

# PROBE

David Zimmerman's newsletter on science, media, policy and health

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## *Special Report:*

# Wide New Attacks on Scientists Are Aimed at Reason & Freedom

*We agree with critic Jonathan Rauch that the conflict between inquiry and authority — between science and fundamentalism — is the critical issue of our time (PROBE, June). We report here each month on key skirmishes in this battle. In the essay below we try to place these events in context.*

### I. Is Science Corrupt?

It certainly is an anomaly:

Never has scientific research yielded so much, so rapidly, as in recent decades. Yet rarely, if ever, have science and scientists been in such ill repute in Washington — and in the public eye.

Scientists are widely perceived as corrupt, and deserving of chastisement, correction, and control rather than the plaudits they think they have justly earned.

The majority of us who are nonscientists may be tempted to ignore — or even applaud — science's discomfort. After all, most professions occasionally need to be cut down to size. The important stuff, we say to ourselves — the new

discoveries and the new products they yield — will continue apace. Maybe they will.

The problem is that science is more than new toys, more even than one of the critical bases on which President Clinton's program for national recovery is pegged. Foremost, science is the principal expression of rationality, of reason, in our public and personal lives. As such, it is a hallmark of our freedom and

of our hopes for equity and progress.

Seen in this light, the attack on science is revealed as an attack on reason as a guide to our individual and collective actions. It is also an attack on democracy, with which science is tightly linked historically, and in spirit: Science is an individualistic, creative, anti-authoritarian mental quest that informs private thought and animates public action.

The attack on science, an irrationalist attack on reason and self-informed choice, thus is — or should be — of critical concern to all Americans who value our system of secular, democratic decision making. This attack, fortunately, is specious. But it is being pressed by powerful interests and abetted by public apathy and ignorance. At this moment the attackers are prevailing.

### Corruption Charged

In pursuing, and publically pillorying researchers Robert Gallo, David Baltimore and Thereza Imanishi-Kari over several years, Rep. John D. Dingell (D-Mich.), chair of the House Subcommittee on Oversight and Investigations, has persuaded much of the public that these individuals, and by innuendo the scientific community and science itself, are venal and corrupt. The damage to scientists' morale and to public trust in science has been enormous.

This is not the place to re-analyze these often-replayed and  
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## *Chicago Trib* Spurred Assault on Researchers' Ethics

"The newest paradigm of science may be that the right lie at the right time can be worth more than the truth."

This was *Chicago Tribune* reporter John Crewdson's bottom line, last Dec. 6, in his long investigation into cheating and corruption in science; he focused on AIDS researcher Robert Gallo, M.D. Crewdson's reporting prompted the investigations of science by Rep. D. Dingell, who in turn forced the National Institutes of Health and the Public Health Service to conduct probes of their own. These investigations still are

incomplete. But most of Crewdson's original charges have been dismissed by the federal agencies. Crewdson and Dingell angrily charge that the agencies are covering up.

The Crewdson exposés, widely reported outside of Chicago, have persuaded many Americans that science is hopelessly corrupt. The *Tribune* asks, rhetorically, in its headline over his final piece:

"Gallo case spotlights a key question: Can U.S. science be believed?"

# Clinton Health Watch

**Promising Nominee:** The President's selection of biologist Harold Varmus, M.D., a basic researcher and Nobel prize winner, to head the National Institutes of Health may be the best news science has received from the Administration. The Senate will act on the nomination this month; approval seems likely.

Varmus has a strong commitment to basic research, and is strongly backed by the biomedical research community. He believes that science — not politics — should be the principal arbiter of scientific disputes. On the downside, Varmus has little administrative or political experience.

The scientific community nevertheless is encouraged. As *Nature* (Aug. 12) summed matters up: "A Nobel laureate with a passion for basic research is just what the U.S. biomedical community wants — and will get in Harold Varmus."

