Vitamin B₅ Boosts Sales

A multi-billion dollar vitamin mania is sweeping the nation. More and more people are popping more and more vitamin pills, according to trade and consumer accounts.

These are a few salient facts:

• With a few exceptions, there is at this time no proven health benefit from the high-dose regimens being touted to prevent or treat cancer, heart disease, aging and other conditions.

• Major vitamin makers — which are drug companies — and their public relations agencies are using venerable and compliant science organizations like the New York Academy of Sciences (NYAS) to hype preliminary findings on vitamins’ alleged disease-fighting properties.

• The Ketchum Public Relations Company, which represents vitamin titan Hoffmann-La Roche, has recently been very successful in publicizing extraordinary claims made at a Roche sponsored NYAS conference.

• Leading science writers and publications — particularly the New York Times and Time — have thrown caution to the wind in reporting vitamin researchers’ unsubstantiated claims from this conference in breathless and rhapsodic prose.

The media’s shameless pandering to the vitamin-makers, and to Americans’ manifest craving for magic bullets is clear from the headlines (See Box). The New York Times (March 10), under the headline “Vitamins Win Support as Potent Agents of Health,” carried an aren’t-you-sorry-you-kicked-the-dog story by Pulitzer prizewinning science writer Natalie Angier. She wrote:

“Long consigned to the fringes of medicine and accorded scarcely more credibility than crystal-rubbing or homeopathy, the study of how vitamins affect the body and help prevent chronic diseases is now winning broad attention and respect among mainstream medical researchers.”

The problem with Angier’s lead — which sets the tone for the adulatory two thousand words that follow — is that it is simply untrue: Vitamins’ essential role in health was established medically decades ago. They are called vitamins, instead of something else, precisely to signify that they are essential to life (vita).

Vitamins’ value has been — and is being — exhaustively studied, as a few minutes’ recourse to the current, 10th edition of the Recommended Dietary Allowances (Washington, National Academy Press, 1989), or to earlier editions makes abundantly clear. The vast literature summarized in them belies Angier’s follow-up charge that vitamins A to K “play [a] far more fundamental and long-term role in the body than anybody had suspected.”

What has not been established, but what Angier and also Time (April 6) set out to show, is that huge and unnatural doses — “mega-doses” or as they now are more politely called, “pharmacologic doses” — may have medicinal roles that are dissociated and different from their nutritional uses.

True, Angier’s prose, and Time’s story by Anastasia Toufexis, are studded with obligatory may’s: In one Times table, this fudge word appears an incredible 15 times. But the powerful thrust of the piece, and the media message is that the “may’s” are but quibbles.

Angier reveals, but Time does not, that the immediate source of their stories was a NYAS conference in Arlington, Virginia, February 9-12, for which Roche provided major funding. One of the two co-chairmen, vitamin researcher Lawrence J. Machlin, Ph.D., works for Roche. The co-chairmen chose the speakers.

One prominent vitamin researcher who is a critic of the current vitamin mania is quoted in Time, but not by Angier in the Times. He is internist Victor Herbert, M.D., of Mt. Sinai Medical Center in Manhattan. He says Americans — wastefully, and very possibly dangerously — are buying and consuming far more vitamins than they need. But Dr. Herbert continued on page 6

© 1992, David Zimmerman, Inc.
Wildlife Park Plan
For Korean DMZ
Temporarily Stalled

Efforts to create a nature reserve park in the Korean DMZ to protect endangered cranes and other wildlife have been held up. The North Korean government declined to attend a joint meeting with South Korea to start work on the project.

The meeting was tentatively set for February, in Africa. A consultant to the United Nations Environmental Program, forester Arthur H. Westing, of Putney, Vt., tried to arrange it.

The South Korean government was willing to go ahead with the meeting. But the North drew back — temporarily, Westing said last month by phone: The North Koreans said that “the time is not right,” but indicated they are still interested in the venture, and will return to it after a nuclear treaty, now being negotiated, is signed.

