

# Letters

## Bias in Standardized Tests

Although I cannot agree with Wolfe's editorial (20 Dec. 1963, p. 1529) on multiple-choice testing, I think it served a useful purpose in opening up a subject which the scientific community must surely explore in the next year or two. One of the charges made against multiple-choice tests is that they have an inherent bias in favor of students who have a kind of uncaring and approximate facility; if this is true, the bias cannot be allowed for by inspired guesswork on the part of admissions officers, and will therefore tend to bias the choice that colleges make between students competing for admission. Another charge against these tests is that, regardless of how they should or should not be used by guidance counselors and admissions officers, they tend to distort the educational values of the students who take them, because there are certain valuable kinds of thought and sensitivity which cannot by any feats of ingenuity be embodied in multiple-choice questions. The scientific community should be particularly anxious about these two alleged faults of the tests, because the academic pathways controlled in large measure by these tests are the *only* paths a potential scientist can follow, whereas it is sometimes possible to make contributions in the arts after following other kinds of education and experience.

It seems to me that, instead of committing *Science* to a particular defensive position on these tests, it would be much more constructive to allow the magazine to function as a forum for serious but free discussion of the matter of which the excerpts from letters published in the 6 March issue constitute only the feeblest of beginnings.

One very important element in such a discussion would be the exploration of alternatives to multiple-choice testing. It is widely assumed that no economically feasible alternatives exist,

even though the Educational Testing Service itself has successfully constructed and administered an alternative kind of test in English which could be used in any other subject.

DONALD BARR

*School of Engineering and Applied Science, Columbia University, New York 10027*

## Cover Recognition: A Parlor Game for Scientists

Recently I have utilized the *Science* cover pictures for an interesting parlor game—a type of *Science* Rorschach test. Before discarding an issue I detach the front cover and fasten the legend, cut from the index page, to the back of the picture. About 20 numbered pictures are used in the game, and these are graded from generally recognizable by any intelligent person to absolutely unrecognizable except to an expert in the specialized field. To play the game, the guests are provided with pencil and paper, and as the pictures are passed around they write down either a title or a description of what they think each one represents. After the participants have had an opportunity to record their findings, we call off the number of each picture and ask for their interpretations. Many times the answers are completely hilarious, and the shocked expressions when the actual legends are read to the audience add to the fun.

A psychologist friend who has played the game with us has borrowed a set of pictures for experimental use. He was particularly interested in the diversity of the responses to a single illustration and the varying degrees of frustration shown by a “scientifically oriented group” who on being tested found that they could not understand or interpret common objects in scientific areas only slightly removed from their own.

This interesting result from a simple

game of pictures should indicate to the editors of *Science* (which is read by a considerable cross section of the scientific community) the necessity for careful description of illustrations and figures. It is increasingly important that scientists in different fields begin to understand each other. This can be achieved by better explanations of highly technical nomenclature, technical terms, and scientific classification of animal or plant species.

MILTON A. LESSLER

*Department of Physiology, Ohio State University, Columbus*

## Why Science Loses Students

In his article “Career decisions of very able students” (12 June, p. 1315), Nichols observes that “the interest of able students in physical sciences and engineering has been decreasing . . . and . . . interest in the social sciences and humanities has been correspondingly increasing.” He admits to perplexity in trying to account for this phenomenon.

I should like to suggest that one factor might be the difference in pedagogical enthusiasm of today's college teachers in these two categories. While humanists and social scientists tend to see teaching as a facet of their professional activities from which they derive prestige and often valuable insights, too many physical scientists and engineers look upon the responsibilities of teaching as distracting chores offering little professional reward. Teaching for these men is always beneath and never quickly enough behind them.

Yet how often outstanding scientists were themselves once taught by outstanding teacher-scientists eager to communicate their own enthusiasm and dedication along with their knowledge and providing, in the process, the crucial experience in their students' careers. By contrast, today we are often content to replace mature professors with inexperienced graduate students in precisely those courses which offer a student his first real taste of the subject.

We must stop acting as if we believe scientists and engineers are born with a professional dedication developed enough to surmount all obstacles. When we fail to provide teachers genuinely committed to establishing that personal rapport which is the mark of the educational process at its best, we should not be surprised to find talented