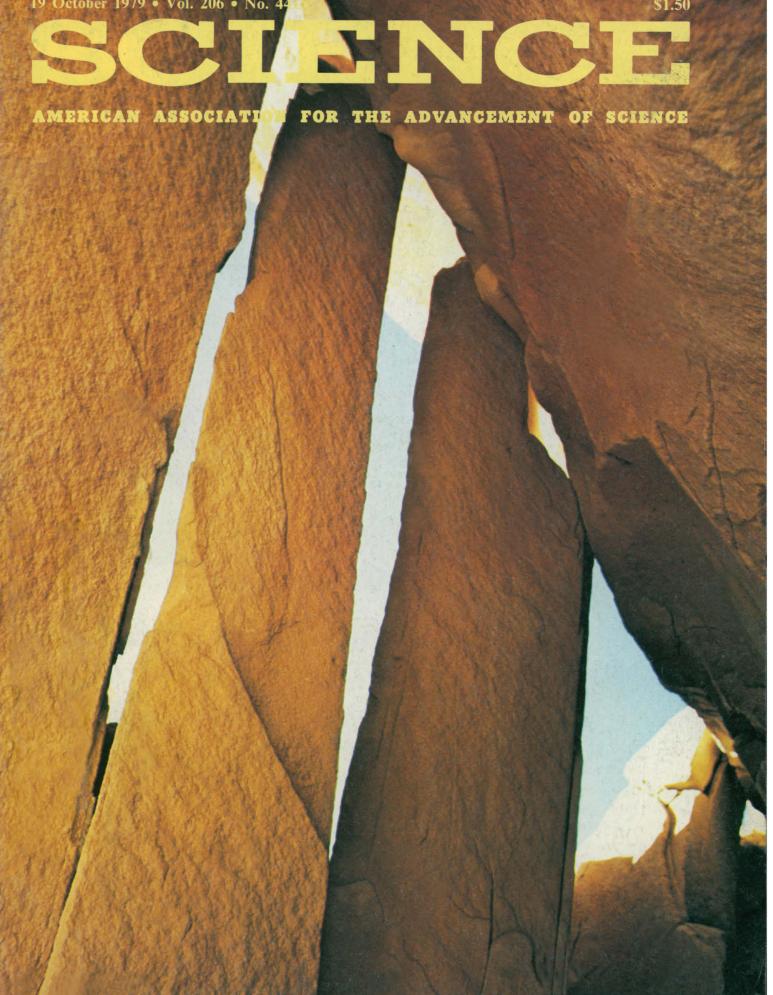
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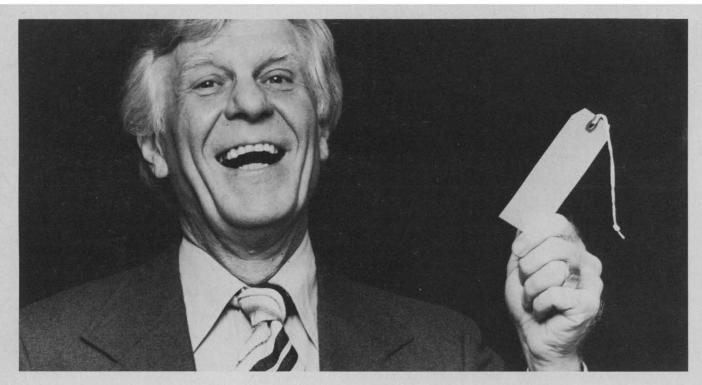
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COVER