The DMZ and adjacent military areas have been off limits to most civilian activities for 45 years. They have become a major wildlife resource (PROBE, Feb.). Dr. Westing and other conservationists hope to preserve at least some of this land.

Follow-Up . . .

Self-destruct syringes: We sent a ribbon copy of our Open Letter to the President (Jan.) to President Bush, urging him to support R&D on self-destruct (SD) syringes as a way to limit the AIDS epidemic. We’ve not heard back from the President’s office. Neither have we heard from Rachel Levinson of the White House Office of Science and Technology Policy, to whom we sent a copy of the letter and some background material. Ms. Levinson has not returned several telephone calls to her office.

We did receive a nice note on White House stationery from the President’s doctor, internist Burton J. Lee, III, M.D., who was also sent a copy of the letter. Dr. Lee said he found the SD syringe proposal “interesting and pertinent.” But he did not say that he would pass it along to his boss.

Brain rehab facilities: We reported (Dec.) that a U.S. attorney in Boston was looking into traumatic brain rehabilitation facilities. The Boston Globe has reported, as has the New York Times (April 5), that a federal grand jury has been convened in Boston. Former employees of New Medico Head Injury Systems, of Lynn, Mass. — a major provider of care — have been questioned before the panel by a U.S. attorney.

Cholesterol test: Last month we described our participation in a clinical trial of a new test to identify the amounts and proportions of dietary (exogenous) and self-made (endogenous) cholesterol that are represented in an ordinary total serum cholesterol assay.

Clinical researcher Marc K. Hellerstein, M.D., of the University of California School of Medicine, in San Francisco, has analyzed the specimens we provided him over several days, and he says: The test showed that I make 502 mg of cholesterol daily in my liver, about one-sixtieth of an ounce. This is the lowest amount of endogenous cholesterol synthesis in any of the eight men Dr. Hellerstein has thus far tested; the average is almost 50% higher, 717 mg/day.

His study strongly suggests that the drug I take to inhibit cholesterol synthesis, lovastatin (Mevacor, Merck) “is working,” Dr. Hellerstein said by phone. Analysis of this finding is hindered, he added, by the fact that we did not do a baseline study before I started on lovastatin.

My cameo role as test subject did not provide the opportunity to calculate my dietary cholesterol intake, as is being done with other subjects. The usual finding, Dr. Hellerstein says, is that diet is “a relatively small proportion of the cholesterol in the serum.”

If this is shown to be the case for an individual patient, he adds, “then you can’t expect to get a big cholesterol-lowering effect by altering the diet — you should work on the cholesterol synthesis part instead.”

Hazards Mounting

Lloyd Harbor, N.Y.

America’s workplace is not as safe as it should or could be.

Badly fragmented efforts to improve job safety have yielded some signal advances over recent decades. A weak, jumbled, and under-financed bureaucracy has been set up to promote occupational health. But economic hard times, a power shift that favors employers, and three pro-business administrations have stymied efforts to protect workers’ safety and health.

These dire and frustrating findings emerged at a conference on occupational and environmental health at the Cold Spring Harbor Laboratory’s Banbury center here last month. The meeting, for congressional staff and science journalists, was supported by the Alfred P. Sloan Foundation. The speakers were worker safety experts from labor, medicine, academia and government, including the former director of the National Institute of Environmental Health Sciences (NIEHS), pharmacologist David Rall, M.D., who said bluntly:

“I’m still worried about industry doing the testing.” He added: “Industry has a marvelous ability to confuse data.”

The “infrastructure” for toxicologic assessment and for regulation must therefore come from government, which, Dr.

