scientific rights of our Soviet colleagues for fear of endangering their vested interests with the Soviet Union! They are now forced to compromise and subject their principles to the standards of the Soviet authorities.

The evidence is clear that increasing scientific contact unconditionally has not helped the plight of our Soviet colleagues. In fact the increased opportunities and expectations accompanying this increased scientific contact have caused the Soviet authorities to compensate with increased repressions to maintain as much as possible their absolute control over their society.

Any further scientific contact with the Soviet Union should be *conditioned* on their observance of scientific rights. If Soviet scientists are invited to scientific meetings but the Soviet Union sends others less qualified in their place, these substitutes should not be admitted if their scientific qualifications are not adequate, and, in all cases, they should not be financially supported. When scientific exchanges are agreed upon, explicit conditions should be included permitting free access to all unclassified sources of scientific information. This means free travel for scholarly purposes within and without the country, including eliminating both the US and the USSR restrictions against travel for foreign scientists within their respective countries; unhindered access to pertinent scientific institutes and scientists; and treatment of their scientists by the authorities in a manner consistent with the international cooperative nature of science implicity recognized by scientific exchange. The fruits of science should legitimately be used for the benefit of all mankind and not for the self-interest of one country at the expense of others. It follows from this that scientists should not be prevented from pursuing their scientific careers because of political reasons, and if they are not allowed to do so or if they desire to pursue their careers elsewhere they should be allowed to leave to function as scientists in another country.

It must be made quite clear that failure to observe the conditions of any exchange program would lead to suspension of that program. To take away the weapon of intimidation from the Soviet authorities, the making and enforcement of such conditions must be an official act of an institution representing the scientific community such as the National Academy of Sciences and not that of an individual who can be singled out for sanctions.

The US scientific community has an opportunity to further the cause of scientific freedom significantly. If it fails to take advantage of this opportunity, then it is as culpable for the repressions and violations that may be perpetrated as are the government authorities—if not more so.

EDWARD A. STERN
University of Washington
Seattle, Washington

More papers on weapons

This is a response to G. C. Pomraning's letter (July, page 15).

The *American Journal of Physics* has published two of my papers (October 1973 and August 1974) that have contained calculations on such military related topics as: superhardening missile sites, MIRV, ABM, separation of isotopes with tunable dye lasers, Pu^{239} from the reactors of the world, the Pu^{239} "mine" at Hanford, Washington, the ECCS rise time of reactors, and so on. The editor published these "Science and Society, back-of-the-envelope" calculations without any complaint or revision. However, I would like to point out a couple of difficulties that one can encounter when trying to publish scientific calculations on these politically sensitive areas:

▸ The problem of governmental classification. The reviewer of the first paper had this to say:

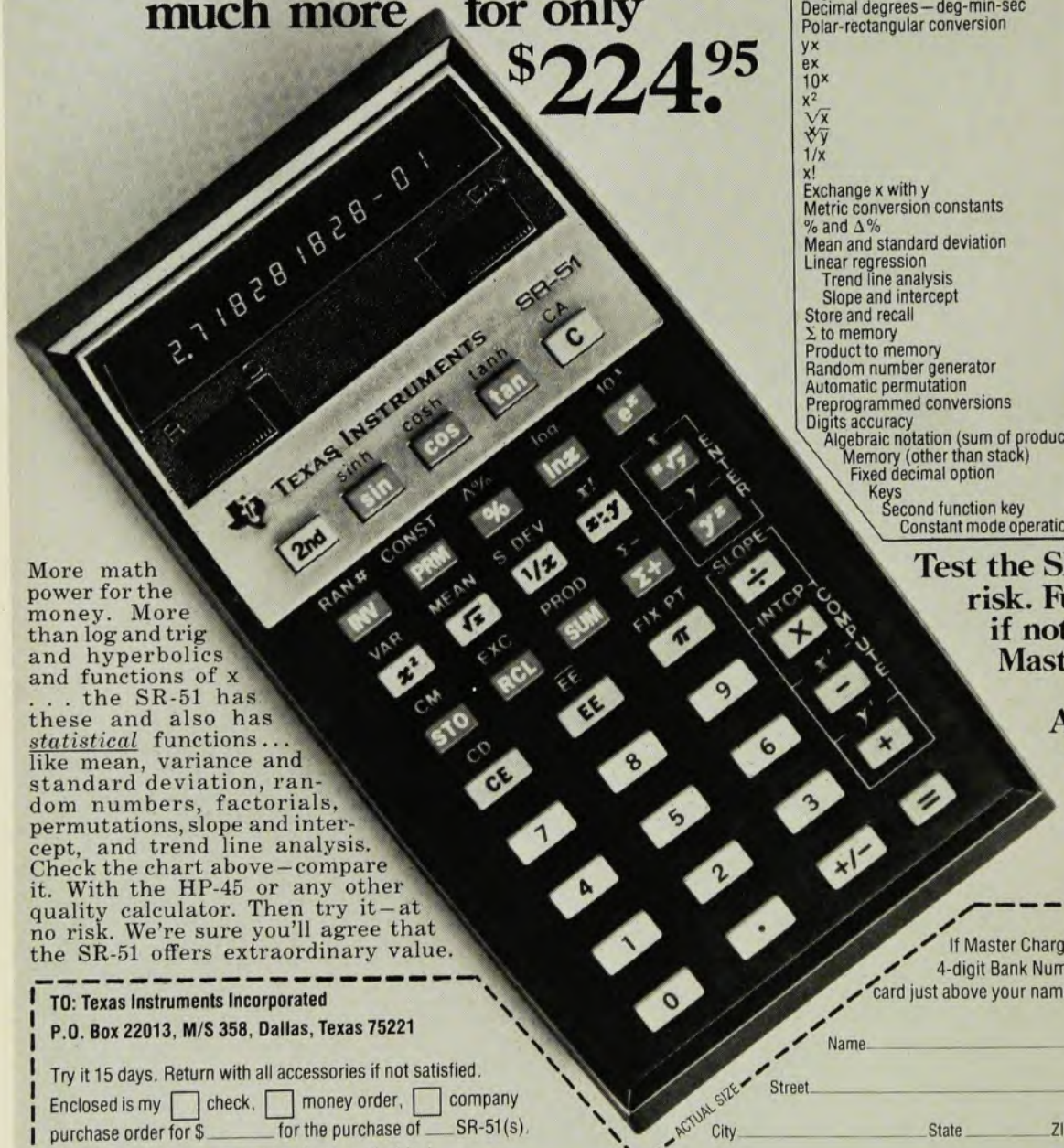
> "Answer 9: The matter is really uncertain. Submarines launch from shorter range, which has the effect of decreasing CEP. How it balances out over all is both classified and unknown.
>
> Answer 5: The historical comments in this answer are misleading or wrong, or both, as is frequently the case when people who don't know about how H-Bombs are made comment on them. Further clarification by me is prohibited. The only correct and unclassified answer would be, 'LiD is important as a fuel for H-Bombs'."