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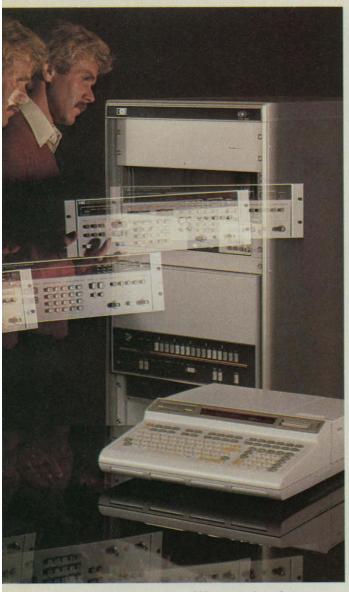
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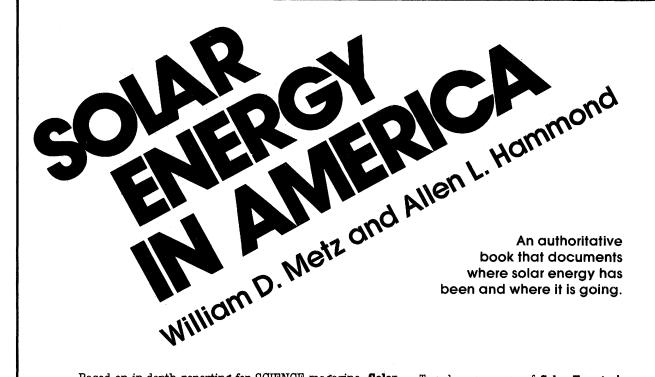
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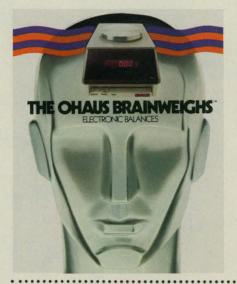
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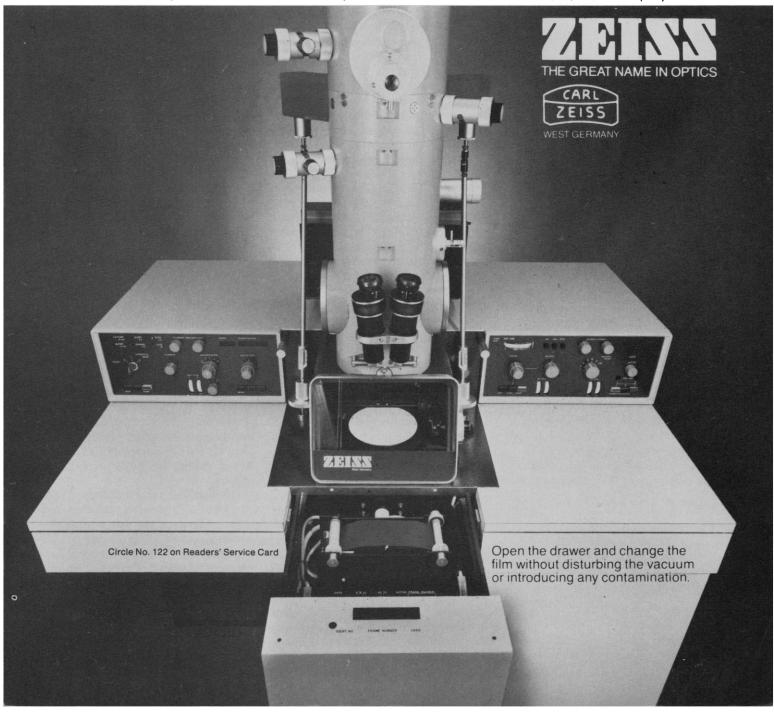
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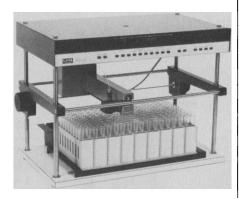
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LETTERS

Testing Issues

R. Jeffrey Smith's article "'Truth-intesting' attracts diverse support" (News and Comment, 14 Sept., p. 1110) presents a generally balanced view of a complex and often perplexing situation. Smith's assessment of the issues in the debate over testing legislation is, overall, fair and accurate. There are, however, a few points that warrant further clarification.

First, we at the Educational Testing Service (ETS) have always stressed the limitations of tests. For example, the high school record is usually a better predictor of academic success in college than are Scholastic Aptitude Test (SAT) scores. However, when the two are used together, their joint predictive power is better than either alone—one reason why ETS stresses that SAT scores not be used alone for admissions decisions. We emphasize the same approach for tests at the graduate level, although research has shown that tests such as the Graduate Record Examination (GRE). the Law School Admission Test and the Graduate Management Admission Test are typically somewhat better predictors of graduate academic success than are college grades.

Smith's statement that a 60-point score divergence on a 600-point scale "is considered statistically insignificant" seems to imply that individual scores must differ by more than 60 points in order to warrant consideration. (What Smith is referring to is the concept of the standard error of measurement, a phenomenon common to all measurement, including physical, psychological, and educational.) ETS reports standard errors of measurement to alert test users to the limitations of relatively small score differences rather than to suggest that differences as large as 60 points, which is twice the standard error of measurement, be ignored altogether.

In this regard it may be helpful to point out that the available evidence indicates that high school grades have a larger error of measurement as predictors of academic performance than do SAT scores. Other criteria used in the admissions process, such as interviews and recommendations, have still larger errors of measurement and, in addition, are often subject to bias.