**Aide's Suicide:** This is the rude question that we have about the suicide of presidential legal advisor Vincent W. Foster, Jr.: If the Clintons did not discern, or could not act to save a man

## Follow-Up. . .

*Our piece in July on people's fear of genetic research and genetic essentialism—the belief that genes decide all—has prompted this thoughtful comment from a colleague:*

The issue of genetic essentialism is merely a restatement of a very old controversy of nature vs. nurture. Clearly, in the last fifty years the conclusion has been that it's nature *and* nurture that govern much of our physical, mental and emotional traits. Genes set limits, early nutrition and care set outcomes within these limits.

My favorite example is a bonsai plant. Take a pine tree seedling, put it in a small pot, water it well, trim when necessary, and you have a living plant about five inches high. Plunk that same seedling into a woods and in a couple of decades you have a tree 30 feet high.

Thirty years ago, Warren Bridger classified newborns by their irritability. Five years later, the irritable babies showed the same signs of irritability; the placid ones, placidity. It happened to have had one of each. The traits, somewhat modified, have persisted into their forties.

Often genes set unbridgeable limits — Tay-Sachs disease, sickle cell, cystic fibrosis etc.— or at least limits unbridgeable by currently available methods. Perhaps gene therapy will leap that gulf.

Multi-gene traits usually provide a broader range within which environment can act. How you feed a baby, a puppy, or a piglet determines size, up to a limit. A four-gene trait can give 16 variations; a five-gene trait, 32. Personality traits almost certainly are multi-genetic. So environment plays a much bigger role affecting personality variation.

My hope is that as the genetic underpinning of *all* traits is better understood, we shall be able to modify pathological combinations by environmental control or some sort of gene therapy. Eliminating consequential suffering is not an evil hope.

— Earl Ubell

who was Bill's boyhood friend, Hillary's former law partner, and a trusted advisor to both, how can we have confidence in the sensitivity of the health care system they are proposing for all other Americans — whom they know less well?

More specifically, how well will the President's health plan, due this fall, provide for psychiatric care — which often requires much more than a dozen visits and an Rx for pills?

The problem, as exemplified in the Foster case, is that people — and particularly politicians and the press — are loath to acknowledge the reality and the power of mental illness. Rather, as with Foster, *character* and *circumstances* — not an objective, underlying illness — are invoked as explanations.

## Foster Was Ill

We have watched, with fascination, as published postmortems have dissolved and discarded the mental illness hypothesis — despite growing evidence, in the newly revealed details of his life, that Foster was a tightly-wound and extremely ill man.

The *Washington Post* (Aug. 11), to its credit, reported the FBI's conclusion that it was the suicide of a "deeply distressed" and "distraught" man, and the *Times*, next day, published an op-ed piece by two psychoanalysts headed "Politics didn't kill Foster. Depression did. And it could have been caught."

But the media's main emphasis was elsewhere:

"It was the job[!]" the *New York Daily News* declared on Page 1 (July 31), setting the tone for most that followed. "Portrait of a White House aide ensnared by his perfectionism," the *Times* said in a late rehash three weeks later (Aug. 22).

But the details — the descriptions of a porcelain personality, the weekend retreats behind drawn curtains, etc. — add up to a diagnosis of depression. What is more, the tenor of the note found in Foster's briefcase — "the FBI lied," "the press is covering up," "the Ushers Office plotted" — reveals a strong paranoia, which has not been well explored in the press.

The *Times'* William Safire, to his enormous credit, keeps pushing for answers to the troubling personal and procedural questions raised by the Foster case. A significantly depressed, probably paranoid, and apparently untreated presidential advisor is a red alert hazard to himself, his boss, and the nation.

# # #

The American Psychiatric Association has sent a reminder that October 3 to 9 is Mental Illness Awareness Week. We hope that through such awareness others will be spared Foster's tragic fate.

## PROBE

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# Special Report cont'd: No Smoking Guns

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still unfinished cases. But it is worth noting:

- David Baltimore has not been found guilty of any scientific or legal misconduct. (He is arrogant, but this is a character trait, not a legal or ethical demerit.) In crying "Uncle!" by retracting his authorship of a heavily criticized paper in the research journal *Cell*, in April 1986, Baltimore got himself off the hook — for which relief he now feels guilty. But he lost one of science's most prestigious jobs, the presidency of Rockefeller University in New York; his career has been badly damaged, albeit not destroyed.