PROBE
Editor and Publisher
David R. Zimmerman

Production
Angela M. Darling

Comptroller
Veva H. Zimmerman

PROBE is written and published independently, initially on a monthly schedule. Subscription: $53 per year. Editorial office: 121 E. 26th St., New York City, NY 10010. Phone: 212-545-0088. For subscriptions, Box 1321, Cathedral Station, New York, NY 10025. Contents of this newsletter may not be reproduced without permission. ISSN 1062-4155

MEMBER NEWSLETTER PUBLISHERS ASSOCIATION

npa

Probe
In Workplace; Federal Action Needed

Rall said, is ducking its responsibility. He said a major restructuring of the agencies responsible for risk assessment and regulation is required soon. Cost estimate: $300 million.

The magnitude of workplace hazard is disputed:

Projections from studies in New York State — which has ten percent of the U.S. work force — indicate that there are about 50,000 deaths annually due to occupational hazards (excluding acute trauma).

This is slightly more than the 45,000 annual U.S. vehicular deaths. But preventive efforts are less intensive in the workplace than they are on the highways, occupational medicine expert Philip Landrigan, M.D., of Mt. Sinai Medical Center in New York City, told the meeting.

The United Auto Workers (UAW) Union uses a much higher figure. It says “more than 100,000 die from job related injuries and diseases each year.”

Most Chemicals Untested

Workers are exposed to thousands of different chemicals, Dr. Landrigan said. Only about a quarter of these compounds have been tested at all for toxicologic risk.

“There’s just no data,” he said.

The worst of these tragedies, by far, Dr. Landrigan said, was the widespread use of asbestos in buildings, between 1945 and the 1970s. This will cost 300,000 lives by the turn of the century.

Among new causes for concern, Dr. Landrigan cited the huge rise in immigrant labor — often in sweat shops concealed from the law, and a rise in child and adolescent workers. He described two teen boys, treated in Bronx, New York, emergency rooms, who each had had an arm cut off by a butcher’s saw. In both cases, investigators found, the teenagers were pushing animal carcasses into a band saw when they slipped on a wet floor and fell onto the whirling blade.

In the past several years, Dr. Landrigan added, some 1,200 U.S. teenagers annually received workman’s compensation awards.

One current reform effort is to stimulate an awareness among doctors of occupational health problems. The aim is to facilitate correct diagnoses and appropriate care for chemical poisonings and other workplace illnesses. The aim, too, is to teach physicians to be better monitors of unsafe conditions within factory gates by bringing them, however briefly, inside.

Money For Teaching

This effort is being spurred by the prestigious Institute of Medicine (IOM), in Washington, D.C. The IOM found that occupational health is poorly taught — medical students get only four hours of instruction — and is the least popular specialty, attracting less than two percent of MDs.

The result: a “shortage” of between 3,100 and 5,500 occupational and environmental physicians, according to a recent report by occupational health specialist Bernard D. Goldstein, M.D., of the Robert Wood Johnson Medical School, in Piscataway, N.J., and several colleagues, writing in the New England Journal of Medicine (Sept. 26, 1991). The only way to induce the nation’s 127 medical schools to add and upgrade occupational health in their curricula, Dr. Goldstein said here, is to provide money to pay them to do so. The first such effort, funded by NIEHS, is an academic awards program that pays medical school instructors to develop such curricula, and teach the subject in their schools. Thus far, a dozen of these five-year grants have been awarded.

In another initiative, a new federal body, the Agency for Toxic Substances and Disease Registry, in Atlanta, is making what Dr. Goldstein calls “a major effort” to provide case studies and other continuing education material to doctors.

These initiatives, while promising, nevertheless are being built on top of a base of governmental activity and concern that Dr. Goldstein characterized here as “absolutely inadequate.”

One problem long has been that industrial physicians — company docs — take care of sick and injured workers. But their salaries are paid by the workers’ bosses. This arrangement, conference participants indicated, has largely tied these doctors’ hands as reformers. Today, many companies are cutting back or disbanding their medical departments to save money — and it is the doctor, not the nurse, who is first to go.

