letters

Will the other countries of the world take a cue even now and do something about the lot of their teachers and restore the dignity of teaching as a profession? In my considered opinion, it is the fundamental right of a person to opt for teaching and/or research, and it is the bounden duty of university administrators to evolve guidelines to reward teachers and researchers on their own merits, but not one at the expense of the other.

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11/23/77 *Bangalore, India*

The Tale of Schrödinger's Cat

Schrödinger called his cat and said,
"You can be both alive and dead,
For a linear combination of states
Postulates two simultaneous fates."

Poor shocked pussy could not say,
"I shall inform the SPCA.
Your pet theory seems to me
An ultraviolent catastrophy."

What then did his kitty do?
She looked at him and said "μ."

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10^{-3} mistake

The first figure and caption of the article "Critical-point Universality and Fluids," by Anneke Levelt Sengers, Robert Hocken and Jan V. Sengers in the December issue, truly took away my breath. That such a complicated seven-layered thermostat is capable of only 20 mK temperature control seems an unsurpassed feat of un-design. Or may somebody along the line have been unaware of the difference between m (milli-), standing for 10^{-3}, and μ (micro-), standing for 10^{-6}?

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Einstein unemployable today

With the recent discoveries of J and upsilon particles, many new quarks and gluons have now been postulated but none of them has yet been observed. The situation has prompted Martin Perl to call for a new Albert Einstein at the recent APS meeting in San Francisco. A similar call has also been made by the director of Fermilab.

However, with our present emphasis on research programs, it is quite possible that Einstein could not survive today. He would have great difficulty formulating a research program involving relativity, the photoelectric effect and Brownian motion simultaneously. Indeed, it would be almost impossible for him to justify the coherence of such a research program. Paradoxically, his accomplishment was less impressive when he did have a well-planned and comprehensive research program in unified field theory.

With high unemployment (9% in 1974, 13% in 1975) among new graduates, employes can afford to be very choosy. With very scientific matchings of candidates and jobs by computers, young physicists often must work along the lines of their thesis research. Under present conditions, J. Willard Gibbs would be forced to work on "the form of the teeth of wheels in spur gearing" forever, and Ernest Lawrence on the photoelectric effect of metal vapors. If these events had occurred, the losses to physics would be very grave indeed. Under present conditions, Einstein would not qualify for his patent-office job, and would be denied financial security even at a very modest level. According to Banesh Hoffmann,[1] Haller (the director of the Swiss Patent Office at Bern) called Einstein for an interview, which quickly revealed Einstein's lack of relevant technical qualifications; but as the interview continued its gruelling two-hour course, Haller began to realize that there was something about this yound man that transcended technicalities.

We all recognize the importance of scientific planning in research. There are many outstanding successes of well-organized research programs, such as the search for transuranium elements following the discovery of neptunium and plutonium during the Manhattan Project and the biological code research following the experiments with cell-free systems. (However, the search for biological codons was finished after only three years, 1961–64). At the same time, there is also the real danger of over-planning and overly scientific research programs, leading to the tendency of putting the same problem on a slightly bigger computer for a slightly more accurate answer.

In some respects, perfection and obsoleteness may be regarded as complementary variables in the Heisenberg uncertainty principle. There are examples where a perfect weapon is also an obsolete weapon. The most powerful and most heavily protected battleships, *Yamato* and *Musashi* of the Imperial Japanese Navy, never accomplished much. Similarly, a perfect research program may also be an obsolete program. According to Lessing,[2] it does not follow that big creative breakthroughs are made by the big budgets and the big research staffs. For example, xerography came out of the home workshop of a patent lawyer, not from the duplicating machine industry. Let us remember that bureaucracy can

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