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fast phenomena in superconducting materials; cross-phase modulation and pulse compression and amplification of ultrashort laser pulses; and ultrafast semiconductor structures, optical physics and devices. Hamamatsu has continued to support the core research at the laboratory at approximately \$200 000 annually.

R. R. ALFANO
City College of the City University
3/91 of New York

'Distinguished' Universities Redefined

The Carnegie Foundation has recently called for a broadened definition of what is acceptable scholarship for a university professor. I would like to point out that a broadened definition of what constitutes a distinguished university could well solve many of the nation's problems in higher education.

In a report entitled "Scholarship Reconsidered: Priorities of the Professoriate," the Carnegie Foundation calls for acceptable scholarship to include not only the discovery of new knowledge (that is, research) but also its integration, application and teaching. If universities could be considered distinguished for being excellent in some but not necessarily all of these areas, then not all would feel the necessity of becoming research universities. This obviously would allow some to concentrate on teaching or other areas of scholarship.

The flow of money influences the flow of events. People (including physics professors) tend to change their activities so as to intercept the flow of money. Thus Federal money means Federal control. The nation has seen this happen in detail in its subsidy of farming: The nature of farming has drastically changed. As a person who was raised on a farm, I see some similarity between what has happened to American farms and what is happening in our physics departments. The fact that there is money for research means professors are strongly encouraged to seek it. If there were money for all four of the above-mentioned areas of scholarship, things would balance out a bit. Further, since there is never going to be enough money to support all the universities that want to be research universities, something has to be done. Supporting research is very expensive. Supporting some of the other areas is not so much so.

Finally, I would like to make a plea for having the people who actually do

the jobs make recommendations on how the taxpayers' money is spent. For example, professors who are in the trenches doing the teaching should have a large say in how money to improve teaching is divided up. It is too easy to use people who are more grantsman than researcher, teacher or scholar to write the guidelines and review the proposals. At all levels of society we need to have reasonable expectations of our productive workers. There is no better way than to have the workers define those expectations.

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Fastie Spectrometer Recollections

It was a pleasure to read the piece by Bill Fastie entitled "Ebert Spectrometer Reflections" (January 1991, page 37). In the opinion of one person who was present at the creation, Fastie has always given too much credit to Hermann Ebert for the realization of the so-called Ebert-Fastie spectrometer. My solution has always been to reverse the order of the names. Indeed, I would prefer to call it the Fastie spectrometer. To those who ask how to tell the difference between an Ebert spectrometer and a Fastie spectrometer, I should explain the method that was recommended at Johns Hopkins: "The Fastie spectrometer is the one with the thumbprint on the grating."

THOMAS M. DONAHUE
2/91 University of Michigan, Ann Arbor

I read with pleasure the splendid article by William G. Fastie on the Ebert spectrometer. As he wrote in the article, I gave him a small transmission diffraction grating when he was 17 and with it he went around Baltimore looking at the spectra of neon signs and getting hooked on spectroscopy.

A few days after he got the grating, he showed me a spectrum of iron nails he had made with a spectroscopic outfit contrived from the grating, a box camera and an induction coil from a Model T Ford as a source of high voltage. Of the many spectrographs and spectrometers that benefited from his touch, including that of Ebert, this surely was one of significance.

JOHN A. SANDERSON
1/91 Clemson, South Carolina

FASTIE REPLIES: The most significant fact is that John A. Sanderson is a

generous, kind and superb teacher.

My great and good friend Tom Donahue has confused the resurrection with the creation. I forgive him.

WILLIAM G. FASTIE
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Aid to Minorities and Women /s Physics Aid

There is a disturbing sentence in Alexander Kaplan's reply to a letter from Michele Kaufman (February 1991, page 120). He contrasts existing programs for aiding minorities with his proposal (October 1990, page 121) for aiding immigrant scientists: "While those programs are aimed basically at promoting *representation* of minorities in science, my proposal is meant to strengthen US *science*." The emphasis is his. No doubt he also means the reader to put some stress on "strengthen." Kaufman had pointed out that his proposal, which would amount to discrimination on the basis of national origin, would work against American blacks and women.

My understanding of the existing programs differs from Kaplan's. They aim to be fair to those who were victims of unfair discrimination, and also to *strengthen science* by attracting them. Increased representation is simply a clue that we are succeeding. Or am I wrong? Are we more concerned with statistics than with the effect on potential scientists or on science?

In 1876 Maria Mitchell, America's first woman astronomer, had something to say on the matter: "In my younger days when I was pained by the half-educated loose and inaccurate ways which we all had, I used to say, 'How much women need exact science.' But since I have known some workers in science who were not always true to the teachings of nature, who have loved self more than science, I have said, 'How much science needs women.'"¹

Reference

1. H. Wright, *Sweeper in the Sky*, Macmillan, New York (1949).

EMILIA P. BELSERENE
Maria Mitchell Observatory
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A Thornton on EPSCOR's Side

The news story in the February 1991 issue (page 77) about NSF's Experimental Program to Stimulate Competitive Research accurately describes

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.

JOHN B. TALMADGE
National Science Foundation
Washington, DC

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.

ROBERT J. YAES
Lexington, Kentucky

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.

LEONARD X. FINEGOLD
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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.

ERICH HARTH
Syracuse University
Syracuse, New York ■

10/90