Some companies now contract with outside physicians for medical services. Occupational health policy specialist Kathleen Rest, Ph.D., runs one such service, along with several colleagues at the University of Massachusetts Medical School, in Worcester. They are able to monitor health and safety conditions at the plants they serve, she reported. But, she acknowledged, they have little authority to force changes.

At one plant, a mattress maker, the U.-Mass. service found

Stiff Regs Required for Reform

Industrial practices that threaten workers or the outside environment can’t be fixed by imposing modest new standards that old-line companies can meet by adding a new scrubber, longer tail-pipe, or other off-the-shelf remedy. The reason, explains MIT chemist and technology policy expert Nicholas A. Ashford, Ph.D., is that only “stringent regulation” will “force” out new methods to replace dangerous manufacturing processes. Half-way measures don’t lead to essential change, Ashford warned.

Tough regulations are resisted by old, established, and hence no longer creative companies, Ashford said at the Cold Spring Harbor conference. But their ineffectiveness provides space for new, more innovative producers. As an example, he cited stringent regulatory demands on automakers to reduce pollution and raise fuel economy and auto safety.

Detroit said, “We can’t do it!” Ashford recalled. Japanese and European car-makers, using American inventions, solved all three problems, and so won a large share of the U.S. car market.

“What Detroit was arguing about as constraints,” Ashford said, “the foreign makers saw as opportunity!”
moralism triumphs:

**Embargo on Transplants Is Wasting**

No one, until recently, has reacted to the misfortune birth of an anencephalus — a baby lacking an upper brain and surrounding skull — with anything other than horror. But in the past, when there was little earthly use for these babies, which cannot survive in this life, people had a way, sanctioned by medicine, society and perhaps also by religion, to cope with the horror.

These babies were designated monsters — meaning not wholly human. This designation may have served a profound human need: to explain the confounding fact that they have human traits but are not wholly human. (See Box next page)

Now these babies may have a practical use, one almost could say a purpose: saving the lives of viable babies with congenital deformities of the major organs — hearts, livers, lungs, kidneys — who soon will die unless given an organ transplant. Right now there may be as many as several hundred American families with little other hope.

**Fast Action Needed**

But: The anencephalics' organs are not available to them. State laws presently forbid taking organs from anencephalic babies, like all others, until the hearts stop beating. By then, however, the hearts and other organs have deteriorated, and so usually can't be transplanted.

Behind this tragic situation are misperceptions, fostered by the press. A morality of semblances has seized on, and is exploiting the symbol of life — as in the case of "Baby Theresa Ann," the most recent anencephalus to come to public attention — to deny hope to others, who are waiting. They include Sandra and Fernando Munera, whose 3-year-old Christopher is dying of degenerative liver disease.

"It's sad for [Theresa Ann's] parents," said Sandra Munera, before Theresa Ann perished, her organs wasted. "For us, and any other people waiting, we just have to have hope, and keep on trying to deal with it. We're just praying to God that something will happen soon." (Miami Herald, March 27).

**What Is Life?**

At a profound level, the debate over whether it is right to use anencephalics' organs for transplant is a debate about what it means to be human, says medical ethicist Kenneth Goodman, Ph.D., of the University of Miami; he closely followed the case, which occurred in South Florida. Few Americans, presumably, would object to transplanting vital organs if they were persuaded that Theresa Ann — or any other anencephalic was not human.

The massive press coverage of her birth and death did not help resolve this dilemma. Readers were told, in words, that the baby "has no brain," or "no skull and nothing but a stub of a brain" (Miami Herald, March 26). But they were shown a photo, shot toward the chin from below, in which the baby is all gussied up, with a cute little cap hiding the place where her skull and brain should be. No one wanted to see, or see this less symbolic, but more truthful top view.

Readers of family newspapers thus were spared the horror. They also were spared the tougher truth that might have given Christopher Munera a life.

