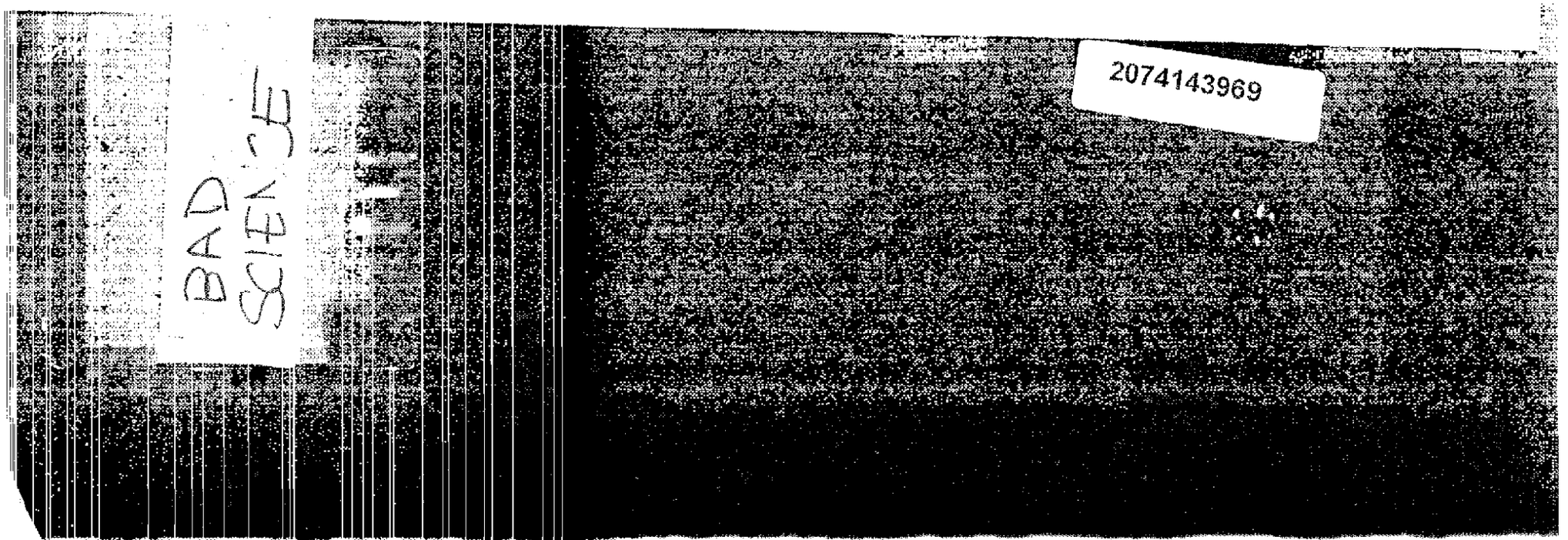


BAD SCIENCE

A RESOURCE BOOK

Draft – March 26, 1993

MESSAGES

Too often, science is manipulated to fulfill a political agenda.

Science that is used to guide public policy must be based on sound science -- not on emotions or beliefs that are viewed by some as "politically correct."

***

Government agencies, too often, betray the public trust by violating principles of good science in a desire to achieve a political goal.

Numerous government studies have caused job loss, personal freedoms to be violated and even people displaced from their homes. These same studies have been later proven to be inaccurate following objective scientific review. The scientific community has been particularly critical of government studies regarding asbestos, pesticides, dioxin, radon, environmental tobacco smoke and water quality.

***

No agency is more guilty of adjusting science to support preconceived public policy prescriptions than the Environmental Protection Agency (EPA).

The EPA's Science Advisory Panel criticized the agency in a 1992 report for failing to develop a "coherent science agenda and operational plan to guide its scientific efforts." The report went on to describe the agency's interpretation and use of science as "uneven and haphazard across programs and issues." In her initial review of the agency's operations, Administrator Carol Browner said EPA suffered from a "total lack of management, accountability and discipline." EPA's self-admitted failures raise even more questions about its ability to credibly protect the public's health and safety.

Public policy decisions that are based on bad science impose enormous economic costs on all aspects of society.

The costs of bad science are eventually borne by each individual taxpayer as they are passed down from federal regulations and mandates to state and local governments, consumers and businesses. Environmental regulation, in particular, costs a family of four an estimated $1,800 a year.

***

Like many studies before it, EPA's recent report concerning environmental tobacco smoke allows political objectives to guide scientific research.

The EPA report is filled with unsubstantiated claims, lowered standards and statistically questionable devices. Never before has EPA proposed to classify a substance as a Group A carcinogen on the basis of such weak and inconclusive data. EPA's methodology on Environmental Tobacco Smoke (ETS) sets a precedent that could threaten the use of such common products as chlorinated water, diesel fuel, numerous pesticides and more. You do not have to approve of smoking to object to the EPA's decision to misuse scientific data in order to support predetermined conclusions.

***

Proposals that seek to improve indoor air quality by singling out tobacco smoke only enable bad science to become a poor excuse for enacting new laws and jeopardizing individual liberties.

Banning smoking to improve indoor air does not change the frequency of complaints or resolve the problem. Even within the EPA, which mandates a smoke-free environment, many employees complain about poor indoor air quality. Anything other than a holistic approach to improving the indoor environment threatens the health of employees and opens employers to new workers compensation claims. Moreover, these misguided regulations intrude upon the personal liberties of individual workers and create enormous and unnecessary economic costs.

Table of Contents

A

Too often, science is manipulated to fulfill a political agenda.

Science that is used to guide public policy must be based on sound science -- not on emotions or beliefs that are viewed by some as "politically correct."

WHAT OTHERS ARE SAYING ABOUT SCIENCE MANIPULATED TO FULFILL A POLITICAL AGENDA

"...A group of 425 international scientists and medical experts, including 62 Nobel laureates, issued an appeal warning against the increasing use of 'pseudo-scientific arguments' in the environmental debate. While subscribing to ecological objectives, they demanded that ecological science 'be founded on scientific criteria and not on irrational preconceptions.'"

-- *The Detroit News*, August 9, 1992

"Bowing to the demands of pro-lifers, the Bush Administration continued a ban on federal funding for fetal-cell transplants, despite the fact that the use of such tissue has shown promising results in treating Parkinson's disease and other disorders. Frustrated U.S. researchers watched helplessly as their European counterparts moved ahead on medical applications of fetal tissue."

-- Leon Jaroff, *Time* Magazine, August 26, 1991

"Crises can be exploited by organized groups to justify government action which serves to promote hidden agendas. If a real crisis is not available, an artificial crisis created by distortions and misinformation will serve just as well."

-- Dwight Lee, Ramsey Professor of Economics, University of Georgia, in "The Perpetual Assault on Progress"

"Many environmental zealots in and out of government...have proved themselves quite willing to bend science to the service of their political (and financial or bureaucratic) goals. The result has been a panicked public that is easy prey for all sorts of counterproductive regulation and spending. In the end that will lead to cynicism about the value of science generally -- and a poorer United States."

-- *The Detroit News*, August 9, 1992

"Costly solutions are proposed and enacted into law before they are scientifically justified. Sometimes they respond to perceived--rather than real--risks to humans or the environment. There are no standards for evaluating costs and benefits, nor are there acceptable guidelines for setting national priorities."

-- Paula P. Easley, Director of Government Affairs, Municipality of Anchorage, Alaska
Paying for Federal Environmental Mandates: A Looming Crisis for Cities and Counties

"What is troubling is the suggestion that publicly funded scientists may be playing fast and loose with the facts for political reasons. The integrity of the scientific process is tremendously important to the United States, whose economic fortunes rest to a large degree on its ability to exploit its scientific capabilities."

-- *The Detroit News*, August 9, 1992

"Congress is reflecting an erosion of public confidence in a scientific establishment that not many years ago could seemingly do no wrong. The message from Washington is clear: science will receive no more blank checks and will be held increasingly accountable for both its performance and its behavior."

-- Leon Jaroff
Time Magazine, August 26, 1991

"In January, mayors from 114 cities in 49 states opened the campaign [for reform of environmental laws] by sending President Clinton a letter urging the White House to focus on how environmental policy-making had in their view gone awry.'Not only do we sometimes pay too much to solve environmental problems, we've been known to confront the wrong problems for the wrong reasons with the wrong technology,'the mayors said."

-- *The New York Times*, March 24, 1993

CHOICE AFTER 'ROE'—*THE EDITORS* LIZABETH FOX-GENOVESE

THE NEW REPUBLIC

Homeless chic · Sandinistas on welfare · New York Times screwups · Sacred condoms

THE SCIENCE MOB

Fraud, complacency, and secrecy in the scientific establishment

by Philip J. Hilts

The David Baltimore case—and its lessons.

THE SCIENCE MOB

By Philip J. Hilts

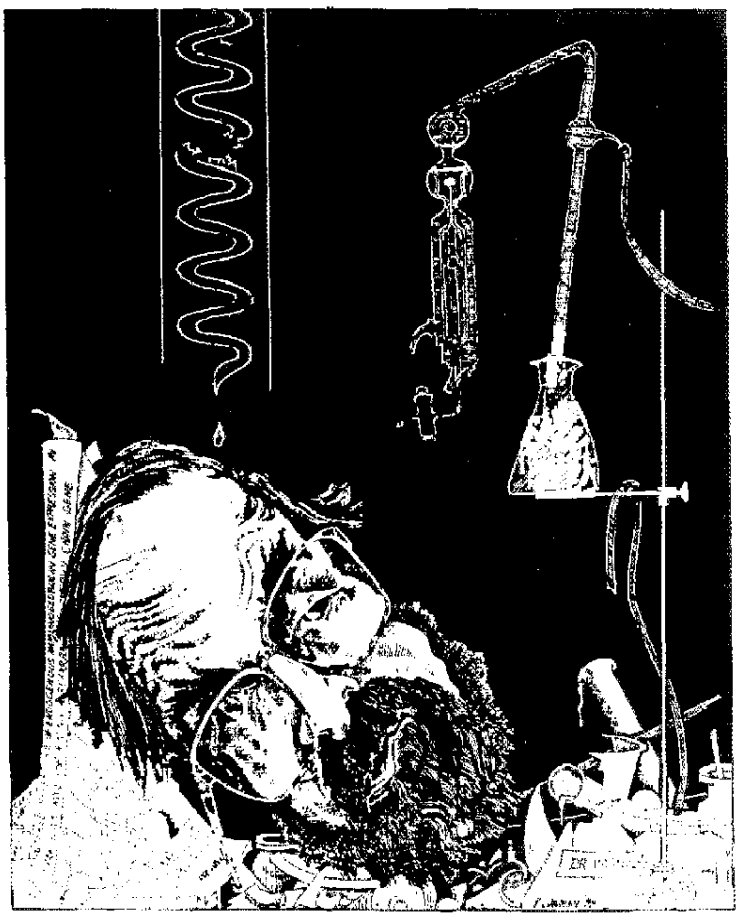
NEOPTOLEMUS: You're capable, Odysseus, and resourceful. But you have no values.
ODYSSEUS: And where's the value in your carrying-on?
NEOPTOLEMUS: Candor before canniness. In doing the right thing and not just saving it.
—Seamus Heaney's translation of Sophocles' *Philoctetes*

In the years before World War II, science was a small, charmed profession. In 1940 there were about 200,000 scientists and $70 million in federal money. Scientists were a contemplative order, and their exposure to the world was limited. When an occasional question of sloppiness or misconduct arose, it was quietly resolved within the confines of the profession. But now, as the number of scientists reaches 1 million and their share of the nation's federal budget reaches $25 billion, the demands for greater accountability and openness are understandably more insistent. Though scientists would like to remain aloof, a brotherhood whose standards and integrity remain above public reproach, that era is over.

Stories about scientific misconduct are no longer an aberration. Indeed, in recent years the most notorious

PHILIP J. HILTS is a Washington correspondent for *The New York Times*.

cases have involved some of this country's most reputable scientists and universities. In 1983 John Darsee, a researcher at Harvard Medical School, was found by the National Institutes of Health to have faked some data in his studies on heart disease. In 1984 the National Institute of Mental Health concluded that Stephen Breuning, a researcher at the University of Pittsburgh, had fabricated data in a paper about drug therapy for hyperactive children. In both cases earlier internal university investigations had cleared the scientists of blame. Robert Gallo, the chief of the Laboratory of Tumor Cell Biology at the NIH and the co-discoverer of the cause of AIDS, is under investigation by several federal agencies for not giving sufficient credit in 1984 for work performed by French scientists. A recent NIH report found him not guilty of misconduct but detailed several instances of irresponsible behavior.



DRAWING BY VINT LAWRENCE FOR THE NEW REPUBLIC

The NIH, which is charged with investigating allegations of misconduct in federally funded research at universities, examines a few dozen such cases each year. It is impossible to say how many others remain under wraps at the universities. The reluctance of administrators to root out cases of misconduct by faculty is hardly surprising: when one comes to the attention of federal investigators, and the perpetrator is found guilty, his federal research funds are withdrawn. More important in a system in which reputation is paramount, a charge of misbehavior represents a permanent disgrace—a lingering impediment to future federal and private funding.

Perhaps the most remarkable case of misconduct in the annals of American science is the one known as "the Baltimore case." The most protracted scandal of the last several years, it stands as the exemplar of what's wrong with the defensive and self-regulating structure of the American scientific establishment. It's named after the scientist who refused to investigate allegations of faked notebooks, Dr. David Baltimore, rather than after Dr. Thereza Imanishi-Kari, the scientist charged with the fraud. And it's famous less because of the nature of the fraud than because Baltimore himself determined to make it famous. Like a Greek tragedy, it turns on a character flaw in the protagonist, unseen by himself but excruciatingly obvious to the audience, that allows him to commit a sequence of improbably foolish acts. Each leads to the final—maddeningly avoidable—fall.

The case is quite simple in many respects, and it could have been quickly resolved at the start. Instead it has dragged on for the past six years, involving dozens of eminent scientists who rallied behind Baltimore, and provoking two university inquiries, two formal investigations by the NIH, and three congressional hearings by the oversight committee responsible for looking into government fraud. And still it is not over. The NIH has not yet finished its investigation, and a grand jury in Baltimore is considering indictments against Imanishi-Kari.

What we now have, though, is a thorough draft report by the Office of Scientific Integrity at the NIH that provides a factual guide to the impenetrable. From this and the testimony of each side since the draft was leaked to the press last spring, we know at least the sequence of events that led to the public humiliation of Baltimore, a Nobel Prize winner and former head of the Whitehead Institute and president of Rockefeller University. (Baltimore was finally pressured to resign from Rockefeller last fall by senior faculty who felt the ongoing scandal was an embarrassment to the university.) We cannot say why Baltimore did what he did. I have asked him repeatedly, and he is unable to say why.

The case began with a research paper, published in the journal *Cell* on April 25, 1986, titled, "Altered Repertoire of Endogenous Immunoglobulin Gene Expression in Transgenic Mice Containing a Rearranged Mu Heavy Chain Gene." The paper, written by

continued on page 28

Imanishi-Kari and co-authored by Baltimore (then her colleague at MIT) and three other scientists, described experiments that purported to show that when scientists inserted a foreign gene into mice, it did not, as expected, just make foreign antibodies. Rather, it had some unknown effect on the mouse's own genes, altering them to include antibodies that mimicked the foreign antibody. The paper implies that it might sometime be possible to gain command of the body's defenses by introducing foreign genes that would recruit the natural ones to attack a selected target.

The paper began to unravel almost immediately, even before publication. The warning signs came from the MIT postdoctoral student, Dr. Margot O'Toole, assigned by Imanishi-Kari to extend the work to the next step. She could not duplicate the work and wasted almost a year demonstrating that important experiments in the paper were wrong. It is always dangerous for postdoctoral students to challenge their superiors, upon whom they rely for every detail of their professional life, including money, lab space, and the opportunity to publish. This particular challenge would require either an extensive correction or a withdrawal of the paper, an unusual procedure that would embarrass all of the authors.

In May 1986 O'Toole first took the uncomfortable facts to her thesis adviser and two other scientists at Tufts University, which was about to hire Imanishi-Kari. They were concerned enough to call in Imanishi-Kari for proof of the work she'd done, but after a quick perusal of several pages of her notes on the experiment, they decided that whatever problems existed need not be disclosed. (Forensic experts at the Secret Service now say two of the pages of evidence she brought were fabricated just before the meeting. Tufts hired Imanishi-Kari, where she remains today as an assistant professor in the department pathology.)

O'Toole then went to the dean at MIT, who asked Dr. Herman Eisen, a friend of Baltimore's, to look into the case. Though Eisen was the officially designated investigator at MIT, he never looked at Imanishi-Kari's lab data or her notes. He did not question Imanishi-Kari, O'Toole, or Baltimore. Instead, he quickly read a memo from O'Toole on what was wrong, discussed the matter with the Tufts scientists, and later wrote a report saying that there appeared to be errors in the *Cell* paper and differences in interpretation between Imanishi-Kari and O'Toole, but that this was "the stuff of science," and not misconduct. (Several months ago, in a meeting with scientists at Harvard who continued to be perturbed by the case, Eisen admitted that he did not read O'Toole's memo carefully. He also said he "never believed" the theory behind the part of the paper done by Imanishi-Kari, and so was not particularly concerned with the accuracy of the evidence itself. Such rationalizations could hardly have provided the reassurance the group was looking for.)

Finally, on June 16, 1986, O'Toole herself confronted Baltimore and Imanishi-Kari at a meeting also attended by Eisen and another co-author of the *Cell* paper, David Weaver, a member of Baltimore's lab. She was the only one who brought data to the meeting—seventeen pages from Imanishi-Kari's notes. (Investigators at NIH later said those pages were prima facie evidence of trouble because they showed results opposite from those reported in the paper.) According to O'Toole, Imanishi-Kari admitted at the time what she has come to state publicly: some of the work cited in the paper was not done, and other work got different results than what was reported. At the end of the meeting, O'Toole asked that the paper be corrected or withdrawn. Baltimore replied that such problems with accuracy are not unusual and they need not be corrected—a startling new standard for scientific inquiry.

He said that the scientific process is "self-correcting"—meaning that other scientists will eventually figure out that the published work was wrong. It is true that honest work is often wrong and requires another study to reveal that. But Baltimore was extending the notion of self-correction to cover errors he knew existed but decided not to report. Thus he was dooming some scientist to repeating work that need not be repeated, merely to maintain his own unblemished record.

O'Toole pressed him. He says he told her she could write to *Cell*, but that if she did, he would write his own letter endorsing the paper's results, and that he couldn't imagine they would accept her letter then. O'Toole says that she left the meeting feeling beleaguered and decided to let the matter drop.

However, by July 1986 the case was sniffed out by a pair of self-appointed fraud scouts at NIH, Walter Stewart and Ned Feder. They had heard of the case through the grapevine and began to press O'Toole to give them information about it. Though they have no official status as investigators, the burden of pressing such cases went to them because they were willing to do the work necessary. There is in fact nobody in science directly assigned to study and adjudicate potential cases of misconduct. They also alerted Representative John Dingell, chairman of the House Subcommittee on Oversight and Investigations, who oversees the workings and misworkings of federal agencies. He began his own prolonged inquiry and eventually held two hearings on the case, one in April 1988, the other in April 1989.

In January 1988 Stewart and Feder's work and Dingell's investigation finally prompted the NIH to appoint an official committee to investigate the matter. But at first, and true to form in investigations carried out by scientists, the NIH put two of Baltimore's close associates on the panel, Frederick Alt of Columbia, a co-author with Baltimore on more than a dozen papers, and James Darnell of Rockefeller, co-author on Balti-

more's very successful textbook on molecular biology. The third panel member, Ursula Storb of the University of Chicago, was later found to have written a letter of recommendation for Imanishi-Kari.

That summer Baltimore began a national campaign designed to derail the NIH and congressional investigations. He attacked O'Toole as a "discontented postdoc" in a letter to the NIH, and he and several friends at MIT orchestrated the writing of letters to more than 400 colleagues in which the investigations were declared to be a threat to science itself. Baltimore at the time was chief of the Whitehead Institute, MIT's molecular biology research institute, as well as a professor at MIT, and he committed tens of thousands of dollars of the institute's money to lobbying, including the hiring of Akin Gump, a high-priced Washington law firm, to press his arguments upon Congress.

Baltimore cast the conflict as one of outsiders invading the sanctuary of science. They were, he said, maliciously misrepresenting a scientific dispute about error as a case of fraud. He appealed to the xenophobia of other researchers in asking them to rally round him. In one letter, a close friend of Baltimore's, MIT's Phillip Sharp, urged his colleagues to write op-ed pieces, and letters to the editor and to Congress. His sample letter to Congress said: "I believe that to continue what many of us perceive to be a vendetta against honest scientists will cost our society dearly. If scientists who have been exonerated of all wrongdoing must continue to defend themselves against vague and shifting charges, all members of the scientific community must be afraid." Robert E. Pollack, dean of Columbia College, did write an op-ed piece in *The New York Times* in which he deplored congressional meddling in science: "The way Dr. Baltimore is being treated means that witch-hunts are in the offing," Pollack declared. "If Congress legislates against error in science, there is no chance that a sensible young person will choose to be a scientist." The number of combatants in the fray grew, until half a dozen Nobel Prize winners and eminent scientists from Stanford, MIT, Harvard, Tufts, and Rockefeller had taken up the cudgels. Baltimore and his lobbyists arranged for a bevy of distinguished scientists to go to Washington on his behalf. They had seats reserved just behind Baltimore at Dingell's second congressional hearing in April 1989, facing Dingell.

David Baltimore was the only source of his colleagues' certainty that the case was one of error and not fraud. But Baltimore himself had not looked at the evidence in detail; in fact, he said it was not his business to look at it. What he did know, at the very least, was that there were false statements in the paper. For example, one of the problems raised in the summer of 1986 was that one of the reagents did not perform as stated in the paper. That September, several months after Eisen had concluded his inquiry into the matter, Baltimore wrote in a letter to him (made public under subpoena): "The evidence that the Bet-1 antibody doesn't do as described in the paper is clear. Thereza's statement to you that she knew it all the time is a remarkable admission of guilt.... Why Thereza chose to use the data and to mislead both of us and those who read the paper is beyond me." More interesting, a few lines later Baltimore admitted choosing to mislead those who read the paper, and he gave a reason why. "All authors do have to take responsibility for a manuscript, so all of us are in a sense culpable, but I would hate to see David's [David Weaver] integrity questioned for something he accepted in good faith.... The literature is full of bits and pieces now known to be wrong, but it is not the tradition to point each one out publicly."

He said that no correction should be published but that he would privately let others know that Imanishi-Kari's data "are not reliable, and I, for one, will be skeptical of Thereza's work in the future." Later Baltimore told the Office of Scientific Integrity that he was not proud of this letter and his decision to advise against a correction and added, implausibly, that probably he and Eisen had misunderstood Imanishi-Kari's explanation of her misdeed. Imanishi-Kari is originally from Brazil and has a mild accent.

When Dingell subpoenaed Imanishi-Kari's notebooks in preparation for the congressional hearings in the spring of 1989, she met with Baltimore and his lawyer Normand Smith. She confided that she really had no notebooks, only loose sheets of paper, spiral-bound pads, and folders. Researchers' notebooks often are not pristine, but when subject to examination they must make sense. What should I do with this mess? she asked. Either Baltimore or Smith—neither will be definite about it—told her to assemble them into a notebook.

On April 25 Dingell's staff invited Baltimore in for a private talk. It was nine days before the hearings were to take place. Dingell's staff had taken the notebooks to the top forensic experts at the Secret Service, who reported that all the signs of outright fraud were there. Dingell's staff felt that if Baltimore got a look at this new data, he might have a chance to regroup, back away, and offer to help resolve the matter. He was told that the Secret Service had found that 20 percent of Imanishi-Kari's notebook material showed evidence of being faked. But Baltimore still didn't back down. In fact, at the hearings he was asked how Imanishi-Kari came to make the notebooks. He replied that he did not know.

The paper and typefaces from mechanical data counters did not match those used in the lab in 1985 when the data was supposed to have been taken. Rather, all the signs matched perfectly data from another time in the lab—several years before, when it would have been impossible for the experiments to have been done. The paper on which the purported data was recorded was a peculiar shade of yellow-green, unlike anything seen in the lab for years.

And, astonishingly, a number in one of the notebooks was changed, simply whited out both front and back. Dates in Imanishi-Kari's notebook pages were out of order, overwritten, and some were clearly wrong for the experiments represented on the page. Later, when confronted with these by the NIH investigators, Imanishi-Kari said that dates "don't mean anything." Maybe they are not even dates, just numbers. Numbers referring to what? she was asked. "I don't know," she said.

Baltimore was clearly shaken by the meeting. Those present said his color sank, and they feared he would be sick on the spot. But his recovery was quick. In a subsequent meeting that must be considered at the least highly improper, he met with the NIH investigators and with Imanishi-Kari to talk about the testimony they would give before Dingell. For example, when Imanishi-Kari suggested the paper may have gotten discolored by leaving it in the sun, NIH investigator Dr. Hugh McDevitt said that story would not work because they already knew it was not true. He offered the possibility that there was another explanation, one she hadn't suggested yet.

When it came time to testify, Baltimore delivered as remarkable a piece of oratory as a scientist ever did before Congress. "The Secret Service apparently conducted a nine-month forensic analysis of Dr. Imanishi-Kari's laboratory notes," he said. "In a charade of helpfulness, they presented a partial oral summary of their findings on Tuesday, April 25. That presentation was designed to terrify without providing any substance ... last Sunday, some written materials were provided. And based on those and what I have heard today, there is still nothing from the Secret Service investigation that causes me to doubt the validity of the *Cell* paper." Though Baltimore himself had almost single-handedly created the whole spectacle, he went on to chastise Dingell. "I must tell you, Mr. Chairman, I am very troubled about how this situation got so out of hand. I have a very real concern that American science can easily become the victim of this kind of government inquiry.... Professor Imanishi-Kari is also a victim.... She deserves my support, and the support of all scientists, for any of them could be in her shoes."

No one doubts that Baltimore is a brilliant scientist. But those who know him have seen another, more childish David Baltimore in outbursts from time to time. His extraordinary success may also have led him to feel invulnerable—able to deflect personal scandal merely by bringing the weight of his reputation to bear. From his weakness we see the weakness of science: that it is a human enterprise. Its practitioners struggle always against emotion and prejudice, and never fully overcome them.

O'Toole's plight illustrates the dangers in a hierarchical system where a scientist is inaudible to all those above her rank. When she made her charges, the senior scientists turned and spoke to one another. Eisen talked to Baltimore, Tufts to MIT. Later, when Stewart, Feder, and Dingell joined in, they likewise carried no particular status in science. Baltimore and others even chose to contradict the forensic experts at the Secret Service, who surely know their business.

O'Toole, who is now working at the Genetics Institute in Cambridge, Massachusetts, after a long hiatus in which no one in the field would hire her, believes that the only way to avoid another Baltimore case is to have the investigations of such matters open and public. Other scientists have had a similar response. Dr. Walter Gilbert, a Nobel Prize winner in molecular biology from Harvard, says: "Some of us are just aghast at David's behavior. Through his own doing, the case became a dramatic test of power between the Congress and the scientific establishment. It became a case of how science should be supported and reviewed. He tried to make it a test case, rather than say, 'I'm sorry,' and walk away, or, as any scientist should, say that if the work was wrong he would be responsible and withdraw it." The case, Gilbert says, has proved to be a healthy reminder to scientists "that lab notebooks are open documents, that all the authors on a paper are responsible for it. Fact-finding must be done vigorously and impartially, rather than by the friends of the person involved. What has not been healthy is the failure of the institutions—both the universities and the NIH—to investigate quickly and thoroughly."

But the Baltimore case echoes something deeper in the scientific world than mere secretive procedures and mutual, collegial protection. It reveals something about the nature of the scientific mind itself. The key to science, the physicist Richard Feynman wrote, is "a kind of scientific integrity, a principle of scientific thought that corresponds to a kind of utter honesty—a kind of leaning over backwards. For example, if you're doing an experiment, you should report everything that you think might make it invalid—not only what you think is right about it." These are exacting standards, and ones that human beings—with all their propensity for pride, vanity, and ambition—regularly fail to live by. For too long scientists—and the society that supports them—have believed that they are somehow immune to these imperfections, that their professional integrity should therefore be placed beyond the troubling, open, sometimes misplaced scrutiny of a liberal democracy. The last few years should prove beyond any doubt that those scientists are all too human and that such scrutiny is all too often merited.

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. In the end, Baltimore inadvertently revealed just how vulnerable the scientific profession is to abuse by those entrusted to protect it. •

THE TIMES SATURDAY FEBRUARY 27 1993

Alexander Chancellor in New York

■ Behind every seemingly futile piece of medical research lurks some vested commercial interest

It makes no sense to me. Why should a man with a bald patch on the top of his head be any more likely to have a heart attack than anybody else? Nevertheless, research published this week in the *Journal of the American Medical Association* would have us believe that men under 55 suffering from "vertex baldness", which means baldness on top rather than at the front of the head (where you can be hairless with impunity), run an unusually high risk of heart disease. The balder you are, the greater the risk.

If you are only moderately bald, like the Prince of Wales, the risk is about 40 per cent greater than if you have a full head of hair. But if you are really very bald indeed, the risk can be as much as 340 per cent higher. To help you work out how much you are at risk, the *Journal of the American Medical Association* published a table showing the Hamilton Baldness Scale, a collection of 24 numbered drawings showing different kinds and degrees of hair loss.

As health scares go, this one is particularly unpleasant. Not only is it cruel to bald people, who may already be slightly depressed about their condition, particularly in the middle of a freezing winter; it also describes a risk which nobody can do anything to prevent. If you accept the studies that have linked heart disease to high blood pressure, tobacco, or cholesterol, you can at least give up drinking or eating or smoking, if you so desire. But you can't give up being bald, at least not at the drop of a hat. Baldness is a condition for which there is still no certain cure. So one is bound to wonder why anybody should want to publish such findings, and to wonder even more what could have made anybody want to embark in the first place on such a weird and apparently futile piece of research.

> This most recent health scare is especially cruel to balding people

The answer to that question is that behind almost every medical study of this nature there can be found lurking some commercial interest. The research linking baldness to heart attacks was carried out by the Boston University School of Public Health, but it was paid for by the Upjohn Company of Kalamazoo, Michigan. And what does the Upjohn Company do? It manufactures a hair-growth stimulant called minoxidil, which it markets under the name of Rogaine.

According to *The New York Times*, "Upjohn was concerned about the possibility of reports of adverse effects like heart attacks among minoxidil users, and then [tried] to determine whether such cardiac problems reflected use of the medication or a general risk factor." Why the company should have been concerned about non-existent reports was not explained, but one gets the general idea. The aim of the research sponsored by Upjohn was to prove, if possible, that if minoxidil users were by any chance more likely to get heart attacks than people who didn't use it, this would not be because the medicine itself had harmful side-effects, but because the people who used it were bald. So in order to protect the reputation of minoxidil (a reputation which nobody has challenged), people with bald patches on their heads have been needlessly alarmed.

The opposite of this situation was described two weeks ago in *The Wall Street Journal* in an article about the Council for Tobacco Research, which has its headquarters in New York. This was a long investigative piece about the skill and tenacity with which, for almost 40 years, this research organisation, heavily funded by the tobacco companies, has sought to cast doubt on every bit of evidence linking smoking to ill health.

The Wall Street Journal described the work of the ostensibly independent council as "the longest-running misinformation campaign in US business history". Although staffed by reputable, even illustrious scientists, the *Journal* said, it had long been closely linked to a public relations firm called Hill and Knowlton, which had published such news items as "Lung cancers found in non-smoking nuns", and helped authors produce books with titles like *Smoke Without Fear* and *Go Ahead and Smoke*.

Despite the *Journal's* harsh condemnation of the Council for Tobacco Research, I feel almost sorry for it. It has spent hundreds of millions of dollars in the search for good news about smoking, and yet it has completely lost the propaganda war.

Although there are still people who will tell you that the air in New York is so polluted that simply living here is equivalent to smoking three packets of cigarettes a day, it is now virtually impossible to find anybody who does not believe that smoking is very bad for you.

However questionable some of its assertions, the Council for Tobacco Research does at least offer some support and comfort to the unfortunate American smoker who is otherwise constantly harassed and abused. Anxiety, after all, is bad for you too, and the council is at least waging war against that particular ailment. Isn't that perhaps more virtuous than terrorising the bald?

LITIGATION

Expert testimony or junk science?

Supreme Court to rule if judges can bar offbeat scientific theories

By AARON EPSTEIN
Herald Washington Bureau

WASHINGTON — The trauma of auto accidents can cause cancer, one expert testified. Hazardous chemicals can cause a type of AIDS, said another. Still other experts blamed spermicidal jelly for some birth defects.

That's "junk science," critics cry. America's courtrooms, they complain, are teeming with "hired guns" who offer expert opinions on just about anything for a hefty fee.

Now the critics want the Supreme Court to give judges the power to clear all federal courtrooms of scientific testimony that lies outside the mainstream.

But others fear that if judges become the gatekeepers of science, valid theories may be banned from the witness stand. Since many of today's accepted scientific opinions once were considered eccentric, they argue, juries should hear the testimony and then decide its worth.

The Supreme Court will tackle this conflict in a case that carries huge stakes for law, science, business and ordinary people.

The justices, who will hear arguments Tuesday and rule in early summer, must decide whether judges can bar an expert witness whose research methods haven't been generally accepted by scientists.

Peer review a standard

When is an expert's analysis generally accepted? When it is subjected to review by peers and published in a professional journal, many courts say. The peer review process has been praised as a method of weeding out false ideas, but criticized as a means of stifling innovation.

The impact of the Supreme Court decision will be felt in various types of personal injury lawsuits — especially the thousands filed on behalf of people trying to link their injuries or illnesses to toxic substances, defective products or medical carelessness.

"It will have an impact in just about any case in which unorthodox scientific opinion is critical," said Harold P. Green, who teaches law, science and technology at the George Washington University Law School.

Birth defects case

The case before the court arose when two San Diego area women, Joyce Daubert and Anita DeYoung, gave birth to babies with stunted arms and legs. The mothers blamed Bendectin, the drug they had taken for morning sickness.

Their lawyers filed suit against the drug manufacturer, Merrell Dow Pharmaceuticals, and presented a judge with the opinions of eight experts who believed that Bendectin had caused the birth defects.

By pooling the data from earlier studies, and by applying less stringent standards of statistical certainty, the experts reached vastly different conclusions than those of the original researchers.

But federal judges dismissed the case. The opinions of the eight experts were "unpublished, not subjected to the usual peer review process and generated solely for use in litigation," ruled Judge Alex Kozinski of the federal appeals court in California.

"This case does not involve junk science," said Barry Nace, the parents' lawyer. "Our experts ... are highly credentialed scientists, some of whom hold important governmental posts ... They did not arrive at their opinions by reading tea leaves."

Scientific and medical experts are essential to personal injury lawsuits. The defense also needs experts to rebut such claims.

"We are facing the problem of bought scientists — people who are not working for the good of mankind but for their own financial good," said Kenneth Starr, who was President George Bush's solicitor general.

Martin Connor of the business-backed American Tort Reform Association, says professional experts have "totally distorted our justice system."

"It's not just a plaintiffs' problem, either," he said. "Experts are misused on both sides."

Experts themselves oppose screening by judges.

"I'm not in favor of junk science, but set rules preclude anything new," said Harold Zeliger, who frequently testifies as a chemistry expert. "If it's really junk science, the other side is free to prove it by cross-examining and rebutting the testimony with its own experts."

Some of America's most powerful forces — major corporations, scientific organizations, medical societies, governments and trial lawyers among them — are trying to persuade the Supreme Court to rule their way.

"Experts who ... do nothing more with seemingly remarkable discoveries than submit them to judges and juries are not acting in a manner characteristic of scientists," declared the American Association for the Advancement of Sciences and the National Academy of Sciences.

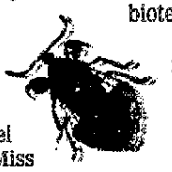
But many scientists deplore a publish-or-perish rule. While peer-reviewed journals regularly publish studies of significance, they also have published theories that later were discredited — including some research that went on to win Nobel Prizes.

THE WALL STREET JOURNAL THURSDAY, APRIL 1, 1993

'Frontline' Perpetuates Pesticide Myths

By DENNIS T. AVERY

"Frontline," the Public Broadcasting System's investigative journalism show, is famous for its controversial points of view. But it's now outdone itself. In an episode titled "In Our Children's Food," which aired in most markets earlier this week, a well-meaning Bill Moyers and his PBS colleagues made recommendations that would increase our cancer and heart disease rates, increase the risk of world hunger, and plow down millions of square miles of wildlife habitat. Apparently the "Frontline" staff didn't realize that those calamities would be the result of giving up the farm chemicals it warned us against.



The show was prepared to celebrate the 30th anniversary of Rachel Carson's book, "Silent Spring." Miss Carson blamed farm chemicals for wildlife losses that we now know were due to lost habitat and to industrial pollutants like mercury and PCBs. In her ignorance, she also feared that pesticides caused human cancer.

We now know that farm pesticide residues contain less cancer risk than mustard and pickles or even than the environmentalists' beloved mushrooms. We now know that 99.9% of the cancer risks in our food supply come in the foods themselves. So much for the cancer risks in pesticides.

But the indictment against "Frontline" is worse than an omission of these facts. Medical practitioners across the country tell us today that the best way to reduce both cancer and heart disease is to eat twice as many fruits and vegetables. Fruits and vegetables contain powerful chemicals that inhibit cancer. They are low in fat and high in fiber; their consumption works against heart disease.

But organic farming—farming without chemicals—can't produce low-cost, attractive fruits and vegetables. Organic farming produces expensive fruits and vegetables because the insects and diseases eat most of them before they can be harvested. The few that survive look shabby, and it's hard to get kids to eat shabby-looking produce. On that basis, organic farming would produce more cancer, not less.

Biotechnology may eventually help us engineer the pest protection into plants and creatures so we won't have to spray anything anymore. But most of the ardent environmentalists say they are against biotechnology, too.

The worst indictment of an organic farming system is that it could not provide enough food to supply even the current human population of the world. By 2050, there would be billions of organically induced starvation deaths. (The U.S. is one of the few countries that could survive organic farming without risking starvation, but we have more farmland than almost anybody else.)

Yes, the world could plow more land to make up for the low yields on organic farms. But already, the world is cultivating about 5.8 million square miles (the land area of South America) for food. With organic farming, by 2050 we would plow down and cultivate 30 million to 40 million square miles of land. That's the combined area of South America, North America, Europe and most of Asia!

Even Rachel Carson might have thought that a strange way to preserve wildlife.

As evidence of farm chemical dangers, "Frontline" offers one farming town in California that for years has had an unexplained high rate of cancers. But this town is famous in medical circles because its cancer pattern is unlike any other town's. Medical studies have tried to tie the famous "McFarland Cancer Cluster" to pesticides. All have failed.

Next, Mr. Moyers cuts to a guilt-ridden California farmer whose son came down with leukemia 10 years ago. The farmer is afraid that his use of pesticides might have caused the leukemia. But farmers and farm kids have lower rates of leukemia and cancer than nonfarm kids. Where is the medical evidence to tie the California farm boy's disease to farm chemicals? The "Frontline" hosts don't tell us anything except how "worried" they are.

The program also ridicules a Public Health Service toxicology study that reported: "There is no evidence that the small doses of pesticides that we do get are causing any harm. The only effect that can be measured . . . is the storage of one of them—DDT—in the tissues of most people. This storage has not caused any injury which we can detect."

Then Mr. Moyers crows: "DDT would be banned 10 years later, just as Rachel Carson had predicted." This was in the early 1970s.

But Mr. Moyers fails to tell us that DDT was banned against the recommendation of scientists and the Environmental Protection Agency's own hearing examiner. The dozens of experts who testified at the EPA hearing overwhelmingly said DDT should keep its EPA approval because it wasn't dangerous to people or birds. The political appointee who headed EPA feared a public outcry if he concurred with the hearing examiner because so many people had read Miss Carson's book.

Is the rest of PBS's widely noted environmental reporting based on evidence this shaky?

Mr. Avery is a fellow at the Hudson Institute. He is director of Hudson's Center for Global Food Issues.

Investor's Business Daily ★ NATIONAL ISSUE Thursday, April 1, 1993

ARE PESTICIDES REALLY SO BAD?

Despite Fears, Food Is Safer And More Plentiful

By Michael Fumento
In Los Angeles

"The only word that describes it is war." That was the first sentence Bill Moyers uttered in Tuesday's Frontline show, produced and broadcast by PBS.

The war Moyers was talking about is the one waged by pesticides against insects and weeds.

But the Moyers show itself may reflect another war, that of environmentalists and their sympathizers against pesticides themselves.

And many scientists and other critics say the anti-pesticide, pro-organic crusade may actually be hazardous to our health.

"The biggest threat to human food supply today, to human cancer, and to wildlife maintenance would be organic farming," said Dennis Avery, director of the Center for Global Food Issues, part of the Hudson Institute think tank in Indianapolis.

"It couldn't give us the food supply we need today, it couldn't give us attractive fruits and vegetables, and it ...uldn't give us the yield to protect ...dlife habitats" from what would ...therwise be ever-expanding cropland, he said.

The Public Broadcasting System's Frontline show, which concerned primarily pesticide residues on fruits and vegetables, comes at a time when Congress is considering legislation to replace a 1958 federal law called the Delaney Clause. It regulates additives, including pesticides, to processed foods.

Environmental groups such as the Natural Resources Defense Council and the Environmental Defense Fund are working hard to ban as many man-made pesticides as possible. Last year, the NRDC won a federal court decision, which the Supreme Court allowed to stand, that effectively would ban 35 such pesticides.

The NRDC was also the group that launched the public relations campaign in 1989 that succeeded in having the apple growth regulator Alar pulled off the market.

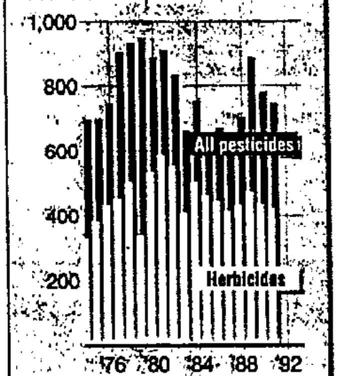
Most of the health concerns of pesticides revolve around the possibility that they cause cancer.

The Frontline show contained a clip of Moyers interviewing farmer Paul Buxman, whose son was diagnosed with leukemia.

Moyers told listeners, "Today (Buxman) worries about pesticides. A recent ...ational Cancer Institute study found ...at, if you live on a farm, you have a far greater chance of getting some forms of cancer."

Killing Fields

Domestic sales of U.S.-produced pesticides, in millions of pounds



Source: National Agricultural Chemicals Assn.

Similarly, NRDC General Counsel Al Meyerhoff, in a recent New York Times opinion piece, wrote, "Farmers exposed to herbicides have a six times greater risk than others of contracting certain cancers."

But Aaron Blair, chief of the occupational studies section at NCI, said that in fact, "Farmers have a lower mortality rate overall: lower heart disease, lower cancer, everything but accidents."

However, said Blair, "If you look at individual cancers, there are eight or nine tumors that tend be excessive. But then, there are at least 35 different cancer sites."

That would mean that farmers have equal or decreased levels of cancer at at least 26 different sites.

William Fischer, director of the Institute for Environmental Toxicology at Michigan State University in Lansing, chaired a report on that 1986 study for the Council for Agricultural Science and Technology in Ames, Iowa.

"It's not correct to quote the results of a single study. . . . With (our) study we looked at all of them." Combined with studies since then, the studies show a wide range of positive and negative correlations to certain cancers.

"What that tells me," said Fischer, "is that if there is a higher risk to farmers, the risk is very low or weak, as evidenced by its being so hard to detect."

Blair thinks that herbicides may be causing some of those cancers among farmers, but Fischer says it's important to point out these are *herbicides*, which are sprayed on weeds, not on fruits and vegetables. Unlike insecticides and fungicides, they have nothing to do with pesticide residue.

Moyers told his viewers that "industry's own tests suggest that 65 pesticides now in use may cause cancer." Meyerhoff wrote that "68 pesticide ingredients have been determined to cause cancer."

Neither made any reference to those cancers being not in humans but in laboratory animals — usually rats or mice — specially bred to develop tumors easily. These rodents are typically dosed with 400,000 times the amount of chemical a human would receive.

Increasingly, such massive dosing of rodents has come under fire in the scientific community as being of little value in determining human causes of cancer.

For one, says Bruce Ames, a cancer researcher at the University of California at Berkeley, the correlation for rat and mouse cancers in these tests is only about 70%.

If such closely related species don't predict for each other 30% of the time, he asks, what does that say for how they predict for human cancers?

For another, the idea that massive doses of chemicals that cause tumors in a few rodents will also cause tumors at a fraction of those doses is suspect.

"Centuries ago, science became aware that the dose makes the poison," said Albert Kolbye, a former assistant surgeon general in the Public Health Service and also formerly the associate bureau director for toxicology at the Food and Drug Administration.

Thus, for example, Vitamin A in small doses is necessary for life, while large doses will kill. Eating a lot of salt-cured meat has been linked to stomach cancer, but no one can live without some salt.

Fully half of all synthetic chemicals tested in massive doses on laboratory animals have caused tumors, a figure that experts say will probably more or less apply to synthetic pesticides.

But what neither Moyers nor Meyerhoff said is that the limited testing of natural chemicals using the same standards has shown that half of them, too, are causing rodent cancers.

Moyers told his audience: "Federal law permits the residues of 40 pesticides in carrots. EPA now believes eight may be cancer agents."

Ames notes that carrots naturally contain chemicals have been found to cause cancer in rodents in massive doses. This is also true of apples, bananas, broccoli, Brussels sprouts, cabbage, celery, and many other unprocessed foods.

Ames thinks that further testing will eventually find natural rodent carcinogens in essentially everything we eat.

"There are over 1,000 natural chemicals in a cup of coffee," said Ames. "Only 22 have been tested. Of these, 17 are (rodent) carcinogens."

In a paper published in the journal Science, Ames and Berkeley colleague Lois Gold said, "One cup of coffee contains 10 milligrams of known (natural) rodent carcinogens, about equivalent in weight to the potentially carcinogenic synthetic pesticide residues one eats in a year."

Said Kolbye, "We are surrounded by a sea of carcinogens, most of which are natural compounds occurring normally in a variety of foods."

But he explained that the body's defense mechanisms are able to resist these carcinogens in small doses, though often not in the massive amounts which laboratory rodents receive.

Many of those naturally occurring chemicals are themselves pesticides, developed not by industrial chemists but by mother nature.

Said Ames, "Plants couldn't survive if they weren't filled with toxic chemicals. They don't have immune systems, teeth, claws, and they can't run away. So throughout evolution they've been making newer and nastier pesticides. They're better chemists than Dow or Monsanto. They've been at it a long time."

Indeed, Ames and Gold estimate that 99.99% of all pesticides by weight are natural.

Take the potato.

Potatoes contain two chemicals, solanine and chaconine, which kill insects in the same way that synthetic organophosphate pesticides do. A single potato contains about 15,000 micrograms, Ames said, "And yet you're eating only about 15 micrograms of man-made organophosphate pesticides a day.

"And yet," said Ames, "nobody's worried about (solanine and chaconine) because they're natural. It's a double standard."

Ames says that the irony of the anti-pesticide campaign being based on cancer fear is that increasing evidence points to fruits and vegetables as important in warding off certain cancers.

"If you eliminate synthetic pesticides, you make fruits and vegetables more expensive," he said. "People will then eat less of them and more will die of cancer."

Pesticide critics charge that we are using more and more chemicals in a steadily escalating war against bugs, mold, and weeds. In terms of variety, this is true. But it's because farmers are using so many highly specific chemicals that they are able to use so much less of them overall.

While Meyerhoff wrote: "The use of pesticides has increased at least tenfold" since the Delaney Clause was enacted in 1958, use of two types of pesticides that may leave residues, insecticides and fungicides, has actually declined since 1964, the first year for which data was available.

(Cont'd.)

2074143989

The Sacramento Bee

Locally owned and edited for 135 years

JAMES McCLATCHY, *editor, 1857-1883*

C.K. McCLATCHY, *editor, president, 1883-1936* ELEANOR McCLATCHY, *president 1936-1978*

WALTER P. JONES, *editor, 1936-1974* C.K. McCLATCHY, *editor, 1974-1988*

GREGORY FAVRE, *executive editor* PETER SCHRAG, *editorial page editor*

FRANK R.J. WHITTAKER, *president and general manager*

A crisis that wasn't

In the late 1980s, it became an article of faith at the National Science Foundation that America was running out of scientists and engineers. By the year 2010, the agency predicted, there would be a shortfall of 675,000 of these valuable specialists.

NSF's chief administrator in those days, Erich Bloch, tirelessly repeated that gloomy forecast to academic leaders, the media and especially to Congress when NSF's budget came up for review. His claims in turn were cited as further proof of the failure of American educational institutions and of our inability to keep pace with Japan in an increasingly competitive world economy.

But as a recent congressional investigation makes clear, Bloch's shortfall never materialized. Instead, the General Accounting Office reports that there's a surplus of scientists and engineers, that unemployment rates in some disciplines far exceed the national average and that beginning salaries for newly minted PhD's in many of these fields are way down.

NSF's faulty prediction turns out to have been the product of its own Policy and Research Analysis Division. The original report proclaiming the shortage was itself so badly flawed and drew so much criticism from the statistical experts who reviewed it that NSF's Office of Legislative and Public Affairs refused to publish it at all. But that didn't stop Bloch from circulating thousands of photocopies and computer printouts far and wide.

The author of the report, Peter House, told a congressional hearing that he never really intended to influence public policy and that he had no idea that his study had so much impact. The chairman of the investigating subcommittee then read back to him passages from one of House's own books in which he extolled the considerable influence his report had exercised over science policy and how it had been assiduously distributed among decision-makers. Bloch himself made 55 speeches between 1987 and 1990 warning of the impending shortfall.

Congress and much of the scientific community have joined in expressing dismay at this tawdry chapter and the blot it has left on NSF's claim to scientific integrity. There may be some relief in finding that at least one of the threats to the nation didn't turn out to be so bad after all. But it's quickly dissipated by the thought that now we need to start worrying about what to do with all those unemployed scientists and engineers.

The New York Times

NEW YORK, TUESDAY, MARCH 23, 1993

Animal Tests as Risk Clues: The Best Data May Fall Short

By JOEL BRINKLEY
Special to The New York Times

GAITHERSBURG, Md., March 20 — Dozens of caged rats and mice spend their days here in a laboratory chewing on Purina rodent chow laced with as much boric acid as they can tolerate without risk of death from poisoning.

These rodents and more than 1,000 others are being used to study seven common environmental and household chemicals to see if any cause reproductive problems. The rats and mice are allowed to breed at will. Then scientists here at R.O.W. Sciences, a research laboratory that works under Federal contract, examine several generations of offspring for abnormalities or defects.

This project is just one of roughly 65 rodent studies under way at 15 laboratories across the country at an average cost of about $2 million each. For much of the last two decades, these studies have been the Government's most important diagnostic tool for identifying environmental problems that are health hazards and setting priorities for Federal regulation.

Billions Down the Drain?

But now the animal-studies program is being hobbled by doubts about its worth. So much evidence has accumulated that chemicals frequently have wholly different effects in animals and humans that officials throughout Government and industry often do not act on the studies' findings.

And with that growing skepticism, the rationale behind a large portion of the nation's environmental regulation is thrown into question.

What Price Cleanup?
Third article of a series.

As a result, even Dr. Kenneth Olden, director of the National Institute of Environmental Health Sciences, the branch of the National Institutes of Health that directs the animal studies, asks whether the nation is wasting billions of dollars regulating substances that might pose little risk.

The findings from about 450 animal studies over the last several decades,

Continued on Page A16, Column 1

Continued From Page A1

Dr. Olden said, have led Federal and state governments to write thousands of regulations forcing government and industry to spend tens of billions of dollars a year regulating the use and disposal of several dozen chemicals, or finding alternatives for chemicals that have been restricted or banned.

For instance, it was data from rodent studies that led the Government to ban or restrict the use of two kinds of artificial sweeteners, cyclamates and saccharin, as well as the pesticide DDT and the industrial byproduct dioxin.

In Dr. Olden's view, "That's an awful lot of money to be spending to be regulating substances we might not have to be regulating at all if we had more information."

After spending many billions of dollars to clean up dioxin, the Government is midway through a reassessment because new studies of people exposed to dioxin — once considered one of the most poisonous substances in the world — show it is not nearly as harmful as originally believed.

Similarly, John A. Moore, a former assistant administrator for the Environmental Protection Agency who now heads the private Institute for Evaluating Health Risks, noted that DDT was banned because it was believed to be a carcinogen.

But new data show that it poses "a relatively modest cancer risk," Dr. Moore said, though DDT does present other environmental hazards. And as for some of the other chemicals that have caused cancer in rodents, Dr. Richard A. Griesemer, deputy director of Dr. Olden's institute, offered some additional revisionist ideas.

"Saccharin doesn't have much risk," he said, "and I don't think cyclamates have any risk at all."

Scott Green understands the weaknesses of his research. He is R.O.W.'s laboratory manager, and he did note that the reproductive studies "are already finding some effects." Some rats and mice are producing fewer litters that are smaller than average. "But is that relevant to what's happening out there in the environment?" he asked. "I can't tell you."

The New York Times

NEW YORK, TUESDAY, MARCH 23, 1993

Animal Tests as Risk Clues: The Best Data May Fall Short

What Price Cleanup?

Third article of a series.

By JOEL BRINKLEY
Special to The New York Times

GAITHERSBURG, Md., March 20 — Dozens of caged rats and mice spend their days here in a laboratory chewing on Purina rodent chow laced with as much boric acid as they can tolerate without risk of death from poisoning.

These rodents and more than 1,000 others are being used to study seven common environmental and household chemicals to see if any cause reproductive problems. The rats and mice are allowed to breed at will. Then scientists here at R.O.W. Sciences, a research laboratory that works under Federal contract, examine several generations of offspring for abnormalities or defects.

This project is just one of roughly 65 rodent studies under way at 15 laboratories across the country at an average cost of about $2 million each. For much of the last two decades, these studies have been the Government's most important diagnostic tool for identifying environmental problems that are health hazards and setting priorities for Federal regulation.

Billions Down the Drain?

But now the animal-studies program is being hobbled by doubts about its worth. So much evidence has accumulated that chemicals frequently have wholly different effects in animals and humans that officials throughout Government and industry often do not act on the studies' findings.

And with that growing skepticism, the rationale behind a large portion of the nation's environmental regulation is thrown into question.

As a result, even Dr. Kenneth Olden, director of the National Institute of Environmental Health Sciences, the branch of the National Institutes of Health that directs the animal studies, asks whether the nation is wasting billions of dollars regulating substances that might pose little risk.

The findings from about 450 animal studies over the last several decades,

Continued on Page A16, Column 1

Continued From Page A1

Dr. Olden said, have led Federal and state governments to write thousands of regulations forcing government and industry to spend tens of billions of dollars a year regulating the use and disposal of several dozen chemicals, or finding alternatives for chemicals that have been restricted or banned.

For instance, it was data from rodent studies that led the Government to ban or restrict the use of two kinds of artificial sweeteners, cyclamates and saccharin, as well as the pesticide DDT and the industrial byproduct dioxin.

In Dr. Olden's view, "That's an awful lot of money to be spending to be regulating substances we might not have to be regulating at all if we had more information."

After spending many billions of dollars to clean up dioxin, the Government is midway through a reassessment because new studies of people exposed to dioxin — once considered one of the most poisonous substances in the world — show it is not nearly as harmful as originally believed.

Similarly, John A. Moore, a former assistant administrator for the Environmental Protection Agency who now heads the private Institute for Evaluating Health Risks, noted that DDT was banned because it was believed to be a carcinogen.

But new data show that it poses "a relatively modest cancer risk," Dr. Moore said, though DDT does present other environmental hazards. And as for some of the other chemicals that have caused cancer in rodents, Dr. Richard A. Griesemer, deputy director of Dr. Olden's institute, offered some additional revisionist ideas.

"Saccharin doesn't have much risk," he said, "and I don't think cyclamates have any risk at all."

Scott Green understands the weaknesses of his research. He is R.O.W.'s laboratory manager, and he did note that the reproductive studies "are already finding some effects." Some rats and mice are producing fewer litters that are smaller than average. "But is that relevant to what's happening out there in the environment?" he asked. "I can't tell you."

ally exposed to low levels of the suspect substances. And even if they suffer unusual health problems, it is hard to know whether the illnesses were caused by the substance or something else — smoking, poor diet, etc.

"Epidemiology is a real crude tool for looking for associations," Dr. Wilcox acknowledged. It is also time-consuming. As a result, his department, like the pathology laboratory, is able to examine only a tiny percentage of the substances subjected to animal studies.

That means the institute and the rest of the Government can seldom offer much more than the animal studies as warnings of a substance's possible danger to humans.

"We're looking for alternative approaches," Dr. Griesemer said. "But right now, that's what we've got."

Quite often, that means no one takes the institute's warnings seriously any longer.

Problems

Frustrations Grow With Knowledge

Almost two years ago, the results came in from rat and mouse studies of 1,2,3-trichloropropane, an industrial solvent used as a paint and varnish remover or a degreasing agent.

Almost every animal exposed to the substance was riddled with tumors "in several organs," said Dr. Richard D. Irwin, the institute toxicologist who wrote the report. "This is the type of chemical that shows the greatest potential for human effect."

"Our understanding is that workers wash themselves in this," Dr. Griesemer said. And since the chemical is absorbed in the skin, he and others said, the finding was particularly troubling.

In Dr. Irwin's view, "It would be real good to get some human data because I'm sure there were people who were exposed to it in the past, maybe even now."

So did the epidemiologists look for people who had been exposed to the substance?

"This isn't one we're looking at," Dr. Wilcox said. But maybe, he added, the National Cancer Institute's epidemiologists did look at it. The cancer institute has what is probably the world's largest cancer epidemiology department — 100 scientists and support staff — and they get the animal-study reports automatically. But they seldom choose to begin a study based on the animal research, and they did not initiate one in this case.

In 1990, when a rodent study suggested that fluoride might be a carcinogen, "we took that one on," said Dr. Fraumeni, head of epidemiology for the cancer institute. "We found nothing, and that was the last time."

As for trichloropropane, he said, "I haven't heard of it."

Dr. Irwin wondered if the Occupational Safety and Health Administration might have done a survey or found a way to check on workers exposed to the chemical.

But Dr. Edward Stein, a health scientist for O.S.H.A., said the agency had done no surveys and had not changed its standards for trichloropropane since January 1989, when it issued a regulation limiting airborne emissions of the substance.

Up to the Manufacturer?

As for telling people of the dangers, Dr. Stein added, "The primary manufacturers of the product would be responsible."

"I presume when updating training programs at companies that use this, say annually, whoever is doing that would be aware of the new information," Dr. Stein said. "They would make the employees aware of it, but I'm not sure if that is actually being done."

"We always have a battle on the issue of what to do with the animal data," Dr. Stein added. "I'm not trying to downplay it, but I do believe other things ought to have priority."

So back in North Carolina, Dr. Irwin said: "I really haven't heard of anything happening. It's almost as if our work just goes into a black box."

Acknowledging that problem, Dr. Olden said: "I have to say we don't serve the American people very well right now. But that's where we are."

"A victory for the environment is a victory for the environment," she said.

But it is not completely clear that a ban on dumping was such an environmental triumph. The negative effects of burying sludge close to the shores have been documented with precision. But the dangers of dumping it in deeper water are less clear.

Studies have shown that sludge deposited 106 miles out does reach the ocean floor and, in the words of Dr. Frederick Grassle, director of the Rutgers Institute of Marine and Coastal Sciences, "it has a minute but measurable impact on the deep-sea ecosystem." However, Dr. Grassle also said that health risks from the dumping appeared to be minimal — primarily because the ocean rapidly diluted the waste below dangerous concentrations.

Some researchers have proposed the nearly lifeless plains at the bottom of the oceans as a relatively inexpensive, and safe, disposal site for sludge. They argue that at the deepest levels of the sea — several hundred miles away from any coastline and under nearly 16,000 feet of water — the sludge will rest undisturbed and harmless.

Short-Sighted Proposal?

However, many environmentalists and some scientists view the research proposals for deep-sea burial of sludge as short-sighted.

"It will take 10 seconds of logic and $10 million to prove that this too will have adverse effects on the environment," said Dr. Elliott A. Norse, a marine ecologist who is chief scientist for the Center for Marine Conservation.

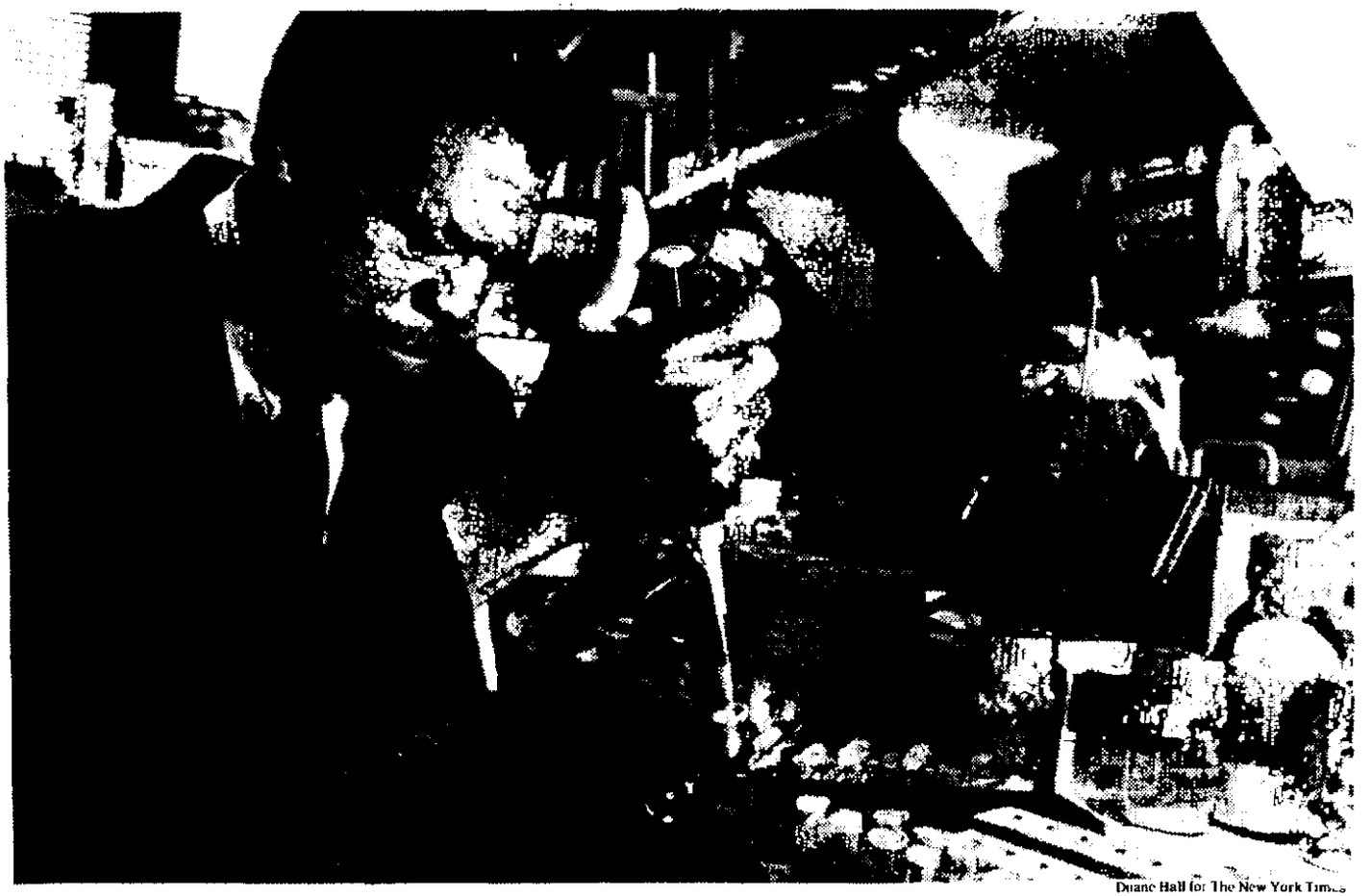
But John Edmond, professor of chemical oceanography at the Massachusetts Institute of Technology, said, "There are going to be impacts on our society of anything we throw away. That includes ocean dumping. But there is a real crisis in land disposal of our waste, and we have acted to ban even the consideration of ocean dumping.

"Even if we don't use the upper ocean — and perhaps we should not — we should think about the sea floor. But people are so emotional about these issues that they can hardly see or think straight."

Next: The problems with laboratory testing.

Using Lab Animals to Make Environmental Rules:

Are Data Good Enough?



Duane Hall for The New York Times

The use of rodents as a diagnostic tool for identifying health hazards is being met with growing skepticism because of evidence that chemicals frequently have wholly different effects in animals than in humans. Dr. Kenneth Olden, director of the National Institute of Environmental Health Sciences, reviewed tests in his laboratory in Research Triangle Park, N.C.

The New York Times

NEW YORK, MONDAY, MARCH 22, 1993

Sea-Dumping Ban: Good Politics, But Not Necessarily Good Policy

What Price Cleanup?

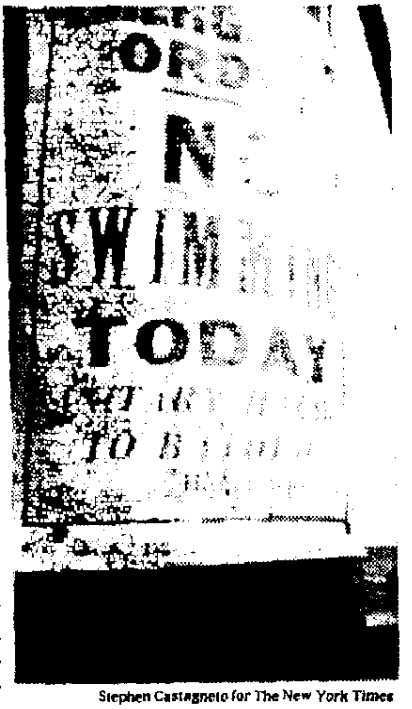
Second article of a series.

By MICHAEL SPECTER

For millions of people from Montauk to Maryland, the broiling summer of 1988 will be hard to forget. It was the hottest year ever recorded. Repulsive trash slicks covered the Eastern shoreline. And borne upon a tide of public outrage, garbage emerged as a potent political issue.

In New York and New Jersey, where most of the waste appeared, health officials closed beaches by the score, depriving sweltering people of relief. Pictures of used syringes, dead dolphins and human excrement scattered across the sand became a staple of the news.

Anger required action. So without registering a single vote of opposition, Congress that fall banned the dumping of sewage into the ocean. The law prohibited New York City from dropping its processed waste into the sea and forced officials to find costly new ways to get rid of it.



Stephen Castagneto for The New York Times

The Rush to Ban

"This is a turning point in human history," said a euphoric Representative William J. Hughes, Democrat of New Jersey, after the vote. Other officials agreed, rushing to embrace the law as one of the most important environmental measures ever enacted.

There was just one problem.

Ocean dumping had absolutely nothing to do with the garbage that washed up on the sand that year. In fact, the problems that caused the mess on the beaches in 1988 — overtaxed sewage systems — were largely ignored, and the health risks they present are as serious as they have ever been.

Most scientists agree that using the sea as a garbage can was unpleasant and are pleased that it is no longer legal. But some argue that dumping sewage in the Atlantic Ocean 106 miles from the shore — which saved New York and other cities billions of dollars over the years — is less hazardous than most of the disposal methods that have replaced it.

But Congressional leaders, relying almost solely on the summer's vivid images of filth, pushed through a ban on ocean dumping. As Senator John H. Chafee, Republican of Rhode Island, put it immediately after the vote: "It is unfortunate that it takes a situation like we have today with medical waste washing up on our beaches, to capture the attention of the American public and of Congress. But perhaps it is a blessing in disguise, since it has resulted in our action today to put a halt to the ocean dumping of sludge."

Continued on Page B8, Column 1

Representative Thomas J. Manton, Democrat of Queens, opposed the act at first, saying it would simply shift waste from sea to land, including land in his own district. But looking back to that time, he recalled: "Nobody wanted to discuss the relative risks or the merits. It had been a bad summer, and we all wanted to be able to say we did something. So we passed a law. I tried to have a debate. And it was like I was trying to destroy the planet."

Because of the Ocean Dumping Act, New York City spent $2 billion on giant plants that turn processed sewage into fertilizer. The city plans to spend at least $300 million a year over the next decade to dispose of its sludge in this way and in others — many times more than it would cost to dump it in the ocean.

Better Ways to Spend

But even some of the ban's most enthusiastic proponents at major environmental organizations, none of whom would be quoted by name, concede that the money might have been better spent on other problems, like fixing the extensive system of storm sewers that caused the waste to wash up on the beaches in the first place.

Indeed, the ocean dumping ban is a striking triumph of environmental politics over science, a clear demonstration of how environmental policy can often be directed by symbols and fears than by reasoned discussion of benefit and risk.

In 1988, and still today, the real problem came from New York's aged, 6,200-mile network of sewer pipes that mix household waste with rainwater. Normally, it is all treated together. But during storms, sewage treatment plants are quickly overwhelmed, and sewer pipes carry millions of gallons of raw waste directly to the rivers and harbors surrounding the city.

In fact, in the summers since the ban on ocean dumping took effect, officials have closed beaches more often than they did before 1988.

"There is no question that the New York City sewer system is the greatest cause of water pollution in the region; that has almost always been true," said Howard Golub, acting director and chief engineer of the Interstate Sanitary Commission, a regional regulatory agency that for 20 years has been trying in vain to convince people to pay attention to the problem.

"But a sewer system isn't sexy," he added. "It's expensive to fix, and nobody wants to hear about it. So people focused on what they understand — and they understand that sewage and the sea don't seem nice together."

The Real Problem

Wallflower at a Political Dance

Modern sewerage usually consists of two systems: storm sewers that carry off excess rainwater, and sanitary sewers that handle sewage that needs treatment. But older, combined systems, like New York City's, serve almost 20 percent of the nation's population, about 50 million people living in the America's oldest cities. For decades they have been the major cause of beach closings and dangerous levels of bacteria in coastal waters. They generally work well enough in normal times; sewage and ordinary storm drainage are treated together and then discharged.

During a heavy storm, however, so much water washes into the combined system that it is overwhelmed. The treatment centers cannot handle the load and everything — storm water and sewage — floods untreated out the pipe.

To solve the sewer problem, New York would have to build enormous subterranean tanks to hold waste water during heavy downpours, and the city Department of Environmental Protection says that could cost several billion dollars. Without them, many beaches in the area will continue to be closed after particularly heavy storms. Every time more than three-quarters of an inch of rain falls, 500 million gallons of mixed sewage pours into area rivers and harbors, the city says.

A report by the State University of New York estimated that sewage overflows cost New York and New Jersey $3 billion to $7 billion in lost jobs, lost fishing days and forfeited economic opportunities in the previous decade.

That report was published in 1988, just as the sewers were flushing syringes and other trash from streets and gutters onto the beaches. Still, almost nobody seriously questioned the need for an immediate ocean dumping ban.

'Congress Acted on Emotion'

As Alan Rubin, a senior Environmental Protection Agency official in charge of determining the risks of disposing of sewage sludge, put it in a recent interview: "By 1988, ocean dumping had become taboo, about as politically incorrect as any disposal of waste can be. Maybe it was a good thing that happened. Maybe not. But it was not decided on the merits. Congress acted on emotion, not on data."

Those who supported the ban now argue that two rights cannot make a wrong. They say that ocean dumping needed to stop and that bills get passed when they can, not always when they make the most sense.

"You take care of emergencies first in life and in politics," said Senator Frank R. Lautenberg, the New Jersey Democrat who was a leader in the fight to end ocean dumping.

Senator Lautenberg agreed that sewage overflows pose a serious health risk, but he added: "Sludge dumping was the equivalent of a fire we could put out. Just because you have earthquakes on the horizon doesn't mean you should let the fire rage."

Mr. Lautenberg asserted that it was not as clear in 1988 as it is today that storm sewers, not ocean dumping, were to blame for most of the trash that appeared on the beaches. But he did agree that the barges heading out to sea provided an image that was too useful to ignore.

"There is simply a point when you have to look at the broader picture," he said. "When we passed the law, it was at the height of a couple of ugly seasons. The waste may not have been a direct result of the ocean dumping, but it did alert people to the fact that we need to stop pouring garbage into the ocean."

Unsavory Practice

Where to Put A City's Sludge

Few people are genuinely unhappy about the demise of a practice in which 1.5 billion gallons of distilled sewage sludge was dumped each day 106 miles off the coast of New Jersey. Even those who say it makes sense to consider using the deep sea to store dangerous wastes acknowledge that the sludge was beginning to find its way into the food chain on the ocean floor.

And while most industrial waste, heavy metals and dangerous contaminants were removed from the sludge before it was dumped in the ocean, it was never possible to extract all the poisons found in a huge sewage system.

For decades, New York dropped its sludge only 12 miles off the coast — turning vast aquatic reaches into home to nothing but slime. Environmentalists fought for years to end ocean dumping. As a compromise, the Federal Government decided to permit New York and several neighboring cities to shift its dumping to the edge of the continental shelf, where E.P.A. officials said it would do no harm.

But even at 106 miles, where there is no scientific proof that waste disposal causes illness in humans, ocean dumping of waste has proven to be less than ideal. Although researchers first thought sludge dumped there would never reach the bottom of the ocean, scientists now know that some of it does. And when it gets there, it is eaten by animals that are eventually eaten by man.

Troubles Elsewhere

But scientists argue that it may be just as troublesome to dump the sludge anywhere else. Sludge in landfills can seep into ground water. Even beneficial uses, like turning sewage to fertilizer, costs millions in processing and shipping.

Whatever the ancillary benefits the ocean dumping ban may have offered, it also cost New York a great deal of money. And many officials now say that money could have been put to far better use by trying to resolve the more complicated — and pressing — dilemma caused by combined sewer overflows.

"Am I sad that we no longer dump sludge in the Atlantic Ocean? Absolutely not," said Albert F. Appleton, commissioner of New York City's Department of Environmental Protection. He has made clean water a major focus of his tenure. "In a perfect world we simply wouldn't dump our waste at sea. But is that how I would have spent our next $2 billion? Never in a million years."

Other Solutions

A Victory Draws Questions

Tough new laws passed since the mess of 1988 govern the disposal of medical waste. So syringes and intravenous bags no longer show up on beaches with much frequency. And Coast Guard boats now skim coastal waters for other visible debris. But the levels of microscopic organisms that the E.P.A. considers harmful to humans and fish — the real problem — are no less serious than they have ever been.

"When environmentalists see a problem they tend to say, 'Let's have a total solution,' " Mr. Appleton said. "They don't say, 'How much bang can we get for our buck?' They don't say, 'Where is the garbage going to go if it isn't in the ocean?' "

Mr. Appleton certainly considers himself an environmentalist. But he and many others like him say the movement risks its credibility by placing so much emphasis on crowd-pleasing maneuvers like the ban on ocean dumping.

Nina Sankovitch, a senior project lawyer at the Natural Resources Defense Council who worked for the ocean dumping ban, countered: "Environmentalists have a huge agenda. Is dumping sludge worse than burning garbage? Is money spent on recycling better than money spent on clean water? There aren't answers to those questions. So when we have the opportunity to improve the environment we go for it. And the Ocean Dumping Ban Act was a great opportunity."

Ms. Sankovitch says she now focuses much of her attention on the problem of combined sewers. But she said she sees nothing wrong with using the images of 1988 to help ban dumping — even though the two problems were not connected.

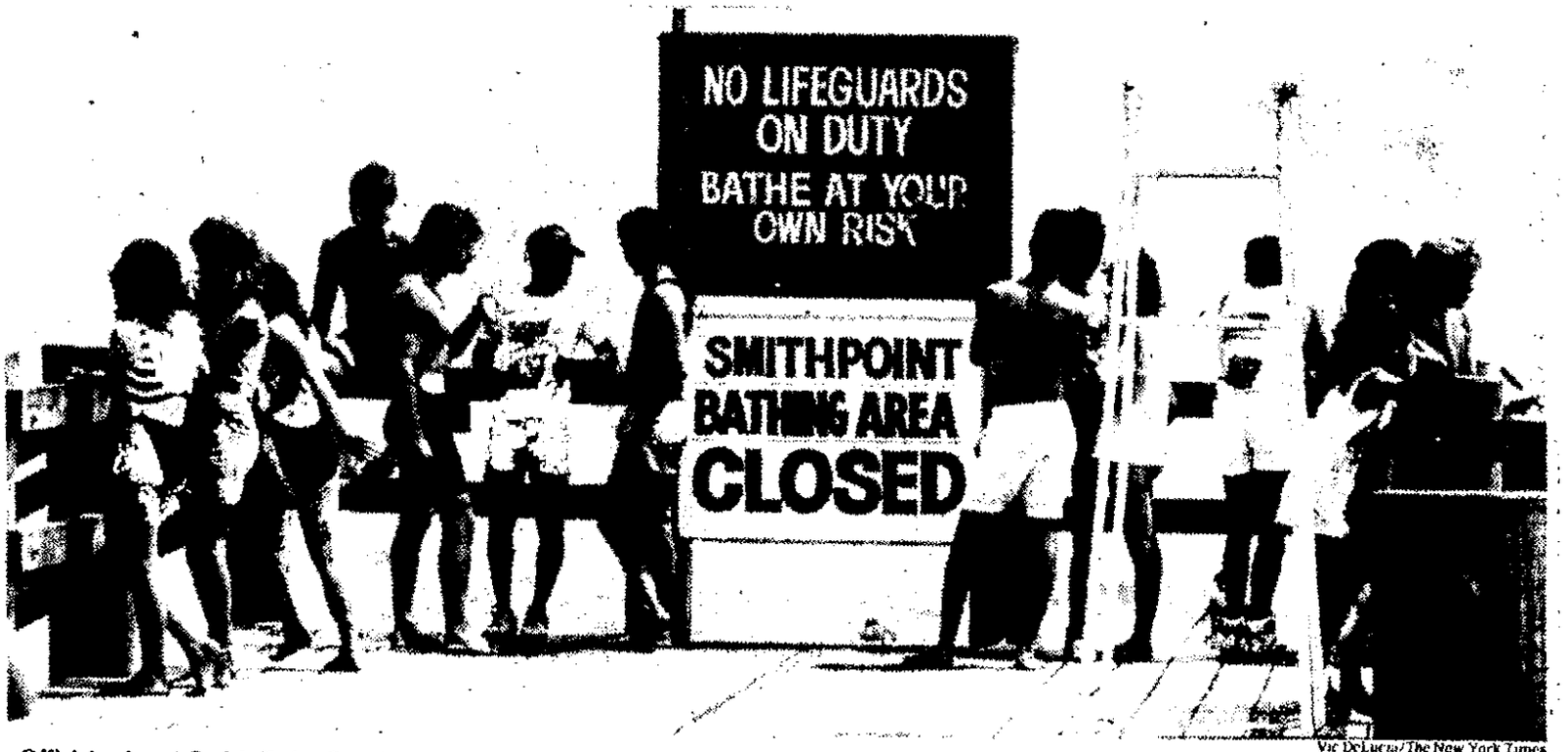
Sea-Dumping Ban: Politics Produced a Disputed Policy

Continued From Page A1

Larry C. Morris/The New York Times

Don Hogan Charles/The New York Times

Workers cleaned up sewage in May 1987, top, at the Island Beach State Park in Berkeley, N.J. Raw sewage, above, entered the Hudson River in June 1984 from a pipe on 125th Street in Manhattan.



Vic DeLucia/The New York Times

Officials closed Smith Point Beach on Fire Island in July 1988 after syringes and needles were found in the water.

How a Rebellion Over Environmental Rules Grew From a Patch of Weeds

The New York Times
3-24-93

By KEITH SCHNEIDER
Special to The New York Times

COLUMBUS, Ohio — This city didn't want to pave paradise for a parking lot. It just wanted to cover a patch of weeds and mud behind the Short Street garage, where the city maintains its fleet of police cruisers and garbage trucks.

But two years ago, city engineers here in Ohio's capital discovered traces of chemicals in the dirt and learned that the Federal hazardous-waste law might require a $2 million cleanup before the first ounce of pavement could be laid. Right then, a forgettable little stretch of urban America became the focus of anger and exasperation so profound that it started a national campaign among cities and states.

After the city issued a report on its problems, all of a sudden Columbus's leaders were joined by hundreds of city officials, state leaders and many private homeowners across the country as they advocate a cause that until now big business has been arguing most forcefully: that many of the nation's environmental regulations bring enormous expense for little real benefit.

Although independent safety specialists said the chemical concentrations were too small to cause any harm, Federal law defined several of the compounds as hazardous and required that they be removed, if detectable in the soil at all.

What the Law Demanded

In effect, the law required the city to take these expensive steps:

¶Dig up 6.4 million pounds of dirt containing no more than a few pounds of toxic chemicals from a patch of ground no larger than a baseball diamond.

¶Ship that dirt 1,500 miles south to Texas to be burned in an incinerator.

¶Install detection equipment to monitor the air for up to 25 years for traces of any contaminants that might remain.

All this, the engineers asked, to expand a parking lot?

They called a meeting at City Hall, and that led to the first major study to identify the cost of complying with Federal environmental regulations. When it was completed, the study showed that environmental costs were about to swamp Columbus in red ink — or generate a taxpayer revolt.

Now nearly 1,000 other cities have asked to see the report. And prompted by the Columbus study, the National League of Cities has made updating the nation's environmental laws — and through that reducing costs — one of its top five political priorities in Washington.

In January, mayors from 114 cities in 49 states opened the campaign by sending President Clinton a letter urging the White House to focus on how environmental policy-making had, in their view, gone awry.

"Not only do we sometimes pay too much to solve environmental problems, we've been known to confront the wrong problems for the wrong reasons with the wrong technology," the mayors said.

During the Bush Administration, William K. Reilly, the Administrator of the Environmental Protection Agency, offered public support for this campaign and even began offering grants to states that wanted to re-evaluate their environmental priorities.

With that money, Michigan and Vermont were among the first to appoint panels of citizens and scientists to examine environmental policy. In published reports, both state's panels concluded that the largest sums of money were being spent on the least threatening environmental problems, like exposure to toxic and radioactive wastes. In the view of these state panels, more important environmental issues, like damage to farmland and forests, were being largely ignored.

"We're really just about at the end of the reductions in risk that you can achieve by the conventional approach, which is to crank down on the pollution coming out of the end of the pipe," said Dr. William Cooper, an ecologist at Michigan State University who helped lead his state's study. "Now we're into more subtle issues. How clean do we really want our environment? How much are we really willing to pay for it?"

The Seeds

Benefits Are Vague As Policy Shifts

The seeds of this grass-roots push lay in the Federal Government's shift in focus over the last 15 years from promoting broad environmental goals (purifying the air, cleansing the water) to regulating specific toxic substances: dioxin, asbestos and dozens of other compounds found at trace levels in drinking water, chemical-waste sites and the like.

Controlling the kind of pollution that poured out of automobile tailpipes or factory smokestacks, and stopping waste discharges into rivers and streams, showed clear social benefits. And so public acceptance usually came easily.

But the improvements in health or environmental safety from the more recent efforts have been less obvious. Scientists continue to debate how dangerous dioxin may really be. An industrial byproduct, dioxin was once considered the most toxic substance known to man. Reducing dioxin levels to the Federal standard — less than 13 parts per quintillion in drinking water, the equivalent of a single drop in Lake Michigan — is difficult and terribly expensive, even though no one really knows what, if any, benefits result.

More than 10 years ago, the Federal Government adopted the view that when there is any doubt, it is better to take the prudent approach than do nothing. But a decade later, the economic costs of this policy are painfully clear while the benefits remain largely unmeasurable.

Last year, home owners, farmers, miners and timber industry workers roared into Washington and brought to a standstill Congressional efforts to reauthorize the Endangered Species Act and the Clean Water Act, two of the laws that form the foundation of American environmental policy. President Bush focused on this theme during his re-election campaign, largely siding with these protesters.

This year, city and state leaders have joined in a campaign to write into environmental statutes a provision requiring the Federal Government to evaluate scientific evidence and the cost to communities before issuing any new environmental directives.

Leaders of the major environmental groups are fighting this idea. They argue that it would set a level of proof so difficult to meet that the Government could not write new regulations until people started dying.

But backers of the provision assert that unless changes are made, public support for environmental protections will crumble as costs continue to rise.

Regulation and the Price per Life

Two years ago, the Office of Mangement and Budget tried to estimate the cost of certain environmental and safety regulations by dividing the cost of enforcing each rule by the number of lives it appeared to save. The estimate is highly subjective since it is virtually impossible to know how many lives might have been lost without a certain rule. In addition, the analysis did not account for non-fatal injuries. But this cost-benefit analysis did demonstrate the Bush Administration's attitudes toward the laws it was enforcing.

