ing gravitation—weightlessness would obtain in a gravitational field of any strength whatsoever. The explanation is exactly the same as for weightlessness during a near-earth orbit: whenever the rocket motor is not firing, both the spaceship and the astronaut are in the free-fall condition, and thus both move on the same trajectory with the same acceleration and consequently with no relative motion between them.

Weight can only be caused by a gravitational field when, as on the surface of a planet, a body is restrained from accelerating. For example, a spring scale measures the force which the earth exerts to keep a body from accelerating downward; this is its weight.

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Measure of Education

In commenting on Carter's article on the National Assessment of Educational Progress ("Educational testing: national program enters critical phase," 5 May, p. 622), I should like to make two points: (i) the twin problems of measurement—criterion and sampling—do not appear to have been met by those responsible for NAEP; and (ii) since there is likely to be no way of maintaining the security of the tests and other instruments, it is inevitable that in a significant number of instances the tests will, as the American Association of School Administrators has predicted, dominate if not determine the curriculum.

What shall be the criteria by which citizenship shall be assessed? Are comparisons of educational progress in this domain to be made across social class lines or will the white, Anglo-Saxon, Protestant ethic be the standard? Will the same measures serve central city and suburb, North and South; and, if not, how will comparisons be made?

Two things might be said concerning the sampling problem. At the American Educational Research Association session on NAEP in Chicago in 1966 one of Tyler's assistants explained how random sampling would be achieved; then, presumably sensing some enthusiasm from his audience, invited any administrators present to volunteer their schools as subjects! A sample made up of volunteers first, and second, of subjects from schools whose administrators are *not* among those who object to NAEP, may not be particularly representative.

The influence of NAEP instruments on the curriculum is more serious. Already examples of some test items are public knowledge. Can anyone suppose that when the program is completed the mass media and the popular press will not insist on using many more items as examples in reporting the level of educational progress discovered by the investigators? School boards and citizens groups all over will demand that the full battery be administered in their schools to determine whether the taxpayers are getting their money's worth. Under such circumstances it is hard to believe that most teachers and principals will not begin to slant the curriculum in the direction of the tests.

It is perhaps unfortunate that AASA took quite such a strong stand—unfortunate but understandable. After all, school people have been criticized for everything from Sputnik to their inability to solve the problems of delinquency, poverty, crime, and what-have-you. (It might be observed that the condemnation of the schools over Sputnik has not turned to equally loud applause now that we seem to have drawn even in the space race.) What is more disturbing is the emotional and uninformed reaction of so many people who attack the critics of NAEP. In "stating their oppositions to AASA's stand," for example, the dean of Harvard's Graduate School of Education and his associates say, "We believe that the risks of knowing nothing are greater than the risks of knowing something, and that the national assessment program should be allowed to go forward in a *modest* and *exploratory* way without *harassment.*" (*1*) (Italics mine.)

It seems inappropriate to employ such emotion-laden words in deliberating the merits of what should be a scientific investigation. There is a third possibility that could be added to "knowing nothing" and "knowing something." The something "known" can be either true and useful or false and harmful. The odds that the unhappy third result may obtain are too great to ignore.

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Reference

1. *Harvard Grad. Sch. Educ. Alumni Bull.* **12**, No. 1, 31 (1967).