- Thereza Imanishi-Kari, who maintains her innocence, has not been found guilty of any scientific or legal misconduct. A federal prosecutor, supplied with the Dingell subcommittee evidence against her, declined to seek an indictment after her lawyer filed an expert's affidavit contesting this evidence. Imanishi-Kari's federal grant support has been cut; her career is in limbo.

- Robert Gallo has been found guilty of one serious charge of scientific misconduct by a review panel of the Department of Health and Human Services (HHS). This charge involves a single sentence in a key research paper. Gallo, who admits to a "trivial" error, is appealing it, along with several minor charges.

## Campaign Threatened

The HHS, notes veteran Washington science watcher Barbara J. Culliton, in *Nature* (Jan. 7) was under extraordinary pressure from Dingell to reach the misconduct judgment against Gallo; the National Institutes of Health (NIH) had declined to do so. Without this one misconduct finding, the campaign against Gallo, initiated by a *Chicago Tribune* exposé three years earlier (Nov. 19, 1989) would have failed.

In reporting the Gallo misconduct judgment, *New York Times* Washington science reporter Philip J. Hilts, who has been a hard rider in Dingell's press posse, wrote: "In the great public health catastrophe of AIDS, the story of how the virus ... was isolated and a test ... developed," which is the issue in question, "might be of only historical interest" were it not for competing U.S. and French scientists' "fierce and unyielding pride" and the "royalties" for the AIDS test that came from their findings.

## II. Reform — Or Control?

Given that so much smoke covers so little fire, one must ask what Dingell is up to. Is he simply rooting out wrongdoing? Or has he an agenda of his own for science?

The hearings from the Baltimore/Imanishi-Kari case suggest that he has just such an agenda, and that he and some of his subcommittee colleagues are out to radically change — and *scholasticize* — U.S. science.

One of American science's major productive assets has been its intellectual freedom:

Contemporary research requires government funding and an institutional venue, of course. But experiments are performed, and results are presented at meetings and in peer-reviewed journals with little or no prior institutional review. Dingell

proposes — and Congress has essentially enacted — a far more restrictive system: The institution is held accountable, and hence, for its own protection, must monitor and review its scientists' output. In one hearing, for example, Dingell panelists chide officials at Tufts medical school, in Boston, and the Massachusetts Institute of Technology (MIT) for not immediately conducting a thorough institutional investigation, in search of fraud, when whistle-blower Margot O'Toole in Imanishi-Kari's lab first complained about the *Cell* paper. Yet, O'Toole's initial complaints were not *fraud*, but *error* and *erroneous interpretation* of data.

## Peer Review Preferred

"I wonder why Tufts wouldn't have an interest in sponsoring this research, and trying to confirm [the] central point" of  
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## *Times Reporter Has Reached A Verdict: Guilty*

The most widely read journalist covering high-profile cases of alleged scientific misconduct is Phil Hilts, of the *New York Times*. Although no final verdict has been entered in the key cases, Hilts already has passed harsh judgment on one of them. In an article in the *New Republic* (May 18, '92), headlined "The Science Mob," Hilts calls the "Baltimore case" the "most remarkable case of misconduct in the annals of American science."

Hilts continues:

"[I]t stands as the exemplar of what's wrong with the defensive and self-regulating structure of the American scientific establishment."

After lambasting Baltimore for, among other things, standing up to Dingell, Hilts concludes that Imanishi-Kari faked key data in the celebrated paper in *Cell*. He adds:

"David Baltimore clearly failed as a scientist — through his carelessness, his willful oversight, and his extraordinary attempts to protect his own reputation at the expense of a conscientious young colleague [Margot O'Toole]. In the end, Baltimore inadvertently revealed just how vulnerable the scientific profession is to abuse by those entrusted to protect it."