Now, state and local governments are distributing this analysis widely to support their criticism of national environmental policy. Here is a partial list of regulations.

Regulation	Cost Per Premature Death Averted in Millions of Dollars
Ban on unvented space heaters	$ 0.1
Aircraft cabin fire-protection standards	0.1
Auto passive restraint/seat belt standards	0.1
Trihalomethane drinking water standards	0.2
Aircraft floor emergency lighting standard	0.6
Concrete and masonry construction standards	0.6
Ban on flammable children's sleepwear	0.8
Grain dust explosion-prevention standards	2.8
Rear seat auto lap/shoulder belts	3.2
Ethylene debromide drinking-water standard	5.7
Asbestos exposure limit for workers	8.3
Benzene exposure limit for workers	8.9
Standards for electrical equipment in coal mines	9.2
Arsenic emission standards for glass plants	13.5
Ethylene oxide exposure limit for workers	20.5
Hazardous-waste listing for petroleum-refining sludge	27.6
Acrylonitrile exposure limit for workers	51.5
Asbestos exposure limit for workers	74.9
Arsenic exposure limit for workers	106.9
Asbestos ban	110.7
1,2-Dichloropropane limits in drinking water	653.0
Hazardous waste land-disposal ban	4,190.4
Formaldehyde exposure limit for workers	82,201.8
Standard for atrazine/alachlor in drinking water	92,069.7
Hazardous waste listing for wood preserving chemicals	5,700,000.0

Source: Office of Management and Budget, 1991

The Anger

Counting the Costs In a City Hall

It was precisely this issue of cost that prompted the Columbus engineers to call a meeting in January 1991. One participant, Michael J. Pompili, who was in charge of the Columbus Health Department's environmental-health division, had on his own been quietly studying how much the city would have to pay to comply with a new wave of rules coming out of Washington. These were intended to prevent public exposure to minute levels of chemicals in air and water.

"The guys were talking about spending all that money for nothing at the Short Street garage," he said in an interview. "They were complaining about the $2 million. And I said, the issue isn't $2 million. It's a lot more than that. I told them my guys had identified millions more in costs citywide to meet Federal environmental requirements, and where were we going to get the money to meet those mandates?"

Columbus's Mayor at the time, Dana Buck Rinehart, a Republican, promptly named Mr. Pompili chairman of the city team that published

the environmental study in May 1991. The report said that to meet dozens of Federal environmental requirements, Columbus faced $1.3 billion to $1.6 billion in new expenses from 1991 through the end of the decade, depending on the inflation rate. Virtually all of that money was to come from the Columbus city treasury.

Of the $591 million 1991 city budget, $62 million, or 11 percent, was devoted to environmental protections. That year, the average Columbus household paid $160 for that purpose.

The study said that by the end of the decade, if every Federal requirement were met, Columbus's environmental budget would more than triple, to $218 million, or roughly 27 percent of the city's $810 million budget projected for the year 2000. The cost to a household for environmental protection would be $856 that year — more than the cost of fire or police protection.

"When we came up with these kinds of costs, we also looked for the justification and just couldn't find much there," Mr. Pompili said. "I had to wonder, Am I out of touch? I have worked all my life to protect people from environmental harm. Am I looking at these issues in the wrong way?"

Now, he said, "I no longer ask those questions because I'm convinced that we are doing the right thing."

Mr. Pompili said he wants clean air and water as much as anyone else ("This city will not survive without a clean environment"), but he added: "What bothers me is that the new rules coming out of Washington are taking money from decent programs and making me waste them on less important problems. It kills you as a city official to see this kind of money being spent for nothing."

The Revolt

Battling Radon: Changing Targets

Officials in many other cities feel the same way. Late last year, Hastings, Neb., began its own review of environmental costs and concluded that the single biggest drain on its treasury was the $65 million it would take to build a treatment plant to meet a proposed E.P.A. rule for removing radon from the city's water.

Radon is a radioactive gas formed naturally when radium decays in rocks and soil. It is frequently found at trace levels in water pumped from the ground. Before the E.P.A. proposal, made under authority of the Safe Drinking Water Act, almost no public-health specialist had considered radon in drinking water to be any sort of threat. And for years Hastings had been boasting that its water supply was so clean that it could be pumped from an underground aquifer directly into the homes of 23,000 residents.

Last year, however, the E.P.A. said Hastings did have a problem with its water: Radon levels exceeded the proposed safety limit. But critics of the proposal, including some agency officials, said the E.P.A.'s decision to tackle the radon issue was an inglorious lesson in the dangers of using weak scientific assumptions to write an expensive new regulation, even while many experts found the idea absurd.

Many studies of radon have shown that it is harmful only if inhaled at high levels over a long period. Almost 30 years ago, the Government did confirm that uranium miners in the West contracted lung cancer after years of working in the mines, where they were exposed to some of the highest levels of radon ever recorded. Among those who died, though, it was also true that many were heavy smokers.

Then, during the 1980's, the E.P.A. found significant levels of radon in 10 percent of the homes they surveyed across the country. That led the E.P.A. to call radon the most serious environmental public health threat the nation faced. It was a menace so great, the agency said, that radon was probably causing up to 20,000 cases of lung cancer a year.

That estimate has come under intense criticism from many radiation-health specialists, who have called it unscientific and wildly exaggerated.

Going After the Water

But the E.P.A. ignored the criticism and set an unofficial guideline for the amount of radon it considered safe in homes. The agency has been reluctant to make the limit legally enforceable because of the backlash that some E.P.A. officials feared from homeowners. Hundreds of thousands would have been required to spend thousands of dollars on ventilation equipment to clear radon from basements.

Since the agency was unwilling to regulate the air in private homes, E.P.A. scientists and technical experts chose to defend their assessment that radon was a menace by taking action against the only other source in homes: tap water. So the E.P.A. proposed a legally enforceable limit on radon in water.

Scientists who have looked at the issue said the threat to health from radon in water, if there is one at all, can come only from inhaling radon that evaporates, particularly during showering. In other words, the Government was trying to prevent someone from getting lung cancer from their morning showers.

Independent radiation-health experts said that in virtually every area of the United States, the amount of radon that evaporates from water is only one-thirtieth to one one-hundredth of what is already naturally in the air. These experts said the regulation does nothing to protect health. "It's a silly thing that E.P.A. is proposing because radon in water is an insignificant public health hazard," said Dr. Ralph E. Lapp, a radiation physicist in Alexandria, Va., and author of 22 books on radiation and public health.

If the regulation becomes final, the cost to install filtering equipment in public water systems in the United States would be $10 billion to $20 billion, according to estimates made by several states. The Association of California Water Agencies recently estimated that the cost in California would approach $4 billion.

"How do we explain to our residents the need for a regulation that costs as much as this one will and doesn't provide any public-health benefits?" asked Dr. Adi Pour, the toxicologist for the Nebraska Department of Health. "If this kind of rule-making continues, it's going to hurt public confidence in environmental protection."

The protests prompted Congress last year to pass legislation sponsored by Senator John H. Chafee, Republican of Rhode Island, that prevented the E.P.A. from making the radon rule final until the agency looked at the benefits and costs again. When asked about the rule, Martha G. Prothro, the acting Assistant Administrator for Water at the E.P.A., acknowledged: "We may have gone further than we need to in human health concerns. It's appropriate to go back and look at this proposal."

So for now, Hastings, Neb., has been given a reprieve.

Back in Columbus

As for that parking lot in Columbus, City engineers are still working on the problem. One idea they proposed was to dig up the dirt, turn it over and allow the chemicals to evaporate.

But the state said Federal law forbade that. The engineers then proposed inserting pipes beneath the ground, pumping air to the surface and trapping and filtering chemicals that are released. The state environmental agency is considering that idea. The estimated cost: $250,000 to $500,000.

The New York Times

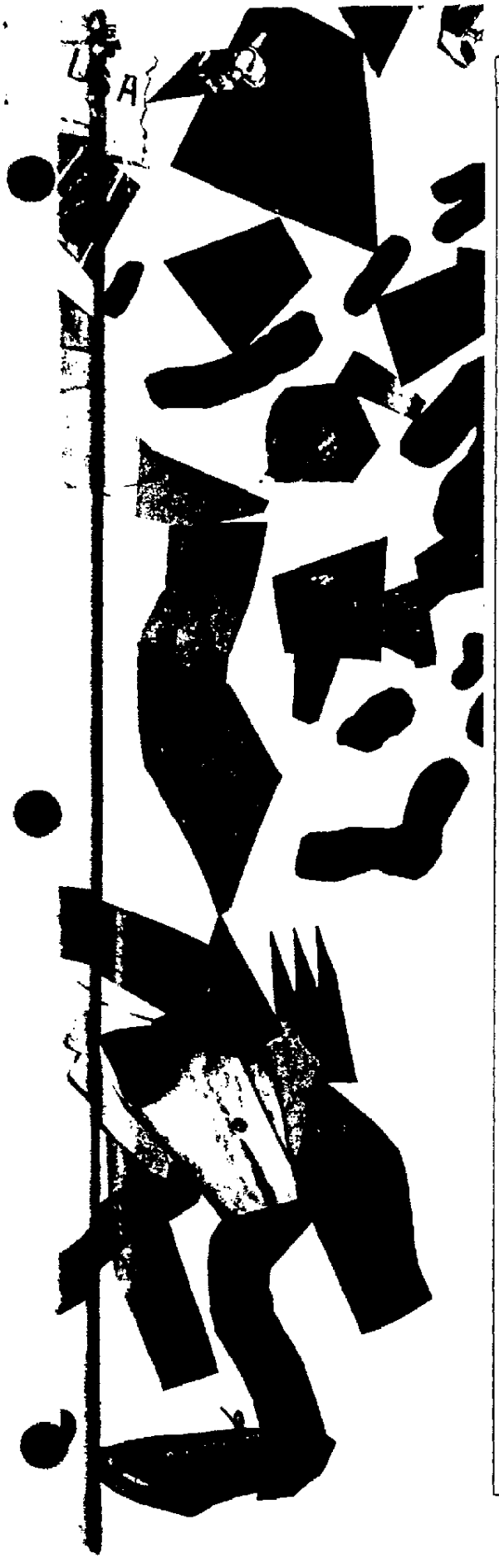
3-24-93

TIME
AUGUST 26, 1991
WEST END

...e Have Too Many Lawyers?

Science Under Siege

Tight money, blunders and scandal plague America's researchers



COVER STORIES

Crisis in The Labs

Beset by a budget squeeze, cases of fraud, relentless activists and a skeptical public, American researchers are under siege

By LEON JAROFF

Without scientific progress the national health would deteriorate; without scientific progress we could not hope for improvement in our standard of living or for an increased number of jobs for our citizens; and without scientific progress we could not have maintained our liberties against tyranny.

—Vannevar Bush, presidential science adviser in *Science: The Endless Frontier*, 1945

It was the glory of America. In the decades following World War II, U.S. science reigned supreme, earning the envy of the world with one stunning triumph after another. Fostered by the largesse of a government swayed by Vannevar Bush's paean to science, it harnessed the power of the atom, conquered polio and discovered the earth's radiation belt. It created the laser, the transistor, the microchip and the electronic computer, broke the genetic code and conjured up the miracle of recombinant DNA technology. It described the fundamental nature of matter, solved the mystery of the quasars and designed the robot craft that explored distant planets with spectacular success. And, as promised, it landed a man on the moon.

Now a sea change is occurring, and it does not bode well for researchers—or for the U.S. While American science remains productive and still excels in many areas, its exalted and almost pristine image is beginning to tarnish.

European and, to a lesser extent, Japanese scientists have begun to surpass their American counterparts. In the U.S. the scientific community is beset by a budget squeeze and bureaucratic demands, internal squabbling, harassment by activists, embarrassing cases of fraud and failure, and the growing alienation of Congress and the public. In the last decade of the 20th century, U.S. science, once unassailable, finds itself in a virtual state of siege.

"The science community is demoralized, and its moans are frightening off the young," says Dr. Bernadine Healy, director of the National Institutes of Health (NIH). "You have never seen such a depressed collection of people," says Stephen Berry, a University of Chicago chemist. "It's the worst atmosphere in the scientific community since I began my career more than 30 years ago."

In public perception, at least, that atmosphere has been fouled by a multitude of headline-grabbing incidents:

▶ The federal researcher at whose urging Times Beach, Mo., was permanently evacuated in 1982 because of a dioxin scare has conceded that the draconian action was a mistake and that newer data suggest dioxin is far less toxic than previously believed. While some environmental scientists dispute the conclusion, the Environmental Protection Agency has launched a review of its strict dioxin standards, leaving the public confused about what to believe.

▶ In space, the inexcusable myopia of the $1.5 billion Hubble telescope, the balky antenna that endangers the $1.3 billion Galileo mission to Jupiter, and even the *Challenger* disaster and the shuttle's subsequent troubles gave space science a bad name—notwithstanding the fact that the failures resulted not from scientific errors but largely from managerial blunders and budgetary constraints.

▶ The circus atmosphere that accompanied last year's announcement that cold fusion had been achieved, the subsequent debate among scientists and the eventual widespread rejection of the claim evoked public

exasperation and ridicule in the press.

▶Nobel laureate David Baltimore's stubborn refusal to concede that data reported by a former M.I.T. colleague in an immunology paper Baltimore had co-signed was fraudulent, and the shoddy treatment of the whistle blower who spotted the fraud aroused public suspicion about scientific integrity. Worse, from the viewpoint of scientists, it brought about an investigation by Michigan Democrat John Dingell's House subcommittee and fears of more federal supervision of science. By the time Baltimore finally apologized for his role in the affair, the damage to science's image had been done.

▶Another Dingell probe, which revealed that Stanford University had charged some strange items to overhead expenses funded by federal science grants, mortified university president Donald Kennedy, led to his resignation and raised questions about misuse of funds at other universities. "I challenge you to tell me," said Dingell, "how fruitwood commodes, chauffeurs for the university president's wife, housing for dead university officials, retreats in Lake Tahoe and flowers for the president's house are supportive of science."

▶A long-running and unseemly dispute between Dr. Luc Montagnier of the Pasteur Institute in Paris and Dr. Robert Gallo of the NIH over who had first identified the AIDS virus raised public doubts about the motives and credibility of scientists. Those concerns remained when Gallo conceded that through inadvertent contamination, the virus he identified had been isolated from a sample sent him by the Frenchman. Last week the journal *Science* revealed that a draft of a forthcoming NIH report about the affair criticizes Gallo and accuses one of his colleagues of scientific misconduct.

▶Bowing to the demands of pro-lifers, the Bush Administration continued a ban on federal funding for fetal-cell transplants, despite the fact that the use of such tissue has shown promising results in treating Parkinson's disease and other disorders. Frustrated U.S. researchers watched helplessly as their European counterparts moved ahead on medical applications of fetal tissue.

▶In several raids on research laboratories, animal-rights activists destroyed equipment and "liberated" test animals, setting back experiments designed to improve medical treatment for humans. Activists using legal means, such as picketing and newspaper ads, successfully brought pressure on some laboratories to improve treatment of test animals. But others campaigned to halt virtually all animal experimentation, a ban that would cripple medical research. All told, the animals-rights movement has led to a false public perception that medical researchers are generally callous in their treatment of test animals or at least indifferent to their welfare.

▶Although gadfly activist Jeremy Rifkin failed in a legal attempt to delay the first human-gene-therapy experiment last year, he skillfully used the courts to set back by months, and even years, other scientific trials involving genetically engineered organisms or substances. His success in obstructing genetic experiments came despite the fact that in every case, his warnings of dire consequences proved to be unfounded. Favorable coverage of his views in some newspapers and on TV heightened public misgivings about genetic research.

A STRING OF BLUNDERS

To many researchers, however, the single greatest threat to U.S. science, and a source of many of its troubles, is money—or a lack of it. That view came into sharp focus in January when Nobel laureate physicist Leon Lederman, the newly elected president of the prestigious American Association for the Advancement of Science, issued what he called his "cry of alarm."

Lederman, former head of Fermilab, the high-energy physics center in Illinois, had conducted a survey of research scientists in 50 universities. Most of the nearly 250 responses, he reported, came from demoralized and underfunded researchers who foresaw only a bleak future for their disciplines and their jobs. "I haven't seen anything like this in my 40 years in science," Lederman said. "Research, at least the research carried out in universities, is in very serious trouble." And that, he warned, "raises serious questions about the very future of science in the U.S."

By Lederman's calculations, if inflation is taken into account, federal funding in 1990 for both basic and applied scientific research in universities was only 20% higher than in 1968, while the number of Ph.D.-level scientists working at the schools doubled during the same time period. In other words, twice as many researchers are scrambling for smaller pieces of a slightly bigger pie. The competition for financing has forced scientists into fund-raising efforts at the expense of research and has led to angry exchanges over what kind of work should have priority. It has also forced researchers to propose "safe" projects with an obvious end product.

Those restraints are clearly detrimental to the bold and innovative research that has made American science great. Lederman's solution: "We should be spendin twice as much as we did in 1968."

For his alarm, and especially for h proposed cure, Lederman was not immed ately overwhelmed by acclaim—eithe from fellow scientists or from Congres The Bush Administration had already re quested a generous increase in the scienc budget, critics noted. Lederman's call for doubling of financial support at a time o severe budgetary restraint, they charged made scientists seem petty and self-servin and suggested that they are out of touc with the country's political realities. In fact

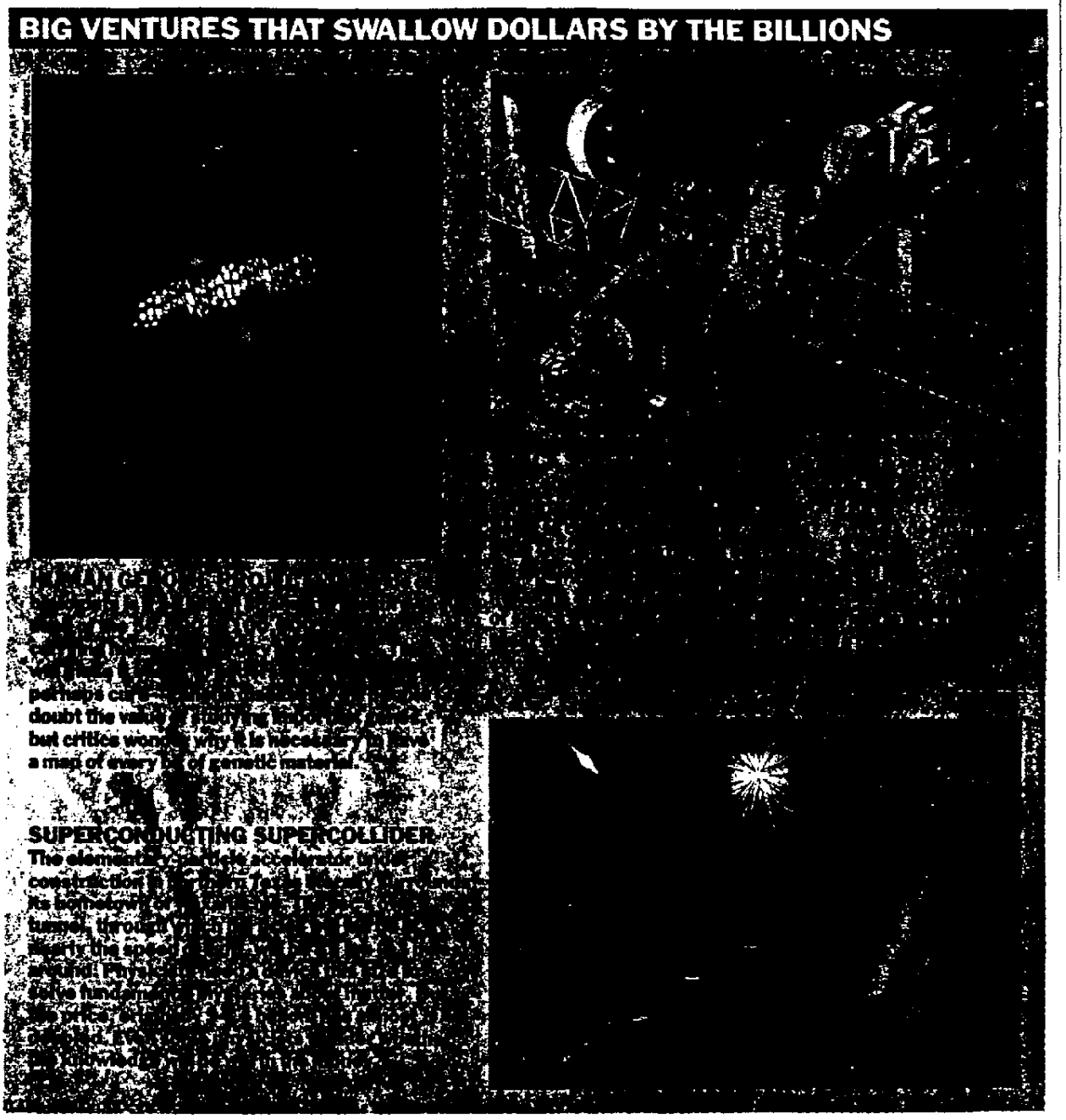
sources in space; and the Earth Observing System for weather and pollution studies.

Scientists were dismayed. Daniel Kleppner, an M.I.T. physicist, pointed out that the money spent on the space station this year will be almost as much as the total fiscal 1990 NSF budget, a major source of federal funding for all the sciences except biomedicine. Writing in *The Sciences*, the publication of the New York Academy of Sciences, he expressed his indignation: "It seems incredible that the government can spend billions on such flawed projects while allowing the world's greatest scientific institutions to decline for lack of relatively modest funds."

By one standard, at least, the troubles of American science are not that obvious at first glance: the Nobel science awards for the past few decades have been dominated by Americans. For example, 14 of the 25 Nobel Prizes for Physics between 1980 and 1990 went to Americans. But 13 of those 14 awards were for work done many years ago. Most of the Nobels for more recent research have gone to Europeans. "It appears that American science is coasting on its reputation," says Kleppner. "Today Europe is beginning to run away with the honors."

Physics is not the only discipline that is hurting. Harvard's pioneering biologist E.O. Wilson, the father of sociobiology, is concerned that the dwindling supply of federal grant money to individual scientists is changing the very nature of research. A quarter-century ago, he says, grants were far more generous, and a higher percentage of proposals got funded. "In those days," he recalls, "a young scientist could still get a grant based on a promising but partly formulated idea or fragmentary re-

BIG VENTURES THAT SWALLOW DOLLARS BY THE BILLIONS



SUPERCONDUCTING SUPER COLLIDER

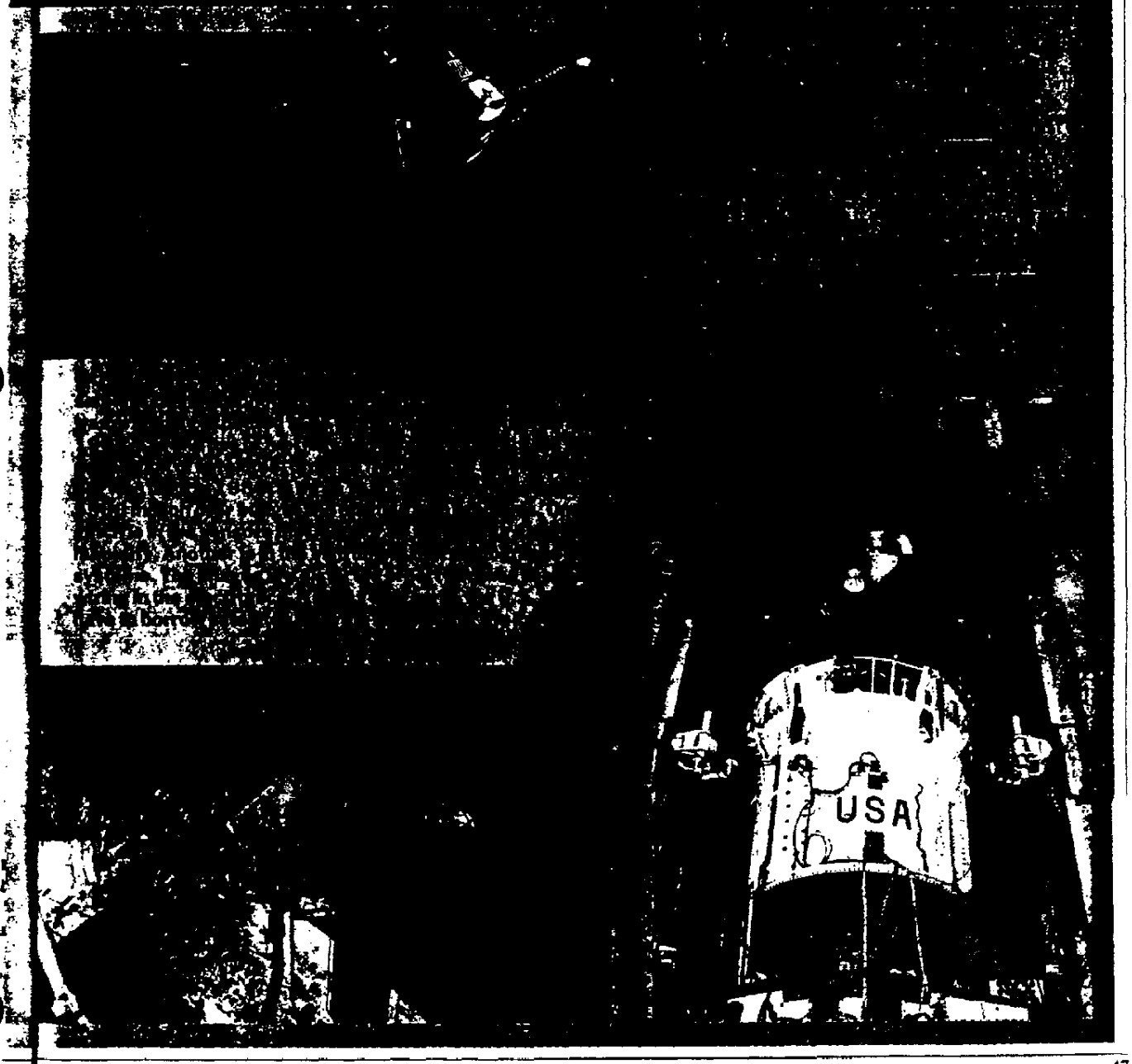
only last year congressional budgeteers agreed to limit spending growth for domestic discretionary funding, in effect making science a "zero-sum" category. This meant that increases for one scientific project, for example, might have to come out of the hide of another.

"I don't think that [Lederman's] argument was very good," says Harvey Brooks, a Harvard science-policy expert. "Scientists are having a hard time, and so are the homeless. You have to justify science because it is doing something good for society." Even Frank Press, president of the National Academy of Sciences (NAS), agrees on the need for restraint. "No nation can write a blank check for science," he says. "In a very tight deficit year, we may have to make some choices."

In June the House of Representatives made a choice, and it did not sit well with scientists. The House voted to designate $1.9 billion of NASA's fiscal 1992 budget to continued work on the proposed space station, which could eventually cost as much as $40 billion. Because of the budgetary restraints, that money may be cut from other projects supported by NASA and the National Science Foundation (NSF). And two huge science ventures are already siphoning off significant chunks of the federal budget: the Human Genome Project, a 15-year, $3 billion program to identify and map all 50,000 to 100,000 genes and determine the sequence of the 3 billion code letters in human DNA; and the superconducting supercollider, a high-energy particle accelerator to be built in Texas at an estimated cost of $8.2 billion.

Several planned NASA science projects could immediately suffer or even be eliminated because of the space-station vote. They include the Comet Rendezvous Asteroid Flyby mission, in which an unmanned spacecraft would make close approaches to Comet Kopff and an unnamed asteroid; the Advanced X-Ray Astrophysics Facility, which will investigate X-ray

FIASCOES AND TRAGEDIES IN SPACE



FRAUDS AND EMBARRASSMENTS

sult." Today, Wilson laments, there is far less interest in funding such marginal and daring proposals.

Physicist Nicholas Samios, director of Brookhaven National Laboratory on New York's Long Island, has also witnessed a negative effect among people on his staff. "When funding gets tight," he says, "people get more conservative and bureaucratic. You don't want to make mistakes. You want to make certain you do the right thing. But to have science flourish, you want people who take chances."

These days scientists often pick their fields of research with an eye to the whims of funding agencies. That was precisely what Jim Koh, a University of Michigan graduate student in human genetics, had in mind when he chose to specialize in cystic fibrosis. Research on the disorder, funded in part by the private Cystic Fibrosis Foundation, is less affected by federal budget problems than many other fields. "Fundability is a real factor in my thinking," Koh admits.

Other young scientists are not so fortunate. University jobs are hard to find, and because of tight budgets will not become more plentiful until the older professors, the majority of them hired in the bountiful, go-go 1960s, retire. When a university slot does open, hundreds of graduate students may apply for it. Industry too has little to offer newly graduated scientists. Saddled with debt and under pressure to turn out favorable quarterly reports, it has cut back on money spent for research and development.

All this is disillusioning to promising young scientists. At 34, Norman Carlin, an evolutionary biologist who has been a postdoctoral fellow at Harvard since 1986, is giving up. "Last year I decided I would go through one more year of this fruitless and humiliating attempt to get work," he says. "Well, I didn't get a single job offer from 20 universities—and I got into every law school I applied to. So I decided to go where I was wanted for a change." When he earns a law degree, Carlin hopes to specialize in environmental law. "I had tremendous fun doing science," he says, "and I'm bitterly sorry I won't be able to do it anymore."

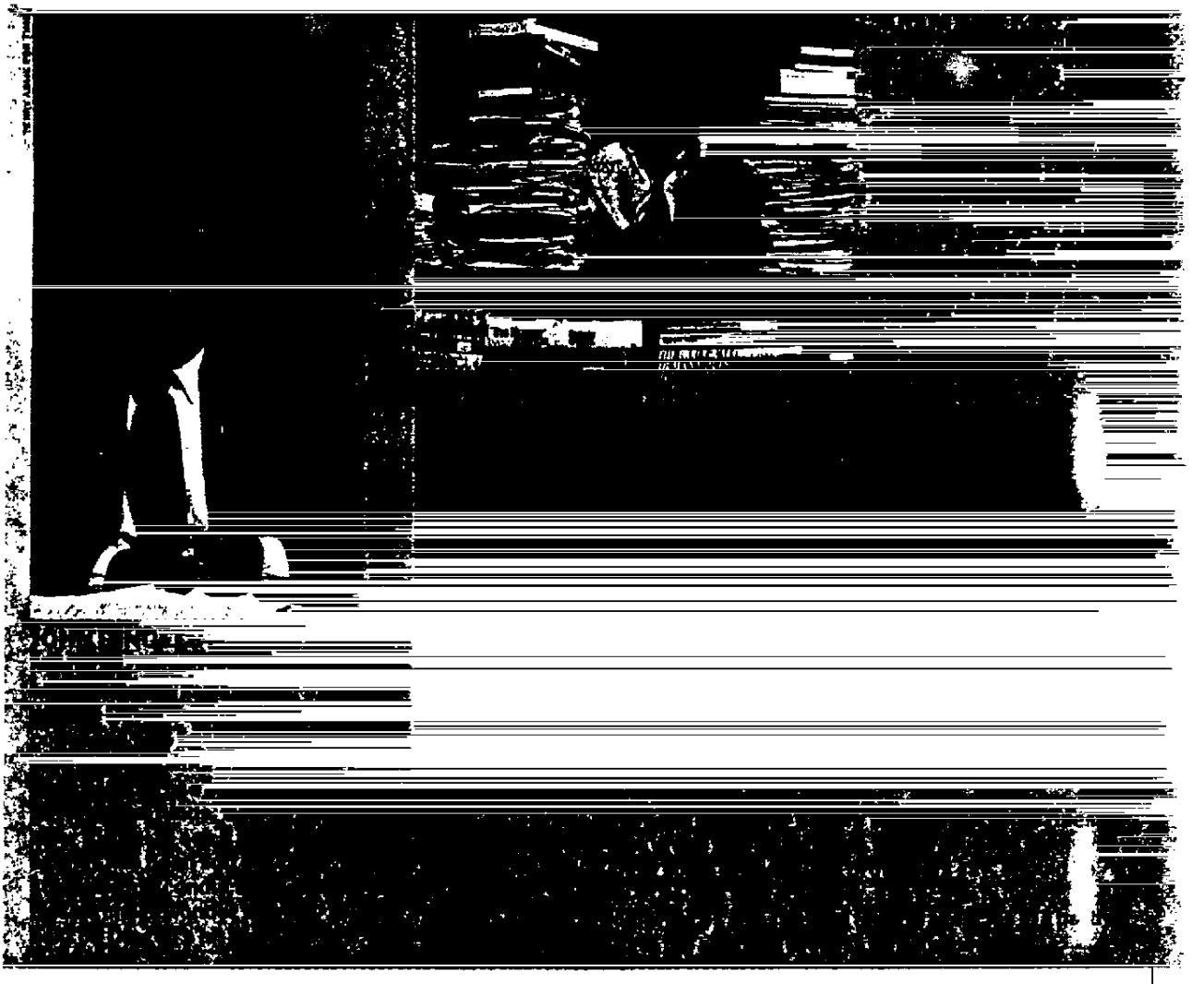
All too aware of the dearth of job opportunities at research universities, senior faculty members are faced with a dilemma. "When undergraduates come to me looking for career advice," says Dr. James Wilson, a gene-therapy expert at the University of Michigan, "I have to think long and hard about advising them to be scientists." Justified as it is, that kind of thinking alarms M.I.T.'s Kleppner. "If America's senior scientists cannot, in good conscience, persuade the next generation to follow in their own footsteps," he warns, "the nation is finished scientifically."

Money is so tight that many scientific institutions are finding it difficult to maintain the equipment they have, much less buy new instruments. At Kitt Peak in Arizona, the structure of the National Optical Astronomy Observatories' solar telescope was beginning to corrode because astronomers, strapped for funds, had put off painting it. This year they could wait no longer, and instead of buying a new, badly needed $100,000 infrared detector, they put the available money into a paint job. The choice, while necessary, depresses Sidney Wolff, director of NOAO. Although the infrared detector was developed in the U.S., she says, "European observatories can afford to purchase it, while we cannot. This is really a revolution in technology; if you're using five-year-old technology, you're out of the game."

The budget constraints are part of an even deeper problem afflicting American research: Congress is reflecting an erosion of public confidence in a scientific establishment that not many years ago could seemingly do no wrong. The message from Washington is clear: science will receive no more blank checks and will be held increasingly accountable for both its performance and its behavior.

Today, despite continuing brilliant work by U.S. scientists, attention seems focused on their failings and excesses, both real and perceived. Why, critics ask, after a decade of effort, have researchers not

WATCHDOGS AND AGITATORS WHO DEMAND ACCOUNTABILITY



found a cure for AIDS, or why can't they figure out, after nearly a half-century, how to store nuclear wastes safely or build spacecraft that work? Why do they concoct compounds that end up as toxic waste or court danger by tinkering with genes?

Some of this burgeoning antiscience sentiment springs from the well-meaning but naive "back to nature" wing of the environmental movement, some from skillful manipulation by demagogues and modern-day Luddites. And some is misdirected; science is often blamed for the misdeeds of industry and government.

But scientists too must shoulder their share of the blame. Cases of outright fraud and waste, sloppy research, dubious claims and public bickering have made science an easy target for its critics. Says Marcel LaFollette, a professor of international science policy at George Washington University: "One of the threads that run through all this is a refusal by the science community to acknowledge that there is a problem. They continue with the attitude that scientists are part of the élite and they deserve special political treatment and handling."

In Washington the new sock-it-to-science stance is personified by Congressman Dingell, who has taken the lead in investigating the wrongdoings of researchers. Many scientists consider his intrusion into their domain dangerous because it threatens their long-held notion that science should be self-governed, self-regulated and self-policed. When Dingell asked the Secret Service to examine the notebooks in the Baltimore case for authenticity, some researchers accused him of launching a witch hunt and trying to establish "science police." Because of his badgering of scientists at congressional hearings, he has been charged with practicing McCarthyism. Says Maxine Singer, a molecular biologist and president of the Carnegie Institution of Washington: "With Dingell, the issues get swallowed as he makes personal attacks on people."

Despite Dingell's abrasive manner, however, he has rooted out some serious abuses in science. The Congressman makes a legitimate argument that science is a social tool and should be directed and regulated in the same manner as other social tools, such as defense and education. A newly contrite Baltimore now says Dingell's investigation was "an altogether proper exercise of his mandate to oversee the expenditure of federal funds."

This month Dingell was at it again. He hauled NIH director Healy before his subcommittee to charge that by abruptly transferring a chief investigator of the NIH's internal office of scientific integrity, she had "derailed" investigations and "demoralized and emasculated" that office, which had been involved in the Baltimore case. Healy indignantly called the charges "preposterous," adding that Dingell "is a prosecutor. He's there to root out evil, whether it's there or not."

Underlying the current furor over

funding, and fueling Dingell's investigations, are the implicit assumptions that science can no longer be fully trusted to manage its affairs and that society should have a larger voice in its workings. "We can't just say Give us the money and don't bother us anymore," acknowledges Chris Quigg, a physicist at Fermilab.

Congressional pressure on science has been countered by a growing pressure on Congress—by institutions and researchers lobbying for science funds. Influencing the lawmakers has become so critical that science is recruiting the professionals of persuasion. Many universities pay $20,000 a month each for the services of Cassidy & Associates, a science-lobbying firm that has been successful in getting federal money earmarked for its clients. Some of Cassidy's trophies: $15 million for Tufts University's Human Nutrition Research Center and $19.8 million for the Proton Beam Demonstration Center at California's Loma Linda University. Four biochemistry societies have joined to pay former Maine Congressman Peter Kyros $100,000 a year to lobby for increased funding for biomedical research. Unfortunately, money appropriated for these projects bypasses the peer-review process used by such scientific bodies as the NSF and the NIH.

Too often, science lobbyists find easy pickings on Capitol Hill, where Congressmen, courting votes, can win generous sums for research projects in their home districts by simply slipping riders onto appropriation bills. Federal legislators in fiscal 1991 approved at least $270 million for pork-barrel science projects. In many cases, this kind of financing supports projects of dubious value, while more worthy endeavors go begging. An example: a rider, attached by Alaska Senator Ted Stevens, provided $9 million for a facility in his state to study how to tap the energy of the aurora borealis. That project, now funded, is characterized by one University of Maryland physicist as "wacky."

The NAS's Press is worried that too many scientists and research institutions are rushing to engage lobbyists. "They see that's the way the country runs, through lobbying and pressure," he says. "It's possible that public confidence in scientists will be diminished." That may have already happened. In the view of some members of Congress, scientists have become simply another special-interest group pleading for its selfish ends.

For all the lobbying, the scientific community has reached no consensus about the worthiness of various projects. Molecular biologists and particle physicists find it impossible to agree on the relative merits of the Human Genome Project and the superconducting supercollider. "Scientists are scared to death about having to make such choices," says Francis Collins, the University of Michigan geneticist who led the teams responsible for identifying the cystic fibrosis and neurofibromatosis genes. "It's such a contentious area that I'm afraid people won't be able to agree."

What is the alternative? Researchers blanch at the thought of a scientifically illiterate public allotting the available funds through the political process. Yet if the science community cannot establish its own priorities, it is inviting Congress and the White House to make all the choices, for better or worse.

While striving for a consensus, scientists would do well to put their house back in order. They should avoid cutting corners or misusing funds in a desperate effort to make financial ends meet. They must come down hard on transgressors, give whistle blowers a fair hearing and not stonewall in defense of erring colleagues. And they should discourage the ill-conceived practice of hastily calling press conferences to announce dubious results that have not been verified by peer review.

Equally important, scientists should redouble efforts to help educate Congress, the press and the public about the importance and benefits of some of their more esoteric work. An example: in little publicized reports in science journals last month, three teams of researchers revealed that they had used genetic engineering to create, for the first time, mice whose brains develop the same kind of deposits as those found in humans with Alzheimer's disease. Using these mice as models, the scientists should now be able to learn more about the debilitating disease that afflicts 4 million Americans and to develop drugs to alleviate the disorder.

In short, the use of genetic engineering and test animals, practices decried by the more fanatic critics of science, has provided a means by which Alzheimer's disease could be controlled or even cured. More aggressive promotion of this kind of news would certainly enhance the image of researchers, help restore waning public trust in science and lessen the clout of anti-science activists.

While scientists remain divided about the solution to their dilemma, they do agree, almost universally, on the need for ample support for basic research—research that is not launched with a well-defined end product in mind. Such work has not only been the foundation for America's brilliant scientific achievements but has also paid handsome financial dividends. For example, basic studies of bacterial resistance to viruses led to the discovery of restriction enzymes, the biological scissors that can snip DNA segments at precisely defined locations. That discovery in turn made possible recombinant-DNA technology, which spawned the multibillion-dollar biotechnology industry. And the laser, now the vital component of devices ranging from printers to compact disc players to surgical instruments, was a serendipitous by-product of research on molecular structure.

Nearly a half-century ago, Vannevar Bush's clarion call launched America into its Golden Age of science and helped transform society. His words still ring true today, despite the social and economic woes besetting the U.S. In fact, a vigorous science program, properly exploited by government and industry, might generate the wealth needed to solve these problems. To create that wealth, the U.S. must increase its investment in science, both by allocating more dollars and making certain that the dollars already appropriated are spent more wisely. "We cannot stop investing in our future for all the problems today," warns Frank Press, "or we will be mortgaging our future." *—Reported by J. Madeleine Nash/Chicago and Dick Thompson/Washington*

The Washington Times (and other U.S. newspapers) Wednesday, December 9, 1992

CANDACE CRANDALL

Meaner grows the greenery

The average Joe on the street might be hard-pressed to find a common thread among such diverse groups as the National Association of Realtors, the American Sheep Industry, the Heritage Foundation, and the Independent Petroleum Association. But thanks to a 12 page polemic now being circulated by the Sierra Club and a 5 page letter to Congress from the National Wildlife Federation, activists everywhere should have no trouble linking them up.

These organizations and some 36 others have been "exposed" as part of a "Wise Use" conspiracy, an "environmental destruction coalition" that NWF President Jay Hair claims is hell-bent on turning the planet into a "barren moonscape" by stripmining Yellowstone, parking oil rigs in the Grand Canyon, and depleting the ozone layer over North America.

Others named? Try such subversive organizations as the National Association of Homebuilders, the American Farm Bureau Federation, the American Motorcycle Association, and the National Cattlemen's Association.

"Wise-Use," a term originally applied to land-rights citizens' groups out West, has been upgraded to a "shut-up" label (i.e., sexist, racist, homophobe, fundamentalist Christian, devout Catholic, etc.), encompassing virtually any organization or individual that has ever had the temerity to suggest that knee-jerk environmental legislation wastes valuable tax dollars and puts Americans out of work, or that there are alternative scientific views on the seemingly endless litany of potential eco-catastrophes now facing the planet. If this sounds as though environmentalists are falling victim to unbridled hysteria, it is perhaps understandable. With President-elect Bill Clinton contemplating his nominee to head the Environmental Protection Agency, and the role that agency will play in national and international policy, there is a pressing need to stifle the growing chorus of dissent among scientists, business leaders, and members of the public if environmental pressure groups hope to maintain their clout on Capitol Hill.

Despite opinion polls showing continued support for a clean environment, the signs are more ominous than good. Guilt and fear doesn't sell the way it used to. Fur sales are inching back up. Eco-oriented mutual funds, once touted as hot properties, are going nowhere. Magazines and newsletters focused on environmental topics are battling extinction, their readers, according to the Wall Street Journal, overrun by messages to think and live "green."

It's no better at the ballot box. In 1990, more than 200 state environmental initiatives went down to defeat, including a 39 page, single-spaced regulation nightmare called "Big Green," which Californians voted down by a margin of more than 2 to 1.

This year, with the economy overshadowing all other issues, far fewer environmental measures were on state ballots, but most met similar fates. Ohio voters, by a wide margin, dumped a proposal to expand on the "toxic warning" concept for consumer products, a measure that opponents said would have done little good at great cost. Massachusetts voters killed a recycling initiative that carried an annual price tag of some $230 per household. Oregon voters defeated overwhelmingly two measures to close the Trojan nuclear power plant.

Not surprisingly, leading politicians, ever mindful of the political cross-currents, have suddenly toned down their environmental rhetoric. Journalists, who once could be counted on to promote the movement's agenda, are also breaking ranks, sobered perhaps by the Earth Summit, which had been billed as a serious discussion by international statesmen, but which revealed itself instead--in the words of one correspondent--as an outrageously expensive bazaar of the bizarre, a sideshow of turtle-lovers, nuclear-power haters, breast-feeding advocates, Hollywood celebrities, and Third World kleptocrats intent on getting their hands on more of those good Yankee dollars.

At many of the largest environmental organizations--including the NWF, Sierra, and Greenpeace USA--softening public support has resulted in some highly publicized belt-tightening. Grassroots fundraising has been on the slide since last year; charitable foundations, another source of revenue, reportedly are directing more and more of their environment dollars toward small groups focused on specific, local problems.

"There is a sense," says journalist Stephen Greene of the Chronicle of Philanthropy, "that either the large environmental organizations don't need the money or that their years of effectiveness have passed."

In need of a new public relations strategy, environmental pressure groups have, in the months since the Earth Summit fiasco, tried to address some of the public's economic concerns by issuing report after report claiming that environmental regulation can actually bolster the economy, create jobs, raise new revenue, and reduce the deficit.

This argument is suspect, however, since jobs are not readily transferable--loggers cannot be easily turned into environmental lawyers, for example--also, it misses the point. The purpose of environmental regulation is *not* to raise revenue to reduce the deficit, the purpose is to correct or prevent a *clearly identified* environmental problem.

The other tactic has been to renew efforts to silence dissenters by making them politically suspect. Thus the "Wise Use" pejorative, a bogeyman that is nothing less, in the words of the Sierra Club, than an "insidious yet vastly organized plot...to *destroy the entire environmental movement.*" [Emphasis theirs.]

This new campaign--already picked up by other activists--may indeed prove more successful, from a political standpoint, than a putative global warming (in a cooler-than-normal year) or the desire to save old trees (at a cost of some 33,000 or more logging jobs). Perhaps the spectre of realtors or motorcycle enthusiasts out to "get" environmental groups will prove useful too in bringing in more of those $10 and $20 checks that make up the bulk of their support. But these kinds of tactics do little to clarify the reality and extent of our environmental problems and even less to bring about effective, cost-conscious solutions.

Newsweek journalist Gregg Easterbrook, among those recently critical of activist groups and their tendency toward overwrought rhetoric, has pointed out that the desire to be exempt from confronting the arguments against one's position typically is seen when a movement fears it is about to be discredited. Certainly that is some of what is behind this shift in strategy.

But when organizations like the Sierra Club irresponsibly counsel their members, in hysterical tones, "to take whatever action is necessary to stop the destruction," and then hand out arbitrarily designated hit lists, it becomes something much worse--it becomes a movement that threatens to undo much good that has been accomplished, a movement that threatens to implode.

President-elect Bill Clinton should consider carefully the implications of this ugly trend among environmental groups. What is needed in the new Administration is the backbone to withstand pressures from extremists and to focus on what should be our national long-term goal--bringing concerns for wildlife and ecosystems back into balance with concerns for the welfare of people.

Candace C. Crandall is executive director of the Science and Environmental Policy Project, which monitors the use of scientific data in developing federal environmental policy.

GREGG EASTERBROOK: HAS ENVIRONMENTALISM BLOWN IT?

JULY 6, 1992 • $2.95

THE NEW REPUBLIC

Has environmentalism blown it?

GREEN CASSANDRAS

By Gregg Easterbrook

The distinction between a bicycle accident and the end of civilization has seldom been so blurred as at the Earth Summit, recently concluded in Rio de Janeiro. There, discussion of palpable threats to nature mixed in equal proportion with improbable claims of instant doom. Environmentalists, who would seem to have an interest in separating the types of alarms, instead encouraged the confusion on doctrinal grounds, namely that all environmental news should be negative. This worldview may be appropriate for fund-raising and faculty sherry hours, but it can backfire in the realm of public policy.

Consider the interplay between global warming hype and the Earth Summit. Most U.S. pollution controls exceed those of other nations, including Japan and Western Europe. Carbon emissions are the one important environmental category where America is the worst

GREGG EASTERBROOK is a contributing editor for *Newsweek* and *The Atlantic*.

the strengths of liberalism: it's eerie to hear liberal environmentalists asserting that views they disagree with ought not to be heard. More important, the desire to be exempt from confronting the arguments against one's position traditionally is seen when a movement fears it is about to be discredited. Why not defuse environmental rhetoric before an implosion?

In exemplary doublespeak, some enviros put forth that dissenting views should be suppressed in the name of balance. Gore, for example, asserts that reporters should attach little weight to scientists who question greenhouse emergency claims, because perhaps 2 percent of credentialed researchers feel that way. This simply isn't true. Greenpeace recently surveyed climatologists, doubtless hoping for evidence of global warming panic; instead it found that the largest group of respondents, 47 percent, believe a runaway greenhouse effect is nearly impossible. The two source authorities of the greenhouse business, reports by the National Academy of Sciences and the U.N.-affiliated Intergovernmental Panel on Climate Change, contain hundreds of pages of credentialed misgivings. Recently I attended the climate change sessions of the annual meeting of the American Association for the Advancement of Science. There was clear agreement that recent temperatures are up, that they might or might not continue to go up, and that the sky is blue.

One factor in environmental overstatement is the belief that only end-of-the-world locution can hold public attention. This assumption is wrong. Voters care about many issues that pose no threat to life, and they would continue to support environmentalism even if the rhetoric were more veracious, because the plain-spoken case for the environment is strong enough. At any rate, end-of-the-world environmental issues have been in short supply recently. Toxic wastes once seemed like a threat to general well-being, but experience has shown their impact locally confined and nowhere near as severe as assumed. Ozone depletion someday may imperil life, but with CFCs being banned there's little left to advocate, unless you know of a means to plug volcanos. Global warming holds out the appeal of a sweeping calamity, a bad science fiction movie come true. Enviros now seem almost to be rooting for temperature increases.

Well, enviro fund-raisers are, at least. As the movement has advanced from a low-budget operation to a branch office of the status quo, the need to acquire ever larger sums has driven many green groups to rely on direct mail. The direct-mail business is based on scare tactics, conspiracy theories, bogeymen, and preposterous levels of exaggeration. Some enviros now eagerly promote (to credulous acceptance in the big-deal press corps) the notion that EPA administrator William Reilly is a mere pawn before shadowy forces on Dan Quayle's Competitiveness Council. In fact, the council is a pipsqueak organization, and Reilly just persuaded Bush to go to Rio over the combined objections of numerous leading administration figures. But turning on a conspiracy theory, the notion makes for snazzy direct mail.

Supposedly Reilly recently was bested by Quayle's council in the writing of a Clean Air Act regulation regarding toxic emissions. Front-page stories devoted many paragraphs to interpretation of the event as a sign of impending environmental doom, while skipping glissando over what exactly happened, except to say, as *The New York Times* did, that Quayle's action granted companies the freedom to "increase air pollution without prior notice." Strictly speaking that is true, but only in the sense that the *Times* is free to publish libel without prior notice: legal penalties make it unlikely this will happen. The regulatory question was whether companies with valid air permits must go through a formal public hearing sequence to obtain a new permit each time they want to install new factory process equipment. Reilly thought they should, Quayle thought they shouldn't. Unaltered by the dispute, and unmentioned in the stories, was that if factory process changes do increase pollution, companies must disclose that fact and pay fines.

Once you know that, the incident is a mere technical skirmish about how best to minimize regulatory transaction costs. But what if enviro attacks on Reilly succeed in convincing Washington that he has lost power, and a self-fulfilling prophecy results? Thinking in terms of what may sell to the bulk-rate donor list engages the risk that, like politicians believing their own press releases, environmentalists will believe their own direct mail. This in turn raises the worst aspect in which ecological hype may backfire—the New Right parallel.

At one time the New Right consisted of underfunded voices crying in the wilderness. Then Ronald Reagan came to power and made some of the changes his backers favored. Rather than celebrating, many on the New Right became yet more strident, if only to differentiate themselves from a mainstream that had shifted somewhat in their direction. A dynamic took hold in which numerous conservative factions were more concerned about crazy claims for fund-raising purposes than about the actual condition of the real world. The public ceased believing conservative alarms: unstoppable as the New Right seemed in the early 1980s, it now borders on insignificance.

Enviros today risk the same progression of events. Once they were disfranchised outsiders, invariably right where industry was invariably wrong. Now the movement is a monied faction of the establishment, with many satisfying right/wrong distinctions blurred by the very reforms environmentalists set in motion. Like the New Right, enviros are evolving an internal dynamic of self-satisfaction based on mutual displays of stridency, with the state of the real world a subsidiary concern. That certainly seemed to be the name of the game at Rio. If environmentalists keep proclaiming that nature is ending when daily the sun continues to rise, they may find the public's "oh, shut up" point can be reached on environmentalism, too. •

THE WALL STREET JOURNAL.

3/15/93

Southern California Edison Study Finds No Workplace Tie Between Cancer, EMF

By Bill Richards
Staff Reporter of The Wall Street Journal

In a study with broad implications for the electric utility industry, researchers say they found no unusual cancer levels among nearly 12,000 Southern California utility workers exposed to high levels of electromagnetism.

Funded by Southern California Edison Co., the study, published today in the journal Epidemiology, undercuts earlier reports linking leukemia and other cancers to workplace exposure to electromagnetic fields, or EMF. EMF is produced when electric current passes through a wire.

Earlier studies reported elevated cancer levels in workers as diverse as motion picture projector operators, aluminum smelter workers and telephone linemen—triggering health concerns and lawsuits.

Experts said the latest study does not relate to other widely publicized reports linking EMF exposure to elevated levels of leukemia in children. One such study, done by Swedish researchers last year, found that children living near power lines were up to four times more likely to develop leukemia than those living farther away from EMF sources.

"It is unlikely our study will speak to the question of children's leukemia and EMF," said Jack Sahl, the study's lead author. Mr. Sahl, a senior research scientist at Southern California Edison Co., said that among other differences, leukemia seems to develop far more rapidly in young children than in adults.

In the latest study, researchers said they evaluated health data from 36,221 workers who were employed by Southern California for at least a year between 1960 and 1988. They said they found no evidence of unusual levels of leukemia, brain cancer or lymphoma in the group. The study also failed to find elevated cancer levels in nearly 12,000 employees classified as having especially high occupational exposure to EMF.

Southern California Edison called the report "the most comprehensive and best-designed study done to date on this topic." The utility said the research team used more sophisticated methods than previous researchers, including studying workers' full job histories and taking on-sight EMF measurements. It said the study's weaknesses included the statistically small number of cancers in the sample and the fact that other EMF-related possibilities, such as birth defects, weren't included.

Although the utility said the application of the study to non-Edison workers is "uncertain," Mr. Sahl said, "this weakens the argument that there is a connection between EMF and cancer in the work environment."

Mr. Sahl said the researchers were surprised by the findings. "We were surprised that after improving on the methodology of the earlier studies, we didn't find a stronger relationship to leukemia and other cancers."

Other researchers said they too were surprised. "There's no obvious explanation," said David Savitz, an epidemiologist at the University of North Carolina. Three years ago, Dr. Savitz headed a research team that reported finding elevated levels of brain cancer in electrical workers exposed to EMF.

Dr. Savitz said Mr. Sahl's team did "a well-designed study" that was more complete than his research, which relied only on information from workers' death certificates. "This moves my thinking a little bit in the negative direction," he said.

Utilities have generally maintained no conclusive evidence exists to link EMF and cancer. Nonetheless, fearful of the possible medical and legal fallout from the controversy, the industry now spends over $1 billion annually to cut EMF exposure.

COMMENTARY

JONATHAN ADLER

Eager to star in the clean air follies

First of two parts

Not content with the regulatory apparatus imposed by the 1990 Clean Air Act, 11 Eastern states are prepared to adopt the more stringent California clean air standards. The entire Eastern seaboard, from Virginia to Maine, with the lone exception of Connecticut, has announced support of the new California regulations mandating "cleaner" automobiles. Together, these states represent more than one-third of the domestic automobile market, and adoption of the standards could have tremendous consequences for both the American automobile industry and the national economy as a whole, as automakers are pushed to design entire fleets around the more difficult standards.

While this step has been heralded as an important gain for urban air quality, what many fail to realize is that implementation of the California standards will do little, if anything, to improve air quality. The standards will, however, impose yet another regulatory burden on the already strained economies of the Northeast. This will inevitably result in lost jobs and slower growth, and that clearly is not in the interest of these states.

How much will the standards cost? It is currently estimated that the tailpipe emission standards alone will add $200 to $1,000 to the cost of a new car. According to one study, conducted by DRI/McGraw Hill, the standards could eliminate as many as 75,000 jobs in the region.

If the Eastern states also opt for California's requirements for reformulated gasoline, it could add as much as 15 cents per gallon at the pump and quadruple the number of jobs lost. In short, these standards could leave the region decimated. These costs are in addition to those already being imposed by the Clean Air Act of 1990, whose air toxics section alone will cost more than $20 billion annually.

Ironically, one result of implementing the California standards actually could be to forestall improvements in air quality. Because tighter emission standards increase the cost of new vehicles, older vehicles — which tend to be more polluting — stay on the road longer as potential new car buyers either buy less-expensive, used vehicles or delay replacing their own older cars. This trend toward "sticker-shock" is already visible, and the implementation of tighter tailpipe standards will make it worse. The air quality gains traditionally achieved through car-fleet turnover are delayed as a direct result of regulations aimed at improving air quality.

The outdated assumption behind the California standards is that mandating emissions standards for new automobiles is a cost-effective way of reducing smog. The argument is simple: By reducing new car emissions of certain smog precursors, such as volatile organic compounds (VOCs) and nitrogen oxide (NOx), regulatory agencies can greatly reduce urban smog formation. While this may have been true in the 1970s when such standards were first implemented, this is simply no longer the case. Any significant gains to be achieved through such measures have already been realized.

A new car today will emit 96 percent less hydrocarbons and 76 percent less NOx than those built 20 years ago. The result has been a significant decline in ambient levels of ozone (the primary constituent of smog) nationwide. By all conventional standards, a well-maintained new car is clean. There is little to be gained by further reducing new car emissions by 1 or 2 percentage points, and what little gains are achieved will not be evidenced for years to come as newer, cleaner cars only gradually replace their older counterparts.

Furthermore, only 10 percent of the vehicles are responsible for approximately half of the mobile source air pollution. This means that, on average, one vehicle in 10 causes as much air pollution as the other nine. What is more, of those vehicles that are "gross polluters," it is estimated that as many as 40 percent have been deliberately tampered with in order to increase automobile performance at the expense of air quality. Of the remaining vehicles, most are either older vehicles, or automobiles that have not been well maintained. Simple and inexpensive repairs are often all that is needed to turn a heavy polluting vehicle into a clean-burning car.

Of course, this is lost on the regulators responsible for "going California," as are the findings of the recent National Academy of Sciences report that trashes conventional methods of smog control. This report's conclusion that environmental regulators overestimate "the effectiveness of VOC controls" has gone virtually unnoticed. Meanwhile, VOC controls continue apace, as evidenced by California's new multimillion-dollar VOC regulations governing common consumer products such as hairspray, deodorant, and aftershave. True to form, New York state is preparing to follow California's lead once again.

The Northeastern states can well have cleaner air, but they are better off not following California to achieve it. As the Association of Northeast Air Managers told Congress during the Clean Air Act's consideration, "There have been no air quality studies demonstrating conclusively that the air quality benefits in the Northeast would be comparable to those indicated in Southern California." If this is the case, then the California standards should stay at home.

Next: Is there a solution?

see ADLER, *page E4*

Jonathan H. Adler is an environmental policy analyst at the Competitive Enterprise Institute.

ADLER

From page E1

Junk Science in the Courtroom

Rule of Law

By David E. Bernstein

Next week the Supreme Court will have the opportunity to crack down on the proliferation of junk science in American courtrooms. The occasion is a case called *Daubert v. Merrell Dow Pharmaceuticals*, on which the court is scheduled to hear arguments Tuesday. At issue is whether the Federal Rules of Evidence require, or even permit, a court to adhere to the common-law "Frye" rule. The Frye rule holds that a court should exclude expert scientific evidence that is based on a theory or method that is not generally accepted in the scientific community.

Daubert involves two boys born with tragic birth defects that reduced the size of their limbs. Their parents filed suit alleging that the deformities were caused by their mothers' use of Bendectin, a once commonly prescribed morning sickness drug, during pregnancy. The problem facing the plaintiffs was that the defendant presented the trial court with overwhelming scientific evidence from epidemiological studies showing that fetuses exposed to Bendectin do not have a higher rate of limb reductions than those not exposed.

The plaintiffs countered by presenting experts who testified that based on their reanalyses of the data used in those epidemiological studies, they believed that Bendectin does cause birth defects. The district court found that this was not competent evidence and granted summary judgment for the defendant.

The plaintiffs next appealed to the Ninth Circuit Court of Appeals, which affirmed in an opinion written by Judge Alex Kozinski. Judge Kozinski noted that the plaintiffs' experts had not submitted their reanalyses to peer review, or published them in a scientific journal. He explained that because the experts' reanalyses were not subjected to verification and scrutiny by others in the field, the results of their studies would not be generally accepted in the scientific community.

The legal basis of Judge Kozinski's opinion was the Frye rule, named after the 1923 case in which it originated. The vast majority of courts adhered to the Frye rule until the promulgation of the Federal Rules of Evidence in 1975. Federal Rule 702 provides that scientific evidence is admissible if the proffered expert qualifies as such, and his testimony "will assist the trier of fact to understand the evidence or to determine a fact in issue." While Frye is not mentioned, there is no indication in the legislative history of the rules that it was meant to be rejected.

Because of Frye's "general acceptance" test, the determination of what is appropriate scientific evidence for legal purposes was largely in the hands of the mainstream scientific community. With the promulgation of the Federal Rules, however, some judges believed that they were given wide latitude in determining whether questionable scientific testimony would be helpful and therefore admissible. The result was a series of embarrassing decisions in cases involving scientific evidence. Most prominent was what has become known as the Spermicide Case.

The case involved young Katie Wells, a girl born with tragic birth defects. Her mother sued Ortho Pharmaceutical in federal court in Georgia, claiming that its spermicidal jelly, Ortho-Gynol, was responsible for Katie's defects. The case was heard in 1985 before District Judge Marvin Shoob. Judge Shoob, unfortunately, did not screen the evidence to ensure that it was generally accepted by the relevant scientific community. Despite the overwhelming consensus of scientific opinion that the spermicide involved, nonoxynol-9, could not have caused the birth defects, Judge Shoob, sitting without a jury, found for the plaintiff and awarded $5 million in compensation for Katie Wells's injuries.

Judge Shoob cited several scientific studies in his decision, but only one of them directly investigated a relationship between spermicide use and birth defects of the sort that afflicted Katie. That study had been reviewed by the Food and Drug Administration, which found it inconclusive. One of the study's authors appeared at the trial, and warned Judge Shoob not to construe it as proving a link between spermicides and birth defects. The judge, he later remarked, had either ignored or failed to understand his testimony.

Judge Shoob's published opinion suggests that he emphasized the "demeanor" and "tone" of the experts and his perception of their biases and motives more than the substance of their testimony. Many in the scientific and medical communities were upset when the 11th Circuit Court of Appeals affirmed.

> *Under the Frye rule, the determination of what is appropriate scientific evidence was largely in the hands of the mainstream scientific community.*

The Spermicide Case marked a turning point in the annals of junk science. Embarrassed judges began to return to the Frye rule and to otherwise more strictly scrutinize scientific testimony before admitting it into evidence.

The result has been a greater convergence between scientific opinion and courtroom result. For example, another spermicide case making almost identical claims had been filed in the same court as the Wells case at about the same time. Because of procedural delays, that case was not heard until 1991. This time, a different judge excluded the testimony of the plaintiffs' experts and found for the defendant. The judge noted that in the ensuing six years the standards for admitting scientific evidence had grown far stricter, and that the same evidence Judge Shoob relied upon in finding for the plaintiff was no longer admissible.

Despite this strict-scrutiny trend, junk-science litigation continues to be a problem. Electric power lines are attracting junk-science-based litigation, as are video display terminals. Junk-science claims about silicone breast implants and immune-system problems are also beginning to hit the courts, already resulting in one award of $25 million. And despite overwhelming defeat thus far for plaintiffs' lawyers, Bendectin claims continue to be litigated. A Supreme Court opinion affirming that the Frye rule was not mooted by the passage of the Federal Rules of Evidence would discourage severely this litigation, as well as future junk-science claims.

Of course, the Supreme Court cannot simply look at the effects of its rulings; its duty is to consider the underlying law. Some scholars argue that Rule 702 supersedes the Frye rule, while many others disagree. In resolving this issue in *Daubert*, the court should keep in mind the text of Rule 102 of the Federal Rules of Evidence, which provides overall guidance for interpreting the Federal Rules: "These rules shall be construed . . . to the end that truth may be ascertained and proceedings justly determined." A decision reaffirming the Frye rule or establishing a new, similarly strict standard for admissible scientific evidence would serve to advance these goals significantly.

Mr. Bernstein, a Washington attorney, is co-editor of the forthcoming "Phantom Risk: Scientific Inference and the Law" (MIT).

The Washington Times

★ TUESDAY, MAY 21, 1991

Science pitted vs. popular environmentalism

By Ronald A. Taylor
THE WASHINGTON TIMES

Popular support to stamp out smoke-filled rooms, keep pesticides out of food, avert global warming and mandate more fuel-efficient cars is missing one crucial element — solid scientific data.

That was the tone sounded yesterday by conservative policy analysts and scientists who contend that conventional wisdom and political expediency warp objective investigation of air pollution, energy efficiency and food safety issues.

"Ten years ago when the Brookings Institution held a similar symposium, it showed that there was very little science behind some major regulations," said M. Stanton Evans, president of the Consumers' Research Inc.

"This pattern of the creation of public policy on which the empirical data are shaky has kept recurring. I felt it would be useful to take four of the major issues and get the best scientific experts," he said.

"A lot of conventional wisdom is just wrong," said Lester Lave, a Carnegie Mellon University economics and engineering professor, who argued against the idea of requiring automakers to increase the average fuel economy of the new car fleet from a current 27.5 mpg to 40 mpg.

The popular demand for pesticide-free fresh fruits and produce is not justified either by cancer statistics or current knowledge of the effects of trace amounts of even proven carcinogens, said Robert Scheuplein, director of the Food and Drug Administration's office of toxicological sciences.

Basing permissible pesticide levels on the reaction of laboratory rats to the chemical is crude and inaccurate, he said, noting that, statistically, laboratory rats are expected to contract cancer 33 percent of the time from constant exposure to virtually any synthetic substance.

A recent Environmental Protection Agency science panel's recommendation to classify tobacco smoke as a carcinogen is tilted against empirical data about lung cancer in non-smokers, said Dr. Gary Huber, a University of Texas Health Center respiratory disease specialist.

He said the panel last month ignored that only six of the 30 studies on the topic found a link and that those cause-effect relationships are regarded by epidemiologists as "weak association" links.

THE WALL STREET JOURNAL.

WEDNESDAY, FEBRUARY 19, 1992 A14

Earth Summit Will Shackle the Planet, Not Save It

By S. Fred Singer

International meetings in New York this week are drafting a treaty for UNCED, the United Nations Conference on the Environment and Development, scheduled to convene in Rio de Janeiro in June. This so-called Earth Summit is being promoted by environmental activist groups around the world and by certain political leaders. Untroubled by lack of scientific support for catastrophic global warming, they aim to impose a system of global environmental regulations in the name of saving the planet. The White House has so far refused to be stampeded; but with elections upon us anything can happen.

Why all this frantic activity leading up to the Earth Summit, which will bring some 40,000 participants to Brazil, with travel costs soon to exceed half a billion dollars? We are dealing here with a curious alliance of interest groups. Central planners and assorted utopians would like to place natural resources and even national economies under international controls, preferably theirs. There are still many around who supported the failed Law of the Sea negotiations to set up an international regime for exploiting ocean minerals; they now see an opportunity to achieve their aim of global environmental controls under U.N. bureaucrats.

To be sure, there are many who are sincerely concerned about the future of the planet; they are the "foot soldiers" of the environmental movement. The "generals," however, seem more interested in salaries, personal power and perks. With budgets now surpassing $400 million a year collectively, the officers of these organizations spend their time traveling from conference to conference, extorting funds from industry, and—with the help of the media—frightening the average American into writing those $10 and $20 checks that form the bulk of their support.

But UNCED covers more than just the environment. The "D" stands for "development," and to many in the Third World this means the New International Economic Order—which they failed to achieve 20 years ago through the U.N. General Assembly. Cynics then referred to the NIEO as a "scheme of transferring money from the poor in the rich countries to the rich in the poor countries."

Third World kleptocrats now view UNCED as the vehicle to reconstitute this scheme under the guise of ecology. They call for industrialized nations, which currently contribute most of the carbon dioxide to the atmosphere, to impose a huge tax on all fuels, and then transfer the proceeds through an international authority to less developed countries. According to Department of Energy calculations, American consumers would end up paying twice as much for gasoline and electric power, a scheme guaranteed to stunt U.S. economic growth. But limiting growth has always been among the announced goals of radical environmentalists—even if the burden falls mainly on the poor.

We are seeing this struggle now on a small scale in the Northwest, where protection of 250 northern spotted owls will result in, by conservative estimates, the loss of 33,000 jobs. Another example is the controversial wetlands policy that permits the Environmental Protection Agency to remove private land from development—without compensation—under the pretext that it has ecological value.

Influential politicians support UNCED, including such U.S. senators as Al Gore (D., Tenn.). Majority Leader George Mitchell has just published a book, "World on Fire," that endorses both the global warming scare and the controls on energy use that UNCED hopes to impose on the industrialized countries. And it is the Senate that would ratify any international agreements resulting from UNCED.

The U.S. is certain to play the key role in the outcome of UNCED. The White House, to its credit, has resisted the example of Germany, Australia and other nations. They have announced specific targets for not just capping but reducing carbon dioxide emissions, by as much as 25% over the next decade or two, but have yet to detail their policies or the tremendous costs involved.

Pressure is mounting on the U.S. to exercise "leadership" by abandoning its present position; the U.S. currently calls for limiting the full "basket" of greenhouse gases, rather than only carbon dioxide, and avoids specific targets and timetables. Until recently, the U.S. point man was John Sununu, then White House chief of staff. As a scientist and engineer, he understood that the scientific climate data do not support the catastrophic warming theories.

Sam Skinner, the new chief of staff, will have to resolve the differences between alarmists within EPA and others, including Department of Energy officials and White House Science Adviser Allan Bromley, who have been urging a go-slow approach until a scientific basis has been more firmly established.

The key decision will focus on whether George Bush should attend the Earth Summit—as the democratic presidential candidates are urging. His presence in Rio would put his prestige and that of the U.S. behind the rush to impose global controls on energy use that will have a calamitous impact on jobs, technological progress, and standards of living.

Mr. Singer, professor of atmospheric physics at the University of Virginia, directs the Science and Environmental Policy Project in Washington.

The Science & Environmental Policy Project, 2101 Wilson Blvd., #1003, Arlington, VA 22201 • (703) 527-0130

SUNDAY, SEPTEMBER 20, 1992

VIEWPOINT

The Miami Herald

Scientific myths ride in on hurricane winds

Michaels

Patrick J. Michaels, a professor of environmental sciences at the University of Virginia, is affiliated with The Science & Environmental Policy Project in Washington. His most recent book is Sound and Fury: The Science and Politics of Global Warming.

By PATRICK J. MICHAELS

Now that Hurricane Andrew — the most expensive vortex in recorded history — has come and gone, blowing everything to bits in its path, the usual political suspects have substituted one strong wind for another. In fact, the only thing that one could forecast with more confidence than Andrew's path ("a well-behaved hurricane," whatever that means, from the forecaster's point of view) is the likelihood that it would be used to enhance the vision of lurid environmental change because of man's pernicious influence on the atmosphere.

At least that's what readers of Newsweek saw: "Many scientists are also confident enough to say: look at Andrew; that may be what a greenhouse world would be like."

Pretty subjective stuff. In fact, the scientific core of all this is MIT scientist Kerry Emanuel's 1987 Nature paper that calculates that an increase in the strength of hurricanes *could* accompany global warming. This paper, which is an interesting theoretical calculation, includes assumptions about the behavior of hurricanes that are known to be untrue, and which are freely acknowledged by the author.

One of these is that hurricanes, which require sea surface temperatures in excess of 27 degrees Celsius, do not reduce the temperature of the ocean over which they travel. Everyone knows that they do, and Emanuel only assumed it as a matter of convenience in his calculations.

To give an idea of how much cooling hurricanes cause in the real world, consider Gilbert in 1988. After it hit the Yucatan peninsula, Gilbert unspun into a garden-variety system burbling across the Bay of Campeche. That caused great consternation in the news media, which likes destructive hurricanes about as much as Democrats love big unemployment figures. But because it had generated so much interest earlier, while setting the record for the lowest barometer ever recorded over the Atlantic Ocean, Gilbert became the most instrumented cyclone in human history.

As Gilbert chugged between the Yucatan and La Pesca ("the fish"), Mexico, where final landfall was made, even as a moderate hurricane it cooled the ocean 5 degrees Celsius; from 31 C to 26 C, which is beneath the value necessary to create subsequent hurricanes. This is equivalent to the difference between summer and winter temperatures of those waters, and serves more to demonstrate that the hurricane is as much a natural *brake* on surface warming as it is a product of warm temperatures.

Having said all that, recent events provide an appropriate forum to beat on a few hurricane myths, particularly as they might be affected by a putative global warming:

(1) Hurricanes are becoming more severe. This nonsense sprang up in September 1988, when aircraft measured a lowest pressure of 26.23 inches in Hurricane Gilbert in the Western Caribbean. This beat the previous Atlantic record, by a grand total of 0.15 inches, that was measured when the great Labor Day hurricane of 1935 augured into the Florida Keys.

In fact, it's only in the last 35 years or so — since the 1935 storm — that we've been dropping barometers via aircraft into the eyes of hurricanes. (No, thank you. You can't pay me enough to do it.) One thing we've found is that big storms tend to weaken a bit (i.e., their lowest pressure *rises*) before they hit land. Gilbert's pressure rose considerably — to values above those noted in Florida during the 1935 storm — before it hit Cozumel. If we assume that the 1935 storm also filled up a bit before it drowned a trainful of escapees from the Keys, it seems obvious that its lowest pressure was probably beneath that of Gilbert's.

(2) The most severe hurricanes are related to global warming. Unmitigated balderdash. Only two "Category 5" hurricanes, government dialect for "big time," have hit this country. The aforementioned 1935 storm hit when temperatures were very warm. The other 5-blast was Camille in 1969, which tore up the Mississippi Gulf Coast with profound dispatch. It occurred when the hemisphere was near its coldest temperature for the last half century.

Here's a chronology of all of the 20th Century "Category 4" storms to hit the United States with respect to global warming: Andrew occurred as hemispheric temperatures approached their lowest values measured in the 14-year satellite record, and after a rapid cooling from Mt. Pinatubo. Hugo (1989) occurred in a very warm year. Carla (1961) — the storm that made Dan Rather famous — Donna (1960), Audrey (1957) and Hazel (1954) all occurred during a cool period.

If history is to be our guide, a modest warming will produce more wimpy hurricanes but about as many Gilberts or Andrews or Camilles or Labor Day sockos as we have already seen.

Prior to 1950 hurricanes weren't named, but it was still cool for the 1947 Category 4. Similar storms in 1928 and 1926 occurred during relatively warm times, and the 1919, 1915, 1909 and 1900 storms all occurred during colder than normal temperatures — the last, the natural disaster with the highest number of fatalities in the history of the United States. Score for Category 4s: Three during warm years, and 10 when temperatures were below average.

(3) Hurricane severity will increase in a warmed world. This one, based upon a casual read of Emanuel's paper, flies in the face of what has been observed in the 20th Century. While there hasn't been much overall temperature change, there have been some warm times (like the 1930s and the 1980s) and some cold times (1940-1975). Writing in the scientific journal Meteorology and Atmospheric Physics in 1990, scientist Sherwood Idso and his colleagues found that indeed there are more tropical cyclones (the generic term for tropical storms and hurricanes) in warm years, but that they tend to be *weaker.*

(4) Almost all tropical cycles are bad news. Hardly. While it is true for the relatively uncommon Category 4 and 5 hurricanes, a landmark 1967 study by George Cry, of the U.S. Department of Commerce, demonstrated that as much as 50 percent of the late summer rainfall that normally occurs in the Southeast and Atlantic Coast regions of the United States results from the much weaker Category 1 and 2 hurricanes and tropical storms. Regional agriculture is heavily dependent upon this precipitation. Much of the double-cropped soybean culture of the Southeast is in its period of maximum moisture requirement just when these storms are expected.

Where does that leave us in a warmed world? First, as I have said repeatedly in the last few years, observed data suggest we won't see the apocalyptic warming that is in vogue, but we should see some. If history is to be our guide, a modest warming will produce more wimpy hurricanes but about as many Gilberts or Andrews or Camilles or Labor Day sockos as we have already seen. Coastal agriculture will flourish, but every few years someplace is going to get pulverized. Every succeeding blast is likely to cost more money because of increased coastal population and monetary inflation.

And as the damage figures go up, up and away, folks will likely blame global warming, instead of their own desire to live in harm's way.

Scientists Urge More Cellular Phone Studies

No Proof of Cancer Link, Hill Panel Told

By Cindy Skrzycki
Washington Post Staff Writer

A panel of scientists said yesterday there's no proof that portable cellular phones cause cancer, but called for more studies to allay public concerns about health risks from the phones.

In the meantime, scientists from the Food and Drug Administration and the National Cancer Institute yesterday advised the millions of Americans who have cellular phones to limit their use.

The cautionary note was sounded at a congressional briefing prompted by a scare that has swept the cellular phone industry since a Florida man blamed his wife's brain cancer on radio waves emitted by her cellular phone. Since then, three other people have alleged a link between cellular phones and brain tumors.

The cellular phone industry, which has grown rapidly to about 10 million subscribers over the last decade, has assured the public that cellular phones are safe and will commission a study to prove its point.

Appearing before a House Energy and Commerce subcommittee yesterday, six scientists emphasized that there is no cause for alarm because it has not been proved that the electromagnetic radiation emitted by cellular phones can cause or promote cancer.

But they all agreed that more research is needed, and some of the scientists said that in the meantime people should not use cellular phones excessively. The Food and Drug Administration said it was preparing a two-page advisory to guide people on how to use their portable cellular phones.

"There is no proof there is a problem between cancer and cellular phones, but there are these studies that elevate concerns and warrant further study," said Mays Swicord, chief of the Center for Radiological Devices at the FDA.

CELLULAR, From A1

"Time and distance is your friend," Swicord added. "Less risk, if there is a risk, will be incurred. You don't need to be on your cellular phone for two hours."

Richard Adamson, director of cancer etiology at the National Cancer Institute, urged "moderation in all things."

There has been a growing debate over the effect on the body of electromagnetic fields (EMFs) associated with such devices as microwave ovens and high-voltage power transmission lines, but only in the last few weeks have cellular phones been thrown into the controversy.

To date, no conclusive evidence has been found that EMFs are able to cause or promote cancer.

The controversy is over portable phones with antennas attached. About 3 million of them have been sold, according to industry estimates.

They contain transmitters in the handsets, which are operated close to the head when people are talking on them.

Car phones, which have antennas mounted outside the vehicle, and household cordless phones, which operate at much lower frequencies and use less power, are not involved in the debate.

Small, hand-held portable phones now account for about 60 percent of cellular sales and are especially popular in major metropolitan areas such as Washington. Most cellular service is priced on the assumption that customers will be on the phone an average of 2½ hours a month.

Small, hand-held portable phones now account for about 60 percent of cellular sales and are especially popular in major metropolitan areas.

The cellular industry has been on the verge of panic over the past few weeks in the wake of publicity over a lawsuit filed by a Florida man who alleged that his wife died of brain

cancer caused by radio waves emitted by her portable cellular phone.

The husband, who took his case nationwide on CNN's "Larry King Live," is suing three companies in connection with his wife's death.

"My concern, like most Americans who use cellular phones, is 'are they safe?' " said Rep. Edward J. Markey (D-Mass.), chairman of the House telecommunications and finance subcommittee, who brandished his own Motorola Corp. portable cellular phone at the briefing.

Rep. Lynn Schenk (D-Calif.), who asked if duration of use mattered, admitted that she and her husband "can be on our personal cellular phones for hours at a time."

The experts said that more research, aimed directly at cellular phones and electromagnetic radiation, needs to be done.

Thomas Stanley, chief of engineering and technology for the Federal Communications Commission, said his agency was not expert in evaluating the effects of radio frequency radiation, but that hand-held cellular phones do not exceed the limits set for safe exposure.

Stanley said the guidelines adopted by the FCC recently have been adjusted to lower the level for acceptable emissions.

Some cellular phone instruction manuals from manufacturers warn consumers to avoid direct contact with the antennas of the phones.

Adamson, who said the National Cancer Institute would begin an in-depth study of the effects of various kinds of exposure to electromagnetic radiation, noted that the rate of brain cancer in people under 65 was declining and its incidence was far outstripped by lung cancer.

Adamson said he did not believe cellular phones cause cancer. "Is it possible? Yes. Is there a great probability? In my estimation, no," he said.

However, Stephen Clery, professor of physics and biophysics at the Medical College of Virginia, said he believes there may be a "potential relation" between exposure to electromagnetic fields emitted by cellular phones and cancer.

Experiments he has done are not precisely in the frequencies that cellular phones operate on, however.

When he irradiated two types of cells in the laboratory for two hours at radio frequencies found in industrial equipment and microwave ovens, he discovered that the cells showed abnormal growth.

He said results from definitive studies would not be ready for two to three years.

David Klefman, deputy office director in the Environmental Protection Agency's Office of Research and Development, suggested that other lifestyle changes, such as stopping smoking or changing one's diet, might have more beneficial health effects than worrying about emissions from cellular phones.

ANATOMY OF AN ANGST

All cellular telephones use antennas to broadcast radio signals to a receiving tower, which then routes calls via regular phone lines. A caller's exposure to the radio waves emitted from the antenna varies with different types of phones.

A hand-held cellular phone must emit a signal strong enough to travel several miles to the nearest receiver. Some of the radio waves hit the caller's head, which is behind the fears of health risks.

While **cellular car phones** also broadcast strong signals capable of traveling several miles, the antenna is located outside the car, minimizing the caller's direct exposure to the radio waves.

Cordless phones broadcast much weaker signals. They need only travel as far as the receiving unit in the house. That unit then sends calls over traditional phone lines.

BY JOHN ANDERSON-THE WASHINGTON POST

B

Government agencies, too often, betray the public trust by violating principles of good science in a desire to achieve a political goal.

Numerous government studies have caused job loss, personal freedoms to be violated and even people displaced from their homes. These same studies have been later proven to be inaccurate following objective scientific review. The scientific community has been particularly critical of government studies regarding asbestos, pesticides, dioxin, radon, environmental tobacco smoke and water quality.

WHAT OTHERS ARE SAYING ABOUT GOVERNMENT AGENCIES BETRAYING PUBLIC TRUST BY VIOLATING THE PRINCIPLES OF SOUND SCIENCE

"Both nationally and locally, no mechanism exists for sensibly balancing the needs of people with important environmental concerns."

-- Paula P. Easley, Director of Government Affairs, Municipality of Anchorage, Alaska
Paying for Federal Environmental Mandates: A Looming Crisis for Cities and Counties

"By the time it was finished, the [Peru Central School District in New York] had spent $3.5 million -- more than 15 percent of its annual budget, on the removal of asbestos. Then the Environmental Protection Agency that had enacted the asbestos ban, was forced to acknowledge that the threat of asbestos had been overestimated, and the risks of improper removal were often greater than leaving it in place."

-- Jonathan Adler, The Competitive Enterprise Institute
The Washington Times, June 2, 1992

"Asbestos, a major environmental concern several years ago, no longer seems so major: not major enough anyway to justify the $64 billion spent on eliminating it over the past eight years."

-- William Murchison
The Dallas Morning News, July 15, 1992

"National costs [of meeting the radon water standard] were estimated at $12 billion to $20 billion, and only 1 percent of the public radon exposure would be reduced."

-- Philip H. Abelson
Science Magazine

"Dioxin is a good example of the issues that the Environmental Protection Agency has in mind when it talks about the need to improve its scientific capabilities. If dioxin is as dangerous a cause of cancer as most scientists thought a decade ago, there's a strong case for spending a lot of money to scrub it out of the environment. But if it is in fact less dangerous, as some scientists now believe, that money could do more elsewhere to protect public health."

