

criticize or reproach "Doc" Draper; he was probably a terrific and deserving fellow. But I found myself wondering why an award to honor engineers and technologists for "contributing to the advancement of human welfare and freedom" should be named after someone who pioneered the art and science of electronic warfare, whose guidance systems went into virtually all of the early ICBMs, whose lab developed the inertial guidance for a whole family of Navy missiles, from the Polaris to the new Trident II?

I am not naive; I realize that since the beginning of civilization, one of the roles of engineers has been to design weapons. However, is this the contribution to society that we want to be remembered for, that we want to celebrate about ourselves?

Again, with all due respect for Draper, I think we could find someone who better exemplifies the ideals, principles and ethics of society's servant, the engineer. I myself am partial to Archimedes. Perhaps they could make an engraving in the gold medal awarded to the prizewinner of a little naked man in a bathtub crying out "Eureka!"

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12/88

Another Reading of 'Inbreeding'

Jeffrey H. Bair's letter on "inbreeding" (January 1989, page 15) appears to be a fine example of "inreading" whatever he wishes into the data. He suggests that of two possible interpretations of the high percentage of faculty that the "elite" physics departments draw from among themselves—either that these are the best PhD programs or that these departments are simply trying to maintain their ostensible rankings—the data support the latter. I'd say it's clear that these raw data are consistent with either possibility and therefore support neither above the other.

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1/89

BAIR REPLIES: The data suggest that a rather small group of programs (12 in this case) tend to maintain and enhance their reputations by hiring one another's graduates. Although highly ranked PhD programs might find that many of the best candidates for positions come from their own and other elite programs, such a tendency would not account for the marked degree of inbreeding that these data document. Recall that almost 70% of

the faculty members in these 12 programs had graduated from one of these same 12 programs. Surely the nonelite programs produce a sufficient number of graduates who are as well qualified as those from the elite programs that the nonelite-program graduates could be more strongly represented on the elite faculties. Sociologist John Helmer's contention¹ that the hierarchy of prestige is fundamentally a hierarchy of power receives strong support from these data.

Reference

1. J. Helmer, *The Deadly Simple Mechanics of Society*, Seabury, New York (1974).

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10/89

Max Dresden's School For Schoolteachers

How pleased I was to see that the lead book review in the September 1988 PHYSICS TODAY (page 103) was a review by S. S. Schweber of Max Dresden's book on the life of Hendrik A. Kramers and to see Dresden's article on Kramers's contributions to statistical mechanics in the same issue (page 26)!

Dresden, after convincing the National Science Foundation of the necessity of drawing public school teachers into the inner sanctum of the scientific community, organized, directed and taught over the last four years a personally designed NSF program, to which many teachers returned faithfully each year because of the profound effect it had on their professional lives. An American schoolteacher rarely has access to individuals directly involved in the development of 20th-century science. The schoolteacher's primary sources of information are confined to reading publications such as PHYSICS TODAY or *The Physics Teacher*, commiserating with fellow teachers or perhaps taking formal college courses. The usual NSF program allows teachers contact only with undergraduate professors or master teachers from other schools. Recognizing the isolation of schoolteachers, Dresden designed a program that would provide them with direct contact with those at the very frontiers of science and research.

By providing these teachers with a Bohr number of 2, Dresden has influenced thousands of classroom lessons for years to come. Besides gaining insights into the historical development and methods of science and into the thought processes that produced the science and technology we know about, teachers sat and talked with C. N. Yang, a Nobel laureate;

broke bread with researchers before and after they went to Antarctica to study the ozone problem; attended seminars in graduate physics; witnessed a doctoral defense in topology; talked with graduate students and postdocs; and questioned contemporary researchers in biology, chemistry and physics about the glories and pains of their own work. These remarkable experiences, never to be forgotten, are now parts of lessons taught to students who can boast a Bohr number of 3!

Perhaps this letter will send others of Dresden's stature directly to Dresden himself, so that they might emulate, with support from the NSF, his program and so provide other science and mathematics teachers experiences similar to those shared by me and my fellow participants.

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9/88

Boltzmann's Constant: To 'B' or not to 'B'?

What's wrong with this sentence, which appeared in the January 1989 PHYSICS TODAY (page 28)? "The photon number distribution is then given by the Planck formula: $p(n) = [1 - \exp(-\hbar\omega/k_B T)] \exp(-n\hbar\omega/k_B T)$, where k_B is the Boltzmann constant." For me it is the presence of the "B." It both looks and sounds bad. There is, of course, no accounting for taste, and a sample taken from recent issues of this magazine includes about equal numbers of plain and adorned Boltzmann constants—including one case of both in the same article, on the same page. (The article had two authors.) But why do authors add the "B"? If they believe the risk is too great that kT will be understood as $2\pi T/\lambda$, they can do as the authors of the above sentence have done, in a clear case of overkill, and follow its introduction with "where k is Boltzmann's constant."

It's time for authors and editors to stop the invasion of the B's. Let's continue to honor Boltzmann with the simple k —clean, clear, perfect.

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2/89

Correction

October, page 52—The correct name of the Massachusetts Republican congressman referred to in the news story on Congress's decision to fund the SSC is Silvio O. Conte. ■