# # #

We recall that one of the canons of journalism is that newspaper reporters are — or at least should give the appearance of being — dispassionate. They may not prejudice the people whose cases they cover.

Phil Hilts provides most of the *Times*' coverage of the scientific misconduct beat.

# Special Report cont'd: New Ways Proposed

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the *Cell* paper, former Rep. Doug Walgren (D-Penn.) said in a May 9, 1989, Dingell panel hearing on "scientific fraud."

This was answered by MIT provost John M. Deutch:

"I do not believe that the accuracy of scientific results can effectively or practically be improved by imposing a separate validation system implemented either by the host university or the sponsoring agency," he said. "The most effective mechanism remains the critical and prompt review undertaken by peer colleagues scrutinizing published results.

"No university can or should warrant the accuracy of the research that is undertaken by the faculty and research staff." (What an institution can and *should* do, Deutch added, is to "warrant that it will provide an environment that promotes research of the highest quality and integrity.")

Doing it Dingell's way, with pre-submission in-house review, would of course be costly and slow. It would subject scientific reporting to all the back stabbing of institutional politics. Worse, the whole notion is quixotic: It presupposes that each institution will employ two or more researchers, independent of each other, who can understand and evaluate each other's cutting edge findings in any given research area. What would MIT do, under Dingell, if a laboratory produced a paper that no one else on campus felt able to review?

If this Dingell reform were being proposed for academic research — in history, humanities, or English lit — one can

imagine the hue and cry about the threat to academic freedom. Yet arts & letters has been oddly muted in its response to the attack on colleagues in the science building next door.

## Evidence Assessed

Since cutting edge science is arcane, the pre-clearances will perforce be made by people who don't understand it. The Baltimore/Imanishi-Kari hearings (May 4) provided a chilling foretaste:

The key "evidence" that Imanishi-Kari committed fraud is a forensic analysis conducted by the U.S. Secret Service of when data tapes and notebook entries were made, vis-à-vis the date when the paper was published and complaints were raised. After working on these materials for almost a year, John W. Hargett, chief document examiner in the Secret Service's forensic division, presented his agency's findings to the Dingell subcommittee. Rep. Norman F. Lent (R-N.Y.), who unfortunately now has retired, asked the Secret Service man:

"[A]m I correct in believing that in performing this investigation, you were looking only at the figures on the paper that was before you, and that you really have no idea what they mean, from a scientific viewpoint?"

Mr. Hargett: "Absolutely not."

Mr. Lent: "In other words you do not understand the science involved here or the significance of any of these particular notations, do you?"

# Judges Find Major Flaws In Case

How are scientists charged with "misconduct" treated in the quasi-judicial system that has been set up to try them?

Documents from a few key cases are starting to shed light on the process. They reveal prosecutorial zeal, makeshift procedures, and, in the view of defendants' lawyers, a cavalier disregard for due process.

A case in point is that of microbiologist Mikulas Popovic, M.D., a former researcher in the laboratory of National Institutes of Health (NIH) virologist Robert Gallo, M.D. He resigned from NIH three years ago, is unemployed — and apparently unemployable — because of the unresolved charges that hang over his head. (But he gets \$100,000 a year patent royalty for his role in developing the test for the AIDS virus.)

## Popovic Listed First

The charges against Popovic relate to the presentation of data in a key and contested paper that he wrote with Gallo on the AIDS virus (HIV) (*Science*, May

4, 1984, pp. 497-500). He is listed as the first author. Gallo, his boss, is listed last.

The case against Popovic is being pressed by the Public Health Service (PHS) Office of Research Integrity (ORI). It is the lead agency in prosecuting — in administrative procedures — misconduct in bio-medical research. The ORI's predecessor agency, in NIH, after much investigation and deliberation, cat-

egorized Popovic's misconduct as minor in nature.