-- *The Washington Post*, March 26, 1992

"The popular demand for pesticide-free fresh fruits and produce is not justified either by cancer statistics or current knowledge of the effects of trace amounts of even proven carcinogens... Basing permissible pesticide levels on the reaction of laboratory rats to the chemical is crude and inaccurate...statistically, laboratory rats are expected to contract cancer 53 percent of the time from constant exposure to any synthetic substance."

-- According to Robert Scheuplein, Director of the Food and Drug Administration's Office of Toxicological Sciences
The Washington Times, May 21, 1991

"[FDA's Dr. David] Keller's slow overly cautious philosophy -- with moments of inappropriate regulatory zeal -- restrict access to life-saving technologies while it increases the cost of medications and health care."

-- *Los Angeles Times*, February 10, 1993

"In mindlessly defending the scientifically obsolete Delaney Clause, self-appointed protectors of the environment base their concept of 'dangerous' on the premises that (a) exposure to trace levels of chemicals play a role in causing human cancer; (b) a mouse is a little man; (c) if a huge amount of something causes cancer in a rodent then we must assume that minuscule levels...must pose a cancer hazard to humans; and (d) these 'carcinogens,' defined as chemicals that cause cancer, occur exclusively in man-made products. These premises...are obsolete today... The scientific community agrees that animal experiments, while useful in research, do not automatically predict cancer risk in humans; that risk is related to dose...and thus huge, almost-lethal doses of chemicals in animals have no relevance to human risk; and that chemicals which cause cancer in animals abound in nature."

-- Elizabeth Whelan, American Council on Science and Health
Insight, March 8, 1993

"'The whole area of environmental epidemiology is a frustrating one...' The principal problems are that people are generally exposed to low levels of the suspect substances. And even if the do suffer unusual health problems, it is hard to know whether the illnesses were caused by the substance or something else - smoking, poor diet, etc."

-- Dr. Allen J. Wilcox, Chief of Epidemiology at the Health Sciences Institute
The New York Times, March 23, 1993

THE NATION'S NEWSPAPER

USA TODAY

NO. 1 IN THE USA . . . FIRST IN DAILY READERS

THURSDAY, APRIL 1, 1993

FRIDAY'S FOREST SUMMIT: WHAT'S AT STAKE

4,600 OWLS vs. 32,100 JOBS

'There's no home for salmon . . . spotted owl . . . old growth forests.'

— Billy Frank, Jr.

By Jeff Reinking

FISHING RIGHTS: They are worth little now for Billy Frank Jr., of the Nisqually tribe. Frank cites loss of watersheds.

Behind the spotted owl controversy

The Clinton administration is convening a summit Friday to search for a compromise in the contentious battle over protection of the endangered northern spotted owl. Where the factions stand:

What environmentalists want

All old growth forests on federal land off limits to further logging. Environmentalists calculate three million acres of old growth forest are left.

What the industry wants

It would agree to protect some forest land but says the environmentalists' demands would cripple the timber industry unless other protected forest land is opened elsewhere for logging. Industry also says there are 9 million acres of old growth remaining.

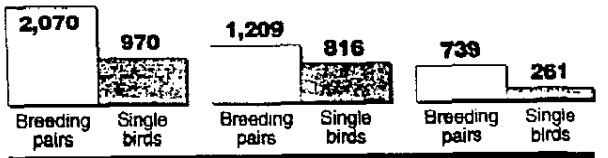
What Clinton administration could do

Preserve much of the old growth forest but open other areas for logging. The administration also may offer funding to help retrain displaced timber workers.

4,600 owls vs. 32,100 jobs

The plan would take about 5.4 million acres of federal land, an area about the size of Massachusetts, out of production to save 2,300 breeding pairs. In addition, 2.1 million acres of national parkland would be off limits. An estimated 32,100 jobs would be lost, according to the Forest Service, although the timber industry puts job losses much higher.

HOW MANY OWLS THERE ARE NOW

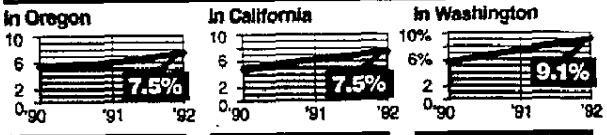


HOW MUCH LAND AN OWL NEEDS

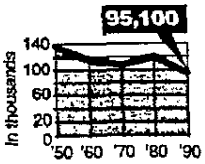
Owl's nesting area: Circle about 1.8 miles across
Timber in nesting area: Enough to build 4,100 homes

Economic situation in the Northwest

UNEMPLOYMENT ON THE RISE...

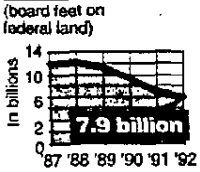


FEWER TIMBER INDUSTRY JOBS



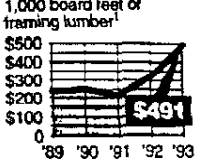
LESS TIMBER HARVESTED

(board feet on federal land)



LUMBER PRICES UP

Average price per 1,000 board feet of framing lumber[1]



Source: Department of Interior; Wilderness Society; Northwest Forest Resource Council

1 – for second week in March

By Stephen Conley, USA TODAY

1 – for second week in March

By Stephen Conley, USA TODAY

COVER STORY

'Time to reinvest in forests'

Continued from 1A

– does he protect the spotted owl amid demands of timber interests to harvest the bird's old-growth habitat?

For the administration, the long-running and bitter division over the owl is but one of dozens of imminent clashes across the country pitting the welfare of endangered species against human livelihoods.

Clinton as mediator promises to "hammer out a solution."

The president will have his hands full with polarizing goals: protecting owls, salmon and more than 600 species dependent on old-growth forests while retaining supplies of lumber, paper and other wood products that will put people back to work.

And there is doubt about how much can be accomplished in the circus atmosphere developing in this city: 25,000 people are expected, all vying for Clinton's attention:

▶ Four hundred timber businesses will shut down and give their workers Friday off with pay so they can come to Portland for a family day on the waterfront.

▶ Today, environmentalists step up with a pre-summit concert featuring Bonnie Raitt, Neil Young, David Crosby and Kenny Loggins.

▶ Friday, a salmon-fishing flotilla rides the Willamette River to a rally.

Whatever solutions arise, Clinton cautions: "Everybody may be somewhat disappointed. But the paralysis now gripping the lives of people there is totally unacceptable."

Everyone agrees on that.

But the issues are as complex as the forests: haphazard patchworks of steep, scraped slopes, young planted seedlings, eroded roads, winding rivers, healthy stands of trees.

Unlikely advocates for change have emerged. Take George Atiyeh.

"Forest managers should look at this like a business," says the former logger from Mill City who now flies for the environmental group Lighthawk. "Now is the time to reinvest in forests, restore them."

Stan Shaufler, owner of Owl Lumber and Manufacturing in Bremerton, Wash., says national forest logging bans have cut his supply to trees cleared for urban development.

But he supports cutbacks. "We can scale back the volume of harvests in old-growth, take reduced cuts, with a plan to perpetuate these forests."

Few doubt there will be change. The question is, how much?

"Timber interests . . . ought to be quaking in their boots," says Bill Arthur of the Sierra Club in Seattle, the son of a logger.

The initial skirmish will be over how much "old-growth" forest — with trees dating to Columbus — will be set aside as wilderness. No more than an estimated 8 million acres of virgin forest remain of the 21 million that once blanketed the Northwest.

Bottom line for many environmentalists: protect old-growth areas. "It's a critical part of our heritage," says Bob Chipak of Americans for the Ancient Forests.

But Washington and Oregon's lush national forests of unevenly aged trees — towering snags down to mossy undergrowth — provide 10% of U.S. timber supplies.

"Environmentalists have got the public believing that we're ready to cut the last tree," says Chris West of the Northwest Forestry Association. "We have more forest land preserved and protected in the Pacific Northwest than in any other region."

What companies want out of the summit is "some assurance of a stable supply of timber from the Western national forests," says Luke Popovich of American Forest and Paper Association. That is likely to come from isolated, old-growth stands and non-ancient woods.

The summit spotlight also will fall on the fishing industry, another unhappy but critical component of Northwest forests.

Nisqually Indian Billy Frank Jr. plans to tell Clinton the problem: "Devastation of 90% of watersheds throughout the Northwest. There is no home for salmon any more, no home for spotted owl, no home for old-growth forests."

A rotting and patched dug-out cedar canoe lies on a grassy bank of Washington's Nisqually River outside Olympia. It's Frank's reminder of his salmon-fishing days and the Northwest tribes' battle to regain treaty fishing rights — finally granted in 1974 but worth little now.

Few coho, chinook, chum, steelhead or sockeye return upriver to spawn. Fishermen from 20 tribes don't catch enough to make a living, their spawning grounds silted over from eroding clear-cut forests.

"The forest summit will be an empty exercise if all they do is talk jobs and owls," says Charles Gauvin, president of Trout Unlimited.

About 60,000 fishing-related jobs rely on Northwest stocks, though 90 fish populations are at risk in owl territory and being considered for listing as endangered species.

But here is where Clinton's economic plans mesh perfectly, Gauvin says. "Restoration, undoing the mess and stabilizing the forests, creates jobs. Thousands of miles of logging roads need to be retired."

Out of this summit could come higher prices for federal timber and longer periods between harvests of replanted trees. Timber firms' practice of exporting raw logs from private forests could come under fire.

"You're exporting the jobs that would've been created to mill those logs here," says Sami Yassa of the Natural Resouces Defense Council.

And Clinton is sure to hear gripes about preservation for preservation's sake. "We need to look at the big picture," says Fran Hunt of the National Wildlife Federation.

Argues Perry Pendley of the conservative Mountain States Legal Foundation: "We're dealing with an abyss that separates environmentalists from many people in the real world. We must use the forest as a resource, not just a place to visit."

THE WALL STREET JOURNAL.

3-31-93

Timber Summit to Attract 30,000 Peacemakers In War Between Loggers and Environmentalists

By Charles McCoy
And Rose Gutfeld
Staff Reporters of The Wall Street Journal

President Clinton might want to bring his own chain saw to the timber summit Friday in Portland, Ore. He might need it to cut through all the hoopla.

About 30,000 loggers, environmentalists, journalists and other interested parties are set to descend on Portland for the summit, meant to start a peace process in the nation's protracted wars over wildlife protection and logging. Bonnie Raitt, one of the president's favorite singers, and other pop stars will perform. Salmon fishermen will send a flotilla up the Columbia River. Lumberjacks will hold a midnight prayer vigil. Magicians, sword swallowers and jugglers will do their things, too.

"It has all the elements of a circus," observes Brock Evans, vice president of the National Audubon Society.

No Big Initiatives Expected

Indeed, the much-anticipated summit is shaping up as a lot more show than go. The government no longer is expected to put forth any major initiatives at the summit to break the logjam over forest policy – a fact that will disappoint many in the West. And the kind of things that the Clinton team is likely to promote at the summit, like job retraining for displaced loggers and broad ecosystem management *in public forests that would allow some* logging, don't address some of the biggest problems right now. Those problems include sky-high lumber prices and heavy logging – often with brutish logging techniques and harsh impacts on wildlife – on private timberlands.

The president's call for a timber summit fulfilled a campaign pledge and raised a lot of expectations in the West, where it was seen by many on both sides of the issue as a last shot at ending the warfare over wildlife protection and logging that has raged since the spotted owl was declared endangered in 1990. In addition to Mr. Clinton, Vice President Albert Gore, Interior Secretary Bruce Babbitt and several other cabinet officials will attend.

Administration officials say the conference, modeled after December's economic gathering in Little Rock, Ark., will consist of round-table discussions on three topics: who is affected by the timber crisis; the economic, environmental and sociological issues involved in forestry, and "new and innovative" ideas for forest management and economic development. After the event, an interagency task force that has already been working on issues related to the conference will help develop a comprehensive forest-management plan. One aim will be to standardize the often-conflicting practices of the various federal agencies involved in timber policy – and to assure that they obey timber-management and wildlife-protection laws, which they repeatedly failed to do during the past two administrations.

The Clinton administration's long-term plan for resolving the clash over cutting in the federal forests centers on first getting court injunctions banning logging on millions of acres of public forest lifted. That won't be easy: Federal timber agencies must first come up with a spotted owl-protection plan that federal judges deem meets legal requirements; the courts have rejected several previous plans, which can take months to compile, as inadequate.

Survey Completed

Moreover, a just-completed survey by Forest Service biologists has found that the Northwestern ancient forests are home to more than 600 species, many of which are suffering. The scientists' report concludes that any owl-protection measures should be expanded to ensure that those other species are protected as well. It implies more logging restrictions than the government has ever proposed for the ancient forests. Mr. Babbitt has praised the new report, but the Forest Service's chief, Dale Robertson, has been cool to it.

In the long run, the Clinton administration seems headed toward allowing some cutting while setting aside enough habitat to ensure that healthy forest ecosystems survive intact. Indeed, "It's the habitat, stupid," has become a catch phrase among summit-going environmentalists – and some administration aides. The government may also try to restrict raw-log exports, which have remained high even as millworkers have been cast out of work by the thousands because of log shortages.

Walt Minnick, chief executive officer of TJ International Inc., a Boise, Idaho, lumber company, says the industry shouldn't expect logging on public lands to ever reach more than about 40% of the levels seen in the 1980s. "Those days are gone for good, and we better face reality," he says. Mr. Minnick and other timber operators also believe they'll eventually be required to use far more gentle logging techniques. "The era of those big clearcuts is over," he says.

Congress May Act

Much of what the administration hopes to achieve in the forest, though, will take many months and probably require congressional action. Moreover, because of the factionalization in the environmental community, timber harvests will still be subject to legal challenge and protest, even if mainstream environmental groups sign on to the new approach. Timber companies want to somehow restrict their opponents ability to sue; environmentalists are dead set against that.

In the meantime, the situation in the Western forests is growing grimmer.

The plunder of public timberlands has slowed and owls are safer, but the logging restrictions have helped drive lumber prices to record highs in recent months. The price of redwood logs in California, for example, has soared to $900 per 1,000 board feet, more than double year-earlier prices. To date, the increased costs haven't seemed to have much impact on the general economy because home sales have been relatively slow and builders haven't been able to pass on their increased lumber costs to consumers.

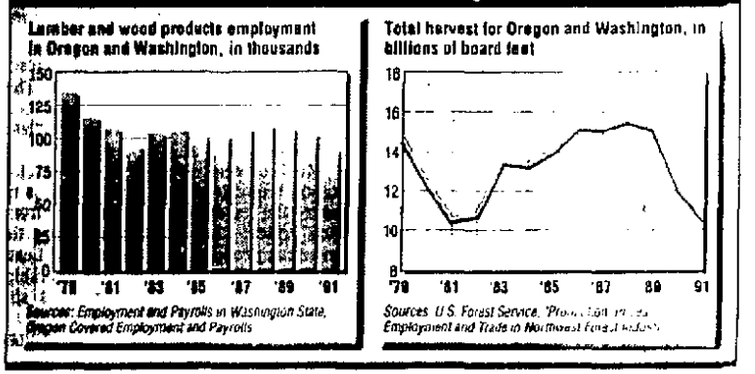
Prices Spur Heavy Logging

The surging prices, however, have spurred heavy logging on private lands and prompted many holders of smaller timber parcels to sell them off for logging.

"It's a great irony, but a lot of trees that would have stood forever are coming down because of high prices and the fear landowners have that they might never be able to log," said Don Beaty, a timberland manager and forestry consultant in Redding, Calif. Moreover, because the costs of meeting timber-harvesting regulations and acquiring permits have soared in the past few years – to about $8,000 from about $1,500 for a state-required timber-harvest plan in California, Mr. Beaty estimates – landowners who do decide to cut are having to cut more to make any profit.

Aaron Smythe's family owns 160 acres in Mendicino County, in California's redwood country. He considers himself an environmentalist, but he recently sold timber rights to 35 acres; logging will start soon. "We didn't want to cut those trees, but I've got taxes to pay, and the prices trees can command right now are unbelievable," he says. If I don't cut now, I might never be able to."

The Lumber and Timber Industry



Chicago Tribune, March 4, 1993

Is there any room for reality in our pesticide policy?

Cancer is a major health risk, killing one out of every four Americans, and nothing creates more alarm than finding that something we're exposed to every day can induce malignancies. But connoisseurs of irony will be pleased by this paradox: The Clinton administration is doing a favor to public health by proposing that we discard one weapon against cancer.

Since 1958, a federal law known as the Delaney clause has stood for the proposition that the only acceptable cancer risk is zero. It bans any additives in processed food that have been found to cause cancer in people or laboratory animals.

The law has been used to knock lots of agricultural pesticides off the market, which doesn't

Stephen Chapman

mean it has been an ally of human welfare. When the law was passed, scientists could measure pesticide residues in foods in parts per thousand or, if they were lucky, parts per million. Today, they can sometimes detect concentrations as low as parts per quintillion—"roughly the same as a tablespoon of liquid in all the Great Lakes combined," Time magazine notes.

A consumer is about as likely to get cancer from a part per quintillion of a pesticide in her food as a Chicagoan is to die from a spoonful of arsenic poured into the middle of Lake Superior. But the law is oblivious to the hints made by reality.

The Environmental Protection Agency tried to relax its application of the Delaney clause to incorporate some respect for common sense. But environmentalists, led by the Natural Resources Defense Council, sued to stop it and won. The federal courts ruled in effect that when a law is ridiculous, it's still a law.

The effort to weaken the Delaney clause, however, happened under the sinister Republican EPA, which was presumed to be a puppet of Amalgamated Poisons Inc. Now we have a benign Democratic EPA, headed by a former aide to environmentalist darling Al Gore. And what does Carol Browner think of the Delaney clause? She thinks it's bunk.

Releasing a list of 35 agricultural chemicals that could be prohibited as a result of the court decisions, she said the agency "does not believe that the pesticides . . . pose an unreasonable risk to public health, based on available data."

Browner apparently prefers something like the previous EPA position, which was to replace the zero-risk standard with a "negligible risk" policy. It would permit a pesticide if, based on the most cautious assumptions, it would cause no more than one additional case of cancer in every million people if they were exposed to it for a lifetime.

That was also the policy recommended in 1987 by an expert panel convened by the National Research Council, an arm of the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine. It said a zero-risk policy forces the EPA to waste time on insignificant hazards and, if consistently followed, "would cause severe adjustments in agricultural practices, particularly in control of plant diseases."

Allowing any cancer danger may sound like a dangerous departure. But the fact is we pay no attention at all to 99.9 percent of the pesticides in our food—those toxins produced not by people but by plants, to ward off fungi and animals.

"Americans eat an estimated 1,500 milligrams of natural pesticides per person per day," says University of California at Berkeley biologist Bruce Ames, "which is about 10,000 times more than they consume of synthetic pesticide residues." Contrary to myth, moreover, man-made chemicals are no more hazardous than natural ones.

Apples acquainted with Alar were pulled out of produce bins, but Ames notes that even the most pristine apples contain at least three carcinogens and 132 chemicals that have never been tested for cancer-causing properties. Everything from carrots to cocoa, from peanut butter to pepper, carries substances that could, in sufficient doses, kill you.

Considering the risks inflicted by nature, it's silly to worry so much about the ones contributed by man. In fact, banning pesticides in the attempt to prevent cancer is likely to have perverse results. A diet rich in fruits, vegetables and grains is one of the best ways to reduce the risk of cancer. But when farmers are prevented from using valuable pesticides on their crops, yields of these foods are lower than they would be otherwise and prices are higher, discouraging their consumption.

Fewer pesticides, more cancer. This is the legacy of the Delaney clause, a reminder that benevolent motives are no guarantee of sound policy. Carol Browner has learned something from the experience, even if a lot of her fellow environmentalists have not.

LOS ANGELES TIMES, 2/10/93 P.7, PART O

We Need an FDA Leader, Not a Regulatory Czar

■ Health care: AIDS, cancer and Alzheimer's are among the issues where David Kessler has compromised science and ethics.

By JAMES P. DRISCOLL, WILLIAM K. SUMMERS and BEVERLY ZAKARIAN

Astonishingly, cohorts of Dr. David Kessler are working behind the scenes to induce President Clinton to retain him as commissioner of the Food and Drug Administration. The liabilities of retaining Kessler are numerous and [illegible] achieve its health-care goals, the Clinton administration will need a pragmatic, public agenda for the FDA. Clinton is committed both to improving access to health care and to restraining its cost. The Clinton commissioner for FDA must be a loyal and pragmatic team player.

Kessler is not a team player. He follows his own agenda with a headline-grabbing style. Kessler betrayed former President Bush and he would betray Clinton. Kessler's slow, overly cautious philosophy—with moments of inappropriate regulatory zeal—restricts access to life-saving therapies while it increases the cost of medications and health care.

For example, Kessler claims to champion faster AIDS drug approval. But ignoring the advice of AIDS activists and clinicians, he delayed approval of DDC/AZT combination therapy for one year, waiting for data that never arrived. During that year, he sanctioned an illegal, underground drug market to silence AIDS activists demanding DDC. If Kessler had no new data, what made him finally approve DDC last April? First, California AIDS activists and Vice President Quayle's office criticized Kessler's delay. Second, the DDC underground collapsed because of defective quality control. The FDA was facing the scandal of sanctioning a dangerous bootleg product. Rather than expediting scientific procedures, Kessler merely yielded to pressure.

The illusion that Kessler accelerated approval of drugs for life-threatening diseases is dispelled by continued delays with the Alzheimer's drug tacrine (also known as THA or by the brand name Cognex) While 1,000 Alzheimer's victims die each day, tacrine has been delayed 2½ years. Tacrine is effective and clearly is less toxic than the AIDS drugs AZT, DDI and DDC. Another promising drug for Alzheimer's, mentane, was recently scuttled by Kessler's FDA. Why do Alzheimer's patients receive unequal treatment? The AIDS activists are more politically powerful.

Another instance of misguided leadership is Kessler's campaign against "off-label" use of drugs. Most cancer drug therapy is "off label"—that is, used for cancers other than that for which it is FDA-approved. Health insurance companies welcomed Kessler's policy because it justified their ever-narrowing reimbursement policy. This "off-label" policy also restricts exchange of information. Kessler's campaign barred doctors from using effective combinations of cancer drugs. Unneeded barriers to optimal treatment are costing patients their lives.

After consigning tacrine to limbo, driving DDC into the underground and taking cancer drugs away from doctors, last winter Kessler decided to assault the American medical-device industry, the world's largest and most innovative. Yet Kessler's regulatory jihad threatens to force relocation of U.S. makers to other countries, on the heels of their pharmaceutical counterparts. And denying patients life-saving devices such as brain aneurysm balloons is killing people.

America must have an FDA commissioner who makes decisions on the basis of science and ethics. The needs of AIDS, cancer and Alzheimer's patients should become the priority. The biotechnology, medical-device and pharmaceutical innovative edge must stay in America. At FDA, the time for change is now.

James P. Driscoll, a nationally known AIDS patient advocate, is vice president of Direct Action for Treatment Access in San Francisco. Dr. William K. Summers of Arcadia is a member of the Alzheimer's Rights Alliance. Beverly Zakarian is chief executive of the Cancer Patients Action Alliance of Brooklyn, N.Y.

The Detroit News

FOUNDED AUG. 25, 1873

ROBERT H. GILES
EDITOR AND PUBLISHER

THOMAS J. BRAY
EDITORIAL PAGE EDITOR

CHRISTINA BRADFORD
MANAGING EDITOR

JAMES L. GATTI
DEPUTY MANAGING
EDITOR/NEWS

JULIA S. HEABERLIN
DEPUTY MANAGING
EDITOR/FEATURES

A GANNETT NEWSPAPER

PUBLISHED DAILY, SATURDAY AND SUNDAY MORNINGS
615 LAFAYETTE BOULEVARD, DETROIT, MICH. 48226

CONGRESS
shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

FIRST AMENDMENT TO THE U.S. CONSTITUTION

A Rat in the Ozone Scare?

Most of the public "knows" that there's an ozone hole in the upper atmosphere and that the chief villains are refrigerants. International agreements to phase out these chemicals, called chlorofluorocarbons (CFCs), by the mid-1990s already are in place and are unlikely to be repealed. Yet a lot of very respectable scientists still have nagging doubts about the ozone theory.

As a result, Rep. William Dannemeyer, R-Calif., last week introduced a resolution calling for a presidential commission to review the evidence for ozone depletion. Meanwhile, Michigan Rep. John Dingell, chairman of the House Energy and Commerce Committee, has been directing some pointed questions to the White House science adviser and the National Aeronautics and Space Administration (NASA).

Both men appear to smell a rat in the ozone story. What got their attention was NASA's press conference last Feb. 3, at about the same time that Congress was beginning to work on the space agency's budget, suggesting that a big new ozone hole in the sky might be imminent over the Northern Hemisphere. If so, it would be a serious matter: Ozone acts to filter out ultraviolet radiation that can cause skin cancer and damage plant growth.

The focal point of the press conference was a series of high-altitude flights by NASA planes in northern latitudes that found "unexpectedly high" chlorine levels of up to 1.5 parts per billion. But NASA held its press conference even before its high-altitude sampling had been completed, much less subjected to the usual scientific peer review process. Now it turns out there's no hole.

Moreover, as Candace Crandall of the Science and Environmental Policy Project in Washington points out, some of the same NASA scientists were aware of far higher readings in the past. Why the rush to publicize this particular finding?

Given all the uncertainties, it may make sense to take some preventive measures to protect the ozone layer. What is troubling is the suggestion that publicly funded scientists may be playing fast and loose with the facts for political reasons. The integrity of the scientific process is tremendously important to the United States, whose economic fortunes rest to a large degree on its ability to exploit its scientific capabilities.

Reps. Dannemeyer and Dingell aren't alone in their concern. Recently a group of 425 international scientists and medical experts, including 62 Nobel laureates, issued an appeal warning against the increasing use of "pseudo-scientific arguments" in the environmental debate. While subscribing to ecological objectives, they demanded that ecological science "be founded on scientific criteria and not on irrational preconceptions."

Many environmental zealots in and out of government, however, have proved themselves quite willing to bend science to the service of their political (and financial or bureaucratic) goals. The result has been a panicked public that is easy prey for all sorts of counterproductive regulation and spending. In the end that will lead to cynicism about the value of science generally — and a poorer United States.

Scripps Howard News Service, November 21, 1992

Scientists ripped as alarmists in ecology warning

Appeared in:

St. Louis Post–Dispatch
Washington Times
and other newspapers

By Mark Schlinkmann
ST. LOUIS POST-DISPATCH

Scientists who issued a "warning to humanity" about ecological deterioration were criticized Thursday as anti-development alarmists who fail to strike a balance between the environment and economic well-being.

"It's the usual hype we've come to expect" from the Union of Concerned Scientists, said Candace Crandall, executive director of the Science and Environmental Policy Project, a research group.

"These kinds of tactics do little to clarify the reality and extent of our environmental problems and even less to bring about effective cost-effective solutions."

The U.S. Chamber of Commerce, the National Association of Manufacturers, the American Petroleum Institute and the National Coal Association also criticized the warning.

The various organizations objected to the science group's charge that U.S. business pursues short-term profit at the expense of the environment and its recommendation that the burning of fossil fuels be curtailed.

The Union of Concerned Scientists warned Wednesday that Earth would be "irretrievably mutilated" in the next few decades unless damaging activities are phased out. More than 1,500 researchers around the world endorsed the statement.

The union cited world population growth and increasing threats to the atmosphere, water supply, oceans, soil, forests, animals and plants. It called for curtailment of the cutting of forests, expansion of conservation and recycling, and stabilization of population.

Michael Baroody, senior vice president of the National Association of Manufacturers, said the report ignored the $1.5 trillion that the United States has spent on environmental improvements over the past 20 years. Moreover, Mr. Baroody said, "The very environmental progress I just talked about came because of changes in processes by American industry and technological developments by American industry."

Mr. Baroody said the only way to pay for environmental protection is by continued economic growth. And that growth depends, at least for now, on the use of fossil fuels.

John Grasser, a coal association spokesman, said industry has worked with government in recent years to clean up the water and air, but "you've got to look at the trade-offs" because moving too quickly can spur industry shutdowns and cost jobs.

Harvey Alter, a chemist who manages resources policy for the National Chamber of Commerce, said everyone, including business is concerned about the environment.

"But we have to manage the environment like we manage everything else," Mr. Alter said. "Some people would put the environment ahead of people. I don't think the majority of our population would agree."

S. Fred Singer, director of the Science and Environmental Policy Project, said the U.S. environment is improving and population growth is stabilizing. He added that various parts of the world have problems, but that most are local in nature — such as a lack of space for garbage in the United States.

Mr. Singer, a former professor of environmental sciences at the University of Virginia, said the concerned scientists union's statement was part of a "numbers game."

He said the group might have been trying to offset the Heidelberg Appeal, a statement signed by 1,800 scientists last year, which said "adequately managed science and technology" are "indispensable tools" in overcoming problems such as overpopulation, starvation and worldwide diseases.

Mr. Singer said that the appeal amounted to "a revolt by scientists tired of seeing science constantly politicized, used and mistreated."

• *Distributed by Scripps Howard News Service.*

THE WALL STREET JOURNAL.

3/22/93

Cancer Scare

How Sand on a Beach Came to Be Defined As Human Carcinogen

Tests Using Common Silica Spark a Scientific Clash Over Safety, Procedures

Sounding Grass-Roots Alarm

By David Stipp
Staff Reporter of The Wall Street Journal

After Jim Swide recently emptied a bag of sand into his two-year-old daughter's sandbox, some words caught his eye: "may contain . . . crystalline silica . . . known to the state of California to cause cancer."

Horrified, the resident of Ukiah, in northern California, snatched his daughter out of the play area. "I thought, 'Why am I letting my daughter play in something that says right on the label, it causes cancer?' " he says. "It was quite a shock." Mr. Swide scooped up the sand, returned it to the store and got his money back.

Richard Shoemaker, the store's owner, hadn't noticed the warning, but now posts it prominently. After all, he notes, it looks like the stuff on a California beach.

In fact, it is.

Crystalline silica, the primary ingredient of sand and rocks, looms as perhaps the scariest cancer demon ever. It is in countless products: pharmaceuticals, bricks, paper, jewelry, putty, paint, plastics, household cleansers — not to mention bags of sand for toddlers' backyard boxes.

Finding It Everywhere

Soil is laced with the stuff, so is dust in the air. Most water supplies are filtered through sand, so it is in drinking water. Traces of it cling to root vegetables and other foods. Silica, formed when silicon and oxygen chemically combine, makes up about a quarter of the Earth's crust. (Some silica is in a noncrystalline, "amorphous" form that isn't linked with cancer.)

The idea that much of the planet's surface is a deadly chemical may sound like the stuff of science fiction. But, it is true: For several years, crystalline silica has been classified as carcinogenic by various regulatory agencies, including the federal Occupational Safety and Health Administration.

The official lumping of beach sand in the same category as carcinogens such as dioxin, critics contend, suggests as nothing before that the regulatory system tends to cry wolf when it comes to cancer. It underscores broader concerns among scientists that the traditional method of massively dosing rats to assess cancer risk — coupled with regulatory tripwires set to go off at the slightest hint of carcinogenic potential — is fundamentally flawed.

Indeed, most researchers agree there is no clear-cut evidence that silica is carcinogenic in humans, even at high doses over many years, much less at levels most people are exposed to. Emphasizing the lack of compelling data, former government researchers, in an extraordinary dispute, maintain that a federal report linking silica to cancer was published after earlier versions of the same report — which showed little evidence of the link — were discarded for no good scientific reason.

Legal Implications

"Silica is not something Mr. and Mrs. America should be worrying about," says Joseph McLaughlin, a National Cancer Institute researcher and co-author of a comprehensive study on the issue.

The government's labeling of silica as carcinogenic "has opened up huge legal implications," adds Malcolm Ross, a scientist with the U.S. Geological Survey. "Products are liable to be dropped, or people will be scared to use them."

In Wisconsin, the widow of a former quarry worker is seeking compensation for his lung cancer, alleging it was caused by silica. California agencies have pressured companies that emit silica to inform consumers about its cancer risk — thus, the warning on sand. Now grass-roots groups are sounding the alarm, and officials in industries that use silica fret they may face a flap like the asbestos scare of the 1980s — an episode, according to many experts, that wasted billions of dollars and needlessly endangered thousands of people (see article on page A8).

Citing Dust

"Crystalline silica is as dangerous or more dangerous than asbestos," declares Alma Schreiber, a Felton, Calif., resident seeking limits on dust emissions by a local quarry. She adds that she first heard the substance is carcinogenic from Pacific Gas & Electric Co., which, in compliance with California's "right-to-know" law on hazardous substances, warned its customers that it sometimes conducts sandblasting, which emits crystalline silica. The utility says California knows the chemical causes cancer.

How did California come to know more than scientists on this issue?

Crystalline silica's reputation began with the discovery in the 1500s that heavy dust exposure among miners can cause lung disease. Researchers now call it silicosis — a noncancerous, fibrous scarring of the lungs following prolonged, heavy exposure to silica-laden dust.

The disease now rarely occurs because of regulations limiting dust exposure in the workplace. But doctors have seen thousands of cases of silicosis through the years. Yet they haven't noticed abnormally high cancer rates among patients exposed to silica dust. In 1982 one researcher wrote that "the incidence of lung

Please Turn to Page A8, Column 1

Cancer Scare: How Sand on a Beach Was Defined As a Human Carcinogen and Sparked a Controversy

Continued From First Page

cancer in miners with silicosis is significantly lower than in non-silicotic males."

But that year, a graduate student at the University of North Carolina, David Goldsmith, made a splash by proposing that silica can cause cancer. Several clues suggested that conclusion, says Dr. Goldsmith, now at the Western Consortium for Public Health, Berkeley, Calif. In particular, Laurence Holland, a researcher at Los Alamos National Laboratory in New Mexico, had just reported that when high doses of silica in water were repeatedly injected into the lungs of 36 rats, six developed tumors. That "struck me as quite powerful," says Dr. Goldsmith.

Dr. Goldsmith, the most ardent advocate of the view that silica poses a cancer risk, in 1984 organized a conference, "Silica, Silicosis and Cancer." Soon after, an arm of the World Health Organization, the International Agency for Research on Cancer, formed a "working group" of scientists to look at the issue.

After examining past studies, the group found "sufficient" evidence that silica is carcinogenic in animals, but only "limited" evidence that it is in humans. Still, in 1987, the agency listed silica as a "probable" human carcinogen – a label it affixes when at least two animal studies indicate a substance causes cancer.

'Plausible and Prudent'

According to a policy statement, this automatic leap from limited animal data to a declaration of human risk is "plausible and prudent" to flag cancer risks early. But many scientists find it troubling.

Among other things, the policy gives little or no weight to studies indicating that substances don't cause cancer. The listing of silica as a probable human carcinogen was based chiefly on five rat experiments. But at least five similar studies in hamsters and mice, all reported by 1986, found no evidence of cancer.

Moreover, even the rat studies weren't very compelling, according to scientists who conducted them. Most of these researchers blasted the rats with silica doses 100 or more times the amount humans are exposed to, even in the dustiest workplaces. Most tumors that developed were different from those that typically occur in cases of human lung cancer, notes Los Alamos Laboratory's Dr. Holland.

Despite conducting the pivotal rat study that Dr. Goldsmith cites as "powerful," Dr. Holland concluded in a 1990 review of cancer-silica studies that "there is a great deal of uncertainty" about silica's link with cancer and decried "repeated overreaction to every positive experimental observation."

Adds Corbett McDonald, a professor at Montreal's McGill University and chairman of the international working group on silica: "There was sufficient evidence in animals and limited evidence in man" of carcinogenicity. "But [the agency] has this custom of saying 'probable.' It doesn't mean that it is probable. And then the U.S. agencies tend to take the next automatic step of treating it as a carcinogenic substance. That's the trouble."

Indeed, OSHA's cancer alarm goes off more readily than the international agency's – the Labor Department agency requires just one study indicating a substance is carcinogenic to trigger its cancer-warning rules. Thus, the international body's classification of silica as a probable carcinogen automatically activated OSHA's "hazard communication standard," requiring companies to issue warnings to employees about workplace materials containing more than 0.1% of crystalline silica.

Intentionally Broad

Despite the skepticism among many scientists, OSHA says it did the right thing. Its rules on toxic substances are intentionally broad to ensure that employees know about dangerous substances.

But consider what happened on Thanksgiving Day 1990, when firefighters arrived at a blaze at a pottery plant in Roseville, Ohio.

The fire started as workers burned empty bags of sand used for glazes. The bags had been tagged as containing carcinogenic crystalline silica.

Rock Samson, Roseville's fire chief at the time, says that when his men first arrived and started dousing the flames, "I thought it was going to be simple. . . . But then I got to seeing the warnings on some of the bags. When I saw that I said, 'Okay boys, it's time to get out of here.' "

The firefighters pulled back, cordoned off a "hazardous materials hot zone" and called for help, says Mr. Samson. Soon, a small army of firefighters from four towns brought in nine trucks and assorted equipment, including a "deluge gun" for spewing water from a distance at hazardous materials. Emergency workers rushed house-to-house to warn residents to stay inside with doors and windows closed lest they breathe toxic fumes.

When the blaze was finally extinguished, Mr. Samson and his firefighters checked into a hospital. "We got chest X-rays and the whole nine yards," he says. "It was just a precautionary measure. But I've had a couple of close brushes with death, and it makes you think what could happen to you."

As silica scares multiply, a crisis atmosphere is mounting in industry circles. Officials with the Chemical Manufacturers Association, the National Industrial Sand Association and other groups say their main concern is liability lawsuits.

"Suppose a consumer sees a cancer warning on a bag of crushed limestone he's put on his driveway, later develops lung cancer and then sues the limestone producer," frets Frederick Renninger, a spokesman for the National Stone Association, a trade group in Washington, D.C. He adds that the fine points of the scientific debate are likely to get lost in such emotionally charged cases – just as they did in the scare about Alar, the apple growth regulator that was banned by the Environmental Protection Agency even though limited rat data indicated the chemical posed little, if any, risk.

But Dr. Goldsmith still contends low exposure to silica outside dusty workplaces may increase a person's risk for lung cancer. "The evidence is that silica is a probable carcinogen," he asserts. "That doesn't mean ambient exposure will result in lung cancer. But at the same time, it doesn't mean you're safe."

Few silica experts agree with Dr. Goldsmith's opinion that ambient silica—meaning levels outside mines or other dusty workplaces – is worth worrying about. But Dr. Goldsmith's view may carry the day: The EPA, as a prelude to possible action aimed at limiting public exposure to silica, is relying on him as its main consultant on silica-and-cancer data.

Dr. Goldsmith says he recently scanned human studies on the issue and found that 24 of 26 studies showed a statistically significant increased risk of lung cancer among workers exposed to silica. But at least six prior reviews by other researchers concluded that the jury is still out.

Many studies Dr. Goldsmith has cited as suggesting an increased risk don't account for smoking among the workers. Blue-collar workers have a higher smoking rate than the general population, which may explain higher lung-cancer risks in miners and quarry workers.

Indeed, in one study on silica exposures among Vermont granite-quarry workers who had an elevated lung-cancer rate, researchers obtained smoking histories on 84 of the workers who died of the disease. All 84 were smokers.

Moreover, many of the studies were based on company records of workers who received disability compensation for lung disease. Past studies show such employees tend to minimize how much they smoke. That can produce what seems to be a high lung-cancer rate among those exposed to silica dust, even when smoking records are factored in.

Skeptics also note that few studies linking silica with lung cancer have accounted for other, well-established carcinogens – including arsenic dust and radon found in mines.

To be sure, there are a few studies that, after accounting for smoking and other factors, suggest silica exposure raises the risk of lung cancer. But other, equally rigorous studies have found no signs of cancer risk from silica.

THE WALL STREET JOURNAL

3/22/93

THE WALL STREET JOURNAL.

3/22/93

In one of the most thorough studies, reported last year in the British Journal of Industrial Medicine, a team led by Dr. McLaughlin of the cancer institute carefully sorted out possible causes of 316 cases of lung cancer among 1,668 miners and other "dusty trades" workers in China. Tungsten miners with heavy silica exposures, they found, actually had about half the risk of lung cancer as the general population. In contrast, silica-exposed tin miners had elevated lung cancer rates—but they also were exposed to significant amounts of arsenic dust. "The study doesn't really provide support for a causal relationship between silica and lung cancer," concludes Dr. McLaughlin.

Link to Lung Cancer

Against this backdrop of uncertainty, a controversy recently erupted over a report by the National Institute for Occupational Safety and Health on the silica question. After more than a decade of analysis of health records on 3,246 quarry and mine workers, NIOSH last July reported that the data indicate exposure to silica is associated with lung cancer.

Industry officials that supplied the worker records for the study say the institute — which conducts research on OSHA issues—molded the report to reach a politically correct, preordained conclusion. They note that in four earlier drafts of the report, no significant silica-cancer link was found.

Former NIOSH employees who helped shape the earlier versions are critical. One of them, Robert Reger, now a professor at West Virginia University and a consultant to the National Stone Association, calls the final report a "disaster." He faults its authors for concluding silica was associated with increased lung-cancer risk in granite workers even though data on their smoking rate wasn't available.

Gregory Wagner, a NIOSH manager who oversaw the final report, counters that the previous analyses that didn't find a significant cancer link were "confusing" and "lacked clarity. Ultimately, I said [to the NIOSH researchers involved], 'Go back to the beginning and tinker with it.' " The final report, he insists, was "clear, accurate and scientifically credible" and contains appropriate caveats.

Dr. Wagner adds that the granite workers with a high rate of lung cancer probably smoked at about the same rate as the general population because their rate of other smoking-related diseases, such as heart disease, wasn't elevated. Thus, smoking probably didn't account for their high cancer rate.

But other researchers say manual workers who smoke often have relatively low heart-disease rates—constant exercise offsets their smoking-related heart risk. Moreover, in one early version of the NIOSH report, researchers noted that when they obtained smoking histories for 30 workers who died of lung cancer—58% of the total who died of the disease — they found 93% had been smokers. That information was dropped from the final report, along with the earlier conclusion that the excess lung cancer cases in the workers "can be largely attributed to cigarette smoking."

While controversial, the study is likely to carry much weight in the silica debate. "Things that get disseminated by the U.S. government sometimes have a way of becoming sacrosanct," says Dr. Reger.

Indeed, Ukiah's Mr. Swide is still worried after learning that the government-designated carcinogen he exposed his daughter to was ordinary sand from California's Monterey beach. "It was just an unnecessary risk to have that stuff around," he says.

The ozone scare: Policy by press release

By S. Fred Singer

A recent announcement by NASA, the U.S. space agency, that an aircraft-borne instrument had detected a high reading of chlorine stampeded the U.S. Senate into passing an amendment, 96-0, calling for an accelerated phase-out of the manufacture of chlorofluorocarbons. A week later, the White House ordered a phase-out of CFCs by 1995, five years ahead of schedule.

All this was accomplished by two NASA press releases and a lot of attention from the news media. It is discouraging to see public policy driven by press releases rather than proven science.

What really happened? As best as one can tell — absent any published information that can be checked by independent scientists — a chlorine detector, flying on a NASA research aircraft in the northern stratosphere, encountered high concentrations of an active form of chlorine, *capable* of attacking ozone.

But, of course, it required careful reading of the artfully worded document to discover that nothing at all was happening to ozone. Most press reports fell into the trap.

The NASA announcement was based on a peak chlorine reading, which occurred on Jan. 20. "Peak" implies, however, that readings were lower — perhaps much lower — both before and after that date. The document was silent on this important point. Nor did it reveal that similar measurements in 1989, the date of the last such experiment, also encountered high chlorine values. Although widely anticipated and discussed at the time, there was no Arctic ozone "hole" in 1989, nor in any other year. The CFC ozone theory is simply not good enough to predict chlorine values or ozone depletion.

It required careful reading to discover that nothing at all was happening to ozone.

The NASA press release may have told the truth, but it didn't tell the whole truth. It did not reveal that chlorine atoms cycle back and forth between an active and inactive form, depending on the presence of stratospheric ice particles, which in turn depend on whatever happens to be the temperature. Stratospheric "weather" has become the pacing variable for ozone depletion, not the level of chlorine. This vital piece of information was withheld.

The press release claimed that the source of the chlorine was "mainly CFCs," a man-made chemical widely used in refrigeration, air-conditioning, and in the manufacture of foam plastics and electronic circuit boards. But according to the second press release, issued by the same NASA office on the same day, the volcano Pinatubo was emitting chlorine compounds and particles into the stratosphere that were actually depleting the ozone layer in the tropical regions.

And, curiously, the Pinatubo press release passed over the fact that depletion at low latitudes would lead to large increases of surface ultra-violet radiation — with all of the consequences usually reserved for ozone changes believed to be man-made: Increases in skin cancer, cataracts, plankton death, etc. Apparently, natural ozone changes don't count.

Why did NASA have to release the information on Feb. 4 when the experiments were to continue through the end of March? Officials felt they had to warn the public of an "ever increasing danger of ozone depletion."

A more likely explanation is that if NASA waited until the end of the experiment and did not find an ozone hole, any announcement would immediately lose its publicity value. By holding out the possibility, however slim, that a hole might develop, the NASA project could improve its budget outlook and perhaps even have a policy impact. NASA's game plan has proved successful. (Shortly after the announcement, the "threatening" chlorine values dropped by 75 percent. Now the winter is over, and there has been no Arctic ozone hole.)

Members of Congress are beginning to ask if those two weeks between the peak observation and the NASA announcement allowed enough time for independent scientific scrutiny, and for coordination of an accelerated CFC phase-out with all of the affected industries and government agencies. Has the White House fully considered whether CFC substitutes will be readily available? Will the substitutes be as non-toxic, non-carcinogenic, non-flammable and efficient as CFCs?

Some of the substitutes being tested have produced tumors in rats; others have proved to be flammable in kitchen refrigerators. Many of them will require that existing equipment, currently worth more than $135 billion in the United States alone, be modified or replaced.

And environmental activists are already clamoring for the early elimination of CFC substitutes because they are not sufficiently "ozone friendly."

One last item — a scientific nugget. A research paper by two Belgian scientists, published in the Journal of Geophysical Research, appears to demonstrate that the frequently claimed ozone depletion, based on global data from surface stations over the last 30 years, disappears completely when one corrects for the interfering effects on the measurements by atmospheric sulfur dioxide.

If confirmed, this discovery would throw all of our fears about ozone depletion into a cocked hat. As they say in the Alar business, how do you like them apples?

■ S. Fred Singer is professor of environmental sciences at the University of Virginia, now on leave, and directs the Science & Environmental Policy Project in Washington, D.C. He designed the currently used instrument for measuring ozone from satellites.

Shift and shaft federalism

This month, the National League of Cities (NLC) released a report detailing the sorry financial plight of many of its members. A majority of 620 cities surveyed by the organization actually suffered budget shortfalls this year, partly because of the recession and partly because of rising costs of employee health benefits. But they also complained about federal and state mandates imposed on them without any funding to enable them to comply. NLC Executive Director Donald J. Borut complained the feds were simply shifting their own costs onto local governments. "It's what we call shift and shaft federalism," he said.

This is hardly a new complaint. In May local officials met with their federal counterparts at the Environmental Protection Agency out of concern that they were being inundated with regulations spawned by the likes of Clean Air acts and Clean Water acts and Resource Conservation and Recovery acts. The problem, said NLC spokesman Frank Shafroth, is that for every $10 in environmental costs that the feds pile on local jurisdictions, there is $1 at the local level to cover the cost.

Counties and towns have limited means to deal with the problem. They can simply violate the law, which is easy enough to do because many of the rules are incomprehensible to those who haven't tried to parse EPA-speak in a while. "EPA rules are written in Latin," said Mr. Shafroth, "with Greek footnotes."

They can also pass on costs to taxpayers and consumers. Jack Sullivan of the American Water Works Association sees average waste-water costs more than quadrupling in the next few years, drinking-water costs tripling and solid-waste charges nearly doubling.

Part of the problem here is that the agency itself has almost no clue about what its good intentions will cost out in those backwater places where people actually try to make sure they don't spend more than they have. Officials in Colorado Springs, tell the story of how EPA officials figured that the city would have to spend, oh, $49,000 for thus-and-such storm-water permit. Well the latest figure is $1 million and counting because the city still hasn't done enough to satisfy EPA.

Likewise the agency also guesstimated that a storm-water permit for Columbus, Ohio, would run about $77,000. The lowest bid from contractors, however, was almost $1.78 million. In any case, the health benefits are dubious, based on questionable calculations from within the agency.

There's blame enough to go around here. An agency official told Bonner Cohen, editor of the useful EPA Watch, "Our people like to hide behind Congress' skirts. Sometimes the bills passed by Congress are so poorly worded that we have plenty of flexibility when it comes to implementation, but we don't use that flexibility."

Last month, the U.S. Conference of Mayors approved a resolution asking Congress and the administration either to fund their wonderful mandates or to stop enacting them. "Congress must be held accountable for its actions," said Knoxville, Tenn., Mayor Victor Ashe. "By passing these laws and providing no funding, Congress is, in effect, imposing back-door taxes on the American people."

Roanoke Times & World-News

TUESDAY, DEC. 29, 1992

COMMENTARY

Give industry a bigger science rol

By PATRICK J. MICHAELS

THE SPIN-UP of a new administration allows scientists a great opportunity. They can cast off their shackles, reduce the deficit, increase productivity, and set the country pointing toward the shining city on the hill of technological supremacy and scientific leadership.

How? Easy. Get the government off their backs.

The fact is that virtually every successful academic scientist is a ward of the federal government. One cannot do the research nec- [redacted] warded tenure without appealing to one or another agency for considerable financial support.

In the environmental sciences, the amount necessary to build such a research machine in time to get tenure (six years) is around $1 million. This requires no mean amount of supplication and obedience to, say, the National Aeronautics and Space Administration, the Environmental Protection Agency, the Department of Energy, or the National Science Foundation.

If anyone truly believes that these agencies do not have political agendas, they need look no further than "public choice" economic theory. They exist to perpetuate themselves, and to expand their territory and their political influence. Government agencies behave just like people.

The agency goals cannot be accomplished without the largesse of Congress. Thus begins a peculiar back-scratching in which political patrons define a particular problem as The Most Important in History. The agency responds by testifying that the end is near unless a few billion is spent pronto — and then it probably will be even worse than we thought.

Such issues and constituencies include the ozone "hole" (NASA, NSF, EPA); global warming (NASA, NSF, DOE, EPA); sexually transmitted diseases (National Institutes of Health, NSF); or roughage shortages (NIH, U.S. Department of Agriculture). The list is as infinite as is the predilection for *Homo sapiens* to have nightmares.

All this is well and good for agencies, but horribly destructive of science. For the most progress in science is made when researchers challenge existing paradigms, the most overarching of which is that we are doomed. But don't expect agency heads to march up to the Senate's Subcommittee on Science, Space, and Technology and say that, well, global warming isn't much of a problem after all, so maybe we ought to be investigating how it might create a better world.

Heck no. That's the province of industry, and industry has as much of a vested interest in funding research based upon that hypothesis as the government does in promoting the apocalypse.

But the amount of funding that industry tenders toward basic research on the environment is minuscule, and is viewed as "tainted" by a community whose primary source of funding is designed to prove that things are terrible and getting worse.

So here's how to change things, save money and promote scientific progress:

The Clinton administration should provide an enhanced tax incentive for the support of basic research by industry. Every research dollar provided by industry should be met by a consequent reduction in federal support.

The result will be that scientists will no longer be required to shill for the apocalypse in order to keep their jobs. Government has its agenda (more government) as surely as industry has its: more industry. Both are biased, self-serving entities.

Scientists should be allowed, or even encouraged, to choose between biases in their choice of funding. Right now, they have no choice. As a result, the diversity of opinion and contention that is required for scientific progress is being stifled by a government hellbent on promoting itself.

Now it would be easy to blame the government for getting us into this mess in the first place, but in fact it didn't. Rather, in try abdicated.

Government got into big science with the Manhattan Project on nuclear fis — an explosive success. Then, the social tion of science became institutionalized the panic response to the launching of Soviet Sputnik in 1957. Industry saw t developments as a great way to get suppo basic science off its own back.

And so it did. Now, industry reaps whirlwind: excessive regulation and econ ic miasma, because we're about to cent plan the world's energy economy based on threat of global warming. This threat rather easily be diminished by close insp tion of the facts — something that all th agencies that are getting oh-so-fat are about to trumpet and promote.

So, there you have it, Mr. Clinton. duce federal spending on basic science much as industry will compensate for it; courage industry with tax incentives. Sci tists operating and benefiting from a f market of ideas, rather than government co mand-and-control, will help get you out of regulatory mess that had to result when g ernment took over science.

What you will get, Mr. Clinton, is a verse, rejuvenated scientific community t divides equally between the worried and optimistic. Parity between those groups v enhance the dynamic tension necessary scientific progress. And because the Uni States has more good scientists than any tion in history, it's a sure shot that you'll credited with the greatest explosion ever scientific progress.

Patrick J. Michaels is associate profess of environmental sciences at the University Virginia and is affiliated with the Washington-based Science & Environment Policy Project.

The Science & Environmental Policy Project, 2101 Wilson Blvd., #1003, Arlington, VA 22201 • (703) 527-0130

THE PLAIN DEALER, MONDAY, AUGUST 10, 1992

Following sheep over the edge

By PATRICK J. MICHAELS

The Reuters news agency recently carried two stories archetypical of *modern journalism*. There's a pregnant man in the Philippines, and South American sheep are going blind because of the ozone hole.

Even when I was working on the high school paper, I remember something about the reporter's duty to ask who, what, where, when and why — as in when did he get pregnant and what happened to the sheep?

The sheep story is this: Every spring, when the Antarctic late-winter ozone depletion breaks up, chunks of ozone-depleted stratospheric air are whirled away, and a few survive to the latitudes of Puntas Arenas or the Falkland Islands. The sudden burst of ultraviolet-B (UV-B) radiation is strong, and the animals are so stupid that they don't sheek shade. Instead, they immediately get cataracts and start bumping into buildings and each other, and falling off cliffs.

As a number of scientists have noted recently, it's easy to go around poking *holes in the story about the catastrophic* ozone hole. For example, assume that the hypothesized mechanism responsible for its sudden appearance around 1983 — a peculiar cloud in the Antarctic stratosphere — is real. *The National Science* Foundation's Susan Solomon has stated on several occasions that ozone depletions will be accelerated by big, dusty volcanoes that put a lot of chlorine, bromine and junk *in the stratosphere*.

If we compressed geologic time into the space of one year, these explosions would occur every few minutes — they're hardly uncommon. And if they are so common, they can't be apocalyptic enough to threaten the planet. Otherwise we wouldn't be here, and life probably wouldn't have evolved beyond worms or whatever else spends all its time underground.

Still, the combination of stratospheric clouds and CFCs makes a believable, if non-apocalyptic story, which should make it unprintable by today's journalistic standards. Who, what, where, when and why are a bit fuzzy around the edges, but you can still get some logical consistency from the byline to the end.

No so for the sheep. After Newsweek bit on the story and no one else bothered to check the facts, KGO-TV in San Francisco did.

Patagonian sheep are so far south on the planet that there isn't enough UV-B to fry their eyeballs. This is the latitude and climate equivalent of Sweden, a land not known for tanned bodies, except in commercials for fantasybeer. In fact, if this amount of ultraviolet radiation were causing cataracts, every Miami native over the age of 10 should be walking around with a white cane.

KGO sent its science editor, Brian Hackney, down to Puntas Arenas. He holds a degree in physics, and he probably was a little skeptical about sheep being blinded by so little radiation, but the station told him to go anyway.

Upon arriving at the tip of South America, Hackney found blind sheep everywhere. But he sent some eyeballs back to the Veterinary School at the University of California in Davis for inspection. Not a single cataract was found, but there was an epidemic of pinkeye, which is a common ailment of cattle. It's often caused by yeasts that are killed by UV-B.

Especially touching was the footage of reporters feeling the 'baby' in his belly move, which in reality were the muscles underneath pop's beergut.

On to the *pregnant man: After Reuters* put it on the wire, without many questions, some that seem pretty obvious, the story appeared on virtually every video and radio network. Especially touching was the footage of reporters feeling the "baby" in his belly move, which in reality were the muscles underneath pop's beergut. Where was the rush to consult experts in gynecology? Couldn't someone *fly him to Manila for an ultrasound from* a doctor not chosen by Mr. Pregnant himself? After all, he might have wanted to know the sex.

No, the reason it took months to figure out that the sheep had a yeast infection and weeks to figure out that a man wasn't pregnant has to do with what has happened to the news business when it comes to scientific and technical issues.

First, few reporters are trained much in math and science, and they are therefore either irrationally skeptical or gullible about both. Second, news budgets have been scaled so far back that any considerable expense (like going to Puntas Arenas or finding our Philippine friend an ultrasound) is frowned upon, especially if it's going to blow the latest spectacular.

In fact, stories like these — including *imminent death from the ozone hole or* global warming — are immediately advanced to the front page as soon as someone rents a room at the National Press Club and calls every reporter in Washington up for doughnuts and bylines. No one has to travel, it's good copy, and besides, what reporter who avoided calculus feels comfortable asking a quantitative question?

This dance was first called on prime time news in October 1983 when EPA's John Hoffman spoke of tens of feet of sea level rising from global warming beginning around 1990 (that's 2.5 years ago), *and it continued through NASA's Feb. 2,* 1992, announcement about the imminent ozone hole over Canada (stretched to Kennebunkport by Sen. Albert V. Gore Jr., D-Tenn.), so please bring your sheep *indoors.*

The fact is, there's little incentive to search for truth on stories like these. That byline, which takes real reporting to get, and says that the world isn't coming to an end, winds up on the back pages, if it's ever printed at all.

And if you think that scientists are going to jump up and say, well, maybe my cash cow (global warming, global cooling, acid rain, the ozone hole, air pollution, water pollution, AIDS, deforestation, biodiversity, population, etc.) isn't the end of the world after all, and please pass the funding somewhere else or just save it, you probably believe that men get pregnant.

Rather, as in most cases where there are large amounts of money and power to fork around, people behave like blind sheep.

Michaels, associate professor of environmental sciences at the University of Virginia, is associated with the Science and Environmental Policy Project, Washington, D.C.

FRIDAY, NOVEMBER 27, 1992 The Washington Times

MIKE VIVOLI

Shoot shovel & shut up

The Endangered Species Act (ESA) was enacted into law in 1973 to protect the Earth's diminishing biodiversity from extinction. Through the ESA, any concerned citizen with a 29-cent stamp and a postcard can petition the Interior Department's Fish and Wildlife Service to list any population of plant, animal or even microorganism under the ESA. Amended in 1979, 1982 and 1988, the act promised to save listed species through federal government protection and recovery programs. Nineteen years later, however, the ESA has failed, miserably, to live up to its potential.

Of the 1,277 domestic and international species that have been listed under the ESA, only 17 have been "rescued" from the list. Of these, seven were delisted due to extinction, four were removed as the result of "original data error," and three others recovered naturally, independent of the act. Of the remaining three, there has only been one delisting that the Fish and Wildlife Service holds up as a success story: the American alligator. Even this case, though, requires further scrutiny. The National Wildlife Federation, a preservation group well-known for its staunch protection of endangered species, reported in 1987 that "it now appears that the animal never should have been placed on the endangered species list."

With such a dismal success rate, the inevitable question arises; "Why isn't the ESA working?" The answer is that the ESA creates the wrong incentives for small land owners upon whose lands the endangered species exist.

If your land is designated as critical habitat for an endangered species, the land is effectively taken from you. Agricultural production, resource extraction are forbidden as are any other form of economic development that the Fish and Wildlife Service sees as "threatening" to the species. In short, owners are deprived of their livelihood from the development of their land. They become involuntary stewards, conscripted into government service without compensation. This involuntary servitude is not at all uncommon nor is it restricted to a few geographic areas. For example, small property owners in Eastern Maryland cannot set foot on their land because of nesting bald eagles. Property owners along the Neosho River in Kansas can no longer pay their property taxes with revenue from river gravel because of the Mud Tom catfish. And farmers in Klamath Falls have been denied irrigation water from privately owned facilities because of the Lost River and shortnose sucker fish.

Under the ESA, small property owners become endangered species and they are hardly ever noticed. One reason is that they haven't the time nor the financial resources to defend their rights in court. Since very few takings cases are ever brought to court, small property owners are rarely compensated for their losses. This leaves small property owners impaled on the horns of a dilemma: either give up their property rights or violate the ESA outright.

Since intentional violation of the ESA is punishable by fines of up to $25,000, outright violation is not a viable alternative to most small property owners. Because most small property owners draw their living from and pay their property taxes with proceeds from their land, forfeiture of their property rights is an equally unbearable option. It is through this Catch 22 situation that the ESA creates perverse incentives. The dim prospect for compensation leads many small property owners to pre-empt the problem. Or, as the sentiment is commonly expressed in the Pacific Northwest, "Shoot, Shovel, and Shut Up." It should therefore come as no surprise that more than one tree hugger has inadvertently embraced the corpse of a northern spotted owl staked to the object of his affection.

The covert destruction of endangered species is not the only perverse incentive created by the ESA. In the Pacific Northwest, the ESA has prompted small timber companies to accelerate their timber harvesting projects for fear of losing the use of their lands and the value of their investments to the ESA. This acceleration not only reduces habitat, but causes all the associated problems of clear-cutting such as increased soil erosion and loss of aesthetic value.

Pitting property owners against species, by refusing to compensate the transfer of land from the owner to the listed species, creates enemies of conservation instead of conservationists. By doing this, the ESA has forced some property owners to make a conscious decision that certain species never appear on their land, and others to pursue ecologically inferior harvesting methods. Considering the incentives the ESA has created, it is little wonder that inclusion on the endangered species act has become a lifetime appointment.

"I HOPE YOU UNDERSTAND. BEFORE I BUY ANY LAND, I HAVE TO MAKE SURE THERE AREN'T ANY SPOTTED OWLS AROUND."

Mike Vivoli is a research assistant at Competitive Enterprise Institute.

from Peter Samuel, 12131 Main Street, PO Box 99 Libertytown MD 21762,
Tel 301/898-5882 DC: 202/488-6451 Fax 301/898-9465

September 23, 1992

FDA, EPA mug company with bad test, then demand it fix the test

by Peter Samuel

It was a small news item in the May 15 issue of the trade journal Hospital Purchasing News. "3M exits glutaraldehyde business after 15 years." Opting "not to get bogged down in the federal government's regulatory process," the 3M company was pulling Glutarex off the market after fifteen years. A company spokesman said that Glutarex was a very small part of the company's business and it was not worth going through the hassles of gaining Food and Drug Administration (FDA) approval.

Glutarex was the 3M brand name for a disinfecting and sterilizing solution based on the chemical glutaraldehyde. It had been one of about eight competing products -- mostly based on glutaraldehyde too -- used in hospital operating rooms, dental clinics and doctors surgeries for disinfecting sensitive instruments and keeping tables and other surfaces clear of germs. For years the EPA has regulated such germicides but lately the FDA has claimed jurisdiction too -- by defining the disinfectant solutions as "medical devices" (How expansionist regulators will stretch the language!) And the Federal Trade Commission has got into the act by questioning the advertising claims made in connection with marketing the products.

The three federal agencies have been wreaking havoc for established manufacturers of the germicides. A couple they are forcing close to bankruptcy for no good reason, and as the 3M withdrawal shows, they are adding a massive risk premium to the calculations of anyone doing business in territory where the FDA, EPA, FTC gangs roam.

The agencies that are supposedly dedicated to serving public health are in this case endangering it by spreading disinformation about the products, disrupting the supply chain for disinfectants for medical and dental instruments, and heavily assaulting the economic viability of the manufacturing companies. Their top managements have been forced to hire large crews of lawyers in place of salesmen and manufacturing personnel.

The most powerful and most easily used medical disinfectant, Sporicidin was forced off the market completely on December 13 last year by a

combined team of the Environment Protection Agency, the Food and Drug Administration and the Federal Trade Commission. The Sporicidin products -- a cold sterilizing solution, disinfectant sprays, disinfectant towelettes and a general disinfectant solution -- had been used by hospitals, clinics, physicians and dentists unchanged since their introduction 14 years ago and gained nearly a quarter of the $60m to $70m annual market for medical instrument disinfectants. Until 1977 the dominant disinfectant was Cidex, a Johnson and Johnson product that is mainly glutaraldehyde. In a replay of a venerable capitalist theme a little guy came along with an improvement. A Washington area dentist turned inventor/entrepreneur Dr Robert Schattner took on J&J. He'd already made several million dollars with his invention of the wellknown throat spray Chloraseptic (Proctor and Gamble bought out Schattner's rights and now markets it). Schattner then experimented with a mix of the throat spray's main constituent, phenol together with the gluaraldehyde used in the Johnson and Johnson product to try and produce a better operating room disinfectant. The two germicides combined into a product he called Sporicidin. This mixture turned out to have a synergistic disinfectant effect which was considerably more powerful than the straight glutaraldehyde based products. For many purposes it could be diluted with water. It had less of a clouding effect on optical instruments and was easier to use.

Diluted with water, Sporicidin was able to kill germs, viruses and spores more quickly and at room temperatures. It grew in market share partly because of the inconvenience of storing the bulkier non-dilutable simple glutaraldehyde based disinfectants and the nuisance of having to heat them to get their advertised germ killing capabilities, as compared to Sporicidin's effectiveness at 68 degrees.

For example to be sure of killing the tuberculosis bacteria an operating room instrument must be immersed in undiluted Cidex for 45 minutes at 77 degrees (requiring a bit of heat in airconditioned hospital conditions), whereas the same disinfection will be achieved in 1/16th solution of Sporicidin in 10 minutes at room temperature of 68 degrees, according to EPA registered tests.

Plain glutaraldehyde composed disinfectants have several other disadvantages:

-- their vapors sting the eyes, irritate the nose, cause some skin allergy problems and are noxious enough to be regulated by the Occupational Health and Safety Administration. If the disinfectant is plentifully used in operating rooms and doctors' offices its gaseous concentration can easily exceed the 0.2 parts per million OSHA safety level

-- the chemical can cloud the glass of instruments such as endoscopes and mirrors rendering them ineffective for some time after disinfection

-- it is harsh on the hands of medical personnel leaving a yellow stain on the skin

-- it needs to be heated slightly beyond room temperature for greatest effectiveness

The danger then for operating room patients is that the unpleasantness and inconvenience of the glutaraldehyde-heavy disinfectants will cause staff not to use them extensively enough to thoroughly decontaminate instruments and surfaces.

Schattner's contribution to the environment of the operating room and doctors surgery was to provide them with a more user-friendly, hence more usable, disinfectant. As documented in a number of product reviews in professional hospital journals, he was able to take a powerful but rather unpleasant disinfectant (glutaraldehdye) and exploit its previously unknown synergistic effect with a less powerful but more-pleasant-handling disinfectant mouthwash (phenol), and make sanitizing work a little easier in hospital operating rooms and doctors offices.

The innovation produced some controversy in the mid-1980s with claims and counter-claims. Some of these appear to have been simply honest differences of professional opinion, but many were motivated by competitive considerations.

The regulators chose to disregard the fact that hospital technicians, doctors and dentists are qualified by years of scientific education and daily work experience to make informed judgments about the products they buy.

What is most extraordinary about the recent draconian intervention against the disinfectants is that these products are bought and used almost exclusively by trained well-informed professionals who have a menu of choices and appear to be satisfied with the products. Normally, regulators intervene where customers are unhappy with a product, or are incapable of making informed decisions. Yet the users of Sporicidin or other similar

disinfectants have not been lodging complaints with the agencies. The Centers for Disease Control says it does not have a record of any case of a disease acquired as a result of failure of Sporicidin or other similar disinfectants. The Sporicidin product has been repeatedly tested by independent testing laboratories. As late as December 12, 1991 -- ironically the day before the raid -- a notarized letter to Sporicidin's Robert Schattner from John H.Lee, the product manager of the Antimicrobial Programs Branch of the Office of Pesticides and Toxic Substances of the EPA said that Sporicidin cold sterilizing solution was "properly registered and certified" and that it was approved for sale for the disinfecting and sterilizing uses indicated on its label (See facsimile).

But the trade press had carried a story at the beginning of December 1991 that the feds had decided to act against Sporicidin. The company made a set of telephone calls but could find out nothing. On the morning of December 13, a massive interagency assault on the company began. Three agencies issued long press releases and gave press briefings. Teams of agents representing the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) accompanied by armed U.S. Marshals arrived unannounced at the Rockville Maryland offices of Sporicidin Inc and simultaneously at its contract manufacturing facility in Jonesboro Tennessee with a slew of orders and charges against the company's products. Stocks were seized. Stop sale, stop use and removal (movement) orders were issued. A formal complaint was filed alleging the products were "adulterated and misbranded." The government agents demanded the company recall all its products, and began searching and copying its files and records in a heavyhanded display of power.

One pretext for all this was the claim that Sporicidin did not have an FDA marketing permit (called a 510k). This was a Kafkaesque complaint since the FDA had not issued any rules or even given any unofficial guidance as to how companies could obtain such clearances. No clearances had been given, so the same complaint could have been made -- and could be made today -- about any of Sporicidin's competitors. The company has EPA permits dating back to 1976 which were renewed periodically, the last being issued the day before the regulators hit the company December 13. The FDA treated the EPA permits as irrelevant.

The more serious sounding pretext for the assault on Sporicidin was the claim that its products were ineffective. David Kessler the FDA administrator was quoted in a press release as saying: "These products do not work. Doctors, dentists and other health professionals should stop using them." Adding some newsworthy drama, the FDA also charged that Sporicidin products could cause "serious, adverse health consequences or death." (In an interesting qualification the Centers for Disease Control was quoted as saying that it had no record of any actual case of nosocomial or hospital/doctors' office infection attributed to the failure of Sporicidin products in their 14 year history.)

The EPA and FTC joined the FDA in publicly accusing the company of false and misleading advertising. The three government agencies claimed that joint FDA laboratory tests had shown the Sporicidin products failed to sterilize as claimed on the labels. That would on the face of it seem to be an excellent case for the government action and there was considerable positive news coverage of the government action including the obligatory one line denial by the company. The regulators were pictured as brave and forceful public servants cracking down on pharmaceutical charlatans.

Trouble is: it was the regulators who were the charlatans!

It has transpired in the seven months since the FDA and the EPA staged their media circus on December 13 last year that what is ineffectual and a menace to public health is not the Sporicidin disinfectant product but the government testing procedure for disinfectants. Moreover it is now clear that the EPA at least knew its tests were highly questionable, but participated in the raid on Sporicidin and all the phony publicity all the same.

Five months after the raid and denunciation of Sporidicin's products the FDA flipped. On May 15, the agency quietly signed an agreement with Sporicidin allowing several of the products that administrator Kessler last December said were "ineffective" and "adulterated" back on the market without any change whatever in their formulation! FDA spokesman Sharon Snider told inquirers that the agency had settled the case with Sporicidin. It could go back on the market, she said. The FDA thereby tacitly acknowledged the bogus nature of its sweeping charges against Sporicidin that it had so righteously and forcefully made late last year. In an apparent facesaving move the agency insisted that the company add some inconsequential detail to the instructions in the form of an extra instruction insert in the packaging boxes

of its products. And in an extraordinary assault on the first amendment of the constitution it insisted that the company destroy reprints of scientific journal articles that touch on its products. FDA officers have demanded to supervise the dumping of boxes full of articles on glutaraldehyde based disinfectants published in THE JOURNAL OF OPERATING ROOM RESEARCH, THE JOURNAL OF CLINICAL MICROBIOLOGY, OPTOMETRY AND VISION SCIENCE and such like. Shades of Nazi book-burning!

The EPA is in an extraordinary situation. For years it has issued approvals of Sporicidin and other competitive disinfectants, knowing that the limitations of the AOAC test will produce regular 'failures' of good product. It knows the tests of disinfectants are faulty. Yet it joined in the multi-agency mugging of Sporicidin. Its fellow muggers at the FDA now appear to want to make amends with the victim, yet the EPA is stalling over lifting its bans against Sporicidin. Although the EPA has repeatedly endorsed the validity of the product over the years and in December it allowed the FDA to take the lead role against Sporicidin, it now says it has now said it is not bound by any FDA settlement with the company.

Just over a year before it participated in the raid on the Rockville company the EPA formally acknowledged serious deficiencies in the test used against Sporicidin. It laid out ten deficiencies in the test in a request for applicants for a contract to research a replacement testing system for disinfectants. This is published in the Federal Register dated December 6, 1990. There the EPA said that the existing test methods (the so-called AOAC sporicidal test) "lack reliability and reproducibility" and cited ten problems in the test. There was variability in results because of varying hardness of water and neutralizers used, lack of standardization of the soil extract medium used, unreliability in the growth medium for the Clostridium spore, lack of uniformity in carrier (container) conditions, lack of standardization of the spore load in the carriers, and a ten fold variation allowed in the test pathogens' resistance to hydrochloric acid. The EPA subsequently awarded a $700,000 research contract to a Canadian university to develop an improved test, because of shortcomings in the AOAC test.

Yet it was this test which the EPA acknowledged as lacking reliability that had been the basis for assaults against disinfectant manufacturers.

Sporicidin is not the only manufacturer being harassed. A competitor Metrex Corporation of Colorado which markets MetriCide -- a similar

glutaraldehyde-based disinfectant -- was also the subject of attack by the regulators with the EPA itself the chief hitmen.

The EPA was humiliated when it was taken to court by Metrex Corporation, manufacturer of MetriCide. The company established to the satisfaction of a federal court judge that not only was the EPA test itself deficient if carefully and properly carried out, but that the EPA testing was in fact shamefully badly conducted. A bad test was badly done!

Judge Lewis T. Babcock of the U.S. District Court in Colorado concluded June 18 in the case of Metrex Corp vs. William K. Reilly (EPA administrator) that the government had failed to follow proper laboratory procedures in testing MetriCide. It failed to properly establish the ineffectiveness of the products it had said were ineffective, the judge said.

The case revealed sloppy testing procedures by the EPA. In some cases samples were overdiluted as compared to the label instructions. An inappropriate neutralizing solution was used that did not properly neutralize the disinfectant. The tests showed that a more highly diluted sample of the disinfectant was more effective than the less watered sample -- the reverse of what should be expected. Yet the EPA testers failed to retest where such anomalous results were found. And they failed to use control samples, which professional testers said were essential. The EPA's documentation of its tests was sloppy and inadequate, independent scientists all said. The EPA failed to adhere to the established code of Good Laboratory Practices which it requires of independent laboratories. (The EPA's own laboratory staff followed poor recording and other lab procedures, the exact kind of negligent lab behavior for which it levies fines against outside laboratories of hundreds of thousands of dollars.)

The EPA was apparently so frightened of revealing its shoddy laboratory practices that it declined to put any of the actual testing staff on the witness stand in Denver. As a result Metrex Corp persuaded the judge that the EPA had done the company a grave injustice in declaring its product ineffective.

Judge Babcock said in his judgment that the EPA's test results of the sterilant "simply cannot be said to be valid" and that the EPA's press releases and telephone hot line announcements about the test failures of Metrex products were "as a matter of fact and of law false." He issued an injunction ordering the EPA to cease its statements that the Metrex disinfectants were

ineffective or had failed tests. And he said that the EPA "either knew or should have known that the results in this case were not sufficiently reliable to be called valid."

Metrex Corp brought as witnesses microbiologists who said they had frequently performed the EPA test (called the AOAC sporicidal test) and that it was unreliable and inconsistent even when conducted with maximum care. They noted it is not a quantitative test since it starts without any count of the spores to be killed by the sterilant. There may be as many as 100,000 spores or as few as 200 to be killed. Moreover the tests call for carrier vessels with quite variable numbers of fissures and interstices in which the spores can 'hide' from the chemical, a condition that is designed out of modern medical instruments and modern operating rooms and dentist/doctors offices where there are stainless steel and various glazed surfaces. As a result there is great variability in the results of the EPA test and all sterilants fail the test regularly.

Mary Bruch, a microbiologist at MicroBioTest Inc, a Chantilly Virginia based private laboratory said that even the best practitioners of the EPA sporicidal test get false results almost as often as they get correct results. She said her laboratory uses the test only because the EPA requires it, adding "It's a game."

Another microbiologist Norman Miner, former manager of biological sciences at a Johnson and Johnson, said that he tested the leading glutaraldehyde based products, including Cidex -- the dominant product used in hospitals and that in hundreds of tests, all the products failed the AOAC test 20 to 25 percent of the time. He said the EPA's testing of the Metrex sterilants was particularly badly done and that the documented result "doesn't make sense."

"Either there has been a mislabelling, or a mistranscription of results from some raw data...it doesn't make sense...as a scientist I wouldn't draw a conclusion based on something that doesn't make sense."

On the basis of such botched testing the EPA announced to the public that the Metrex sterilants were ineffective, and started the process of sending its brown shirts in to close down the company. Only the Colorado court has stopped it.

The tests used to discredit Sporicidin were apparently just as bad. They were conducted strangely not by the EPA but in a food testing laboratory run by the FDA in Minneapolis. Like many such products, Sporicidin has a

limited shelf life, after its two components are mixed. It says on the bottle that after mixing or 'activation' it may only be used for 30 days. Beyond that it tends to lose its original color and goes yellowy-amber.

The FDA test data sheets describe the tested product as "amber" in color indicating the lab may have tested aged and broken-down Sporicidin. Moreover the laboratory analysis showed it was tested at 1.92% glutaraldehyde whereas it is registered for use at a minimum 2.0% concentration of glutaraldehyde. The lab may just have overdiluted the sterilant.

Even so Sporicidin's cold sterilizing solution passed 239 out of 240 tests.

Joseph Konzelman clinical director of oral health research at the large Walter Reed Army medical center testified in the Sporicidin case wrote that his review of the tests on Sporicidin persuaded him the tests were improperly conducted, and said he regarded the FDA report as misleading.

Said the Walter Reed man: "The (FDA) study purports to show that the cold sterilizing solution failed some tests at full strength. In actuality 239 out of 240 tubes passed the test. The (FDA) analysts failed to inquire whether the lone failure might have been contaminated by other sources, a common scientific confirmatory technique which should have been followed."

A newsletter of the Chemical Specialties Manufacturers Association dated July 13 quotes James Danielson, a microbiologist at the FDA lab which tested Sporicidin, as saying that "over half" the many disinfectant products they tested failed the AOAC test, yet Kessler of the FDA, Reilly of EPA and the FTC chose to single out the one company for an especially savage attack. Virginia Chamberlain the person in charge of disinfection and sterilization at the FDA's office of compliance and surveillance is quoted in the CSMA newsletter as acknowledging that the AOAC sporicidal test is "outdated" and as saying that the FDA is working to improve its test methods. Tim Ulatowski, associate director of the FDA's Center for Devices and Radiological Health is quoted in the same industry newsletter as saying: "AOAC methods are troublesome." Apparently concern about the inadequacy of the tests at the working level of the FDA never filtered up to elevated level of the agency's multi-media wonderboy, David Kessler. Or else he doesn't care?

At the press conference December 13 when the government muggers were beating up on Sporicidin, they told journalists that Sporicidin's customers could safely switch to the Johnson and Johnson product Cidex. Yet

Cidex fails the AOAC test just as often as Sporicidin and MetriCide, according to the Johnson and Johnson tester, Norman Allen Miner. He told the court in Colorado that he had run the AOAC sterilant test "hundreds, approaching a thousand times." About half the tests were of Cidex, his product; the other half were Cidex's competitors, such as MetriCide and Sporicidin. Cidex failed just as often as the others, he said -- 20 to 25% of the time.

The court testimony was as follows:

Q. Did you ever see failing results out of either of these products...?

A. Yes.

Q. Once in a while? With some regularity? About how frequently?

A. (With) some regularity. Maybe once in four or five runs.

Q. How does the performance of MetriCide...compare to that of Cidex.

A. It is absolutely statistically equivalent.

All the cold sterilizing solutions are based on glutaraldehyde, so it was only to be expected they would perform similarly, the former Johnson and Johnson tester said, because their principal active disinfectant component was the same. All the companies buy their glutaraldehyde from the same manufacturer.

What of the dramatic charge by the feds December 13 that Sporicidin was "adulterated." It turns out this allegation arose from the regulators innocence of basic chemistry, and their failure to consult anyone with a working knowledge of chemistry. Kessler's super-sleuths had noticed a discrepancy between the list of constituents on the label and the manufacturing formula. The product label names sodium phenate as a constituent whereas the factory invoices show that sodium hydroxide and phenol are used, but no sodium phenate. It was on the basis of this supposed discrepancy that the FDA publicly charged the company with adulteration of its product and misbranding. What they did not know was that sodium phenate is obtained by mixing sodium hydroxide and phenol. As soon as the two liquids are mixed they become sodium phenate. The charge that the company had misbranded its product was therefore baseless and the charge that it was adulterated was absurd.

In the consent agreement between Sporicidin and the FDA the company agreed to what the FDA chose to call a "reconditioning" of its product. Now in regular English usage reconditioning means that the product is reworked to somehow change its composition and characteristics. But the

FDA has acknowledged in the May 15 consent agreement that Sporicidin as manufactured for years is quite OK, and the fine print of the consent agreement provides that existing stocks will be allowed onto the market again chemically unchanged. Production will resume using exactly the same constituents. The disinfectants will be exactly the same as before.

So what is this "reconditioning" that the FDA is requiring? The word "reconditioning" is being used by the FDA solely to describe the insertion of an extra instruction sheet in the packaging. This misleading language is part of the FDA's cover up of its backdown. It is an attempt to mislead people into thinking that the agency forced the company to change its product, when in fact the agency has backed down and accepted the product unchanged.

The other face-saver for the FDA is contained in a legal maneuver by which the agency has permitted Sporicidin products back on the market not by approving them but by a "finding of substantial equivalence" to products marketed by the company prior to enactment of the law under which it claims jurisdiction. In fact the products are identical. They haven't changed and such a 'grandfathering' is simply a way for the FDA to avoid saying explicitly that it has approved them.

A letter from the FDA to Sporicidin dated September 15 spells this out: "This letter will immediately allow you to begin (It began in 1975. The FDA writer means: 'resume' P.S.) marketing your devices (disinfectant solutions - P.S.) in accordance with the terms of the consent decree. An FDA finding of substantial equivalence of your devices (disinfectants P.S.) to a pre-Amendment device (disinfectant P.S.) results in a classification (approval P.S.) of your devices (disinfectants P.S.) and permits your devices (disinfectants P.S.) to proceed to the market, but it does not mean the FDA has approved your devices (disinfectants)." (English-translation in brackets)

Such Orwellian verbal contortions and legalistic sleights-of-hand cannot cover up the simple fact that the exact same products which FDA said had to be immediately banned as a menace to health last December 13 are okay as of September 15 this year to go back on the market unchanged.

At time of writing the EPA is still holding out on Sporicidin with some bizarre maneuvers of its own. Its many pre-December 13, 1991 approvals of Sporicidin products have remained in effect throughout the assault on the company even though the EPA joined the FDA in issuing an emergency Stop Sale, Use and Removal Order December 13, 1991 because of

the supposed imminent risks that had been demonstrated in the FDA test. The EPA is now offering to lift this freeze on Sporicidin's cold sterilizing solution but only on condition that Sporicidin do its own laboratory testing on the product to demonstrate its efficacy. But it was the supposed inefficacy of the product as suggested by FDA tests that led to the December 13 1991 bans.

So we have reached the situation where the FDA has allowed products back on the market which David Kessler said last year "don't work." The old AOAC test is discredited and there is no generally accepted test to demonstrate spore killing power. But Sporicidin is being asked by the EPA to devise a new test which will be acceptable to it.

But wait! The EPA already has research contracts out with the Canadians for an improved test, and estimates it will be another two to three years before that new test protocol for spore killing is completed. EPA wants a small private company to finance a competitive research project for a new sporicidal test protocol while its products remain banned on the basis of the discredited test.

"Only in America!" say its international competitors.

Sporicidin estimates its losses to the end of July at the hands of Washington's blundering hitmen at more than $10 million -- $5 million in lost sales, $2m in customer reimbursements, over $1m in legal fees and $2m in lost inventory. 30 people in the manufacturing plant lost their jobs and a dozen administrative and sales people have gone. In their place a team of lawyers!

What's behind this destructive madness on the part of regulators? Several agencies fighting for regulatory turf; an effort to 'get' a little upstart company that has upset the established players; a drive by regulators to get scalps on the wall to justify their budget claims in Congress; the huge ego of the likes of FDA administrator D. Kessler; just normal Washington blundering. Perhaps it's a bit of all of these. ends

Peter Samuel runs Greentrack International, a Washington DC area news service that covers environmental issues from a skeptical perspective.
ends all
3Mout3/9/23/92

JUNE 1992 $3.00

THE BULLETIN

OF THE ATOMIC SCIENTISTS

DEBATE HEATS UP

WARMING THEORIES NEED WARNING LABEL

By S. FRED SINGER

The debate over global warming has been more hype than solid fact.

