

the fine balance required to develop competitive scientific capability in states where scientists have been less than fully successful while reinforcing the merit-based decision process that has brought the nation the breadth and depth of scientific excellence we have today.

When EPSCOR was established in the late 1970s, there were many unsung heroes. Regrettably, your reporter overlooked the crucial role Arkansas Democrat Ray Thornton, then chairman of the House Science, Research and Technology subcommittee, played in encouraging NSF to establish the program. Congressman Thornton—who left the House in 1979, later became president of the University of Arkansas and has today returned to the Hill with the start of the 102nd Congress—understood the value of merit-based decisions and the peer review process and led efforts to defend them. At the same time, he quietly impressed upon NSF officials the importance of addressing constructively political pressure building on the Hill from representatives of “have-not” states. The success of EPSCOR is a testament to his vision and quiet leadership.

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3/91

Why Theory Suffers from Shorffalls

In recounting the anecdote about how Leo Szilard wrote grant proposals for work he had already done, Robert Hart (November 1990, page 117) has struck a raw nerve. I doubt that Szilard's stratagem for getting around the funders' requirement that scientists document in detail what they intend to do and how they are going to do it was unique to himself; it is probably quite common among theorists. If a theorist knows exactly what he is going to do and how he is going to do it, then for all practical purposes it is already done.

Hart, however, has missed an even more important reason why theorists are at a disadvantage vis-a-vis experimentalists in seeking funding. Theory is inexpensive, and Murphy's law of research funding applies: “The less expensive a project is, the less likely it is to be funded.” Large projects are *visible*. Congressmen regard them as pork-barrel projects for their districts. Even Presidents may publicly support them.

Since theory is inexpensive, one might think that a theorist could survive at a university without a

grant, but that would also be a fallacy. Universities do not consider research an activity to be supported, but a cash cow to be milked. Consider an elite private university with a 70% indirect-cost rate. Professor A, an experimentalist, earns a salary of \$150 000 per year but has a *funded* research project with direct costs of \$1 million per year. Professor A is probably paying most if not all of his salary out of his grant. In addition, the university receives \$700 000 per year in “overhead” costs. Professor B, a theorist with no grant and a salary of \$40 000, costs the university \$40 000 per year even if he is a productive researcher. If the university is going to give tenure to one professor, it should be clear what the decision would be. In short, without Szilard's stratagem, there might not be any theorists left at all.

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11/90

How to Jettison Junk Mail

Could your readers please suggest ways for a Life Member to get off the mailing lists that APS gives to multitudinous organizations? I have sent APS several letters of complaint, only to be told that the membership database is not competent to separate members who do wish to get junk mail from those who specifically request not to receive it.

There is at least one possible solution—to cease being a Life Member by shuffling off this mortal coil (see my letter in *PHYSICS TODAY*, July 1981, page 15). I fear that this means of avoiding the slings and arrows of outrageous junk mail is not only of dubious legality but also of dubious efficacy: I picture the junk mail *still* being forwarded to me in my future, high-temperature environment.

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12/90

Parity Poetry

Although the events referred to took place almost 35 years ago, the discovery of parity nonconservation was such a milestone in physics that the following bit of lighthearted history is perhaps not totally obsolete. It is based on Feynman's account (in *Surely You're Joking, Mr. Feynman!*) of what happened at the 1956 Rochester Conference. Feynman recalls: “I was sharing a room with a guy named Martin Block, an experimenter. And

one evening he said to me, ‘Why are you guys so insistent on this parity rule? Maybe the tau and theta are the same particle.’ . . . Murray [Gell-Mann] told me later . . . that he used the idea of parity law violation as an example of what ridiculous and crazy ideas people were considering, in order to straighten out the tau-theta puzzle.”

The poem is dedicated to Block, who honored me with a visit to Syracuse University on the occasion of my retirement dinner on 3 October 1990.

THE TAU-THETA PUZZLE (A Nursery Rhyme)

Teedeelee, teedeelee, teedeelee,
I'll tell you of mysteries three:
Of particles strange
And of parity change
And invariance under CP.

The theta was once thought to be
Distinct from the k-pi-3.
There's one trouble, alas:
They have the same mass,
And even the lifetimes agree.

“A parity doublet,” said Lee,
And Yang was inclined to agree.
“A decay,” cried Orear.
“It's abundantly clear.”
And clear it was even to me.

A decay? But how could that be?
The tau and the theta, you see,
Are more equal than twins.
From their mass to their spins
They are matched like the eyes of a flea.

And so it appeared that the tau
Was the *same* as the theta. But how?
Like the wheels on a cart
You can't tell them apart,
But look at the parities. Wow!

“Such likeness just can't be a fluke,”
Remarked a brash youngster from Duke.

“Maybe parity's fluky,
Even though it sounds spooky.
(But then, maybe I'm just a kook.)”

This remark at a Rochester meet
Engendered much passion and heat,
Because everyone thought
To be even *and* odd
Would be an impossible feat.

We know that, in time, Yang and Lee
Solved the tau-theta puzzle. But me,
I'm still somewhat puzzled
Why Marty was muzzled
Like a choirboy singing off key.

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10/90