## Appeal Was Filed

Popovic has appealed ORI's findings of four instances of alleged "false reporting" (See Box), and the case is being heard by an administrative law appeals board in the Department of Health and Human Services (HHS), the PHS's

## Charges Are Listed

The misconduct allegations still pending against Popovic, as summarized by the appeals panel, are:

- A key paper written with Gallo contains a false statement that was added in a late version. While it has never been clear who inserted this statement into the text, Popovic, who wrote the methods section of the paper, is being held responsible.

- Two allegations involve entries that use the abbreviation *ND*, which the paper indicates means "not done," even though the determinations in fact were made. Popovic said later he also used *ND* to mean "not determinable" or "not done properly." The ORI acknowledges that the *NDs* didn't affect the findings.

- The ORI found Popovic's assessment of a laboratory test was falsification, even though an earlier review panel stated that "blaming Popovic for this misconduct was arbitrary."

# For Assessing Truth in Scientific Studies

Mr. Hargett: "I do not sir."

The Dingell panel foresees profound changes in the way scientific truth is sought. In a colloquy with the then head of NIH, James B. Wyngaarden, M.D., former Rep. Walgren asked, "How are we going to really protect whistle-blowers in the scientific community . . .?" They are at "great risk," the Congressman complained. "[Y]et their function is certainly *fundamental* to what we view as science [emphasis added]."

What does not interest Dingell is scientific evidence or the evidence of science. David Baltimore gamely pointed out that immunologists elsewhere had since confirmed and extended two of Imanishi-Kari's experimental findings in *Cell*. But Dingell was not mollified.

## Advice for Hoaxers

The possibility that a researcher could make up cutting edge findings that others then would confirm is vanishingly small. Imanishi-Kari's *Cell* findings conflicted with her colleagues' beliefs at the time. But only a fool would fake data that contradicted rather than supported colleagues' current views.

"The essence of a successful hoax," explains Michael Crichton, M.D., a Harvard-trained physician, in his novel *Jurassic Park* (Ballantine), is "that it present[s] scientists with what they expect . . . to see."

In the Brave New World of Dingell science, it is Congress (or perhaps some delegated authority), however, not scientists,

who will arbitrate scientific truth and monitor scientific practice. Whistle-blower O'Toole, in testimony (May 9), tells Dingell: "My case should demonstrate to [the scientific community] that the current process of adjudicating disputes of this nature just simply does not work, and that is bad for science and bad for scientists . . ."

Her fellow scientists, O'Toole notes correctly, have been "outraged by the intervention of Congress in affairs controlled solely by scientists up until now." But, she gushes, "By following and overseeing this case during the last year, you [Dingell] have discovered and righted serious inadequacies that would certainly have otherwise been ignored . . ."

The accusations in this case have been quite uncritically served up to the public by the press. Yet, if it were the Fourth Estate, not the Scientific Establishment, whose ox had been gored in Dingell's hearing room, the outcry would have been deafening. Perhaps the pundits forgot: Freedom is indivisible.

Because it is less free, Dingell science is less creative and so less productive than the science that has until recently been practiced in American universities and medical centers. It seems clear that Dingell's goal, despite his disclaimer, has been to hobble and control science.

## III. Unpopular Science

Dingell is a formidable force in Congress and a consummate  
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# Against an AIDS Researcher

parent agency. Arguing before this body, in a petition to dismiss the case, Popovic's attorney, Barbara F. Mishkin, of Hogan & Hartson, in Washington, D.C., said last spring:

"ORI has been unable or unwilling to specify the statutory or regulatory bases for the proceedings against [him. He thus] is faced with the daunting task of attempting to guess ORI's theory of its legal basis for these proceedings."

What is worse, Mishkin argued, Popovic's alleged misconduct occurred two years *before* Congress passed the bill, in 1985, which directed HHS to set up the misconduct procedures now being invoked against him. This "violates prohibitions against the retroactive application of laws, [and] constitutional requirements for due process."

The ORI ridiculed this due process claim as "utterly frivolous."

The ORI lawyers argued that they were proceeding administratively, in a matter of *scientific* misconduct, and did not need

to rule on Popovic's legal claim that he had been charged retroactively and denied legal due process.