The conventional wisdom these days seems to be as follows: increasing carbon dioxide from burning fossil fuel is enhancing the natural atmospheric greenhouse effect. By the next century, the resulting global warming will present a clear and present danger to humankind. We need to find radical solutions as quickly as possible to avert catastrophes—including violent weather, parched farmlands, rising sea levels, flooded continents, complete ecological collapse, and millions of environmental refugees. I suppose that many readers of the *Bulletin* would agree.

Furthermore, some of the more ardent proponents of global warming theories seem to believe that it is somehow inappropriate, if not downright immoral, for any scientist to emphasize the theories' uncertainties. Their argument seems to be that it is better for national governments to do something, however costly (even if it turns out that warming theories are wrong), rather than risk waiting for more certain and persuasive data.

It is not surprising that such views are widely held. After all, the public has been exposed to a steady diet of hyped news stories and TV specials and propagandized by environmental pressure groups. However, these views are not shared by all specialists in atmospheric physics or climatology—scientists who actually study these problems. There is no scientific consensus in support of a greenhouse warming threat.

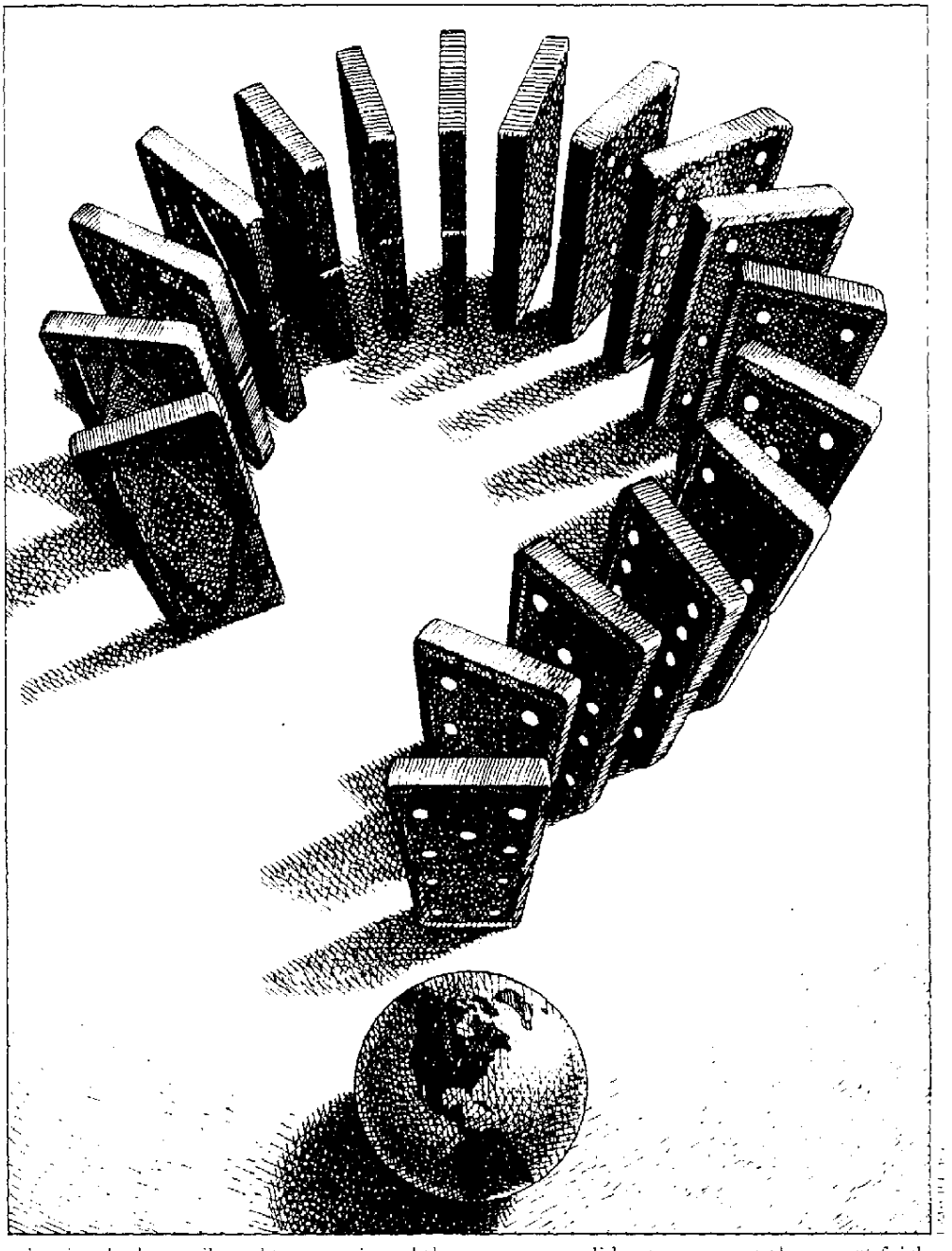
A growing number of experts have become concerned that opinion-making and "publication by press release" are being used to influence environmental policy. With momentum building toward the "Earth Summit"—the U.N. Conference on Environment and Development (UNCED) in Rio de Janeiro this month—the issue of climate warming has taken center stage. Many scientists have spoken out. Philip Abelson, in a lead editorial in the March 30, 1990, *Science*, observed that "if [global warming] is analyzed applying the customary standards of scientific inquiry, one must conclude that there has been more hype than solid fact."

Robert M. White, president of the National Academy of Engineering and a distinguished meteorologist, wrote in the July 1990 *Scientific American*, "Given this 'cry wolf' history, it is not surprising that many meteorologists harbor deep reservations about taking costly actions on the basis of predictions of a climate warming." And in late December, John Houghton, chief editor of the U.N.-sponsored Intergovernmental Panel on Climate Change (IPCC) Report, which forms the basis for the global warming portion of the UNCED Earth Summit, announced a much reduced prediction of future climate warming based on new studies. As reported in the December 29, 1991 *Sunday Times* of London, Houghton, who also directs the British Meteorological Office, castigated environmental activists for scaremongering.

About global warming

During the summer of 1991, researchers at the Science & Environmental Policy Project (SEPP), an independent, foundation-funded research group, sent survey forms to more than 120 U.S. atmospheric scientists. Most of these

S. Fred Singer is director of the Washington-based Science and Environmental Policy Project (SEPP) and professor of environmental sciences (on leave) at the University of Virginia in Charlottesville.



scientists had contributed to or reviewed the IPCC report, which has been widely described by UNCED supporters as presenting a "scientific consensus" about the reality and danger of enhanced greenhouse warming. Colleagues who worked on the report had complained that its "Policymakers Summary" did not accurately represent the conclusions in the report itself. And journalists and bureaucrats presumably read only the summary, not the rather technical 400-page report.

The survey results were remarkable. Of over 50 scientists who responded, 23 agreed that the summary did not represent the report fairly and could be misleading to non-scientists. An overwhelming majority of respondents agreed that there was no clear evidence in the climate record of the last 100 years for enhanced greenhouse warming due to human activities. Nearly all respondents expressed skepticism about the adequacy of the global climate models (GCMs) used to predict future climate warming.

Other independent surveys support these findings. For example, a November 1991 Gallup poll of 400 members of the American Meteorological Society and the American Geophysical

Current models to not jibe with the climate history of the last 100 years.

Union actively involved in global climate research) responded to the question: Do you think that global average temperatures have increased during the past 100 years and, if so, is the warming within the range of natural, non-human-induced fluctuation? The poll found that only 19 percent believed that human-induced global warming has occurred.

Greenpeace International also surveyed scientists who worked on the IPCC report. Asked whether business-as-usual-policies might instigate a runaway greenhouse effect at some (unspecified) future time, only 13 percent of the 113 respondents thought it "probable" and 32 percent "possible." But 47 percent said "probably not"—far from a consensus. Jeremy Leggett, Director of Sciences in Greenpeace International's Atmosphere and Energy Campaign, described this same survey as revealing "an as-yet poorly expressed fear among a growing number of climate scientists that global warming could lead not just to severe problems but complete ecological collapse."

These surveys all guaranteed respondents' anonymity, although some did sign their names. But this February, SEPP went a step further and contacted some 300 atmospheric physicists and meteorologists (most of them serving on technical committees of the American Meteorological Society) and asked them to publicly endorse a strongly-worded statement (see the facing page) expressing concern that policy initiatives being developed for the Earth Summit were being driven by "highly uncertain scientific theories." One of those who replied objected, four wanted changes, but more than 50 put their names to the statement.

These surveys all confirm that most climate scientists believe that some global warming may be occurring, but that catastrophic predictions are unsupported by the scientific evidence, and that predictions of disaster are based on yet-to-be validated climate models.

But what do the surveys mean in terms of greenhouse warming? Science is not democratic; truth is not arrived at by vote. The surveys tell us that there are still unanswered questions that need to be settled by additional research before drastic and far-reaching policies are undertaken. And there is time for this research.

Model shortcomings

How can we tell if human activities are having a significant effect on the global environment, either good or bad? There are really only two methods available: one is theory—calculating the expected effects, based on some model of the earth's atmosphere and associated environments (oceans, biosphere, cryosphere or even lithosphere). The other is empirical—it requires an examination of data based on actual observations of the atmosphere or some other environmental parameter, like sea level or ice cover.

If theory and observations agree, then we can be confident that the theory is valid and that its predictions are likely to be correct. If the two methods do not agree, then the observations could be faulty, or the theory incomplete, or both. This is the conclusion that logic demands when we are told that an event is "worse than expected." After all, expectations about the future can only be based on theory. When observations and theory disagree, the theory cannot be used to forecast future events.

Any theory that attempts to explain the effects of human interventions and predict future changes must inevitably be based on a model—a much simplified mathematical description—of the atmosphere or other relevant environment. There is no alternative. "Models are better than hand-waving," says Stephen Schneider of the National Center for Atmospheric Research, and an ardent proponent of global-warming theories. But how much better? A good model will incorporate those features of the atmosphere that are important, but leave out those that are not. The model builder has to decide what is important and what is unimportant—and thereby hangs the tale.

Ideally, one would like to calculate the characteristics of the atmosphere at every point in space with the finest possible resolution. But computational limits prohibit this. Current computers provide fairly coarse resolution. Sampling points on the globe are typically 300 to 500 kilometers apart, still not close enough to discern cloud systems, or even such surface features as the Florida peninsula. Vertical sampling of the atmosphere occurs only at a few levels, typically a dozen, ranging from the earth's surface to the stratosphere.

As computing power increases, finer topographic detail will be incorporated and climate models will move closer to reality. A similar argument applies to time steps: sampling at hourly intervals will give greater precision than daily intervals.

Another difficult problem involves how much atmospheric physics to put into the model—how to incorporate clouds, small-scale convection in the atmosphere, transport of water vapor, effects of aerosols from air pollution, and how to incorporate and couple ocean circulation with that of the atmosphere.

Specialists argue endlessly about these important questions. It is clear that current models do not jibe with the climate history of the past 100 years. The challenge is to improve the models so that they represent the atmosphere/ocean circulation system more closely. Most models must be "tuned" to give the right mean temperature and seasonal temperature variations, but they often fall short of accurately repro-

during many other atmospheric parameters.

A major component of the debate focuses on the question of water vapor and "feedback." It is generally agreed that most of the naturally occurring greenhouse effect is due to water vapor, rather than to carbon dioxide, methane, and other greenhouse gases. Some estimates ascribe 98 percent of the greenhouse effect to atmospheric water in its various forms.

Exactly what happens to water vapor—which is not under human control—as carbon dioxide increases? Current climate models demonstrate positive feedback—that is, water vapor reinforces and amplifies the effect of increasing carbon dioxide. (Air with higher temperature "holds" water vapor better than cool air.) But leading atmospheric scientists, such as Hugh Ellsaesser of Lawrence Livermore National Laboratory and MIT researcher Richard Lindzen, have argued to the contrary, that the feedback is smaller and could even be negative—it could oppose and diminish the greenhouse effects of increased carbon dioxide.

An example of such negative feedback might occur if increased ocean temperatures lead to increased evaporation and increased cloud cover. Although clouds induce cooling by reflecting sunlight back into space, they can also increase warming by keeping heat in. On balance, however, and as shown by actual observation, low clouds promote cooling. In contrast, a clear example of a positive feedback is ice cover. As it shrinks from warming, less sunlight is reflected back out to space and more is absorbed to warm the earth further.

Global observations

In the presence of both positive and negative feedbacks of immense complexity, how can a non-specialist judge the adequacy of global climate models? One method is to examine their gross characteristics—consistency and validation. Consistency refers to the extent to which different modelers agree, and differences are rather large in greenhouse warming models. Warming predictions range from negligible or small (compared to naturally occurring year-to-year variations), all the way to catastrophic—from 1.5 to 5.0 degrees centigrade in response to a doubling of carbon dioxide in the atmosphere. Even more pronounced are the differences between predictions of regional temperature changes and precipitation patterns.

Consistency also refers to consistency over time. An analogy from the related field of ozone-depletion research is illustrative. In 1972, theories predicted decreases in stratospheric ozone of up to 70 percent as a result of the planned use of high-flying supersonic aircraft, which would produce nitrogen oxides. As theorists incorporated more data, these predictions gradually diminished. By around 1977, theorists suggested an increase in ozone. But after 1978, theorists predicted a modest ozone decrease. Current theory, however, holds that nitrogen oxides would protect ozone by counteracting the ozone-destroying properties of chlorofluorocarbons.

The concept of enhanced greenhouse warming has been undergoing similar changes. Although modelers' predictions have never changed from positive to negative, the magnitude of the predicted change began to drop as greenhouse warming models incorporated ocean circulation, the effects of sulfate pollution, and a better understanding of cloud formation. Most startling has been the downgrading of the greenhouse effect on sea level rise. Only a few years ago, some modelers forecast a 30-foot rise in sea

Dissent on warming

In late 1991, the Science & Environmental Policy Project (SEPP) circulated this statement to some 300 atmospheric scientists in the United States. Thus far, more than 50 scientists at a wide range of institutions (including MIT, Yale, Woods Hole, and the University of Virginia) have signed it.

As independent scientists researching atmospheric and climate problems, we are concerned by the agenda for UNCED, the U.N. Conference on Environment and Development, being developed by environmental activist groups and certain political leaders. This so-called Earth Summit is scheduled to convene in Brazil in June 1992 and aims to impose a system of global environmental regulations, including onerous taxes on energy fuels, on the population of the United States and other industrialized nations.

Such policy initiatives derive from highly uncertain scientific theories. They are based on the unsupported assumption that catastrophic global warming follows from the burning of fossil fuels and requires immediate action. We do not agree.

A survey of U.S. atmospheric scientists, conducted in the summer of 1991, confirms that there is no consensus about the cause of the slight warming observed during the past century. A recently published research paper even suggests that sunspot variability, rather than a rise in greenhouse gases, is responsible for the global temperature increases and decreases recorded since about 1880.

Furthermore, the majority of scientific participants in the survey agreed that the theoretical climate models used to predict a future warming cannot be relied upon and are not validated by the existing climate record. Yet all predictions are based on such theoretical models.

Finally, agriculturalists generally agree that any increase in carbon dioxide levels from fossil fuel burning has beneficial effects on most crops and on world food supply.

We are disturbed that activists, anxious to stop energy and economic growth, are pushing ahead with drastic policies without taking notice of recent changes in the underlying science. We fear that the rush to impose global regulations will have catastrophic impacts on the world economy, on jobs, standards of living, and health care, with the most severe consequences falling upon developing countries and the poor.

levels; current IPCC estimates range from a three- to 11-inch rise, far short of catastrophe.

Levels of carbon dioxide have increased by 25 percent over the past 100 years; and all greenhouse gases taken together have increased carbon-dioxide-equivalent levels by about 50 percent. In other words, we have already gone halfway towards the greenhouse gas doubling which is often taken as the benchmark for model predictions. One would have expected a warming of at least 0.75 degrees centigrade by now, and more likely a rise of 1.5 degrees centigrade, according to the predictions of many models.

The reality is quite different. Since 1880, temperature has increased only 0.5 degrees centigrade, and that primarily before 1940—that is, before appreciable greenhouse gases were added to the atmosphere. The global climate record during the last 50 years shows no appreciable temperature increase at all. In the United States, the warmest years were in the 1930s, not in the 1980s, based on the analyses of the U.S. Climate Center in Asheville, North Carolina, which uses the U.S. observational network and also corrects for the "urban heat island" effect.

Many climatologists identify the pre-1940 warming with a recovery from an anomalous cooling of the preceding centuries, known as the "Little Ice Age." Certainly, the observed global cooling that inspired a fear of a coming ice age in the 1970s is not in accord with greenhouse models. Adding to the problem, a November 1, 1991 *Science* article by Danish meteorologists, E. Friis-Christensen and K. Lassen, shows that average temperature and solar activity are closely correlated, as measured by the length of the sunspot cycle. If this is correct, then little or no warming can be ascribed to the greenhouse effect.

The most appropriate data for validating current climate models is the global temperature record from satellite microwave observations, which began in 1979. This is the only truly global and continuous set of data available, with heat islands and other surface distortions of temperatures eliminated. Contrary to an expected 0.3 degree centigrade rise per decade, based on current theory, the satellite record shows no significant temperature trend.

Trend or fluctuation?

Temperature observations generally show large fluctuations from unknown causes. Some of the fluctuations may be due to natural influences, such as volcanic activity. Other fluctuations are a consequence of the chaotic behavior of the system itself, involving feedbacks, both positive and negative, on many different time scales. These fluctuations make it difficult (if not impossible) to identify small long-term trends caused by human activities. Interannual and longer-term fluctuations of global temperature exceed those predicted by many greenhouse model calculations.

Disentangling natural changes from a greenhouse effect enhanced by human activities will

Ambiguous conclusion

The 1990 report of the Intergovernmental Panel on Climate Change (IPCC) notes that enhanced human-induced global warming has not yet been reliably detected:

Because of the strong theoretical basis for enhanced greenhouse warming, there is considerable concern about the potential climatic effects that may result from increasing greenhouse gas concentrations. However, because of the many significant uncertainties and inadequacies in the observational climate record, in our knowledge of the causes of natural climatic variability and in current computer models, scientists working in this field cannot at this point in time make the definitive statement: "Yes, we have now seen an enhanced greenhouse effect."

It is accepted that global-mean temperatures have increased over the past 100 years, and are now warmer than at any time in the period of instrumental record. This global warming is consistent with the results of simple model predictions of greenhouse-gas-induced climate change. However, a number of other factors could have contributed to this warming and it is impossible to prove a cause and effect relationship. Furthermore, when other details of the instrumental climate record are compared with model predictions, while there are some areas of agreement, there are many areas of disagreement.

The main reasons for this are:

1. The inherent variability of the climate system appears to be sufficient to obscure any enhanced greenhouse signal to date. Poor quantitative understanding of low-frequency climate variability (particularly on the 10-100 year time scale) leaves open the possibility that the observed warming is largely unrelated to the enhanced greenhouse effect.

2. The lack of reliability of models at the regional spatial scale means that the expected signal is not yet well defined. This precludes any firm conclusions being drawn from multivariate detection studies.

3. The ideal model experiments required to define the signal have not yet been performed. What is required are time-dependent simulations using realistic time-dependent forcing carried out with fully coupled ocean-atmosphere GCMs [global climate models].

4. Uncertainties in, and the shortness of available instrumental data records mean that the low-frequency characteristics of natural variability are virtually unknown for many climate elements.

Thus, it is not possible at this time to attribute all, or even a large part, of the observed global-mean warming to the enhanced greenhouse effect on the basis of the observational data currently available. Equally, however, we have no observational evidence that conflicts with the model-based estimates of climate sensitivity. Thus, because of model and other uncertainties we cannot preclude the possibility that the enhanced greenhouse effect *has* contributed substantially to past warming, nor even that the greenhouse-gas-induced warming has been greater than that observed, but is partly offset by natural variability and/or other anthropogenic effects.

J. T. Houghton, G. J. Jenkins, and J. J. Ephraums, eds. *Climate Change, The IPCC Scientific Assessment*. Cambridge: Cambridge University Press, 1990, p. 254.

require detailed examination and more refined indicators than simply average global temperature. The climatological record may contain specific "fingerprints" that are unique to specific mechanisms of change. But, as pointed out by Hugh Ellsaesser, neither the observed latitude, altitude, or hemispheric variations of global warming in the past century are in agreement with greenhouse theory.

Even the 1990 IPCC report on climate change waffles on that issue. The report says that the data are too ambiguous to fully support greenhouse theory. Nevertheless, the data are not inconsistent with the greenhouse effect. See "Ambiguous Conclusion," facing page.

One result of detailed climate studies was the discovery that U.S. temperature records reflect a warming trend mainly for night-time temperatures; that is, there is a decrease in the day-to-night temperature range. Data on the same effects in the former Soviet Union and China have now been published. If greenhouse gas increases were the cause of this increase in night temperatures—and we don't know that—then the obvious benefits to agriculture would make this climate change a plus rather than a minus. This argument is strengthened by the expectation that the present interglacial (warm) period, which started around 11,000 years ago, must soon come to an end. With a renewed ice age "on the horizon," the possibility of greenhouse warming takes on a relatively beneficial interpretation.

What to do

We can sum up present understanding of the enhanced greenhouse effect as follows: experts generally agree that the expected doubling of greenhouse gases in the next century will not cause a severe or catastrophic warming. Many scientists and most agricultural experts would argue that a longer growing season and enhanced carbon dioxide levels are, on the whole, beneficial to crops, which require both warmth and carbon dioxide to flourish. It is also agreed that it will take years, maybe a decade or more, before satellite data can establish a definite climate trend and before theoretical understanding of the atmosphere is comprehensive enough to allow accurate predictions.

This uncertainty raises an important but controversial question. How long should governments wait before taking drastic policy actions—if we cannot now identify a long-term climate trend? And if a trend is eventually identified, how can we be sure of its cause—or whether the cause is man-made? Answers to these questions are crucial if the proposed policy actions have a negative impact on other human values—economic welfare, health, and life expectancy. Environmental pressure groups often say that "we cannot afford to play Russian roulette with the planet's future." But this is an appeal to emotion, instead of the careful analysis that is called for.

Delaying action is not an invitation to disaster, as often claimed. Calculations by atmospheric scientist Michael Schlesinger of the University of Illinois, a climate modeler, clearly demonstrate that postponing controls on carbon dioxide for even a decade would have no noticeable impact on the next century's temperature trends. Moreover, even the most drastic limits on carbon dioxide emissions by industrialized countries would delay the doubling of greenhouse gases in the next century by only a few years.

A contributing factor to global warming is thought to be population growth and economic development in Third World nations, which will soon determine the growth rate of greenhouse gases. Carbon dioxide will increase because of fuel burning and forest clearing, and methane emitted from rice paddies and cattle raising will increase. It is well recognized, but seldom said, that controlling these activities and thus condemning billions to continued poverty, starvation and misery—or to draconian restrictions on population growth—would rightly be regarded as immoral and as a form of "eco-imperialism."

If greenhouse warming should become a problem, two reports from the U.S. National Academy of Sciences during the past year have suggested that mitigation of the effects of climate change, or adjustment to the change, is quite possible, and not prohibitively costly. A wide range of technological options can be pursued. These include planting trees on a large scale to replace logged or burned forests, and fertilizing the ocean with trace nutrients for plankton growth to sequester and thus reduce atmospheric carbon dioxide. Using satellites to screen out some incoming solar radiation also has been suggested. Such schemes may sound farfetched, but at one time so did many other futuristic projects that have since been realized.

Drastic, precipitous, and especially unilateral steps to roll back carbon dioxide emissions simply to delay an unlikely greenhouse warming will imperil living standards—and even political freedoms—in the industrial world. Yale economist William Nordhaus, who has been trying to deal quantitatively with the economics of this issue, has pointed out that "those who argue for strong measures to slow greenhouse warming have reached their conclusion without any discernible analysis of the costs and benefits."

At this stage, there are major uncertainties about greenhouse theory, about the effects of a possible warming, and about the economic and political impacts of hasty, ill-considered policies. Does it make sense to waste $100 billion a year on what is still a phantom threat when there are so many pressing—and real—problems in need of resources. ■

Drastic steps to roll back carbon dioxide emissions will imperil living standards.

C

No agency is more guilty of adjusting science to support preconceived public policy prescriptions than the Environmental Protection Agency (EPA).

The EPA's Science Advisory Panel criticized the agency in a 1992 report for failing to develop a "coherent science agenda and operational plan to guide its scientific efforts." The report went on to describe the agency's interpretation and use of science as "uneven and haphazard across programs and issues." In her initial review of the agency's operations, Administrator Carol Browner said EPA suffered from a "total lack of management, accountability and discipline." EPA's self-admitted failures raise even more questions about its ability to credibly protect the public's health and safety.

WHAT OTHERS ARE SAYING ABOUT EPA'S MANIPULATION OF SCIENCE TO FULFILL A POLITICAL AGENDA

"The Environmental Protection Agency admits that its priorities are seldom based on actual need, rather on public perceptions of potential risk."

-- Paula P. Easley, Director of Government Affairs, Municipality of Anchorage, Alaska
Paying for Federal Environmental Mandates: A Looming Crisis for Cities and Counties

In 1990, the EPA Science Advisory Board concluded that environmental laws "'are more reflective of public perceptions of risk than of scientific understanding of risk.'"

-- *The New York Times, March 21, 1993*

"An in-house study last spring by the Expert Panel on the Role of Science at the EPA noted that, outside and inside the agency, EPA is widely viewed as 'adjusted to fit policy.'".... "Matters are all the worse with the EPA, given the teeth-gritting zeal of the Gore gang, who rarely stop to count the economic cost of their nostrums."

-- *The Dallas Morning News*, December 16, 1992

"While EPA has attributed 5,000 lung cancer deaths a year to radioactive radon gas seeping up from the earth into houses, the epidemiological studies on household radon tend to show that houses with higher levels of gas have lower levels of lung cancer."..." The science of which EPA avails itself is that which happens to fit the political agenda of the moment. Epidemiology didn't support its position on radon, so they ignored it."

-- Bonner Cohen, Editor EPA Watch
Investor's Business Daily, January 28, 1993

"An EPA internal review in March suggested that the agency's own grasp of scientific calculations is 'uneven and haphazard.'"

-- William Murchison
The Dallas Morning News, July 15, 1992

"It's now open season on whatever contaminant the EPA chooses to label the killer contaminant of the week, with the effect that once again, Americans are going to be stampeded into fearing a substance for reasons which upon close inspection are scientifically indefensible."

-- Bonner Cohen, Editor of EPA Watch
Investor's Business Daily, January 28, 1993

"'People have a right to expect that public officials are making the right choices for the right reasons. We need to develop a new system for taking action on the environment that isn't based on responding to the nightly news. What we have had in the United States is environmental agenda-setting by episodic panic.'"

-- William K. Reilly, former EPA Administrator
The New York Times, March 21, 1993

"'Our society is very reactive, and when concerns are raised people want action. The problem in a democracy is you can't easily sit idly back and tell people it would be better to learn more.'
The result is that 'we're now in the position of saying in quite a few or our programs, Oops, we made a mistake.'"

-- Richard D. Morgenstern, Acting Administrator for Policy Planning and Evaluation at EPA
The New York Times, March 21, 1993

EPA and Bad Science:
A Case History on Alar

Alar is a growth regulating chemical used to slow the ripening of fruits and vegetables, especially apples, headed for market. The EPA began pushing for a ban on Alar in 1985, even though:

- its own Scientific Advisory Panel concluded that there was little scientific basis for such action.

- experts with the World Health Organization and the British government found no evidence that Alar was carcinogenic in mice, and stated that the minuscule amounts found in food posed "no risk to health."

The EPA used negative publicity and its own preliminary reports on Alar to pressure manufacturers into withdrawing the substance from the marketplace, even though the scientific evidence used was far from conclusive.

- In 1989, a CBS "60 Minutes" segment -- orchestrated by a public relations firm hired by the Natural Resources Defense Council, an environmental activist group -- implicated Alar as a carcinogen, especially for children, causing a nationwide panic.

- Scientists at the American Council on Science and Health and the American Medical Association characterized the scare as spurious.

Two years later, in the journal *Science*, the EPA admitted that, while still a "probable" carcinogen, Alar was only *half* as potent as it had stated in 1989.

- Many scientists viewed the EPA's retraction as halving an already hypothetical risk.

- The EPA has been additionally criticized for its method of animal testing, which can produce distorted results.

- Former Surgeon General C. Everett Koop has said that Alar had *never* posed "a health hazard." As one put it, the Alar issue was a "sorry example of what can happen when politics and hysteria prevail over science."

The ban on Alar still stands today and has resulted in losses for apple growers and processors, bankrupted many small growers and forced the government to purchase unwanted apples. The estimated losses to the apple industry, the Alar industry and the U.S. government total **more than half a billion dollars.**

EPA and Bad Science:
A Case History on Dioxin

Termed a "possible" human carcinogen in the early 1980's, dioxin has been more commonly portrayed as one of the most potent carcinogens known to man, despite the fact that similar compounds occur naturally -- in broccoli, for example. The EPA's position on dioxin resulted in scientifically unwarranted costs.

- o During 1982 and 1983, the federal government spending $33 million to buy the town of Times Beach, Missouri, and relocate its 2,240 residents because the streets of the town had been contaminated with dioxin.
- o The scientific data on dioxin did not support such drastic action.
- o Currently in the process of revising its assessment on dioxin, the EPA now concedes that the health threat was exaggerated.
- o Dr. Erich Bretthauer, head of the EPA research, brushed off the cost of cleanup as an "expensive mistake."

EPA and Bad Science:
A Case History on Radon

Radon, a colorless and odorless byproduct of uranium decay, can accumulate in soil and building materials (*e.g.*, stone, concrete blocks, bricks). The current radon scare is based on studies conducted more than two decades ago.

- Studies performed in the 1950's and 1960's on miners showed a high level of cancer. Though radon was present, other factors that can contribute to cancer were also present, such as smoking, nitrogen oxides and mineral dusts.

- A report by the National Resource Council (the BEIR IV report), based its findings on the studies of the illnesses that afflicted miners. It found that high levels of exposure of radon to cigarette smokers enhanced the incidence of cancer.

Despite the large uncertainty of these findings, EPA:

- made statements on the carcinogenicity of radon based on the BEIR IV report.

- based its radon policies and statements to Congress on the assumptions contained in these studies.

- developed a computer model that showed children being more susceptible to radon than adults, though the BEIR IV report made no such claim and in fact stated that susceptibility to radon is not age dependent.

The EPA's presentation of this "evidence" resulted in:

- the passage of the Indoor Radon Abatement Act of 1988, which gave assistance to states responding to the health threats posed by radon and set a national goal of reducing indoor radon levels.

- Rep. Edward J. Markey's (D-Mass.) proposal of the Radon Awareness and Disclosure Act which mandates radon testing and mitigation device certification, calls for testing in all schools by 1998, authorizes grants to states for testing, education and mitigation, and creates a Presidential Commission on Radon Awareness. If enacted, the proposal would necessitate huge costs for the renovation and new construction of schools, residences and offices and would justify litigation on behalf of alleged radon victims.

EPA and Bad Science:
A Case History on Asbestos

Asbestos is a naturally occurring mineral that is separable into fibers. The outcry against asbestos has resulted in the Asbestos Hazard Emergency Response Act of 1986 and the forced closing and costly clean-up of many commercial buildings, government facilities and schools, even though:

- o it is not known if all forms of asbestos are carcinogenic;
- o most forms of the cancers that are believed to result from exposure to asbestos were contracted in the workplace on jobs such as mining, insulation and pipefitting;
- o scientific studies used to support the claims of asbestos hazards focus on the 1940s when exposure and risk were high;
- o technologies developed following the studies of the 1940s now limit occupational and general exposure, thereby negating the applicability of those studies to today's situation;
- o studies recognize that there is a high correlation between lung cancer and the use of or exposure to airborne asbestos, but scientists have not determined the correlation between low-level exposure to asbestos (such as that encountered by the public in older buildings) and the incidence of lung and other cancers; and
- o a report from the Health Effects Institute Asbestos Research, "Asbestos in Public and Commercial Buildings: A Literature of Review and Synthesis of Current Knowledge," commissioned by the EPA and Congress, concluded that "although public concern over asbestos in buildings has focused primarily on potential risks to general building occupants, there does not appear to be sufficient grounds for arbitrarily removing intact ACM (asbestos-containing material) from well-maintained buildings...".

Nevertheless, unscientifically based opinion, inconclusive studies about exposure levels, and the alleged carcinogenicity of certain types of asbestos continue to drive debate and lawsuits and impose expensive removal costs upon society. The EPA's use of outdated studies in the radon and asbestos cases without evaluating the actual carcinogenicity of the substances at low levels of exposure once again demonstrates the need to restore scientific integrity to the regulatory process at the EPA before enormous expenditures are imposed through laws and regulations.

EPA and Bad Science:
Environmental Tobacco Smoke

The latest example of bad science presented itself in December, 1992, when the EPA released a report, "Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders," which claimed that "secondary smoke" is responsible for as many as 3,000 lung cancer deaths in the United States each year. The EPA report has been widely criticized within the scientific community because:

- of the 30 studies reviewed by the EPA, 24 showed no statistically significant correlation between secondary smoke and cancer, and the remaining six showed a correlation too small to rule out other factors affecting the incidence of cancer, such as diet, outdoor air pollution, genetics or prior lung disease.

- the EPA changed the statistical analysis model (confidence interval) for these studies from 95 to 90 percent -- thereby doubling the margin for error while also satisfying the agency's desire to demonstrate increased risk.

By relying on only six studies and reducing the confidence level of its data, the EPA was able to conclude that environmental tobacco smoke is a human carcinogen. No national legislation has been proposed yet, but:

- the EPA's report and recommendations are being reviewed by the Occupational Safety and Health Association, which itself disputes the EPA's findings on environmental tobacco smoke.

- state legislatures and businesses are already reacting to the EPA assessment and are trying to find ways to reduce people's exposure to environmental tobacco smoke.

This latest case of bad science once again calls into question the EPA's scientific methods and its use of science to promote "politically correct" policy.

Draft - Opinion Editorial

JUNK SCIENCE AT THE EPA

Time and again, the U.S. Environmental Protection Agency, charged by law with advancing environmental quality and human health, has taken extreme positions not supported by science. Under pressure from activist organizations, which are often aided and abetted by the news and entertainment industry, the EPA has lost sight of whether real benefits can be achieved by setting overzealous standards. The result has been regulatory chaos, billions of dollars wasted, and a public repeatedly terrorized by overblown health and environmental crises that make headlines one day and then fade to nothing the next.

Take Alar, for example, a chemical used to slow the ripening of apples headed for market. The EPA began pushing for a ban on Alar in 1985, only to be rebuffed repeatedly by its own Science Advisory Panel, which concluded that there was little scientific basis for such a ban.

Then in 1989 a CBS "60 Minutes" segment -- orchestrated by a public relations firm hired by the Natural Resources Defense Council, an environmental activist group -- appeared to implicate Alar as a cancer-causing agent, setting off a nationwide panic. Mothers tossed apples in the garbage; apple growers lost millions of dollars in income.

But the scientific evidence was far from conclusive. Experts with the World Health Organization and the British government found no evidence that Alar was carcinogenic in mice, and stated that the minuscule amounts found in food posed "no risk to health." Scientists at the American Council on Science and Health and the American Medical Association characterized the Alar scare as spurious. As one put it, the Alar issue was a "sorry example of what can happen when politics and hysteria prevail over science."

Nevertheless, the EPA used the negative publicity generated by "60 Minutes" to pressure manufacturers into withdrawing the substance from the marketplace. Only two years later, as reported in the journal *Science*, the EPA backed away from its earlier statements, saying that, while still a "probable" carcinogen, Alar was only *half* as potent as it had stated in 1989. Many scientists simply saw this as halving an already hypothetical risk. Indeed, former Surgeon General C. Everett Koop declared in 1991 that Alar had *never* posed "a health hazard." Yet the ban on Alar still stands.

Another case: dioxin. The controversy over exposure to this chemical has dragged on for more than two decades. Termed a "possible" human carcinogen in the early 1980s, dioxin has been more commonly portrayed as one of the most potent carcinogens known to man, despite the fact that similar compounds occur naturally -- in broccoli, for example.

During 1982 and 1983, the federal government spent $33 million to buy the town of Times Beach, Missouri, and relocate its 2,240 residents, because the streets of the town had been contaminated with dioxin.

But the scientific data on dioxin didn't support such drastic action -- a fact the EPA now appears willing to admit. Currently in the process of revising its assessment on dioxin, the EPA now concedes that the health threat was exaggerated. And what of the millions spent for cleanup? Dr. Erich Bretthauer, head of EPA research, shrugs it off as an "expensive mistake."

The latest "crisis" -- environmental tobacco smoke -- has been widely criticized as the most shocking distortion of scientific evidence yet. Last December the EPA released a report, "Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders," which claimed that "secondary smoke" is responsible for as many as 3,000 lung cancer deaths in the United States each year.

Of the 30 studies reviewed by EPA, 24 showed no statistically significant correlation between secondary smoke and cancer, and the remaining 6 showed a correlation too small for researchers to rule out other factors than can affect the incidence of cancer, such as diet, outdoor air pollution, genetics or prior lung disease.

Unable to maneuver this issue through a barrier of long-held statistical standards, the EPA simply reduced the confidence interval for these studies from 95 to 90 percent -- thereby doubling the margin for error and forcing the conclusion of increased risk. If secondary smoke is so serious a problem, why did the EPA have to rig the numbers?

The litany of questionable crises emanating from the Environmental Protection Agency is by no means confined to these three issues. It could just as easily include lead, radon, asbestos, acid rain, global warming, and a host of others. The situation has gotten so out of hand that the Agency was admonished last year by its own Science Advisory Panel in a report to then-Administrator William Reilly.

Noting that the EPA's scientific findings are widely perceived, even by EPA staff, as adjusted to fit its policy prescriptions, the Science Advisory Panel report, "Safeguarding the Future: Credible Science, Credible Decisions," criticized the Agency for failing to develop a "coherent science agenda and operational plant to guide [its] scientific efforts . . . and support its focus on relatively high-risk environmental problems."

"The interpretation and use of science is uneven and haphazard across programs and issues," the report said, adding that bureaucratic policies and institutions are set in motion to address environmental problems long before the scientific evidence is conclusive or, indeed, even considered.

In an era of increasingly scarce revenues and with environmental regulation costs already soaring to $150 billion per year (an average of $1500 per household), it is time for the Environmental Protection Agency, under new Administrator Carol Browner, to heed the warnings from its own advisory panel and adhere to the established rigorous standards of peer-reviewed, published research. When decisions are made on the basis of public hysteria, created by screaming headlines and tabloid TV, the citizenry is cheated out of billions of dollars that might be better spent on truly improving the public health.

Fair Comment

March 8, 1993 Insight

Restore Scientific Focus to EPA Policy

By Elizabeth Whelan

In one of her first official acts as the new administrator of the Environmental Protection Agency, Carol Browner acted decisively to bring our antiquated food safety laws up to speed with 1993 science.

Specifically, she told the press in February that trace levels of pesticide residues in food pose no health hazard; that the Delaney Clause, which absolutely prohibits in the food supply the presence of any dose of synthetic chemicals that cause cancer in laboratory rodents, is a scientific anachronism; and that if we continue to ban pesticides under the 1958 science of the Delaney Clause, the current abundance of our food supply will be in jeopardy.

While scientists cheered this refreshing, common-sense approach, environmentalists fumed. "Say it ain't so," cried Albert H. Meyerhoff, a senior attorney at the Natural Resources Defense Council (the group that brought us the now-debunked Alar apple scare of 1989), suggesting that Browner's move was somehow inconsistent with the Clinton-Gore administration's commitment to enhanced protection of the environment and public health.

Within hours of her announcement, Browner may have flinched from the pellets of wrath fired at her by the vocal environmental groups. Her office sent out a faxed press statement that appears to back away from her courageous stand: "Contrary to the impression left by published reports, Administrator Browner has at no time said she wants to relax the Delaney Clause." But indeed that *was* the precise thrust of what she originally had said — and what she still should work actively to accomplish.

In mindlessly defending the scientifically obsolete Delaney Clause, self-appointed protectors of the environment base their concept of "dangerous" on the premises that (a) exposure to trace levels of chemicals play a role in causing human cancer; (b) a mouse is a little man; (c) if a huge amount of something causes cancer in a rodent then we must assume that minuscule levels (which we could not even detect with the technology of five years ago) must pose a cancer hazard to humans; and (d) these "carcinogens," defined as chemicals that cause cancer, occur exclusively in man-made products.

These premises may have squared with the science of 1958, when Congress wrote the Delaney Clause — but all of them are obsolete today. The National Cancer Institute confirms that pesticide residues play no known role in causing human cancer. The scientific community agrees that animal experiments, while useful in research, do not automatically predict cancer risk in humans; that risk is related to dose — only the dose makes the poison — and thus huge, almost-lethal doses of chemicals in animals have no relevance to human risk; and that chemicals which cause cancer in animals abound in nature.

If we were to apply the Delaney Clause to nature, we would have to ban coffee, table pepper, peanut butter, mushrooms and more.

The question of the fate of the Delaney Clause has reached a crisis level because environmental groups last year sued to make the EPA follow the letter of the law — no trace levels, no further discussion — instead of accepting what scientists call the concept of "negligible risk."

A federal court in San Francisco this past spring sided with the environmentalists — not because it was agreeing that trace-level chemicals cause a health hazard but because it was interpreting the intent of Congress in passing the Delaney Clause. It is now on to the Supreme Court — a decision is expected this spring — and again, because the court will be looking at congressional intent, not scientific merit, the nation's highest court may well uphold the Delaney principle.

If this happens, the EPA could have to ban a full spectrum of agricultural chemicals — and that will translate to substantially fewer vegetables and fruits available for consumption in the United States.

It is that food crisis that Browner was attempting to avert by setting the stage for new congressional action to repeal the Delaney Clause if indeed the Supreme Court throws the ball back to Congress.

Browner and the EPA now need support and encouragement. It takes a strong determination and commitment to do what is scientifically correct, not politically correct, and to stand up to the environmentalists who feel that in a Democratic administration they should call the shots. The new EPA chief has shown her potential for putting environmental policy back on scientific track, but it ain't over until the Delaney Clause is repealed or revised.

As we watch the final face-off between Browner, Congress and the environmentalists, keep in mind that what is being decided is whether we will continue to have the safest, least expensive, most plentiful and enviable food supply in the world — or whether we will abandon the tools of modern agricultural technology and watch produce prices soar and food availability and quality diminish. •

Elizabeth Whelan is president of the American Council on Science and Health.

Junk Science

LAST WEEK'S scare from the Environmental Protection Agency (EPA) was radon in schools. It grabbed headlines with the claim that there are 73,000 classrooms in 15,000 schools where this radioactive gas is over the agency's "action level" of 4 pCi/L. This led Congressman Henry Waxman to say breathlessly that it is "more dangerous to attend school than work in a nuclear-power plant." (He did not add that nuclear-power plants in the U.S. have proved among the safest places anyone could choose to work. Indeed, in decades' operation of up to two hundred nuclear-power plants not a single worker has died of radiation.)

Some months ago we asked the EPA for the scientific articles and reports justifying their radon action level, and after a month's delay, during which our interest ebbed, we received an intimidatingly thick package. Last week we took that EPA package off the shelf and spent some hours going through the studies. We were amazed to find that they don't support the EPA position at all.

They fail to find any statistically proven association between residential or school radon levels and lung cancer. They constantly emphasize the "uncertainty" surrounding the arithmetical extrapolation to residential radon levels of lung disease suffered by workers in mines with high radon concentrations. As one cancer scientist, Gio Gori, wrote recently, the official cancer risk assumptions are "poignantly out of step with the scientific evidence." (*Regulatory Toxicology and Pharmacology*, 16, 10-20, 1992.)

And the EPA omitted from its package the most damning set of radon/lung-cancer studies, from Bernard Cohen, professor of physics and radiation health at the University of Pittsburgh. Cohen's group has measured radon levels in 350,000 homes across the U.S. and subjected the data to every conceivable statistical check. He finds no basis for concern about low-level radon—indeed, the reverse: "The [EPA's] linear theory predicts that lung-cancer rates should increase by 7.3 per cent for each pCi/L of radon concentration in homes, whereas our studies indicate that lung cancer rates actually decrease by about 6 per cent pCi/L."

How so? An eminent biochemist, T. D. Luckey, has experimentally shown the health benefits of low-level radiation and called the process "hormesis." Cohen's statistics suggest that not only is the EPA radon scare phony, but it could deprive millions of people of the benefits of hormesis. After all, rich people have been seeking better health for centuries by going to spas whose sole distinguishing physical characteristic is that they have higher levels of radon and other sources of ionizing radiation.

Another piece of junk science from the EPA is the notion that thousands of non-smokers die of lung cancer from the smoke of smokers—a/k/a environmental tobacco smoke (ETS). Now, everyone accepts that smokers assume a major risk for themselves. They increase their risk of lung cancer at least tenfold. But ETS is cigarette smoke diluted thousands of times compared to the smoke smokers inhale directly into their lungs. And it is hard to distinguish chemically from cooking smokes and from boiler-flue, tailpipe, and industrial emissions.

The closest thing to science in the debate over ETS is a slew of statistical studies of the incidence of disease among couples where one partner smokes and the other doesn't. Some of the studies show a mild statistical association (risk ratios like 1.2, compared to ratios of 2.0 and more that are normally required to establish association and a ratio of over 10.0 for direct smoking). Most fail to meet the 95 per cent confidence level usually adopted by statisticians to exclude chance clustering.

The EPA's recent declaration that ETS is a "Class A carcinogen" was achieved by a quite shameless abandonment of regular scientific procedures. Since the American studies don't prove the case, the EPA dragged in a large collection of studies from Asia and Europe. Though it claimed to have "proved" the association by a "meta analysis" or combining of the existing studies, the EPA simply abandoned the conventional 95 per cent confidence level and applied a 90 per cent test in order to claim the result was statistically significant.

Alvan Feinstein, professor of medicine and epidemiology at Yale medical school, wrote recently in *Toxicologic Pathology* that the EPA study on environmental smoke "simply ignored the inconvenient results and emphasized those that are (in a memorable phrase) 'helpful.'" He said he had been told by a colleague that the EPA report on ETS was "rotten science" in the worthy cause of getting a smoke-free society. Professor Feinstein observed that government agencies funding scientific research often become "mechanisms of advocacy." That used to be called "lying," and it still should be.

THE WALL STREET JOURNAL.

3-29-93

Clearing the Air

What Really Pollutes? Study of a Refinery Proves an Eye-Opener

An EPA-Amoco Test Finds That Costly Rules Focus On Wrong Part of Plant

One Gigantic Culture Clash

By CALEB SOLOMON
Staff Reporter of THE WALL STREET JOURNAL

Nowhere has animosity between regulator and regulated been more acrid than in environmentalism and pollution control. But now, some signs of change and pragmatism are in the air.

"The adversarial relationship that now exists ignores the real complexities of environmental and business problems," said Carol Browner, head of the Environmental Protection Agency, at her confirmation hearings. Last week, she told the auto industry she favors flexibility in meeting clean-air goals.

As it happens, the EPA itself has been involved in a far-reaching experiment in finding new approaches to pollution control, one that has involved nothing less than a full-bore study of how best to regulate an oil refinery.

The study, launched four years ago as an unprecedented joint venture between the EPA and Amoco Corp., tested the goodwill of both sides. Enormous obstacles of mistrust had to be surmounted, as the two sides found that, in jargon and analysis, they literally didn't speak the same language. The study was almost doomed midway through when the EPA slapped a stern penalty on Amoco in an unrelated matter.

Less for More

Yet the project finally was completed—with startling conclusions. Among them: The refinery could achieve greater pollution reduction for about $11 million than it is getting for a $41 million expenditure required by current EPA regulations.

Equally unsettling: While that $41 million was spent to trap air pollution from the refinery's waste-water system, no controls at all were required—or yet exist—on a part of the plant that the study showed to emit five times as much pollution. It could be dealt with for a mere $6 million.

Why such miscalculations? Because, it turns out, nobody had ever actually tested to see how much air pollution the refinery was emitting, or where the pollution was coming from.

The Clinton-administration EPA is just beginning to consider the refinery study, known as the Yorktown Project, which is now winding up with a multivolume report that will call for such changes as tailoring a solution to each industrial facility. But Ms. Browner indicates she is sympathetic to many of its ideas. "If we were starting out today to develop an environmental program with all the knowledge we have today, we'd probably do it quite differently," she says in an interview. "What I'm absolutely committed to is making sure we can do the job we need to do in the least costly, most expeditious manner."

Serendipity Aloft

The spark for the rare EPA-industry joint study was a chance meeting of old acquaintances aboard a 1989 Chicago-to-Washington flight.

Debora Sparks grabbed the open seat next to James Lounsbury. They had been part of a Washington crowd that used to gather after work in the 1970s at bars along Pennsylvania Avenue. After some catching up, they began talking about their work: pollution, energy, regulation.

Though both had worked in the energy industry in the old days, now much had changed. Mr. Lounsbury was at the EPA. Ms. Sparks worked for Amoco.


Debora Sparks

They talked about the complaints of each side about pollution control, and how despite all the cost and effort much pollution went uncontrolled. The tenor of the in-flight conversation, recalls Mr. Lounsbury, was, "If we could be king and queen for a day, wouldn't it be nice if we could restructure the world of environmental analysis." They wondered if something might come of a joint look by regulator and regulatee at a particular pollution site.

When the plane landed, the two returned to their offices full of enthusiasm but unsure how to channel it. To Mr. Lounsbury at the EPA, the notion of working with an oil company was dangerous heresy. But he knew a midlevel regulator whose job was to look at new ways to regulate, and who had mulled the idea of a joint venture with an energy company. Mr. Lounsbury said he had a candidate.

As for Ms. Sparks of Amoco, "there was some part of me that worried about coming across as a flake." But she gently suggested an EPA joint venture.

"It was a hard sell in Amoco," recalls the company's vice president for environmental affairs, Walter Quanstrom. "Lots of people thought that opening the gates was stupid," because the regulators would crawl around a plant and find problems. Yet within a few days, he told Ms. Sparks to begin developing a project to take a deep look, jointly with the EPA, at the pollution output and possible preventive

Please Turn to Page A6, Column 1

THE WALL STREET JOURNAL.

3-29-93

Clearing the Air

What Really Pollutes? Study of a Refinery Proves an Eye-Opener

An EPA-Amoco Test Finds That Costly Rules Focus On Wrong Part of Plant

One Gigantic Culture Clash

By CALEB SOLOMON
Staff Reporter of THE WALL STREET JOURNAL

Nowhere has animosity between regulator and regulated been more acrid than in environmentalism and pollution control. But now, some signs of change and pragmatism are in the air.

"The adversarial relationship that now exists ignores the real complexities of environmental and business problems," said Carol Browner, head of the Environmental Protection Agency, at her confirmation hearings. Last week, she told the auto industry she favors flexibility in meeting clean-air goals.

As it happens, the EPA itself has been involved in a far-reaching experiment in finding new approaches to pollution control, one that has involved nothing less than a full-bore study of how best to regulate an oil refinery.

The study, launched four years ago as an unprecedented joint venture between the EPA and Amoco Corp., tested the goodwill of both sides. Enormous obstacles of mistrust had to be surmounted, as the two sides found that, in jargon and analysis, they literally didn't speak the same language. The study was almost doomed midway through when the EPA slapped a stern penalty on Amoco in an unrelated matter.

Less for More

Yet the project finally was completed—with startling conclusions. Among them: The refinery could achieve greater pollution reduction for about $11 million than it is getting for a $41 million expenditure required by current EPA regulations.

Equally unsettling: While that $41 million was spent to trap air pollution from the refinery's waste-water system, no controls at all were required—or yet exist—on a part of the plant that the study showed to emit five times as much pollution. It could be dealt with for a mere $6 million.

Why such miscalculations? Because, it turns out, nobody had ever actually tested to see how much air pollution the refinery was emitting, or where the pollution was coming from.

The Clinton-administration EPA is just beginning to consider the refinery study, known as the Yorktown Project, which is now winding up with a multivolume report that will call for such changes as tailoring a solution to each industrial facility. But Ms. Browner indicates she is sympathetic to many of its ideas. "If we were starting out today to develop an environmental program with all the knowledge we have today, we'd probably do it quite differently," she says in an interview. "What I'm absolutely committed to is making sure we can do the job we need to do in the least costly, most expeditious manner."

Serendipity Aloft

The spark for the rare EPA-industry joint study was a chance meeting of old acquaintances aboard a 1989 Chicago-to-Washington flight.

Debora Sparks grabbed the open seat next to James Lounsbury. They had been part of a Washington crowd that used to gather after work in the 1970s at bars along Pennsylvania Avenue. After some catching up, they began talking about their work: pollution, energy, regulation.

Though both had worked in the energy industry in the old days, now much had changed. Mr. Lounsbury was at the EPA. Ms. Sparks worked for Amoco.


Debora Sparks

They talked about the complaints of each side about pollution control, and how despite all the cost and effort much pollution went uncontrolled. The tenor of the in-flight conversation, recalls Mr. Lounsbury, was, "If we could be king and queen for a day, wouldn't it be nice if we could restructure the world of environmental analysis." They wondered if something might come of a joint look by regulator and regulatee at a particular pollution site.

When the plane landed, the two returned to their offices full of enthusiasm but unsure how to channel it. To Mr. Lounsbury at the EPA, the notion of working with an oil company was dangerous heresy. But he knew a midlevel regulator whose job was to look at new ways to regulate, and who had mulled the idea of a joint venture with an energy company. Mr. Lounsbury said he had a candidate.

As for Ms. Sparks of Amoco, "there was some part of me that worried about coming across as a flake." But she gently suggested an EPA joint venture.

"It was a hard sell in Amoco," recalls the company's vice president for environmental affairs, Walter Quanstrom. "Lots of people thought that opening the gates was stupid," because the regulators would crawl around a plant and find problems. Yet within a few days, he told Ms. Sparks to begin developing a project to take a deep look, jointly with the EPA, at the pollution output and possible preventive

Please Turn to Page A6, Column 1

THE WALL STREET JOURNAL

3-27-92

ings but only modified them in some instances, and the project should proceed.

Even with that, there was frustration at Amoco. Armed with study data showing the waste-water plant's benzene emissions were only a tiny fraction of what the EPA had assumed them to be, the company petitioned in early 1992 for an exemption to rules requiring it to complete its massive sewer system. EPA said no — there was no procedure to waive existing environmental laws and regulations, even if they were contradicted by an EPA-sanctioned study.

Prescribed Remedy

As for the loading area that the study had fingered as a worse culprit, the group decided that controlling its benzene fumes would take a special two-nozzle hose. The second nozzle would suck in escaping fumes, and pipes would carry them away. Cost of the system: about $6 million.

The group also agreed the refinery could stand about $5 million of other modifications, like new smokestacks, extra tank seals and cooling equipment for open-air sludge ponds. One Yorktown sludge pond, the study showed, emitted twice as much hydrocarbons as the EPA's rules assumed. The low-cost solution: lowering the pond's temperatures.

Late last year, Amoco completed its high-tech water-treatment system. Building that costly facility (something many other refineries have had to do over the past two years) brings Yorktown current with environmental laws. The plant now controls the modest output of benzene fumes from its waste water.

Five times that much benzene still rises from the refinery's docks. "It's not required to be controlled, so it's not," says Chris Klasing, an Amoco manager.

EPA officials concede the point. The Yorktown study points to "potential opportunities" for better, cheaper pollution control, says the agency's Mr. Podar, but "we must confirm them before we make national policy." EPA officials say new regulations to control benzene at loading docks should be drafted by the mid-1990s.

Winding Down

The final Yorktown report is nearing completion. The volumes done so far make the basic argument that each plant is different, and each requires unique pollution solutions. They say only exhaustive testing at each plant will accurately tell what needs to be cleaned up.

Short of rewriting laws like the Clean Air Act, there is little hope for immediate, far-reaching change — such as setting a benzene maximum and letting a plant meet the goal any way it wishes. If Yorktown cuts pollution at its loading dock or the EPA requires it to do so, that doesn't mean the agency would let Yorktown out of any requirements at its waste-water plant, even if they were based on faulty assumptions. Says Mr. Davies: "You invest so much in terms of time, money and political chits in arriving at one of these regulatory decisions that to go back and change it is something nobody wants to do."

Still, there are signs that EPA regulation is evolving. The air, water and solid-waste offices talk more to each other, as Yorktown's report recommends. And EPA Administrator Browner says, "The idea that one solution works in every situation is something we've probably passed beyond, and we need to recognize that. We need to become more flexible."

As the rare industry-agency joint venture winds down, many of its participants have moved on. Amoco's Howard Klee and Debora Sparks both have new assignments, as do the EPA's Jim Lounsbury and Mahesh Podar. Summing up his experience, Mr. Podar says, "Some of my colleagues may not agree, but Yorktown shows that EPA and industry can work together. You *can* find more effective ways to meet environmental objectives."

Ms. Sparks, whose spotting of Mr. Lounsbury aboard the 1989 flight led to the project, even feels a certain ennui, as if a precious union has ended. "You know," she says, quietly, "I should call Mahesh and Jim. I haven't even wished them a happy New Year."

San Francisco Chronicle
BRIEFING

■ DATELINE/*Washington*

EPA Rule Could Send Water Rates Soaring

SUMMARY: Scientists, joined by utility officials, argue that the pending regulation aims extraordinary measures at a tiny health risk

By Carolyn Lochhead
Chronicle Washington Bureau

Washington

Huge increases in water bills — as much as $50 a month for some California households — are likely to follow the implementation of a pending EPA rule mandating the removal of radon from drinking water, critics of the proposed regulation charge.

Scientists who study radon risk, and the water and health officials who would be charged with carrying out the new regulation, contend that the rule will wash billions of dollars down the drain each year but will yield virtually no improvement in public health.

The Environmental Protection Agency, however, maintains that the rule, which was proposed last July and is expected to take effect in April 1993, will save lives — by reducing lung cancer deaths — at a reasonable cost.

Naturally Occurring Gas

Radon, a radioactive gas, comes from naturally occurring uranium deposits in the earth and is present in both indoor and outdoor air. It can seep into homes through basements or, carried in groundwater, be released into indoor air at the faucet. Scientists say household water contributes about 2 percent of the radon present in the average home.

The EPA, which already has voluntary guidelines in place for indoor-air levels of radon, says that radon from all sources causes 8,000 to 40,000 lung cancer deaths each year.

The new groundwater standard would reduce radon levels in drinking water to 300 picocuries per liter, from average current levels of 650. The agency insists the rule will reduce the chance of getting lung cancer from water-borne radon to two in 10,000 for a person exposed to the allowable level for 70 years.

But many scientists are highly skeptical of the agency's risk estimates projections and its corresponding assertion that low-level radon exposure causes lung cancer.

Anthony Nero, a senior scientist at Lawrence Berkeley Laboratory and a leading radon expert, calls the proposed EPA standard "absurd." Nero argues that a standard five times less stringent would cost a fraction as much and still protect the public.

Less Stringent Standard Urged

Water officials, who charge that the agency has low-balled estimates of what its new standard will cost the public, have urged the EPA to adopt a less stringent standard. The EPA's own Science Advisory Board, a group of independent scientists that reviews the agency's rules, wrote to EPA chief William Reilly on Jan. 29 "to convey its concern about the inconsistent approach" EPA is taking toward radon risk.

"Frankly, radon in drinking water is a very small contributor to radon risk except in rare cases," the letter said.

Gregory Helms, EPA's manager for the water rule, says the agency is still responding to the board's letter. Helms says the standard, based on Congress's 1986 amendments to the Safe Drinking Water Act, takes into account the technical feasibility of reducing radon levels in water and EPA's projections of lifetime cancer risks.

On the other side of the argument, Erik Olson, a senior attorney with the Natural Resources Defense Council, contends that the EPA isn't going far enough, saying that the proposed rule will still allow "hundreds of people every year to get cancer." He argues instead for a level of 26 picocuries per liter and says that water officials have exaggerated the proposed rule's costs.

Linear Risk Model

Part of the problem, critics say, is that EPA calculations linking radon to lung cancer use a "linear, no threshold" risk model, which extrapolates the effect of massive exposures to the effect from small exposures. As exposure falls, its effect falls linearly, but never reaches a threshold where exposure is no longer assumed to cause cancer.

To use an example, if 10,000 people crossed a river 10 feet deep and 1,000 of them drowned, the model would predict that if the same group crossed a river half as deep, half as many people would drown. If the river were one one-hundredth as deep, or about an inch high, 10 people would still drown.

The critics point out that the lung-cancer estimates are based on studies that monitored conditions in Colorado Plateau uranium mines between 1951 and 1971. Because the miners were exposed to high levels of radon — as much as 12,000 times the level found in most homes — these scientists say the estimates are unreliable.

"The uranium miners are only an indication" of a link between lung cancer and radon, says Jan Stolwijk, a professor of epidemiology and public health at Yale University and a leading radon expert. "They are probably not a terribly good way to make a serious determination of what the risk is in residences."

Smoking a Factor

Stolwijk adds that not only were radon levels in the mines extremely high, but that dust levels were as well.

Moreover, the vast majority of the miners were smokers. In one of the studies, only 14 of the 375 of the miners who got lung cancer were nonsmokers.

William Nazaroff, an assistant professor of civil engineering at UC Berkeley, published findings two years ago showing that only 3 percent of the lung cancer deaths each year that were said to be associated with radon occurred among uranium miners who had never smoked. More than 90 percent of the risk, Nazaroff found, "could be controlled by eliminating smoking without any changes in radon concentrations."

Further complicating the issue is controversy over the EPA's cost estimates. According to the EPA, the annual costs of the new standard will come to $180 million nationwide — but John Fraser, executive director of the Association of California Water Agencies, said that those costs in California alone will run $530 million to $710 million.

In addition, Fraser, whose organization represents local water districts, said that total capital costs for construction of new water-treatment facilities may reach $3.7 billion in California and $30 billion nationwide.

Comments Under Study

Fred Pontius, a regulatory analyst for the American Water Works Association, says his group's cost estimates are consistent with the California water agencies' findings. He argues that EPA is undercounting the number of utilities that will have to meet the new standard.

After the EPA published its notice of proposed rulemaking last July, it received some 600 comments, including arguments with the agency's cost estimates.

The comment period closed last November, and agency official Helms says the EPA is now studying the comments. If the agency finds that the arguments have merit, it will revise its cost estimates and a final rule will be issued; otherwise, the EPA will explain why it believes the arguments are not valid — and a final rule will be issued.

"The nation is being asked to spend over $30 billion to comply with one drinking water regulation," Fraser contends, "and yet the public can look to very little in the way of improved public health as a result of it."

The New York Times

3/21/93

New View Calls Environmental Policy Misguided

By KEITH SCHNEIDER
Special to The New York Times

WASHINGTON, March 20 — A generation after the United States responded to poisoned streams and filthy air with the world's first comprehensive strategy to protect the environment, many scientists, economists and Government officials have reached the dismaying conclusion that much of America's environmental program has gone seriously awry.

These experts say that in the last 15 years environmental policy has too often evolved largely in reaction to popular panics, not in response to sound scientific analyses of which environmental hazards present the greatest risks.

As a result, many scientists and public health specialists say, billions of dollars are wasted each year in battling problems that are no longer considered especially dangerous, leaving little money for others that cause far more harm.

At First, Clear Benefits

In the first wave of the modern environmental movement, starting about 30 years ago, the focus was on broad efforts to eliminate the most visible pollution pouring from smokestacks and sewer pipes — programs with clear goals that had obvious benefits.

But a second wave began in the late 1970's, with a new strategy intended to limit visible pollution further — and to begin attacking invisible threats from toxic substances.

To that end, state and Federal governments began writing sweeping environmental laws, some of which included strict regulations to insure that certain toxic compounds were not present in air, water or the ground at levels that did not exceed a few parts per billion, concentrations that could be measured with only the most sophisticated equipment.

The result was a tangle of regulations that the Environmental Protection Agency estimates cost more than $140 billion a year, roughly $100 billion spent by industry and $40 billion by Government.

But what is now becoming apparent, some scientists and public health specialists say, is that some of these laws — written in reaction to popular concerns about toxic waste dumps or asbestos in the schools, as examples — were based on little if any sound research about the true nature of the threat. Since 1980, for instance, thousands of regulations were written to restrict compounds that had caused cancer in rats or mice, even though these animal studies often fail to predict how the compounds might affect humans.

And with rare exceptions, Congress approved new laws without subjecting them to even rudimentary cost-benefit analyses. One reason was that during the 1980's, when the economy seemed healthier, there was far less pressure on Congress to consider the cost of environmental policy.

Overpriced and Misguided?

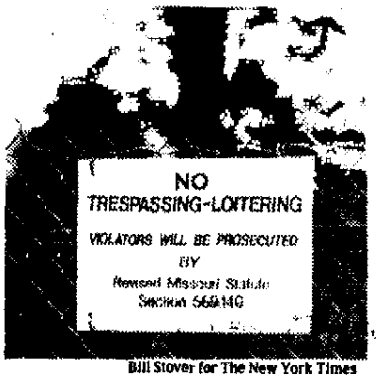
Now a new Administration intent on strengthening environmental policy is settling into office when competition for scarce financial resources is keen. At the same time, a wealth of new research shows that some of the nation's environmental protection efforts are excessively costly — though no one knows how much of this money is misspent — and devoted to the wrong problems.

This view is the vanguard of a new, third wave of environmentalism that is sweeping across America. It began in

Continued on Page [illegible], Column 1

What Price Cleanup?

First article of a series.



Bill Stover for The New York Times

Times Beach, Mo.

The New York Times

3-21-93

New Debate Over the Environment: Is U.S. Policy Misguided?

Monica Almeida/The New York Times

A principal author of the Superfund law of 1980, Gov. Jim Florio of New Jersey now says that resources are often devoted to making sites pristine. "It doesn't make any sense to clean up a rail yard in downtown Newark so it can be a drinking water reservoir," he said, speaking rhetorically, referring to a site like the one above.

Greg Campbell for The New York Times

A worker wearing protective clothing as he removed soil contaminated with toxic waste in Columbia, Miss., part of a $20 million Superfund cleanup project. Once completed a child could eat half a teaspoon of dirt every month for 70 years and not get cancer.

The New York Times

3-21-93

Continued From Page 1

the late 1980's among farmers, homeowners and others who were upset largely by the growing cost of regulations that didn't appear to bring any measurable benefits. Corporate executives had long been making similar arguments but had gone unheeded, even during 12 years of Republican rule, because often they were seen as interested only in saving money.

Richard J. Mahoney, chairman and chief executive of Monsanto, the chemical company, said the nation may start listening to industry now.

"People want to know, even with the environment, what we are getting for our money," he said. "The most positive thing since the election is that we are beginning to recognize that we do have finite resources, and one must make choices."

But leaders of the nation's conservation organizations believe the new view is misguided.

"We don't need a new paradigm," said David D. Doniger, a senior lawyer with the Natural Resources Defense Council. "For 35 years, the policy of the Government has been that when there is uncertainty about a threat it is better to be safe than sorry. When you are operating at the limits of what science knows, the big mistake would be to underestimate the real danger and leave people unprotected."

Still, in the last few years the wave has moved into universities, city halls, state capitols and even to the highest levels of the E.P.A., whose Science Advisory Board in 1990 concluded that environmental laws "are more reflective of public perceptions of risk than of scientific understanding of risk."

Law Follows Panic

William K. Reilly, the E.P.A. Administrator at the time, agreed. And in a recent interview in his office at the World Wildfire Fund, he argued: "People have a right to expect that public officials are making the right choices for the right reasons. We need to develop a new system for taking action on the environment that isn't based on responding to the nightly news. What we have had in the United States is environmental agenda-setting by episodic panic."

Richard D. Morgenstern, the acting administrator for policy planning and evaluation at the E.P.A., explains the problem this way: "Our society is very reactive, and when concerns are raised people want action. The problem in a democracy is you can't easily sit idly back and tell people it would be better to learn more."

The result, he added, is that "we're now in the position of saying in quite a few of our programs, 'Oops, we made a mistake.'"

President Clinton is clearly aware of this view. As Governor of Arkansas, he continually complained as a Federal toxic waste cleanup project in Jacksonville devoured $25 million in state, Federal and private money. State officials said nearly a decade of work has produced little more than piles of technical documents, exorbitant legal bills and public discord.

To be sure, some of the $140 billion the nation is spending this year pays forenvironmental programs that are indisputably useful. As an example, few experts question the value of spending roughly $3 billion each year on new sewage treatment plants. Many experts, however, question the wisdom of spending billions of dollars to protect people from traces of toxic compounds.

The new school of thought has blossomed as policy makers confront planetary threats like global warming, ozone depletion and deforestation in which the consequences of wrong action are much greater. Unless the nation rethinks its approach to environmental protection, some experts say, the United States could repeat its mistakes.

"The President is aware of this dilemma, and there is leadership in this Administration for trying to change the way we do business in every aspect of governing, including environmental protection," said Carol M. Browner, the Administrator of the Environmental Protection Agency. "We have to allow for change to occur as new information becomes available. This is not an area where a solution will fit forever."

Policy Now

Costly Solutions Seeking Problems

Almost everyone involved, including community and local environmental groups, agrees that the toxic waste program stands as the most wasteful effort of all. It began 15 years ago when the nation rose in revulsion over the discovery of seeping chemicals at Love Canal in New York. Hundreds of people were evacuated from their homes.

In response, Congress passed two laws: the Superfund law of 1980 and amendments to the Resource Conservation and Recovery Act in 1984. A decade later, those laws have driven the Government to spend almost $2 billion a year for the Superfund, which cleans up toxic waste sites, and more than $8 billion more a year on similar programs in other agencies, even though many of the sites pose little if any danger.

"Does it make sense to spend millions of dollars cleaning up a site that only has a tenth of an ounce of contamination?" asked Dr. Richard Goodwin, a private environmental engineer in Upper Saddle River, N.J., who has overseen more than 20 toxic waste cleanups. "I say no. All we're doing in most cases is throwing money at a problem without improving public health or the environment."

Hugh B. Kaufman, a hazardous waste specialist at the E.P.A. who helped uncover the problem at Love Canal, said that in the few cases in which a site is near populated areas, "the best thing we can do is evacuate people if they want, then put up a fence and a flag that says stay away."

Mr. Kaufman said he knows that his idea represents a marked change in the traditional view of how the nation should care for its land. But he and other experts says it does not make sense to clean up these wastes at costs that frequently exceed $10 million an acre.

Even a principal author of the Superfund law, Gov. Jim Florio of New Jersey, who was chairman of a House environmental subcommittee in the 1970's, now argues that the inflexible rules mean that Superfund resources are too often devoted to making sites pristine.

"It doesn't make any sense to clean up a rail yard in downtown Newark so it can be a drinking water reservoir," he said, speaking rhetorically.

Toxic waste cleanups are one example of a program gone awry. Here are others:

¶Early in the 1980's, Government scientists argued that exposure to asbestos could cause thousands of cancer deaths. Since asbestos was used as insulation in schools and public buildings, parents reacted with alarm. So in 1985 Congress approved a sweeping law that led cities and states to spend between $15 billion and $20 billion to remove asbestos from public buildings. But three years ago, the E.P.A. completed research that prompted officials to admit that ripping out the asbestos had been an expensive mistake; the removal often sent tiny asbestos fibers into the air. Now, except in cases when the asbestos is damaged or crumbling, the Government's official advice is: Don't touch it.

¶In 1982, high concentrations of dioxin were discovered in the dirt roads of Times Beach, Mo., near St. Louis. Residents were alarmed; the Government had designated dioxin as one of the most toxic substances known. The furor came in the middle of a scandal at the E.P.A.; the agency's chief, Anne Gorsuch Burford, was accused of not enforcing environmental law and being too close to industry. And as that scandal dominated the news, the Reagan Administration decided to evacuate all 2,240 residents of Times Beach, a project that cost the Government $37 million. But new research indicates that dioxin may not be so dangerous after all. None of the former residents of Times Beach have been found to be harmed by dioxin, and two years ago, Dr. Vernon N. Houk, the Federal official who urged the evacuation, declared that he had made a mistake.

Yet even as enormous sums of money were being spent on these problems, Washington was doing little about others. Here are two:

¶Mercury, a highly toxic metal, has contaminated thousands of lakes across the nation, poisoning wildlife and threatening human health, state environmental officials say. Twenty states, including New York, have posted warnings at lakes urging people not to eat the fish because they are tainted by mercury, which can cause nervous system disorders. But during debate on the Clean Air Act, in 1990, Congress considered limiting mercury emissions from coal-burning electric plants. The lawmakers decided not to act because they believed utilities had already been asked to spend enough to control acid rain, Senate and House leaders said.

¶In the last two years, several Federal agencies have called exposure to lead the largest environmental threat to the nation's children. Although some scientists dispute that, several studies have shown that lead poisoning in children leads to reduced intelligence, learning disabilities and hyperactivity. The problem is that most houses built before the 1970's could have some lead-based paint, and the fear is that children are eating paint chips or inhaling lead-laden dust. Some experts have said removing the lead paint will cost at least $200 billion. This year, the Government will spend $234 million on the problem, far less than it spends on cleaning up toxic wastes.

The New York Times

3-21-

The Path to Policy

When Politics Mixes With Fear

Even the advocates of change acknowledge that as science evolves, experts may change their views again on the dangers posed by these and other substances. But at the least, "sound science should be our compass," as Mr. Reilly put it two years ago.

After all, it was politics, misinterpreted or inaccurate scientific findings and a newly influential national environmental movement that combined to set America down its present path.

During the 1970's, the United States had successfully dealt with many obvious environmental problems. When the Cuyahoga River in Cleveland caught fire in 1969, as an example, Congress passed the Clean Water Act. About the same time came the Clean Air Act, the Endangered Species Act and other landmark environmental statutes — laws that are now widely acclaimed.

By the late 1970's, many Democrats in Congress believed the public wanted even stricter environmental law. But when Ronald Reagan was elected in 1980, he promised to reduce regulation. While the White House and Congress battled over this, the national environmental movement, with help from the news media, took on the job of warning the public about new threats and creating campaigns to enlist popular support for new regulations. They were spectacularly effective at this, and Congress passed two dozen bills that laid down a welter of mandates.

In the 1970's, environmental statutes rarely ran more than 50 pages. In the 1980's, these bills seldom numbered fewer than 500 pages. The reason was that Congress wanted to mandate safety limits so specific that the Administration could not ignore or evade them. Mr. Reilly, the former E.P.A. chief, said he was largely unable to change the Government's thinking, despite his strong opinion that environmental policy was on the wrong course, because "this represented a pretty significant change of direction."

Legitimizing Pollution?

At the leading environmental groups, staff members dispute the developing view that environmental policy is off track.

"It's an effort to legitimize pollution," said Daniel F. Becker, director of the Global Warming and Energy Program at the Sierra Club. "There are powerful forces who have an economic stake in de-emphasizing environmental damage."

But others who analyze environmental issues said these groups are in danger of becoming the green equivalent of the military lobby, more interested in sowing fear and protecting wasteful programs than in devising a new course.

"We are in danger of losing credibility and thus losing public support if we don't modify the whole way we go about protecting public health and the environment," said Dr. Devra Lee Davis, a senior research fellow at the National Research Council of the National Academy of Sciences.

A Case Study

Making Dirt Safe to Eat

Perhaps no environmental program has come under more criticism than the Superfund and its progeny. The Federal programs to clear toxic or radioactive wastes will consume more than one-quarter of the roughly $38 billion that the Federal Government spends for environmental protection this year. Experts in and out of the Government assert, though, that the justification for these expenditures is often questionable.

Consider the case of Columbia, Miss. The E.P.A. is overseeing the last phases of a $20 million Superfund cleanup project there. Like many others around the country, this one was guided by the Government's assumption that children will eat dirt. Lots of it. And from that dirt, the Government theorized that they could develop cancer.

Some evidence suggested that this was an exaggerated concern. In 1981, a study for the Congressional Office of Technology Assessment, which has been endorsed by the National Cancer Institute, found that only 1 to 2 percent of all cancers in people are caused by exposure to toxic chemicals in the environment. This finding, however, has had little influence on Federal policy.

The problem in Columbia was an 81-acre site that over its long life had been home to a lumber mill, a naval turpentine and pine tar plant and a chemical manufacturer.

Soil tests taken in 1986 showed traces of compounds the Government defines as hazardous. The concentrations rarely exceeded 50 parts per million, or about two ounces of chemicals mixed in a ton of soil. But that level exceeded the Federal limit, and the E.P.A. placed the land on its list of dangerous toxic waste sites.

Some experts told the E.P.A. that such tiny amounts of contamination were harmless. They said the safest and most economical way to solve the problem would be to spread a layer of cleaner soil and call it a day. The cost: about $1 million.

But two years ago, the E.P.A. settled on the most expensive possible solution. The Government ordered Reichhold Chemical, the plant's former owner, to dig up more than 12,500 tons of soil and haul most of it to a commercial dump in Louisiana — 450 dump truck loads, each one costing $7,500.

E.P.A. officials said they wanted to make the site safe enough to be used for any purpose, including houses — though no one was proposing to build anything there. With that as the goal, the agency wanted to make sure children could play in the dirt, even eat it, without risk. And since a chemical in the dirt had been shown to cause cancer in rats, the agency set a limit low enough that a child could eat half a teaspoon of dirt every month for 70 years and not get cancer.

Last month, the E.P.A. officials acknowledged that at least half of the $14 billion the nation has spent on Superfund cleanups was used to comply with similar "dirt-eating rules," as they call them.

"I don't think any way you look at this it could be seen as a practical solution," said W. Scott Phillips, an engineer with Malcolm Pirnie, an environmental planning company that manages the cleanup. "It's a lot of money to spend moving dirt."

Next: The debate over ocean dumping.

U.S. environmental policy is out of control, costing jobs, depressing living standards and being run by politicians, scheming business people and social extremists. Even one of the EPA's strongest supporters says bluntly . . .

"You can't get there from here"

By Peter Brimelow and Leslie Spencer

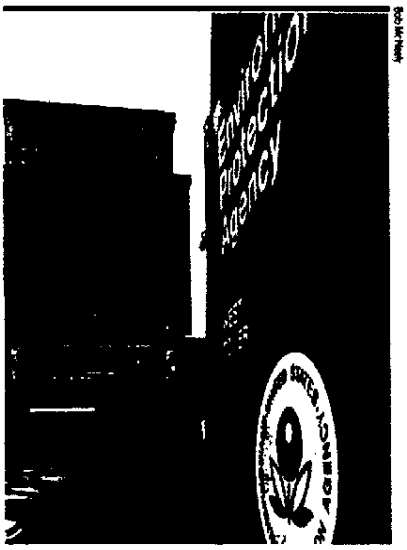
WHO PROTECTS THE ENVIRONMENT of the U.S. Environmental Protection Agency? Its twin-towered, 3,100-person headquarters in Washington, D.C.'s bleak South West section is appalling even by the grim standards of government office buildings. Dirty, rain-stained, maze-like, its home is an aborted apartment complex remodeled for the agency—according to rumors, at the behest of then Vice President Spiro Agnew, a friend of the developer. Ironically, given the EPA's recent drive to expand its grasp on indoor air regulation, its own HQ has "Sick Building Syndrome," causing the general malaise apparently related to poor ventilation and assorted airborne contaminants.

"I'm not supposed to talk about that!" quips EPA Administrator William K. Reilly, rolling his eyes. The reason: liability. Some EPA employees are already suing. And the agency is embroiled in quite enough litigation.

Reilly, 52, a suave, Harvard-educated lawyer, darts among his various contradictory constituencies with the delicacy of a pond-skimmer on the surface of a swamp. In a Republican administration he is a career professional from the Beltway environmentalist lobby—formerly head of the World Wildlife Fund. Among (mild) conservatives, he is an erstwhile Rockefeller associate who once put out a report calling for more government involvement in land use, weaker property rights and a national land use act. In an agency that reckons it has imposed some $1.4 trillion in compliance costs (1990 dollars) on industry since its founding in 1970, his emphasis has been on voluntary agreements with business—mostly big business.

The swamp upon which this agile pond-skimmer operates is rising. And beginning to smell.

The EPA now has 18,000 staff and an operating budget of $4.5 billion. That's about a seventh of the staff and a third of the spending of the entire federal regulatory apparatus. The EPA's staff has quadrupled since 1970. Its inflation-adjusted spending has gone up ten times. All federal regulation has surged under George Bush, overwhelming the brief respite of the early Reagan years. But the Bush-era burgeoning of the EPA, in the considered opinion of the Washington University in St. Louis' regulation-monitoring Center for the Study of American Business, has been "astounding" *(see chart, p. 60).*



EPA headquarters in Washington
An ironic twist to EPA litigation woes.

The impact of the EPA upon the U.S. economy is, of course, many times its own size. In 1990 the agency estimated that complying with its pollution-control regulations was costing Americans $115 billion a year, or a remarkable 2.1% of GNP, versus 0.9% in 1972. (And critics complain EPA estimates are typically too low.) Put it this way: Because of pollution controls, every American is paying on average about $450 more in taxes and higher prices. That's $1,800 for a family of four—about half its average expenditure on clothing and shoes.

In the 1990s the EPA projects that compliance costs will total another $1.6 trillion. And that's not counting the radical 1990 Clean Air Act amendments legislation. It could add $25 billion to $40 billion annually.

Tellingly, the U.S. spends a larger share of its gross national product on pollution control than do most Western European countries. Yet they have far denser populations. France, for example, with 56 million people in rather less space than Texas, spends only two-thirds as much.

Imposing costs at this level cannot but be a drag on the economy. Another EPA-funded study, by econometricians Michael Hazilla and Raymond J. Kopp, estimated that because of long-run distortions of saving and investment, real GNP in 1990 had already been depressed by no less than 5.8% below where it would have been without federal clean air and clean water regulation. And it diverges more

"Environmental Politics" editors Fred Smith and Michael Greve
Common law worked until government stepped in.

every year.

Compare that with the amount the economy seems likely to crawl upward in the four Bush years: 4.5%. And air and water are only part of EPA activity. Thus the Superfund toxic waste program, which takes over 40% of the EPA's operating budget and 20% of staff time, isn't included.

But hasn't all this spending brought economic benefits, too? Kopp and Hazilla's model could not pick up presumed benefits from clean air and water—for example, fewer days lost through illness. "But these must be very small, much less than 1% of GNP," says Brookings Institution economist Robert Crandall. He points out that the model still probably underestimated regulation's depressing effect: It could not assess the impact of investments wholly forgone. For example, EPA regulations discourage the replacement of old plants by holding them to lower pollution standards than new plants—irrational both economically and environmentally, but politically essential.

What about environmental benefits? The agency claims that between 1970 and 1990 emissions of lead fell 97%, carbon monoxide 41% and sulfur oxides 25%. Perhaps the EPA is like the Soviet military complex: brutally effective, albeit bankrupting.

But even here the EPA may be claiming more than it is entitled to claim. Critics argue that post-1970 pollution reductions are often due to other factors, such as higher gas prices. Brookings' Crandall has found that the adjusted reduction rate for several pollutants since the EPA's founding has actually been slower than in the 1960s, when the environment was regulated primarily by state and local governments. And, he adds, it is not clear that whatever overall reduction has occurred is actually the result of controls. "Assertions about the tremendous strides the EPA has made," he says, "are mostly religious sentiment."

Nor is it clear that these pollution reductions have improved human health. Surprised? That's because you missed a little-publicized but dramatic shift in the public health field since the late 1970s. The Great Cancer Scare—which was used to shift the EPA's focus from "bugs 'n' bunnies" to health—has been discredited. "When looking at causes of cancer . . . pollution is almost irrelevant," says Berkeley biochemist and cancer authority Bruce Ames.

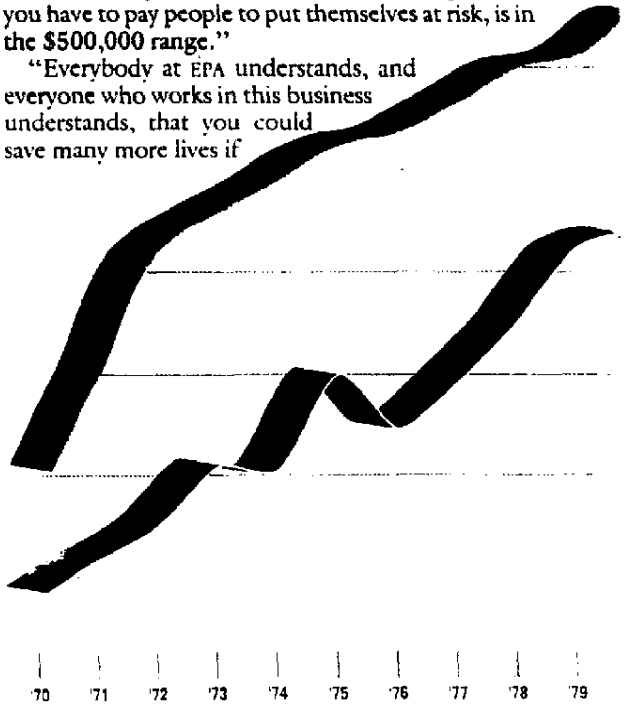
One thing, however, is absolutely clear: The cost per life theoretically saved—as measured by the EPA itself, often under statutory requirement—is now verging on the fantastic. "I have never seen a single [proposed regulatory] rule where we weren't paying at least $100 million per life for some portion of the rule, or very few," says Yale Law School Professor E. Donald Elliott, a Reilly ally and recent EPA general counsel. "I saw rules costing $30 billion."