What the reviewer appears to be saying is the following: "Since you do not have access to what I do at DOD or the Pentagon, your answers are not perfectly correct and you should refrain from trying to speculate at the truth." What am I to do? All I can say is that I did the best I could with the tools of our physics trade.

▸ Where to publish? It may be true that the article "Early Time Air Fireball Model for Near Surface Energy Release" was too specialized for the *Journal of Applied Physics*, but we in the physics profession may have paid a price for this specialization. Most physicists did rather poorly on "Science and Society, Test for Physicists: The Arms Race" (*Am. J. Phys.* **41**, 1191 1973). I believe the very capable physicists who took the test did poorly because they have never taken the time to think about such grubby applied prob-

Compare TI's NEW SR-51....

●Mean, variance and standard deviation. ●Automatic linear regression. ●20 programmed conversions. ●Percent and percent difference. ●Random number generator. ●3 accessible memories. And much more for only $224.95



FUNCTION	SR-51	HP-45
Log, ln	yes	yes
Trig (sin, cos, tan, Inv)	yes	yes
Hyperbolic (sinh, cosh, tanh, Inv)	yes	no
Degree-radian conversion	yes	yes
Deg/rad mode selection	yes	yes
Decimal degrees—deg-min-sec	yes	yes
Polar-rectangular conversion	yes	yes
y^x	yes	yes
e^x	yes	yes
10^x	yes	yes
x^2	yes	yes
$\sqrt{x}$	yes	yes
$\sqrt[x]{y}$	yes	no
1/x	yes	yes
x!	yes	yes
Exchange x with y	yes	yes
Metric conversion constants	13	3
% and Δ%	yes	yes
Mean and standard deviation	yes	yes
Linear regression	yes	no
Trend line analysis	yes	no
Slope and intercept	yes	no
Store and recall	yes	yes
Σ to memory	yes	yes
Product to memory	yes	yes
Random number generator	yes	no
Automatic permutation	yes	no
Preprogrammed conversions	20	7
Digits accuracy	13	10
Algebraic notation (sum of products)	yes	no
Memory (other than stack)	3	9
Fixed decimal option	yes	yes
Keys	40	35
Second function key	yes	yes
Constant mode operation	yes	no

More math power for the money. More than log and trig and hyperbolics and functions of x . . . the SR-51 has these and also has *statistical* functions... like mean, variance and standard deviation, random numbers, factorials, permutations, slope and intercept, and trend line analysis. Check the chart above—compare it. With the HP-45 or any other quality calculator. Then try it—at no risk. We're sure you'll agree that the SR-51 offers extraordinary value.

Test the SR-51 at no risk. Full refund if not satisfied. Master Charge or Bank Americard accepted.