**Looks Deceive**

Showing the face but not the head distorted the pundits' view, and so perhaps also the public's:

"Theresa Ann was breathing on her own, her heart pumping," a Miami Herald editorialist declared (March 28). "To stop that breath and heartbeat simply is not right."

A New York Times editorialist (April 1), borrowing a pro-life metaphor, said it would be "horrific" to turn "a baby into a farm to be harvested for organs while she is still alive."

A medical ethicist, who has worked for many years on the dilemma of...
Anencephalic Babies’ Precious Organs

anencephalics as organ donors, has however reached the opposite conclusion: “I still believe that anencephalic babies cannot be hurt, harmed, or wronged,” philosopher Arthur Caplan, Ph.D., chief of the University of Minnesota’s Center for Biomedical Ethics, in Minneapolis said by phone. “They are certainly alive. They are certainly human. But they are not persons, because they cannot and will not ever think, feel or sense,” he added.

Models for Gargoyles?

In medieval times, dead or dying anencephalic babies may have been handed to stone cutters to use as models for gargoyles. This suggestion, from medical ethicist Arthur Caplan sent us on a quick search in medical reference books.

Macabre post mortem photos do show the swollen cheeks, bulging eyes and foreshortened heads that characterize gargoyles. But we’ve not yet found proof that this horror of deformed birth was transmuted into art in this way.

This formulation does not go much beyond the medieval “monster” designation in resolving the paradox, since it is hard to conceive of how something can be “human” but not a “person.” But Caplan infers that this paradoxical condition “opens the door” to strategies to change the law so that the organs can be used — a view we think is correct.

One strategy is to change the laws so that anencephalics are defined as dead — excluded from legal personhood. Immediately after birth they would be put on respirators to perfuse their healthy organs, which then could be removed when a qualified recipient was at hand and ready. This approach apparently is not offensive to conservative American physicians: The New England Journal of Medicine (April 23, 1987) has published a report by German doctors on their use of this strategy; two babies were saved.

A second strategy to legalize transplantation of anencephalics’ organs would be to amend current legal definitions of transplant “donor” to include specifically these babies, as well as brain-dead people.

“This makes more sense to me, since they really aren’t dead,” Caplan says.

Precedent exists for treating anencephaly differently, as a class by itself: In the federal 1984 Baby Doe Law, which mandates medical treatment for all babies who have some hope for life, anencephalics need not be resuscitated or treated. What is more, because the condition is so hopeless, preemptive destruction of anencephalics, by abortion, is widely sanctioned, even in the last trimester.

Technology is playing a complex role in the evolution of human responses to anencephaly. It has created the means to use their organs. Because of it, too, this tragedy is no longer a surprise for many mothers who carry these babies: A test during pregnancy indicates anencephaly or a related defect; scan confirms it permitting women to abort. Many do.

A few women, like Theresa Ann’s mother, Ms. Laura Campo, elect not to abort, in order to serve life in spite of their tragedy — and also, for some, because they believe abortion is wrong on moral grounds.

Torment Heightened

Denial of this final, life-giving value of her baby thus is a third torment to a woman who has learned she is carrying a doomed fetus; has carried to term and borne the pain of its delivery (by cesarean for Ms. Campo); and then is told that human dignity and law are better served if the body is put whole into the ground.

A relative told the Herald (March 27): “Laura said, I have to eat for the baby to be healthy. I have to take care of her for somebody else.’ She found it really hard — but she kept going.”

Thinking in Ronald Reagan’s White House

dential inner circle’s penchant for shooting from the hip, Dr. Koop describes a conversation with Garry Bauer, a powerful right-wing White House aide. Bauer told him that one of his family members had complained that “Koop wants to give condoms to kids in the third grade.” Dr. Koop replied that probably no one in Bauer’s family had read his Message from the Surgeon General on AIDS if that was what they thought. Bauer answered:

“’That’s true.’”