John Goodman of the Dallas-based National Center for Policy Analysis reports a 1990 EPA regulation on wood preservatives that imposed costs at a rate of $5.7 trillion per life presumed saved. This implies a willingness to spend the entire GNP to avoid a single hypothetical premature death.

Goodman also points out that regulating for health is a policy at war with itself: The reduction of living standards associated with a $5-million-to-$12-million increase in regulatory costs is estimated to cause one additional death. Granted the EPA's claims to saving lives are correct, the saving of one life may be purchased at the cost of many others dying from, for example, poorer diet.

To put this in perspective: Practically everything in life involves risk at the infinitesimal level at which the EPA operates—crossing the street, for example, or eating seafood. But people are willing to bear the risks—indeed, positively eager. Many court risks knowingly—climbing mountains, hang gliding, smoking cigarettes. Others court risk for money—for example, high-rise construction workers. "According to some economists," admits Elliott, "the revealed preference for a life saved, the point at which you have to pay people to put themselves at risk, is in the $500,000 range."

"Everybody at EPA understands, and everyone who works in this business understands, that you could save many more lives if



you took the same amount of money and devoted it to say, infant nutrition programs, or a whole range of public health services," says Elliott. Which perhaps explains why phoning the EPA almost at random invariably unearths a depressed and disillusioned bureaucrat. (And why the agency now wants to refocus on vast, and conveniently vague, international issues like global warming.)

As Elliott puts it, reflecting on prospective costs and benefits: *"I've come around to the view that you just can't get there from here using these kinds of techniques."*

What Elliott means by "here" is known in the trade as "command-and-control" bureaucracy—prescribing detailed rules attempting to cover every possible circumstance. The EPA's pervasive rules, some observers say, amount to a national industrial policy . . . or land use act.

"[Command-and-control] is expensive, it has high transaction costs and it requires tremendous amounts of information," Elliott says. "There are 70,000 chemicals on the EPA Toxic Substances Control Inventory. Of those, we have health effects information on about 9,600, or one in seven. . . . I mean, there just aren't enough rats around to test every single substance."

What Elliott and Reilly say they want to do is regulate more flexibly. For example, they want the freedom to assess the risks from toxicity more realistically and to focus on the truly dangerous chemicals.

But other EPA critics believe the agency can never get there from here even if it focuses its goals more narrowly and precisely. "It's just another fundamentally flawed Nixon-era idea, like wage and price controls or racial quotas," says Fred L. Smith Jr., president of Washington, D.C.-based Competitive Enterprise Institute.

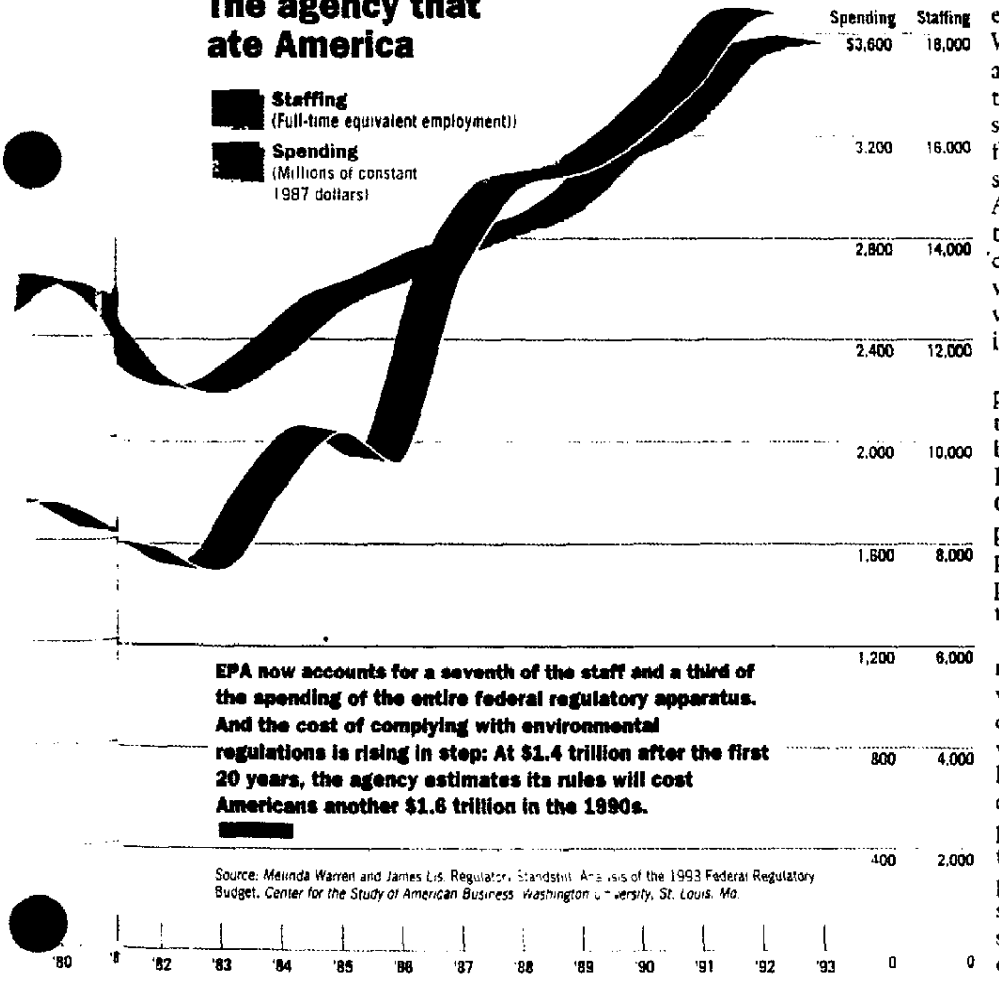
To some extent, the EPA's problems are those of managing chaotic growth. The federal government's watchdog General Accounting Office has complained for years about lack of cost control over the outside contractors who do the bulk of EPA work: Representative John Dingell's (D–Mich.) oversight subcommittee has begun a noisy investigation. The EPA's ten regions reportedly pursue inconsistent policies—Region Five, in the Midwest, is said to be the most ornery—with exceptional power in the hands of very junior staff. Many city and county governments have recently rebelled against the complexity and cost of EPA directions.

Within this chaos, fiefs can be carved out by strong (or savage) characters. In the Carter Administration, the agency was essentially run by the Policy Office head, William Drayton, now in exile as head of Environmental Safety, a Washington, D.C. EPA monitoring group, and vengefully writing an environmental transition paper urging an increase in EPA spending. In the Bush Administration, former real estate developer William Rosenberg, now Assistant Administrator for Air and Radiation, was key in burying the ten-year, $500 million national acid precipitation assessment program. It inconveniently debunked the acid rain panic just when Congress and the agency were using it to extend the Clean Air Act.

Then there's the Superfund catastrophe. Reilly has reportedly described it as the worst piece of legislation ever passed by the U.S. Congress. He may be right. Reacting in 1980 to hysteria over the Love Canal toxic landfill leak, Congress in effect provided for the legal mugging of any passing deep pockets (or even shallow pockets—*see box, p. 64*) to finance a nationwide cleanup.

But mainstream scientific opinion is now agreed that the danger from toxic waste was vastly exaggerated. Thus—another surprise?—healthwise, Love Canal was in the end harmless. And anyway the leak was basically caused by careless government development after compulsory purchase. Nevertheless, estimates of future expenditures under the Superfund program now range from $125 billion to a stupendous $1.25 trillion. Much of it—sometimes 85%—is going in transaction costs like lawyers' fees.

The agency that ate America



EPA now accounts for a seventh of the staff and a third of the spending of the entire federal regulatory apparatus. And the cost of complying with environmental regulations is rising in step: At $1.4 trillion after the first 20 years, the agency estimates its rules will cost Americans another $1.6 trillion in the 1990s.

Source: Melinda Warren and James Liu, Regulatory Standstill: An Analysis of the 1993 Federal Regulatory Budget, *Center for the Study of American Business, Washington University, St. Louis, Mo.*

But the real reason EPA is such a swamp is hard for non-Washingtonians to understand: It is hopelessly trapped in its own ecocycle of conflicting, interacting elements *(see diagram below)*. These are:

■ **The Beltway environmentalist lobby.** No longer just sandal-wearing ecofreaks, the 20 or so major environmental organizations are a formidable force in Washington, with perhaps 15 million members in total, budgets of about $600 million and top executives with six-figure salaries. (Reilly earned $111,000 at World Wildlife Fund in 1988.) Their main hold on the EPA: lawsuits—of every five major decisions made by Reilly, four are litigated. And the suits name him personally. Policy ends up being made by judicial order and in settlement negotiations rather than by the EPA itself. The Supreme Court just reduced environmentalists' ability to force their will on federal agencies but certainly hasn't eliminated it.

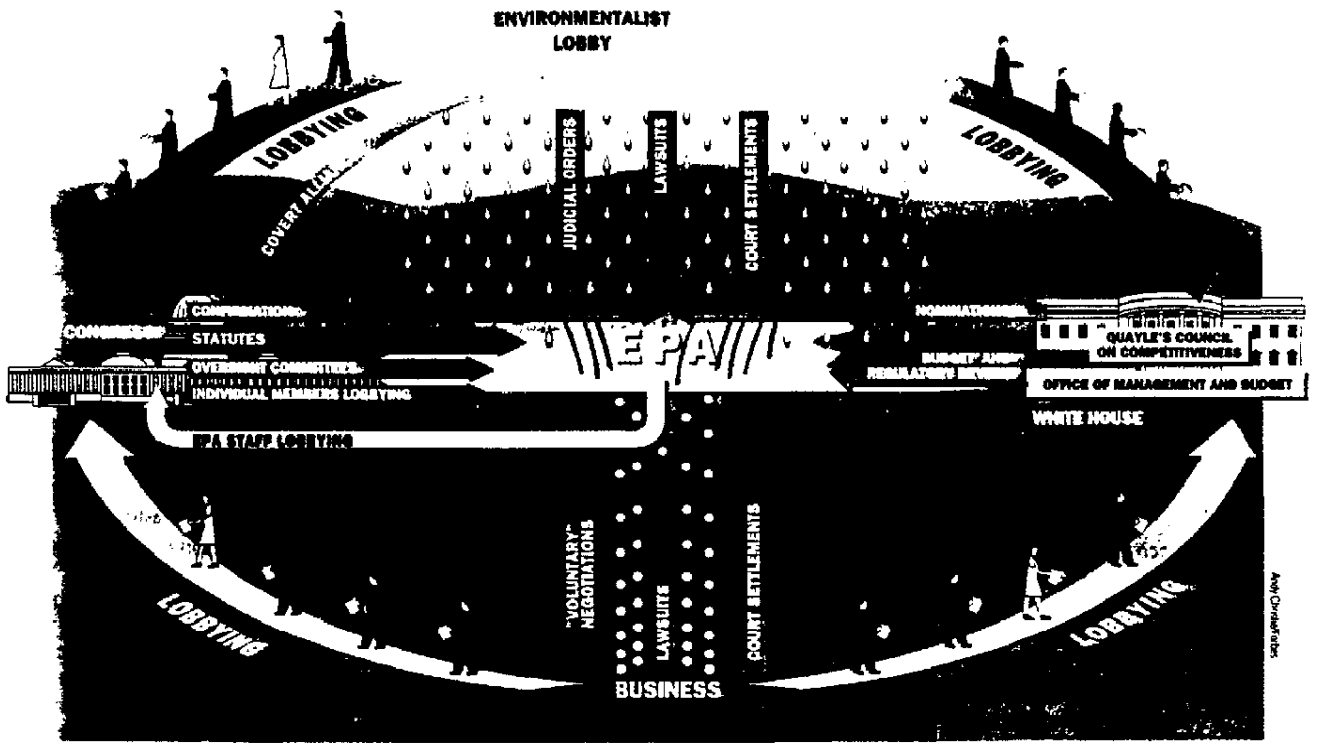
■ **Congress.** The 535 members of the legislative branch micromanage EPA (and can sneak favors to their constituents) through the 100 committees and subcommittees to which the agency is obliged to report. Even more important, the statutes under which the EPA operates are highly specific, and getting more so: The 1970 Clean Air Act had 50 pages; the 1990 Amendments, some 800. This effectively deprives the EPA of discretion in key areas—Don Elliott could not legally implement his toxic substance ideas. Sometimes statutes conflict: Clean Air Act mandates have created hazardous solid waste, requiring further regulation. Sometimes they reflect opposing philosophies: Cost-benefit considerations are precluded under Superfund, required under the FIFRA pesticide legislation. And the way they are written, under environmentalist influence, frequently provides opportunities for litigation.

■ **White House.** The executive branch affects EPA through personnel nominations and reviews of its finances and regulatory efficacy conducted by the Office of Management & Budget (and recently by Vice President Quayle's Competitiveness Council). But usually this just means delaying regulations that are statute-driven. Eventually lawsuits result in court-ordered deadlines, cutting back White House influence.

■ **Business.** Business sues the EPA, too, often over the same decisions as the environmentalist lobby. And it lobbies Congress and the executive branch. But business is profoundly divided. Too frequently, it can't resist trying to use regulation to cripple competitors. Thus ethanol producers allied with environmentalists, and against the oil industry, to influence the Clean Air Act Amendments in a way that increased demand for their costly alternative fuel.

A whole class of companies has been created to meet EPA requirements—and lobby for more. Thus the waste treatment industry's Hazardous Waste Treatment Council has

EPA ecocycle



"If you took out of the EPA's workload everything that is being driven by statutory deadline, court-imposed deadline or executive initiative, there wouldn't be a heck of a lot left," says former EPA chief Lee Thomas.

2074144091

EPA Administrator William Reilly taking a break from the Earth Summit in Rio
Shifting EPA's focus from health to the global environment.

helped block reform of Superfund. Significantly, two former EPA heads now run waste disposal companies.

Business' ambivalent attitude to regulation perhaps explains the flower of Reilly's EPA tenure: the Pollution Prevention Program. In its most publicized aspect, he has persuaded many companies to curtail the use of various designated chemicals voluntarily.

On closer inspection, however, the Pollution Prevention Program looks less voluntary—the companies are often being strong-armed by the EPA after technical filing violations. Some EPA staffers fear the "voluntary" approach is illegal—it may violate the Administrative Procedures Act. The chemicals may not be a problem anyway—they are merely the object of one of those statutes.

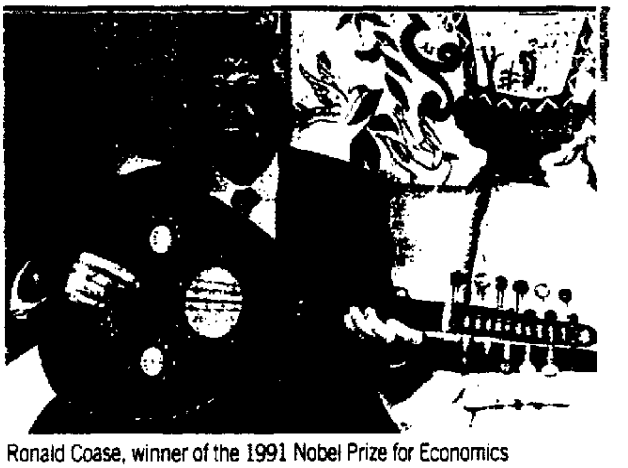
And by making expensive agreements, big companies raise the costs of entering their industries—leading to cartelization. "It's a problem," Reilly concedes.

What, then, is to be done about the EPA? Certainly the environment must be protected, even if we are now going about protecting it in the wrong ways. A comprehensive environmental bill, reconciling the present statutory confusion, seems a logical first step.

But an EPA veteran flinches at the thought of the Washington warfare this would unleash. Instead, he looks wistfully at the environmental bureaucracies in Britain and Canada, able to go about their business efficiently without public interference. Such a solution, however, is precluded by the U.S. system's separation of powers. Lawsuits and troublemaking legislators cannot be avoided.

There is an environmental policy ideally suited to the American way: the development of property rights and the common law of tort. The threat of litigation will discourage pollution, with the details worked out between private parties. For example, neighbors could use "nuisance law" to sue a malodorous factory.

Law students are taught in Environmental Law 101 that



Ronald Coase, winner of the 1991 Nobel Prize for Economics
Property rights offer better protection than regulations.

Much ado about very little

A STEEPLED CHURCH and a three-door fire station mark the center of Ashland, Mass. (pop. 13,000). On the edge of town, Megunko Hill, once woodland, is now a vast, bald 20-acre concrete "cap," cordoned off by a deep moat and high steel fence. Red danger signs mark the Nyanza chemical waste Superfund site.

In 1983 the EPA preempted the efforts of local landowners and the state of Massachusetts to clean up an abandoned dump on the hill. Since then the Nyanza site has come to epitomize everything that is wrong with Superfund.

Roughly $25 million has been spent so far, including costs of a ten-year study while things got worse. That's just earnest money. Massachusetts Superfund chief Richard Cavagnero plans to spend another $8 million to finish and possibly "hundreds of millions" to clean and monitor the site's water "forever."

The payoff? Superfund staffers acknowledge that the site's risk to human health is now negligible. But the rules say: Keep cleaning anyhow. Superfund staffers also acknowledge that the 20-odd people mugged to pay the tab, local small landowners and entrepreneurs, never actually contributed to the pollution.

So what's the point? From 1917 to 1970 Ashland was a dye manufacturing center for New England's textile industry. It survived WWII by supplying blue dye for Navy uniforms. Nyanza Inc. was the last of the local dye companies. Over the decades they buried dye sludge, bad batches and solvents in trenches on the hill.

The waste contained mercury, lead, arsenic and chromium. The brook that ran from the dye plant through town carried the liquid waste. It was noted for its stench. Locals still call it Chemical Brook. Lore holds that after playing there dogs would come home blue.

In the early 1970s the state, responding to local complaints, told Nyanza to clean up. But the decline in New England's textile industry brought Nyanza down with it. The company dissolved in 1978.

Local developer Robert Gayner agreed to clean up Megunko Hill when he bought the land in 1980, hoping to develop it. He figured he would spend roughly the amount estimated by state-approved studies: at most $300,000.

Gayner never bargained on Superfund and its gold-plated solutions. "It's like the Gestapo, the way these guys operate. They have been harassing a bunch of innocent people to the point where we've just had it," he wails. The "potentially responsible parties" (PRPs in Superfundese) are a mixed crew arbitrarily associated with the designated area. They include Gayner, a small highway cleaning contractor who happened to buy a polluted acre nearby, and the nephew of Nyanza's last chief executive officer. They have been threatened with fines of $25,000 a day for failing to comply with the stream of paperwork the EPA has demanded. And they have no control over EPA spending at the site, although they are supposed to finance it. Their only practical defense: Find others who might, just as remotely, be considered liable. In the meantime, banks have refused loans to PRPs, and property values in the area have plunged.

Nyanza Superfund site
The "potentially responsible parties" aren't.

Is it fair to target people with only remote association with the site? "We identify people Congress says are liable, and we collect hundreds of millions in settlements," insists Superfund's Cavagnero.

So far Superfund has spent $6.7 billion. It has cleaned up only 84 of some 1,250 identified sites. That's why estimates of what it will take to do the job top $1 trillion—much spent needlessly.

–L.S.

this approach didn't work, just as economics students are told about "market failure"—the solution in both cases being government intervention. But modern scholarship suggests that the common law was indeed working, until governments intervened. And anyway government has its own problems. (One such study is *Environmental Politics: Public Costs, Private Rewards*, edited by Fred Smith and Michael Greve, and just published by Praeger.)

And last year the Nobel Prize for Economics was awarded to the University of Chicago's Ronald Coase, whose seminal 1960 essay, *The Problem of Social Costs*, argued precisely that property rights could protect the environment better than a regulatory bureaucracy.

Of course, relying on common law to protect the environment would deprive Congress of some of its power to grant and withhold favors, cost thousands of bureaucrats their jobs and power, and spoil the games played by lots of business people. But isn't the limiting of government control over people's lives an important part of what America is all about?

EPA in Sad Shape, New Boss Testifies

Money Being Wasted, Browner Tells Hill

Associated Press

Environmental Protection Agency Administrator Carol M. Browner said yesterday she is appalled at her agency's "total lack of management, accountability and discipline," and vowed to straighten it out.

"It goes to the very heart of how this agency operates," she told a House subcommittee. "Not only is taxpayers' money being wasted, the American people's faith in their government is being undermined."

EPA inspector general John Martin reported this week that agency contracts are riddled with massive cost overruns and are so poorly managed that highly paid professionals end up caring for animals and painting furniture.

Money earmarked for other purposes ended up in travel budgets, contracts have been awarded without the required competitive bids and in one case, $30,000 in research and development funds were improperly spent on a plan for a day-care center, Martin reported.

The agency's problems go far beyond what the report covered, Browner told the House Energy and Commerce subcommittee on oversight and investigations.

"It goes to all financial resources in our agency," including grants, overall management and the financial operations, she said, adding that EPA's base budget has not been thoroughly reviewed for more than 10 years.

She cited "poor management practices, serious violations of rules and intolerable waste of taxpayers' money." Foremost among the problems is management of the hundreds of millions of dollars worth of EPA contracts at its laboratories throughout the country, she said.

Subcommittee Chairman John D. Dingell (D-Mich.) called EPA "one of the worst cesspools" he had seen and harshly criticized Browner's Republican predecessor, William K. Reilly.

Reilly agreed that management problems existed in the agency but blamed them mostly on the nature of the Reagan-era staff curtailments that required EPA to contract out for a significant portion of its work—$1.2 billion out of a $7 billion annual budget during his tenure.

"In my view that's a mistake. That invites problems," Reilly said in a telephone interview from California where he was on vacation. He said he had given "a very high priority" to solving the problems, including launching a contracting overhaul last year after abuses came to light.

CAROL M. BROWNER
... cites "total lack of management"

Browner acknowledged that Reilly's administration had begun to take corrective steps and noted "pockets of improvement," but she said much more needs to be done.

Browner said she will designate 26 senior officials to take over all responsibility for agency contracts. She said she will impose new disciplinary procedures that will make clear the penalties for violating rules on procedures and waste.

Rep. Henry A. Waxman (D-Calif.) expressed concern that a potential decrease in the amount of EPA contracts would leave more work for the agency itself at a time when President Clinton is seeking a government-wide paring back of employees.

Martin's report, summarizing surveys of several EPA laboratories last year, details numerous management problems, including work performed outside the contracts.

The contracts involve private firms as well as universities and other government agencies who do work for the environmental agency.

In the case of a $67.2 million contract at EPA's Health Effects Research Laboratory in Research Triangle Park, N.C., contractor Mantech Environmental Technology used engineers and computer programmers to care for test animals.

"Therefore, EPA may have been billed for higher classified and more costly personnel to complete tasks originally intended for lower-level personnel," the internal report said. It did not give a dollar amount.

Mantech also used technical lab contractors for "handyman duties," including painting and moving furniture, the report said.

In another case, an EPA chemist assigned to monitor the work of a contractor at the Air and Energy Engineering Research Laboratory, also in Research Triangle Park, was working as a consultant for the same contractor. Before coming to work for the agency, the chemist had worked for the contractor on the EPA lab project.

EPA WATCH

A twice-monthly survey of environmental regulatory activities undertaken by the EPA, OSHA, the White House, teh U.S. Congress and federal, state and local agencies.

VOL 1 NUMBER 5 MAY 15, 1992

EPA PETITIONED TO APPLY "GOOD SCIENCE" TO DIOXIN

The Environmental Protection Agency's highly publicized efforts to improve the quality of its science will be put to a severe test soon when the EPA releases revised risk assessments on a number of key health-related issues.

As the EPA prepares to issue updated risk assessments on such widely divergent subjects as dioxin, electromagnetic fields, and environmental tobacco smoke (ETS), a cautious scientific community is waiting to see if the agency is serious about improving the quality of its science.

Over the past several years, the EPA has been plagued by embarrassing revelations of shortcomings in the scientific evaluations underpinning its regulatory policies. Concerned that the EPA will come to be viewed as an agency of "eco-cowboys," Administrator William Reilly has committed the EPA to the highest standards of scientific excellence in evaluating the risks of environmental pollutants.

The forthcoming release of the EPA's "Scientific Reassessment of Dioxin" will provide critics with their first glimpse at the agency's new approach to science.

In an effort to encourage the agency to incorporate improved scientific methods into its risk assessments, Jim Tozzi, director of the Washington-based Multinational Business Services Inc. (MBS), has petitioned the EPA to apply its new approach to science to the problem of dioxin.

Letter to Reilly

In a letter to Administrator Reilly dated April 10, Mr. Tozzi noted that MBS, has for the past 18 months, been making recommendations to the EPA with respect to the development of risk assessment policy. Those recommendations have focused on two aspects of risk assessment at the EPA for which "significant policy voids exist": risk assessment guidelines for non-cancer health effects and criteria for inferring causation from epidemiologic data.

"To date," the letter states, "EPA has failed to fill these policy voids despite having worked on non-cancer risk assessment guidelines since 1983 and new epidemiology guidelines since 1989. Essentially, MBS believes that because there are significant gaps and uncertainties in the scientific knowledge base which is necessary to conduct non-cancer risk assessments and risk assessments based on epidemiology, sound risk assessment policy guidance is necessary to overcome these deficiencies in knowledge."

Dioxin as a Vehicle for Risk Assessment Guidance

Mr. Tozzi, whose firm represents a host of companies concerned with the risk assessment issue, said the EPA's forthcoming "Scientific Reassessment of Dioxin" presents the agency and the public with a "unique opportunity" to develop and implement risk assessment policy guidance for the use of epidemiology and non-cancer health effects." According to Mr. Tozzi:

-- "Non-cancer health effects and epidemiology are key dioxin issues. At the April 7, 1991 meeting of the EPA's Science Advisory Board's Environmental Health Committee, EPA staff indicated that non-cancer health effects are a significant risk issue for dioxin -- even more significant than cancer."

-- "Also, in the Background Document on EPA's Scientific Reassessment of Dioxin, EPA cited an epidemiologic study conducted by the National Institute of Occupational Safety and Health (NIOSH) which failed to confirm prior beliefs concerning the carcinogenicity of dioxin, as one of two major events that prompted reassessment."

-- "The reassessment is a highly visible EPA activity. Although virtually all EPA risk assessments involve either or both non-cancer health effects and epidemiology, the dioxin reassessment has high visibility within EPA, with the public, across Federal agencies, and departments, (e.g. NIOSH, the Department of Veterans Affairs, the National Institute of Environmental Health Sciences, the National Academy of Sciences), and Congress (i.e. the Agent Orange Act of 1991)."

Improving the Role of Science at EPA

The MBS petition pointed out that the recently released EPA report entitled "Safeguarding the Future: Credible Science, Credible Decisions," which evaluated the role of science at the EPA, focused on EPA policy shortcomings rather than

organizational or funding deficiencies. Composed by an expert panel of scientists named by Administrator Reilly, the report was highly critical of the EPA's use of science (See: EPA WATCH, March 31, 1992).

Hoping to link the panel's findings on the problems besetting EPA science to the agency's ongoing risk assessment on dioxin, Mr. Tozzi stressed that many of the EPA's deficiencies in science can be remedied in large part through the implementation of sound risk assessment policies:

-- "Expert Panel Finding #1: 'EPA does not have a coherent science agenda and operational plan to guide scientific efforts throughout the agency and support its focus on relatively high-risk environmental problems.'

Non-cancer risk assessment and epidemiologic guidelines would provide agency science with proper guidance to identify and prioritize significant environmental risks, thereby assuring that environmental hazards are addressed on a 'worst-first' basis."

-- "Expert Panel Finding #3: 'The science advise function -- that is, the process of ensuring that policy decisions are informed by a clear understanding of the relevant science -- is not well defined or coherently organized within the EPA.'

Non-cancer risk assessment and epidemiologic guidelines would require agency scientists to identify, explain, and justify in a clear and concise manner for risk managers assumptions, inferences, policy and value judgments, and limitations in data and scientific understanding."

-- "Expert Panel Finding #4: 'In many cases, appropriate science advice and information is not considered early or often enough in the decision-making process.'

Non-cancer risk assessment and epidemiologic guidelines would provide logical frameworks within which scientific information is considered, thereby enabling risk assessors to identify the type of scientific and technical information needed to ensure scientifically credible decisions."

-- "Expert Panel Finding #6: '(EPA) does not have a uniform process to ensure a minimum level of quality assurance and peer review for all the science developed in support of agency decision-making.'

Non-cancer risk assessments and epidemiologic guidelines would provide standards against which risk assessments could be evaluated, thereby facilitating quality assurance and peer review."

The MBS petition concludes by saying that the adoption of the above proposals would provide EPA staff with a "road map for ensuring that relevant regulatory decisions are based on sound science."

EPA's Response

The EPA appears to have been impressed by the MBS proposals; copies of the Tozzi letter were sent to department heads throughout the agency. Moreover, in a conversation with EPA WATCH on May 4, Bill Farland of the EPA's office of research and development confirmed that the agency is in the process of incorporating the science panel's recommendations into risk assessments already in progress, including the soon-to-be-released "Scientific Reassessment on Dioxin."

Mr. Farland, the EPA's top risk assessment official, added that the panel's recommendations would not require "major changes" in the way the agency conducts its research. But he noted that the EPA would be reaching out to the greater scientific community for input into its ongoing and future risk assessments.

Confirming that the dioxin risk assessment will serve as a model for other risk assessments in the pipeline, he said the EPA will increase its efforts to keep the public informed on the status of the agency's findin[redacted] This will include public meetings [redacted] comments from outside the agency, particularly when "new data" warrant such participation.

Administrator Reilly's warm reception of the petition on dioxin, together with Mr. Farland's comments, indicate that the agency is, in fact, in the initial stages of reforming the way it carries out its scientific research. However, it remains to be seen whether this approach will prevail when the agency's addresses more controversial issues such as electromagnetic fields and environmental tobacco smoke.

The EPA's last risk assessment on dioxin was issued in 1988 and focused primarily on the cancer potency of 2,3,7,8 tetrachloro-p-dioxin. The revised risk assessment on dioxin and related compounds due out in June is expected to be broader in scope than any previous EPA risk assessment.

EPA WATCH

EPA Watch is a twice-monthly publication of the American Policy Center, a non-profit foundation concerned with public regulatory policy.

Subscriptions to EPA Watch are $89.00 per year.

American Policy Center
14140L Parke Long Court
Chantilly, Virginia 22021
(703) 968-9768 - Office
(703) 968-9771 - FAX

Thomas A. DeWeese, President
Elaine A. McCusker, Executive Director
Dr. Bonner R. Cohen, Editor

RELIEF SOUGHT FOR COMMUNITIES BURDENED BY EPA REGULATIONS

Faced with the mounting costs of implementing regulations issued by the EPA, a growing number of communities across the U.S. are seeking Federal help to alleviate the situation.

While community leaders as a rule do not object to the intent of such laws as the Safe Water Drinking Act or the Clean Air Act, many local governments simply cannot afford the measures needed to comply with the flood of environmental regulations mandated in Washington. This is particularly true when the health risks targeted for reduction by such measures are viewed as negligible by local officials on the scene.

As recently pointed out by Senator Bob Kerrey, Democrat of Nebraska, many communities "do not have the financial base needed to construct and maintain the various infrastructure requirements" of EPA regulations.

Burdick Bill Offers Relief

The plight of local governments strapped to come up with enough funds to satisfy EPA mandates has finally caught the attention of Congress. Senator Quentin Burdick, Democrat of North Dakota, has introduced legislation entitled "The Small Community Environmental Infrastructure Assistance Act."

Senator Burdick's bill would create a State loan and grant fund to help finance wastewater treatment, drinking water, and solid waste disposal facilities. The bill would also expand Federal programs to provide technical assistance and outreach to small communities. Finally, the legislation would direct the U.S. Army Corps of Engineers to construct essential wastewater treatment, drinking water, and solid waste facilities in economically depressed areas.

Growing Discontent

Originally introduced in 1990, Senator Burdick's measure has gone virtually unnoticed by the mainstream media. But growing discontent over enormous economic burdens imposed on communities by Federal environmental laws can no longer be ignored.

Led by city officials from Columbus, Ohio, representatives from 14 Ohio municipalities -- including Cleveland, Toledo, Akron, Cincinnati, as well as smaller communities -- have undertaken a study detailing the costs of staying in compliance with EPA regulations. Not surprisingly, the study found that the EPA has consistently underestimated the costs of its mandates. The Ohio cities also called for regulations that address real rather than perceived risks to human health and the environment.

The Ohio initiative is aimed at convincing Congress of the urgency of scaling back the wave of environmental regulations that has inundated local governments in the past few years. Like their counterparts in industry, the Ohio municipal leaders have found that far too little attention has been paid to the costs and benefits of such regulations, the setting of priorities among the various mandates, and the quality of the science underpinning the EPA's regulatory activity. For many local governments, the financial burdens have reached the crisis stage.

Backlash Feared

Aware that a voter backlash in a volatile election year could move Congress to ease up on environmental regulations, the EPA has shown concern for the growing anger at the local level. Officials from the EPA met May 12 with representatives of such organizations as National League of Cities, the National Association of Counties, and the American Waterworks Association to discuss what steps can be taken to lighten the regulatory burden on hardpressed local governments.

A second meeting between EPA officials and representatives of local governments in Ohio, Texas, Maine, Colorado, and other states will take place on May 15. Sources close to both meetings agree that overcoming barriers of mistrust between the EPA and the municipal and community officials will be no easy task.

However, an agency source confirmed that only through such pressure from the outside will the EPA be persuaded to ease up on local governments. "We often don't use the (regulatory) flexibility we have," the source said.

The Burdick bill is the clearest expression yet of local frustration over Federal environmental regulatory policy. Ironically, most of the blame rests with the very body now being asked to pare back environmental regulations, Congress. For it was Congress, in its rush to enact far-reaching environmental legislation, that paid such scant attention to the financial consequences of its actions.

With President Bush's recently announced extension of his regulatory moratorium encountering little opposition outside the Washington Beltway, and with "the environment" relegated to a secondary role at best in this year's Presidential election, the political tide appears to be turning against proponents of environmental regulation at all cost.

OPPOSITION FORMS TO WAXMAN CO2 BILL

Fearing "economic turmoil and increased unemployment," a group of congressmen is seeking to block legislation that would stabilize carbon dioxide emissions at 1990 levels by the year 2000.

Last month, Representative Rick Boucher, Democrat of Virginia, circulated a "Dear Colleague" letter urging Members of Congress not to support the Global Climate Protection Act (H.R. 4750), sponsored by Congressman Henry Waxman, Democrat of California. Mr. Waxman plans to offer his controversial bill in the form of an amendment to the National Energy Strategy Act (H.R. 776), which is scheduled to be considered on the House floor this month (See: EPA WATCH, May 1, 1992).

The Waxman bill is "fundamentally flawed," according to Mr. Boucher, who heads a bipartisan effort to torpedo what many observers believe is one of the most radical environmental proposals ever introduced in Congress. Not only does the Waxman legislation require the President to adopt regulations which will achieve stabilization of CO2 emissions by January 1, 2000 at 1990 levels, it also would give all Federal agencies virtually unlimited ability to use their authority to achieve such stabilization.

Blank Check

"Since CO2 is emitted by the combustion of all fossil fuels -- oil, coal, wood, etc. -- the Federal government would have a blank check in writing regulations that could affect emissions from a wide range of sources, including automobiles, farm equipment, coal fired power plants, industrial boilers, and wood burning stoves," Mr. Boucher told his colleagues.

"Many of the gut-wrenching economic issues which were hard-fought in the acid rain provisions of the Clean Air Act Amendments of 1990 resurface in the Global Climate Protection Act," the Virginia Democrat noted. "Areas of the country such as California, the Pacific Northwest, and New England which have relatively low CO2 emissions because they have access to natural gas, hydro-electric and nuclear power will have a much greater economic advantage over the South, Midwest, and Mid-Atlantic regions."

As an alternative to the Waxman bill, the bipartisan group supports steps for offsetting greenhouse gas emissions internationally such as those recommended by the National Academy of Science (NAS) which can be taken without major economic dislocations.

NAS Study

In a recent study, the NAS reported that "(d)uring the last 100 years, the average global temperature has increased between 0.3 and 0.6 degrees Celsius (0.5 and 1.1 degrees Fahrenheit). This temperature rise could be attributable to greenhouse warming or to natural climate variability; with today's limited understanding of the underlying phenomena, neither can be ruled out."

Congressman Boucher points out that the NAS report concludes that the state of the science is simply too uncertain to warrant drastic steps such as those proposed in the Global Climate Protection Act being taken at the present time.

The Boucher group supports the NAS recommendation of pursuing options to lessen CO2 emissions "which make sense regardless of the threat of global warming," such as increasing energy efficiency, transferring technology to less developed nations, halting deforestation, rapidly eliminating chlorofluorocarbons (CFCs), and capturing methane fumes at coal mines and land fills.

NASA's Disappearing Ozone Hole

Congressman Boucher's concern about the uncertainties of environmental science has received an unexpected boost. The National Aeronautics and Space Administration (NASA) recently announced that the dread "ozone hole" over the Northern Hemisphere it reported to have discovered last winter never materialized.

The NASA scientists, reviewing results of seven months' observation said that after a record build-up of ozone-damaging chemicals last January, the amounts rapidly dissipated because of sudden warming in February and March.

While tests continued to show a thinning of the ozone layer that protects the earth from ultraviolet rays, the sudden warming prevented any severe ozone depletion over the arctic region, the scientists said.

NASA's highly publicized report of an "ozone hole" over North America unleashed a torrent of demands that drastic steps be taken to reduce greenhouse gases. The agency's revised findings, which were released with considerably less fanfare than the original, apocalyptic announcement, would appear to confirm Mr. Boucher's and the National Academy of Science's call for caution in assessing global climate change data.

EPA WATCH

A twice-monthly survey of environmental regulatory activities undertaken by the EPA, OSHA, the White House, the U.S. Congress and Federal, state, and local agencies.

Vol 1 Number 3 March 31, 1992

EPA ADMITS ITS SCIENCE IS ON "SHAKY GROUND"

Under pressure from a growing number of critics within the scientific community, the Environmental Protection Agency (EPA) has released a report admitting that many of its regulatory initiatives are on "shaky scientific ground."

The report, "Safeguarding the Future: Credible Science, Credible Decisions," was distributed at a hearing of the House Committee on Science, Space, and Technology on March 19. It further acknowledged that EPA studies are frequently carried out "without the benefit of peer review or quality assurance."

Concerned that the poor reputation of its science could jeopardize the agency's high funding level, EPA Administrator William Reilly appointed a special advisory panel of prominent scientists last year to assess the work of the EPA's Office of Research and Development.

The panel affirmed that the EPA needs its own strong science base to provide the background required for effective environmental protection programs. But it found that "Currently, EPA science is of uneven quality, and the agency's policies and regulations are frequently perceived as lacking in strong scientific foundation."

Devastating Findings

Among the advisory committee's most devastating findings are the following:

1.) "EPA should be a source of unbiased scientific information. However, EPA has not always ensured that contrasting, reputable scientific views are well-explored and well-documented from the beginning to the end of the regulatory process. In addition, the Agency is perceived to have a conflict of interest because it needs science to support its legal activities. The legal process fosters the presentation of the extremes of scientific opinion. This runs contrary to the preferred process of developing a consensus within the scientific community."

2.) "EPA science is perceived by many people, both inside and outside the agency, to be adjusted to fit policy. Such 'adjustments' could be made consciously or unconsciously by the scientist or the decisionmaker."

3.) "While the public frequently expects immediate 'yes or no' answers to questions about environmental risks, scientific uncertainties often make such answers elusive. EPA has not been successful in communicating to Congress and the public about the nature of the uncertainties in science and how these uncertainties are handled when decisions are made."

4.) "EPA program offices often conduct scoping studies or other preliminary assessments in the early stages of regulatory development. These studies are frequently carried out without the benefit of peer review or quality assurance. They sometimes escalate into regulatory proposals with no further science input, leaving EPA initiatives on shaky scientific ground and affecting the credibility of the Agency."

5.) "EPA often does not scientifically evaluate the impact of its regulations."

6.) "The interpretation and use of science is uneven and haphazard across programs and issues at EPA. Conflicting science policies between EPA programs create confusion and a lack of credibility for EPA decisions."

7.) "Scientists at all levels at EPA believe that the Agency does not use their science effectively."

The EPA's mea culpa on the poor quality of its science comes on the heels of a series of well-publicized blunders on the part of the agency. In the 1980s, EPA "risk assessments" on the health dangers of radon, dioxin, and asbestos -- just to name a few -- proved to be grossly exaggerated. The resulting cost to taxpayers and to U.S. industry has amounted to billions of dollars. Currently, the EPA has over 9,000 regulations in effect, and the United States spends roughly $115 billion a year staying in compliance with those regulations. Yet many of those regulations are based on the same poor quality of science referred to in the advisory panel's report.

However, if some were

hoping that the release of the EPA report was signaling the beginning of a new age of seriousness on the part of the EPA, they are in for a rude awakening. As fate would have it, the release of the report coincides with the revelation that the EPA is undertaking a risk assessment on the danger of taking showers (See EPA WATCH: March 16, 1992).

At a time when the agency is requesting additional funding for its much-criticized Office of Research and Development, the revelation that the EPA is spending the money already at its disposal to launch a risk assessment on the dangers of taking showers is certain to undermine further the agency's credibility.

NIH Not Consulted

In fact, the EPA's concern about the health risks of an act which has been performed by tens of millions of Americans every day for decades is all the more remarkable in light of the fact that the EPA never consults the National Institutes of Health (NIH) when assessing the health effects of supposed pollutants.

The EPA's refusal to consult the NIH is revealing because, as Dr. Bernadine Healy, director of the NIH, told columnist Warren Brookes last year, the National Institutes of Health are "much more likely to develop an unbiased view of the real risk and hazard than the agencies that are established to regulate them."

By avoiding sources of scientific analysis whose findings might not conform to its preconceived regulatory agenda, the EPA has systematically shut itself off from much of the scientific community. The result has been an endless list of costly errors based on questionable risk assessments which have reflected more the bureaucratic proclivities of the EPA than they have served the interest of the environment.

Press Not Alerted

Moreover, the expert panel's devastating findings are in sharp contrast to what the EPA would have the greater public believe is really going on at the agency. In a "Notes to Correspondents" released on the same day the report was issued, Administrator Reilly admitted that the EPA needed to make "fundamental changes in the way the Agency does research and uses scientific information."

However, Mr. Reilly conspicuously avoided any reference to the critical findings of the ex[redacted] panel. The panel's scathing indictment of the quality of the EPA's science was on page 36 of the EPA publication; the press was not alerted to the bombshell hidden deep in the report.

This obfuscation was taken one step further when on March 26, one week after the release of the advisory panel's report, Mr. Reilly informed the Senate Appropriations Committee that "Increasingly, our decisions are grounded in sound science, as we target our resources to the areas of highest risk, even while we remain sensitive to the economy." Such statements have enabled Mr. Reilly to have relatively smooth sailing in Congress in his bid for increased funding for his agency.

Indeed, there is little indication that Congress has yet to grasp the seriousness of the problem at the EPA. At the hearing, most members of the House Science, Space, and Technology Commit[redacted] were sympathetic to the EPA's argument that additional funding, as opposed to a radical reordering of priorities, would enable the EPA to improve the quality of its work.

DINGELL CONTINUES ASSAULT ON EPA CONTRACTING PRACTICES

Citing what he called "shoddy EPA contract and program management," Congressman John Dingell, Democrat of Michigan, has expanded his investigation into the Environmental Protection Agency's dealings with private contractors.

Mr. Dingell's latest barrage against the EPA came at a hearing before the House Subcommittee on Oversight and Investigations on March 19. The hearing came just two weeks after the same panel had grilled EPA officials for the agency's cozy ties with one of its management contractors, the Computer Sciences Corporation (CSC) (See EPA WATCH: March 16, 1992).

This time the subcommittee's attention was focused on the billing practices and performance of CH2M Hill Inc. of Engelwood, Colorado, one of the EPA's largest Superfund contractors. Created to finance the cleanup of the nation's worst toxic waste sites, the Superfund has become one of the most important areas of EPA activity.

"The objective of the Superfund program," Chairman Dingell said, "has been to assure the cleanup of these sites in an efficient and timely manner, not to line the pockets of greedy contractors." However, audits by the Government Accounting Office (GAO) and by the EPA's own Inspector General uncovered evidence that U.S. taxpayers have been billed for charges that were clearly "unallowable and unreasonable."

The Good Life

"For example," Mr. Dingell noted, "Hill charged the taxpayers for rental of baby cribs, parking tickets, CPR classes, magicians, a rent-a-clown for a picnic, over $15,000 for an office bash at 'His Lordship' (restaurant), thousands of dollars of chocolates with CH2M Hill's logo for clients, a $10,000 catered lobbying cruise on the Potomac River, and $3,200 for (the rock band) 'Johnny Limbo and the Lugnuts.'"

Pointing out that Hill employees "appear to have been too preoccupied with the good life at taxpayers' expense to perform their Superfund obligations satisfactorily," the Michigan Democrat said CH2M Hill was engaged "in what appears to be a double-billing scheme when it generously distributed to its key employees profits which were generated, in part, from EPA's contracts, and then turned around and billed the government for this bonus by putting it back into its overhead charge."

Growing Ties

CH2M Hill has provided consulting engineering services to the EPA for many years. Those services include such activities as documenting conditions at hazardous waste sites, defining hazardous waste problems, and evaluating alternative cleanup methods.

In 1988 and 1989, the EPA's ties with CH2M Hill increased dramatically. During these two years, the number of contracts more than doubled, and the maximum potential contract value increased by approximately 275 percent.

As of February 1992, the EPA had obligated $427 million on open CH2M Hill contracts with a maximum potential value of $1.4 billion. Virtually all of this work is in the Superfund program. As the relationship between the EPA and CH2M Hill expanded, the audit workload for the EPA's IG and the GAO grew accordingly.

Those audits reveal a pattern of behavior on the part of the EPA and CH2M Hill which allowed the Colorado company to bill the EPA for a host of expenses that are clearly not allowed under the Federal Acquisition Regulations (FAR). Most of these abuses involved so-called indirect costs, or those contractor costs which cannot be directly related to a particular contract.

Patrick Martin, the EPA's Inspector General, told the subcommittee that CH2M Hill's indirect cost pools for 1987-1989 "included costs of $16.4 million for employee bonuses which we believe are ineligible; $1.4 million for travel and entertainment costs in excess of the Federal Travel Regulations and ineligible costs such as first-class air fare and travel for employee spouses; $429,000 for deferred state income taxes, an entirely unallowable item; and $587,100 in relocation costs in excess of amounts actually incurred by employees."

Lack of EPA Oversight

Inspector General Martin, whose comprehensive audit led to the disclosure of irregularities in the EPA's relations with CSC, sharply criticized CH2M's "serious weakness in internal controls" which led to the company's "poor contract performance." He likewise cited "the lack of effective administration by EPA" as a major contributing factor in the debacle. Speaking on behalf of the GAO, J. Dexter Peach underscored "the lack of adequate oversight and follow-up by EPA." "Although EPA has been aware of deficiencies in CH2M Hill's procedures -- in some cases as far back as 1984 --," he went on, "it has not seen to it that corrective actions were taken." Mr. Peach added that "EPA's management performance in this area has simply not been acceptable."

Underscoring the necessity of administrative improvements on the part of the EPA, Mr. Peach said that "without these efforts, no assurances can be given that the federal government will continue to be billed for unallowable costs associated with the Superfund program."

Put into the unenviable position of having to defend his agency's contract mismanagement for the second time in two weeks, Christian Holmes of the EPA's office of administration and resources management assured the subcommittee that "CH2M Hill had agreed to reimburse the EPA for excessive costs and to account properly for travel in the future."

Dingell Plans More Investigations

Unfortunately for Mr. Holmes, he could be making many more appearances before Mr. Dingell's panel in the weeks and months to come. Congressman Dingell has announced that his subcommittee will continue its investigations into improprieties involving "a number of other EPA contractors."

EPA WATCH

EPA Watch is a twice-monthly publication of the American Policy Center, a non-profit, public interest organization, dedicated to the promotion of free enterprise, private property and individual liberty. Subscriptions to EPA Watch are $24.95 per year.

American Policy Center
14140L Parke Long Court
Chantilly, Virginia 22021
(703) 968-9768

Thomas A. DeWeese, President
Elaine A. McCusker, Executive Director
Dr. Bonner R. Cohen, Editor

WHITE HOUSE, GORE AT ODDS OVER GLOBAL CLIMATE CHANGE REPORT

As the debate heats up over American participation in the forthcoming Earth Summit in Brazil, the White House and one of its severest environmentalist critics are locked in a bitter feud over U.S. global warming policy.

On March 24, the White House's Council on Environmental Quality (CEQ) released its "22nd Annual Report" which underscored the Bush administration's continued opposition to inclusion of any specific greenhouse gas emission reduction targets and timetables in the upcoming global climate treaty, scheduled to be signed in June at the United Nations Conference on Environment & Development (UNCED).

"An exclusive focus on targets and timetables for carbon dioxide (CO_2) emissions is inadequate to address the complex dynamics of climate change," the report says. Emphasizing the administration's mistrust of an UNCED treaty that would go a long way toward mandating global emissions standards, the CEQ called instead for a country-specific approach to the problem. "Unlike emissions targets and timetables chosen arbitrarily by political leaders," the report goes on, "national climate action plans would be rooted in actual response measures."

"Kick in the Knees"

In a statement released the same day the White House report was issued, Senator Al Gore, Democrat of Tennessee and chairman of the U.S. Senate delegation to the Earth Summit, said the administration's position was a "kick in the knees to every other nation seriously committed to the success of the Earth Summit and to all Americans who want a strong, international agreement to preserve the global environment."

The outspoken advocate of strict environmental regulations added that "negotiations on an historic, international agreement are threatened with failure and if it happens, George Bush will be held accountable."

Senator Gore said that, at a minimum, the United States should agree to stabilize carbon dioxide emissions at 1990 levels by the year 2000, as other major industrialized nations have agreed to do and as the climate treaty proposes. "With nations from across the world agreeing to such specific limits, the United States increasingly is isolated as the obstacle to the climate change treaty and to the success of the Earth Summit which has this treaty as its centerpiece," the Tennessee Democrat added. "We do not have to choose between protecting the environment and rebuilding or strengthening our economy. If we protect the environment, we strengthen our economy," he commented.

More Research Needed

For the moment, the White House is sticking with its cautious approach to the globalization of environmental regulation as embodied in the proposed UNCED treaty. Increasingly aware of the scientific uncertainties surrounding global climate change, the administration is focusing its attention on accelerated research efforts. The administration's fiscal 1993 budget calls for $1.37 billion for the U.S. Global Change Research Program, a $262.6 million or 24 percent increase over FY 1992 levels.

Ironically, the administration's go slow approach to the subject of global warming has been buttressed by findings from an unlikely source. The United Nations Environmental Program and World Meteorological Organization recently found that chloroflourocarbons (CFCs) are not a major global warming gas as some scientists had suspected.

In fact, there are plenty of reputable botanists who believe the Earth will ultimately benefit from rising CO_2 levels because of the enhancement of plant growth. "From experiments in CO_2-rich glasshouses," notes Paul Samuel of Greentrack International, an environmental news service, "they can give you impressive numbers on how trees, shrubs, and crops will thrive, and so too the insects, birds, and animals (including humans) that live off the plants." Mr. Samuel concludes that "the idea that increasing CO_2 is associated with drought and spreading deserts [redacted] environmental scare story."

"Best Interest of this Country"

The administration also is becoming cognizant of the enormous costs of the proposed UNCED treaty. According to the U.S. Department of Energy, taxes on carbon-based fuels such as coal, gasoline, natural gas, and other fossil fuels could cost American consumers an additional $95 billion a year. These costs notwithstanding, the EPA, with Administrator William Reilly in the lead, continues to pressure the White House to sign on the Rio agenda.

But Clayton Yeutter, the new White House domestic policy chief, made the administration's case with characteristic succinctness when he recently told reporters "We have to make this judgement call on whether what is going to happen in Rio is in the best interest of this countr[redacted]. Yeutter is convinced that it is n[redacted]

2074144102

THE SACRAMENTO UNION
TUESDAY May 21, 1991
THE OLDEST DAILY IN THE WEST

Politicians bowing to environmentalists'

BY CLIFF KINCAID

WASHINGTON - The publisher of a leading consumer magazine says that "political correctness in science" is distorting public policy.

The comments, made by M. Stanton Evans, publisher of Consumers' Research, came at a symposium Monday

■ LPG standards attacked B1.

featuring criticisms of current theories on global warming, ozone depletion, environmental tobacco smoke, chemicals in food, and fuel economy standards.

At the conference on "Science and Regulation," Mr. Evans and others charged that Washington policy makers are passing legislation not based on scientific evidence but on fashionable theories.

The conference was sponsored by Consumers' Research and Phillips Publishing, publisher of consumer newsletters.

Numerous speakers lambasted the media for simplistic coverage of ... ches issues and a tendency to prom... what Evans called "doomsday scen... os" to justify draconian government action.

But the conference heard from a government scientist, Dr. Ilse Scheuplein of the Food and Drug Administration, who downplayed the d...

• See Science, Page A...

Science

• From Page A1

ly publicized risk of cancer from foods.

He said that ordinary products such as coffee, corn and peanuts all contained natural carcinogens.

"There are a lot of carcinogens in food if you take the trouble to look," he said.

But none of these things, he charged, are that much of a danger. He said the main causes of cancer are tobacco and improper diet. He said the public and media tend to focus on the presence of chemicals in food.

Dr. Scheuplein was introduced by Daniel Oliver, former chairman of the Federal Trade Commission, who accused a major environmental group, the Natural Resources Defense Council, of "trading on fear" in promoting the 1989 scare over traces of the chemical Alar on apples and apple products.

Oliver said the charges that Alar was a carcinogen "make excellent copy on the evening news programs" but were not scientifically based.

The NRDC and the media forced Alar, used as a preservative, to be taken off the market by its maker, Uniroyal. The controversy reportedly caused huge financial losses for apple growers.

While Dr. Scheuplein was warmly received at the symposium Agency was strongly attacked for misinterpreting scientific data and bowing to pressure groups.

Despite a top EPA committee's recent conclusion that secondhand smoke, or environmental tobacco smoke, causes cancer, Dr. Gary Huber of the University of Texas Health Center suggested that such a view represents capitulation to the anti-smoking movement and is not based on science.

Dr. Huber, a non-smoker, said he doesn't like to be around smokers because the smoke bothers his eyes. But he said the evidence doesn't justify the conclusion that it represents an adverse health effect. He said this secondhand smoke is difficult to measure and is much different than that inhaled by smokers.

Dr. Lester Lave, professor of engineering at Carnegie Mellon University, attacked proposals supported by the EPA to raise the corporate average fuel economy (CAFE) standards to 40 miles per gallon. While they are promoted as saving fuel, he said they will actually lead to higher car prices, more injuries and death on the highways and greater vehicle emissions.

If new standards are needed, he said, they should be left up to the states. He noted that California's CAFE standards are already tougher than federal proposals.

Dr. Lave also questioned why attacked, while power boats and recreational vehicles getting two or three miles per gallon of gasoline are spared from such standards.

He said a better way of forcing the manufacture of more fuel-efficient vehicles is raising the price of fuel by taxing it.

Dr. S. Fred Singer of the University of Virginia charged that EPA-supported theories of global warming and global ozone depletion are not backed up by the evidence. He said the theory of global warming has been popular since a government scientist presented it to a Senate committee led by Sen. Albert Gore, D-Tenn., three years ago.

But the evidence, he said, only demonstrates "natural fluctuations" in temperature. He said changes in the amount of ozone are also natural.

Dr. Singer said EPA director William Reilly's recent declaration that ozone was declining twice as fast as anticipated was "based on misinterpretation of data."

He said that a major government-funded study finding that acid rain was a "relatively minor" problem was simply ignored by politicians eager to pass the Clean Air Act.

He charged it was "a billion dollar solution to a million dollar problem."

Dr. Singer cautioned that "solutions" to other environmental problems may also be expensive. "Consumers had better watch their pocketbooks."

Washington Post 3/26/92

Environmental Risk

DIOXIN IS a good example of the issues that the Environmental Protection Agency has in mind when it talks about the need to improve its scientific capabilities. If dioxin is as dangerous a cause of cancer as most scientists thought a decade ago, there's a strong case for spending a lot of money to scrub it out of the environment. But if it is in fact less dangerous, as some scientists now believe, that money could do more elsewhere to protect public health.

A much more subtle question, involving much greater costs, is raised by the prospect of global warming. It's correct to say that present data do not prove that carbon dioxide, produced by burning fuel, is changing the world's climate. But it's also correct to add that by the time absolute proof might appear, the process would have picked up such momentum that it could not be reversed, or even substantially slowed, for decades. Decisions regarding what to do, if anything, need to be made now by the world's governments. The United States' leadership, or lack of it, will be crucial.

As William K. Reilly, the EPA's administrator, observed to Congress a few days ago, "Our society is being forced to make enormously costly decisions on a very small science base." Last week he announced an effort to lift the quality of science at EPA not only by improving its links with research outside the government but by reorganizing its own labs and bringing in more people of outstanding reputation.

The United States is now spending about $115 billion a year on environmental protection. Simply for purposes of comparison, that's more than one-third of the defense budget. There are two differences between them. Defense spending is coming down, while pollution abatement costs are going up quite fast. And defense spending comes out of the government's pocket, while four-fifths of the cost of the environmental regulations falls on the private sector. It includes, for example, the cost to you of running your car on unleaded gas.

With those gigantic sums of money involved, reckless or misinformed regulations can do real damage to the economy. The case is compelling for improving the EPA's—and the country's—base of scientific knowledge in the environmental fields. But it's important not to oversell Mr. Reilly's point. The nature of the subject ensures that the big decisions will always have to deal with large scientific uncertainties. Better science will mean better policy, but the most valuable science will be the kind that recognizes the unknown factors in environmental risk.

The Memphis Commercial–Appeal (and other U.S. newspapers) Sunday, November 15, 1992

Great hoax on asbestos finally ends

■ Key originator of infamous 1978 'estimates document' acknowledges report's fundamental mistakes.

By Michael J. Bennett

"We did what scientists so often do, which was to use . . . estimates without questioning them."
—Marvin Schneiderman, statistician
National Cancer Institute

THERE'S one thing wrong with that statement: It should read, "We did what *government regulatory* scientists do . . . ." And it illustrates why NBC commentator John Chancellor is underscoring a disturbing reality when he wistfully recalls, "I can remember when you could win an argument by citing government statistics."

Government statistics are no longer trustworthy in such sensitive and significant matters as human health, cancer and the environment. For almost a generation, the American public has been the victim of a hoax, perpetrated by its own government, that cancer is caused by environmental factors, and particularly industry, and not by personal habits, primarily smoking.

But now the myth of environmental cancer caused by industry has been finally laid to rest, among scientists at least, by perhaps its most important originator.

Marvin Schneiderman, cited above, was one of nine contributors to what is known as "the estimates document," the report, prepared in 1978 for the Occupational Health and Safety Administration (OSHA), that launched America's great asbestos hoax. This document, using figures originally developed by the late Dr. Irving Selikoff, projected that 58,000 to 75,000 people would die each year from asbestos-related cancer — about 17 percent of all cancer fatalities.

Based on that projection, the U.S. government upped the number of cancers presumably caused by industrial exposure from 2 percent to as much as 40 percent. The Age of the Environment had dawned; the United States was in the middle of a cancer "epidemic" caused, Schneiderman told OSHA, by its own industrial civilization.

TEN YEARS LATER, Schneiderman was the Environmental Protection Agency's principal scientific authority in what the agency hoped would be a precedent-setting ban on asbestos, which is used primarily as fire protection in buildings and in brake linings.

Last month, the Fifth Circuit Court of Appeals threw out the ban when the EPA failed to make a case for even 13 to 15 asbestos-related cancer deaths a year, among heavily exposed brake workers.

EPA administrator William Reilly, in the words of the National Association of School Boards, had provided Congress with "a broad indictment of the EPA's lack of scientific basis for its policy pronouncements." EPA's own science advisory board asked Reilly why the scientific basis for the government's asbestos policy had ever had "the benefit of review" by the board.

Why? And why did 58,000 to 75,000 asbestos-related cancer deaths eventually fall to 13 to 15 — and those unprovable in court? The answer lies in environmental ideology, not in science.

Real scientists — those private and government researchers who submit their work to peer review in professional journals — can't be blamed. The "estimates document" was never submitted for peer review, and the "contributors" have never admitted actual authorship.

Immediately denounced by the journals Science and Lancet, the document was castigated by Sir Richard Doll of Oxford, the epidemiologist who conclusively proved the relationship between smoking and lung cancer, in his definitive study, "The Causes of Cancer."

"No arguments based, even loosely, upon (these estimates) should be taken seriously," Doll wrote. "It seems likely that whoever wrote the OSHA paper did so for political rather than scientific reasons . . . by those who wish to emphasize the importance of occupational factors . . . in newspaper articles and . . . journalism."

NOT ALL JOURNALISTS were conned. In 1984, Edith Efron published *The Apocalyptics: Cancer and the Big Lie*, which was hailed by Dr. Bruce Ames of the University of California at Berkeley, the nation's leading authority on carcinogenesis, as the "*Silent Spring* of the counterrevolution."

By 1985, when I published a series of articles on asbestos in the Detroit News (later nominated for a Pulitzer Prize), it had become obvious, largely through the work of Dr. Malcolm Ross of the U.S. Geological Survey, that only heavy asbestos exposure among workers — with risks multiplied some 80-90 times over by smoking — was dangerous.

Further, those dangers were largely limited to the past, primarily the World War II era, when exposure was completely unregulated. Ross's conclusions were affirmed by the American Medical Association and by a study, commissioned by Congress, from the Health Effects Institute in Cambridge, Mass., headed by former Watergate prosecutor Archibald Cox.

"We made the inappropriate estimate that short-term exposures were just as nasty, as carcinogenic and deadly as long-term exposures," Schneiderman told the Journal of the National Cancer Institute in April. "Now it looks as if you have to have fairly continuous exposure to cause the worst effects."

So the great industrial cancer epidemic is over. In fact, it never was, as communities with the financial and intellectual resources to study the issue came to realize. Newton, Mass., with two biologists on its town board, rejected a $3.5 billion asbestos removal proposal last winter. An $8.5 million asbestos removal referendum was rejected in Canaan, Conn., in June by a vote of 2 to 1.

But to date, casualties of the "estimates document" include more than a dozen corporations in bankruptcy, thousands thrown out of work, and well over 150,000 asbestos tort cases clogging the courts. Schools and private-property owners have already spent some $27 billion of an estimated $150 billion for asbestos removal, although an EPA guidance document, released almost surreptitiously two years ago, advised that removal is "often *not* (emphasis EPA's) a building owner's best course of action" and that improper removal could "create a dangerous situation where none existed before."

The United States has paid an enormous price because questions weren't asked earlier. There is no excuse for not asking them now — particularly on behalf of poorer communities, where scarce financial resources would be better spent for virtually any other purpose.

Michael J. Bennett, journalist and author of The Asbestos Racket: An Environmental Parable, *is affiliated with the Washington-based Science & Environmental Policy Project.*

The Journal of Commerce
and Commercial

EDITORIAL/OPINION

TUESDAY, SEPTEMBER 8, 1992

Hidden Risks of Pesticide Bans

By JONATHAN H. ADLER

Food production in the Third World is at an all-time high. Indeed, increases in Third World food production are even outpacing population growth.

Instrumental in the rapid increase in agricultural efficiency has been the development of safe and effective pesticides. Without the continuing development of these agricultural chemicals, many of these gains would have been impossible.

What is more, compounds such as carbosulfan are also contributing to reforestation efforts while simultaneously displacing the more hazardous chemicals used in the past.

Despite the important role of pesticides in world food production and disease control, environmental advocates and their congressional allies are determined to limit the availability of U.S.-produced pesticides in the Third World by prohibiting the export of pesticides not registered for use in the United States.

This ban would affect some five dozen compounds and threaten over 20,000 jobs in the chemical industry. Moreover, it would bar over $450 million in annual exports.

The argument for banning these pesticide exports is premised on the "circle of poison" theory. The idea is that when unregistered pesticides are exported to other countries, they are used on crops that in turn are imported by the United States. As Earthworks founder John Javna charges, "although the pesticides are illegal, we consume them."

But the mere fact that a pesticide is unregistered in the United States has little, if any, direct relation to the safety of that pesticide.

Moreover, banning the export of unregistered pesticides will often increase health threats by forcing farmers to substitute more highly toxic and less efficient chemicals.

Consider that a pesticide producer typically must spend between $35 million and $50 million, over a period of eight to 10 years, to register a pesticide for domestic use.

This is in addition to the economic costs of discovering and developing an effective compound. FMC Corp.'s carbosulfan, for example, was declared to have no adverse effects on reproductive performance or neurological activity, and was deemed neither carcinogenic nor mutagenic by the Environmental Protection Agency in 1987.

Yet FMC would have to spend another $20 million to satisfy the EPA's remaining testing requirements. Given that carbosulfan has wider applications for use in the Third World than in the United States, such as protecting eucalyptus trees used for reforestation, it was not cost-effective to seek domestic approval.

Because the applicability of various compounds depends on climatic and other environmental factors, many exported pesticides have little, if any, use on U.S. crops.

It also must be understood that pesticides are not imported into other nations for use in agriculture without that nation's consent. Most developed nations have their own pesticide certification procedures. These are often more stringent than those in the United States.

As for developing countries, they typically will require that pesticides have been certified elsewhere before they are used domestically.

"Apparently they're using chemical weapons."

Advocates of the export ban claim to be serving the interests of farmers in developing nations by protecting them against the dangers of pesticides. While it is true that the mishandling of pesticides can cause health problems, limiting the use of American-made pesticides hardly prevents foreign pesticide use.

The United States produces approximately 25% of the world's pesticides, so there would be little difficulty in finding substitutes. Moreover, this argument is premised on U.S. certification standards being more stringent than those in foreign nations. As already noted, this is simply not the case.

Despite the hysterical claims of many environmentalists and consumer advocates, there is little, if any, cause to be concerned about the presence of pesticide residues on imported produce, or for that matter, on any produce.

"The pesticide residue risk is so low as to be meaningless," notes Dr. Sanford Miller, dean of the Graduate School of Biomedical Sciences at the University of Texas Health Science Center at San Antonio. "There is no evidence to support the contention that anyone dies from pesticide residues in the U.S. today."

Moreover, Dr. Bruce Ames of the University of California at Berkeley has concluded that the reduction in crop yields from limiting pesticide use would likely pose a greater health risk than the continued use of agricultural chemicals.

As Gerald Prout of FMC Corp. noted in a recent issue of Regulation magazine, "when the worldwide losses of food before harvest are estimated to be as high as 35%, and when over 13 million people will die from starvation this year, it is presumptuous for the United States to dictate Third World use of agricultural technology that might save lives or improve local environmental conditions."

Not only will barring the export of unregistered pesticides fail to improve food safety, it could have disastrous consequences. Indeed, by trying to make the world a safer place, the ban advocates would actually make it more risky.

Jonathan H. Adler is an environmental policy analyst with the Competitive Enterprise Institute in Washington.

Sentence First, Verdict Afterward

BANKRUPTED BY EPA

Think the FBI is tough? *These* guys make the IRS look kind and gentle.

PETER SAMUEL

LAST MONTH the Environmental Protection Agency (EPA) put out a thick "Note to Correspondents" and staged a press conference on what it called its "record breaking enforcement accomplishments for clean water in 1991." It was a "banner year for enforcement," with 2,109 prosecutions, $20 million in penalties, and 346 months of incarceration for the polluters.

"The 1991 numbers [of prosecutions] are more than all previous years combined," said the EPA. But does this mean justice is being done?

Take the case of Lewis "Chuck" Law, 54, of Charleston, West Virginia. Mr. Law was sentenced in U.S. District Court to $160,000 in fines and two years in jail for breaches of the federal Clean Water Act.

Mr. Law's nightmare encounter with the environmental scalp-hunt began with his purchase of the surface rights to 241 acres near the town of Summerlee in Fayette County, West Virginia. He bought the land in April 1980 for $160,000 from the New River Coal Company, which had decided to close an old coal-washing plant on the site. Mr. Law, a history buff, wanted to restore the old company store, and thought he might be able to develop some of the land for mobile homes or an industrial park.

He knew nothing of any water pollution problems when he bought the property, but soon after found that some springs there discharge water that is acidic and contains suspended iron and manganese. The acidity has tested at about the level of Coca-Cola; it is not unhealthy to drink. The suspended iron and manganese are not unhealthy for humans either, though they look awful—they give the water a dirty reddish color—and could be hurting aquatic life.

Downstream, in Fayetteville (pop. 5,000), people started complaining about Mr. Law's water flowing into their reservoir. Their bathtubs and toilets were stained with a fine red sediment that could have come from the springs on Mr. Law's property. The town has since fixed the problem by diluting the reservoir water with well water, but local environmentalists recently renewed the attack on Mr. Law when young fish were found dead in the creek downstream of his property. Mr. Law has witnesses who say that the fish—from a state hatchery—were already dead from negligent handling when the state dumped them in the creek.

Experts Say . . .

AT HIS TRIAL in the U.S. District Court in Beckley, West Virginia, Mr. Law did not deny that the water coming off his property was polluted under the terms of the federal Clean Water Act. His defense was that his property was not the source of the pollution. He had the opinions of two leading experts in water pollution that the acid and metal contamination originated in old coal mines higher up the watershed, and that the polluted water ran underground to emerge in the springs on his property.

The government maintained instead that the pollution came from a now-overgrown deposit on his property of coal refuse material (commonly called "gob") left by the old coal-washing plant.

One of Law's expert witnesses, Dr. George Hall, points out that the two coal seams above Law's property are "notoriously acidic" and concludes that "acid mine water is seeping down the two hollows beneath the gob pile to emerge beneath the toe of the gob pile." He says he has seen many such acid springs in the state that exist without the presence of gob piles.

The charge on which Mr. Law was tried was failure "to chemically treat the acid water discharges from the coal refuse pile." Government inspectors had demanded that he treat the water with soda ash to neutralize it and precipitate the unsightly iron salts, a process that would cost $5,000 a week to run, and would have to run indefinitely. Mr. Law's only present income from the property is $220 per month for leasing the old company store to the U.S. Postal Service. The government's charges have prevented him from moving ahead with his other plans for development of the site.

The prosecution did not argue that the discharges from the springs constituted any health hazard. They just didn't meet EPA clean-water standards. And in what appears to be a complete perversion of the principles of common law, the U.S. Attorney prosecuting the case argued that it is immaterial under the Clean Water Act whether the property owner is the cause of the pollution. He argued that under the act the defendant could be found guilty simply on the basis that polluted water was emerging from his property, regardless of its source.

Judge Elizabeth Hallanan accepted this extraordinary proposition. She instructed the jury: "The offense consists of the knowing discharge of a pollutant from a point source into a water of the United States. For the purpose of the Clean Water Act, all the government must prove is that the defendants knew the general character and nature of the materials they were discharging."

Mr. Law now has a civil action going against the mining companies that own the property where he thinks the pollution originates. In any case, there would seem to be an argument in natural law that if one has only bought the surface title to a piece of land and has no rights to the minerals underground, then one has no responsibility for what bubbles up from below.

But the U.S. Government, and now a district judge, say the source of pollution is immaterial. By their reasoning, you will be responsible for treating any contaminated water that flows off your land, regardless of who is responsible for it. If a truck comes off the road and dumps a load of chemicals on your land, you will be guilty of a felony under the Clean Water Act if you don't treat any pollution that runs off. And what about water coming off your property from acid rain?

Mr. Law has seriously tried to give his land away since environmental "law" turned it from a small asset into a disastrous liability, but of course there are no takers. □

Mr. Samuel runs Greenwich International, a Washington, D.C.-based news service that covers environmental issues from a skeptical perspective.

Though Risk Falls, Removing Asbestos Doesn't Guarantee Substance Is Gone

By DAVID STIPP
Staff Reporter of THE WALL STREET JOURNAL

A lot of money goes toward removing asbestos—an estimated $3 billion last year in the U.S.—but at least it is saving lives.

Or is it?

The levels of airborne asbestos fibers in buildings after removal of materials containing the substance don't necessarily drop — in many cases they rise, suggest recent studies. Moreover, the type of asbestos mostly present in U.S. buildings poses little cancer risk in the first place, say many scientists.

Indeed, scientific thinking about asbestos has undergone a dramatic reversal from the view that a tiny whiff can cause cancer. The shift was underscored by an article, published in the journal Science in early 1990, that concluded asbestos risks have been exaggerated. After it appeared, former Environmental Protection Agency Administrator William Reilly acknowledged that many asbestos-removal projects were unnecessary. In 1991, the American Medical Association recommended worrying less about asbestos and more about "far greater causes" of premature death, such as smoking.

Some 95% of the asbestos in U.S. buildings is a form called "chrysotile," which many scientists now say is relatively harmless. Its curly strands are readily dissolved in the lungs by immune cells. By contrast, rarer "amphibole" types of asbestos — which can occur in small amounts along with chrysotile — form long, thin strands that can penetrate and remain deep in the lungs. Studies indicate the amphibole forms have been the culprits in most asbestos-cancer cases.

Lower Levels

It takes long, heavy exposure to asbestos—probably coupled with smoking—to cause significant risk of lung cancer, say scientists. Airborne asbestos levels in buildings containing the material, on average, are about 50,000 times lower than the levels that asbestos workers who got cancer were exposed to in the past, according to a 1991 report by the Health Effects Institute in Cambridge, Mass.

Even after "quite heavy" asbestos exposure, lung cancer among nonsmokers is so rare that the added risk from asbestos can't be precisely estimated, the report stated. In the largest study of chrysotile exposure, scientists found that 11,000 Quebec asbestos miners and others with "high" exposures for as long as 20 years actually had less risk of lung cancer than the general population.

Heavy asbestos exposure also can cause mesothelioma, a cancer that rarely occurs without such exposure. But mesothelioma rates among people under age 55 have dropped since the 1970s, suggesting that low, "nonoccupational" exposure to asbestos in buildings poses little, if any, risk of the cancer. Even if the entire U.S. population worked for 20 years in buildings containing the most dangerous forms of asbestos, the mesothelioma rate would rise to, at most, about 410 cases annually from 400 cases, says the Health Effects Institute's report.

Currently, asbestos in buildings often is "managed in place" without removal. But many building owners still opt for removal, largely to avoid the risk of lawsuits. Some asbestos experts assert that such removals are needed to prevent cancer among maintenance workers, who often come into contact with the substance. But removal workers probably face a greater risk of exposures high enough to cause cancer.

In any case, removals often don't seem to do much good. In one high school, airborne asbestos levels rose tenfold after a removal that "was as well run and controlled as is feasible," according to a preliminary report on the project compiled by Gerard Ryan, an official with the Occupational Safety and Health Administration in Denver.

"We spend an awful lot of taxpayer money [on asbestos removals] without decreasing risk," says Mr. Ryan.

Escaping Removal

His preliminary data show that the school's asbestos levels rose 1,160% after a $250,000 removal of insulation, ceiling tiles and other materials. More than a year after removal, levels had risen further. The higher levels probably reflect particularly short asbestos fibers that escaped during abatement, says Mr. Ryan. He won't name the school pending a complete report on the case.

Other studies have found similar results. The EPA reported last year that average asbestos levels had risen two years after abatement projects at nine of 17 New Jersey schools, with statistically higher levels at two sites. There was a statistically significant decrease in levels at only six of the schools.

Steve Hays, president of the Environmental Information Association, a trade group representing the abatement industry, calls such findings "amazing," and says that "there is a large body of data" showing removals generally cut levels to "background" levels found outdoors.

But the continuing New Jersey study suggests much industry data are inaccurate — half of 20 school-abatement projects that monitoring firms had rated as reducing fibers to federally required levels flunked more stringent testing.

Problems within the asbestos-abatement industry aren't limited to dubious practices by small-time operators. The EPA has charged in an administrative action that the industry's largest consultant, Hall-Kimbrell Environmental Services Inc., a unit of Professional Service Industries Inc. of Lombard, Ill., conducted faulty inspections at more than 100 schools nationwide. An attorney for the company declined to comment.

Though spending on asbestos abatements in the U.S. has dropped — largely because the recession has slowed renovations — industry consultant Olin Jennings estimates some $80 billion will be spent over the next 20 years or so.

THE WALL STREET JOURNAL.

3/22/93

D

Public policy decisions that are based on bad science impose enormous economic costs on all aspects of society.

The costs of bad science are eventually borne by each individual taxpayer as they are passed down from federal regulations and mandates to state and local governments, consumers and businesses. Environmental regulation, in particular, costs a family of four an estimated $1,800 a year.

WHAT OTHERS ARE SAYING ABOUT THE ECONOMIC COST OF BAD SCIENCE ON ALL ASPECTS OF THE SOCIETY

"Whether federal bureaucrats wish to recognize it or not, churning out page after page in the Federal Register without concern for the unintended consequences of regulatory activity can have a tremendous impact upon the public they purport to serve."

-- Jonathan Adler, The Competitive Enterprise Institute
The Washington Times, June 2, 1992

"Critics complain that, in spite of enormous resources given the agency, EPA staff still is not qualified to handle the scientific and technical aspects of regulations. As a local official put it, 'EPA has college graduates on staff who are smart as a whip, but they have no comprehension whatsoever about the practical application of regulations to utility operations.'"

-- Paula P. Easley, Director of Government Affairs, Municipality of Anchorage, Alaska
Paying for Federal Environmental Mandates: A Looming Crisis for Cities and Counties

"'Our society is being forced to make enormously costly decisions on a very small science base.'"

-- *William K. Reilly, former EPA administrator, in testimony to Congress*
The Washington Post, March 26, 1992

"Currently there are more than 9,000 EPA regulations, costing taxpayers and industry billions of dollars every year."

-- Dwight R. Lee, University of Georgia Economist and author of a study for the National Center for Policy Analysis entitled
"The Next Environmental Battleground: Indoor Air"

"The United States is now spending about $115 billion a year on environmental protection. Simply for purposes of comparison, that's more than one-third of the defense budget. There are two differences between them. Defense spending is coming down, while pollution abatement costs are going up quite fast. And defense spending comes out of the government's pocket, while four-fifths of the cost of the environmental regulations falls on the private sector."

-- *The Washington Post*, March 26, 1992

"In April 1992, 59 regulatory agencies with about 125,000 employees were at work on 4,186 pending regulations. The cost during 1991 of mandates already in place has been estimated at $542 billion. The fastest growing component of costs is environmental regulations, which amounted to $115 billion in 1991 but are slated to grow by more than 50 percent in constant dollars by the year 2000."

-- Philip H. Abelson
Science Magazine

"How much will the standards cost? It is currently estimated that the tailpipe emission standards alone will add $200 to $1,000 to the cost of a new car. According to one study, conducted by DRI/McGraw Hill, the standards could eliminate as many as 75,000 jobs in the [California] region."

-- Jonathan Adler, Competitive Enterprise Institute
The Washington Times, January 20, 1992

"Yet the cost of more regulation is more than a decline in corporate profits, these costs reverberate throughout the economy, and this in turn, affects the health and safety of society as a whole...Because regulations impose significant costs on the economy, they have deleterious effects upon human welfare."

-- Jonathan Adler, Competitive Enterprise Institute
The Washington Times, June 3, 1992

"...the regulations drafted by bureaucrats at agencies like the EPA, and defended by the traditional staple of big government public-interest groups, typically impose tremendous costs for benefits that are nominal, at best."

-- Jonathan Adler, Competitive Enterprise Institute
The Washington Times, June 3, 1992

"Regulation's effect on the economy can be every bit as damaging as the effect of taxes. Even though Americans have not seen it in their pay stubs, they have borne the equivalent of growing tax burdens."

-- Robert Genetski, Robert Genetski & Associates
The Wall Street Journal, February 19, 1992

"The present economic situation strongly suggests that the push on higher tax and regulatory burdens has had much greater costs in terms of lost jobs and weaker productivity than most people had assumed."

-- Robert Genetski, Robert Genetski & Associates
The Wall Street Journal, February 19, 1992

"The impact of the EPA upon the U.S. economy is, of course, many times its own size. In 1990 the agency estimated that complying with its pollution-control standards was costing Americans $115 billion a year, or a remarkable 2.1% of GNP, versus 0.9% in 1972. (And critics complain EPA estimates are typically too low.) Put it this way: Because of pollution controls, every American is paying $450 more in taxes and higher prices. That's $1,800 for a family of four--about half its average expenditure on clothing and shoes. In the 1990s the EPA projects that compliance costs will total another $1.6 trillion. And that's not counting the radical 1990 Clean Air Act amendments legislation. It could add $25 billion to $40 billion annually."

-- Peter Brimelow and Leslie Spencer
Forbes, July 6, 1992

"The total regulatory burden on the U.S. economy is as much as $4,000 per household per year. Clearly, if American households are, on average, $4,000 poorer, that is $4,000 less they have to spend on consumer goods that enhance their health and safety."

-- Jonathan Adler, Competitive Enterprise Institute
The Washington Times, June 3, 1992

"Over the past years, our nation's communities, large and small alike, have been inundated with environmental mandates emanating from the EPA which, for the most part, are accompanied by no Federal funding. This has forced financially strapped local community leaders to come up with the money themselves or face stiff fines and possibly imprisonment."

-- EPA's Science Advisory Board, as quoted by Dr. Bonner Cohen, Editor EPA Watch, during remarks before the House Subcommittee on Civil and Constitutional Rights, March 4, 1993

"The impact of regulatory activity imposes tremendous costs, well beyond those entered on an accountant's ledger. Compelling automakers to make more fuel-efficient vehicles forces individuals into lighter, less-safe cars; withholding potentially life-saving drugs and treatments pending approval by the Food and Drug Administration risks unnecessary deaths; failure to chlorinate water for fear of minuscule cancer risks from chlorination can cause thousands more deaths from outbreaks of cholera and other diseases. Contrary to what the EPA, the Occupational Safety and Health Administration and FDA would like people to believe, banning useful products and technologies can actually cause people to die. All of these examples have happened; the result of ill-conceived government policies. A death is a death, whether caused by workplace exposure to airborne toxins or by less-effective brake pads. When the policies of the federal government are directly responsible for the additional loss of life, these policies should be repealed."

-- Jonathan Adler, The Competitive Enterprise Institute
The Washington Times, June 2, 1992

"Over the past two decades, environmental problems have been addressed in a vacuum, without carefully examining their impacts on personal incomes, private property rights, the economy, productivity or national competitiveness."

-- Paula P. Easley, Director of Government Affairs, Municipality of Anchorage, Alaska
Paying for Federal Environmental Mandates: A Looming Crisis for Cities and Counties

"Whether it be budgets for hazardous waste handling, asbestos abatement, clean water and air programs, land acquisitions for endangered species habitat, removal of underground storage tanks, or mitigation for wetlands development, municipalities are charged with financing and implementing scores of additional mandates yearly."

-- Paula P. Easley, Director of Government Affairs, Municipality of Anchorage, Alaska
Paying for Federal Environmental Mandates: A Looming Crisis for Cities and Counties

"Frank Shafroth of the National League of Cities estimates that existing local resources cover only $1 of every $10 that the EPA orders local government to spend. We taxpayers, and our likely reactions, don't come into the discussion...The utility and local government people recently told the EPA that financial meltdown impends."

-- William Murchison
The Dallas Morning News, July 15, 1992

"[Cities] complained about federal and state mandates imposed on them without any funding to enable them to comply. NLC [National League of Cities] Executive Director Donald J. Borut complained the feds were simply shifting their own costs onto local governments. 'It's what we call shift and shaft federalism,' he said."

-- *The Washington Times*, July 27, 1992

"'What bothers me is that the new rules coming out of Washington are taking money from decent programs and making me waste them on less important problems. It kills you as a city official to see this kind of money being spent for nothing.'"

-- Michael Pompii, Head of the Colombus Health Department's Environmental-Health Division
The New York Times, March 23, 1993

"Money spent on cleanup is money diverted from other, possibly worthier, projects. Laurie Westley of the National Association of School Boards says: 'New computers, new books, another second-grade teacher? -- there's no way for the federal government to make those choices. That's why local school boards exist. But the EPA has eliminated their ability to make choices that make the most sense.' Radon, lead, underground storage tanks, pesticide control, drinking water, waste management--these concerns, the government says, come first."