PT4

If Master Charge is used indicate 4-digit Bank Number appearing on card just above your name: ☐☐☐☐

TO: Texas Instruments Incorporated
P.O. Box 22013, M/S 358, Dallas, Texas 75221

Try it 15 days. Return with all accessories if not satisfied.

Enclosed is my ☐ check, ☐ money order, ☐ company purchase order for $_____ for the purchase of ___SR-51(s).

Please add state and local taxes where applicable.*

Please charge this order to my ☐ Master Charge. Or, ☐ BankAmericard

My Card Number is: ☐☐☐☐ ☐☐☐ ☐☐☐ ☐☐☐

With the expiration date: _____

Name_____

Street_____

City_____ State_____ ZIP_____

Authorizing Signature (If billed to Credit Card Must be signed by card holder)

*AL, AZ, CA, CO, CT, FL, GA, IA, IL, IN, KY, MA, MD, MI, MN, MO, NC, NM, NJ, NY, PA, TN, TX, UT, VA, WA, WI. Offer good only in U.S.

ACTUAL SIZE

TEXAS INSTRUMENTS
INCORPORATED

13500 North Central Expressway
Dallas, Texas

82016A

Circle No. 12 on Reader Service Card

lems. The very few arms-race articles published by the AIP have been very wordy and descriptive; traditional technical articles in these areas have been totally lacking. It seems to me, for a balanced discussion, that physicists from outside the weapons industry should be able to estimate roughly the effects of superhardening missile sites, MIRV, and so on. If we, the physicists, can not do this, then how can we expect our nontechnical congressman to do any better? It seems to me that there should be a place somewhere in the AIP journals for technical articles on science-and-society topics.

DAVID HAFEMEISTER
California Polytechnic State University
San Luis Obispo, California

Remembrances of 1910

In the October 1974 issue (page 9) a picture was published in the "Letters" section—a 1910 picture of those who attended a Washington meeting at the old Bureau of Standards, and readers were asked to identify people in the group.

I believe that no. 73 is Irwin G. Priest. He was at the Bureau during 1907–32. In the years when I knew him he was head of Colorimetry. While I did not know him in 1910, I did know him a dozen years later, when cooperation was established between the Bureau and the Munsell Research Laboratory, which at his suggestion was moved from New York to Baltimore (June 1923). Priest died in 1932 or 1933, following a coronary attack on his return from the 1931 conference of the International Commission on Illumination, where he had successfully helped to conclude the adoption of the 1931 CIE standards for colorimetry, used today throughout the world as basic standards in this field of science.

While I knew H. E. Ives and E. C. Crittenden in the late 1920's, I do not feel nearly so certain of their identification as I do of no. 73 as Priest. Of him I feel very certain—his stance, and shock of hair, as well as face and height, help in the identification.

DOROTHY NICKERSON
Washington, D.C.

•

I believe that the person in the back row, identified by number 73 in your legend, is the late Irwin G. Priest.

Priest was born on 27 January 1886, received his BA degree from Ohio State University in 1907, and went to work immediately as a laboratory assistant at the National Bureau of Standards. Successively, he became an assistant physicist in 1908, an associate physicist in 1915 and a physicist in 1919.

Priest became the Head of the Colorimetry Section of the NBS in 1913, a post to which the late Deane B. Judd succeeded in 1932.

ARTHUR C. HARDY
Wellesley, Mass.

•

Number 70 in the photo is Clark W. Chamberlain, who at the time of the meeting was chairman of the physics department at Vassar College.

Chamberlain did his graduate work at the University of Chicago and at Columbia University, and was noted for his design and construction of an instrument which he called a "compound interferometer" much to the disconcertment of A. A. Michelson.

Prior to the position at Vassar, Chamberlain was chairman of the physics department here at Denison University, and in 1912 he was called to the presidency of Denison, a position he held for over a decade.

After leaving the presidency of Denison he did advanced study in the Cavendish Laboratory and returned to the US to take a position on the staff of Michigan State University.

It was my pleasure to serve on the staff of the physics department here at Denison during Chamberlain's term of presidency.

RICHARD H. HOWE
Denison University
Granville, Ohio

•

My wife and I were able to identify two of the persons attending the 1910 meeting of the APS in Washington. They are: no. 26, Edward L. Nichols, who was head of the department of physics at Cornell University and President of APS, 1907–08, and no. 73, Irwin G. Priest, who was Head, Colorimetry Section at NBC.

E. P. T. TYNDALL
Long Beach, California

•

. . . I believe that no. 27 in your photograph is Daniel Shea, who was the chairman of the physics department of the Catholic University of America in Washington, D.C.

JAMES G. BRENNAN
Chairman, Dept. of Physics
The Catholic University of America
Washington, D.C.

In praise of AAPT

The October issue contains a welcome profile on Arnold A. Strassenburg, the Executive Officer of the American Association of Physics Teachers (page 79).

The AAPT is one of the most worth-