Dr. Koop describes his extraordinary frustration in trying to get President Reagan to speak out on AIDS, and in trying to get the government activated to control it. But he was forever dealing with hysterics, who saw AIDS lurking on door knobs and toilet seats. He describes trying to set matters straight for the powerful White House Domestic Policy Conference: “I tried to explain the difference between prejudiced ideas and solid science. The people around the table who had some health background nodded in agreement, but these discussions about AIDS depressed me more than ever about the lack of judgment among some government figures in high places.”

Never Say AIDS

Describing the “unreal world” in which the president and his advisors were living, Dr. Koop tells of a phone call in which he was asked if Mr. Reagan, who was going to speak before the American College of Physicians on “Challenges for Medicine in the Future,” should mention AIDS.

How could he not, Dr. Koop replied.

“Once again,” he says, “I hung up the phone, shaking my head in disbelief at the strange mentality of the White House staff.”
Vitamins . . .

continued from page 1

was not and could not have been interviewed at the NYAS conference. He was not invited.

"Hoffman-La Roche never invites me, and that N.Y. Academy thing was bought and paid for by Hoffman-La Roche," Dr. Herbert said by phone.

Judging by the news accounts, few conference speakers would take serious exception to the unproved Roche-Ketchum view that vitamins have been found to offer "major" new protective benefits." One cautious Harvard preventive medicine specialist, Charles H. Hennekens, M.D., is quoted by Angier as saying "the message we have about this field" at present is "for researchers . . . not for the general public or even the practicing physician."

It is of course one thing — and quite legitimate — to hold a conference of researchers whose work supports a particular point of view. But it is something else entirely to brief the press using experts drawn from this group, and suggest that theirs is the generally recognized viewpoint — as Ketchum, and subsequently the press have done.

The NYAS spokeswoman, Ann E. Collins, confirmed that Dr. Herbert was not on the co-chairmen's invite list. She added that neither NYAS, nor any of the forty reviewers who were sent the proposed program, added his name, or for that matter, any other to the sponsor's list.

Roche proposed the conference, and was the first — and major — funder, Collins said. Roche paid at least $15,000, she said; she would not indicate whether the company put in more, and if so how much. But, she noted, contrary to what Dr. Herbert said, Roche was not the sole funder: Ten other commercial sponsors — most if not all of them vitamin makers and food processors — also contributed.

"We will never accept just one pharmaceutical company as a funder for a program, for that reason," Collins said, alluding to the problem of sponsor bias.

Collins said NYAS allowed Ketchum to prepare the press kit, a thick elaborate packet that contains abstracts of a dozen of the papers, bios of the presenters, and press releases headlined with unsubstantiated claims such as "New Forms of Vitamin D Can Help Prevent Cancer," and "Vitamin C May Reduce Risk of Heart Disease and Cancer."

The first page of each news release, and the press kit itself are printed on the New York Academy of Sciences' letterhead and carry the NYAS seal. The press "contact," however, is not the Academy, but a Ketchum Public Relations executive, Maureen Temus. But neither Ketchum's, nor Roche's name appears in the kit.

"Hoffman offered to have Ketchum help us with the media, and in particular, with translating [the] very technical papers into layman's language," Collins said by phone. "'They all were passed by me."

"I have to tell you very frankly," she said, "that I thought that by having Ketchum's name on it that I indicated that the translations were not prepared by the Academy." She added: "It didn't occur to me to put Hoffman's name on in connection with Ketchum's. Now I am alert to the fact that I should have done that."

Ketchum Explains

Ketchum PR woman Temus offered this explanation, by phone, for not identifying its client on the press material:

"When we do publicity on a conference, we're not doing it about Roche. We're doing it about the researchers who were speaking at the NYAS."

But unproved medical claims — like "prevents cancer" — are not allowed for nutritional supplements, either on labels or in promotional materials such as manufacturers' press releases. The use of surrogates, such as NYAS, to promote unproven claims is a standard strategy in the drug industry. But it is one that is frowned on by FDA.