-- William Murchison
The Dallas Morning News, July 15, 1992

"'...state and local pollution-control officials suspect that they're wasting precious time and resources--while jeopardizing precarious public support--because federal mandates based on inconclusive or inaccurate studies force them to focus on the wrong environmental problems.'"

-- Tom Arrandale, *Governing* Magazine, "'Junk Science' and Environmental Regulation," June 1992

"Non-regulatory actions have their effects on corporate profits and on local government revenues as well. Well-publicized warnings of cancer threats from coffee, dioxin, microwave ovens, showering, apples, hair dye, or the 'chemical of the week' can force a company to undertake emergency recalls, pull advertising, make costly equipment and production modifications, resort to less-effective substitutes or, worse, go out of business altogether."

-- Paula P. Easley, Director of Government Affairs, Municipality of Anchorage, Alaska
Paying for Federal Environmental Mandates: A Looming Crisis for Cities and Counties

"...should not the scientists be admitting they don't know when they don't know, rather than compelling billions of dollars in expenditures on the basis of assumptions or uncertainty factors that they believe are 'prudent' for protecting the public?"

-- Bill Kelly, Institute for Regulatory Policy

A report written by Michael Pompii, head of the Colombus, Ohio Health Department's environmental health division analyzed how much compliance with environmental regulations would cost the city. From 1991 to 2000, costs were estimated at between $1.3 billion and $1.6 billion in new expenses. In 1991, $62 million or 11 percent of the budget went to environmental protection. The average Colombus household paid $160 for this. By the year 2000, compliance would cost $218 million, or 27 percent of the city's budget. This would mean that a household would be paying $856, more than it would for fire and police protection.

-- *The New York Times*, March 24, 1992

"By the time it was finished, the [Peru Central School District in New York] had spent $3.5 million -- more than 15 percent of its annual budget, on the removal of asbestos. Then the Environmental Protection Agency that had enacted the asbestos ban, was forced to acknowledge that the threat of asbestos had been overestimated, and the risks of improper removal were often greater than leaving it in place."

-- Jonathan Adler, The Competitive Enterprise Institute
The Washington Times, June 2, 1992

"Asbestos, a major environmental concern several years ago, no longer seems so major: not major enough anyway to justify the $64 billion spent on eliminating it over the past eight years."

-- William Murchison
The Dallas Morning News, July 15, 1992

"CBS's claim [that Alar was 'the most potent cancer-causing agent in the food supply today'] stemmed from science that was supplied to the show by the Natural Resources Defense Council and Fenton Communications, its public relations firm. According to Fenton's battle plan, as published in *The Wall Street Journal*, 'the idea was for 'the story' to achieve a life of its own, and continue for weeks and months to affect policy and consumer behavior.' They sure did that... Consumers were scared... Apple sales plummeted. The USDA estimated growers lost $120 million just in 1989 from decreased sales. Many growers, their reputations trashed, lost their livelihood and their orchards."

-- Dean Kleckner
The Sacramento Bee, March 6, 1993

"National costs [of meeting the radon water standard] were estimated at $12 to $20 billion, and only 1 percent of the public radon exposure would be reduced."

-- Philip H. Abelson
Science Magazine

The cost of complying with EPA radon water standards in California according to John Fraser, the executive director of the Association of California Water Agencies, is estimated to be between $520 million and $710 million. He also estimated that total capital costs for the construction of water-treatment facilities might reach $3.7 billion in California and $20 billion nationwide. Fraser contended, "The nation is being asked to spend over $20 billion to comply with one drinking water regulation...and yet the public can look to very little in the way of improved public health as a result of it."

-- *San Francisco Chronicle*, April 13, 1992

"Now industry reaps the whirlwind: excessive regulation and economic miasma, because we're about to centrally plan the world's energy economy based on the threat of global warming. This threat can rather easily be diminished by close inspection of the facts--something that all those agencies that are getting oh-so-fat are not about to trumpet and promote."

-- Patrick J. Michaels, Science and Environmental Policy Project
Roanoke Times & World-News, December 29, 1992

The Costs of Bad Science

Regulations, the Economy and You

Government works best with the consent of the governed, and this is achieved in large measure when the people have confidence in their government. Contemporary society is increasingly affected by government policies which rely upon technology, and government turns to science to establish the basic framework of facts upon which laws and regulations are based. Science plays an ever-larger role in the daily lives of every American: determining progress in human healthcare; evaluating man's effect upon the environment; calculating the risks and benefits inherent in the construction of highways, bridges, space shuttles and aircraft; assuring the safety of our food supply and assessing the effectiveness of public education, to name just a few.

Science, therefore, carries an enormous burden of responsibility to society. The fundamental purpose of good science is to determine truth and to provide facts upon which sound public policy can be based. Bad science can take many forms, and scientific data can be twisted to achieve pre-determined political objectives. **When this happens, while political motives may be satisfied, society and science suffers, and the bond of confidence between the two is further eroded.**

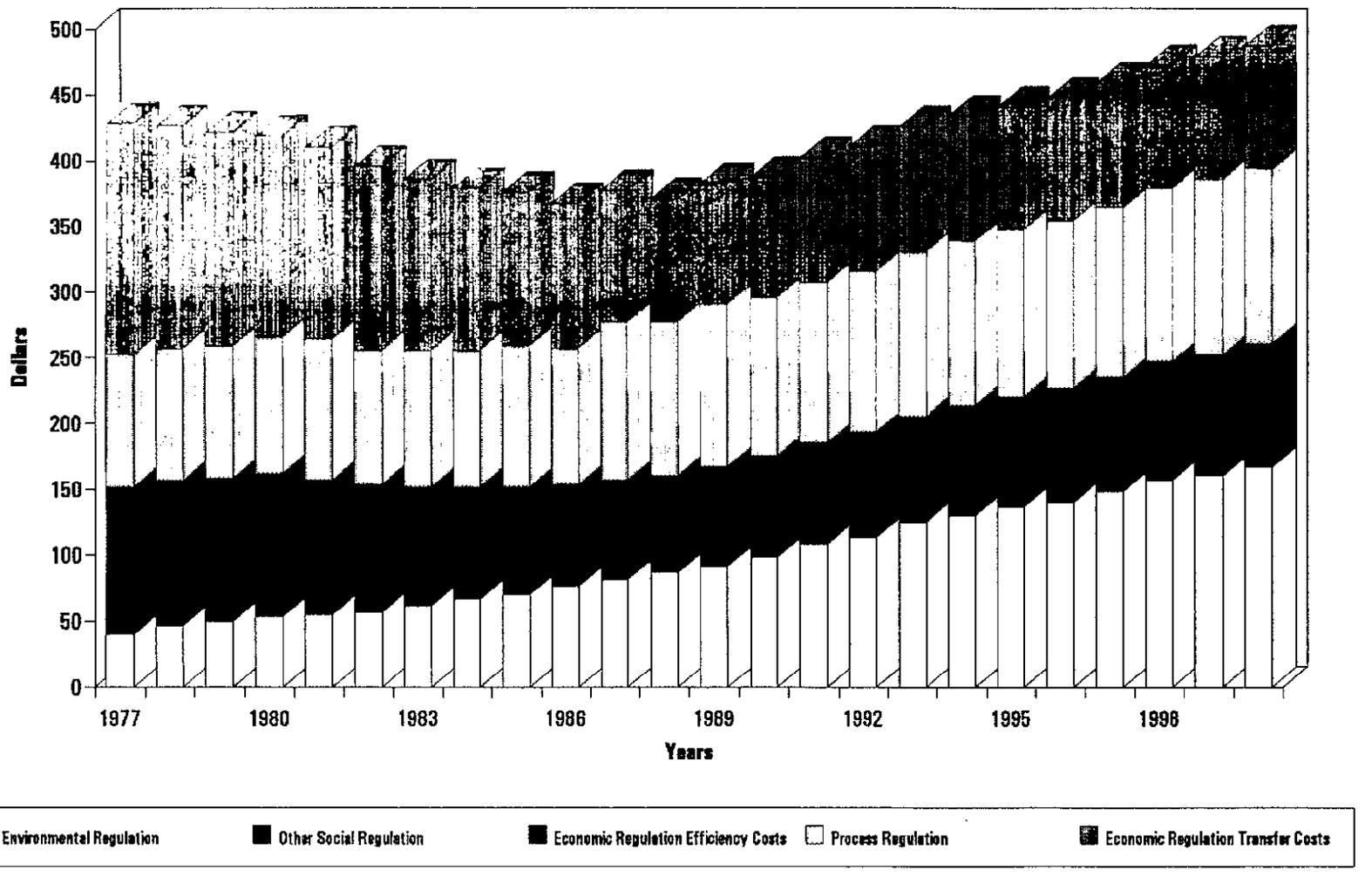
One of the greatest costs imposed upon society by "bad" science is the cost of unnecessary or misguided legislation and regulation. Such costs are eventually borne by each individual taxpayer as they trickle down from federal laws and regulations to state and local enforcement and compliance by businesses and communities. The most respected research on **the cost of total federal regulation to American consumers is $400 billion annually. That breaks down to $4,000 per household.** Some of this regulation is based upon bad science, and the effect is to cripple our ability to apply available resources to creating jobs and reviving the economy.

Regulation is an essential but costly tool of government policy. In April 1992, 59 regulatory agencies with about 125,000 employees were at work on 4,186 pending regulations. Complying with federal regulatory requirements, however, well-designed they may be, creates costs that go far beyond the simple outlays to run federal regulatory agencies. **Compliance is where the true costs exist, and consumers ultimately pay these costs, mainly in the form of higher prices for products and services.** Figures 1 and 2 on the following pages portray the overall regulatory cost pattern. The five components of regulatory costs include environmental regulation, other social regulation, economic regulation efficiency costs, process regulation, and economic regulation transfer costs.

Environmental regulatory costs have been separated from other social costs because of its dominating size. **By far, the fastest growing regulatory costs are for environmental protection.** Overall, federally mandated environmental regulations cost Americans some **$450 more annually in higher taxes and prices. That is $1,800 a year more for a family of four.** The EPA estimated that in 1990, regulatory compliance expenditures by the private sector amounted to $99 billion, and that sharp increases lie ahead. Since the EPA completed its estimates prior to passage of the 1990 Clean Air Amendments, the projections do not include all costs of complying with this new legislation. Some estimates put the Clean Air Act compliance in the range of an additional $25-30 billion annually. Thus, environmental costs shown for years after 1992 are understated.

In particular, the cases of Alar, dioxin, radon, asbestos, electric and magnetic fields, the Endangered Species Act, and Environmental Tobacco Smoke show just how costly a policy based on bad science can be.

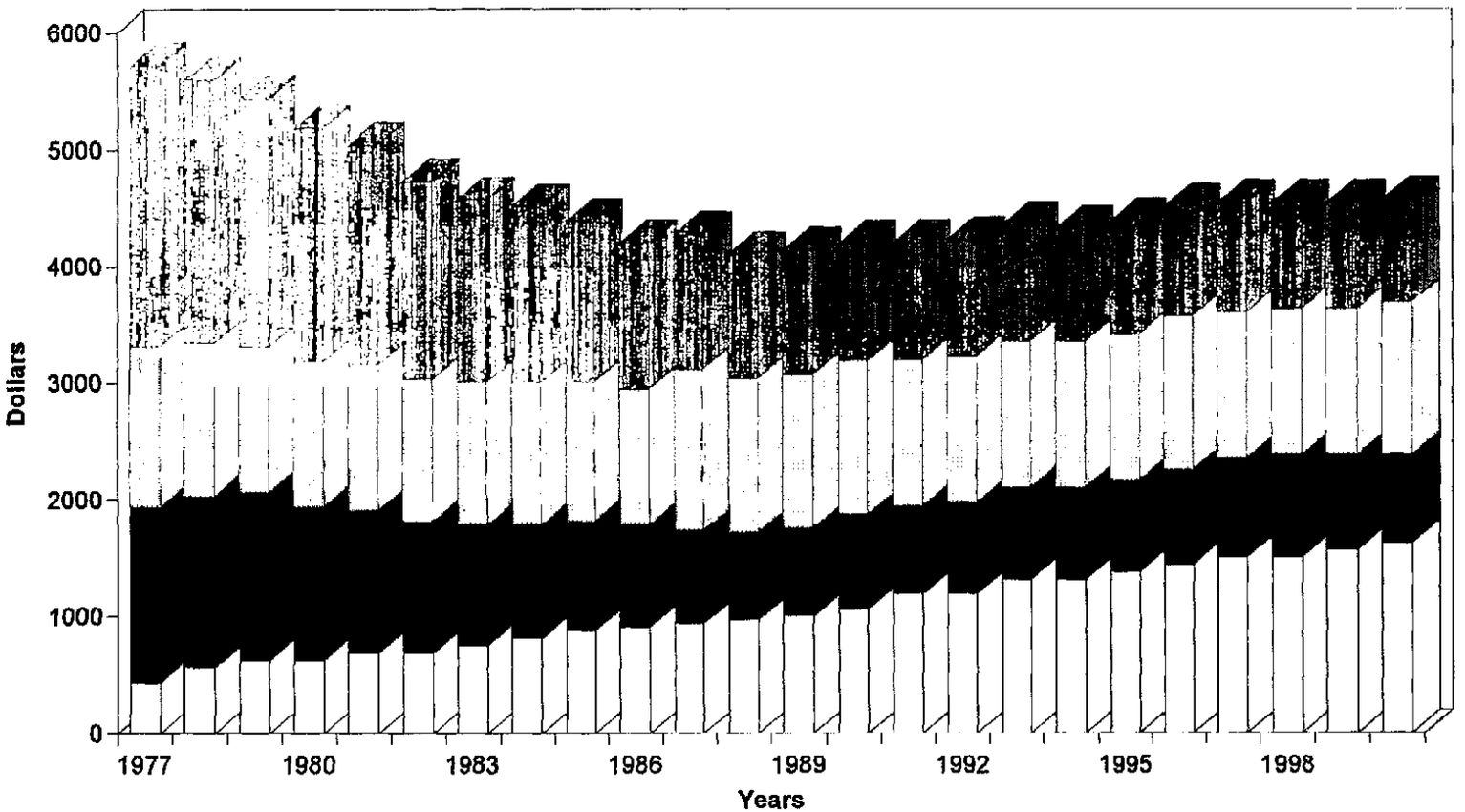
Composite Annualized Regulatory Cost in Billions of 1988 Dollars



207414424

Source: Based on chart from National Chamber Foundation

Composite Annualized Regulatory Costs Per Household in 1988 Dollars



Source: Based on chart from National Chamber Foundation

The Costs of Bad Science
The Impact on the Economy and You

Alar... the scare of 1989 resulted in:

- losses of $250 million to apple growers;
- losses of $125 million to apple processors;
- losses of $15 million to the government which bought unwanted apples;
- scores of bankruptcies for small growers of apples;
- potentially enormous economic losses depending on how current lawsuits brought against CBS and the Natural Resource Defense Council are resolved;
- estimated total losses of over half a billion dollars; and
- failure of apple growers to regain their pre-Alar scare markets, even three years later.

Dioxin...EPA's position has had economic and social costs.

- During 1982 and 1983, the federal government spent $33 million to buy the town of Times Beach, Missouri, and relocate its 2,240 residents, because the streets of the town had been contaminated with dioxin.
- In late 1990, a jury awarded Wesley Simmons, a retired Gulf Coast fisherman living in southeast Mississippi, $1.04 million of Georgia-Pacific Corporation's money because he was exposed to dioxin from eating fish that swam in the water downriver from the company's mill. Simmons never alleged to be in anything other than good health.

- As of April 1991, lawyers had brought over $5 billion in suits in the State of Tennessee against two paper companies, the Georgia-Pacific Corporation and the International Paper Company, alleging that they had threatened the health of those coming into contact with downstream water and fish that had been in that water.

- During the height of the Agent Orange story, manufacturers of Agent Orange were forced to settle out of court for $180 million because public perceptions and opinions were so intense that notwithstanding the scientific evidence and facts, a fair trail was impossible.

Radon...EPA's rules will cost even more than dioxin did.

- California public water agencies have estimated that it would cost the state more than $3.7 billion to comply with the EPA's proposed regulation regarding radon levels in drinking water.

- National costs of compliance with the proposed regulations have been estimated at between $12 billion and $20 billion.

- It has been estimated that though the radon testing and mitigation bills in Congress would only cost about $20 million a year to fund, the overall costs to taxpayers and consumers of radon testing and mitigation are expected to be at least $100 million a year. With only $15 million being funded by Congress, local governments and schools will have to find other ways, including taxes, to meet the shortfalls.

- To meet Congress's mandate on reducing indoor radon levels to outdoor levels, almost $1 trillion would have to be spent (estimated as $10,000 to $16,000 per household for 70 million households).

Asbestos...regulations and removal have been economically damaging.

- It is estimated that EPA-mandated asbestos removal programs have cost between $150 billion and $200 billion.

- EPA banned the use of asbestos for most applications in order to protect public health, but one would not know it from an examination of the regulation and its effects. The regulation would have prevented three premature deaths, over a period of 13 years, at a cost of between $43 million and $76 million per life saved.

Electric & Magnetic Fields (EMF)...the economic impact to date.

- In 1992, concern over the unproven health effects of EMF exposure led to a $65 million, five-year federal government program to fund continuing research into the issue.

- Since 1975, the electric industry has been forced to spend another $65 million on research to defend against premature and possibly unnecessary regulation.

- The industry is spending over $1 billion each year for the purpose of reducing exposure to EMF, even though that exposure may eventually prove harmless.

- Private businesses and individuals have also incurred costs as a result of the persisting EMF hysteria. For example, the *Boston Globe* spent $75,000 to reduce its employees' exposure to EMF, and one couple spent nearly $500 to reduce exposure in their own home. The cost of regulating EMF in individual businesses and households alone would, therefore, be a significant burden.

Environmental Tobacco Smoke...EPA's bad science and the economic fallout in California.

- A study by Price Waterhouse shows that the proposed smoking ban would cost San Diego, California more than 6,000 jobs, close more than 400 businesses and cost the city millions.

- Because of the average loss of 25 percent of local retailers and restaurants, Beverly Hills, California repealed the smoking ban ordinance.

- Since the San Luis Obispo, California smoking ban has been in effect, Laurel Bowling Lanes has lost 685 bowlers and nearly one half of its income from the cocktail lounge -- a loss of $200,000. That was devastating for a small business with a gross income of $700,000 annually.

- A 100 percent smoking ban in Bellflower, California enacted March 1991, has caused a decline in restaurant traffic by over 30 percent.

EPA is a regulatory machine in need of repairs.

- EPA has a staff of 18,000, about one-seventh of the staff of the regulatory system.

- Its operating budget is $4.5 billion, one third of the spending of the entire federal regulatory system.

- Complying with EPA regulations costs Americans $115 billion a year, or 2.1% of GNP.

- The costs of regulations are passed on to consumers and taxpayers, costing an additional $4,000 per household.

- During the 1990's, it will cost some $1.6 trillion to comply with EPA regulations. This does not include the 1990 Clean Air Act amendments which could add on another $25 billion to $40 billion a year.

- Superfund clean-up alone consumes 40% of the EPA's operating budget and 20% of its staff time.

- EPA regulations impose heavy costs on cities. Local resources only meet $1 for every $10 of EPA mandated regulations.

Draft-Opinion Editorial

ECONOMIC IMPACT

In his state of the union address, President Clinton encouraged us to focus our attention on the economy because "more than anything else, our task . . . is to make our economy thrive again." He exhorted us not to just "consume the bounty of today, but to invest for a much greater one tomorrow." And, he especially stressed the role that businesses would have in our economic revival.

Political persuasions notwithstanding, the President's call was welcomed by many business leaders who are eagerly awaiting economic revival. However, many businesses are unable to actively participate in this economic resurgence due to the costs of running a business today, especially in terms of remaining competitive and complying with government regulations. For example, government regulations force businesses to spend more on compliance than on investment and job creation. A substantial portion of these regulations are environmental regulations imposed not only on businesses, but on local governments and on you by the Environmental Protection Agency (EPA).

But who really pays for these EPA regulations? You do. The costs of complying with federally mandated regulations are passed on to you, the consumer and taxpayer, in the form of higher prices and taxes. And, according to a July 6, 1992, Forbes article entitled "You Can't Get There From Here," it is estimated that overall each American -- child, adult and senior citizen alike -- ends up paying some $450 more in higher taxes and prices because of EPA regulations. That is $1,800 a year more for a family of four. Furthermore, we are now spending over $115 billion a year to clean up the environment, which will probably increase to more than $170 billion by the year 2000.

No one disputes the need for the regulation of substances proven to be hazardous to the environment and our health. Clean air and clean water are fundamental to a livable world. However, when the EPA imposes regulations based on inconclusive scientific studies and when politics and political correctness drive science instead of science driving policy, the economic costs far exceed the health benefits that might be attained.

The case of Alar, a chemical growth regulator used on apples, demonstrates the economic fallout that can occur when politics and faulty science drive policy. Media attention and preliminary studies brought the issue of Alar to the forefront of public attention in 1989. Hollywood celebrities got involved, and it soon became politically correct to oppose the use of Alar on apples. The EPA quickly bowed to political pressure and using only the flimsiest of

data linking Alar to cancer, it banned Alar. Later - much later - EPA's own final reports disproved its anti-Alar position. Even though Alar was proven to be non-carcinogenic, it was too late. The damage had already been done. Apple growers lost $250 million, and apple processors lost $125 million. Many smaller growers were forced to declare bankruptcy. The U.S. Agriculture Department had to purchase some $15 million worth of leftover, unwanted apples. And even today, the apple market has not fully recovered consumer confidence disrupted by EPA's hasty, yet "politically correct" behavior. When magnified by EPA's other major miscues in recent years, this situation is not just an idle question for policy makers. Can society really afford the economic consequences of regulations based on faulty research, hasty regulatory judgment and politically correct motives?

Though we may not be ready for the economic consequences, once again the EPA seems ready to use questionable studies to impose regulations with high economic costs. This time the issue is environmental tobacco smoke (ETS).

In 1992, the EPA conducted an internal study on the alleged effects of ETS and came to the conclusion that it poses a health risk to non-smokers. How did the EPA come to this determination? Did it seek out the nation's leading scientists and conduct a peer-reviewed study whose findings could stand the scrutiny of the science and health establishment? The answer is No. EPA simply conducted an evaluation of 30 existing studies, many admittedly flawed or biased. Even among these, 24 showed no statistically significant correlation between ETS and cancer. The remaining 6 showed a correlation so small that researchers had to acknowledge that other factors, such as outdoor air pollution, could also be factors in disease promotion. Scientists such as Dr. Gary Huber, a specialist on respiratory diseases from the University of Texas Health Center, dispute the EPA findings. "No matter how you adjust the data," he says, "the risk relationship for ETS and lung cancer remains very weak."

The inconclusive nature of EPA's own evidence and the cost that could result from new regulations suggest that a different approach to ETS and indoor air quality is badly needed. What government should do is conduct a more comprehensive evaluation of the issue of indoor air quality, one that is strictly based on sound science and economically feasible. The government should hold off on costly regulations until a total approach to indoor air quality can be developed by the Occupational Health and Safety Administration (OSHA). Once these standards are set, individual businesses should be allowed to meet them in ways that best suit their particular situations. Studies show that allowing flexibility to improve general air quality in a variety of ways is far less costly than having somebody in Washington impose strict technological standards.

It doesn't take a fertile imagination to see how ETS could end up as another economic horror story like Alar -- except far more expensive to society as a whole. Regulations based on faulty science and politics have a history of forcing businesses and government to spend money needlessly that instead could be applied to creating jobs, training a workforce and reviving the economy. It is hard to believe that this is what President Clinton had in mind when he asked us to sacrifice so that our economy could thrive again.

Draft-Opinion Editorial

IMPACT OF EXCESSIVE REGULATION

Recently, President Clinton charged Vice President Gore to investigate ways to eliminate waste and abuse in the government. The administration's goal is "to make the entire Federal Government both less expensive and more efficient and to change the culture of our national bureaucracy away from complacency and entitlement toward initiative and empowerment." Though no one is sure exactly what programs and departments will be affected, none will be protected from scrutiny.

President Clinton himself has already moved in the right direction by consolidating or eliminating several departments and councils under his control and by promising a 20 percent cutback in White House staff. While these moves are promising, they will be meaningless unless the President and the Vice President take a hard and long overdue look at some sacred cows of the Federal bureaucracy. If the Administration really wants to eliminate waste and abuse in government, it's time to examine the cumbersome regulatory process which has raised the cost of doing business, forced higher prices, limited job creation, and forced local governments to cut services and raise taxes in order to comply with regulation that has almost permanently crippled American competitiveness in world markets.

We find these problems throughout the U.S. regulatory system, but especially in the area of environmental administration. While no one really disputes the need to achieve reasonable environmental goals -- such as limiting human exposure to hazardous materials -- a lot of our regulation has simply gotten out of control, and many responsible environmentalists know it.

The money to pay for compliance with environmental regulation does not simply materialize or grow on trees. Such costs are borne most significantly by local governments, businesses and by those who ultimately pay all bills -- the consumer and taxpayer. Though local governments and businesses are the most regulated, costs are passed on to the consumer and taxpayer in the form of higher prices and increased taxes. A July 6, 1992 Forbes article entitled "You Can't Get There From Here" estimated that overall each American -- child, adult and senior citizen alike -- ends up paying some $450 more in higher taxes and prices solely due to Environmental Protection Agency (EPA) regulations. That means that a family of four will pay $1,800 more a year.

Right now California is trying to cope with the costs of its own economic downturn. Just last month, members of the California Assembly and Senate convened an Economic Summit in Los Angeles to discuss the critical issues of improving California's business climate and reducing job loss within the state. One of the biggest deterrents to business activity and job creation is burdensome regulations advocated by the EPA and other federal agencies. In other words, the goals of boosting California's economy and creating jobs simply cannot be met in the face of costs resulting from uncontrolled over-regulation of our state's businesses.

Overall, EPA regulations cost over $115 billion a year. Local governments are particularly victimized, according to Frank Shafroth of the National League of Cities, because local resources only cover $1 of every $10 of regulations mandated by the EPA. And, the high costs to small businesses have been escalating annually or companies are forced to comply with contradicting, ill-conceived and often unnecessary regulation. At the local level, citizens have become polarized over virtually every conceivable environmental issue, and the EPA inevitably is persuaded to oppose and deny useful projects by imposing every-increasing costs and burdensome compliance upon businesses.

And what about the EPA itself? EPA fields an army of 18,000 on an operating budget of $4.5 billion. The agency that was created in 1969 by President Nixon as a response to genuine environmental concern has become an all-powerful, litigious, command-and-control bureaucracy that accounts for one seventh of the federal regulatory staff and its budget for one-third of the spending of the entire federal regulatory system. Its power reaches well beyond the borders of the agency; EPA policy guides regulatory initiatives of the Justice Department, Agriculture, Commerce, State, Department of Defense and all 50 states.

EPA regulations and their administration cost billions of dollars, but almost no one has the political courage to ask if we should be spending so much of our money this way. Isn't it a legitimate question to ask whether it might be better to invest some of these billions in education, worker training programs, and health care programs? Business has made enormous gains in the past 25 years, and America is admittedly a cleaner, more healthy place to live. Given the fact that non-compliance usually carries such high penalties, most businesses can be trusted to act in their own best interests by obeying air, water, solid waste, toxic substance and other anti-pollution laws.

Putting aside the sheer cost of EPA, there is also the question of the basis of its EPA regulations. There are many reasons for regulating genuine hazards to health. But when regulations are based on faulty science they cost society far more than the health benefits they are designed to achieve. Many examples can be culled from EPA files, but the one that is currently affecting our lives both at home and in the work place is a once obscure environmental issue known as indoor air quality (IAQ).

EPA and its political support structure have now determined that indoor air quality is important. So much so that we are evaluating the impact it has on human health in our businesses and our homes. We are studying ways to improve IAQ so that we can enhance our productivity, improve our health and eliminate a score of illnesses allegedly caused by unhealthy indoor environments.

Its most recent report about IAQ concerned tobacco smoke. The EPA report concluded that Environmental Tobacco Smoke (ETS) poses a serious health risk to non-smokers. But, first, let's see how EPA reached their startling conclusion. The agency did not conduct any new clinical studies, carefully reviewed by independent and impartial scientists whose judgment could be trusted. Instead, EPA reviewed 30 existing reports, 24 of which showed no statistically significant correlation between tobacco smoke in the air and regulatory disease. The other 6 showed only a vague correlation. Researchers were unable to rule out other factors that might cause cancer such as outdoor air pollution. Scientists such as Dr. Gary Huber, a specialist on respiratory diseases at the University of Texas Health Center, dispute the EPA findings. "No matter how you adjust the data, the risk relationship for ETS and lung cancer remains very weak."

Nevertheless, despite the paucity of data to substantiate regulations, the EPA would have us believe that it is necessary to clamp controls on ETS. This may be the issue which causes sensible people to stand up and say, "enough!" Where do we draw the regulatory line? If EPA forces us to regulate overall IAQ, why not mandate ventilation systems that reduce our exposure to <u>all</u> airborne chemicals? Obviously, the cost of such regulation would be staggering. And the issue should raise serious concern about why society would impose such unnecessary regulatory costs upon itself.

It is time to take a hard look at our nation's priorities, and start investing in our future by eliminating waste and abuse. Let's free our businesses and local governments to create jobs, restore our economy and world competitiveness instead of tying their hands with costly, needless and scientifically unsupportable regulations.

The True Cost of Government

By Robert Genetski

President Bush showed he had some understanding of problems of the economy when he announced his 90-day freeze on regulation in the State of the Union address. But it is clear that Mr. Bush hasn't grasped the full extent to which regulation has added to the burden that taxes impose on the economy. Regulation's effect on the economy can be every bit as damaging as the effect of taxes. Even though Americans have not seen it in their pay stubs, they have borne the equivalent of growing tax burdens. And tax burdens have climbed as dramatically during his watch as they have under any other president.

The table shows the combined tax and regulatory burden that has been placed on American businesses and workers in recent years. The numbers refer only to increases over and above whatever was imposed the previous year. For example, a new tax of $25 billion in year one that continues to bring in $25 billion each year thereafter is listed as $25 billion in year one and nothing thereafter. Only if the tax is increased above its initial level is the increase presented in a subsequent year.

Hide Burden

In a few cases, Congress and the administration have decided to hide the true burden of government programs by ordering businesses to spend the necessary money to comply with certain edicts. But ordering companies to spend $25 billion to fulfill a public need does not mean that the public has avoided a $25 billion tax. Businesses today earn only 4 cents in profit for every dollar of sales. When a businessman receives the bill for a mandated benefit, the business must reorganize its operations in order to survive. This often means layoffs, plants closing and other cost-cutting moves. Companies that are not able to cut costs sufficiently to pay for the additional burdens are forced to close entirely.

The Clean Air Act and the Americans with Disabilities Act represent two of the largest hidden tax burdens to hit the economy in 1991 and 1992. In both of these cases, the administration and Congress appear to have seriously underestimated the cost of compliance with these acts. Both of these acts are worded so vaguely that the regulatory bodies have raised the cost of compliance far above the official figures. The numbers presented in the accompanying table are conservative estimates.

The official estimate for complying with the Clean Air Act was put at roughly $25 billion per year. Nongovernmental estimates of the cost of complying with the act range as high as $100 billion per year. The table shows a compromise compliance cost of $25 billion in new compliance expenditures for 1991 and an additional $25 billion for 1992.

It appears too that the cost of complying with the Americans with Disabilities Act will be staggering. The disabilities act was supposed to cost $2 billion annually, but depending on how aggressively it is implemented, the cost of compliance could easily amount to at least $20 billion a year for the next five years.

Based on an early sample of plans to alter office buildings to comply with the Americans with Disabilities Act, the cost of compliance appears to be close to $5 per square foot. This figure does not take into account all possible modifications, but just those that are deemed "reasonable."

There are an estimated 100,000 square feet in an average office building. This places the cost of compliance at almost $1 million per building. There are an estimated nine billion square feet of office space in the nation, bringing the total compliance cost nationwide to $45 billion. And that's just for office space.

The American Hospital Association, a hospital lobby, estimates that its members will have to spend $20 billion to bring hospitals into compliance. We're already at $65 billion and counting—and that's before considering the costs for equipping trains, buses, restaurants, rental cars and public facilities.

In addition to the costs of complying with these mandates, there are legal and administrative costs to consider. In the case of the Americans with Disabilities Act, vague terminology virtually assures billions of dollars per year in legal expenses. No attempt was made to estimate these legal and administrative expenses.

Major New Tax And Regulatory Burdens

Billions of additional dollars

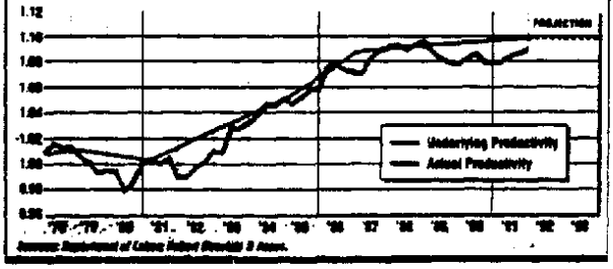
	1990	1991	1992	1993	1992
PAYROLL TAX	$13.0	$14.0	$10.9	$14.0	$7.4
CHANGES IN DEPRECIATION SCHEDULES	4.6	22.3	20.6	4.0	0
NEW TAXES, 1987	6.2				
NEW TAXES, 1990		0.1	5.6		
NEW TAXES IN 1990 BUDGET ACCORD				23.2	0
WOMEN SUPPORT ENFORCEMENT PROVISIONS		0.5	1.4	1.8	1.8
CLEAN AIR ACT				25	25
AMERICANS WITH DISABILITIES ACT					20
FEDERAL TOTAL	23.8	36.9	38.5	68	54.2
STATE TAXES	N.A.	N.A.	10.3	15	15
INCREASE IN FEDERAL AND STATE TOTAL			48.8	83.0	79.2
TOTAL INCREASE IN BURDEN, 1990-1992					$271.7

Source: Robert Genetski & Assoc. N.A.—Not available

None of these calculations should be taken to suggest that it is somehow wrong or bad to spend money for cleaner air or to help the disabled. The list of worthy causes has no real limits. Unfortunately, there are definite limits to the amount by which tax and regulatory burdens can be raised without having a serious economic impact. The present economic situation strongly suggests that the push toward higher tax and regulatory burdens has had much greater costs in terms of lost jobs and weaker productivity than most people had assumed.

The Cost in Productivity

Index of quarterly output of private non-farm sector (1982 = 1.0)



Source: Department of Labor, Robert Genetski & Assoc.

Recent productivity trends clearly support the sense that something is wrong. But the problem is not that Americans are "lazy," as a Japanese politician has recently been quoted as suggesting. Part of the recent weakness in productivity can be attributed to the recession. Productivity tends to increase more slowly than normal during recessions and faster than normal during recoveries.

Still, adjustments can be made for cyclical developments. Judging from past experience, the magnitude of the current recession should have caused actual productivity to fall approximately 2% below a level consistent with a fully employed economy. After making such an adjustment, we see that it becomes readily apparent that U.S. cyclically adjusted productivity has deteriorated dramatically in recent years. The record of what we can call underlying productivity is convincing support for the widespread sense that America's economic problems are more fundamental than cyclical.

Each society has its fair share of workers and loafers. The extent to which those workers improve their productivity depends far more on the overall economic environment in which they operate than on their inherent intelligence or initiative. Tax burdens are an important determinant of that environment.

During the period from the late 1970s to 1981, productivity growth in the U.S. deteriorated dramatically as tax burdens rose. With the tax cuts of 1982-84, U.S. productivity growth returned to its long-term average. Productivity rose by approximately 1.5% per year in the mid-1980s, and the nation experienced its longest peacetime expansion. More recently, the resumption of higher traditional and hidden tax burdens has again brought about a fundamental deterioration in the nation's productivity trend and a renewed sense of economic malaise.

After showing the rest of the world how lower tax rates could boost productivity and living standards, the U.S. regressed. Fortunately, the U.S. economy can revive. Layoffs can be brought to an end and productivity growth restored.

Painful Measures

Many politicians have maintained that such a revival would mean painful measures. In a sense, they are right. A true revival would involve major cuts in traditional and hidden taxes to offset the increased burdens that have occurred. This, of course, would not be painful for most workers and businesses—they would keep more of their income. But it would be painful for politicians and, in some cases, those who benefit from regulation, such as the handicapped. Cuts in traditional taxes or in regulation would mean that politicians would be forced to recognize that there are effective limits to what public policy can accomplish.

In a democracy, the public seldom tolerates poor economic performance for very long. For those politicians who fail to recognize the limits to public policy, there will eventually be political costs as well.

Mr. Genetski heads Robert Genetski & Assoc., a Chicago-based consulting firm.

EPA leaves toxic waste of overregulation

WILLIAM MURCHISON

Memo to Ross Perot: While searching out instances of federal disconnection from real life, stroll over to the Environmental Protection Agency. Better yet, send a team, equipped with radiation suits.

The EPA is a toxic waste dump of overregulation. It glows in the dark with nitpicky requirements to do this, spend that. The people who work there mean well and, far too often, do ill — how much and at what cost, the regulators learned in a recent meeting with their victims. I mean clients.

Representatives of local government and utilities gave the regulators an earful about the soaring expense of complying with mandates government passes on to the taxpayers.

Now I know: the taxpayers pay for everything in the end. What I mean here is that Congress comes up with all these specious requirements for cleansing the environment — and provides no federal tax money for the job. First, the EPA tells states and utilities what it thinks Congress meant. Then the states and utilities try to comply. Frank Shafroth of the National League of Cities estimates that existing local resources cover only $1 of every $10 that the EPA orders local government to spend. We taxpayers, and our likely reactions, don't come into the discussion. It's assumed we will smilingly cough up the required sums.

I wouldn't bet on that. The utility and local government people recently told the EPA that financial meltdown impends. Take water rates. Jack Sullivan of the American Water Works Association said the average cost of treating waste water per thousand gallons is going to quadruple in the next few years to meet environmental requirements. The average cost of drinking water per thousand gallons will soar from $1.27 to $5.50. The average cost per ton of solid waste will jump from $27 to $30.

Already the United States spends $115 billion a year cleaning up — supposedly — the environment. Brace yourselves for a projected cost of $171 billion in a mere eight years.

Here two additional considerations come into play:

1) Is all this money really helping the environment? Not necessarily. Asbestos, a major environmental concern several years ago, no longer seems so major: not major enough anyway to justify the $64 billion spent on eliminating it over the past eight years. An EPA internal review in March suggested that the agency's own group of scientific calculations is "uneven and haphazard."

2) Money spent on cleanup is money diverted from other, possibly worthier, projects. Laurie Westley of the National Association of School Boards says: "New computers, new books, another second-grade teacher? — there's no way for the federal government to make those choices. That's why local school boards exist. But EPA has eliminated their ability to make choices that make the most sense." Radon, lead, underground storage tanks, pesticide control, drinking water, waste management — these concerns, the government says, come first.

What's the likelihood of change? Ms. Westley says that, well, the bureaucrats at least are talking to the bill payers and exhibiting some signs of interest in their plight. But as we all know, bureaucrats don't spend vast amounts of time worrying about ordinary citizens either they enjoy putting the screws to us — because we need it, being too insensitive to reform ourselves — or they spread their hands wide in innocence. Don't look at us, they exclaim, all we're doing is what Congress told us to do.

The business about Congress is at best a half-truth, but it points to a larger truth, namely, that the political process is the major culprit here. Frankly, we can't trust Congress or the bureaucracy — the first, a collection of self-important panderers; the second, a shelter where everything seems possible — to set broad goals for domestic policy, far less prescribe the means of securing those goals. The marketplace, as in all things economic, works best when left relatively free. Americans aren't suicidal. They want a livable environment. They just don't need bureaucrats telling them, in exquisite and costly detail, how to get there.

The EPA itself needs a cleanup, notwithstanding that the agency seems less ideological and heedless now than a few years ago. An even bigger cleanup would benefit Congress. For *that* kind of environmental protection, most of us would open our wallets freely, big smiles on our faces.

47 Years of Service
to the
HOSPITALITY INDUSTRY

NLBA

SAN DIEGO
Tavern & Restaurant
ASSOCIATION

PHONE
233-6351
Offices: Exchange
SUITE 308 SPRECKELS BUILDING
121 BROADWAY
SAN DIEGO, CALIFORNIA 92101

October 23, 1992

PRESS RELEASE

PRICE WATERHOUSE STUDY SHOWS BUSINESSES WOULD BE HURT BY A SMOKING BAN

A study by the internationally renowned accounting firm Price Waterhouse shows that the proposed smoking ban would cost San Diego more than 6,000 jobs, close more then 400 businesses and cost the city millions in tax revenues if smoking is banned (page III-3 of the study).

Jay Tansing -- (202) 828-9066 days, (301) 469-6095 evenings -- of Price Waterhouse conducted the study on behalf of the San Diego Restaurant & Tavern Association (233-6351), which has provided 47 years of service to San Diego's taverns and restaurants.

The projected loss of jobs, businesses and tax revenues could be much higher if area businesses lose more the 17 percent of their business, the study showed. If the actual losses are 30 percent, the city would experience a loss of more than 11,000 jobs, 776 businesses (exhibit III-1) and a decline of millions in tourists to the city.

- END -

2074144140

ECONOMIC IMPACTS OF SMOKING BANS IN CALIFORNIA

Within the last year, local smoking bans have been passed in several cities and counties. The negative economic impact on local businesses in these cities has been pronounced.

BEVERLY HILLS

- In the four months the Beverly Hills ban was in effect, two restaurants, (La Famiglia and The Bistro) were forced to cut back hours and layoff staff. Because of the average business loss of 25% of revenues on local retailers and restaurants, **Beverly Hills repealed the ordinance.**

SAN LUIS OBISPO

- Since the San Luis Obispo smoking ban has been in effect, Pete Colombo of Laurel Lanes bowling center has lost 685 bowlers and nearly half of his income from the cocktail lounge. That adds up to a loss of over $200,000. "For a small business that only does a gross figure of $700,000 per year," Colombo says, "that's devastating." Several bars in San Luis Obispo have been cited repeatedly since the ban went into effect.

LODI

- Last New Year's Eve, Croce's restaurant in Lodi served 60-80 fewer dinners than usual. This amounted to a loss of $2,000 for that evening alone. Chris and Diana Manos say that this is just one example of the loss of business Croce's has suffered since Lodi's smoking ban has been in effect. Smokers apparently prefer to go out of town to eat rather than put out their cigarettes. "All the other towns are profiting from our misfortune," writes Manos, "and they love it!"

- Jeanette Kulp, also from Lodi, owns Jeanette's Restaurant. Her business has decreased by 75 percent since the smoking ban has been in effect. Her "out-of-town customers" have stopped coming altogether. As a result, she has been forced to layoff five employees and, if she "closes the door, there will be nine more."

- One restaurant, the Red Flame has closed due to losses suffered since the ordinance passed. The bowling alley in town has also suffered losses. Many of the league bowlers have quit bowling in Lodi and have begun their leagues in a bowling alley in Stockton.

BELLFLOWER

- A 100 percent smoking ban in Bellflower, enacted in March, 1991, has caused a decline in restaurant traffic by over 30%, according to an economic study undertaken two months after the ordinance went into effect. Two restaurants have already closed--The Cherokee Cafe and Joey La Brique's -- and others have cut back hours and staff, and may soon be forced to close.

- As soon as state tax receipt figures have been released, the restaurant owners will be submitting them to the city council to show the economic hardships they have suffered since the ban went into effect.

COMMENTARY
The Washington Times
TUESDAY, JUNE 2, 1992
SECTION F

JONATHAN ADLER

Deadly fallout of too many rules

First of two parts.

The threat from asbestos seemed like a good reason to temporarily shut down schools in Peru, N.Y. After all, according to the media and the federal government, asbestos posed an unacceptable cancer risk when used for most applications. So the Peru Central School District closed several school buildings for a month, while junior and senior high school students went to classes 10 miles away in Plattsburgh, N.Y. — classes that ended at 8:30 at night. By the time it was finished, the district had spent $3.5 million — more than 15 percent of its annual budget, on the removal of asbestos. Then the Environmental Protection Agency, the same agency that had enacted the asbestos ban, was forced to acknowledge that the threat of asbestos had been overestimated, and the risks of improper removal were often greater than leaving it in place.

While more may have been spent in Peru than in most other school districts, the story is much the same. Across the country, panicked parents and school administrators urged drastic action to protect their children from the threat of asbestos, a threat that had been greatly overstated. Nonetheless, EPA's defenders and compatriots continue to insist that such policies are justified as "insurance" policies. After all, they say, what is several thousand, several million, or even several billion dollars when you are seeking to protect human life? When put in terms of dollars vs. deaths, there is no contest. Yet as the U.S. 5th Circuit Court of Appeals recently ruled in overturning the regulation, EPA's regulations on asbestos cost much more than money.

EPA banned the use of asbestos for most applications in order to protect public health, but one would not know it from an examination of the regulation and its effects. The regulations would have prevented three premature deaths, over a period of 13 years, at a cost of between $43 million and $76 million per life saved. What is more, the EPA had even commissioned a study that indicated that asbestos substitutes might even increase the number of fatalities. Yet despite this evidence, the agency enacted the bans, at the likely expense of human health.

Fortunately the 5th Circuit recognized a pernicious regulation when it saw one, and ruled for the plaintiffs against EPA. "The EPA, in its zeal to ban asbestos, cannot overlook, with only cursory study, credible contentions that substitute products actually might increase fatalities," noted Judge Jerry Smith in his opinion for the court. "This failure to examine the likely consequence of the EPA's regulation renders the ban of asbestos friction products unreasonable."

While this regulation was overturned, there remains a host of regulations, from those regulating risk to those mandating minimum automotive fuel economy standards, that are responsible for increasing mortality. Whether federal bureaucrats wish to recognize it or not, churning out page after page in the Federal Register without concern for the unintended consequences of regulatory activity can have a tremendous impact upon the public they purport to serve.

The impact of regulatory activity imposes tremendous costs, well beyond those entered on an accountant's ledger. Compelling automakers to make more fuel-efficient vehicles forces individuals into lighter, less-safe cars; withholding potentially life-saving drugs and treatments pending approval by the Food and Drug Administration risks unnecessary deaths; failure to chlorinate water for fear of minuscule cancer risks from chlorination can cause thousands more deaths from outbreaks of cholera and other diseases. Contrary to what the EPA, the Occupational Safety and Health Administration and FDA would like people to believe, banning useful products and technologies can actually cause people to die. All of these examples have happened; the result of ill-conceived government policies. A death is a death, whether caused by workplace exposure to airborne toxics or by less-effective brake pads. When the policies of the federal government are directly responsible for the additional loss of life, these policies should be repealed.

EPA banned the use of asbestos for most applications in order to protect public health, but one would not know it from an examination of the regulation and its effects. The regulations would have prevented three premature deaths, over a period of 13 years, at a cost of between $43 million and $76 million per life saved.

Yet, while the asbestos ban is an example of direct death by regulation, the federal government is increasingly causing death by regulation in an indirect manner as well. While regulation advocates insist that the burdens of federal regulations are more than compensated for by the benefits they provide, there is one item that they conveniently leave out of the equation: that burdensome regulations cause an increase in mortality across society. Yet this is a fact they are loath to admit.

Tomorrow: Wealthier is healthier.

Jonathan H. Adler is an environmental policy analyst at the Competitive Enterprise Institute and a contributor to "Environmental Politics: Public Costs, Private Rewards," published by Praeger.

The Washington Times

DECEMBER 16, 1992

JONATHAN ADLER

Driving costs of oxy-fuel fakery

Since Nov. 1, residents of the District of Columbia and many other major metropolitan areas have been paying more for gasoline. In some areas, as much as 10 cents more per gallon.

In addition, many cars are beginning to experience a 2 percent to 4 percent decline in the mileage traveled with each gallon of gas. This is a result of the Clean Air Act Amendments of 1990 that require the exclusive sale of oxygenated fuels in the 39 cities with the worst carbon monoxide (CO) pollution in the nation. The four-month oxygenated fuels program is designed to reduce CO pollution during the winter months, when CO levels are at their peak.

The idea is that by increasing the oxygen level in gasoline — through the addition of either ethanol or MTBE (methyl tertiary butyl ether) — engines will burn "leaner" resulting in more complete combustion and lower emissions of CO. However, because the process of producing and blending these additives increases the costs of refining gasoline, the costs to the consumer have increased. With reports of a possible shortage in supplies of MTBE, prices could climb still higher.

While the Environmental Protection Agency is very proud of its oxygenated fuel program and the regulatory process that brought it about, residents of the affected cities should not be so happy. As with many of EPA's programs, the oxy-fuels mandate is an overly expensive "drift net" approach to a highly localized problem that can be addressed in a more efficient, not to mention equitable, manner. Moreover, there are serious doubts that the oxy-fuels program will bring any air quality benefit at all!

Oxygenated fuels were first used to combat high CO emissions in Denver, Colo. Since their introduction, Colorado regulatory officials have trumpeted the program's success, claiming that ambient levels of CO are on the decline. Some critics, such as Larry Anderson of the University of Colorado at Denver, charge that the "oxy-fuels program has had no statistically significant effect on [CO] concentrations in the atmosphere." What supporters of the program typically fail to mention is that CO levels were declining well before the program was in place. As newer, and cleaner, cars have replaced their older, dirtier counterparts, CO emissions decreased and overall levels of pollution declined. Moreover, due to the adaptive learning technology in the engines of these new vehicles, the use of oxy-fuels will have virtually no effect on the emissions of most late model vehicles.

What EPA would like to ignore is that only a small fraction of vehicles produce the vast majority of CO emissions. Indeed, only 20 percent of the vehicles on the road are responsible for 80 percent of the vehicular emissions of CO. Cleaning up or retiring only half of these vehicles would result in greater pollution reduction than the use of oxygenated fuels by the entire fleet. Moreover, where oxy-fuels only help reduce emissions of CO, retiring and repairing dirty vehicles tends to reduce emissions of other pollutants as well.

The vehicles inspection and maintenance program was designed by EPA to identify these dirty vehicles for repairs. However, because many of these vehicles are not registered, temporarily malfunctioning, or deliberately tampered with, a large proportion of the most polluting vehicles escape detection. With an annual or biennial testing program, it is easy for automobile owners to prepare for the test and ensure passage, and then readjust the vehicle engine to improve vehicle performance and increase emissions.

A method of addressing this problem was developed at the University of Denver, and is now being marketed by a subsidiary of Hamilton Test Systems. It is a remote sensing device that can detect the emissions of moving vehicles on the road, record the license plate, and thus enable officials to require that the offending vehicle be repaired or tuned up. It is the vehicular emissions equivalent of using radar to catch speeders.

Critics at EPA charge the test is not perfect, citing that cars occasionally escape detection. But then neither is the EPA's program perfect. The existing inspection system is easily avoided and a large number of offending vehicles are never identified. Moreover, oxygenated fuels, far from being "clean," merely substitute one form of pollution for another. While reducing CO emissions in some vehicles, oxygenated fuels increase emissions of nitrogen oxide, one of the components of urban smog, and aldehydes, classified by the EPA as a potential carcinogen. Indeed, aldehyde levels have risen in both Denver and Phoenix since the beginning of their oxygenated fuels programs several years ago. This from a program that is 5 to 10 times as expensive in terms of CO emissions reduced.

Far from a rational approach to concerns about air quality, the oxy-fuels program represents much that is wrong with environmental policy today. Rather than identifying the polluters and forcing them to clean up, bureaucrats instead prefer to impose costs on all drivers, irrespective of their contribution to the current problem. This type of "drift-net" strategy is preferred by regulatory agencies because it maximizes the scope of regulatory authority and is less complicated to implement than a more targeted (and equitable) program.

Moreover, there are powerful economic interests that stand to gain from the mandated use of oxygenated fuels. Archer Daniels Midland, for one, is the largest producer of ethanol and the single largest contributor of "soft money" for the first three quarters of 1992. Because ethanol is significantly more expensive than gasoline, it would never have a shot in the marketplace for fuel additives absent a government mandate. It is no wonder that, when the oxy-fuels program was threatened during the debate on the 1990 law, influential senators leapt to the additive's defense. Unfortunately, there was no one around to protect the average American consumer.

Jonathan H. Adler is an environmental policy analyst at the Competitive Enterprise Institute. He contributed the chapter "Clean Fuels, Dirty Air" to "Environmental Politics: Public Costs, Private Rewards" (Praeger).

JONATHAN ADLER

Regulated . . . out of this world

Last of two parts.

To the typical health and safety bureaucrat, too much of a good thing is never enough. If he can mandate seat belts, then why not passenger-side air bags and perhaps even crash helmets as well? If cancer risks can be reduced to one-in-a-million, why not one-in-2-million, 5 million, or perhaps a billion? Of course, these mandates cost money, but that rarely concerns the advocates of increased federal regulation.

Yet the cost of more regulation is more than a decline in corporate profits, these costs reverberate throughout the economy, and this in turn, affects the health and safety of society as a whole. Wealthier societies are healthier societies, as they have more wealth to spend on those things that improve the quality of life, from nutrition and health care to bicycle helmets and automobile child-safety seats. By the same token, those societies and communities with less resources to spend are less safe than they could otherwise be.

Given these facts, it is understandable that decreasing the ability of people to pay for such benefits, through restricting the economy, necessarily limits the ability of families and individuals to pursue healthier and happier lives. Because regulations impose significant costs on the economy, they have deleterious effects upon human welfare.

Jonathan H. Adler is an environmental policy analyst at the Competitive Enterprise Institute and a contributor to "Environmental Politics: Public Costs, Private Rewards," published by Praeger.

COSTS IMPOSED BY SELECTED FEDERAL REGULATIONS

Regulation	Agency	Year Enacted	Cost per premature Death Averted (1990 $millions)
Arsenic emission standards for glass plants	EPA	1986	13.5
Ethylene oxide occupational exposure limit	OSHA	1984	20.5
Hazardous waste listing for petroleum mining sludge	EPA	1990	27.6
1,2-Dichloropropane drinking water standard	EPA	1991	863.0
Formaldehyde occupational exposure limit	OSHA	1987	82,201.8
Alkoxine/alachor drinking water standard	EPA	1991	92,009.7
Hazardous waste listing for wood-preserving chemicals	EPA	1990	5,700,000.0

Abbreviations: EPA — Environmental Protection Agency; OSHA — Occupational Safety and Health Administration.

Sources: Regulatory Program of the United States Government, Office of Management and Budget, and Competitive Enterprise Institute.

In light of this fact, the Office of Management and Budget's Office of Information and Regulatory Affairs (OIRA) has sought to analyze regulations based upon their net effect on human health and safety. This form of "net-benefit" analysis is necessary, according to acting-OIRA Administrator James MacCrae, because "when national income falls, there is often a significant increase in mortality and a decline in health status." For example, a 1984 study by Congress' Joint Economic Committee found that declines in real per capita income in the early 1970s also led to a corresponding increase in total mortality, amounting to as many as 60,000 additional deaths. Other studies estimate that every loss of between $3 million to $8 million to the economy will result in a premature death. This means that when the economy sours, people die. Therefore, regulations that depress the economy — for whatever reason — can have a deadly impact.

That there would be pluses and minuses on both sides of the ledger is rather intuitive. "It is a simple economic relationship that is learned in Economics 101: Opportunity costs," noted the OMB's John Morrall. Ironically enough, pointing out that public health if a function of the standard of living has traditionally been an argument forwarded by the defenders of big government to justify a host of social welfare programs aimed at benefiting the poor. Nonetheless, the reaction from the advocates of regulation on Capitol Hill has branded "net-benefit" analysis as absolute heresy.

This should not be surprising, as the regulations drafted by bureaucrats at agencies like the EPA, and defended by the traditional staple of big government public-interest groups, typically impose tremendous costs for benefits that are nominal, at best. Making the conservative assumption that there is a premature death for every $10 million lost to the economy, many regulations would not pass muster with "net-benefit" analysis, even granting the agencies their questionable assessments of their regulations' benefits and costs. Regulations that are unduly expensive range from the $13.5 million-per-premature-death-averted rule governing emissions of arsenic from glass plants to a $5.7 trillion-per-premature-death-averted regulation covering wood preserving chemicals (see table). Under a "net-benefit" analysis, most of these would be overturned. It is no wonder that the regulatory zealots are so upset. Should "net-benefit" analysis ever be enshrined at OMB, it would curtail the ability to regulate.

Consider that current estimates place the annual regulatory burden on the economy as high as $400 billion to $500 billion. Assuming the same regulatory cost/premature death ratio cited above, this would mean federal regulations are responsible for 40,000 to 50,000 premature deaths each year. It should also be no surprise that the vast majority of these deaths would occur in financially strapped communities, such as South Central Los Angeles, where there is less institutional ability to compensate for economic losses. In a similar fashion, poorer countries are less able to mitigate the impact of economic declines than wealthier ones.

Of course, many will argue that it would be impossible for regulations to kill that many people each year. Never mind that Corporate Average Fuel Economy (CAFE) standards alone account for 2,000-4,000 deaths on the highway each year. The total regulatory burden on the U.S. economy is as much as $4,000 per household per year. Clearly, if American households are, on average, $4,000 poorer, that is $4,000 less they have to spend on consumer goods that enhance their health and safety. That all tremendously expensive regulations may inhibit the ability of families and individuals to build healthier and wealthier lives is the regulatory establishment's dirty little secret. But now it is a secret no longer.

EPA WATCH

A twice-monthly survey of environmental regulatory activities undertaken by the EPA, OSHA, the White House, the U.S. Congress and federal, state and local agencies.

VOL 1 NUMBER 6 JUNE 1,1992

LOCAL GOVERNMENTS REELING FROM COSTS OF EPA REGULATIONS

The staggering cost of implementing Federal environmental regulations threatens to lead to a "revolt" by hard-pressed local governments. This was the blunt message delivered to high-level EPA officials on May 12 who met with representatives of governments and utilities directly affected by unfunded Federal environmental mandates.

The meeting, which had been in the planning stages for months, came [illegible]t as a result of mounting [illegible]tration on the part of local officials at Washington's apparent indifference to the plight of communities unable to finance the growing list of environmental regulations emanating from the EPA.

"Congress provides no financing for the statutes it passes and the regulations the EPA issues," commented Ralph Tabor of the National Association of Counties, whose organization represents over 3,000 counties across the U.S. He added that Congress and the EPA develop implementation schedules for environmental statutes, such as the Clean Water Act, the Clean Air Act, or the Resource Conservation and Recovery Act (RCRA), which have no basis in reality.

Mr. Tabor said the timetables put together in Washington are arbitrary and ignore the financial constraints under which local governments [illegible]ate. He warned that the EPA was "facing a revolt" at the local level unless the agency took the concerns of taxpayers and ratepayers into account.

"Written in Latin with Greek Footnotes"

Speaking on behalf of the National League of Cities, Frank Shafroth pointed out that for every $10 of Federally-mandated environmental cost there is $1 available at the local level to implement the regulations. Not only do local governments not have the money to carry out environmental mandates, they frequently do not know what it is they are supposed to implement. "EPA rules are written in Latin with Greek footnotes," he commented. Mr. Shafroth told the EPA officials to "write rules that human beings can read."

In an effort to simplify matters for local communities, the EPA recently issued a scaled-down list of 419 "essential" regulations the agency expects local governments to put into effect. While appreciative of the EPA's move to reduce the number of regulations with which they must comply, most participants in the meeting echoed Mr. Shafroth's opinion that the rules are still "written with the attitude that U.S. municipal officials are stupid."

So confusing are the regulations and so burdensome are the costs that many local governments are consciously violating Federal law, according to Jack Sullivan of the American Water Works Association. Because the cost of implementing the regulations are ultimately passed on to ratepayers, many local governments are reluctant to keep asking citizens to pay higher utility rates, Mr. Sullivan explained. "The public does not understand it," he told the gathering.

Rate Shock

Warning that the U.S. public was facing "rate shock" as a consequence of unfunded environmental mandates, Mr. Sullivan pointed out that over the next few years the average cost of waste water per thousand gallons will rise from $1.06 to $4.50. The public also will see the average cost of drinking water per thousand gallons go from $1.27 to $3.50. In the case of solid waste, the average cost per ton will rise from $27 to $50.

Mr. Sullivan's figures are borne out by similar projections made by city officials in Phoenix, Arizona. There, according to the Arizona Republic, a typical family living in a 1,600 square-foot home would be billed $34.76 monthly this year for water, sewage, and sanitation. In 1996, new Federal requirements would raise the bill to $61.26, "this for the most marginal environmental enhancements," the newspaper noted.

Many of the skyrocketing costs can be attributed to major capital investments local governments will have to make to stay in compliance with Federal mandates. For instance, the EPA has proposed halving the standard for the suspected carcinogen trihalomethane -- from 100 parts per million (ppm) to 50 ppm. Phoenix would have to install $174 million worth of carbon absorbtion filters, at an annual operating cost of $25 million.

In a similar vein, the March 1992

issue of *Georgia County Government Magazine* points out that "there is not a single case recorded in Georgia of someone dying or becoming ill from drinking water from a public system that met the old standards before the new act (Clean Water Act) came along." This notwithstanding, the EPA has proposed a new standard for radon in drinking water that officials in California estimate will cost that state at least $3.7 billion (See related story on p. 4).

Underestimating the Cost

Local governments also complain that the EPA's estimates of the final cost of implementing environmental regulations are notoriously inaccurate. The city of Colorado Springs, Colorado was told by EPA officials that it would have to spend approximately $49,000 to obtain a stormwater permit. To date, Colorado Springs has spent over $1 million on the permit and is still not yet in compliance with EPA requirements. The agency's estimate was off by a factor of 20.

Colorado Springs' experience is by no means unique. Columbus, Ohio has been so overwhelmed by unfunded Federal mandates that the city sent a report to the EPA last year outlining the extent of the problem it faces. The report, "Environmental Legislation: the Increasing Cost of Regulatory Compliance to the City of Columbus," notes that, over the next decade, Columbus will spend $1.3 to $1.6 billion to comply with EPA mandates already in place, not to mention those still in the EPA pipeline.

Like Colorado Springs, Columbus has had to wrestle with the consequences of the EPA's inaccurate cost projections. In 1990, the EPA estimated the cost of a stormwater permit for a city the size of Columbus at $76,681, but the lowest bid Columbus received from contractors to implement its stormwater permit was $1.779 million. The EPA miscalculated by a factor of 25.

According to EPA Administrator William Reilly, the United States currently spends $115 billion annually on environmental issues, a figure that is expected to rise to at least $171 billion by the year 2000. Since most of the money to be spent has not been appropriated by Congress, and will not be, it will have to be raised at the local level.

There, with tax dollars earmarked for environmental cleanup having to compete with education, transportation, hospitals, nutrition programs, and a host of other public expenditures, local officials are demanding that the EPA issue rules that address real rather than "perceived" risks to human health.

"We must be able to justify what we do," Tom Curtis of the National Governors' Association told the gathering. As financial pressure mounts on local governments, elected officials can no longer justify taking money away from other health-related programs and spending it on EPA-mandated regulations for the sake of "protecting the eco-system," he added.

Negligeable Effect on Human Health

Indeed, one of the greatest frustrations faced by local officials is that most of the unfunded environmental mandates they must implement will have at most only a negligeable effect on human health. That those regulations are based on EPA science which the agency's own internal review released in March found to be "uneven and haphazard" calls into question the scientific basis of those mandates. In fact, the agency's review noted that "EPA often does not scientifically evaluate the impact of its regulations" (See EPA WATCH: March 31, 1992).

In light of the overwhelming problems they face, the representatives of the local governments made several recommendations to the EPA:

-- Write clear regulations that set priorities among those rules which are essential to human health and those which are not;

-- issue regulations which allow for site-specific differences in the environmental problems to be addressed;

-- make sure that EPA health-relat mandates are based on sound scien something that has been lacking in s much of EPA's rule-making;

-- learn how utilities operate and learn how to differentiate between t problems faced by large and small utilities;

-- work closely with local governments in formulating regulations and developing realistic timetables for their implementation; and

-- stop treating local governments as "just another interest group."

Many participants emphasized that the EPA is prone to blame Congress for the regulations it must enforce. "Our people like to hide behind Congress' skirts," an agency source told EPA WATCH. "Sometimes the bills passed by Congress are so poorly worded that we have plenty of flexibility when it comes to implementation, but we don't use tha flexibility," the source added.

"First of Many Steps"

Most participants in the meeting were pleased that EPA officials at least agreed to meet with them to discuss what is rapidly becoming an explosive issue. "This is a critical first step, but many more steps must follow," commented Laurie Westley of the National School Boards Association. She told EPA WATCH that the agency must stop "dictating to us" and try instead to work with local governments to resolve environmental issues.

Mr. Shafroth of the National League of Cities said he was not encouraged by the meeting. Based on his 8-years experience in dealing with the EPA, Mr. Shafroth believes th agency must "change the whole does business" before any progress can be made. He also was skeptical about the ultimate outcome of a follow-up meeting between EPA officials and representatives of such cities as Columbus, Ohio and

Lewiston, Maine held May 15. "We weren't even invited to that meeting," noted.

The gathering storm over unfunded Federal environmental mandates has at last caught the EPA's attention. Some in the agency are acutely aware that unless the problem is dealt with seriously and expeditiously, the EPA will be facing a nationwide backlash such that it has never experienced.

Indeed, for many local jurisdictions, the issue has already reached critical proportions. On top of their financial woes, their non-compliance with Federal environmental regulations makes them liable for suit by their own citizens.

In this connection, the comment of one agency official to EPA WATCH bears repeating: "Nothing changes here without pressure from the outside."

CONCERN MOUNTS OVER INTERSTATE TRASH DUMPING

As more and more American communities find that they have become the dumping ground for out-of-state trash, support is growing in both Houses of Congress for legislation that would place severe restrictions on the interstate transfer of solid waste.

The Environmental Protection Agency estimates that Americans generate 180 million tons of trash every year, or about 4 pounds per person daily. That amount is expected to reach 216 million tons by the year 2000. About 80 percent of today's solid waste is disposed in landfills. But, as the amount of trash grows, the number of landfills is rapidly decreasing.

Disappearing Landfills

In 1960, approximately 30,000 landfills or open dumps existed in the United States. By 1979, this number had declined to 20,000, and today there are only 6,000 still in operation. An October 1989 report by the Office of Technology Assessment estimates that 80 percent of existing landfills will close within 20 years. New regulations for landfills, promulgated by the EPA in October 1991, are expected to further reduce the number of operating sites.

As a result of this decline in disposal capacity, many states in the Northeast, particularly New York and New Jersey, and the West Coast are experiencing a widening gap between the available disposal capacity and the amount of waste being generated. The gap is being filled by long-haul waste transport to disposal sites in the nation's midsection. Currently, the favorite dumping sites are in Indiana, Kentucky, Oklahoma, Nebraska, Kansas, and Montana, with other states fearing that they, too, will soon be added to the list.

Coats Bill

Presently, local communities have virtually no means at their disposal to combat the dumping of interstate trash in landfills in or near their jurisdictions. A bill recently introduced by Senator Dan Coats, Republican of Indiana, is designed to give individual communities the right to say "no" to out-of-state trash. The measure (S. 2384) would make it unlawful for a landfill to receive out-of-state trash without permission of the local governing authority. It allows local communities to negotiate host fees that would directly benefit their communities should they choose to allow out-of-state trash to be dumped in their landfills.

In addition, the affected local government has to notify the Governor of its decision to receive out-of-state waste. Although the state would not be involved in the decision of each community, the Governor would be allowed to disapprove any authorization that would cause the total volume of out-of-state trash to exceed 30 percent of the total volume disposed in the state during the previous year.

The Coats bill does foresee some exceptions to the overall prohibition. To qualify for an exemption, the landfill must be designed and operated in accordance with the recently promulgated Federal landfill regulations as well as comply with all state laws and regulations. Furthermore, it must have received out-of-state garbage during the month of February 1992 pursuant to a written contractual agreement. Landfills qualifying for this exemption could not receive any more out-of-state trash than they received in 1991. The exception would be phased out as of 1997.

The bill would also provide for states to develop a 10-year municipal solid waste state management plan which would be reviewed by the Governor every five years. The EPA would be given six months to approve or disapprove of the state plan. If there is no action during that time, the plan is deemed approved. States would also be authorized to impose a flat fee on all out-of-state trash of up to $10 a ton to be used to implement state solid waste management programs.

In addition, 36 months after enactment of this bill, it would become unlawful for a landfill to receive out-of-state waste if the exporting state does not have a solid waste management plan of its own.

Taking Responsibility for Waste

With over 15 million tons of garbage crossing state lines annually, and with the number of landfills steadily shrinking, the bill's supporters stress the urgency of the situation. "In the future," notes Senator Charles Grassley, Democrat of Iowa, "states can no longer expect to be able to transport their waste half-way across the country to a landfill site in Iowa or Nebraska. . . They are going to have to make accommodations to deal with their waste themselves. They are going to have to make these accommodations beginning now, not ten years from now when the landfill sites will not be available to them." Saying the bill will "force the producers of waste in our nation to be responsible for administering the proper disposal of that trash," Senator Grassley added that "sending it from New York to Iowa is not dealing with it. It is avoidance of responsibility on the part of the waste producer."

Senator Coats' bill is presently before the Senate Environment and Public Works Committee where final language is being hammered out. At this writing, the committee has agreed that four states -- Indiana, Ohio, Pennsylvania, and Virginia -- will be covered by the community right-to-say-no provisions of the bill. However, Senator Coats' office is still trying to see to it that the other 46 states are also included in the measure's final language, otherwise they run the risk of becoming prime dumping targets for out-of-state trash. In the House, Congressman Harold Rogers, Republican of Kentucky, has introduced a bill (H.R. 5089) that also aims to put curbs on interstate transport of solid waste.

LEGISLATORS CALL ON BUSH TO INTERVENE IN PROPOSED EPA RADON RULE

Twenty-seven Members of Congress have called on President Bush to intervene in the Environmental Protection Agency's plans to regulate radon in drinking water. The appeal comes at a time when the EPA is already under fire by local communities for the exorbitant cost of its unfunded environmental mandates.

The May 18 letter from a bipartisan group of legislators was made public by the Alliance for Radon Reduction, a Washington-based organization that is opposed to the proposed radon rule.

The letter states in part, "The Environmental Protection Agency has proposed a very stringent and costly standard for radon in drinking water that will reduce, on average, only about 1 percent of the public's total exposure to radon, according the EPA's Science Advisory Board (SAB)."

Very Small Risk

In a January 29 letter to EPA Administrator William Reilly, the SAB questioned the appropriateness of EPA's Drinking Water Proposal because drinking water "is a very small contributor to radon risk."

With this in mind, the lawmakers asked the President to direct EPA Administrator William Reilly to:

1.) promptly address the issue raised in the SAB's January 29 letter and consider more thoroughly the uncertainties in the parameters and models employed by EPA in these risk assessments;

2.) conduct a full multi-media risk assessment to develop a comprehensive and cost-effective program to reduce radon risk; and

3.) direct the EPA to adopt a radon standard in drinking water that is consistent with the goals of the Indoor Radon Abatement Act of 1988.

Intolerable Costs

Underscoring the intolerable cost of the proposed regulatory standard, the Congressmen noted that a detailed study by public water agencies in California found that implementation of the rule, as proposed, could cost the state more than $3.7 billion. National costs have been estimated at between $12 billion and $20 billion.

Among those signing the letter were Republicans Christopher Cox (California), Guy Vander Jagt (Michigan), and Don Schaefer (Colorado), as well as Democrats Robert Matsui, Vic Fazio, and Leon Panetta (all of California).

EPA WATCH

EPA Watch is a twice-monthly publication of the American Policy Center, a non-profit foundation concerned with public regulatory policy.

Subscriptions to EPA Watch are $89.00 per year.

American Policy Center
[illegible] Parke Long Court
Chantilly, Virginia 22021
(703) 968-9768 - Office
(703) 968-9771 - FAX

Thomas A. DeWeese, President
Elaine A. McCusker,
Executive Director
Dr. Bonner R. Cohen, Editor

2074144148

OUTSIDE COUNSEL

By C. Jaye Berger

Legal Aspects Of Sick Building Syndrome

MOST OF US spend a large part of our day inside buildings. In the case of most office buildings, we are in an enclosed structure which contains a variety of chemicals and substances, some of which may be hazardous to our health. Industrial sites may be manufacturing hazardous substances. At home, we may be exposed to potentially harmful substances via the furniture we own or the location of the building.

Indoor air pollution can occur as a result of the presence of statutorily defined "hazardous substances" or from the accumulation of unacceptable levels of various pollutants such as gases, vapors, radon and bacteria due to inadequate fresh air ventilation. Such pollution can also be generated by asbestos, formaldehyde foam insulation used in building materials, fiberglass duct lining; radon from granite building materials; pentachlorophenol from logs; polychlorinated biphenyls (PCBs) from electrical transformers; and diisocyanate insulation, wall fabrics and pressed wood furniture, plastcizers in rugs, paint, tobacco smoke and microbes in the ventilation system. Copy machines generate ozone. Furnishings such as carpet, drapes, chairs, and sofas may absorb toxics from the indoor air that came from other sources.

These pollutants accumulate because buildings are designed with sealed windows and insulated walls so as not to allow heat to escape. Consequently, not enough fresh air may come in.

Their heating, ventilating and air conditioning systems may be inadequate to clean out these pollutants and recycle in sufficient quantities of outdoor air. Maintenance problems may prevent the building equipment from functioning properly.

Building occupants may develop eye irritation, nausea and headaches, heart problems and cancer, called "sick building syndrome," which may provide a basis for litigation against building owners, managers, contractors, architects, HVAC installers, man-

Continued on page 2, column 3

OUTSIDE COUNSEL

Legal Aspects of Sick Building Syndrome

Continued from page 1, column 2

ufacturers and others who have worked on the building.

Certain substances are clearly toxic and have been acknowledged as such in federal, state, and local legislation. Others, such as tobacco smoke, are arguably so and have been regulated only at the local level in some areas.[1] Asbestos, in particular, is a hazardous substance which has received a tremendous amount of attention and will continue to in the future.

Most sick building cases seem to settle. *Call v. Prudential*, for example, brought last fall in southern California, was settled one month into the trial with the dollar amount kept secret by a confidentiality agreement, making dissemination of information difficult.[2]

The most interesting aspect of the case is the suggestion that strict liability law could prevail in similar cases. The judge ruled that if the jury were to find the heating, ventilation, and air conditioning (HVAC) system in the building to be defective, then the designer and contractor of the building could be subject to liability under a strict liability theory of law. Using this approach, the building would be like a sold product. Presumably anyone in the chain of people who designed, manufactured and installed the HVAC system or its components (architects, engineers, designers, retailers, manufacturers, distributors, contractors, installers, and subcontractors) could conceivably be potentially liable.

In this particular lawsuit, the general contractor is likely to pay the settlement because he constructed the shell and core of the office building and agreed in his contract to indemnify the owner, even though this occurred years after the building was constructed. As would be expected in such cases, everyone in the chain could be sued eventually, either directly or for indemnification — subcontractors, architects, designers and engineers.

The case arose in 1985 when contractors were renovating the interior of an office suite. The plaintiffs were two firms and their employees who occupied one half of the floor and shared the HVAC system. After work began, employees experienced dizziness, nausea, nosebleeds, headaches, disorientation and respiratory problems allegedly due to toxic fumes drifting to their side of the floor from new carpets, furniture and paint on involved with the building can become a party to the lawsuit and it may occur years after the building was constructed. Indemnification clauses in contracts and insurance coverage should all be carefully reviewed before starting on a new project since they can be invoked years after the work is done.

Most sick building cases have their origin in HVAC problems — either bad design or maintenance. Since so many people contribute to the work done on HVAC systems and so many people are affected by it, there are many possible defendants. Building owners can be sued by tenants. Tenants can be sued by employees. Building managers may be liable for maintenance problems. Designers and consultants may be liable for HVAC designs. Interior designers conceivably may be sued for floor plans which do not take into account the combination of air supply and smoking areas.

Legislation

Despite all the controversy about indoor air pollution, it still remains a very unregulated area. There are no real governmental standards for conduct. However, it should be noted that certain problems may be violations of current building codes and can be handled through those agencies.

The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) has issued Standard 62-1989 in which it recommends

Despite all the controversy about indoor air pollution, it still remains a very unregulated area. . . . However, it should be noted that certain problems may be violations of current building codes and can be handled through those agencies.

to prepare "health advisories" that assess the health risks posed by specific indoor air contaminants. The act includes 12 specific pollutants for which the agencies must write health advisories — benzene, biological contaminants, carbon monoxide, environmental tobacco smoke, formaldehyde, lead, methylene chloride, nitrogen dioxide, particulate matter, asbestos, polycyclic aromatic hydrocarbon and radon.

The 12 advisories must be completed no later than three years after the act becomes law. The EPA can choose for health advisories any other indoor air pollutants that could have an adverse effect on human health.

The Act establishes a Council on Indoor Air Quality (CIAQ) to oversee and coordinate federal indoor air activities. There would also be an Indoor Air Quality Information Clearinghouse to distribute building technology and management practice building technology and management practice bulletins and other information. There would be an Office of Indoor Quality within the agency's Office of Air and Radiation.

Both the Mitchell and Kennedy bills would provide funding for research on indoor air contaminants; create a federal office of Indoor Air Quality; set up a grant system for states to develop IAQ programs and establish advisories for hazardous indoor air pollutants. Kennedy's bill was referred to the House Science, Space and Technology Committee, as well as the Education and Labor Committee because of its proposed expansion of the Department of Labor's regulatory authority. Mitchell's bill passed the Senate last year and was referred to the Environment and Public Works Committee.

The EPA would be required to issue a building ventilation standard to be enforced by OSHA. New buildings would have to comply with American Society of Heating, Refrigerating, and Air Conditioning Engineers' requirements.[9]

In an unusual move, the State of Washington's Department of General Administration has issued design requirements for its new buildings in response to sick building syndrome issues.[10] The requirements include an air distribution system that will assure a constant volume of circulating air once the building is occupied; temperature and humidity to be controlled by direct digital controls; and ventilation systems to operate at

the other side. The problem was allegedly intensified due to leaks in the ducts in the HVAC system. The corporations alleged business interruption losses and lack of productivity.

One solution might have been to pump fresh air in to flush out the contaminants, but the building's outside dampers were not big enough to circulate 100 percent fresh air. The HVAC system was capped so that only 10 percent outside air could be brought in.

As with many such cases, the problems may have been caused by a combination of elements: tight construction of the building shell; inadequate HVAC system; untrained building managers; extensive interior renovations by tenants; and the use of synthetic materials and furnishings containing volatile organic compounds such as formaldehyde, toluene and methyl ethyl ketone. This is the type of case we will see more of in the near future.

In *Perkins v. Matomic Operating Company*, nine women filed suit against a building landlord and the management company that maintained the structure's heating and ventilation ducts, when they became asthmatic shortly after their jobs required them to move into a new building in downtown Washington, D.C.[3] The plaintiffs claimed that their illness resulted from an unspecified bacteria or mold that contaminated the air they breathed. The case was settled.

In a suit against Burlington Industries, a jury found in favor of Burlington, a carpet manufacturer, when a Cincinnati couple sued claiming illness from fumes emitted from a new carpet in their office.[4]

Chemicals Misapplied

Illness and litigation can also result from hazardous chemicals which are misapplied. In Houston, Texas, a jury awarded $10.5 million to residents of several apartment complexes over exposure to allegedly misapplied chlordane.[5] The plaintiffs were a test case selected to represent a total of 311 plaintiffs.

The owners and manager of the apartment complexes terminated or limited the services of a licensed pest control operator in April 1985 and instead used three maintenance men employed by the manager of the complex to apply termiticides. They sprayed chlordane above ground, using sprayers, rather than by trenching, drilling or sub-slab injection. There was no notice to tenants. It was sprayed on the buildings themselves and on common areas and near open windows and air conditioning vents. Compensatory and punitive damages were awarded.

This case and others like it, usually rely on negligence theories.

In a sick building cases, everyone

that HVAC systems be designed to deliver at least 15 cubic feet per minute per person (cfm/p) of outdoor air in mechanically ventilated buildings. The standard applies to hotel lobbies and certain retail shops. Higher minimum rates are recommended for most buildings, such as 20 cfm/p for office buildings. This standard is not a legal requirement, however, should it be adopted by national model and local building codes, it would be. However, it is widely adhered to at the present time.

In 1988 the U.S. Senate's Committee on Environmental and Public Works recommended to the full Senate the passage of Senate Bill 1629, known as the "Indoor Air Quality Act of 1988." The bill was not enacted in 1988, but was reintroduced in substantially identical form in March 1989 as Senate Bill 657, 10 1st Cong., 1st Sess., 135 Cong. Rec. §3081 (1989) and again in subsequent years and is now known as the "Indoor Air Quality Act of 1991." There are currently two proposed indoor air quality bills with the same title.

One bill was introduced by Rep. Joseph P. Kennedy (D. Mass.)[6] It proposes that any public or commercial building which receives a permit for construction or for significant renovation must have an HVAC system designed to provide a minimum of 20 cubic feet per minute of outdoor air per occupant to all occupied space and a minimum of 60 cubic feet per minute of outdoor air per smoking occupant where smoking is permitted. Exhaust air from a room where smoking is permitted shall not be returned to the general ventilation system.[7]

OSHA would have the power to fine and imprison offenders. In its current proposed form it provides for research, model building management practices, training and programs and sets ventilation standards for new public or commercial buildings. It is nonregulatory.

The bill also clarifies that any IAQ research, standards, regulations, or enforcement carried out by the EPA that would affect worker safety and health must be done in consultation with officials of OSHA. It would authorize funds for indoor air quality research, grants to the states and a program to assess problem buildings.

A similar bill in the Senate, introduced by Senate Majority Leader George Mitchell (D-Maine),[8] does not create any new authorities to regulate indoor air pollution. It directs EPA to develop a "national response plan" to direct existing authorities to "identify contaminants of concern and specify actions to reduce exposures. EPA in coordination with other federal agencies would make recommendations concerning the establishment of ventilation standards to protect public and worker health.

Senator Mitchell's bill requires EPA

capacity during the 90 day "flush-out period" and for an additional 90 days after employees move in. There are also requirements for testing of furniture and carpets for contaminants.

Washington state has specified the following emission limits for furniture ordered for new buildings:

(a) Formaldehyde emissions may not exceed 0.05 parts per million part of air;

(b) Total VOC emissions may not exceed 0.5 micrograms per cubic meter of air;

(c) 4-phenylcyclohexene emissions may not exceed 1 part per billion parts of air (4-PC is a chemical by-product in carpet adhesive);

(d) Pollutants not specifically mentioned may not produce emission levels greater than one-tenth of the threshold limit values recognized for industrial workplaces;

(e) Total particulates may not exceed 50 micrograms per cubic meter of air; and

(f) Manufacturers must identify any toxins, mutagens, or carcinogens that are off-gassed from their products.

Conclusion

This is a rapidly growing area of the law. It is fraught with tremendous potential for liability since strict liability standards may be used and everyone in the chain of people involved with the building may be included in a lawsuit. Everyone in this chain should have legal counsel on the potential risks so that they can adequately plan in their contracts to minimize liability or seek indemnification from others in the chain. Those affected by the air quality in buildings should be aware of the law in this area so that they too can be protected.

---

(1) McKinney's, Public Health Law, §§ 13 99-n et seq.

(2) *Coll v. Prudential* (No. SWC 909 13, Calif. Super Ct., settled 10/ 15/90).

(3) *Perkins v. Matomic Operating Company*, No. CA 8 9-003 57.

(4) *Beebe v. Burlington Industries*, No. A 8 103-037, Hamilton Co., Ohio.

(5) *Flores v. Winograd*, No. 87-283 4 5-B, Texas Dist. Ct. Harris Cnty.

(6) H.R. 1066, 102d Congress, 1st Session (1991).

(7) New Hampshire, Maine and Washington have imposed operating standards for state office buildings only. See *Asbestos Abatement Report*, Nov. 12, 1990, p. 6.

(8) S. 455.

(9) AHSRAE Standard 62-1989 is a voluntary standard for architects, engineers, and building owners and operators which prescribes minimum ventilation rates for various settings, such as offices, stores, meeting rooms and other types of rooms.

(10) "Indoor Air Quality Specifications For Washington State Natural Resources Building and Labor & Industries Building," Washington State Dept. of General Administration, East Campus Plus Program, Dec. 1989.

C. Jaye Berger, *of C. Jaye Ber Law Offices in New York City sp. izes in building construction, real e. and environmental law.*

E

Like many studies before it, EPA's recent report concerning environmental tobacco smoke allows political objectives to overwhelm scientifically objective research.

