Letters

Atoms for Peace

I would like to comment on Greenberg's report headed "Atoms for Peace: Concern growing that program is spreading means for more nations to build weapons" (19 Feb., p. 843). I firmly believe that now is the time, not to "drag our heels a bit" as regards the Atoms for Peace Program, but to commit ourselves more deeply to it.

From firsthand experience (I was formerly technical adviser in health physics from the International Atomic Energy Agency to the governments of Turkey and Nationalist China), I can say that the program has revitalized many areas of the societies in which it has been allowed to function: medicine, the physical sciences, the life sciences—especially those dealing with agriculture-engineering, and even the law and administration. By enabling training and research centers to be started in developing countries, it has provided employment for science graduates who would otherwise have no professional future in their own countries. The Atoms for Peace program has removed some of the stigma resulting from our original introduction of atomic energy. It is a means of demonstrating our superiority in applying hardware and techniques to peaceful purposes and of centering the attention and efforts of these countries on the constructive rather than the destructive aspects of atomic energy.

To back down now would be to provide fuel for those in other countries who say that we have no long-term objectives but begin and discard programs according to the whim of the moment. What we should do now is assess what has been accomplished —where we have failed and where we have succeeded. Then we should plan another 10-year program, and this new Atoms for Peace should be not on a curtailed but an expanded scale. Now is the time when some of the test-tube work can move out of the laboratories and into the fields where a greater portion of the people will benefit from them.

That much of this effort should be channeled through the International Atomic Energy Agency is obvious. Nationalism would certainly raise its head if one nation attempted to impose its rules on another; but if consensus is obtained from a group of nations, then even control will become more palatable.

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The College Boards in Biology

The controversy between the Biological Sciences Curriculum Study and the College Entrance Examination Board over the adequacy of tests (Grobman, Letters, 13 Nov., p. 866) exposes some knotty problems related to test-making generally. Every institution that seriously attempts to devise objective tests is continually striving for perfection and admittedly never achieves it. The well-known critics of objective testing have demonstrated that one can find enough of the bad in any test to hang it, especially if one is looking for the bad; and no test provides adequate opportunity to anyone to demonstrate all that he has learned in a course.

The CEEB Biology Test Committee (of which I am currently chairman) makes every effort to prepare good tests and has available the resources of the Educational Testing Service to help it do so. Each item that eventually appears on a Board test has a lengthy history of survival through a process of item preparation, preliminary selection, pretesting, final selection, and assembling. Items making the grade have statistical histories demonstrating that they have good chances of making a contribution to the objectives of the College Board examinations, objectives which relate to the ranking of students as one criterion for college admissions.

The committee attempts to keep abreast of the trends and sees to it that these are reflected in its tests. The tests are not designed to be final exams for BSCS or any other given curriculum in biology, but are intended "for all candidates who have studied the subject regardless of curricular variations across schools and teachers" (H. Dyer, *College Board Review*, Fall 1964). The fact that students who have had BSCS biology do as well on the College Boards as students who have had conventional courses seems to support the notion that the exams are fulfilling this intention rather well.

When the committee examined the early experimental BSCS materials, some of its members thought that a special test might be needed for BSCS students, and the committee was willing to prepare such tests. But analyses of College Board scores revealed that the first BSCS students taking CEEB examinations did as well statistically on those tests as students from conventional courses. Analyses of scores from subsequent tests indicated the same. During the early period of the BSCS, panels of judges reported that the tests seemed to convey the basic BSCS spirit and philosophy and that about 85 percent of the items were based on content in the BSCS courses. All this, coupled with the expectation of a rapid convergence of curriculums, encouraged the committee to conclude that for the purposes of college entrance separate tests might not be needed. The committee's conclusion was given early support by BSCS spokesmen.

The day of convergence seems to be here. The 1965 editions of the so-called conventional texts have incorporated much of the new. Even the laboratory activities seem to have taken on a BSCS flavor. It is estimated that next year 50 percent of the nation's biology students will be using one of the BSCS versions. Thus these versions are now among the "conventional," and they are among the references on which the committee relies heavily for test-item content.

I offer two reasons why BSCS students do as well on the College Boards as other biology students. (i) Where the three BSCS versions claim 70 percent of content in common, the conventional might be considered a fourth version, with the four versions having 70 percent in common. (ii)