On quite another matter, Smith correctly states that the current ETS cost for developing tests is about 7 cents of every test dollar. But that cost must increase in direct proportion to the number of new tests produced. Before the

New York disclosure law was passed, with a limited inventory of test editions a program such as the GRE could offer students an opportunity to take the tests more than 20 times a year. But if test questions and answers must be disclosed after each administration, they cannot be reused without giving an unfair advantage to some students. Increasing the number of new test editions cannot be accomplished by keeping a machine running for more hours each day. The art of test construction requires human judgment and expertise. Test questions must go through comprehensive reviews, edits, tryouts, and analyses. To cut corners is foolhardy and undermines efforts to produce quality tests. The result of the disclosure requirement will be higher costs or reduced services (that is, fewer test administrations).

The 22 percent ETS "profit" Smith reports is simply off the mark. That figure was derived by supporters of the testing legislation from the College Board's published 1978 budget by subtracting expenses from income for the Board's Admissions Testing Program. But it ignores \$11 million in expenses for College Board regional offices, publications, research and development, and administrative costs. In more conventional financial terms, the College Board reported a net income of 1.2 percent or \$605,060 on an income of \$51.8 million in fiscal year 1978. (ETS income during the same period shows a net of 1.7 percent or \$1.3 million on total revenues of \$78.3 million.)

Finally, far from "harassing" the Federal Trade Commission (FTC), ETS encouraged the Commission to publish its study on the possible effects of coaching on the SAT and urged that the study be accompanied by all of the relevant underlying data.

Moreoever, the FTC did not "sit on" the report for 8 months, as Smith states, but instead took the time to reanalyze the data from the Boston study. That reanalysis prompted FTC headquarters in Washington to report that the methodology of its Boston regional office was flawed, making the Boston report unreliable.

A further disclaimer to the report, added by the FTC Washington office, concluded that since the data were nonexperimental, it was impossible to disentangle the effects of coaching and the potentially higher motivation of students wanting to be coached. "Another important qualification," said the FTC, "is that the study could not take account of all possible effects of self-selection—for example, the possibility that people who seek out coaching programs may be es-

pecially motivated to achieve higher test scores in a way the study could not measure."

In conclusion, we, too, look forward to more research on the coaching issue, as well as more understanding of tests and the work conducted here at ETS. We thank *Science* for airing some of the issues.

ROBERT J. SOLOMON Educational Testing Service, Princeton, New Jersey 08541

Smith inaccurately suggests that the National Consortium on Testing supported testing legislation recently passed in New York. The consortium, a coalition of diverse interests, has not taken an official position of advocacy with respect to that or any other legislation. Some consortium members actively supported the New York legislation; some opposed it. As a single entity, the consortium and its research staff have tried to bring responsible analysis to bear on these and other public policy issues concerning testing, but the consortium as a group has taken no public position on these issues.

VITO PERRONE

National Consortium on Testing, Post Office Box 9521, Arlington, Virginia 22209

The Ebla Tablets

William J. Broad's article "Syria said to suppress archeological data" (News and Comment, 31 Aug., p. 878) confuses two issues: (i) Are the Syrian authorities improperly attempting to influence scholars to drop the Biblical connections of the Ebla tablets? (ii) If so, are the Syrians having any success in this effort?

The answer to the first question is clearly, yes. For a Syrian government official to request a scholar to make an official disavowal would be unheard of in a free scholarly atmosphere. Such a declaration was requested by the Syrian government and given by Giovanni Pettinato. Moreover, the Syrian government does not hide even now its displeasure at Pettinato's earlier interpretations of the Ebla tablets. As the Syrian ambassador to Washington recently stated in an interview published in Biblical Archaeology Review, "Dr. Pettinato tried to give interpretations of the Ebla tablets with a political dimension. This is what we didn't like." When American Biblical archeologists (primarily David Noel Freedman of the University of Michigan and vice president of the American Schools of Oriental Research)



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began talking and writing about the implications of the Ebla tablets for Biblical studies, the Syrians saw behind this a Zionist plot. This is not only paranoid; it announces rather clearly Syria's restrictions on permissible interpretations of the tablets.

