

pruning of a tree can promote . . . its health," application of this philosophy to individual small science projects would undoubtedly be detrimental. Many modest continuing grant awards are already marginally operational because they lag behind inflationary pressures. Cutbacks in the total amount of federal monies available for competing renewals or new proposals would shrink the level of such activity, and rather than select for innovation could give rise to the survival of "safe" data accumulators. The net result of "pruning" 12 to 15 percent of federal basic research funds would be contrary to the national interest. The deliberate implementation of such a sustained policy would bring about the disappearance of the current cadre and the next generation of highly qualified, university-based, academic researchers; this would cause, in turn, the eventual dependence of the United States on foreign developments for its future agricultural, medical, energy, and defense technology transfers.

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Scientific English

The report by B. J. LaBonte and R. Howard (20 Nov., p. 907) reassures me, not only that the sun's radius still conforms to specs, but also that scientific English is alive and well. After reading the second sentence in the third paragraph, I cannot resist adding:

Strange new words I relish
 Like nectar or tonic.
 I now know my line printer
 Is boustrophedonic.

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Newton's Malady

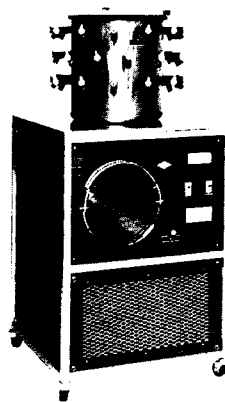
Leonard Goldwater's criticisms of the use of hair to demonstrate possible mercury poisoning of Isaac Newton (Letters, 13 Nov., p. 742) should not pass without comment. Numerous investigations into mercury in hair have shown that it is a reliable and sensitive method for assessing mercury ingestion. For example, when thousands of Iraqi peasants

ate grain contaminated with extremely high doses of organic compounds of mercury there was a strong correlation between the concentration of mercury in their hair and the severity of the symptoms of mercury poisoning (1). People who have consumed fish contaminated by mercury (minimata disease) show very high hair concentrations of the element, as do those who have eaten contaminated meat (2). A study in Italy of workers exposed to mercury contaminations from industry showed that hair was a more sensitive method of monitoring than blood (3). It is difficult to believe

therefore that the high levels of mercury in Isaac Newton's hair were not due to mercury poisoning.

I also question Goldwater's etymology of the phrase "as mad as a hatter." I can find no reference to the phrase "as mad as an adder" in any contemporary dictionary or in *Roget's Thesaurus*. Nor does it occur in the *Oxford Dictionary of Proverbs*, which, however, gives the date of the first recorded use of "mad as a hatter" as 1837. Although there are no contemporary references to the use of mercury in the treatment of felt hats before the middle of the 19th century, it

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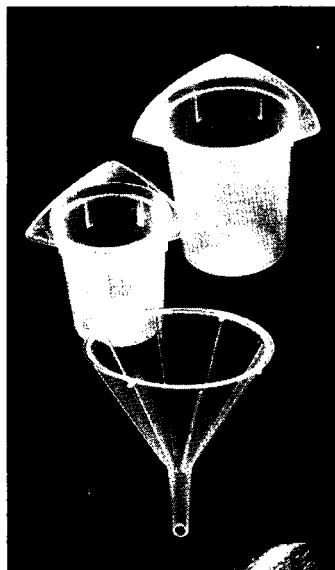
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is generally agreed that the process had probably been in use since the early part of the century; therefore, the phrase "mad as a hatter" must have first appeared shortly after the use of the process became widespread. Before that the English simile for madness had always been "mad as a March hare," a phrase which the *Middle English Dictionary* traces back to at least the 14th century, but gives no mention of adders.

Finally, it is by no means a certainty that Alice's Mad Hatter was an Oxford furniture dealer. The increasingly frequent use of the phrase in the middle of the 19th century may well have been sufficient to have drawn it to Lewis Carroll's attention.

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Polarization

The editorial by F. Karl Willenbrock (18 Sept., p. 1319) points to the decline of U.S. technological preeminence. This retrogression is not limited to steel, automobiles, and electronic devices. It also applies to nuclear power and components, big ship construction, dredging, and other fields.

How is the nation to mobilize its scientific and technological resources, granting that a tripartite effort by industry, government, and academe is needed? What common objective can give them a focus?

In the case of Sputnik, the common chord was the fear of a spacial overview and a threat to our national security. Is there a purely economic or "moral equivalent" of war? Can a long-range, relatively vague probability pump the necessary adrenalin into our social structure to enable us to surmount the rivalries and internal competitiveness that pervade the U.S. psyche?

It will first be necessary to alter the polarization that has crept into our attitudes. Industry now feels beleaguered by government; government feels it is the sole protector of the public; and academe is an orphan seeking "overhead" funds from industry and a few crumbs from the belt-tightening operations of