

Briefings

edited by DAVID P. HAMILTON

Brain Food?

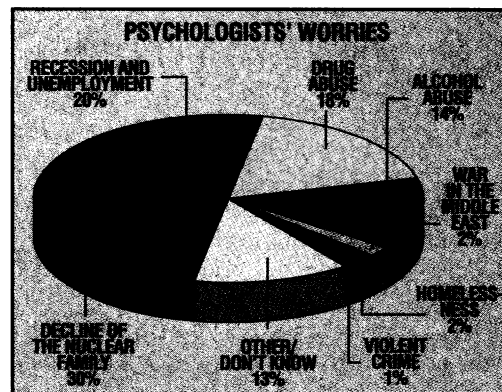
A report recently published in Britain has created new controversy over an old subject: attempts to improve children's IQs through nutritional supplements.

Criminologist Stephen Schoenthaler of California State University in Turlock claims the study demonstrates that children's nonverbal IQs can be raised significantly by giving them double the current Recommended Daily Allowances (RDAs) of vitamins and minerals. The findings have stirred up considerable public attention in England, where they were announced on 28 February and published in the journal *Personality and Individual Differences*. The journal's editor,

Psychological Risk Assessment

Quick—what's the biggest threat to the mental health of Americans? Office stress? Indoor radon? Noisy car alarms?

The American Psychological Association (APA) psychologists go for yet grander problems. According to a just-released survey conducted last December of the APA's membership, a slight plurality (30%) of the respondents believe the "decline of the nuclear family" is the biggest threat to Americans' mental equilibrium. Close behind were recession and unemployment (20%), drug abuse (18%), and alcohol abuse (14%). The threat of war in the Middle East (2%) and homelessness (2%) were nearly lost in the noise.



And hardly any psychologists worry about stress from the office. Then again, why would they?

psychologist Hans Eysenck, is a coauthor.

The double-blind experiment involved three groups of children and a control group. The subjects were given a dietary supplement of 23 vitamins and minerals over 13 weeks. Schoenthaler claims that vitamin and mineral supplements raised children's nonverbal IQ scores by an average of 3.7 points. (The

gains were greatest for children in the lowest socioeconomic groups.) Oddly, the effect is reported only for supplements equalling 100% of Recommended Daily Allowances and did not show up for the groups receiving 50% or 200% of RDAs.

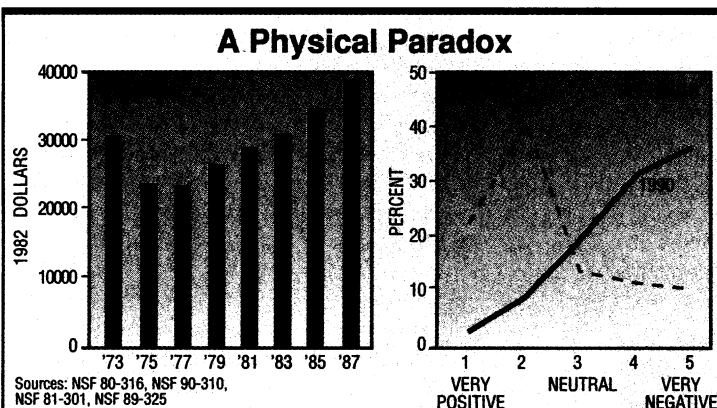
Schoenthaler is now planning a follow-up study with a group of 538 people aged 18-25. This time he's going to triple the vitamins and reduce the minerals in the group getting the most supplements. He says he suspects that too many minerals have a toxic effect.

Although Schoenthaler says the findings have been widely hailed, *Nature* sharply criticized the study in its 7 March issue, saying that of 87 comparisons conducted between subjects and controls, only seven yielded significant results. And the findings have so far been virtually ignored in the United States.

the 10,000 superconducting magnets that will guide and focus the SSC's proton beam. Participating schools will get their names engraved on a plaque fixed on their magnet, and will receive an Adopt-a-Magnet newsletter with frequent updates on the magnet's status and any tests to which it might be subjected.

