive folly; may we look to the leaders of opinion among your readers to make more civilized views felt in the region of its origin as well?

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Stanford: Student Organizations

In the enlightening account by Langer (News and Comment, 4 Aug.) of the House Un-American Activities Committee's interest in student organizations, the box on page 525 begins: "Last summer the House Committee on Un-American Activities (HUAC) went foraging in the nation's universities for lists of members of student organizations known to oppose U.S. policies in Southeast Asia. At least two universities—Stanford and the University of Michigan—complied." With respect to Stanford, at least, the statement is wrong. Stanford substantially preceded the American Council on Education in deciding that it should not keep membership lists of student organizations, and it does not have them. For reasons primarily related to problems of financial responsibility, it does list the *officers* of such organizations. HUAC was, not surprisingly, quite interested in these; but it is hardly fair to describe Stanford's response as "compliance" with a "foraging" expedition. In fact, HUAC subpoenaed them.

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Inequities of a Draft Lottery

Samuelson's otherwise excellent review of the new draft legislation (21 July, p. 290) errs, I believe, in evaluating congressional action as a "setback to reform." What constitutes reform, like what constitutes fairness, is highly subjective. . . . Take the statement that "the Marshall Commission concentrated . . . on the most prevalent complaint about the draft: that it was unfair." So it did, and it concluded that "there is no evidence that the variability of the Selective Service System leads to any systematic biases against poor people, or Negroes, insofar as the final proportion of men serving in the Armed Forces is a measure of this." It also found that the percentage of men being called to serve was practically the same whether they were high school dropouts, high school graduates, college dropouts, or college graduates. The Marshall Commission's finding tended to show that the draft was *not* unfair, insofar as it was being applied to major social groups. Its recommendations for changing the system were made more in spite of, than because of, its factual findings.

The Commission also found a need for "personalizing" the Selective Service system, but it proposed to do this by eliminating the local boards and providing for selection of men at random from a nationwide pool using "modern data handling equipment." How much more impersonal could a system be? Congressional rejection of this idea may have been influenced by factors other than anger, preoccupation with draft-card burners, time pressure, and stubbornness, as alleged by Samuelson.

Surely scientists will not equate random chance (a lottery) with fairness or equity. If it is wrong for a particular man to be drafted, doing it by random selection will not make it right. Equity involves making the best judgment in the light of all existing circumstances, not drawing names out of a hat. Samuelson brands the opposition as "anti-lottery, anti-reform forces." There is no room in his concept for anyone who does not consider a lottery as being inherently a reform. As a matter of fact, the draft lottery proposals raised more questions than their proponents were able to answer. The Marshall Commission itself recognized that it could lead to serious problems in procuring enough officers for the armed forces. Other study groups such as the Clark panel pointed out areas where draft by lottery could lead to unanticipated pitfalls and to malutilization of scarce and irreplaceable manpower resources.

Congress, in its 1967 draft law deliberations, refused to adopt an untried "cure" whose side effects might well be worse than the disease. Inequities will always exist when some, but not all, must serve, whether men are selected in the national interest or drafted at random. The Military Selective Service Act of 1967 may have been a setback to the lottery proponents, but it should not therefore be branded as a setback to reform.

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Further Detractions of Smoking

Carter's interesting article, "Smoking and health" (28 July, p. 406), called attention to cigarette advertising "subtly associating smoking with the joys of sex." I wonder if this is not a subconscious psychological defense on the part of Madison Avenue. An early authority on the pathology of tobacco has stated that, while nicotine may be initially exciting, its ultimate effect is to paralyze the sympathetic ganglia, including especially those leading to the sexual organs (*1*). Possibly Kipling had this in mind when he wrote: "And a woman is only a woman, but a good

cigar is a Smoke" ("The Betrothed").

When cigarettes were first introduced they were regarded as very effeminate —in fact "fag" is an early slang term for cigarette. Real he-men preferred the weed in more rugged form. Thus cigarette manufacturers have felt an urgent need to create and maintain an image of virility.

Perhaps the Surgeon General would get better results from his campaign against smoking if he were to emphasize the anaphrodisiac, rather than the carcinogenic, effects of the habit!

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Reference

1. R. Magnus, "Nicotiana, Nicotin," *Real Encyclopädie der Gesamten Heilkunde*, vol. 10, ed. 4 (1911), p. 651.

Project Hindsight

The commentaries on Project Hindsight (18 Nov. 1966, p. 872; 2 Dec. 1966, p. 1123; 23 June, p. 1571) are a valuable contribution to the discussion of "directed" and "undirected" research. In the advocacy of basic versus applied research, or science versus invention and engineering, the proponents of any one segment of the continuum of research, development, testing, and engineering are in competition for funds, and usually are also expressing managerial preferences. What is so disheartening in this continuing controversy is the popular assumption that the end product of *all* scientific and productive efforts are measurable in terms of an "end item—a piece of equipment, a process, or an operational procedure" (*1*). The profitability of transportation systems can be compared very effectively by using numbers, mileage, tonnage, and dollars. However, no matter how effectively funds are spent for prevention of pollution, or a more healthy environment, it is not possible to present comparable figures. The benefits from prevention of sickness, the prevention of wars, the cost of "undirected" science can be measured, but not in terms of technology—medicines, military hardware, or scientific instrumentation. Quite the contrary, the less medicine, military and scientific hardware or money you have to use, the more effective the campaign.

It is self-evident that the systems studied in Project Hindsight, Polaris, Minuteman, Lance TBM, radar, navigation aids, nuclear warheads, and so on resulted or benefited greatly from the advances of "undirected" science. Credits simply have not been given to preceding concepts and ideas. In a subsequent report, one may anticipate that the military applications of masers and lasers will be attributed to teams of weapon systems engineers, although these truly revolutionary tools, offering order of magnitude differences in ways of doing things, received generous and "undirected" Department of Defense support.

Sherwin and Isenson find that "Despite the very applied nature of the work leading to the innovations, 5 or 10 years often elapsed before an Event was used" (*1*, p. 1575). They apparently had the layman's misconception that research ideas are quickly transformed into consumer goods or weapon systems. Historically, it often takes many years to make new things practical: witness the airplane or Goddard's rockets . . . .

There are two very good reasons to include fundamental research in mission-oriented programs. The first is that such research attracts many outstanding scientists and young investigators to important problem areas. Second, for practical agencies to be receptive to new concepts, approaches and solutions to problems and thereby speed innovation, there have to be people within the agencies who are aware and eager to translate and introduce new ways of doing things to the technologist who may argue against risk and that present solutions are good enough. There is the real question of how one measures the productivity of "undirected" research programs aside from the publication of new knowledge. Perhaps productivity can also be judged by the rate at which technological innovations are incorporated into practice with resulting social improvement. From this standpoint, the shorter time period now between the attainment of new knowledge and its use in many fields, including new systems for which no conceivable requirement existed even 10 years ago (that "scientific toy" satellite), indicates that emphasis on basic research has been healthy.

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Reference

1. C. W. Sherwin and R. S. Isenson, *Science* **156**, 1571 (1967).