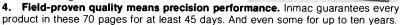
The second question-whether the Syrian efforts to influence the interpretation of the tablets has had any effect-is certainly more difficult to answer conclusively. Pettinato's retreat from earlier positions may be, as Broad seems to think, the result of more mature consideration rather than political pressure. On the other hand, it is a bit frightening that Paulo Matthiae, head of the Italian mission to Ebla, agrees that a Zionist plot lies behind the publicity given the Ebla tablets in the Western press. (According to the Syrian magazine Flash, Matthiae stated that "These allegations [linking the Ebla tablets with the Bible] were propagated by Zionist-American centres to be exploited for atrocious purposes aimed at proving the expansionist and colonialist views of the Zionist leaders.") Of course, publication delays of scholarly finds are common, and in these circumstances it is difficult to be sure whether publication of the Ebla tablets relating most importantly to the Bible will be delayed for political reasons. But there can be no doubt that Syria has rather clumsily attempted to place its thumb on the scale.

One minor point that may not be so minor. Broad quotes from an unpublished letter written to the New York Times by Harvey Weiss of Yale University that refers to the Biblical Archaeology Review (incidentally, the name is not Biblical Archeological Review as Broad states.) According to Science, Weiss wrote the Times that Biblical Archaeology Review is a "slick new magazine featuring popular, nonscholarly articles, some of them written by the magazine's editor . . ." [emphasis added]. We printed the full text of Weiss's letter in Biblical Archaeology Review at the request of the Syrian ambassador in order to assure balanced coverage. In the copy of Weiss's letter furnished us by the Syrian ambassador, Weiss states that Biblical Archaeology Review is a "slick new magazine featuring nonscholarly articles mostly written by the magazine's editor . : ." [emphasis added]. This is demonstratively wrong. Some of the world's greatest scholars have published articles in Biblical Archaeology Review, including Frank Cross of Harvard; Harry Thomas Frank of Oberlin; Nahum Sarna of Brandeis: Morton Smith of Columbia; Jack Finegan, author of Archaeology of

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the New Testament; George Wesley Buchanan of Wesley Theological Seminary; Kurt Weitzmann of Princeton, and Israeli archeologists Yigael Yadin, Yohanan Aharoni, Moshe Kochavi, and Yigal Shiloh, to name just a few.

Incidentally, the American Biblical scholars who aired their views concerning Ebla's implications for Biblical studies on the basis of early information put out by Pettinato may vet have to pay for the sin of scholarly speculation. In another letter, which Weiss provided to the Syrian ambassador, he calls these American Biblical archeologists "irresponsible" scholars who "distorted" the Ebla tablets "for political purposes"; Weiss adds, "Some attempts are being made to remove the irresponsible and self serving persons involved in this from the positions of 'power' which they now hold, but the money behind these persons has considerable clout.'

HERSHEL SHANKS

Biblical Archaeology Review, 1737 H Street, NW, Washington, D.C. 20006

Congratulations on the review of recent press coverage of the discoveries at Ebla. Broad's factual survey renders a most useful service to archeologists who, like myself, have been besieged by indignant inquiries from newspaper readers misled by stories now refuted in such a balanced fashion.

My only regret is that the article's title seems—at first glance—to link your presentation with those of other periodicals maligning the integrity of Syrian scholars and officials who, in actuality, have energetically been encouraging international scientific research.

CARNEY GAVIN

Semitic Museum, Harvard University, Cambridge, Massachusetts 02138

Economy of Expression

Richard Chait's editorial, "College mission statements" (7 Sept., p. 957), was eloquently written and very convincing. It is interesting, however, to observe the effect of changes in the economics of the publishing industry on the length of the message. Chait's essay is essentially a modern statement of an adage coined about 2000 years ago by a Jewish sage, Shammai. The original message (Avoth 1:15) was "Say little but do much," only four words in Hebrew.

CHARLES ABZUG

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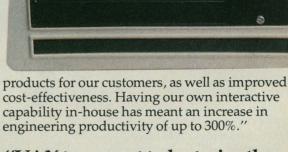
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From the standpoint of capability, PDA considered traditional superminis like the Data General Eclipse and the Prime 400 and 500 series, plus a used 1108 mainframe. Lou Crain says, "Our benchmark showed VAX to be very powerful against the competition - up to a 2:1 performance advantage over both the Eclipse and the 1108."

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Roger Vossler,

Section Manager and Systems Engineer TRW Defense and Space Systems Group Redondo Beach, California

Sensor data processing and distributed processing systems in support of real-time embedded applications are among the specialties of TRW's Defense and Space Systems Group. To find the right computer, TRW continues to evaluate numerous machines—including Digital's VAX-11/780. They've also conducted numerous FORTRAN and PASCAL benchmarks.