The program doesn't end there. Six elementary school teachers from Texas have developed an entire Adopt-a-Magnet curriculum, including puppets, songs, games, experiments, physical education activities, and music and video cassettes. (Unfortunately, no autographs from the physicists.) More seriously, the program includes overviews on the history and applications of magnetism, the atomic structure of matter, superconductivity, and particle detectors and accelerators.

The SSC Laboratory stands to reap obvious benefits from this program. After all, what budget-cutting legislator could resist a tearful letter from an eight-year-old begging him not to decommission his school's magnet? It does, however, leave a somewhat unsettling image: If the program is a success, can we look forward to tiny glow-in-the-dark magnets in our cereal boxes?



There's a crisis in funding for basic science research—or is there? Take physics: "Young physicists are experiencing serious difficulties obtaining research support," states an article by Roman Czujko, Daniel Kleppner, and Stuart Rice in the February issue of *Physics Today*. To buttress their argument, the authors conducted a survey of young physics faculty members last year and report that only 11% felt that federal support for research was adequate. In contrast, 63% of physicists surveyed in 1977 said they were satisfied with funding levels (chart on right).

But in congressional testimony last week, Rensselaer Polytechnic Institute president and former National Science Board chairman Roland Schmitt noted that in 1977, the year most physicists said things were hunky-dory, per capita federal funding for the physical sciences was at almost the lowest point in more than a decade (chart on left)—a finding Schmitt found "curious." Schmitt does not deny that physicists feel hard pressed to obtain research support, but he argues that structural factors of the research enterprise—issues such as who does the research, who pays for it, and where it is done—might go further to explain young scientists' malaise than money alone.

Selling the SSC to the Next Generation

Taking their cues from Hollywood, the managers of the Superconducting Super Collider (SSC) have decided it's time to start a fan club to help win the hearts of young people—and perhaps those of their elders on Capitol Hill.

Focusing their attention on the hardware, rather than people, the SSC Laboratory has created the Adopt-A-Magnet program, which allows elementary schools to "adopt" one of

Getting Around the Cosmic Censor

Physicists are anxiously looking for shortcomings in a paper published in the 25 February

Physical Review Letters. The reason: If the paper is correct, it could spell disaster for some aspects of Einstein's famous theory of general relativity.

Certain solutions to Einstein's equations for general relativity produce regions of infinite gravitational fields. If exposed to the rest of space, such "naked singularities" would render events in nearby regions completely unpredictable. Because such a notion is repellent to causality-minded physicists, they have hypothesized that all singularities must come "clothed" with an "event horizon"—a kind of cosmic censor that seals off singularities from the rest of the universe. Black holes, by definition, fall into this category.

Now a supercomputer simulation by two respected Cornell astrophysicists suggests that naked singularities might exist in nature. Stuart Shapiro and Saul Teukolsky used Einstein's equations to approximate the gravitational collapse of football-shaped, pressureless gas spheroids made up of point-sized objects, and found that such a collapse could theoretically create a naked singularity. If their results stand up to

scrutiny, relativity theory could be in serious trouble, as it would lose all predictive power near such singularities.

Not surprisingly, many physicists remain skeptical. "[Their] computer simulation is quite idealized," says David Hobill, a relativity expert at the University of Illinois at Urbana-Champaign who says that someone will probably find a limitation in the Shapiro-Teukolsky simulation model. For instance, Hobill notes that since computers only deal with finite numbers, it is very hard to tell whether gravitational fields are really infinite or just extremely large.

Physicists are likely to spend a good deal of time looking for just such weaknesses in the simulation. And if they don't turn up, they'll face the more daunting task of finding the limitation in Einstein's revered theory.

Searching for Words

Tired of listening to lecturers who punctuate nearly every sentence with annoying "filled pauses" such as "ah," "uh," or "um"? Here's a surprising suggestion: Seek out a natural sci-

entist and shun lecturers in the humanities or social sciences.