The EPA report is filled with unsubstantiated claims, lowered standards and statistically questionable devices. Never before has EPA proposed to classify a substance as a Group A carcinogen on the basis of such weak and inconclusive data. EPA's methodology on ETS sets a precedent that could threaten the use of such common products as chlorinated water, diesel fuel, numerous pesticides and more. You do not have to approve of smoking to reject to the EPA's decision to misuse scientific data in order to support predetermined conclusions.

WHAT OTHERS ARE SAYING ABOUT THE EPA AND ITS FLAWED REPORT ON ENVIRONMENTAL TOBACCO SMOKE (ETS)

"The EPA was not unaware of the fact that the tobacco industry is an extremely appealing target with few allies in the public arena."

-- Bonner Cohen, Editor EPA Watch
Investor's Business Daily, January 28, 1993

"But the EPA's preemptory attitude notwithstanding, its study is hardly unassailable. In fact, it appears that the EPA manipulated the study and lowered scientific standards to reach a politically desirable conclusion. The implications for both smokers and nonsmokers could be devastating."

-- Matthew C. Hoffman, The Competitive Enterprise Institute
The Washington Times, January 25, 1993

Regarding the EPA's lowering the confidence internal from 95 to 90 percent, James Enstrom says "that doubles the chance of being wrong." He adds that "in most cases, a scientist would never do this sort of thing... It's surprising that they (EPA) would try to get away with it."

-- James Enstrom, a professor of epidemiology at the University of California, Los Angeles
Investor's Business Daily, January 28, 1993

"When it discovered that ETS could not be classified as a carcinogen under long-standing scientific accuracy guidelines, the guidelines were changed. Bothersome data were averaged away through a questionable statistical averaging technique employed by the EPA for the first time on ETS. The National Cancer Institute Study simply was ignored altogether. Even with all this fudging, the EPA cannot explain why its claim that ETS causes as many as 3,800 lung cancer deaths per year, which would be a large percentage of lung cancers among non-smokers, is not supported by real case histories.... The implications of the EPA ruling go far beyond tobacco. If it can skew science on ETS and get away with it, then what happens when another substance is deemed politically incorrect?"

-- *Richmond Times-Dispatch*, January 11, 1993

The EPA's use of a "one-tailed" analysis as opposed to a "two-tailed" one, is more like going to an 85 percent level, "which would triple the chance of a mistake due to chance."

-- Joel Hay, a health economist at the University of Southern California who teaches statistics
Investor's Business Daily, January 28, 1993

Regarding the EPA's lowering the confidence interval from 95 to 90 percent [in the report regarding ETS], Michael Gough says, "You cannot run science with the government changing the rules all the time."

-- Michael Gough, program manager for biological applications for the Congressional Office of Technology Assessment
Investor's Business Daily, January 28, 1993

"Let me remind you that the relative risk we are talking about here [for chlorinated water] is higher than the relative risk for ETS. The difference is that nobody likes ETS. It's easy for people to say "Oh, let's get rid of that smoke; it's really nasty and horrible," but in fact, the relative risk we are talking about here in the highest exposed group in [Ken Cantor's study] was higher than the relative risk, for the average, for lung cancer for someone married to a smoker."

-- Dr. Devra Lee Davis scholar in residence, National Research Council of the National Academy of Science Disinfection by products Technical Workshop, The Resolve Center for Environmental Dispute Resolution, November 4-5, 1992, Washington, DC.

"To me, it's frightening that they could make such a case out of such a small risk factor when you've got so many variables."

-- James Enstrom, a professor of epidemiology at the University of California, Los Angeles
Investor's Business Daily, January 28, 1993

Regarding the EPA's decision to exclude the National Cancer Institute study released in November that would have resulted in no statistically significant findings, Alan Gross, professor of biostatistics the Medical University of South Carolina in Charleston says, "when one new study can throw it from nonsignificant to significant and another can throw it back again, you're not demonstrating a clear trend."

-- Alan Gross, a professor of biostatistics at the Medical University of South Carolina in Charleston
Investor's Business Daily, January 28, 1993

"Problems with the EPA ETS assessment include: (i) over-reliance on exposure data drawn from people's recollection of their exposure to other people's smoke over many decades; (ii) bias in the data, due to a failure to properly account for dietary factors that affect cancer rates."

-- John Shanahan, The Heritage Foundation
The Washington Times, Dec. 6, 1992

"The possibility of cancer from secondhand smoke is a small added risk, probably much less than you took to get here through Washington traffic."

-- Dr. Morton Lippmann, Chairman of the EPA SAB Committee at news conference discussing the EPA report on ETS

"The EPA's disregard for scientific standards threatens to open up American homes and offices to costly and intrusive regulations, and creates a precedent that might be used to indict other aspects of our living environment. For example, the EPA has investigated Electromagnetic Fields (EMF), which are produced by many household applications, to determine if they cause cancer. Also under investigation is shower-taking; the EPA fears that harmful carcinogens are released as a gas by shower water. If such phenomena are classified as cancer-causing, Americans could find their homes regulated by the EPA bureaucracy."

-- Matthew C. Hoffman, the Competitive Enterprise Institute *The Washington Times*, January 23, 1993

"It is a crusade I well understand. As a nonsmoker who intensely dislikes the smell of other people's fumes, and as a father of a newborn daughter, I have strong personal objections to having my family subjected to secondary smoke. Yet, ironically, I cannot in good conscience condone EPA's crusade."

-- John Shanahan, The Heritage Foundation
The Washington Times, Dec. 6, 1992

"No matter how you adjust the data, the risk relationship for ETS and lung cancer remains very weak. I am a non-smoker and I sometimes find smoke of others annoying. But that is different from saying it is a health hazard to non-smokers."

-- Dr. Gary Huber, Professor of Medicine at the University of Texas Health Center

A Case History:
EPA's Flawed Study on Environmental Tobacco Smoke (ETS)

In its December 1992 report, "Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders," the EPA claimed that "secondary smoke" is responsible for as many as 3,000 lung cancer deaths in the United States each year. The much-criticized report has considerable flaws.

- o 24 of the 30 studies reviewed by the EPA showed no statistically significant correlation between secondary smoke and cancer, and the remaining six showed a correlation too small to rule out other factors affecting the incidence of cancer.

- o One of the largest and most well-regarded studies in history, published in the November 1992 issue of *American Journal of Public Health*, showed **no** statistically significant increase in lung cancer risk for non-smokers and was **ignored** by the EPA.

- o The EPA changed the confidence interval for these studies from 95 to 90 percent -- thereby doubling the margin for error while also satisfying the agency's desire to demonstrate increased risk.

- o The EPA conducted no new or original research.

- o The EPA's data consists of a compilation of existing studies of the recollections of non-smokers married to smokers.

- o The EPA itself admits that an estimated 80 percent of lung cancer is caused by factors other than ETS.

- o The EPA report relies only upon studies in the homes of smokers, and cannot legitimately be used to support smoking bans outside the home.

- o Cigarettes are not the only source of environmental smoke, which is also produced by things such as fireplaces and cooking equipment and processes.

- o The EPA had a contract with an anti-smoking firm to produce the ETS workplace policy guide, which was written before the EPA's risk assessment for ETS was finished, implying that the EPA didn't even use bad science -- it used **no science**.

The EPA's risk assessment for ETS once again calls into question the Agency's scientific methods and its use of science to promote "politically correct" policy.

APR 5 1993

MINNEAPOLIS STAR AND TRIBUNE APR 5 1993

Smoking at work is being extinguished

By Tom Meersman
Staff Writer

1A

Smoking in the workplace seems to be well on the way to becoming extinct for an increasing number of Minnesotans. Some of the state's largest companies and government bodies have taken action since Jan. 1 to ban all smoking in their offices, cafeterias, vehicles and even entrances.

Last Tuesday, the Hennepin County Board voted to prohibit smoking in dozens of buildings, affecting nearly all of its 11,000 employees. The Minneapolis City Council is close to a similar decision that would affect 4,000 to 5,000 employees. The Metropolitan Airports Commission recently eliminated smoking at Minneapolis-St. Paul International Airport effective April 19. And several large Twin Cities shopping malls will become smoke-free May 1.

The decisions have come largely in response to employee complaints and a January assessment by the Environmental Protection Agency (EPA) that second-hand smoke is a class A carcinogen that causes 3,000 lung cancer deaths each year in nonsmoking adults and serious respiratory problems in hundreds of thousands of children.

Smoke continued on page 9A

"There's a growing recognition that you can't just divide a room in half and call it smoke-free," said Rep. Phyllis Kahn, DFL-Minneapolis, author of the 1975 Minnesota Clean Indoor Air Act. That law is responsible for the current system, which allows smoking in workplaces, stores, restaurants and other public places only in specially designated areas.

The change in recent months has been to prohibit all smoking in buildings, or in the case of shopping malls, to allow it only in a handful of bars and restaurants.

An increasing number of companies also are moving toward smoke-free environments. Graco Inc. announced in January that it would be going "tobacco-free" July 1. Kristin Hyland, Graco health-care and wellness administrator, said the company had been studying the idea for some time and had surveyed its 1,560 employees on the matter.

"We found that 76 percent of our workers believe that smoking by their coworkers is a serious problem," Hyland said. "The EPA report was a major consideration in our decision. It was the straw that broke the camel's back. We just couldn't ignore it any more."

Hyland said Graco considered providing a special smoking room in each of its 10 buildings. But she said it would cost $250,000 to $300,000 to equip the rooms with adequate ventilation so that the smoke wouldn't filter into other working areas.

Hyland said Graco's enforcement of the smoking ban will be stringent. An employee caught smoking a cigarette or using tobacco in other ways will receive a written warning, and a second violation will result in termination.

Other firms are also moving more quickly toward greater restrictions on smoking in the workplace. Judy Knapp, executive director of the Minnesota Smoke-Free Coalition, said she has recently received three to four times the usual number of calls from firms interested in smoke-free programs. "Before, we were out there pushing it to these companies, and now it's them calling us. They were aware of it and concerned about it, but now they're taking action."

Among other firms either considering or phasing in changes in their smoking policies are Cub Foods, Target, IDS Financial Services and the Star Tribune.

Barbara Hughes, associate managing director at the American Lung Association of Minnesota, said the increased concerns about second-hand smoke are coming more from large firms than small- and medium-sized companies. "I'm sure it's a fear of liability that's driving a fair bit of the corporate response," she said. "As long as there's that authority of the federal government behind that kind of pronouncement, people are saying this is another asbestos. We've been warned." Asbestos, a fiber formerly used as insulation, is now acknowledged as a carcinogen.

The fear, Hughes said, is that nonsmoking employees who develop lung cancer may have grounds to sue their employers for allowing second-hand smoke in the workplace.

Brennan Dawson, spokesperson for the Tobacco Institute, a national trade association representing cigarette manufacturers, said the liability issue is exaggerated. "What you find in tobacco smoke, with the exception of nicotine, is not unique to tobacco smoke," she said.

Many of the chemical byproducts of cigarettes are similar to what comes from carpeting, paint and other items, Dawson said. "Since exposures to these things are very ubiquitous in society, it would be very difficult for a plaintiff to specify what came from tobacco in an office."

But Jack Tunheim, Minnesota deputy attorney general, two weeks ago offered a legal opinion that "employers do face a potential liability by allowing their employees to be exposed to second-hand smoke in the workplace."

It's still difficult for an individual to demonstrate a causal connection between illness and breathing smoke, Tunheim explained, but there's no question that second-hand smoke "has become more than simply a health issue. Now it's a liability issue, and for companies that want to eliminate all legal risks, there is an easy way to do that" by providing stricter regulations on smoke in the workplace.

Not all firms are choosing to eliminate smoking. The 3M Co. tightened its policies Jan. 1 to prohibit smoking in cafeterias, but offers a designated smoking room with special ventilation in most of its buildings nationwide. "Nobody needs to be exposed to secondary smoke unless they choose to walk into those rooms," said Jim Jensen, the company's vice president of office administration.

Jensen said he doubts that the EPA assessment will prompt 3M to ban smoking outright. "We don't believe we have the responsibility or the right to decide whether employees can smoke or not," he said, but the firm has increased the financial assistance it offers workers and their family members to enroll in smoking-cessation programs.

2074144162

PITTSBURGH POST GAZETTE, Friday, March 26, 1993

Smoke signals

The message from the anti-smoking lobby is intolerance

In the continuing battle over smokers' privilege vs. non-smokers' rights, the tyranny of the growing smoke-free majority is being felt in numerous ways.

Building owners, rather than provide limited and dignified smoking areas, force workers onto the curb to catch a few desperate puffs at lunch or during breaks. The same policy was recently introduced at Pittsburgh International Airport, and now the inevitable cloud of smoke greets incoming patrons at the sidewalk.

•

Legislation, much of it ill-advised, tries to go after a smoker's unhealthful habit in places or ways that the law can't reach. State Rep. Peter Daley of Washington County, for instance, has introduced an unenforceable bill that would outlaw smoking in one's car when children are present.

Now the other chamber weighs in with an equally misguided proposal from Sen. Stewart Greenleaf of Montgomery County. This one would ban smoking from bars, theaters, museums, offices, factories and hotels.

It's not that we doubt the Environmental Protection Agency's numbers on the hazards of second-hand smoke. It's not that we dispute the surgeon general's desire for a smoke-free workplace. Smoking is unhealthful — and not just to those doing the puffing.

Our point is that there are other, better ways to combat smoking (which for many people is an addiction). One is education, which should be early and intense. The other is taxation, at both the federal and state levels. Combined with the growing social sanction against smoking, these strategies are working. In 1965, the year after the U.S. surgeon general's historic report linking smoking to cancer, 42 percent of American adults smoked, compared to 26 percent in 1990.

Last week, a nationwide Associated Press study reported that tax revenues from tobacco products are down in 20 states, were down in 11 others before those states raised taxes and are generally static in the remaining states. A West Virginia tax official told the AP: "Every time the cigarette tax is increased, a few more people say, 'It's time to quit.'"

Despite this progress in dealing with a known health hazard, some members of society, in their zeal to eradicate smoking, have shown a mean streak of intolerance and self-righteousness. (Just to clear the air, this editorial was written by a non-smoker and represents the view of a nearly smokerless editorial board.)

While heart disease, stress and lack of exercise also take their toll on the population, some lawmakers and lobbyists are obsessed with designing statutes that would outlaw smoking — and not merely restrict or regulate it — in restaurants, offices, hotel rooms, stadiums and, now, cars and bars.

Obviously, there is no such thing as second-hand heart disease, while there is second-hand smoke. But anti-smoking crusaders aren't content to keep smoking confined to designated areas, away from nonsmokers (who are, of course, the picture of health). They want it out on the curb.

As for the specifics of the Greenleaf bill, it's one thing to require a restaurant to offer a non-smoking section, but quite another to force a bar owner to ban smoking in his establishment, particularly when drinking and smoking, for much of his clientele, go hand in hand.

Why should a Holiday Inn risk losing the patronage of smokers when it has worked out its own smoking conflict by offering both smoking and non-smoking rooms?

Why should Heinz Hall be forced to go smoke-free when the ventilation system has seen to it that not a wisp of smoke intrudes from the lounges into the concert hall?

Why shouldn't the owners of these businesses be free to manage the tensions between smokers and non-smokers in their individual establishments, and face the consequences as they would with any other business decision?

•

If the anti-smoking lobby feels tobacco has become so harmful to the general population that no accommodation should be allowed, it should make a case for outright prohibition. As it is, the Greenleaf measure is an overreaching plan that tramples personal freedom and the autonomy of business owners — and in a cause that is on its way to victory anyway.

Tough Measure On Smoking In Berkeley

By T. Christian Miller
Chronicle Correspondent

Berkeley is set to join a growing number of East Bay cities that have taken tough stands against smoking with a proposed ordinance appearing before the City Council tonight that bans lighting up in virtually every city business.

The ordinance, expected to be passed easily, is similar to anti-smoking laws in several other cities, including one in Oakland that is scheduled to go into effect Thursday.

If the measure passes, smoking would be banned in all workplaces and restaurants in the city except for bars and bingo parlors. Violators would face fines of as much as $100.

"This is a health issue, not a rights issue," said Karen Young, the city's tobacco education coordinator. "Numerous studies have found that tobacco smoke is a major contributor to indoor air pollution and that breathing secondhand smoke is a cause of disease."

Businesses that would be hurt by the ban could apply for an exemption. Otherwise, the only smoking allowed in public buildings, restaurants and workplaces will have to take place in specially designed areas with ventilation systems separate from the rest of the building.

The ordinance strengthens an existing city law that bans smoking in public places and requires restaurants to set aside 50 percent of their seats for nonsmokers.

Not everyone is happy with the proposal. More than 80 city employees signed a petition against the ban, requesting instead that the city construct a special room for those who want to smoke.

"We are conscientious smokers and don't want to infringe on anyone's right to breath clean air," said Dana Coleman, herself a smoker and president of the Berkeley clerical workers' labor union, local 790.

The City Council will also consider tonight a controversial measure to license homeless people to wash car windows in the city's parking lots for spare change.

THE EPA RISK ASSESSMENT OF ENVIRONMENTAL TOBACCO SMOKE

EPA's Risk Assessment of Environmental Tobacco Smoke: A Critique

- The EPA ETS risk assessment is not original research or a new study. It is a review of existing studies on ETS and two health endpoints: lung cancer in adults and respiratory effects in children.

- The ETS risk assessment reaches its conclusions through a selective and statistically flawed analysis of the available research, ignoring the fact that some 80 percent of the ETS studies fail to support the claim that ETS increases the risk of lung cancer in nonsmoking adults.

The EPA ETS Risk Assessment: Implications for the Workplace and Social Settings

- The ETS risk assessment is not a workplace study, but is based instead solely on studies of nonsmokers assumed to be exposed in the home. Accordingly, claims that the report supports smoking bans in public places are totally without scientific foundation. Of 14 studies which specifically examined ETS exposure in the workplace, 12 report no statistically significant increase in risk.

- EPA has no regulatory authority over workplace exposures. The Occupational Safety and Health Administration (OSHA), which does have jurisdiction over worker exposures, currently is considering the ETS issue along with a general review of indoor air quality in the workplace. OSHA has made no decision on ETS regulation in the workplace, but has on two prior occasions specifically declined to regulate workplace smoking based on the inadequacy of available data on ETS in the workplace.

EPA Group A Carcinogen Classification: Practical Implications

- EPA's determination to classify ETS as a Group A carcinogen generates no general duty to eliminate ETS exposure. A number of common substances designated by EPA as Group A carcinogens, such as benzene, are not

banned, but, rather, are subject to permissible exposure levels set by OSHA.

- Additionally, elimination of ETS will not prevent exposure to the substances that make up ETS, which have a variety of indoor sources -- including fireplaces and cooking equipment and processes.

Legal Significance of EPA's Classification of ETS as a Group A Carcinogen

- The EPA risk assessment is not substantively different from previous reviews of ETS by the U.S. Surgeon General and the National Academy of Sciences, so it does not significantly alter the legal landscape under state workmen's compensation and common-law liability theories. The risk assessment is simply one more report; it has no legal significance in itself.

- Claimants' chances of prevailing in ETS litigation are not substantially enhanced by EPA's designation of ETS as a Group A carcinogen. Claimants still will have to demonstrate that ETS is the specific substance that caused their illness -- a difficult undertaking, since even EPA estimates that 80 percent of lung cancers are caused by other substances -- and that the illness was caused specifically by workplace exposure, rather than exposures in other settings.

The ADA and Employer Liability

- Claims that the Americans with Disabilities Act of 1990 requires employers to ban or severely restrict workplace smoking based on employee sensitivity are unsupported. Nothing in the Act itself mandates the imposition of any smoking policy whatsoever. Further, even if an individual could establish a disabling "hypersensitivity" to tobacco smoke, covered entities simply would be required to make "reasonable accommodation" of the individual's needs. Such accommodation does not require a complete ban or severe restrictions.

EPA Risk Assessment: The Credibility Gap

- The ETS risk assessment is the latest in a long line of alarmist health reports from an Agency that has been heavily criticized for poor science and for science driven by policy considerations. An expert panel convened by the EPA Administrator concluded just last year that EPA science is "of uneven quality," and that it is frequently perceived as "adjusted to fit policy." The Agency's dioxin risk assessment and its treatment of Alar, chlorinated water, and a host of other substances are all recent examples.

- EPA's scientific procedures, including the procedures followed in its treatment of the ETS issue, are under investigation by the General Accounting Office, the investigative arm of Congress.

- The EPA Inspector General also is reviewing EPA's contract with a well-known anti-smoking firm to produce the ETS workplace policy guide, which apparently was issued on a sole-source basis in violation of federal contracting requirements. The policy guide, which recommends workplace smoking bans, was inappropriately prepared before the risk assessment was completed, strongly suggesting that EPA's policy was set before any scientific rationale for it had been established.

CDC's ETS Media Campaign

- The ETS advertising campaign developed by the Centers for Disease Control in response to the ETS risk assessment is false and misleading propaganda. The claims made in the CDC campaign are scientifically indefensible.

EPA's treatment of environmental tobacco smoke -- the smoke to which a nonsmoker may be exposed -- is without Agency precedent.

EPA uses a questionable approach to reach its conclusions. The document suggests the plausibility of its conclusions by pointing to an assumed similarity between ETS and mainstream smoke -- that which the smoker inhales -- even though the report indicates they are different.

- The draft report concedes substantial physical and chemical differences between the mainstream tobacco smoke to which smokers are exposed and the ETS to which nonsmokers may be exposed. The draft also concedes enormous differences in the levels and routes of exposure. Never before has EPA ignored such differences in proposing to classify a substance as a Group A carcinogen.

- An untenable precedent will be set if ETS is classified as a Group A carcinogen based on comparisons of the smoke to which a smoker is exposed and nonsmoker ETS exposure. If containing any of the same substances as mainstream smoke is a sufficient basis for such a classification, then the air in every building and home might qualify as a Group A carcinogen. Water, hamburgers, peanut butter and many other everyday products and foods also could qualify.

The majority of the lung cancer studies, including the most recently published ETS/lung cancer study -- one of the largest ever conducted -- report no statistically significant increase in risk.

- If the most recent studies are added to EPA's lung cancer data base, the risk assessment's overall risk for EPA's report would be statistically nonsignificant.

- Over two-thirds of the studies reviewed in the EPA document do not report a statistically significant association between exposure to ETS and lung cancer among nonsmokers. Never before has EPA proposed to classify a substance as a Group A carcinogen on the basis of such weak and inconclusive data.

- EPA acknowledged earlier that the U.S. studies do not convincingly support the contention that ETS exposure increases nonsmoker lung cancer risk. To reach a contrary conclusion, this report adopts changed standards and statistical devices to reach a contrary -- and scientifically questionable -- conclusion.

- The report ignores workplace and male exposure data -- data that do not indicate an association between exposure to ETS and lung cancer -- apparently because the majority of these data do not fit the report's conclusion.

The EPA report also discusses respiratory disorders in children. The first draft document acknowledged that the pertinent studies were too equivocal to support a causal inference. In contrast, the revised report selectively reviews the studies and fails to account for many of the flaws and inconsistencies it had earlier acknowledged.

Secondhand Smoke Danger Remains Unproved

By RICHARD MINITER

Not since Carrie Nation burst into saloons smashing bottles and boozers alike has America seen a moral crusade like the one against smoking and smokers.

Like most prohibition efforts, the anti-smoking movement has little patience for civil liberties or limited government. Despite substantial taxes and regulations on tobacco, anti-smoking activists now want smoking banned in all "public places." This includes not only public parks and government buildings, but privately owned airlines, offices and taverns. Anywhere the public congregates is fair game for strict anti-smoking rules.

The anti-smoking crusaders are winning. Last year, Congress forbade smoking on all domestic flights. Some states even prohibit smoking on buses and public transportation.

San Luis Obispo, Calif., recently became the first city in America to enact a comprehensive ban on smoking in the workplace. Other cities will surely follow.

New York City outlawed cigarette vending machines (except in bars) last October. California is using its 25-cent-a-pack cigarette levy to fund a $28.6-million advertising campaign against smoking. At least 44 states and 297 cities and counties restrict or forbid smoking in some manner. The growing trend toward eliminating smoking in the workplace will affect over 50 million Americans.

The heavy mantle of anti-smoking morality rests on two slim legs: (1) that a person should not be permitted to take any risks no matter how small, and (2) that nonsmokers are harmed by sharing the same air with smokers. "Secondhand smoke" is said to increase the cancer risks of nonsmokers and, therefore, violates the rights of nonsmokers.

The idea that the government should decide which risks people should take is absurd. The amount of risk someone will accept varies from person to person. Some people are willing to risk death and dismemberment climbing mountains or forging steel, while others get sick at the sight of a roller coaster.

Averaging the daring natures of some with the cautious inclinations of others would not satisfy either group. Therefore, any law regulating what risks people may take is bound to be somewhat arbitrary and open to political pressure. So it is with smoking.

Besides, the government doesn't have a good track record for assessing risk. Hundreds of millions of dollars have been squandered by the Environmental Protection Agency and other federal agencies regulating dioxin. While at higher doses dioxin is toxic, at the level of 15 parts per quadrillion it is

SURGEON GENERAL KOOP

harmless. "It's the equivalent of a few drops of vermouth in a martini the size of Lake Erie," as one wag put it. Yet that's the level that the EPA regulates dioxin.

The most irresponsible facet of the secondhand smoke charge is the idea that nonsmokers working alongside smokers face almost the same risk of contracting lung cancer as a three-pack-a-day Marlboro man. While few deny that smokers face a heightened risk of contracting lung cancer, the claim that so-called "secondhand smokers" face a comparable risk is neither sensible nor scientific.

Breathing someone else's cigarette smoke is not the same as smoking yourself. When a smoker draws on a cigarette he receives a concentrated dose of smoke, inhales deeply, retains the smoke briefly in his lungs, and then exhales. The exhaled smoke then diffuses in the air. His nonsmoking companion breathes in a much diluted dose of smoke and doesn't inhale as deeply or as long.

Unsurprisingly, the link between secondhand smoke and disease is weak at best. While then-Surgeon General C. Everett Koop's 1986 report stated that "involuntary smoking [sic] is a cause of disease, including lung cancer, in healthy nonsmokers," Koop admitted in the report that the data were sparse. In fact, no study exists which definitively demonstrates an unambiguous link between secondhand smoke and lung cancer.

"Unsurprisingly, the link between secondhand smoke and disease is weak at best. Then-Surgeon General C. Everett Koop's 1986 report on the subject admitted that the data on the effects of secondhand smoking were sparse."

In a survey of recent studies concerning the "health effects of involuntary smoking," Doctors V. K. Mahajan of the Medical College of Ohio and Gary L. Huber of the University of Texas Health Center conclude that "probably no other aspect of the tobacco and health issue has had more shoddy research and less reproducible results published." They add:

"...[U]nlike the direct health effects of tobacco smoking on the voluntary consumer, only sparse and not nearly as solid scientific data are available on the health effects of passive smoke inhalation. Far too frequently, reports receiving widespread dissemination have not undergone careful scientific scrutiny.... A significant number of those studies that pertain to the health effects of smoking in the non-smoker... are poorly designed, structurally unsound, uncontrolled, and have major statistical problems."

> "In a study from France, it was reported that nonsmoking wives, aged 40 years or older, of smokers also had small reductions in some pulmonary function parameters, although the finding was not consistent across all segments of the population. Eight other studies, however, some of which were quite large, have reported essentially no abnormalities in pulmonary functions in persons chronically exposed to the environmental tobacco smoke of others.
>
> "In summary, therefore, most of the data available indicate that the effects of environmental tobacco smoke on airflow function of passively exposed adult nonsmokers varies, as was summarized by an NIH [National Institutes of Health] Workshop Conference, from negligible to quite small."
>
> —Mahajan and Huber, *Seminars in Respiratory Medicine*, Volume X, No. 1

Small wonder that the *New England Journal of Medicine* recently ran an editorial advising doctors to be cautious in using secondhand smoke studies as the basis for advising lifestyle changes for patients. Many "confounding variables," the prestigious medical journal warned, affect the outcome of such studies.

Although there are thousands of studies of effects of tobacco on smokers, only 26 measure the effects of secondhand smoke. And only a handful of these 26 establish a statistically meaningful link at all.

Here is where the "confounding variables" come into play. Socio-economic class, family history of lung cancer, and even milk intake and physical inactivity have a higher correlation with lung cancer than secondhand smoke. In fact, the correlation between secondhand smoke and lung cancer is so slight that it falls within the range of statistical error in some studies.

Secondhand smoke studies have other shortcomings. Most studies examine only people already stricken with lung cancer and fail to distinguish nonsmokers from former smokers. And nearly all of the studies surveyed wives or children who lived with chronic smokers—not exactly a good measure of workplace exposure.

As Jacob Sullum observes in *Reason*, "there is very little reason to believe that ETS [environmental tobacco smoke] exposure in the workplace is hazardous. And despite the impression given by anti-smoking activists, there is no evidence that casual, short-term exposure such as that encountered in a restaurant or on an airplane poses a risk to non-smokers."

One of the most thorough studies of passive smoking in a non-home environment—involving passengers on airplanes—was conducted by Dr. Sorg Baker, former science advisor at the Environmental Protection Agency and senior staff officer at the National Academy of Sciences.

In an analysis prepared for the Department of Transportation, Baker and his team found "risks from exposure to ETS are not terribly significant," and that the evidence "doesn't really drive one to force a regulation into existence immediately."

The real health problem in air travel, according to the Baker researchers, was exposure to cosmic radiation in high-altitude flights. Yet this finding was ignored as Congress rushed to prohibit smoking on domestic airlines. Obviously, the regulations in this case were driven by anti-smoking fervor, not scientific data.

Protecting public health is a worthy goal, but nonsmokers already enjoy a wide spectrum of safeguards. Awareness of the health hazards of smoking is widespread. High taxes and warning labels discourage smoking. Advertising bans, while misguided, have contributed toward the average 3 per cent per year decline in cigarette sales. And smoking isn't chic anymore.

Certainly private solutions are not lacking. Many companies have drawn up their own agreements to keep smoking out of the workplace. About 60 per cent of employers restrict smoking and 25 per cent ban it outright, according to a 1989 study by the Administrative Management Society. Blue chip corporations such as Boeing, Adolph Coors, and the Ford Motor Co. restrict smoking on the job. Concerned workers don't have to trek to city hall to clear the air, just upstairs to see the boss.

But anti-smoking crusaders don't want people to work out their own agreements on smoking. They suffer from an addiction of their own: legislating morality. It's time they went cold turkey. ■

Mr. Miniter is a non-smoking analyst at the Competitive Enterprise Institute, Washington, D.C.

Christopher Caldwell

Smoke Gets in Your Eyes

But it probably doesn't give you cancer, despite what the EPA says.

Proving dangers to non-smokers from "environmental tobacco smoke" (ETS, or "passive smoke") has not been easy for anti-smoking activists. While every nag in every airport waiting room complains about her "smoke allergy," no study has ever established allergenic properties in tobacco smoke. While children have been shown to be sensitive to ETS, it has long been known that children are more sensitive to *anything* in the air, from ragweed to dust, and most people would grant to parents, not the state, the responsibility to keep them away from pollutants. Attempts to link heart disease to ETS have not borne fruit. And in 1986, a Yale University medical school study of asthmatics exposed to ETS showed that not only did the smoke not cause any acute respiratory risk—it actually decreased bronchial constriction.

"Even with the 'rigged jury' of standard statistical procedures," wrote Dr. Kevin Dowd in the June 1991 issue of the British journal *Economic Affairs*, "it turns out, contrary to popular myth, that there is still no convincing evidence in favour of the adverse effects of passive smoking." Yet, a year previous to that, the EPA, having failed in its attempts to establish clear-cut and readily confirmable proof of the harms of ETS, had used a complicated and irregular scientific route to claim a minimal link. Patching together spousal studies, the EPA claimed that women married to smokers were 1.28 times as likely to contract lung cancer—and that ETS was to blame. The EPA leaked a draft risk assessment describing environmental tobacco smoke as a "known human carcinogen." The months since have seen anti-smoking activists calling for more legislation in public places, and tobacco interests and libertarians pointing out gaps in what they say is dishonest and politicized science.

Exposure to environmental tobacco smoke is difficult to measure by increments. First of all, although irresponsible scientists have tried, one can't extrapolate lung cancer risk from the dosages active smokers take into their lungs. For one, the substances are chemically and quantitatively different: "active" tobacco smoke is made up of smoke particles—and plenty of them—while "passive" smoke is highly diluted, with a partially vaporous content. In addition, "active" smokers take deep breaths through their mouths and hold the smoke in their lungs. "Passive" smokers breathe largely through the nose, which filters out impurities.

While blood tests and urine samples do show that non-smokers absorb nicotine from the smokers around them, it

Christopher Caldwell is assistant managing editor of The American Spectator.

is in such small doses that this can be seen as a triumph more for modern scientific calibration than for any cause-and-effect relationship. It's rather like remarking that every cubic foot of ocean water contains ash from Mount Pinatubo, or that almost all of the paper money in Miami contains traces of cocaine—it's true, impressive, and meaningless. In real-life settings, the dangers of particulates are even less impressive. A 1978 study in the *International Archives of Occupational Environmental Health* claimed that it would take 11 to 50 hours in an extremely smoke-polluted environment to absorb as much nicotine as a smoker takes in from one cigarette. In Britain, where smoking was legal on subway trains until the mid-1980s and was until recently permitted on buses, the Freedom Organization for the Right to Enjoy Smoking Tobacco estimated that one would have to ride in the smoking section of a bus for four-and-a-half weeks to be exposed to one cigarette's worth of nicotine.

It's possible to measure the "respirable suspended particles" that surround a smoker, but very difficult to distinguish them from other particles that may be in the air from cooking, rug fibers, car exhaust, air-conditioning, etc. Pro-smoking activists like to mention "sick building syndrome" as an major contributor. At first glance, calling poor ventilation a "syndrome" and a health threat appears as hysterical as using the word "choc-a-holic" to claim that the science-fictionesque terrors that afflict the true addict apply to someone who is basically a glutton. But the 1976 Legionnaires' disease outbreak is a sick-building incident that cost twenty-nine lives, and occupational studies tend to bear the pro-smokers out: in only 2 to 4 percent of indoor air quality problems is tobacco smoke the major culprit.

"Active" smokers take deep breaths through their mouths and hold the smoke in their lungs. "Passive" smokers breathe largely through the nose, which filters out impurities.

How much particulate matter enters the air due to smoking? Anti-smoking activists would have us believe a tremendous amount. Dr. David Burns, testifying before the Los Angeles City Council Health Committee, argued that particulates, "when smoking is allowed, [increase] about ten-fold from the background levels." This is simply falsehood in the service of anti-smoking propaganda—a 1990 study of smoking sections in forty-one restaurants showed that only half of the particulates were from smoke; another study, from 1988, put the figure at 28 percent. As far as eating in restaurants is concerned, the cuisine might be as much of a risk as the smoke: a 1987 Shanghai study by Dr. Y.T. Gao and three researchers from the National Cancer Institute found that nonsmoking women who cooked with rapeseed oil had an incidence of lung cancer 2.5 times as high as those who cooked with soybean oil.

Given the ineffectiveness of exposure measurements, researchers have sought a link in epidemiological studies—studies based on the incidence of affliction across large populations. Here is what the thirty studies that have been conducted to date report: twenty-four show no statistically significant link at all; six show a weak link; nine show that being married to a smoker actually *decreases* one's chance of contracting lung cancer.

One would think that a combined study—showing ETS exposure from all sources, including the work environment, and including other smoking family members—would show a clearer relationship. Yet no combined study has ever shown a statistically significant association. Even shoddier is the failure of most of the lung cancer tests to probe cancers histologically—that is, by sampling for oncogens in cells of the infected organs. Only limited histology was done even in the large and influential 1981 Hirayama study from Japan, which is the cornerstone of the ETS/cancer scare. As everyone knows, cancer metastasizes, and failure to distinguish between cancers that originated in the lungs and those that moved there from another organ makes the figures considerably "softer." The Hirayama study also relied on questionnaires, which made no attempt to determine which *non*-smokers were *ex*-smokers.

Then there is the question of confounding factors, like Dr. Gao's rapeseed oil. Confounding factors in smoking are so numerous and unpredictable that it is almost impossible to unravel smoking as a cause from a welter of non-smoking behaviors that smokers engage in with shocking disproportion. Stanley Coren, a Canadian expert on "handedness," writes that a study in Michigan has shown that left-handers smoke considerably more than right-handers.[1] (They also die nine years earlier—and not due to smoking.) In 1990, two papers published in the *Journal of the American Medical Association* by stop-smoking researchers Alexander Glassman and Robert Anda showed that smokers were six times as likely as nonsmokers to suffer from major depression and twice as likely to suffer from chronic depression. David Krogh, an anti-smoker, remarked on the smoking personality in one of the most fascinating books of 1991[2]:

> Does being a Rotarian or a scuba diver make a person more or less likely to be a smoker? . . . Does being in group A make you any more likely to be a smoker than being in group B? The answer to this is clearly yes. You are more likely (and increasingly likely) to be a smoker if you are poor, for example, or if you are poorly educated. No surprise there. But what about

[1] *The Left-Hander Syndrome: The Causes and Consequences of Left-Handedness*. New York: The Free Press. 308 pages. $24.95.

[2] *Smoking: The Artificial Passion*. New York: W.H. Freeman and Company. 176 pages. $17.95.

these things: You are more likely to be a smoker if you are divorced; you are far less likely to wear a seat belt if you are a smoker; young white women who smoke are much more likely to be binge drinkers than are their nonsmoking counterparts (almost half are, a rate two to three times higher than that of nonsmoking women); men who are downwardly mobile relative to their parents are more likely to be smokers, while men who are upwardly mobile are less likely. . . .

As a group they tend to rank higher than nonsmokers on scales that measure risk-taking and sensation-seeking. . . . Smokers tend to rank high in a constellation of characteristics that collectively are referred to in the now quaintly old-fashioned term "anti-social." . . . They tend to be more rebellious, be more defiant, and have higher levels of misconduct. The correlations in this category are very strong. . . . Smokers seem to have what can only be called a higher sex drive—or perhaps a lower sex inhibition—than nonsmokers. . . . Smokers rank high in impulsiveness. . . . Finally, we have reason to believe that smokers are more honest than nonsmokers in the view of themselves that they present to others.

Hans Jurgen Eysenck, whom Krogh describes as "perhaps the best known psychologist in Britain and certainly one of the most influential psychologists in the world in the area of personality theory," has attempted to taxonomize smokers' confounding factors, and considers them so extensive as to undermine, for the present time, attempts to use smoking as an etiological factor in disease.

It is easy to see how a study such as Hirayama's could be drastically wrong: if his subjects came disproportionately from working-class industrial areas (they did), and if smoking is more prevalent among the Japanese working classes (it is), Hirayama's wives of smokers would have a higher rate of lung cancer than wives of non-smokers, regardless of smoking behavior. Finally, rates of lung cancer infection vary drastically according to race and nationality: British epidemiologist P.R.J. Burch showed in the 1970s that Finns, who smoke only half as much as Americans, are twice as likely to develop lung cancer. Using foreign studies to arrive at cancer links is like using African numbers to measure the threat of AIDS in North America—the entire mechanism of infection may be different. It's significant that the EPA did not cite a single U.S. study showing an ETS/cancer link in its risk assessment—in fact, no U.S. study has ever found such a link.

A particularly weak aspect of the 1990 EPA report is that it relied on meta-analysis, or weighting different studies to arrive at an aggregate figure—i.e., not analyzing data but analyzing analyses. It's very useful in narrowing down conclusions from a battery of similar experiments with similar controls, but irresponsible when used—as it is here—to draw common assumptions about disparate populations, especially when those populations have been established as having vastly varying rates of affliction.

There was obvious selective bias at work in the 1990 EPA risk assessment. Three of the most comprehensive studies of passive smoke ever undertaken were inexplicably excluded from the risk assessment: the so-called Shimizu and Sobue studies from Japan, and the largest American case-control study ever conducted, by Luis Vareta of Yale University, which was later published in the *New England Journal of Medicine*. None of the three studies showed any statistical link between spousal smoking and lung cancer. Publication bias, though not the EPA's fault, is also a factor—studies showing no link between ETS and lung cancer have tended not to be published, as they were non-news until the Hirayama study. As Michael Fumento has written of AIDS in these pages, "Occasional heterosexual cases will make news for the same reason that planes that crash make news while planes that land safely do not."

The EPA went out on a limb to classify passive smoke as "Group A: Known Human Carcinogen," even though most of the studies showed no significant risk, some showed a negative risk, and the final risk ratio, after meta-analysis, was a slim 1.28. (The highest ever recorded for ETS was another Hirayama study, the so-called "Inouye/Hirayama," at 2.55.) When a similar assessment was made of diesel emissions in 1989, the risk ratio was 2.6 and all the animal laboratory tests came out positive (all were negative for ETS). Despite the seemingly graver threat, the EPA rated diesel only as "Group B: Probable Human Carcinogen." An EPA review of the carcinogenic properties of electromagnetic fields in 1990 found several risk ratios over 3.0, as well as a "consistently repeated pattern of lymphoma, leukemia, nervous system cancer and lymphoma in childhood studies." But electromagnetic fields were not deemed sufficiently perilous even to classify. The ETS risk assessment is the only one the EPA has ever based solely on epidemiological evidence. The fact that it failed to meet the EPA's own seven-point guidelines for epidemiological stud-

ies of potential carcinogens (issued in 1989) makes it seem even more like advocacy.

Radical anti-smokers claim they have to act as advocates to counter the advocacy of tobacco companies, and tobacco interests do indeed have major budgets for their own independent research into smoking hazards. But the industry has no monopoly on the profit motive. The EPA even commissioned anti-smoking activist Stanton Glantz to write a chapter in its draft report on ETS hazards. Glantz, who runs cigarette-quitting seminars and develops anti-smoking regulations for profit, had this to say, at the 1990 World Conference on Tobacco and Health in Australia, about his motives for opposing environmental smoke:

> The main thing the science has done on the issue of ETS, in addition to help people like me pay mortgages, is it has legitimized the concerns that people have that they don't like cigarette smoke. And that is a strong emotional force that needs to be harnessed and used. We're on a roll, and the bastards are on the run.

Others may be motivated to push bad science not out of avarice but ignorance. There are even those who muddy the water out of a genuine social concern. Michael Gough, program manager of the Biological Applications Program of the Office of Technology Assessment, chooses to ignore the science of ETS in the interest of reducing smoking, as he indicated in an October 29, 1990 letter to Thomas Borelli, manager for scientific issues at Philip Morris:

> Without careful reading of the thesis [by Luis Varela, finding no link between ETS and lung cancer] or careful attention to the ETS issue, I tend to agree with the thesis and the general conclusions of your letter. On the other hand, I probably profoundly disagree with any use that might be made of these conclusions by Philip Morris or any other tobacco company. Anything that reduces smoking has substantial health benefits, and making smokers into pariahs, for whatever reasons, does just that.

"The main thing the science has done on the issue of ETS, in addition to help people like me pay mortgages, is it has legitimized the concerns that people have that they don't like cigarette smoke."

Who loses from willingness to accept bad science as a basis policy? Citizens wishing to exercise their liberties, of course, and not just smokers. As Dr. James Le Fanu put it in Britain's *Sunday Telegraph* last May, "We could reach a situation where health activists, using dubious scientific evidence, will be in a position to blackmail us into behaving the way they think we should. It is not an attractive prospect."

Second, on a more personal level, the smoking widower who has lost his wife to lung cancer—and whose being further stigmatized as a murderer and a "pariah" is the goal of the EPA report—loses again. For a closer examination of the grounds on which the husband is made a pariah, let's take the highest available estimate of a non-smoking woman's annual risk of contracting lung cancer—48 per 100,000—and see what danger he poses to her. If we accept, *arguendo*, the 1.28 risk ratio, the smoker's wife's risk rises to 61 per 100,000. That's 13 extra cases per 100,000. Put simply: maximizing in every way possible the most extreme scenario painted by the EPA study, a smoking husband has a 1-in-7,700 chance of giving his wife lung cancer in a given year in the future. How reasonable is it to torture him with the prospect that he is slowly knocking off his loved ones?

Finally, it goes without saying that science suffers for the cause of smoking prevention. But what *if* the cause itself suffers? It is not uncommon that when bad science is introduced into the structure of social policy, the entire edifice of proscription and caution collapses. In 1985 the British government sent a hysterical mailing on AIDS to every household in the country. Making dire predictions of an epidemic, it warned that AIDS was an equal opportunity disease from which no one was safe, and urged extreme caution for all. The result? Old ladies in provincial towns were petrified. Non-monogamous homosexuals and intravenous drug users, if convinced by the packet that their risk was no different from that of the rest of the country, now saw less reason than ever to modify their behavior. Within a year, the London *Spectator* was suggesting that this "public service" was actually *spreading* AIDS.

Closer to home, paranoid anti-drug organizations like Partnership for a Drug-Free America may be exacerbating the drug problem by demonizing drugs like marijuana—mild compared to the President's Halcion, and quite innocuous compared to alcohol. It is a point starkly made by Dr. Lester Grinspoon, a Harvard psychiatrist and drug specialist, as written up by Richard Blow in an excellent exposé of Partnership that appeared in Washington's *City Paper* last December:

> Partnership ads about marijuana "scare the hell" out of a high-school senior. This student then goes off to college, where his roommate smokes marijuana, with no apparent adverse effects and without going on to shoot heroin. He begins to wonder if he's been lied to, and winds up trying pot for himself. He lives. Having rejected Partnership warnings about marijuana, he might subsequently reject more important warnings about riskier drugs such as cocaine or heroin.

Such a backlash could result if people consider the questionable science of environmental tobacco smoke reason to ignore the surgeon general's and other warnings on the hazards of tobacco smoking itself. If so, the EPA's hasty risk assessment could create more than inconvenience, rancor, and diminished personal liberty—it could create smokers. ❑

VIEWPOINTS

Cigarettes, politics and the Environmental Protection Agency

WILLIAM
HAWKINS

So now there's a Democrat poised to take over the Environmental Protection Agency from Bill Reilly. She's Carol Browner, and the question is: Will anyone be able to tell the difference a year hence?

It's hard to see the Democrats muscling up EPA more thoroughly than the Bush Republicans have done. Though of course they can try. Ms. Browner is Vice President-elect Al Gore's former environmental aide. Mr. Gore sees the environment as seriously underregulated.

However, Mr. Reilly does, too. The transition from Bush Republicans to Clinton Democrats should be as smooth as glass at EPA, where it's hard to see the difference carrying out very many political drive-by shootings from which George Bush's men would have shrunk.

Mr. Reilly's regulatory passion shows constantly. What we have at the EPA might be called political science — science you shape and bend to fit a social agenda.

Everybody knows, for instance, that smoking is politically incorrect: the environmental equivalent of endorsing Margo Schott's free speech rights.

Well, the EPA's Science Advisory Board wants Mr. Reilly to list secondary smoke — called, in bureaucratic circles, environmental tobacco smoke (ETS) — as a class "A" carcinogen; a big-time cancer causer, that is.

I have discovered over the years that smoking is the gun control: No matter how impressively you marshal the evidence, you never convince the other side. Still, you make an impression by lowering the threshold of proof, as EPA did in assuming the risks attendant on breathing your neighbor's fumes. Likewise, the EPA lumped together a variety of small studies that may or may not have been structured alike, who can tell. A larger, later-released study by the National Cancer Institute, using 652 nonsmoking women, shows at most a "small" connection between cancer and ETS. Yet Mr. Reilly's EPA wants to point a federal fire extinguisher at lighted cigarettes. A Class "A" carcinogen rating is serious business.

An in-house study last spring by the Import Panel on the Role of Science at the EPA noted that, outside and inside the agency, EPA science is widely viewed as "adjusted to fit policy." Nothing new here, perhaps: Whenever on a jammed-crowded evening science and politics bed down together, you know the illegitimacy rule is about to jump. Matters are all the worse with the EPA, given the teeth-grinding zeal of the Gore gang, who rarely stop to count the economic cost of their nostrums.

Something else today's EPA has in mind for us is controlling indoor as well as outdoor air. You might have gathered as much from the agency's suspicious interest in environmental smoke. A Senate-passed bill last year, sure to be revived in the coming year, would have set up an Office of Indoor Air Quality, under the EPA's control. Lord help us!

University of Georgia economist Dwight R. Lee, in a paper issued by the National Center for Policy Analysis, says giving the EPA authority over indoor air "would be like giving a machine gun to a child." Most of the time, Mr. Lee says, you can remove toxic chemicals just by improving ventilation. Which is cheaper than certain techniques the EPA has come up with for cleansing the great outdoors. Some EPA regulations, Mr. Lee says, require companies to spend $8.3 billion — yes, billion — for every life hypothetically — yes, hypothetically — saved.

Comes now, or soon will, Carol Browner to command this bustling fortress of federal regulation. Can Democrats outregulate Republicans? Usually, although at the EPA it may be tough.

The curious thing is, Bill Clinton is trying, or says he is, to improve the economy, whose health depends now as ever on the ability of businessmen to invest in jobs and output rather than in the appeasement of regulators. The Clinton administration's mind is divided; markets and mandates is what the administration appears to want. This could prove its dear course the Clinton presidency's undoing. But let's not get too optimistic too soon. Bill Reilly hasn't even cleaned out his desk yet; Carol Browner and Al Gore are still assuming what taxes, what regulations are likeliest to save us from prosperity.

William Hawkins's column is distributed by Creators Syndicate.

Investor's Business Daily

"The Newspaper For Important Decision Makers"

Circulation 155,000 | Published Nationally At Seven Points By Investor's Business Daily, Inc. | Thursday, January 28, 1993 | Los Angeles, California Volume 9, No. 203 ©1993 | 75¢

NATIONAL ISSUE

IS EPA BLOWING ITS OWN SMOKE?

How Much Science Is Behind Its Tobacco Finding?

By Michael Fumento
In Los Angeles

"Taken together, the total weight of evidence is conclusive that environmental tobacco smoke increases the risk of lung cancer in nonsmokers."

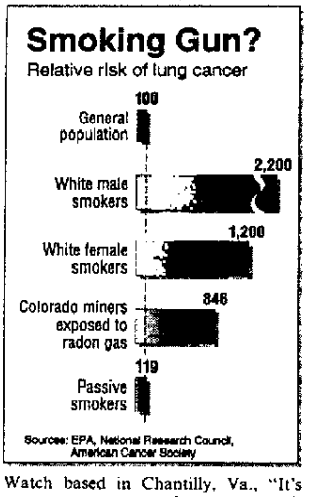
So declared Environmental Protection Agency Administrator William Reilly at a news conference earlier this month, announcing the impending release of an EPA report attributing approximately 3,000 deaths a year to passive smoking, or environmental tobacco smoke.

Yet many in the scientific and medical community say the data the EPA cites does not bear out its conclusion.

While virtually all scientists agree that smoking is unhealthful — both for smokers and those around them — it's the degree to which smoking is unhealthful, and the way the government musters its scientific case, that raises questions.

Some scientists and policy analysts who say they couldn't care less about tobacco company profits or even the rights of smokers are worrying aloud that the EPA report is paving the way for justifying new health-based government regulations and programs without any real science behind them.

Said Bonner Cohen, editor of EPA Watch based in Chantilly, Va., "It's now open season on whatever contaminant the EPA chooses to label the killer contaminant of the week, with the effect that once again, Americans are going to be stampeded into fearing a substance for reasons which upon close inspection are scientifically indefensible."



Yale University epidemiologist Alvan Feinstein, writing in the journal Toxicological Pathology, said he recently heard a prominent leader in epidemiology admit of the EPA's work on passive smoking: "Yes, it's rotten science, but it's in a worthy cause. It will help us to get rid of cigarettes and to become a smoke-free society."

Another critic, Alfred P. Wehner, president of Biomedical and Environmental Consultants Inc., in Richland, Wash., said: "I did work for the EPA in the past and thought of them reasonably well, but when I saw that report, I was really embarrassed. It was a bad document."

One thing both sides agree on is that the direct policy ramifications of the EPA report could be tremendous.

"You can bet your next paycheck that OSHA (the Occupational Safety and Health Administration) will ban all smoking in the workplace," said John Shanahan, the environmental policy analyst at the Heritage Foundation.

Although, in unveiling the report, Reilly expressly referred to cancer in children and in the workplace, the statistical analysis in the EPA report actually ignored the studies that looked for such links.

Rather, the EPA survey is based on 11 American studies of spouses of smokers. The report discussed, but did not put into its statistical analysis, the results of 19 other studies done outside the U.S.

In its analysis of those 11 studies, the EPA found that there was a "statistically significant" difference in the number of lung cancers suffered by nonsmoking spouses of smokers, equal to 119 such cancers in nonsmoking spouses of smokers compared to 100 lung cancers in nonsmoking spouses of nonsmokers.

This finding of statistical significance allowed it to rank passive smoking as a Class A carcinogen, the highest risk ranking possible.

Statistical significance, while sounding like arcane academic talk, is actually quite important. It is used to account for the possibility that something happened — in this case the 19 additional lung cancers — by chance.

But critics say that, using its own previous statistical standards, the EPA report shows no such significance.

"Frankly, I was embarrassed as a scientist with what they came up with. The main problem was the statistical handling of the data," said Wehner, who headed a panel of scientists and doctors that analyzed the draft version of the EPA report for the tobacco industry.

'Meta-Analysis'

One aspect of this problem, say critics, involves the combination of the 11 studies into one big group — what the EPA called a "meta-analysis."

The EPA has never before done this. Critics say such combinations may be valid, but if the studies weren't done in the same way, the results will be like comparing apples and oranges and pears.

Not everyone agrees.

"Meta-analysis is totally fair," said Stanton Glantz of the Institute of Health Policy Studies at the University of California, San Francisco. "I review reports like that for the State of California, and the work the EPA did is absolutely first rate, one of the best pieces of science I've seen about anything."

But Wehner said the study was faulty.

"To get scientifically valid data, there are very strict rules and requirements on how and when you can apply meta-analysis, and virtually all of them were violated in the EPA analysis," he said.

'Confidence Intervals'

The 11 studies together actually reflected 10 studies that showed no statistically significant increases in cancer and only one that did. When the EPA says that the weight of 11 studies showed harm from passive smoking, it really meant one positive combined with 10 neutrals.

More important than the use of the meta-analysis, say critics, is the EPA's use, also for the first time, of a less rigorous statistical analysis.

Epidemiologists — those who study disease and accident patterns to establish why they occur — calculate "confidence intervals" to express the likelihood that a result could have happened strictly by chance.

A 95% confidence interval means that there is a 95% possibility that the result didn't happen from chance, or a 5% possibility that it did.

Until the passive smoking report, the EPA has always used a 95% confidence interval, as have most researchers doing epidemiological studies. Indeed, all of the individual ETS studies were published with 95% confidence intervals.

Yet, in its averaging of those ETS studies, the EPA decided to go with a 90% confidence interval.

"That doubles the chance of being wrong," explained James Enstrom, a professor of epidemiology at the University of California, Los Angeles.

Reilly said simply: "With respect to the confidence interval, we have here a 90% confidence level. And that was, in fact, what was recommended to us by the scientific community as appropriate to this data." Repeated calls to the EPA to find out who in the scientific community had done so went unanswered.

'Hairsplitting' Factor

Glantz said the criticism of the change in the confidence level is a kind of "hairsplitting that only professors care about."

Many epidemiologists, however, disagree.

"In most cases, a scientist would never do this sort of thing," Enstrom said. "It's surprising that they would try to get away with it."

The bottom line is that such "hairsplitting" allowed the EPA to come to a totally different conclusion than it would have using its normal method.


William Reilly

It could now declare that the results of the American studies, when lumped together, were "statistically significant," a term of great importance to the medical community. At a 95% confidence

interval, the result would not have been statistically significant and the EPA could not have labeled passive smoking a type A carcinogen.

Only one major newspaper or television news show covering the EPA announcement made any reference to this sudden change of policy.

Critics say this statistical maneuvering amounts to little other than moving the goal posts to ensure that a football that landed on the two-yard line would count as a touchdown.

"They're using it so they can get an effect," Enstrom said. "They're going all out to get something they can call significant."

Glantz responds, "There is nothing magical about (the 95%). I know that scientifically it's widely used, but there is a strong body of thought that people are too slavishly tied to 95%."

But critics say that noting that the original selection of 95% was arbitrary misses the point. It was arbitrary to make a football field 100 yards long, but once that's the standard, you can't change the length in the middle of a game.

"You cannot run science with the government changing the rules all the time," said Michael Gough, program manager for biological applications for the congressional Office of Technology Assessment.

'One-Tailed' Analysis

Glantz said that another statistical reporting change, using what is known as a "one-tailed" analysis as opposed to a two-tailed one, compensates for lowering the statistical confidence.

In fact, it actually reduces the confidence level even further, providing a greater chance of labeling something carcinogenic when it isn't.

Said Joel Hay, a health economist at the University of Southern California who teaches statistics, "In essence, that's more like going to an 85%" level, which would *triple* the chance of a mistake due to chance.

"If they've done both, then they're obviously reaching for results," he said.

The tobacco industry charged that the EPA left out of its analysis a recent major study, released in the November American Journal of Public Health, which, if combined with the other 11 American studies, would have resulted in no statistically significant findings even using the moved goalposts.

Reilly responded to the charge by saying that the EPA report was too far along to include these latest findings.

But, "When one new study can throw it from nonsignificant to significant and another can throw it back again, you're not demonstrating a clear trend," said Alan Gross, a professor of biostatistics at the Medical University of South Carolina in Charleston.

Enstrom notes that substances previously labeled carcinogens normally have been found to have a much greater difference between levels of cancer in those exposed and in those not exposed.

With lung cancer caused by direct or active cigarette smoking, for example, there may be 1,000 cancers compared to 100 for nonsmokers, as compared to the 119 per passive smoker the EPA found per 100 for nonsmokers.

Enstrom said, "For a heavy smoker exposed to asbestos, you can get up in the range of a relative risk of a hundred or more," meaning that for every 100 unexposed persons with lung cancer you find 10,000 exposed ones.

"With a disease like lung cancer and finding excess risk of only two or less, you really have to think about what you're doing with the data," he said. "To me, it's frightening that they could make such a case out of such a small risk factor when you've got so many variables."

Inexact Science

One problem with slicing the data so thinly as the EPA passive smoke study does is that epidemiology is not an exact science. A single variable unaccounted for can destroy a whole study.

According to Gary Huber, a doctor with the University of Texas Health Center in Tyler, "At least 20 confounding factors have been identified as important to the development of lung cancer. These include nutrition and dietary prevention, exposure to occupational carcinogens, exposure to various air pollution contaminants, genetic predispostion and family prevalence," among other factors.

"You're going to see huge lifestyle differences between (families with smokers and families with no smokers) generally," said Gross.

One of the 19 non-U.S. epidemiological studies that the EPA did not put into its data base, conducted by American and Chinese researchers in China, actually found a statistically significant *decrease* in risk.

"When you change just one of the assumptions EPA made," said Wehner, "just one parameter, you can prove ETS saves lives — and, of course, that's just nonsense. But it demonstrates how easily results can vary when assumptions are changed only slightly."

EPA Watch's Cohen and other EPA critics think that the passive smoking report is just the latest in a litany of EPA abuses of science to achieve political ends — most prominently that of enlarging its own authority, especially to gain more control over indoor air regulation.

Cohen notes that while the EPA has attributed 5,000 lung cancer deaths a year to radioactive radon gas seeping up from the earth into houses, the epidemiological studies on household radon tend to show that houses with higher levels of the gas have lower levels of lung cancer.

Outside EPA Report's Warning

"The science of which EPA avails itself is that which happens to fit the political agenda of the moment," Cohen said. "Epidemiology didn't support its position on radon, so they ignored it."

Cohen notes that an outside report commissioned by the EPA released last year found that there was a wide perception that the agency's science was "adjusted to fit policy." He says that clearly, the EPA did not heed the report's warning.

"The EPA was not unaware of the fact that the tobacco industry is an extremely appealing target with few allies in the public arena," Cohen said.

"Further, the tobacco industry has cried wolf so many times that it doesn't have any credibility anymore."

But Enstrom says that "politically correct" science isn't science at all, and that regardless of how one feels about smoking and passive smoking, the EPA's tack is simply wrong.

"I don't think it bodes well for the field," Enstrom said. It's going to make it hard to distinguish a real (problem) from a manufactured one using statistical manipulation."

$2.50 JULY 1991
Vol. 74 No. 7

CONSUMERS' Research

ANALYZING PRODUCTS, SERVICES AND CONSUMER ISSUES MAGAZINE

Passive Smoking: How Great a Hazard?

Special Report:

Passive Smoking: How Great A Hazard?

By Gary L. Huber, MD,
Robert E. Brockie, MD,
and Vijay K. Mahajan, MD

Reports from medical journals, the popular media, and federal regulatory agencies about the adverse health effects of passive smoking have convinced many jurisdictions to ban smoking in public places. What is often missing from such discussions is the scientific basis for the health-related claims. The following article examines the scientific data concerning the ascertainable risk from inhalation of environmental tobacco smoke. One of its authors, Dr. Gary Huber, spoke at a recent CR *symposium on "Science and Regulation" (see article on page 35).*—Ed.

About 50 million or so Americans are active smokers, consuming well over 500 billion tobacco cigarettes each year. The "secondhand" smoke—usually called "environmental tobacco smoke," or more simply "ETS"—that is generated is released into their surroundings, where it potentially is inhaled passively and retained by nonsmokers. Or is it?

Literally thousands of ETS-related statements now have appeared in the lay press or in the scientific literature. Many of these have been published, and accepted as fact, without adequate critical questioning. Based on the belief that these publications are accurate, numerous public policies, regulations, and laws have been implemented to segregate or restrict active smokers, on the assertion that ETS is a health hazard to those who do not smoke.

What *quantity* of smoke really is released into the environment of the nonsmoker? What is the chemical and physical *quality*, or nature, of ETS remnants in our environment? Is there a health risk to the nonsmoker? In concentrations as low as one part in a billion or even in a trillion parts of clean air, some of the highly-diluted constituents in ETS are irritating to the membranes of the eyes and nose of the nonsmoker. Cigarette smoking is offensive to many nonsmokers and some of these highly-diluted constituents can trigger adverse emotional responses, but do these levels of exposure really represent a legitimate health hazard?

"Cigarette smoking is offensive to many nonsmokers and some of these highly-diluted constituents can trigger adverse emotional responses, but do these levels of exposure really represent a legitimate health hazard?"

Clear answers to these questions are difficult to find. The generation, interpretation, and use of scientific and medical information about ETS has been influenced, and probably distorted, by a "social movement" to shift the emphasis on the adverse health effects of smoking in the active smoker to an implied health risk for the nonsmoker. The focus of this movement, initiated by Sir George Godber of the World Health Organization 15 years ago, was and is to emphasize that active cigarette smokers injure those around them, including their families and, especially, any infants that might be exposed involuntarily to ETS.

By fostering the perception that secondhand smoke is unhealthy for nonsmokers, active smoking has become an undesirable and an antisocial behavior. The cigarette smoker has become ever more segregated and isolated. This ETS social movement has been successful in

Drs. Huber, Brockie, and Mahajan are with, respectively, the University of Texas Health Science Center, the Presbyterian Hospital of Dallas, and St. Vincent's Hospital-Medical College of Ohio.

reducing tobacco cigarette consumption, perhaps more than other measures, including mandatory health warnings, advertising bans on radio and television, and innumerable other efforts instituted by public health and medical professional organizations. But, has the ETS social movement been based on scientific truth and on reproducible data and sound scientific principles?

At times, not surprisingly, the ETS social movement and scientific objectivity have been in conflict. To start with, much of the research on ETS has been shoddy and poorly conceived. Editorial boards of scientific journals have selectively accepted or excluded contributions not always on the basis of inherent scientific merit but, in part, because of these social pressures and that, in turn, has affected and biased the data that are available for further analyses by professional organizations and governmental agencies. In addition, "negative" studies, even if valid, usually are not published, especially if they involve tobacco smoke, and thus they do not become part of the whole body of literature ultimately available for analysis. Negative results on ETS and health can be found in the scientific literature, but only with great difficulty in that they are mentioned in passing as a secondary variable in a "positive" study reporting some other finding unrelated to ETS.

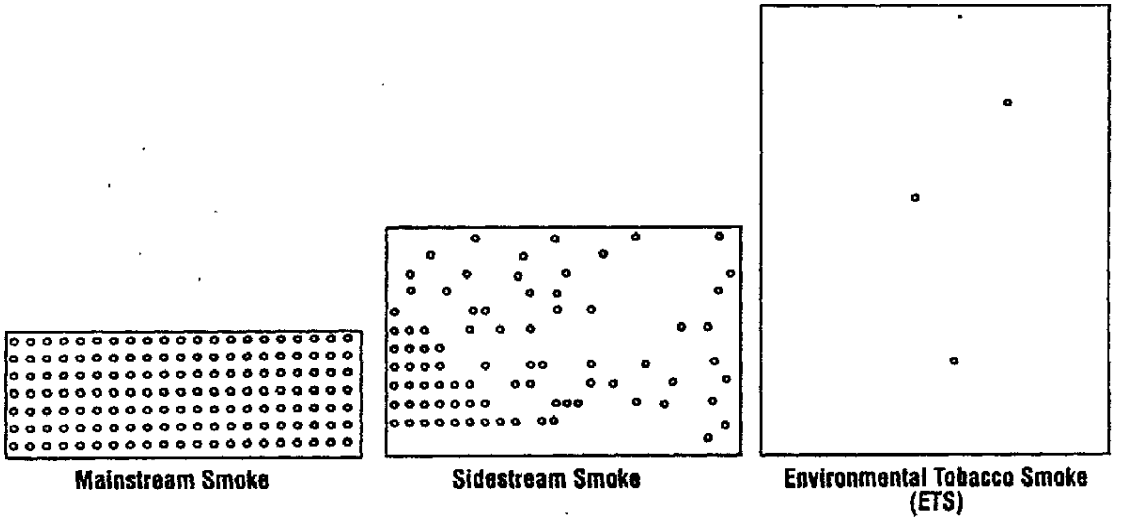
To evaluate critically any potential adverse health effects of ETS, it must first be appreciated that not all tobacco smoke is the same, and thus the risk for exposure to the different kinds of tobacco smoke must be considered independently.[1]

What Is ETS?

The three most important forms of tobacco smoke are depicted in Figure 1. *Mainstream smoke* is the tobacco smoke that is drawn through the butt end of a cigarette during active smoking; this is the tobacco smoke that the active smoker inhales into his or her lungs. The distribution of mainstream smoke is summarized in Table 1 (page 12). *Sidestream smoke* is the tobacco smoke that is released in the surrounding environment of the burning cigarette from its smoldering tip between active puffs. Many publications have treated sidestream smoke and ETS as if they were one and the same, but sidestream smoke and ETS are clearly not the same thing. Sidestream smoke and ETS have different physical properties and they

[1]A burning cigarette has been described as "a miniature chemical factory," producing numerous new components from its raw materials. When a cigarette is smoked, the burning cone has a temperature of about 860 to 900°C during active puffing, and smolders at 500 to 600°C between puffs. When tobacco burns at these temperatures, the products of pyrolyzation are all vapors. As the vapors cool in passage away from the burning cone, they condense into minute liquid droplets, initially about two ten-millionths of a meter in size. Generally, then, all forms of smoke are microaerosols of very small liquid droplets of particulate matter suspended in their surrounding vapors or gases. Thus, all smoke has a "particulate phase" and a "gas phase."

Figure 1: **Particulate Phase and Gas Phase of Tobacco Smoke***



* Schematic representation of the particulate phase and the gas phase of tobacco smoke. Environmental tobacco smoke is not smoke in the conventional sense, but rather a very limited number of highly-diluted remnants or residual constituents of mainstream smoke and sidestream smoke.

Table 1: Distribution of Mainstream Smoke

Total Mainstream Smoke	500*
Wet Total Particulate Matter	22
Nicotine	1.3
Water	3.7
"Tar"	17
Aerosol Gas Phase	
Water	478
Air Components	50
Carbon Monoxide	350
Carbon Dioxide	50
Other Components	8

*All data expressed in milligrams for a 500 mg deliver cigarette, as determined by Federal Trade Commission criteria.
SOURCE: Adapted from Huber, 1989.

have different chemical properties. *Environmental tobacco smoke* is usually defined as a combination of highly diluted sidestream smoke plus a smaller amount of that residual mainstream smoke that is exhaled and not retained by the active smoker. What *really* is ETS? In comparison to mainstream smoke and sidestream smoke, ETS is so highly diluted that it is not even appropriate to call it smoke, in the conventional sense. Indeed, the term "environmental tobacco smoke" is a misnomer.

Why is ETS a misnomer? Several reports on smoking and health from the Surgeon General's Office, a National Research Council review of ETS in 1986, the more recent Environmental Protection Agency's risk assessment of ETS, and several review articles all have provided a long list of chemical constituents derived from analyses of mainstream smoke and sidestream smoke, with the implication that because they are demonstrable in mainstream smoke and sidestream smoke these same constituents must, by inference, also be present in ETS. No one really knows if they are present or not. In fact, most are not so present or, if they are, they are present only in very dilute concentrations that are well below the level of detection by conventional technologies available today.

Only 14 of the 50 biologically active "probable constituents" of ETS listed by the Surgeon General, for instance, *actually* have been measured or demonstrated at any level in ETS. The others are there essentially by inference, not by actual detection or measurement. Thus, there are 36 constituents in these lists that are inferred to be present in ETS, but their presence has not been confirmed by actual detection or measurement. In this sense, then, ETS is really not smoke in the conventional sense of its definition, but rather consists of only a limited number of "remnants" or *residual constituents* present in highly dilute concentrations.

Because the levels of ETS cannot be quantified accurately as such in the environment, some investigators have attempted to measure one or more constituent parts of ETS as a "substitute marker" for ETS as a whole. The most frequently employed such "marker" has been nicotine or its first metabolically stable breakdown product, cotinine. Nicotine was considered an "ideal marker" because it is more or less unique to tobacco, although small amounts can be found in some tomatoes and in other food sources. In the mainstream tobacco smoke that is inhaled by the active smoker, nicotine starts out almost exclusively in the tiny liquid droplets of the particulate phase of the smoke. Because the smoke particles of ETS become so quickly and so highly diluted, however, nicotine very rapidly vaporizes from the liquid suspended particulates and enters the surrounding gas. In technical terms, the process by which nicotine leaves the suspended aerosol particle to enter the surrounding gas phase is called "denudation."

As a vapor or gas, nicotine reacts with or adsorbs onto almost everything in the environment with which it comes into contact. Thus, nicotine is not a representative or even a good surrogate marker for the particulate phase, or even the gas-vapor phase, of ETS. In fact, there are no reliable or established markers for ETS. The remnant or residual constituents of ETS each have their own chemical and physical behavior characteristics in the environment and none is present in a concentration in our environment that reaches an established threshold for toxicity.[2]

Measuring Health Risks

Because the level of exposure to ETS or the dose of ETS retained cannot be quantified under every-day, real-life conditions, the health effects following exposure to residual con-

[2]A *threshold limit value* (usually expressed as milligrams of a substance per cubic meter of air or as parts of a substance present per million parts of respirable clean air) is the recommended concentration of a substance as the maximal level that should not be exceeded to prevent occupational disease through exposure in the workplace. Threshold limit values have not been established for our general, every-day environment outside of industrial exposure. Threshold limit values are determined by toxicologists, epidemiologists, and hygienists through their interpretation of literature, and usually are sanctioned by the American Conference of Governmental Industrial Hygienists. No constituent of ETS has been measured in our every-day environment at levels that exceed the threshold limit values permitted in the workplace.

stituents of ETS have been impossible to evaluate directly. In broad terms, two different approaches have been employed in an attempt to assess indirectly the health risks for exposure of the nonsmoker to the environmental remnants of ETS. The first of these involves a theoretical concept that is called "linear risk extrapolation." Linear risk extrapolation has been employed extensively in attempts to determine the risk for lung cancer in nonsmokers exposed to ETS.[3]

This concept of linear risk assumes that if there is a definable health risk for the active smoker, then there also must be a projected lower health risk for the nonsmoker exposed to ETS. This is represented schematically in Figure 2. The risk has been presumed to be linear from the active smoker to the nonsmoker exposed to ETS, based proportionately on the relative exposure levels and retained doses of smoke; it thus requires some measurement of tobacco smoke exposure for both groups. This is fairly easy to achieve in the active smoker, in part because mainstream smoke has been so well-characterized and it is delivered directly from the butt-end of the cigarette into the smoker. Such is obviously not the case, however for the nonsmoker exposed to ETS.

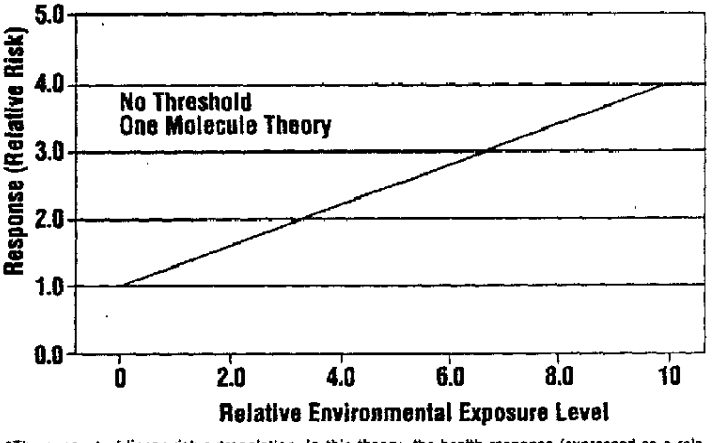
Most projections of linear risk for ETS-exposure have been based on the use of nicotine as a representative marker of exposure. A few projections have been based on carbon monoxide levels or amounts of respirable suspended particulates in the environment, but these approaches are fraught with even greater error. Since nicotine initially is in the particulate phase of the mainstream smoke inhaled by the active smoker and it is present primarily as a highly diluted gas-phase remnant or residual vapor-phase constituent in the nonsmoker's environment, the concept of a linear health risk from the active smoker to the nonsmoker is based on rather shaky scientific-reasoning.

That is to say, it is not valid to estimate a health risk for exposure to the particulate phase in the active smoker and then compare it with the health risk for exposures to the gas phase in the ETS-exposed nonsmoker. Simply stated, "like" is not being compared to "like." Mainstream smoke and the residual constituents of ETS represent very different exposure conditions. Whether present in mainstream smoke or in ETS, particulate phase and gas phase constituents have very different biological properties, as well as different physical and chemical characteristics, and any associated health risks are also very different. The concept of linear risk extrapolation for ETS is based on a theory that when applied to ETS incorporates unsound assumptions that are not valid. There is no way, as yet, to evaluate or compare the levels of exposure in active smokers and nonsmokers exposed to ETS.

The second approach used to evaluate health risks for nonsmokers exposed to ETS has employed epidemiologic studies. Epidemiology is a branch of medical science that studies the distribution of disease in human populations and the factors determining that distribution, chiefly by the use of statistics. The chief func-

[3]The concept is based on a theoretical extrapolation of the risk for lung cancer in the active smoker to the risk for lung cancer in the passive smoker on the basis of a "representative marker" for both smoke exposures. This "linear risk extrapolation" from one to the other is a model that is based on mathematical theory and on several assumptions. The theory assumes that the risk applies to all exposure levels, even if they are very low. Some advocates of the model even assume a "one molecule, one hit" mechanism, where exposures so low that they cannot be detected or measured can still cause disease if only a single molecule reaches a vulnerable body tissue. The linear risk theory also assumes that the risk for accumulative exposure remains constant and, thus, that the exposed individual has no capacity to adapt or develop tolerance mechanisms for the exposure. Since active smokers readily and rapidly develop tolerance through a variety of defense mechanisms, it seems illogical to assume those repeatedly exposed to ETS would not do the same. The linear risk model assumes that the risk for exposure to ETS is independent of any confounding factors. Finally, for this theory to be valid, it must be assumed that the risk is linear for duration of exposure and that it is linear for concentration of exposure. None of these assumptions holds true on scientific testing for comparative projections of mainstream smoke to ETS.

Figure 2: **Linear Risk Extrapolation***



*The concept of linear risk extrapolation. In this theory, the health response (expressed as a relative risk) is directly or linearly related to the relative environmental exposure level. This theory suggests that there is no "safe" threshold below which there is no response, and that exposure to as little as one molecule of the environmental substance can cause an adverse response.

"Of the 30 ETS-lung cancer studies, 6 reported a statistically significant association. . .and 24 of those studies reported no statistically significant effect."

tion of epidemiology is the identification of populations at high risk for a given disease, so that the cause may be identified and preventative measures implemented.

Epidemiologic studies are most effective when they can assess a well-defined risk. Because ETS-exposure levels cannot be measured or in any other way quantified directly, even by representative markers, epidemiologists have had to use indirect estimates, or surrogates, of ETS exposure. For nonsmoking adults, the number of active smokers that are present in the household has been used as a surrogate for ETS exposure. Usually the active smoking household member has been the nonsmoker's spouse. With a few limited exceptions, disease rates in nonsmokers exposed to a spouse who smokes have been the basis for all epidemiologic assessments.

Almost all of these studies have evaluated nonsmoking females married to a husband who smokes. For children, the surrogate for ETS exposure has been the number of parents in the household who smoke. Estimates of ETS exposure based on spousal or parental surrogates have been derived by various questionnaires; no study employs any direct quantification of ETS or of ETS remnant constituents in the actual environment of the nonsmoker. Questionnaires of smoking habits are notoriously limited and often inaccurate, in part because of the "social taboo" that smoking has become and, in part, for other reasons related to the ETS social movement. Nevertheless, data from questionnaires about smoking behavior in spouses or in parents are the only estimates of ETS exposure available. Rates for three diseases in nonsmokers exposed (via surrogates) to ETS have been assessed: lung cancer, coronary heart disease, and respiratory illness in infants and small children. Only lung cancer will be discussed in this article.

ETS and Lung Cancer

What is the state of evidence on ETS and lung cancer? Almost all of the epidemiologic studies that are available to answer that question are based on the concept of some measurement of relative risk. None of the studies actually has measured exposure to ETS or to any of its residual constituents directly. Relative risk is a relationship of the rate of the development of a disease (such as lung cancer) within a group of individuals exposed to some variable in the population studied (such as ETS) divided by the rate of the same disease in those not exposed to this variable.

Relative risk is most frequently expressed as a "risk ratio," which is a calculated comparison of the rate of the disease studied in the exposed population divided by the rate of that disease in some control population not exposed to the variable studied. The terms "risk ratio" and "relative risk" are often used synonymously. Thus, the relative risk in all epidemiologic ETS studies on lung cancer is expressed as the rate of lung cancer in the ETS-exposed group (individuals married to a household smoker) divided by the rate of lung cancer where there was no ETS exposure (no household smokers). If the disease rates were exactly the same in these two groups, the risk ratio would be 1.0.

There have been 30 epidemiologic studies on spousal smoking and lung cancer published in the scientific literature. Twenty-seven of these epidemiological studies were case control studies, where the effect of exposure to spousal smoking was evaluated retrospectively on data that had already been available for review. The "cases" in these case-control studies were nonsmoking individuals with lung cancer married to smokers. The rate of lung cancer in these "cases" was compared, by the derived risk ratio, to the rate of lung cancer in "control" or nonsmoking individuals who were married to nonsmokers.

Three of the studies followed cohort populations of individuals exposed to spousal smoking prospectively over the course of time. A "cohort" is any designated group of people. A "cohort study" identifies a group of people that will be exposed to a risk and a group that will not be exposed to that risk, and then follows these groups over time to compare the rate of disease development as a function of exposure or no exposure.

The first studies were published in 1982 and the last studies were published in 1990. The studies originate broadly from different parts of the world and, for the most part, involve evaluations of lung cancer in nonsmoking females married to a smoking male partner; eight of the studies have limited data on nonsmoking males married to smoking females. Some of the stud-

ies are quite small, listing fewer than 20 subjects; others are based on larger populations, with four studies reporting between 129 and 189 cancer cases. Of the 30 studies, six reported a statistically significant association (identified by a positive relative risk ratio in the spousally-exposed to the non-exposed population) and 24 of the studies reported no statistically significant effect. The average estimated relative risk ratio for each study and each sex is listed in Table 2, as are the confidence intervals reported by the authors or, where not reported, calculated by others in published review articles.[4]

Some of the negative studies—that is, some of the 24 studies that did not show a statistically significant association between the development of lung cancer and exposure to spousal smoking—contained data that suggested to the authors or to other reviewers a "positive trend." In most of science, "trends" do *not* count; data stand as either statistically significant or not statistically significant, with significance determined by specific accepted rules of biostatistics. New rules should not be "made to fit" an otherwise unproved hypotheses, just because the subject is tobacco and the observed results do not support the hypothesis investigated.

ETS Risk Weak

A relative risk is called strong or it is called weak, depending on the degree of association, or the magnitude of the risk ratio. A strong relative risk would be reflected by a risk ratio of 5 to 20 or greater. Weak relative risks, by conventional definition, have risk ratios in the range of 1 to 3 or so. Within the 30 epidemiologic studies on ETS and lung cancer, there are 37 different total reported sets of risk ratios for male or female nonsmokers. None of the studies reports a strong relative risk.

Nine of the studies report risk ratios of *less* than 1.0. Thus, the results from all epidemio-

(See SMOKE, page 33.)

[4]A confidence interval is a range of values that has a specified probability of including the true value (as opposed to the estimated average value) within that range. In the data presented in Table 2, the confidence intervals are set such that there is a 95% probability that the true value will fall within the range of values listed.

Table 2: Studies of ETS and Lung Cancer in Nonsmokers

Study	Sex	Number of Cases	Relative Risk*	95% Confidence Interval
Case Control Studies				
Chan and Fung, 1982	F	34	**0.75**	(0.43, 1.30)
Trichopoulos et al., 1983	F	38	**2.13****	(1.18, 3.83)
Correa et al., 1983	F	14	**2.07**	(0.81, 5.26)
	M	2	**1.97**	(0.38, 10.29)
Kabat and Wynder, 1984	F	13	**0.79**	(0.25, 2.45)
	M	5	**1.00**	(0.20, 5.07)
Buffler et al., 1984	F	33	**0.80**	(0.34, 1.81)
	M	5	**0.51**	(0.15, 1.74)
Garfinkel et al., 1985	F	92	**1.12**	(0.94, 1.60)
Wu et al., 1985	F	29	**1.20**	(0.50, 3.30)
Akiba et al., 1986	F	73	**1.52**	(1.00, 2.5)
	M	3	**2.10**	(0.5, 5.6)
Lee et al., 1986	F	22	**1.03**	(0.37, 2.71)
	M	8	**1.31**	(0.38, 4.59)
Brownson et al., 1987	F	19	**1.68**	(0.39, 2.97)
Gao et al., 1987	F	189	**1.19**	(0.6, 1.4)
Humble et al., 1987	F	14	**1.78**	(0.6, 5.4)
Koo et al., 1987	F	51	**1.55**	(0.87, 3.09)
Lam et al., 1987	F	115	**1.65****	(1.16, 2.35)
Pershagen et al.,1987	F	33	**1.20**	(0.70, 2.10)
Geng et al., 1988	F	34	**2.16 ****	(1.03, 4.53)
Inoue and Hirayama, 1988	F	18	**2.55**	(0.91, 7.10)
Katada et al., 1988	F	17	**—.**	(NS;p=0.23)
Lam and Cheng, 1988	F	37	**2.01****	(1.12, 1.83)
Shimizu et al., 1988	F	90	**1.10**	N/A
He, 1990	F	45	**0.74**	(0.32, 1.68)
Janerich et al., 1990	F	129	**0.93**	(0.55, 1.57)
Kabat, 1990	M	13	**1.20**	(0.54, 2.68)
	F	35	**0.90**	(0.46, 1.76)
Kalandidi et al., 1990	F	91	**2.11**	(1.09, 4.08)
Sobue et al., 1990	F	64	**0.94**	(0.62, 1.40)
Svensson, 1990	F	17	**1.20**	(0.40, 2.90)
Wu-Williams et al., 1990	F	205	**0.7**	(0.6, 0.9)
Cohort Studies				
Garfinkel, 1981	F	88	**1.17**	(0.85, 1.89)
				(0.77, 1.61)
Gillis et al., 1984	F	6	**1.00**	(0.59, 17.85)
	M	4	**3.25**	
Hirayama, 1984b	F	163	**1.45**	(1.04 2.02)
1984a		7	**2.28****	(1.19 4.22)

*Weak relative risks have risk ratios of between 1 and 3, or so. Any risk ratio below 1 represents a negative relationship. Note that none of the studies show a strong relative risk.

** Statistically significant at the 5% level.

Christopher Caldwell

Smoke Gets in Your Eyes

But it probably doesn't give you cancer, despite what the EPA says.