## Judges Are Skeptical

The HHS administrative law judges, called officially the Research Integrity Adjudications Panel, who are ruling on Popovic's appeal leaned strongly toward his arguments. They expressed skepticism toward ORI's position, in a preliminary ruling late last spring. The panel agreed with ORI that the fed possesses "discretionary authority" under law and existing regulations to protect the integrity of publically funded research. But it said, "the key issue" is whether Popovic "could have reasonably anticipated" in 1984, that his alleged misconduct, if proved, would constitute "scientific misconduct."

"If ORI cannot prove that [Popovic] could have reasonably anticipated that his conduct was 'scientific misconduct,' then its case is legally insufficient [since] even if [he] engaged in the alleged conduct,

this fact alone would not impugn [his] research integrity . . ."

The administrative panel concurred with Popovic's attorney that the 1985 law is insufficient to convict him because it was not in effect when he allegedly committed misconduct, and also applies to institutions, *not* individuals. The panel said it would reject ORI's loose and legally "inconsistent" definitions of misconduct — and placed a high burden of proof on ORI if it hopes to proceed.

"Since ORI has the burden of proving scientific misconduct by a preponderance of evidence, ORI must, therefore, prove here that each alleged false statement did not result from honest error or honest differences in interpretations or judgments."

The ORI itself has indicated its belief that Popovic's alleged transgressions were not "a serious deviation from accepted standards," the panelists note. They add: "We question whether the label scientific misconduct is properly applied here."

The case is continuing.

# Miscreants Are Mostly Small Fry

A year's worth of official federal findings of scientific misconduct were published recently in the *Federal Register* (June 21, pp. 33830-32). The total: 14 cases. Most of these offenders were using or sought National Institutes of Health (NIH) funding.

Unlike the highly-publicized cases against research leaders Gallo and Baltimore, which have been used by politicians and journalists to impugn the integrity of American science, the guilty scientists identified by the Public Health Service (PHS) Office of Research Integrity (ORI) are very small fish. They come from a very large pool: About 120,000 researchers work under NIH grants.

Three of the 14 admitted offenders were students or technicians; the others have advanced degrees.

Three of the 14 cases involved *plagiarism*: stealing and then submitting others' research grant applications as one's own. These were thefts by people trying to get into or stay in the game — not malpractice by superstars like Gallo, who is accused of trying to steal credit for a major research discovery, the AIDS virus.

## Papers Recalled

Only six of the 14 cases affected science in the sense that false or fabricated data were published in journals; these papers have since been retracted. One researcher was barred from receiving federal funding for three years — a typical sanction — because he used the same microscope slide of a mussel in two research papers, “while stating that the micrographs had been obtained from two different biological species of mussel,” ORI reports in the *Register*.

More relevant to public health — and the public's purse strings — a Montreal physician, Roger Poisson, M.D., falsified data on 115 occasions, over 13 years, on cases entered into a major National Cancer Institute (NCI) study on adjuvant therapy (after surgery) for breast and bowel cancer.

Poisson's actions “were determined to be purposeful, rather than sloppy practice,” an ORI official, Barbara Bullman, said last month by phone.

The study directors have been asked by NCI to reanalyze their findings, excluding Poisson's tainted data. They were unavailable at our deadline for comment; we'll report their findings next month.

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The ORI expended several million dollars in the year that yielded these meager — and for the most part pathetic results. No significant damage to science or public health is apparent; the cost to the Treasury is not given in the *Federal Register*.

## Special Report Cont'd:

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politician. So it is unlikely that he would persist in this effort if he didn't know he was expressing strong popular sentiment.

Almost certainly he is. The feelings he gives voice to include fear of and anger at science, and at medicine, and at their perceived establishments. Many Americans share an abiding dislike for science. They mistrust it — they don't understand it. They can't or they won't take the trouble to learn what it is; chances are they've not been well taught.

The still unimproved math and science scores — after a decade of effort — are a clear expression of these failures. Asian Americans weren't born any brighter than black or white Americans. But their parents see value in mental disciplines that other parents, whose people may have been here far longer, still disdain.