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Roger Vossler, Section Manager and Systems Engineer, says, "VAX is one of the best implementations we've seen of a successful integrated hardware and software system."

Since TRW's sensor data processing applications require enormous memories—over a million bytes to store a single image, for example—VAX's true 32-bit address space is vitally important. In addition, says Vossler, "VAX's I/O bandwidth capabilities are extremely important for effectively moving large quantities of real-time data at very high data rates."

Because TRW already had an investment in Digital technology, Vossler is particularly impressed with the relative ease of moving PDP-11 series programs onto VAX.

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"Implementation was faster on VAX than on 25 other machines."

Brian Ford, Director Numerical Algorithms Group Oxford, England/ Downers Grove, Illinois

The Numerical Algorithms Group develops and maintains mathematical and statistical software libraries for customers in industry, science and academia.



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And implementation performance was just the start. Dr. Ford comments on VAX's impressive record of reliability after the program was up and running: "No problems were encountered in the VAX/VMS software even though approximately 3000 files were being handled. The operational availability time for the machine was close to 100%, an outstanding statistic for new hardware and a new operating system.

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The Role of Science in Higher Education

As someone who has, for the past 4 years, been president of a major urban university, I am not impressed by recent polls purporting to show that in the American public opinion, science and its practitioners are as hallowed as ever. Scientists may consistently rank higher in public esteem than ministers, architects, lawyers, bankers, and congressmen, but from what I have observed on the college campus and in the classroom, faith in the beneficence of scientific endeavor and the promise of technology has been steadily

A scientifically literate public is more urgently needed than ever before if our society is to realize the full potential of the many technologies at our disposal. Scientifically well-informed voters, civic leaders, business persons, and journalists are essential if we are to make the right choices—if we are to invest our dollars and our energies in the most promising medical, environmental, and technological enterprises.

On the university level, we are a long way from achieving this kind of scientific comprehension. Science in its academic guise inspires in most of our students a mixture of anxiety and antipathy. Except for premedical students, who see their undergraduate science requirements as a kind of ordeal by fire, courses in "hard" sciences are avoided whenever possible.

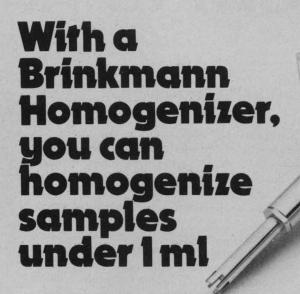
Some of the reasons for today's more jaundiced view of science are obvious, others less so. Scientists have been the bearers of bad news in recent years, and bad tidings rarely enhance the popularity of those who deliver them. A DC-10 tumbles from the sky and, on investigation, the rest of the DC-10's are grounded; a nuclear reactor malfunctions and people fear for the genetic well-being of their unborn children. It is announced that a manmade satellite will reenter the earth's atmosphere, showering many tons of debris. In some vague but very real way, science is perceived as besmirched by these "failures."

The ascendant belief of the 19th and early 20th centuries was that science was omnipotent. With time enough and money enough, hunger and disease would vanish; technology would make work obsolete. Since science promised so much only a short while ago, the news that we are running out of energy and polluting our planet, that all future "solutions" to these problems may be only trade-offs involving certain risks that cannot be eliminated, is particularly difficult to swallow. Today's public disillusionment is threatening to create a scientific credibility gap just when it is most urgent that the work of scientists be understood and valued.

Along with the beliefs that scientists can no longer deliver on their promises and that they are guilty of intellectual trickery, there is the feeling that scientific research is insatiable in its appetite for the taxpayers' money, and that this money is increasingly swallowed up with little to show for it. Everyone could understand penicillin and polio vaccine, but recent efforts to find "cures" have met with no comparable success. The scientific credibility gap was probably widened when the "war on cancer," announced with fanfare by a former president, bogged down to the point where some researchers began characterizing it as a scientific Vietnam.

The scientific community as well as teachers and educators must do a better job of conveying to the public the importance of basic research. People do not comprehend the often circuitous paths to scientific discovery. Many people do not understand why men and women should be paid for studying the mating habits of spiders and the sonar systems of bats when the planet itself seems to be in peril.

The growing cynicism about science must be tackled at its roots through better scientific education. People must be taught the limits as well as the possibilities of science and, most important, its changing and vastly enlarged role in our national and global destiny. - John C. Sawhill, President (on leave), New York University, New York 10012, and Deputy Secretary of Energy



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