

letters

major reason for my recent loss of a position at Eckerd College was due to ridicule that came from publication of a letter on this question.³ The heresies change, but human nature remains the same!

On 24 March 1976, I had an associate, Richard Rhodes, submit a research paper "Crossed Beam Electron-Electron Scattering at 90° and 300 eV" to PRA. While I had been the principal investigator on the project, I felt that considering the controversial nature of the previous paper, it would be wise to have Rhodes handle the correspondence. The following are some of the statements made by the first referee in rejecting the paper: "Surely work on helium structure provides a much more critical test of electron-electron interaction at low energy." "Aside from the question of the usefulness of the measurement, it was not carried out with the sophistication befitting so fundamental a problem." "Perhaps a report of these measurements would be suitable for publication in the *American Journal of Physics*." The second referee knew of the opinion of the first referee, and essentially restated it. We eventually published the paper in a different journal,⁴ one that considered it important to publish the first report of a primary isolation-type experiment such as crossed beam electron-electron scattering in a new energy range!

Werner Heisenberg has argued that we need to develop a unified theory of the mass dynamics in elementary particles.⁵ He states, "In the theory one should try to make precise assumptions concerning the dynamics of matter, without any philosophical prejudices." I've followed Heisenberg's lead and done extensive work in this area,⁶ and found that the major problem with this approach is the philosophical prejudices of other physicists. In trying to publish papers on this question, I've gone through the PR author's appeal procedure three times, two of these appeals went all the way up to the final step, review by the PCAPS. In answer to the first appeal's argument "It is my contention that by using arbitrary biased opinions to deny an APS member the right to publish a controversial paper your journal is violating his human rights as set forth in the statement of principles for The American Physical Society activities with regard to human rights,"⁷ the PCAPS chairman Hans Frauenfelder wrote "I should like to point out that publication in *Physical Review* or *Physical Review Letters* is not a right, but a privilege. Any member of the American Physical Society has a right to express his ideas in the *Bulletin*." Considering the impossibility of eliminating the philosophical

prejudices of physicists, I personally believe the best solution to this problem is to follow the enlightened lead of the *Bulletin* and make APS members responsible for the scientific integrity of the material they publish in PR and PRL. This would encourage membership in the APS, eliminate the expense of the current bureaucratic editorial nightmare, and make the APS statements on rights something more than pretentious empty rhetoric!

References

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BRYAN G. WALLACE
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3/82

The first computer

In May (page 116) the letter by Yale Jay Lubkin states several "facts" concerning the history of the earliest electronic digital computers. First, the EDVAC was designed by John W. Mauchly and J. Presper Eckert. This design began late in the year 1944, continued through the following year in parallel with the completion of the ENIAC, and was put into practice gradually so that the transition from the completion of the ENIAC to full-time on the EDVAC was smooth. Eckert and Mauchly not only carried the design through its major creation, but their work was ably forwarded after April 1946 by persons such as Kite Sharpless, who succeeded Eckert. Samuel Lubkin was not and had not been on the Moore School staff up to this time. Incidentally, Eckert and Mauchly wrote a relatively complete outline of the design of the EDVAC, which was published (classified) in 1946.

Second, the EDVAC was entirely a Moore School machine and had nothing to do with the computer then to be, or being, built at the Institute for Advanced Study. The latter computer was completed much after the EDVAC.

Third, Moore School participation in computer development was hardly terminated with the EDVAC. To give an example, the Moore School's UDOLF (Universal Digital Operational Flight Trainer) was essentially a very large computer that for the first time enabled existing flight trainers to be re-

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JOHN G. BRAINERD
University of Pennsylvania
Philadelphia, Pennsylvania

6/82

Equal opportunity?

"Physics in Saudi Arabia" in May (page 11) poses a most attractive career invitation. My years in research and teaching seem to qualify me.

However, a haunting old phrase intrudes upon me. I "need not apply." For that matter, were they alive and in search of employment, Albert Einstein and J. Robert Oppenheimer, among many others, "need not apply."

As wonderful as Saudi opportunities in physics appear, I don't think I'll apply.

DANIEL M. EKSTEIN
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6/82

Need for differential salaries

Your article "No federal aid for precollege science" (July, page 57) barely mentioned the biggest reason that there is a shortage of math teachers. In most school systems, math teachers are paid no more than teachers of any other subject. Salaries and raises are determined by *how long* they have been in the system and *how many* college courses they have taken past the Bachelor's degree, not by *how good* they are as teachers or by *what* courses they take. A one-week course in local history in the summer is as good as a regular course in math or physics as long as the number of credits is the same. The school systems themselves could greatly improve the situation in mathematics by adopting differential salaries based on merit and area of expertise rather than longevity.

W. THOMAS CATHEY
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9/82

Third-world view

I'd like to applaud the sound stand of APS on the "creationism" issue (February, page 54).

To anyone with a dim knowledge of philosophy of science or theology it should be clear that there is an epistemological cut between science and religion. Furthermore, the theory of evolution, which again is at the focus of

debate, can be, like any other scientific theory, proved wrong sooner or later and this has nothing to do with the existence or nature of God.

The existence of God, by and large, cannot and will not be realized rationally because the perception of God is digital: total or none, at a single stroke. Those who try to prove "scientifically" the existence of the Supreme are fools, to say the least, chasing an illusion and believing in it, unable to perform an exegesis of sacred texts, and neglecting context, historical perspective and the very essence of culture, which is cumulative knowledge.

We in the Third World have a very precise notion of what blind faith can do to society, economy and culture. It is with great surprise that we see the reappearance of creationism in the classroom of the developed countries much in the same fashion as when Darwin was being ridiculed for his "absurd theory." After all, who wants a gorilla for granddaddy? By the same token, what about that "crazy feller who invented the relativity of things"?

The answer to both questions is the same: When extreme rationality takes over, intuition dies. And with it, creativity and liberty (that is, free will). Thence follow theories such as the Nazi anthropology and the Stalinist genetics—and their social consequences.

By Jove, haven't we had enough lunacy?

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9/82

More on refuting God

In June (page 86) it was asserted by John Bortz that a logical refutation of the Christian God was not difficult. We wish to demonstrate that Bortz has underestimated the magnitude of his task.

It is not inconsistent to believe both that God exists and that science can reach objective truths. Science and theology are two different modes of inquiry into two different areas of knowledge. Science is the study of the elements of the physical universe and their interrelationships. For example, science can determine what Newton's laws are, but cannot determine why they are. Theology, on the other hand, is the study of God in His relationship to man. The difference between the two may be described as the difference between the "ontical" and the ontological.¹

The creation narratives in Genesis need not be seen as a literal account of the physical origins of the universe. In the light of our previous definitions, we see it as an attempt to describe certain

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