The popular culture tells the story:

In the movies and on TV, *doctors* — whom we are afraid of — may be ditsy, but they usually come out okay. But *scientists* — basic researchers — virtually always are irremediable crackpots or nerds. They behave in strange, inexplicable ways. Why?

An apt answer is suggested by CNN medical producer Thomas G. Watkins, Jr.:

“Science is unintelligible to the people who write this stuff,” Watkins says. “So they make science and scientists *unintelligible*.”

This dilemma, and its perverse consequences, have not gone unseen by science. “Very few people really have a very good image of what scientists are,” explains ecologist Shirley Malcom, Ph.D., an official of the American Association for the Advancement of Science (AAAS), in Washington. The “misfits and mad-scientist types” predominate on TV and in cartoons and other mass media representations. There are no counterbalancing Hollywood images — no sit-coms with scientists who are “regular people” — Malcom says.

“It's hard to be taken seriously, or have science supported when you're fighting these images.”

## Luddism Is on the Rise

In the 1950s, Malcom recounts, anthropologist Margaret Mead conducted a draw-a-scientist study — and amassed a collection of nit-witty characterizations. The AAAS recently repeated this public opinion study. “The same pictures that were drawn in the '50s studies are being drawn today,” she says.

Disdain for science is the driving force of a new *luddism*, which is skillfully exploited by the Animal Rights Movement and other anti-establishment groups. The Animal Liberation Front (ALF), officially listed by the FBI as a “terrorist” group, nevertheless enjoys wide support from the press and public. In a recent book, *Free the Animals!* (Chicago: Noble Press, 1992) that purports to describe the ALF's credo, author Ingrid Newkirk, the national director of People for the Ethical Treatment of Animals (PETA), has one character declare:

“Basic research [means] basically meaningless research!” More menacing is the pop-environmentalist indictment in

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# Irrational Ideas Are Gaining in Popularity

Crichton's best-selling dino novel and movie *Jurassic Park*. In the novel, one protagonist, mathematician Ian Malcolm, declares from his death bed that science is greedy, stupid, narrow, ego-maniacal, wasteful and, well, "penetrative," too!

"Like the medieval system before it, science is starting not to fit the world any more," he declaims. "We are witnessing the end of the scientific era. Science . . . is destroying itself." One can read Crichton's frightening fable as a critique of scientific *hubris* and hype. But the popular message is that science is cataclysmically evil. (Crichton denies that *Jurassic Park* is antiscience.)

In the same venomous vein, Spike Lee has called AIDS "a government engineered disease" that is "specifically targeted at gays and minorities (i.e., Hispanics and blacks)." Lee charges that AIDS was created for genocidal purposes (*Rolling Stone*, Nov. 12).

This paranoid distortion is a particular disservice to blacks and other disadvantaged minority students: Pilot studies are showing that one way to bring minorities into the mainstream, besides sports and pop entertainment, is through professional training for careers as biomedical scientists. Conspiratorial clap-trap like Lee's can only make things harder for these kids — as well as for others who rightly see science as the sole hope for a solution to AIDS and other such scourges.

## Eastern Thinking Touted

More recently, in a major PBS series, "Healing and the Mind," Bill Moyers belittles Western scientifically-based medicine. His proposal: Pay more heed to the *yin* and the *yang* and other irrational, Eastern health doctrines.

Commercial antiscience interests also are playing a role: Scientifically-based consumer protection amendments to the Federal Food, Drug & Cosmetics (FD&C) Act, introduced by Democrats in the '60s in the wake of the thalidomide disaster, have taken a lot of worthless and unproven nostrums off the market, or, at least, limited the claims that can be made for them. This has angered the purveyors and users of vitamins, herbs, and other such remedies. They have set out to gut the FD&C Act, and the protective scientific standards on which it is based.