The NYAS designated its conference as an official continuing medical education (CME) activity for physicians. The FDA, which is writing new CME rules, says in a draft that such an event should "meet standards for independence, and [the drug company] should take specific steps to ensure the [CME's] objectivity, balance and scientific rigor." FDA says the company should "not be able to exert control, express or implied, over the scientific contents of the activity." This means, among other things, that "the drug company should play no role in the selection of presenters."

Researchers Promoted

 Asked if the promotions for the NYAS conference meets FDA guidelines, Ketchum representative Temus said:

"I think it does, because we're saying what the researchers say: that [vitamins] may reduce the risk of cancer, heart attack, cataracts. We're not saying that [they] do it 100%.

Asked if she thought the NYAS was being used for promotional purposes, she replied:

"I think it's being used to get the message out that research is being done in these areas — and these are the findings to date."

Reporter Angier's story was a hit. She told scientists and colleagues at a mid-April lecture at Rockefeller University that it had elicited an "enormous response" from Times readers.

We're not surprised.

What Motivates Vitamin Mania?

Why are so many millions of Americans buying and popping vitamin pills for which they have little or no demonstrable need?

Part of the answer, we think, is personal insecurity, boosted by economic hard times and social demoralization. We sense that many people are looking for methods that are close in — close to the chest — that they can use, and control, to safeguard and better their lives. So, swallowing extra large amounts of these vital chemicals has the same urgency — and may confer the same sense of security — as eating sacramental food. People are hungry for life!
HHS is Offered Narrow 'Fraud' Definition

Some sense, finally, has been brought into the divisive conflict about fraud in science. The National Institutes of Health (NIH) chief, cardiologist Bernadine Healy, M.D., deserves much of the credit.

She has resisted the broadbrush attack on scientists and scientific institutions by Congressman John Dingell (D-Mich.). She has acted to close down the inquisitional Office of Scientific Integrity (OSI) inside NIH, which seems to have been a major source of leaks to Dingell.

Meanwhile, as Barbara Culliton reports (Nature, March 19), a 'strict-constructionist' definition of science fraud has been proposed to the Secretary of Health and Human Services (HHS) by a high-level advisory panel, chaired by medical historian Nicholas H. Steneck, Ph.D., of the University of Michigan.

Issues Are Isolated

"One of the main roadblocks in fraud investigation," Culliton writes, "has been the research community's rather astonishing inability to agree on a clear definition." She reports that the "dictionary" definition Steneck and his colleagues propose would define fraud as "plagiarism, the fabrication or intentional falsification of data, research procedures or data analysis, or other deliberate misrepresentations ..." It is significant that ... this common sense definition ... includes intent as an essential element in fraud [emphasis added]," Culliton wrote.

This is Healy's position, but it has not been OSI's. If promulgated, this definition should free tens of thousands of NIH-supported researchers from the lingering fear that they may fall into career-shattering trouble through innocent or inadvertent error.

The new definition, Culliton rightly points out, will help separate the issue of fraud from the far different issue of scientific truth. The now discredited OSI staff, Culliton notes, "have taken the position that theirs is a search for scientific truth (rather than for evil doers)."

The notion that there exists an immutable scientific truth or a stepping-stone-like trail of such truths that can be used to judge miscreant scientists simply is wrong. Such truth, or truths, do not exist in any juridically meaningful sense.

A scientific experiment, the guts of a published report, is almost always a relatively tiny advance in understanding. It is inexorably dependent on previous experiments (and reports), and may, in turn, influence subsequent studies. Its truth exists only within this context, after which, as scientists themselves say — sometimes quite ruefully — "It exists only as history!" Science exists, in time, like, say, a baseball game, a concert or any other creative act.