Recent research by Columbia University psychologists indicates that science lecturers use filled pauses far less frequently than do scholars in the humanities. This team, led by Stanley Schachter, theorized that speakers use filled pauses while searching for the next word

(rather than when they're anxious, as others have suggested), so people with more word options to choose from will use fillers more often. This doesn't imply that scientists suffer innate linguistic impoverishment; rather, the psychologists believe that science lecturers more often follow precisely worded definitions—saying "atom" instead of "molecule" won't do. This limits verbal options and constrains those ugly pause words.

To test the hypothesis, the Columbia group compared 17 of the university's science lectures with 13 humanities lec-

"UH" METER

Discipline	N	“uhs” per minute in:	
		Lectures	Interviews
Natural Sciences:			
Biology	4	0.97	5.75
Chemistry	4	1.62	5.73
Mathematics	4	1.30	4.40
Psychology	5	1.8	5.04
Total (average)	17	1.45	5.22
Social Sciences:			
Economics	3	2.54	4.63
Political Science	4	5.61	5.67
Sociology	4	3.73	4.57
Total (average)	11	4.09	4.99
Humanities:			
Art History	5	6.06	5.62
English Literature	4	6.54	5.76
Philosophy	4	1.65	4.38
Total (average)	13	4.85	5.28

tures and 11 social science lectures. On average, they report in this month's issue of *The Journal of Personality and Social Psychology*, the humanities professors said "uh" four times more often than did the scientists (see chart). Among natural scientists, biologists won first prize, with the fewest "uhs" per minute, followed closely by mathematicians and chemists; social scientists fell between humanities profs and natural scientists.

These results don't mean that scientists always use fewer filled pauses than nonscientists. When the researchers conducted interviews with the lecturers on identical subjects, they found no difference in "uhs" per minute between the disciplines—more evidence that the subject matter ultimately determines how frequently people say "uh" or "er." Still, the next time you hear an English professor criticize scientists for their technospeak, remind her that she might want to, uh, improve her own fluency.

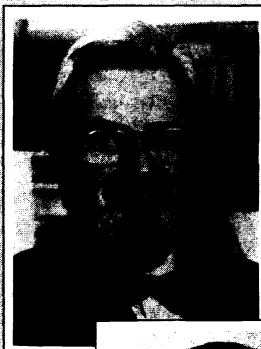
Correction

A recent item (*Science*, 1 March, p. 1019) incorrectly connected a proposed gene therapy protocol to the University of Pennsylvania. The protocol was actually proposed by the University of Pittsburgh. *Science* regrets the error.

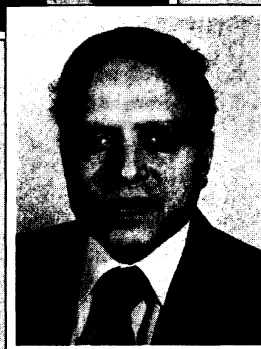
Environmental Prize

Former surgeon general C. Everett Koop and Indian agricultural researcher M. S. Swaminathan might not jump to mind as preeminent environmentalists. But the University of Southern California (USC) has just awarded the duo its \$150,000 Tyler Prize for Environmental Achievement.

Since 1974, USC has been giving this honor to scientists and educators who "pave the way" in preserving and enhancing the environment. Koop fit that definition, according to a news release from the prize administrators, because he has been "the conscience of the nation" for lending the stature of his office to antismoking efforts. As the "first national health official to acknowledge publicly that



Environmental leaders. C. Everett Koop; M. S. Swaminathan.



smoking cigarettes is linked to chronic lung diseases, strokes, and cancer of organs not related to the respiratory tract," Koop was "instrumental in inspiring many changes in state and local laws regarding smoking in public places," the release states.

Swaminathan, who has studied cereal grains in India for 43 years, is credited with helping that nation—once one of the world's largest food importers—to achieve food self-sufficiency. In the course of this "Green Revolution," Swaminathan has also championed "sustainable development" and the conservation of biological diversity, most notably through collecting and preserving more than 6000 endangered strains of rice from northeast India in the early 1960s.