Science thus has been cast as whipping boy — and scapegoat — by a wide range of advocates for trendy spiritual and authoritarian doctrines and movements. Defense is difficult. The scientists are outflanked. Because of their reticent natures, and the precepts of their barely acknowledged culture of science, they have turned out to be inept self-defenders. (They are, however, able askers for cash, congressional sources complain!)

## Anger Is Expressed

The attack on science pits *have nots* against *haves*: Folks who've felt left out, noses pressed to the glass, now are heaving rocks. One of science's problems, like that of any professional establishment, is that it takes skill, work, and education — and also sometimes good connections and good luck — to get in.

Attackers are disdainful because they can't or won't take the trouble to try.

This reflects individual slothfulness and disinterest, and poverty, too. More broadly, it reflects a failure by science and by society to find ways to make science, or, perhaps more important, an informed *appreciation* of science, available to everyone through the schools, media, and popular culture. Textbook science, as now taught, is ossified and dull; it predictably turns students off. Science classes purvey "facts" and formulas designed to help kids pass standard exams.

Frontier science and the *process* of scientific discovery, on the other hand, are exciting. They can be taught to grade school students who still retain a natural curiosity about themselves and their world. But exciting science, and the process of science, are largely ignored in schools.

The golden years of fiscal and political support for science came during World War II and the later post-Sputnik era: Science was regarded as crucial for economic prestige and national defense. Military science, what is more, could be partly justified by trickle-down dividends to civilian science and products — although, in fact, this dribble was oversold. Now that the Cold War is over, says social historian Roberta Balstad Miller, Ph.D., of the National Science Foundation, this pro-science "consensus" has faded away.

If her analysis is correct, then part of science's problem is a loss of its protected status. The reality, however, is that science

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## Integrity Blues

"Who's gonna investigate/The guy who investigates me. . .!"

— entertainer Zero Mostel, Red Scare target, circa 1948

While the Public Health Service's Office of Research Integrity (ORI) — located on *Security Lane* in Rockville, Md. — is busy investigating allegations of scientific misconduct, including sexual harassment, it appears to be suffering a few such problems of its own:

A 27-year-old female office manager at ORI has filed a formal complaint charging that life scientist Clyde A. Watkins, Ph.D., the office's acting chief investigator, pressed her for sexual favors, Philip Hilts reports in the *New York Times* (Aug. 8). She says he promised her a top employee rating if she would perform oral sex on him twice. The normally staid *Times* quotes this memo from Watkins to the unidentified woman:

"You must be sick, having elected to be missing all my best: all of my soft, warm hugs, my exciting kisses, my gentle touch, and . . . my incredible tongue . . ."

Watkins told the *Times* that he would be vindicated.

# # #

It sounds to us like J. Edgar Hoover's FBI: a self-righteous public face; hanky-panky behind closed doors.

## Special Report . . .

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is essential to growth, Miller says, and a shortage of scientists to perform critical tasks already is looming.

Innovative technology, which intrigues the President and his advisors, now is in far better repute than basic science. But technology almost certainly depends on a scientific base. In short: Science really is needed, despite opponents' disdain.

### Religion Fights Back

Science has been handmaiden to many of our century's major achievements, for better or for worse, from antibiotics to atom bombs. Now, it is part of the "post modernist" repudiation of this recent past. It has not been forgotten or forgiven that science, along with capitalism, nationalism, and political

democracy, shattered the Medieval Church's lockhold on the human mind. No wonder, then, that renescent religion, including fundamentalism, cultism, and outright hucksterism, now is scoring anti-rational hits against science. Most Americans, surveys show, still prefer the Creation myth to the findings of paleo-science. Logically and psychologically, faith and science can perhaps be reconciled. But revealed religion carries much anti-intellectual baggage that is intended to distract and dissuade the probing mind. No wonder, then, that our science graduate schools are busy training foreign students, while shortages of American scientists are foreseen.

Science *cannot* answer — and should not be asked — many questions, particularly questions of *meaning*. But science is a creative enterprise that has helped make America great, and it is a bastion of clear thinking against cant. Science also speaks an international language in an era of factionalism.

Dare we lose it?

— D.R.Z.

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