Objective Standard Lacking

While fraud or deception may later be proved, there is no way, years afterward, to determine that the creative effort of a first baseman, violinist, or bench researcher was right or wrong, or true or false, according to some objective standard.

Where would that standard come from?

Science specifically excludes such a priori judgments. This means it is not possible to draw up a meaningful indictment against falsehood. This also is why OSI's truth-seeking investigations of Robert Gallo, M.D., and other researchers seem never to end.

Science's truth is that science is a tentative, but continuously self-correcting process. The process is one of seeking objective truth, while knowing that today's truth will be supplemented (or forgotten) tomorrow.

The Big Truth is not part of science. We think this is its strength and virtue as a human endeavor.

Old Question Begs a New Answer: What Is Science?

One reason educators and politicians are having so much trouble deciding how to teach our children science is that they do not agree — and indeed may never have thought about — what science is. Or like the blind men trying to define the elephant, they have not factored in the points of view they entail.

Some self-understanding, and then some consensus, may be needed before the pedagogical problems of science education can be met.

We recently explored these issues with two dedicated and skillful New York City high school science teachers. They discounted any new or cognitively innovative approaches to teaching their students. They said that what is important in their classrooms — to students, teachers, and to the schools — are the scores students achieve on the state regents exams. In other words, science for these teachers is dogma, and established "facts" that can be objectively scored. This is the antithesis of what science, as a method for critical thinking and creative endeavor, is all about.

No wonder the kids are turned off!

From a far different, but no less shocking perspective, the President of Czechoslovakia, Vaclav Havel, in a speech reprinted in the New York Times (March 1), hailed the "end" of the "modern era," whose essential flaw is that it has been "dominated by the culminating belief ... that the world — and Being as such — is a wholly knowable system governed by a finite number of universal laws that man can grasp and rationally direct for his own benefit."

Havel's bêtes noires are "rational, cognitive thinking," "scientism," and "the scientific method." The modern era, he charges, was one of "ideologies, doctrines, interpretations of reality, an era in which the goal was to find a universal theory of the world — and thus a universal key to unlock its prosperity."

continued on following page
The fatal contradictions of such a Science of Religion, and in religious "sciences," were well argued years ago. They need not be repeated here. What is most disquieting is Havel's attack on reason. He favors, in its place, "human uniqueness, human action, and the human spirit," whatever — shades of Nietzsche! — this may mean. But he raises an important question that should be asked of scientists and their followers:

Is the core belief that sustains them really that "the world — and Being as such — is a wholly knowable system"?

We hope not! For if this in fact is so, then the scientists, like the theologians, have sealed themselves hermetically away from reality — and we all may be in trouble. Not because their research may be faulty. Rather, because such belief would be admitting their need for an ideological crutch of omniscience.

Scientists, particularly evolutionists, successfully challenged one such crutch, now called Creationism, in the 19th century. It would be a wasteful shame if they simply sublimated Divinity into an ideology of omniscient science. Smart, rational, free-thinking people shouldn't need such crutches especially if they are enjoying the creative rewards of a career in science.

---

Special Charter Subscription Offer for PROBE

You are cordially invited to reserve your charter subscription to PROBE, the new, critical, wholly-independent newsletter of science and medicine. PROBE will publish investigative articles, analyses, and interpret developments of science and technology. It will explore their links to public policy and personal health.

Reserve now to take advantage of our special charter-publication price of $53.

YES, count me among those who support independent medical and scientific reporting. Include me among PROBE's supporters:

[ ] CHARTER SUBSCRIBER: Enter my one-year subscription to PROBE; enclosed is my check for $53.

Fill out this form and mail it today:

Name: ___________________________
Address: _______________________
City: ____________________________
State: __________ Zip: __________

Make checks payable to:
David Zimmerman, Inc. — PROBE
Box 1321, Cathedral Station
New York, New York 10025

PROBE
Box 1321
Cathedral Station
New York, New York 10025

First Class Mail