Proving dangers to non-smokers from "environmental tobacco smoke" (ETS, or "passive smoke") has not been easy for anti-smoking activists. While every nag in every airport waiting room complains about her "smoke allergy," no study has ever established allergenic properties in tobacco smoke. While children have been shown to be sensitive to ETS, it has long been known that children are more sensitive to *anything* in the air, from ragweed to dust, and most people would grant to parents, not the state, the responsibility to keep them away from pollutants. Attempts to link heart disease to ETS have not borne fruit. And in 1986, a Yale University medical school study of asthmatics exposed to ETS showed that not only did the smoke not cause any acute respiratory risk—it actually decreased bronchial constriction.

"Even with the 'rigged jury' of standard statistical procedures," wrote Dr. Kevin Dowd in the June 1991 issue of the British journal *Economic Affairs*, "it turns out, contrary to popular myth, that there is still no convincing evidence in favour of the adverse effects of passive smoking." Yet, a year previous to that, the EPA, having failed in its attempts to establish clear-cut and readily confirmable proof of the harms of ETS, had used a complicated and irregular scientific route to claim a minimal link. Patching together spousal studies, the EPA claimed that women married to smokers were 1.28 times as likely to contract lung cancer—and that ETS was to blame. The EPA leaked a draft risk assessment describing environmental tobacco smoke as a "known human carcinogen." The months since have seen anti-smoking activists calling for more legislation in public places, and tobacco interests and libertarians pointing out gaps in what they say is dishonest and politicized science.

Exposure to environmental tobacco smoke is difficult to measure by increments. First of all, although irresponsible scientists have tried, one can't extrapolate lung cancer risk from the dosages active smokers take into their lungs. For one, the substances are chemically and quantitatively different: "active" tobacco smoke is made up of smoke particles—and plenty of them—while "passive" smoke is highly diluted, with a partially vaporous content. In addition, "active" smokers take deep breaths through their mouths and hold the smoke in their lungs. "Passive" smokers breathe largely through the nose, which filters out impurities.

While blood tests and urine samples do show that non-smokers absorb nicotine from the smokers around them, it

Christopher Caldwell is assistant managing editor of The American Spectator.

is in such small doses that this can be seen as a triumph more for modern scientific calibration than for any cause-and-effect relationship. It's rather like remarking that every cubic foot of ocean water contains ash from Mount Pinatubo, or that almost all of the paper money in Miami contains traces of cocaine—it's true, impressive, and meaningless. In real-life settings, the dangers of particulates are even less impressive. A 1978 study in the *International Archives of Occupational Environmental Health* claimed that it would take 11 to 50 hours in an extremely smoke-polluted environment to absorb as much nicotine as a smoker takes in from one cigarette. In Britain, where smoking was legal on subway trains until the mid-1980s and was until recently permitted on buses, the Freedom Organization for the Right to Enjoy Smoking Tobacco estimated that one would have to ride in the smoking section of a bus for four-and-a-half weeks to be exposed to one cigarette's worth of nicotine.

It's possible to measure the "respirable suspended particles" that surround a smoker, but very difficult to distinguish them from other particles that may be in the air from cooking, rug fibers, car exhaust, air-conditioning, etc. Pro-smoking activists like to mention "sick building syndrome" as an major contributor. At first glance, calling poor ventilation a "syndrome" and a health threat appears as hysterical as using the word "choc-a-holic" to claim that the science-fictionesque terrors that afflict the true addict apply to someone who is basically a glutton. But the 1976 Legionnaires' disease outbreak is a sick-building incident that cost twenty-nine lives, and occupational studies tend to bear the pro-smokers out: in only 2 to 4 percent of indoor air quality problems is tobacco smoke the major culprit.

"Active" smokers take deep breaths through their mouths and hold the smoke in their lungs. "Passive" smokers breathe largely through the nose, which filters out impurities.

How much particulate matter enters the air due to smoking? Anti-smoking activists would have us believe a tremendous amount. Dr. David Burns, testifying before the Los Angeles City Council Health Committee, argued that particulates, "when smoking is allowed, [increase] about ten-fold from the background levels." This is simply falsehood in the service of anti-smoking propaganda—a 1990 study of smoking sections in forty-one restaurants showed that only half of the particulates were from smoke; another study, from 1988, put the figure at 28 percent. As far as eating in restaurants is concerned, the cuisine might be as much of a risk as the smoke: a 1987 Shanghai study by Dr. Y.T. Gao and three researchers from the National Cancer Institute found that nonsmoking women who cooked with rapeseed oil had an incidence of lung cancer 2.5 times as high as those who cooked with soybean oil.

Given the ineffectiveness of exposure measurements, researchers have sought a link in epidemiological studies, i.e. studies based on the incidence of affliction across large populations. Here is what the thirty studies that have been conducted to date report: twenty-four show no statistically significant link at all; six show a weak link: nine show that being married to a smoker actually *decreases* one's chance of contracting lung cancer.

One would think that a combined study—showing ETS exposure from all sources, including the work environment, and including other smoking family members—would show a clearer relationship. Yet no combined study has ever shown a statistically significant association. Even shoddier is the failure of most of the lung cancer tests to probe cancers histologically—that is, by sampling for oncogens in cells of the infected organs. Only limited histology was done even in the large and influential 1981 Hirayama study from Japan, which is the cornerstone of the ETS/cancer scare. As everyone knows, cancer metastasizes, and failure to distinguish between cancers that originated in the lungs and those that moved there from another organ makes the figures considerably "softer." The Hirayama study also relied on questionnaires, which made no attempt to determine which *non*-smokers were *ex*-smokers.

Then there is the question of confounding factors, like Dr. Gao's rapeseed oil. Confounding factors in smoking are so numerous and unpredictable that it is almost impossible to unravel smoking as a cause from a welter of non-smoking behaviors that smokers engage in with shocking disproportion. Stanley Coren, a Canadian expert on "handedness," writes that a study in Michigan has shown that left-handers smoke considerably more than right-handers.[1] (They also die nine years earlier—and not due to smoking.) In 1990, two papers published in the *Journal of the American Medical Association* by stop-smoking researchers Alexander Glassman and Robert Anda showed that smokers were six times as likely as nonsmokers to suffer from major depression and twice as likely to suffer from chronic depression. David Krogh, an anti-smoker, remarked on the smoking personality in one of the most fascinating books of 1991[2]:

> Does being a Rotarian or a scuba diver make a person more or less likely to be a smoker? . . . Does being in group A make you any more likely to be a smoker than being in group B? The answer to this is clearly yes. You are more likely (and increasingly likely) to be a smoker if you are poor, for example, or if you are poorly educated. No surprise there. But what about

[1] *The Left-Hander Syndrome: The Causes and Consequences of Left-Handedness*. New York: The Free Press. 308 pages. $24.95.

[2] *Smoking: The Artificial Passion*. New York: W. H. Freeman and Company. 176 pages. $17.95.

these things: You are more likely to be a smoker if you are divorced; you are far less likely to wear a seat belt if you are a smoker; young white women who smoke are much more likely to be binge drinkers than are their nonsmoking counterparts (almost half are, a rate two to three times higher than that of nonsmoking women); men who are downwardly mobile relative to their parents are more likely to be smokers, while men who are upwardly mobile are less likely. . . .

As a group they tend to rank higher than nonsmokers on scales that measure risk-taking and sensation-seeking. . . . Smokers tend to rank high in a constellation of characteristics that collectively are referred to in the now quaintly old-fashioned term "anti-social." . . . They tend to be more rebellious, be more defiant, and have higher levels of misconduct. The correlations in this category are very strong. . . . Smokers seem to have what can only be called a higher sex drive—or perhaps a lower sex inhibition—than nonsmokers. . . . Smokers rank high in impulsiveness. . . . Finally, we have reason to believe that smokers are more honest than nonsmokers in the view of themselves that they present to others.

Hans Jurgen Eysenck, whom Krogh describes as "perhaps the best known psychologist in Britain and certainly one of the most influential psychologists in the world in the area of personality theory," has attempted to taxonomize smokers' confounding factors, and considers them so extensive as to undermine, for the present time, attempts to use smoking as an etiological factor in disease.

It is easy to see how a study such as Hirayama's could be drastically wrong: if his subjects came disproportionately from working-class industrial areas (they did), and if smoking is more prevalent among the Japanese working classes (it is), Hirayama's wives of smokers would have a higher rate of lung cancer than wives of non-smokers, regardless of smoking behavior. Finally, rates of lung cancer infection vary drastically according to race and nationality: British epidemiologist P.R.J. Burch showed in the 1970s that Finns, who smoke only half as much as Americans, are twice as likely to develop lung cancer. Using foreign studies to arrive at cancer links is like using African numbers to measure the threat of AIDS in North America—the entire mechanism of infection may be different. It's significant that the EPA did not cite a single U.S. study showing an ETS/cancer link in its risk assessment—in fact, no U.S. study has ever found such a link.

A particularly weak aspect of the 1990 EPA report is that it relied on meta-analysis, or weighting different studies to arrive at an aggregate figure—i.e., not analyzing data but analyzing analyses. It's very useful in narrowing down conclusions from a battery of similar experiments with similar controls, but irresponsible when used—as it is here—to draw common assumptions about disparate populations, especially when those populations have been established as having vastly varying rates of affliction.

There was obvious selective bias at work in the 1990 EPA risk assessment. Three of the most comprehensive studies of passive smoke ever undertaken were inexplicably excluded from the risk assessment: the so-called Shimizu and Sobue studies from Japan, and the largest American case-control study ever conducted, by Luis Varela of Yale University, which was later published in the *New England Journal of Medicine*. None of the three studies showed any statistical link between spousal smoking and lung cancer. Publication bias, though not the EPA's fault, is also a factor—studies showing no link between ETS and lung cancer have tended not to be published, as they were non-news until the Hirayama study. As Michael Fumento has written of AIDS in these pages, "Occasional heterosexual cases will make news for the same reason that planes that crash make news while planes that land safely do not."

The EPA went out on a limb to classify passive smoke as "Group A: Known Human Carcinogen," even though most of the studies showed no significant risk, some showed a negative risk, and the final risk ratio, after meta-analysis, was a slim 1.28. (The highest ever recorded for ETS was another Hirayama study, the so-called "Inouye/Hirayama," at 2.55.) When a similar assessment was made of diesel emissions in 1989, the risk ratio was 2.6 and all the animal laboratory tests came out positive (all were negative for ETS). Despite the seemingly graver threat, the EPA rated diesel only as "Group B: Probable Human Carcinogen." An EPA review of the carcinogenic properties of electromagnetic fields in 1990 found several risk ratios over 3.0, as well as a "consistently repeated pattern of lymphoma, leukemia, nervous system cancer and lymphoma in childhood studies." But electromagnetic fields were not deemed sufficiently perilous even to classify. The ETS risk assessment is the only one the EPA has ever based solely on epidemiological evidence. The fact that it failed to meet the EPA's own seven-point guidelines for epidemiological stud-

ies of potential carcinogens (issued in 1989) makes it seem even more like advocacy.

Radical anti-smokers claim they have to act as advocates to counter the advocacy of tobacco companies, and tobacco interests do indeed have major budgets for their own independent research into smoking hazards. But the industry has no monopoly on the profit motive. The EPA even commissioned anti-smoking activist Stanton Glantz to write a chapter in its draft report on ETS hazards. Glantz, who runs cigarette-quitting seminars and develops anti-smoking regulations for profit, had this to say, at the 1990 World Conference on Tobacco and Health in Australia, about his motives for opposing environmental smoke:

> The main thing the science has done on the issue of ETS, in addition to help people like me pay mortgages, is it has legitimized the concerns that people have that they don't like cigarette smoke. And that is a strong emotional force that needs to be harnessed and used. We're on a roll, and the bastards are on the run.

Others may be motivated to push bad science not out of avarice but ignorance. There are even those who muddy the water out of a genuine social concern. Michael Gough, program manager of the Biological Applications Program of the Office of Technology Assessment, chooses to ignore the science of ETS in the interest of reducing smoking, as he indicated in an October 29, 1990 letter to Thomas Borelli, manager for scientific issues at Philip Morris:

> Without careful reading of the thesis [by Luis Varela, finding no link between ETS and lung cancer] or careful attention to the ETS issue, I tend to agree with the thesis and the general conclusions of your letter. On the other hand, I probably profoundly disagree with any use that might be made of those conclusions by Philip Morris or any other tobacco company. Anything that reduces smoking has substantial health benefits, and making smokers into pariahs, for whatever reasons, does just that.

"The main thing the science has done on the issue of ETS, in addition to help people like me pay mortgages, is it has legitimized the concerns that people have that they don't like cigarette smoke."

Who loses from willingness to accept bad science as a basis policy? Citizens wishing to exercise their liberties, of course, and not just smokers. As Dr. James Le Fanu put it in Britain's *Sunday Telegraph* last May, "We could reach a situation where health activists, using dubious scientific evidence, will be in a position to blackmail us into behaving the way they think we should. It is not an attractive prospect."

Second, on a more personal level, the smoking widower who has lost his wife to lung cancer—and whose being further stigmatized as a murderer and a "pariah" is the goal of the EPA report—loses again. For a closer examination of the grounds on which the husband is made a pariah, let's take the highest available estimate of a non-smoking woman's annual risk of contracting lung cancer—48 per 100,000—and see what danger he poses to her. If we accept, *arguendo*, the 1.28 risk ratio, the smoker's wife's risk rises to 61 per 100,000. That's 13 extra cases per 100,000. Put simply: maximizing in every way possible the most extreme scenario painted by the EPA study, a smoking husband has a 1-in-7,700 chance of giving his wife lung cancer in a given year in the future. How reasonable is it to torture him with the prospect that he is slowly knocking off his loved ones?

Finally, it goes without saying that science suffers for the cause of smoking prevention. But what if the cause itself suffers? It is not uncommon that when bad science is introduced into the structure of social policy, the entire edifice of proscription and caution collapses. In 1985 the British government sent a hysterical mailing on AIDS to every household in the country. Making dire predictions of an epidemic, it warned that AIDS was an equal opportunity disease from which no one was safe, and urged extreme caution for all. The result? Old ladies in provincial towns were petrified. Non-monogamous homosexuals and intravenous drug users, if convinced by the packet that their risk was no different from that of the rest of the country, now saw less reason than ever to modify their behavior. Within a year, the London *Spectator* was suggesting that this "public service" was actually *spreading* AIDS.

Closer to home, paranoid anti-drug organizations like Partnership for a Drug-Free America may be exacerbating the drug problem by demonizing drugs like marijuana—mild compared to the President's Halcion, and quite innocuous compared to alcohol. It is a point starkly made by Dr. Lester Grinspoon, a Harvard psychiatrist and drug specialist, as written up by Richard Blow in an excellent exposé of Partnership that appeared in Washington's *City Paper* last December:

> Partnership ads about marijuana "scare the hell" out of a high-school senior. This student then goes off to college, where his roommate smokes marijuana, with no apparent adverse effects and without going on to shoot heroin. He begins to wonder if he's been lied to, and winds up trying pot for himself. He lives. Having rejected Partnership warnings about marijuana, he might subsequently reject more important warnings about riskier drugs such as cocaine or heroin.

Such a backlash could result if people consider the questionable science of environmental tobacco smoke reason to ignore the surgeon general's and other warnings on the hazards of tobacco smoking itself. If so, the EPA's hasty risk assessment could create more than inconvenience, rancor, and diminished personal liberty—it could create smokers. ❐

"Mammograms are effective, safe and accurate," Dr. Franck said. "By bringing the mobile testing unit to employee work locations, we're also making the procedure quick and convenient. We hope that all women who are eligible will take advantage of this opportunity."

Washington, D.C.

EXPERTS QUESTION SCIENCE BEHIND HEALTH AND SAFETY REGULATIONS

Government regulatory policy and scientific research on many health and safety questions seem to be heading in opposite directions, according to a panel of experts at a Consumers' Research conference held in Washington D.C.

Scientists speaking at the conference included experts in the fields of atmospheric pollution, environmental tobacco smoke, pesticides and automotive safety. The common theme emerging was that official regulations frequently have little basis in scientific fact, being driven instead by political/social factors.

According to Dr. S. Fred Singer, an atmospheric scientist and professor at the University of Virginia, "the tendency not only to misuse science but to ignore it is very strong" in policy decisions concerning global warming, ozone depletion and acid rain.

Singer, who served in key scientific posts at the U.S. Department of Transportation and the U.S. Environmental Protection Agency, said computer models that predict huge increases in global temperatures "are not validated by the actual observations" of the temperature record. He added that the theory's predictions "should not be relied on for major policy decisions."

Concerning the ozone layer, Singer said "you cannot conclude that there is a downward trend" based on current scientific evidence. He also said policy makers had ignored a $500 million, 10-year U.S. government study showing damage from acid rain to be relatively minor, forging ahead with stringent regulations.

In like fashion, Dr. Gary Huber, professor of medicine at the University of Texas Health Center, said the "social movement" to ban environmental tobacco smoke (ETS) as an alleged hazard to non-smokers is largely unsupported by scientific data.

Huber, a specialist on respiratory diseases and author of numerous studies on the health risks of smoking, said that of the 30 studies conducted to measure lung cancer rates from passive smoking, only six showed any relationship. Of those, the link was in the lowest category of measurable risk.

"No matter how you adjust the data," Huber said, "the risk relationship for ETS and lung cancer remains very weak."

"I am a non-smoker," Huber added, "and I sometimes find the smoke of others annoying. But that is different from saying it is a health hazard to non-smokers."

According to Dr. Lester Lave, an authority on automobile regulation, attempts to force corporate average fuel economy (CAFE) standards to 40 miles per gallon, in the absence of petroleum price hikes, would be "an absolute disaster."

Lave, professor of economics and engineering at Pittsburgh's Carnegie Mellon University and former senior fellow at the Brookings Institution, said there is an engineering trade-off between size and safety: at any given level of technology, a small car will be more fuel efficient but less safe than a large one. He added that increased prices of new cars stemming from forced technology changes also cause consumers to keep their old cars longer, contributing to emission and safety problems.

If higher CAFE standards are enforced, Lave said, "It's not clear that you will decrease fuel consumption; it is clear that consumers won't like what they're getting, there will be less safety and greater emissions."

In the area of food safety, Dr. Robert Scheuplein, head of the Food and Drug Administration's Office of Toxicology, noted that despite popular and media concern about pesticide residues on food, they pose an extremely small risk to food consumers. Of the total food-borne risk for disease, Scheuplein said, pesticides and additives fall at the bottom.

... EDITORIAL PAGE

EPA's Smokescreen

Last year a blue-ribbon scientific panel warned EPA Administrator William Reilly that much of the agency's science was "unsound" because the EPA lacked adequate safeguards to prevent its scientific findings from being "adjusted to fit policy." The EPA's report on passive tobacco smoke — bureaucratically known as environmental tobacco smoke (ETS) — is a case of fudging science to fit a politically correct, pre-determined policy result.

Since the link between smoking and lung cancer is well-known, many people naturally believe that ETS also must be linked to cancer. But the scientific evidence does not support that view. Some may dislike the sight and smell of tobacco smoke, but offensive does not necessarily equal hazardous.

A recent study by the National Cancer Institute — no tobacco industry lackey — reluctantly concluded there is "no elevated lung cancer risk associated with passive smoke exposure in the workplace," "no increased risk" from childhood exposure, and no increased risk among most non-smoking spouses of smokers. Spouses exposed to more than 40 pack-years (*i.e.*, a pack per day for a year) of passive smoke showed a statistically insignificant 30 percent relative risk of lung cancer. That is less than the risk of miscarriage or cancer associated with drinking ordinary tap water. Epidemiologists generally do not worry about relative risks until they double or triple.

In pursuit of greater regulatory authority over indoor air quality, the EPA skewed its assessment of ETS. First, it included career anti-smoking activists on its ETS panel, while excluding some scientists who had published research questioning the risk of ETS. Then the agency started fudging. When it was discovered that ETS could not be classified as a carcinogen under long-standing scientific accuracy guidelines, the guidelines were changed. Bothersome data were averaged away through a questionable statistical averaging technique — employed by the EPA for the first time on ETS. The National Cancer Institute study simply was ignored altogether.

Even with all this fudging, the EPA cannot explain why its claim that ETS causes as many as 3,800 lung-cancer deaths per year — which would be a large percentage of lung cancers among non-smokers — is not supported by real case histories.

Such shoddy science raised eyebrows on Capitol Hill. When Congressman John Dingell, a Detroit Democrat known for his take-no-prisoners investigations, challenged EPA officials, they essentially answered that the agency needn't be scientifically careful because the subject is tobacco.

The implications of the EPA's ruling go far beyond tobacco. If it can skew science on ETS and get away with it, then what happens when another substance is deemed politically incorrect?

F

2074418974

Proposals that seek to improve indoor air quality by singling out tobacco smoke only enable bad science to become a poor excuse for enacting new laws and jeopardizing individual liberties.

Banning smoking to improve indoor air does not change the frequency of complaints or resolve the problem. Even within the EPA, which mandates a smoke-free environment, many employees complain about poor indoor air quality. Anything other than a holistic approach to improving the indoor environment threatens the health of employees and opens employers to new workers compensation claims. Moreover, these misguided regulations intrude upon the personal liberties of individual workers and create enormous and unnecessary economic costs.

1

WHAT OTHERS ARE SAYING ABOUT THE NEED FOR A COMPREHENSIVE APPROACH TO INDOOR AIR QUALITY

"American adults spend about 90 percent of their time indoors, where concentrations of some contaminants have been found to be two to five times higher than outdoors. Experts estimate that between 800,000 and 1.2 million commercial buildings have deficiencies in indoor air quality."

-- *Occupational Hazards*, August 1992

"The EPA reports that poor indoor air quality can result in a three percent drop in worker productivity -- a decrease that equates to an economic loss of $60 billion each year."

-- *Healthy Buildings International Magazine*, July/August 1991

When asked about the EPA's own HQ which has "Sick Building Syndrome," William K. Reilly, then EPA administrator, quipped, "I'm not supposed to talk about that!" The reason: liability. Some EPA employees are already suing.

-- *Forbes*, July 6, 1992

In 1991, the state of California checked into 740 complaints about building conditions and indoor air quality.

-- *Daily News of Los Angeles*, March 15, 1992

A 1992 Harris poll of workers in the San Francisco area found that workers said they became sick because of bad air and other unsatisfactory office conditions, that they took time off to get over ailments and that their work rate could improve with cleaner and fresher air in the workplace. Sixty-three percent said that their office air is sometime or often stuffy or stale despite the fact that only eight percent report smokers in their immediate work area.

-- *San Francisco Examiner*, February 25, 1992

"What's difficult are the links between pollutants and the health problems that people report... More often than not, the sick-building syndrome involves non-specific symptoms that don't lend themselves to any known cause..."

-- Robert B. Axelrad, Director of the Indoor Air Division at the EPA
Sacramento Bee, August 23, 1992

"There are at least trace amounts of hundreds of chemicals in many buildings. The EPA wants to analyze every chemical or combination of chemicals, and then write regulations based in these analyses. The question is, why waste all that money when all you need to do most of the time is open windows or improve the building's ventilation system."

-- Dwight R. Lee, University of Georgia Economist and author of a study for the National Center for Policy Analysis entitled "The Next Environmental Battleground: Indoor Air"

"Correcting ventilation problems... can reduce indoor air problems more quickly and extensively than trying to identify and control individual indoor pollutants."

-- U.S. General Accounting Office Report, October 1991

"In most of the cases I've seen, banning smoking has not changed the frequency of the complaints. What that suggests is that complaints about smoking are a symptom of a much larger indoor air problem of that psychological factors do play a very large role. People want to know that their needs are being addressed."

-- Sheldon H. Rabinowitz, Director of Industrial Hygiene and Toxicology for Sandler Occupational Medicine Associates
Occupational Hazards, August 1992

"We're getting away from using the term indoor air quality because what we've found is you can solve the indoor air problem and not eliminate the symptoms. A lot of consequences of psychological stress are the same as what we might expect from poor air quality. We don't know if these effects are additive, synergetic, or separate, but we can't look at indoor air without looking at other issues."

-- Philip J. Bierbaum, Director of Physical Sciences and Engineering for NIOSH
Occupational Hazards, August 1992

"Total indoor air quality is a better, more inclusive term for dealing with the concerns of white-collar workers. When you look at the irritant-level health effects people are alleging in most cases, I think it's questionable that they could be occurring only because of the indoor air. But if you add some stress and ergonomic concerns, perhaps that's when the problems start to show up. Psychological factors [how people interact] also appear to be a factor, but we don't know how important they are."

-- Al Miller, AT&T Industrial Hygienist and Chairman of the National Environmental Development Association's Total Indoor Environmental Quality Coalition
Occupational Hazards, August 1992

"The strongest argument against giving an agency such as the EPA the authority to regulate indoor air is that it would be like giving a machine gun to a child. The EPA has imposed huge costs on the private sector to eliminate trivial risks and make infinitesimal improvements in the health and safety of Americans. If a federal agency were to apply comparable standards to indoor air, the effect on the economy would be worse than the Great Depression."

-- Dwight R. Lee, University of Georgia Economist and author of a study for the National Center for Policy Analysis entitled "The Next Environmental Battleground: Indoor Air"

A total ban against smoking in the workplace and in restaurants was considered last year in Berkeley. Opposition to it was voiced by city employees who wanted the city to construct special smoking rooms and not legislate a total ban. "We are conscientious of non-smokers and don't want to infringe on anyone's right to breath clean air," said Dana Coleman, herself a smoker and president of the Berkeley clerical workers' labor union, local 790. "If you smoke and that's what you want to do, you should have a place to do it."

-- *San Francisco Chronicle*, November 17, 1992

"Thousand Oaks Councilman Frank Schillo said he would like to discuss the proposal [for smoking restrictions] at a public hearing, but he doubts the council will alter the current ordinance. 'I just don't feel local government should be in the business of telling people it can and can't smoke,' said Schillo."

-- *Daily News of Los Angeles*, January 8, 1993

"'To me it's [a ban on smoking in public places] Prohibition all over again,' said a Menlo Park restaurant owner who asked not to be identified. 'It should be up to the business owners. That's what we're supposed to be about, the right to choose.'"

-- *San Jose Mercury News*, March 20, 1993

"'I believe it's [a ban on smoking in public places] infringing on my constitutional rights... (the right to) life, liberty, and the pursuit of happiness,' June Hanebury said as she puffed on a cigarette at Chili's on Fremont Boulevard. 'And my pursuit of happiness is to smoke when I choose... There are so few of us (smokers) left, why not just let us be.'"

-- *San Jose Mercury News*, March 2, 1993

A Case History:
The Impact of EPA's Flawed Study on the Indoor Air Quality (IAQ) Issue

Based on a "politically correct" decision to eliminate environmental tobacco smoke (ETS), the Environmental Protection Agency (EPA) produced a scientifically-flawed report, which has lead to a piecemeal approach to the problem of indoor air quality. Once again, this is an example of how EPA's political agenda has negatively impacted our health and well-being.

- The EPA has not conducted a comprehensive, peer-reviewed study on the entire range of indoor air pollutants -- chemicals, fibers, smoke and dust, to name but a few.

- The Total Indoor Environmental Quality Coalition (TIEQ) found only a few cases in which scientific evidence was even capable of isolating a single causal agent for health problems resulting from indoor air pollution.

- The National Institute for Occupational Safety and Health (NIOSH) examined 203 air quality investigations of schools, health facilities and government and business offices, and found that the largest source of complaints about the quality of indoor air was poor ventilation.

- NIOSH also reported that, in buildings where adverse health effects were reported, tobacco smoke was a factor in only two percent of the complaints, calling into question the EPA's apparent belief that smoking bans will significantly reduce indoor air pollution.

- The NIOSH study found that in most of the buildings inadequate ventilation, unsanitary heating and air conditioning systems, and fumes from other sources were the real problem.

- A Bureau of National Affairs (BNA) survey found that nearly 85 percent of employers have already implemented a workplace smoking policy. The fact that an independent solution to the problem exists calls into question the EPA's motivation for concentrating on ETS in the first place.

- Smoke-free buildings are **not** necessarily healthy buildings, a fact proven by the EPA's own Washington headquarters. In spite of the smoking ban imposed inside the building, EPA employees have complained of illnesses, and the building is considered "sick" due to a lack of adequate ventilation or filtration to deal with such common air pollutants as chemicals, fibers and gases.

- The EPA's perceived conclusion that eliminating ETS leaves a building healthy opens the door to exorbitant worker's compensation claims for employers whose employees contract illnesses despite the ban.

- Only a comprehensive approach will solve the problem of IAQ.

3

Draft-Opinion Editorial

INDOOR AIR QUALITY

Taking showers and baths every day is a good way to keep your entire body clean and healthy. But what if someone told you that on Sundays you could only wash your face, and on Mondays your arms, and on Tuesdays your back, and on Wednesdays your legs, and on Thursdays your chest, and on Fridays your stomach and on Saturdays your hair. This is not a very efficient way of keeping clean and healthy.

Yet such a piecemeal approach is exactly how the EPA is choosing to address the disturbing problem of cleaning up indoor air and protecting our health.

Many of us work -- or knows someone who works -- in a "sick building," a building where the combination of poor air circulation, germs and chemicals cause illness. Many of us are all too familiar with the litany of symptoms -- eye, nose and throat irritation; headaches; lethargy; occasional dizziness; fatigue; nausea; and the inability to concentrate. And we have speculated, with curiosity and at least a tinge of panic, about whether an acute or chronic illness -- our own or that of a co-worker -- might be due to a sick building.

Sick buildings pose a real and growing health problem. And curing them effectively requires a comprehensive solution.

Unfortunately, the EPA continues to approach the problem of sick buildings on a piecemeal basis, concentrating on particular pollutants rather than the overall problem. It is surprising that the EPA adopted this strategy since groups such as the Total Indoor Environmental Quality Coalition (TIEQ) have discovered that in only a few cases has scientific evidence identified a single causal agent linking adverse health effects to poor indoor air quality. Now the California legislature is following the misguided lead of EPA in its consideration of environmental tobacco smoke (ETS). Other state legislatures could follow.

Currently, the EPA is focusing on the issue of the day, environmental tobacco smoke. While politically appealing as a target, the focus on environmental tobacco smoke diverts attention from solving the more significant and potentially dangerous problems of indoor air quality. A review of 203 air quality investigations of schools, health care facilities, and government and business offices conducted by the National Institute for Occupational Safety and Health (NIOSH), revealed that inadequate ventilation was the major source of complaints about air quality. This was confirmed by an October 1991 General Account Office (GAO) report that stated, "Correcting ventilation problems...can reduce indoor air problems more quickly and extensively than trying to identify and control individual indoor pollutants."

Let's not let policy makers use a piecemeal approach and the public's general distaste for tobacco smoke as a justification for backing away from their original commitment to examine the problem of indoor air quality in its entirety.

How can we develop a comprehensive solution to the problem of indoor air quality, and what should the solution be?

1) Undertake more studies to determine the effect of the full range of indoor pollutants on our health. Current information is limited and research is made difficult by the number of factors -- the pollutants themselves, the ventilation of buildings, and each individual's different reaction to indoor environmental conditions that must be studied. Without more intense scientific research, any solution that limits or bans a certain pollutant is of questionable effectiveness and may cost companies millions of dollars of unnecessary expense.

2) Encourage business and industry to be concerned with their sick buildings' ventilation systems and the impact on their workers' health. New buildings and their heating, ventilation and air conditioning systems can be constructed that take environmental and indoor air quality into account with the assistance of new proven, low cost technologies.

3) Insist that government hold off costly regulations until a total approach can be developed by the Occupational Safety and Health Administration (OSHA) to set standards for total indoor air quality. Once these standards are set, individual businesses should be allowed to meet them in ways that best suit their particular situations. Studies show that allowing flexibility to improve general air quality in a variety of ways is far less costly than having remote authorities impose uniform responses to particular pollutants.

At this time when we are all focusing on improving our outdoor environment, let's remember that most people spend 90 percent of their time indoors. Let's make sure that public policy for improving our indoor environment is as efficient as possible.

Draft-Opinion Editorial

WHEN ONE + ONE DOES NOT EQUAL TWO

If not for the serious economic and health impacts its actions will have on workers and businesses across the country, the Environmental Protection Agency's (EPA) recent attempt to solve indoor air pollution could be lightly dismissed as another example of the cliche: *"I'm from the government, and I'm here to help."*

The more sobering view of EPA's proposed actions will lead this country in a direction that is both expensive and dangerous to all Americans' health.

The EPA began its program to solve indoor air pollution -- and the numerous illnesses thought to be related to it -- by issuing an unsubstantiated report that claimed second-hand tobacco smoke causes cancer. While the report was totally without scientific foundation -- credible scientists have publicly debunked it -- EPA's initiative was "politically correct" and found widespread acceptance in the media and among the agency's adoring or beholden constituency.

With its false report in hand, EPA then set out to convince the public and other governmental agencies that by removing environmental tobacco smoke, we could eliminate the health effects of indoor air pollution. Case closed, problem solved. If only it were that simple.

The EPA has made a major scientific blunder by failing to conduct a serious, peer-reviewed study of indoor air pollution. By relying on its own flawed report, it is giving millions of Americans the false conviction that there is a simple solution to improving indoor air quality. What EPA hasn't addressed is what happens when businesses ban smoking and workers still get sick. As a matter of fact, in a review of 203 air quality investigations at schools, health facilities, and government and business offices, the National Institute of Safety and Health concluded that tobacco smoke had a contributing role in only two percent of the complaints.

One place where the EPA's thesis falls apart is in its own Washington headquarters. The Agency's building is considered "sick" because it lacks adequate ventilation or filtration to deal with such common air pollutants as chemicals, fibers and gases. EPA employees have contracted serious illnesses *despite* a smoking ban in virtually the entire complex.

Instead of using its own experiences with indoor air quality to initiate a comprehensive scientific study of the problem, the agency seems intent on bowing to political pressure to seek a quick fix. On the surface it might appear that the only losers are smokers and tobacco companies. In fact, the greatest threat is to the health and safety of all workers.

Unless the EPA engages in a thorough study of indoor air pollution, we will never be able to improve job conditions for American workers. By taking the easy way out, the Agency is creating the false sense of security that smoke-free buildings are healthy buildings.

That logic did not hold up for the two workers at the Social Security Administration office in Richmond, California, who died after they were exposed to deadly micro-organisms which cause Legionnaire's Disease. The outbreak left 13 others infected and forced the government to close the building for three months.

Already in this country Americans spend $115 billion annually complying with pollution control regulations. And, it is estimated that overall each American pays some $450 more in higher taxes and prices because of EPA regulations. That is $1,800 a year more for a family of four.

We don't need more regulations. What we need are regulations that work.

In order to improve this country's indoor air quality, the EPA needs to conduct thorough and impartial scientific studies that examine the various forms of pollution -- chemical, fiber, smoke, dust, etc. -- and to consider how best to reduce the pollutants.

Once such a study is completed, standards can be set for total indoor air quality. Then, individual businesses should be allowed to meet them in ways that best suit their particular situations. Studies show that allowing flexibility to improve general air quality in a variety of ways is far less costly than having remote authorities impose uniform responses to particular pollutants. Without a comprehensive approach to total indoor air quality, the EPA is not in a position to do more than blow smoke at the American people.

Draft-Opinion Editorial

WORKER'S COMPENSATION

Each year, businesses of all sizes contribute millions of dollars to state worker compensation funds in order to provide a financial safety net for employees unable to work due to job-related accidents or ailments.

The compensation programs, while sometimes controversial, have effectively served to protect businesses from numerous lengthy and expensive lawsuits while providing injured employees with immediate financial support.

In recent years, the federal Occupational Safety and Health Administration (OSHA) and its state counterparts have established rules and acceptable work-place practices that are intended to protect workers. If well-conceived and effectively implemented, these new regulations also aid companies by increasing worker productivity and reducing job site injuries.

Among federal agencies, OSHA has won respect from the business community by using sound, peer-reviewed science as the foundation for regulations affecting conditions in the workplace. Moreover, the National Institute for Occupational Safety and Health (NIOSH), our repository of scientific data and epidemiology on workplace issues, has made great strides over the past decade in developing credible information to guide government and business.

Which makes all the more surprising -- and dismaying -- the latest twist in the politics of regulatory agency science. In this case, the Environmental Protection Agency (EPA) is trying to create an end run on OSHA, and those who are likely to suffer the effects of this power play will be American workers.

There's always the danger to a good program when somebody in the government tries to impose regulations that not only don't improve working conditions, but actually encourage the continuation of practices that jeopardize employee health and increase compensation claims.

Such is the case with a new initiative from the EPA to "cure" the effects of indoor-air pollution. EPA has issued a report which concludes that people can get sick, even contract cancer, from other people's cigarette smoke. The implication of EPA's report is that tobacco smoke in the work-place be banned, thereby dramatically improving the air employees breathe.

To start with, EPA carried out its study without seeking the cooperation and sound scientific credentials of OSHA, where the jurisdiction for this issue rightly exists. More important, however, EPA's approach is based on a shoddy document that ignored the results of two dozen scientific studies and failed to take a comprehensive view of the issue. The agency -- clearly bowing to political pressures -- ignored NIOSH's study of 203 air quality reports from research at schools, health facilities and offices. NIOSH found that only in two percent of the buildings where health complaints were registered did tobacco smoke play a contributing role.

Unfortunately, EPA seems intent upon working from a mind-set that if tobacco smoke is eliminated from buildings and the workplace the indoor-air pollution problem is solved. Because the agency failed to work with OSHA to conduct a comprehensive scientific study of all the factors contributing to indoor-air pollution, its recent report ignores the multitude of airborne factors which are likely to have harmful health effects, including chemicals, fibers and gases and trace elements commonly found in the air of office buildings and manufacturing facilities.

Clearly, the ability of the government to regulate is not at issue; this country spends $115 billion annually on pollution control regulations. The question is whether these regulations are properly coordinated among responsible agencies and lead to a desired result. In the case of indoor-air pollution, the answer is a resounding NO.

EPA needs to back off and let OSHA and NIOSH take the lead, since it is their responsibility and jurisdiction. What we need is a thorough study of the issue. Without it, politics and "politically correct" responses will effectively condemn American workers to prolonged exposure to dangerous pollutants. It could be a real tragedy if workers and businesses conclude that by banning tobacco smoke, they are significantly lessening the probability of work-place illness.

Instead of continuing to court disaster, our responsible federal and state agencies should be working together with business and labor to launch a comprehensive scientific study of indoor pollutants. Let's get the facts on the table first, then decide how to take steps that will result in honest improvements in the American work-place.

Draft-Opinion Editorial

A NEED FOR MORE SOLUTIONS, NOT MORE PROBLEMS

President Clinton's new Administration is sending critically mixed signals to Americans at a time when most people are encouraging him to bring about much-needed change. While on one hand, we hear that the federal government is trying to reshape itself to improve the economic future of the country, we also learn that powerful forces are pushing for new regulations that could severely undercut the financial stability of business and jeopardize the health of American workers.

We see this policy contradiction starkly represented by actions of the Department of Defense and the Environmental Protection Agency.

When faced by the urgent need to down-size the military and close U.S. bases around the world, our government created a non-partisan commission called the Defense Base Closure and Re-alignment Commission, which spent several years making a comprehensive evaluation of the military's future needs and preparing its recommendations. These recommendations, while controversial, were based upon a thorough and detailed non-political study of each military facility and its prospective role in meeting our nation's defense needs. In short, while those affected may be grumbling, the country as a whole can have confidence that the commission based its findings on real facts and hard data -- and that no recommendation had a specific "politically correct" motive.

And the use of comprehensive assessment in the political process can also be seen elsewhere. Congress and the President are examining the details much more closely as they evaluate issues such as healthcare reform and modifying the space program -- issues which are of great concern and have a vast economic impact upon our lives.

Contrast this performance with the EPA in its role on the potential health threats posed by a relatively new environmental issue which has come to be known as indoor air pollution. Ever-zealous to find new problems to solve, even while old and acknowledged conditions remain unresolved, EPA launched an internal study to seek data which would justify the agency's determination to further regulate the conditions in which we live. Unfortunately for us all, the EPA report was inconclusive. EPA scientists, using a scientifically acceptable methodology, could not provide clear evidence (statistical or otherwise) to prove the agency's primary regulatory objective -- the banning of indoor tobacco smoke.

So in a stroke of "scientific" editing, the EPA simply revised its own standards and flatly distorted the available data in producing its now famous report, "Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders," which claimed that "secondary smoke" is responsible for as many as 3,000 lung cancer deaths in the United States each year. Rather than seek more comprehensive research, EPA then bowed to the politics of the issue and announced that it would establish regulations on environmental tobacco smoke. By taking such action, said EPA officials, the "danger" of the health risks associated with indoor air pollution would henceforth be eliminated.

But what really happened here? Did the EPA, without conducting a single scientifically and peer-reviewed acceptable study, simply determine that someone else's tobacco smoke is the major cause of indoor air pollution? How could they do that? And what kinds of other questions does this raise about the Agency's real commitment to protecting the health of America's workers?

My interpretation is that the agency has, in essence, told business that if it bans tobacco smoke from the workplace, the health effects of indoor air pollution will largely disappear. There is an irrefutable problem associated with this simplistic action: it is not based on science and it does not lessen the real health risks to workers. As a matter of fact, in a review of 203 air quality investigations of schools, health facilities and government and business offices, another federal agency, the National Institute of Occupational Safety and Health (NIOSH), officially concluded that tobacco smoke played a contributing role in only two percent of the building complaints investigated. (NIOSH has principal federal responsibility for assuring worker health and has a highly qualified staff of scientific experts.)

This situation raises an important question of employer liability. What if smoking is eliminated from the workplace and employees still experience illnesses associated with indoor air pollution? Who gets blamed then? The employer, that's who. While the EPA may issue regulations based purely on pseudo-science and the current direction of political winds, the liability for worker illnesses can fall squarely on the shoulders of business.

So despite all the EPA hoopla about a progressive government action, imposed without benefit of scientific evidence, the initiative fails because its premise was grounded in quicksand, while business is left holding the bag.

U.S. businesses are having enough trouble trying to compete in the global marketplace and do not need this type of counterproductive regulatory zeal. Business wants good, sound and comprehensive thinking from the government.

Imagine the justifiable public outcry if the base-closing commission made its recent recommendations without conducting a comprehensive study of the broad social and economic implications of its action. While painful to many communities and to the businesses which served these facilities, Americans have reacted with general respect for the fair and even-handed approach taken by the Commission.

We should demand no less from the EPA. If there is evidence of significant risk associated with indoor air pollution, then it should be studied rigorously -- but honestly. Based on sound scientific data, a total approach can be developed by the Occupational Safety and Health Administration to set standards for total indoor air quality. Once these standards are set, individual businesses should be allowed to meet them in ways that best suit their particular situations. Research on compliance with air and water pollution regulations clearly show that allowing flexibility is far less costly and more effective than having remote authorities impose cookie-cutter responses to each particular pollutant.

More than ever, Americans want to have confidence in their institutions of government. President Clinton made this a cornerstone of his campaign. Environmental policy is a good place to start.

4

2074144208

The Sacramento Bee

BUSINESS
& PERSONAL FINANCE

Poll links indoor air to office workers' ills

By Paul Schnitt
Bee Staff Writer

Two out of five downtown Sacramento office workers questioned in an informal poll say their work would improve if the air they breathed on the job was cleaner and fresher.

According to the survey, released Wednesday, many complained of symptoms such as tiredness (30 percent of those polled), headache (25 percent), watery or itchy eyes (21 percent) and flu-like discomfort (21 percent).

More than half of the approximately 200 office workers polled said they took at least one day off a year due to these office-related ailments.

Their complaints fit the definition of the so-called "sick building syndrome," which attributes office-worker discomforts to a climate-controlled environment where ventilation is inadequate and recycled indoor air is stale and polluted.

Typically, the symptoms go away after workers leave the building.

The Sacramento survey was done last fall for Healthy Buildings International, the country's largest indoor air quality consulting firm, which conducted similar polls in Los Angeles, San Francisco and three other West Coast cities.

The office workers were questioned randomly on the street.

As a follow-up, company officials held a free half-day seminar Wednesday in Sacramento on indoor health problems for property managers, building engineers, architects and large employers.

"We make no bones about it, we're a profit-motivated company and we're doing it long-term to increase our business," said Grey Robertson, president of Healthy Buildings, a Virginia company.

"It was darn obvious from those who attended the seminar that, yes, they are experiencing a lot of these problems," he said. "Quite a few said they need specific help and asked us to come [illegible]."

When Your Offic

Feeling woozy and don't know why? It may be th

BY KATHERINE GRIFFIN

It looked to be a good year for James Miles. The software company he'd started five years earlier, Phoenix Computers, had just moved into fancy quarters on the 12th floor of a new highrise in El Segundo, California.

"It was an absolutely gorgeous building," Miles recalls. "It had all the amenities." Elegant marble lobby, plush carpeting, luxuriant potted plants, windows that sealed out noise but let in plenty of natural light — everything that an entrepreneur on the way up could want. Miles and his employees, the building's first tenants, settled right in.

But one Friday morning a few weeks after the move, accountants Louise Aldrich and Pam Connolly were working in Aldrich's office when suddenly they began gasping for breath. They fled the room, coughing and choking, eyes burning and tears streaming down their cheeks.

Over a three-day weekend, the two women recovered enough to return to work on Tuesday. But within the next two weeks, almost everyone in the office began to feel sick. "People were getting headaches," Miles recalls. "They were nauseated, losing coordination. The longer you stayed in the building, the worse you'd feel."

Miles complained to the building's management. "At first they thought we were crazy," he says. "To prove there was nothing wrong, one of the managers set up shop in our offices. You know how long he lasted? One day."

The problem, Miles soon learned, was that construction crews working in an unoccupied area of the same floor were using strong, solvent-based adhesives to seal holes in the air ducts. And, because of a defect, the building's ventilation system was pumping the toxic vapors into Phoenix's office suite.

Miles convinced the building's owner to cut holes in the glass of some of the windows in Phoenix's offices and install fans to pull in more fresh air. "But even with that," he says, "there were dead zones where no matter what you did, you couldn't stay there." Several employees quit rather than work in the building, and after 18 months, Miles gave up and moved the company out.

The year was 1985, and indoor air pollution wasn't something Miles — or most other employers or employees — had thought much about. But in moving to that brand-new 24-story highrise, Phoenix Computers had set up shop in a "tight" building, where occupants are completely dependent on a central ventilation system for the air they breathe — and whatever gets into the ventilating system gets into the workers' lungs as well.

The Environmental Protection Agency ranks indoor air pollution — in both homes and offices — as one of the five most urgent environmental issues in the United States. The agency estimates that 30 to 75 million workers are at risk of getting sick because of the buildings they work in.

Some building-borne ailments can even be fatal. In 1991, at the Social Security Administration building in Richmond, an outbreak of Legionnaires' disease thought to be caused by a buildup of bacteria in the ventilation system killed two workers.

Other forms of indoor air pollution can cause asthma and a severe lung inflammation called hypersensitivity pneumonitis. A small percentage of people exposed to contaminants in office buildings develop multiple chemical sensitivity, a heightened vulnerability to all kinds of chemical substances.

Far more often, though, workers in sealed structures suffer from the hard-to-pin-down but debilitating symptoms known as sick building syndrome. In one office, workers may experience dizziness, headaches, nausea, burning eyes and nosebleeds. In another, people may find themselves unusually tired, coughing and sneezing, with itchy skin and throats. Contact lens wearers may suffer severe eye irritation.

But here's the rub: People everywhere occasionally come down with these ailments and complaints. So when do you blame the building, instead of hay fever, a cold or too many nights on the town? One tip-off: If symptoms get worse as the workday wears on and then improve at night and on weekends when people are home, take a closer look at the building.

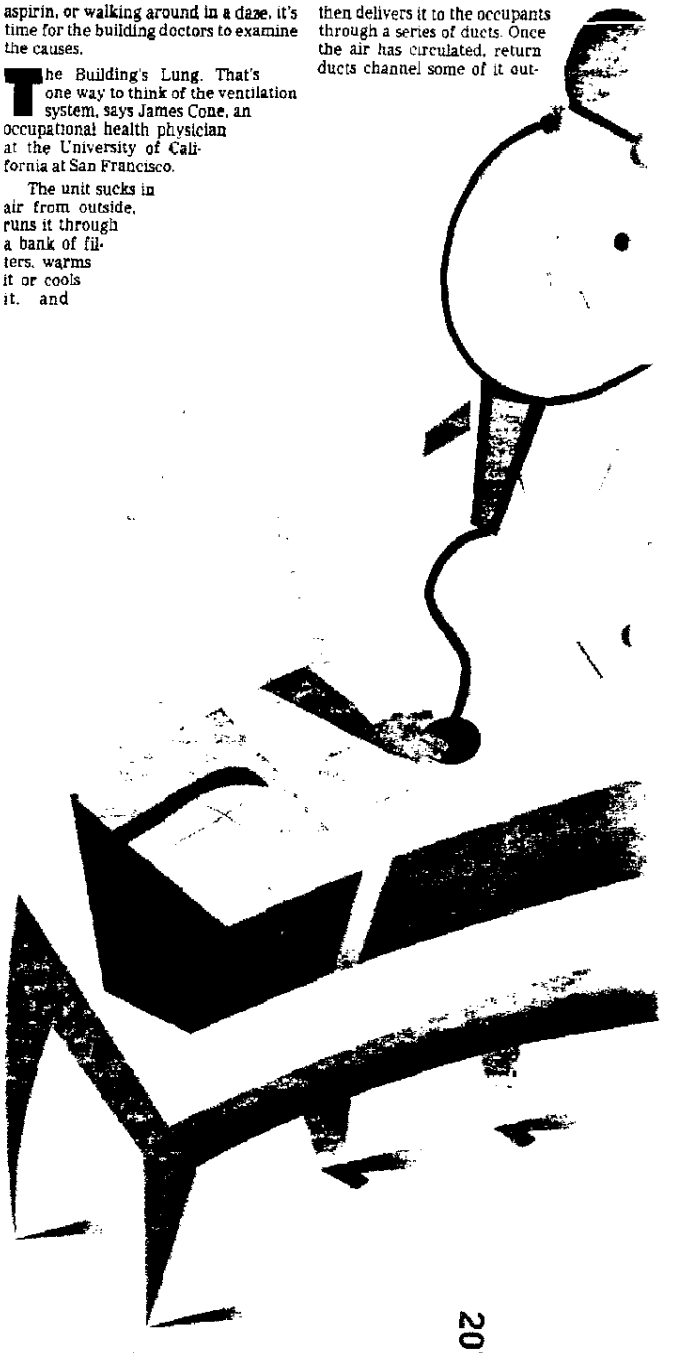
Since the late 1970s, indoor-air specialists from the National Institute for Occupational Safety and Health (NIOSH) have been called in to investigate more than 1,000 instances of building-related illness. In more than 50 percent of the cases, the institute has fingered inadequate ventilation, followed by chemical contamination and problems traced to microbiological agents such as molds, bacteria and fungi.

"Everything contributes," says Richard Shaughnessy, a chemical engineer who directs the indoor-air research program at the University of Tulsa in Oklahoma. "Copiers, ventilation systems, the air brought in from outdoors, the number of people in a work space."

When workers are sneezing, popping aspirin, or walking around in a daze, it's time for the building doctors to examine the causes.

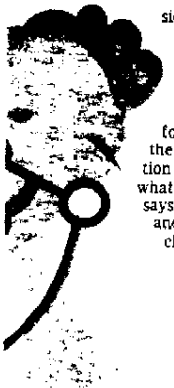
The Building's Lung. That's one way to think of the ventilation system, says James Cone, an occupational health physician at the University of California at San Francisco.

The unit sucks in air from outside, runs it through a bank of filters, warms it or cools it, and then delivers it to the occupants through a series of ducts. Once the air has circulated, return ducts channel some of it out-



e Calls In Sick

the building you work in needs the checkup.



side. In most buildings, the rest of the used air is mixed with fresh air and recirculated.

Within this labyrinth lurk ample opportunities for trouble. "If you go into the dark recesses of a ventilation system, you'd be shocked at what you'd find," Shaughnessy says. Beyond the expected dirt and dust, typical detritus includes dead mice, insects, particles of building materials, mold, mildew and pesticides left by careless exterminators.

In one Massachusetts building, employees were plagued by itchy red bumps they thought were insect bites. Instead, consultant David Bearg found loose bits of fiberglass insulation blowing through the ducts. New filters ended the outbreak.

Not all the trouble comes from the newer, tight buildings, by the way: Some older, unsealed buildings with dirt clogged ventilation systems are among the worst offenders. In either case, when the system works well and is kept clean, workers breathe easy.

Deadly dull work and ponderous lunches aren't the only reasons office workers nod off in the afternoon. Too little air might be the problem. The American Society of Heating, Refrigeration, and Air Conditioning Engineers, which establishes the ventilation standards that influence local building codes, originally set a figure of 15 cubic feet of fresh outdoor air per person per minute back in the 1930s.

Then, in 1975, prompted by the energy crisis, the group decided that office workers could make do with five — about what the average airplane passenger gets. Though the recommendation has since been boosted back up to 20, many buildings still don't circulate enough fresh air.

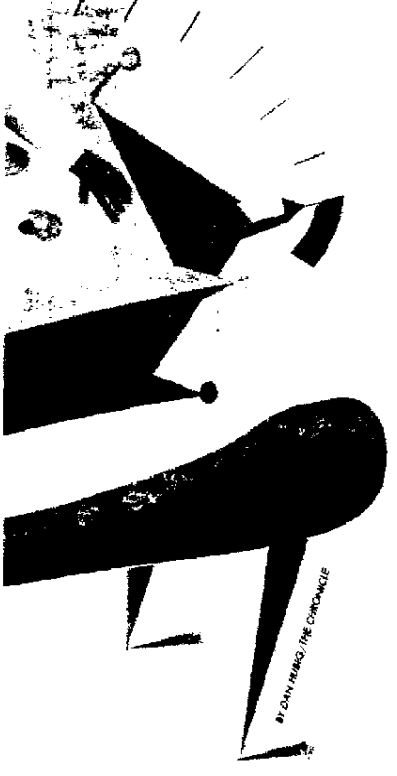
This means colds and other viruses spread more easily. When U.S. Army researchers compared ailments among two groups of 400,000 recruits, some of whom were housed in older, naturally ventilated quarters and some of whom lived in newer, tightly sealed barracks, they found that the soldiers in the closed buildings got 50 percent more colds than those who lived in quarters where they could throw open a window.

When a sealed office is crammed with more people than it was designed to hold, workers get less fresh air than they should. The standard of 20 cubic feet assumes that no more than seven people will occupy a 1,000-square-foot area. Stuff in more workers, and more air is needed.

Then there's plain bad design: Sometimes a system sucks in and spews out air that's unfit for anyone to breathe. In buildings where workers have complained of headaches, fatigue, and nausea, investigators have traced the symptoms to carbon monoxide poisoning.

How might this happen to someone shuffling papers on the 18th floor? Easily, if the building's fresh air intakes open near a parking garage or a loading dock frequented by idling trucks. One solution is to put up a sign by the loading dock, telling truckers to shut their engines off immediately. Or, if the system

See Page 10



BY DAN HERO/THE CHRONICLE

Nursing a Building Back to Health

You walk into your office and immediately start to sneeze. The guy in the next cubicle can't wear his contact lenses anymore. Late in the afternoon the air feels so stagnant you can barely keep your eyes open. Everybody passes around colds like potato chips at a picnic.

You suspect you're working in a sick building, but what can you do about it?

Document Your Symptoms

Keep a log of your own and your coworkers' complaints — who gets what symptoms when and where. If workers take their maladies to the doctor, keep records of those visits, too. The American College of Occupational and Environmental Medicine will provide names of physicians in your area who specialize in occupational health. Call the college's educational department at (708) 228-6850 or the Association of Occupational and Environmental Clinics at (202) 347-4976.

Look Around the Building

"Workers should take responsibility for checking out their own ventilation systems," says occupational health physician James Cone of San Francisco. "You can learn a lot." First, check the ceiling, walls and floor to see whether each room has a source of air. Take a look at the air vents. Hold a piece of tissue paper up to each one to see whether air is actually moving in or out. Grimy vents are a sign of inefficient or old filters. Furniture or partitions placed over or in front of vents may be blocking the air flow.

Check around copy, printing and shredding machines to make sure they are near a functioning exhaust vent. If workers have to spend long periods of time standing over such equipment, the machines should be located in unconfined spaces.

Ask the building manager how many cubic feet per minute of fresh outdoor air is circulating per person. If it's under 20, it's not enough. Note when the ventilation system is turned off (you'll know when the white noise from the fans stops). If it cycles off for long periods during the day, or goes off completely while many people are still working in the building, contaminants may be building up in the air.

Ask the building maintenance supervisor when the drain pans were last cleaned. Is there a regular maintenance schedule? Are pesticides used near the ventilation system? If so, what precautions are being taken to keep these substances out of the circulating air supply?

Find out if any construction or renovation projects are under way; if so, ask what's being done to flush harmful vapors from the building.

Suggest Action

Once you've targeted any hazards, you'll have to convince someone to do something, starting with your employer. If your efforts meet with resistance, you might get hold of the Environmental Protection Agency's detailed guide, "Building Air Quality: A Guide for Building Owners and Facility Managers." It's available for $24 by writing to New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. (Refer to order processing code 6103.) You can also order by fax: (202) 512-2250. The publication explains how a building manager can clean up and prevent indoor-air pollution and when expert help might be needed. It also reminds managers that their indifference can result in disgruntled workers, lowered productivity, bad publicity and hefty lawsuits.

Call in the Experts

The National Institute for Occupational Safety and Health's Hazard Evaluation and Technical Assistance Branch investigates sick building outbreaks but has the time and staff for only the most serious cases. However, a telephone hot line — call (800) 35-NIOSH — provides basic information and referrals to state and local health departments.

As sick building problems become more visible, private consultants are springing up like algae in a drain pan. The EPA will publish a list of such firms within a few months. Check with the Public Information Center, Environmental Protection Agency, Washington, D.C., 20460, (202) 260-2080, or call the Air Quality Office at (202) 233-9030. Ask for the Survey of Indoor Air Quality Diagnostic and Mitigation Firms.

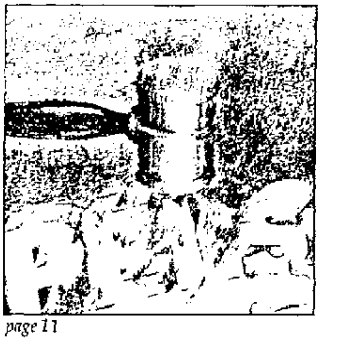
Also check the local yellow pages under Indoor Air or Industrial Hygiene Consultants. Whoever contracts for these services should ask about cases the company has handled before. If possible, check references; such firms aren't regulated, and some have little experience.

— K.G.

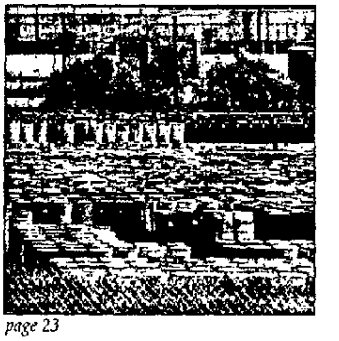
CONTENTS

Occupational Hazards
The Magazine of Safety, Health and Environmental Management

AUGUST 1992


page 11

FEATURES

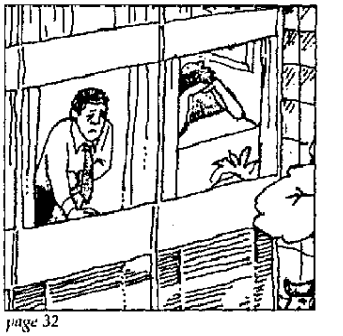

page 23

DEPARTMENTS


page 28

MARKETPLACE

COVER: Photograph by S.L. Smith.


page 32

WHY EMPLOYEES ARE SICK OF INDOOR AIR

Contaminants in building air can harm your workers' health, productivity, and morale. Our experts outline strategies for clearing the air of this $60 billion health problem.

By Gregg LaBar

Margie Swyt

In indoor air quality lingo, a major national communications company had a "crisis building" on its hands, according to researcher Stephen J. Reynolds.

Employees were complaining about the air quality and nearly all of them were exhibiting at least one adverse health effect, including coughing, throat irritation, and disorientation, explained Reynolds, assistant professor in the Dept. of Preventive Medicine and Environmental Health at the University of Iowa, Iowa City, Iowa. In the course of events, the company did not document or investigate the problems. But when 31 employees sought emergency medical care, the company decided to evacuate the building and have a team of experts investigate.

The team uncovered problems with the heating, ventilation, and air conditioning (HVAC) system; improper chemical use throughout the facility; and microbial contamination. They also concluded that had the company addressed employee concerns sooner, many of the problems could have been avoided. According to Reynolds, the episode cost the company as much as $1 million to shut down operations, hire the necessary consultants, and renovate the HVAC system.

Reynolds' case study is less an aberration than a dramatic example of what is occurring in varying degrees throughout the country. "Nearly all employers will end up with questions about indoor air eventually," warns Henry B. Lick, manager of industrial hygiene for Ford Motor Co., Dearborn, Mich., which operates some 2,000 facilities nationwide.

American adults spend about 90 percent of their time indoors, where concentrations of some contaminants have been found to be two to five times higher than outdoors. Experts estimate that between 800,000 and 1.2 million commercial buildings have deficiencies in indoor air quality. The Environmental Protection Agency (EPA) estimates that IAQ problems cost American business some $60 billion annually, most of it the result of lost productivity. Workers' compensation and health care costs account for several billion dollars of the total, experts said.

Healthy Buildings International Inc. (HBI), a Fairfax, Va., IAQ consulting firm, estimates that an employer with 667 employees in a "sick" office building can expect to suffer productivity losses of about $200,000 annually ($300 per employee) due to employee absenteeism, assuming an IAQ-related absenteeism rate of 1 percent.

"The majority of the costs are hard to see because they're related to absenteeism, morale, and quality of work," Iowa's Reynolds said. "Medical costs are probably less than 10 percent of the total loss. There just aren't a lot of cases where there is a physician-diagnosable illness."

Sheldon H. Rabinovitz, director of industrial hygiene and toxicology for Sandler Occupational Medicine Associates, a Melville, N.Y., consulting firm, notes that while few indoor air situations are life-threatening, employers still need to address IAQ concerns for health and economic reasons. "If there are complaints, the employer must do what he can to

eliminate the problem. He cannot live with the problem," Rabinovitz said.

Wide Range of Effects

The variety of maladies associated with poor indoor air ranges from annoyances and comfort concerns to serious infections and even death. The more serious problems have sparked interest in indoor air quality, but the less severe problems are far more common.

The case that probably did more than any other to alert Americans to "building-related illness" occurred in Philadelphia in 1976, with the outbreak of Legionnaires' disease (an example of microbial contamination) among guests at the Bellevue-Stratford Hotel. Twenty-nine people ultimately died after breathing bacteria-contaminated air that was disseminated through the hotel's ductwork systems. Since then, several other outbreaks of Legionnaires' disease have been reported, as well as deaths resulting from inhalation of fungi.

In addition to the severe acute effects, a number of chronic effects can also have fatal consequences. For example, according to EPA, chronic exposure to asbestos and radon in the indoor environment is responsible for thousands of cancer deaths a year. Regular exposure to environmental tobacco smoke has been linked to thousands of excess cancer and heart disease cases annually.

At the less severe end of the spectrum, the most common complaints include eye irritation, dry throat, runny nose, headache, fatigue, skin irritation, shortness of breath, cough, dizziness, and nausea. There is no one-to-one correspondence between cause and effect, and in many cases, it is difficult to isolate a specific cause or causes.

According to Healthy Buildings technician Michael A. Price, allergenic fungi, dusts, low relative humidity, bacteria, and chemical off-gassing from carpeting and furniture are the most common causes of IAQ problems. The pollutants remain in the air, Price said, due to poor maintenance, inefficient air filtration, poor ventilation in the interest of conserving energy, or changes in the design and use of a building.

What makes indoor air quality issues especially difficult to manage is that effects can vary widely among people. For example, workers with allergies or weakened immune systems may be more susceptible to indoor air maladies than other employees. In addition, many experts believe that ergonomics and work area lighting can affect worker perceptions of the quality of the breathing air and worker comfort. Therefore, they recommend considering those issues along with indoor air — a strategy of addressing the more inclusive concept of "indoor environmental quality" (see sidebar on these pages).

There are also theories that psychosocial factors — stress, job satisfaction, and labor-management relations — may impact who will complain about problems they associate with poor indoor air quality. Some experts believe that generally unhappy and/or lower-paid workers are more likely to complain of IAQ-associated health effects.

Ford's Lick estimated that psychosocial factors are present in about 60 percent of the indoor air complaints Ford receives. However, he noted that workers at all different levels — general managers to entry-level clerks — have been known to voice their concerns. He said, "In some instances, we've had everybody asking us to please do something. We knew we had a problem then."

Preventing Problems

Ideally, experts said, employers should be thinking about indoor air quality before their employees do. This would include, they said, making good indoor air a contractually binding requirement in the lease signed with the building manager.

The incentive is there for both employers and building managers. There have been several cases, for example,

INDOOR ENVIRONMENTAL QUALITY

Just when employers, employees, and government officials were becoming comfortable with the idea of addressing indoor air quality (IAQ), a new, more comprehensive concept is coming into vogue: "indoor environmental quality" (IEQ).

According to Philip J. Bierbaum, director of physical sciences and engineering for NIOSH, IAQ-associated complaints of eye, nose, and throat irritation, headaches, dizziness, fatigue, and nausea cannot always be explained by indoor air factors (chemical and microbiological contaminants, inadequate ventilation, and environmental tobacco smoke) alone. He said NIOSH, which is pushing the IEQ concept, has found that these symptoms are a result of multiple factors, with indoor air, ergonomics, workplace stress, workstation lighting, and other concerns probably playing a role.

AT&T's Miller: "Total indoor environmental quality is a better, more inclusive term..."

"We're getting away from using the term indoor air quality because what we've found is you can solve the indoor air problem and not eliminate the symptoms," Bierbaum said. "A lot of consequences of psychosocial stress are the same as what we might expect from poor air quality. We don't know if these effects are additive, synergistic, or separate, but we can't look at indoor air without considering the other issues."

"Total indoor environmental quality is a better, more inclusive term for dealing with the concerns of white-collar workers," added AT&T industrial hygienist Al Miller, who serves as chairman of the National Environmental Development Assn.'s Total Indoor Environmental Quality (TIEQ) Coalition, a Washington, D.C., nonprofit business group formed earlier this year. "When you look at the irritant-level health effects people are alleging in most cases, I think it's questionable that they could be occurring only because of the indoor air. But if you add some stress and ergonomic concerns, perhaps that's when the problems start to show up. Psychosocial factors [how people interact] also appear to be a factor, but we don't know how important they are."

Experts predicted that we'll be hearing much more about indoor environmental quality, which they said will focus on ensuring that employees are comfortable and productive, as well as free from illness and disease — a kind of worksite-specific wellness program. Look for EPA and OSHA to take a similar tack in future research, rulemaking, and enforcement activities, experts advised.

where building owners have been sued by a tenant company's employees alleging adverse health effects. Employees have also sought, and won, workers' compensation benefits for IAQ health effects.

As a preventive measure, experts recommend that the minimum airflow in buildings from the outside be maintained at 20 cubic feet per minute per person, as suggested by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) voluntary consensus standard 62-1989. ASHRAE standard 55-1981 on "Thermal Environmental Conditions for Human Occupancy" recommends that office buildings have a temperature of between 68.5-76.0 F in winter and 73-79 F in summer for maximum worker comfort.

Employers should also be aware of potential IAQ problems during times of renovation and maintenance, advised Randall J. Dean, a building contractor defense attorney with the Los Angeles law firm of Chapman & Glucksman.

"If there is a red flag for indoor air, it's the impact that renovation can have," Dean said. "What was adequate for normal operations may not be adequate during renovation or after it's been done." Dean noted that many experts recommend that the main HVAC system be isolated from the areas being renovated and that redesigned work areas be closely monitored for changes in airflow.

Employee complaints are a major reason employers and building owners become interested in indoor air quality. For example, a couple of years ago, after receiving a number of IAQ complaints, AT&T Senior Industrial Hygiene Engineer Al Miller assembled a task force and convened a two-day conference for key company managers on indoor air quality. These events ultimately led to the drafting of the company's 88-page book of IAQ guidelines. It includes advice on investigating IAQ concerns and diagnosing IAQ health effects.

The AT&T guidelines, which are similar to those in the EPA/NIOSH publication "Building Air Quality: A Guide for Building Owners and Facility Managers," stress the need for a multidisciplinary approach to investigating IAQ complaints, involving occupational health professionals, engineers, physicians, facilities experts, and human resources staff. Consultants are useful, Ford's Lick said, when a facility lacks in-house expertise or when there needs to be a third-party "tiebreaker" between the building owner and tenant or between employees and the employer.

Most experts say employee complaints are enough to spark indoor air quality investigations and should be the basis of those investigations. Professor Reynolds recommends starting with people who have seen a doctor for their problems, have taken other documented action (i.e. left work early), or are complaining of some type of unique symptom.

"The temptation of many people is to go in and start monitoring or do a mechanical evaluation," Reynolds said. "I really believe in talking to the people first, especially if psychosocial factors appear to be involved. Generally, the things people are complaining about should get first priority."

Some individual worker problems are not difficult to resolve and can be solved of without additional investigation. But in a lot of other cases, Reynolds said, investigators should take the next step and determine the extent of the problem by talking to people in other work areas and on other floors. "Indoor air is an area where if you do something for some people and not for others, people could feel slighted," HBI's Price said.

Getting Feedback

Experts differ on the best way to evaluate overall worker perceptions of the indoor air quality. Some people, including consultant Rabinovitz, advocate the use of surveys to target problem areas. "If management is thinking about doing something, you've already reached the stage where everybody assumes there's a problem. Employees are probably upset and think management is hiding something. You may as well get the issue out in the open and get the employees involved," Rabinovitz said.

Though supporting employee involvement, other experts don't necessarily like the idea of doing broad-based surveys. Ford's Lick, for example, uses focus groups as an alternative way to gain employee input.

"The one thing we definitely don't recommend is doing a buildingwide questionnaire," HBI's Price said. "Some percentage of people are going to say they have a problem just because you asked them."

"If you do a survey, you have to remember what you're getting," attorney Dean said. "Solicited complaints have to be looked at with a greater degree of skepticism than unsolicited complaints. If you do a survey and 20 percent of the people say they have problems, that may not be significant. But if 20 percent of the people come forward on their own, that is significant."

Walk-throughs, visual inspection of the ventilation system, and analyzing employee complaints will usually tell you if you have IAQ problems and where the hot spots are. Sampling for individual contaminants, i.e. formalde-

continued on page 36

WHAT DO THESE SYMPTOMS SUGGEST?

Thermal discomfort	Check HVAC condition and measure temperature and humidity. Also check for drafts and stagnant areas.
Headache, lethargy, nausea, drowsiness, dizziness	If onset was acute, arrange for medical evaluation, because carbon monoxide poisoning may be the problem. Check combustion sources and overall ventilation.
Congestion; swelling, itching, or irritation of eyes, nose, or throat; dry throat; or nonspecific symptoms	May be allergic if small number of people affected. If many people affected, look for sources of irritating chemicals such as formaldehyde.
Cough; shortness of breath; fever, chills, and/or fatigue	Check for gross microbial contamination due to sanitation problems, water damage, or contaminated HVAC system.
Diagnosed infection	May be Legionnaire's disease or histoplasmosis, related to bacteria or fungi. Contact the state or local health department.

Source: "Building Air Quality: A Guide for Building Owners and Facility Managers," EPA/NIOSH, December 1991.

GOVERNMENT ON THE BANDWAGON

EPA and other federal agencies are better-equipped than ever to address the issue of indoor air quality (IAQ), Robert Axelrad, director of EPA's Indoor Air Div., said at a roundtable session during the American Industrial Hygiene Conference & Exposition (AIHCE) in June.

In 1990, EPA's Science Advisory Board identified poor indoor air quality as one of the top five environmental risks to human health. Since then, Axelrad said, the agency has stepped up its efforts to respond to indoor air problems. He noted that EPA spent only $350,000 of its multi-billion-dollar budget on IAQ in fiscal 1989. However, for fiscal 1993, which begins Oct. 1, 1992, Axelrad reported that EPA has asked for $6 million to fund its IAQ policy-making program and $7 million to fund IAQ research.

"Indoor air is moving up the agenda," Axelrad said. "This is a lot of money to spend on an area where we don't have a specific legislative mandate (like EPA does for outside air or solid waste). We could be looking for a smoking gun in the indoor air business for a long, long time. What we're trying to do is transfer what we already know to the key people."

Axelrad said EPA has been focusing on the development of guidelines to help building managers address indoor air quality during design, construction, maintenance, renovation, and routine operation of public and private facilities. EPA has installed IAQ coordinators in each of its 10 regional offices to provide technical assistance to building owners and facility managers. In December 1991, EPA and NIOSH published a 230-page manual, "Building Air Quality: A Guide for Building Owners and Facility Managers" (No. S/N 055-000-00390-4), which is available for $24 from: New Orders, Superintendent of Documents, Box 371954, Pittsburgh, PA 15250-7954.

In the area of research, EPA is studying sources and emission rates of pollutants, a variety of neurobehavioral and sensory health effects, and the assessment of indoor air risks. Axelrad said a multimillion-dollar long-term study, the Building Assessment Survey and Evaluation (BASE) program, is aimed at developing standardized solutions to IAQ problems.

EPA is one of more than 20 federal agencies, along with OSHA, NIOSH, Dept. of Defense, and General Services Administration, on the Interagency Committee on Indoor Air Quality (CIAQ), which is coordinating the federal government's indoor air efforts.

OSHA

OSHA has received some 1,200 comments in response to its Sept. 29, 1991, IAQ request for information on the need for an indoor air regulation, according to Debra A. Janes of OSHA's health standards office. Janes told AIHCE attendees in early June that OSHA had not decided if it will proceed with the rulemaking. She hinted that that decision might not be made until after the November general election. If OSHA does attempt rulemaking, she said, it will likely focus on ventilation performance, worker training, source control, and technical assistance.

Since issuing a compliance directive on indoor air quality in September 1990, Janes said, OSHA has conducted 140 inspections in response to employee complaints about poor indoor air quality. If citations are warranted, the agency uses the general duty clause in the absence of a standard. "The lack of a standard hinders the solving of indoor air quality problems," Janes acknowledged.

OSHA's Debra Janes: "The lack of a standard hinders the solving of indoor air quality problems."

In March, the AFL-CIO petitioned OSHA to issue an indoor air quality standard "promptly." In addition, for several years, Action on Smoking and Health has been urging OSHA to regulate, and eventually ban, workplace smoking. Despite the petitions, Janes said, OSHA's timetable is unlikely to change.

NIOSH

Philip J. Bierbaum, director of NIOSH's Div. of Physical Sciences and Engineering, reported at the AIHCE that his agency has responded to more than 1,100 requests for technical assistance on indoor air quality issues since the late 1970s. NIOSH also receives about 200 IAQ-related inquiries a month through its 800 number (800-356-4674), he reported.

Bierbaum said that NIOSH, which spends 2 percent of its $103 million FY 1992 budget on indoor air, is also doing research on sampling methods for volatile organic compounds (VOCs) and biological agents.

Congressional Pressure

EPA's Axelrad acknowledged that some of the federal agencies' interest in indoor air is the result of recent Congressional pressure. In an October 1991 report, Congress' General Accounting Office concluded that "federal efforts are not effectively addressing" indoor air pollution, mostly due to insufficient funding.

Several congressmen have offered legislative solutions. In the Senate, the Indoor Air Act of 1991 (S. 455), authored by Sen. George Mitchell (D, Maine), would authorize $48.5 million for IAQ research. The bill passed the full Senate, 88-7, late last year.

In the House, an IAQ bill originally introduced by Rep. Joseph Kennedy (D, Mass.), H.R. 1066, was being reworked at press time, with the assistance of Rep. Robert Andrews (D, N.J.). The less stringent revision is expected to mandate that OSHA write an IAQ standard only if a specific number or percentage of workers complain of IAQ-related problems, and to more closely mirror the Senate bill's focus on research. The original bill would have required that OSHA issue an IAQ standard.

At press time, it appeared unlikely that the House bill would get to the floor for a vote before the November general election. The House could decide to vote on the Senate bill, and if it's approved, send it to President Bush for his possible signature. Throughout the current 102nd Congress, however, Bush Administration officials have opposed IAQ legislation and argued that current efforts and funding levels are enough to address the indoor air problem.

continued from page 34

hyde, and comparing the results with established industrial standards is seldom warranted.

"Air sampling is a last resort because it really doesn't tell you anything," Ford's Lick said. "We have our own lab that can analyze 150,000 different chemicals, but we know the levels we're dealing with will be way below the permissible exposure limits."

Monitoring for carbon dioxide and carbon monoxide can be useful, however. High levels of carbon dioxide, AT&T's Miller said, would indicate that not enough outdoor air is getting inside. According to Price, levels of carbon monoxide should not exceed 9 ppm, the maximum outdoor concentration recommended by EPA, and be nowhere near the 35 ppm permissible exposure limit set by OSHA. "If you had a level of 35 ppm of carbon monoxide in the office environment, you'd be taking workers out on stretchers," he said.

Controls

According to HBI research, the most common solutions to indoor air problems are improving maintenance of the HVAC system and ensuring that the system is meeting ASHRAE's recommendations. In case after case, these simple measures have substantially reduced complaints about a variety of health effects, according to Bill Borwegen, director of health and safety, Service Employees International Union, which gets more complaints from its members on indoor air quality than any other health and safety issue.

Another option is to simply ban certain activities that are likely contributors to indoor air problems. This could include, Reynolds said, banning the use of certain chemicals, renovation and maintenance activities during the workday, and workplace smoking. If smoking is permitted, Reynolds said, certain areas should be set aside for this purpose and should be separately ventilated to the outdoors.

"You could do nothing else but ban smoking, and I think that would have a noticeable impact," Reynolds said. However, he noted that complaints about a smoky environment are probably an indicator of poor ventilation — a more pervasive problem.

"In most of the cases I've seen, banning smoking has not changed the frequency of complaints," Rabinovitz said. "What that suggests is that complaints about smoking are a symptom of a much larger indoor air problem or that psychosocial factors do play a very large role. People want to know that their needs are being addressed."

HBI's Price said the goal of indoor air quality programs should be to make at least 80 percent of the people feel healthy and comfortable, and move toward accommodating everyone. To accomplish this, he said, the more the employer or building manager believes psychosocial factors are impacting worker perceptions about indoor air quality, the more important it is to involve workers in the program.

Price's advice to employers: "If there was a problem, admit it, fix it, and be glad the employee pointed it out because, otherwise, your people costs are going to continue to go up and your productivity is going to continue to go down."

Using Tested Products May Provide Protection from Lawsuits

—By Laurence S. Kirsch, Esq. & Geraldine E. Edens, Esq.

Legal Advice

The growing number of "sick building syndrome" (SBS) lawsuits has caused individuals, businesses and others who may find themselves embroiled in these cases to search for means of limiting their potential liability. Fortunately, opportunities do exist for minimizing the risk of indoor air-related liability. Product testing and the use of tested products present two such important opportunities.

Individuals allegedly injured by indoor air pollution frequently proceed under two legal theories, negligence and strict liability. Negligence is a failure to exercise due care. Due care is defined as the degree of care that would be exercised by a "reasonable person." Individuals may be found negligent in the performance of services or in the manufacture of products.

For example, in Call v. Prudential Insurance Co. of America (1990) the plaintiffs alleged that the defendants were negligent because, among other things, they failed to:

- Properly evaluate, test and investigate for toxic fumes, chemicals and other substances that produced SBS;
- Balance the air conditioning system to produce a sufficient outside air/recycled air ration spread Adequately throughout the entire building; and
- Use building materials that were incapable of off-gassing formaldehyde and other noxious substances.

The case was settled for an undisclosed amount. Nevertheless, failing to test for indoor air pollutants, failing to design an adequate HVAC system and failing to use "safe" products in a building constituted the basis for the asserted liability.

In a negligence action, the plaintiff must show the defendant's conduct was unreasonable, that is, the defendant failed to use due care. It is in this context that product testing information can prove important. Product testing can provide valuable information on a product's characteristics.

The efforts to use tested products may serve as important indicators that a party exercised due care. For example, where scientific or industry literature indicates or establishes that certain products do not contribute or do not have a significant potential to contribute to indoor air pollution, a court or jury may be more likely to view the party using those products as having exercised reasonable care.

Conversely, if architects, designers or contractors specify a product without knowing the risks associated with that product, they could be sued on the theory that, as professionals in the industry, they should have known that the products presented a risk.

Strict Liability

Another common basis of liability for indoor air pollution is strict liability. Strict liability applies to liability for defective products.

This theory, unlike the negligence-based theory, does not depend on "fault." Instead, the focus of legal inquiry shifts from the conduct of a party to the product itself. A product can be defective either because of its manufacture or its design. For example, if urea formaldehyde foam insulation were to off-gas formaldehyde vapors because the constituent chemicals were not mixed in the proper proportions, the product might be considered to have a manufacturing defect. On the other hand, a mobile home that contains dangerous components or that does not permit sufficient ventilation may be deemed defectively designed (Heritage v. Pioneer Brokerage & Sales 1979).

If a product is found to be defective and was the cause of the plaintiff's injuries, then liability may extend to every entity involved in the chain of distribution of that product. In accordance with this principle, the judge in the Call case ruled prior to trial that the designers, general contractors and installers of the building's HVAC system could be held liable under a strict liability theory if the jury determined that the ventilation system was defective.

Thus, the HVAC system was deemed a "product," and every entity involved in the chain of designing, constructing and installing the system would be potentially liable for the plaintiff's injuries. Similarly, in some jurisdictions, a building itself may be deemed a product subject to strict products liability (McDonald v. Mianeck [1979]).

Liability Suits Attractive

The relative ease of recovery under a strict liability theory makes product liability suits attractive to plaintiffs. For the same reason, they are dreaded by defendants.

The key limitation of strict liability in the indoor air environment is that it applies only to products. However, to the extent courts are willing to deem an HVAC system or an entire building a product, exposure to indoor air liability becomes significantly greater for product designers and manufacturers, builders and installers.

In view of the expansive reach of strict liability, the willingness of courts to consider HVAC systems and buildings as "products," and the flexible standard of due care, the use of thoroughly tested products is a sensible means of avoiding liability. The Supreme Court of Connecticut has noted, "the creative or authoritative source of both design specifications and product testing information is . . . of material significance to the assignment of liability" in a product liability action. Picketts v. International Playtex, Inc. 1990).

A Good Model

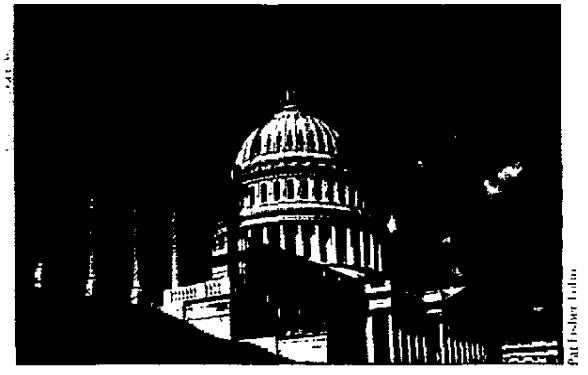
A model of such product testing is being conducted by the fiber glass insulation industry in conjunction with EPA. Fiber glass fibers belong to a category of substances called man-made vitreous fibers or man-made mineral fibers, which are used primarily for insulation purposes. Because of a concern that respirable fibers may become airborne, the fiber glass industry has taken the initiative to test fiber glass ductwork used in air-handling systems. One study, performed by independent scientists at a university in conjunction with the EPA, evaluated rigid fiber glass ductwork to determine whether it shed glass fibers (Buttner and Stetzenbach 1992). The study found that new fiber glass duct board did not release a measurable number of glass fibers into the air, which supports earlier research by the industry and other third parties. To address a concern associated with all HVAC systems, a second study is planned to determine whether rigid fiber glass or fiber glass-lines ductwork supports microbiological growth. This study will also determine if microbiological agents are dispersed into room air serviced by either fiber glass or sheet metal ducting. Consequently, the findings of this second study will provide a reliable measure of whether fungal growth in ductwork affects indoor air quality.

Negligence and strict liability actions are by their nature inherently unpredictable. Different judges or juries faced with similar facts and legal theories may reach opposite conclusions Further, in some cases, defendants may be required not only to compensate the plaintiffs for the injuries suffered but also pay punitive damages. The potential financial impact on the business community is tremendous. Although there is no absolute shield from SBS lawsuits, the use of products which have been tested and found not to contribute to indoor air pollution problems can provide a valuable defense against liability.

Laurence Kirsch is a partner with the law firm of Caduvalader, Wickersham & Taft, specializing in the practice of environmental law. Geraldine E. Edens is an associate with the firm.

POLICY ISSUES

United States Moves Toward IAQ Regulations



Pat Fisher Tribu

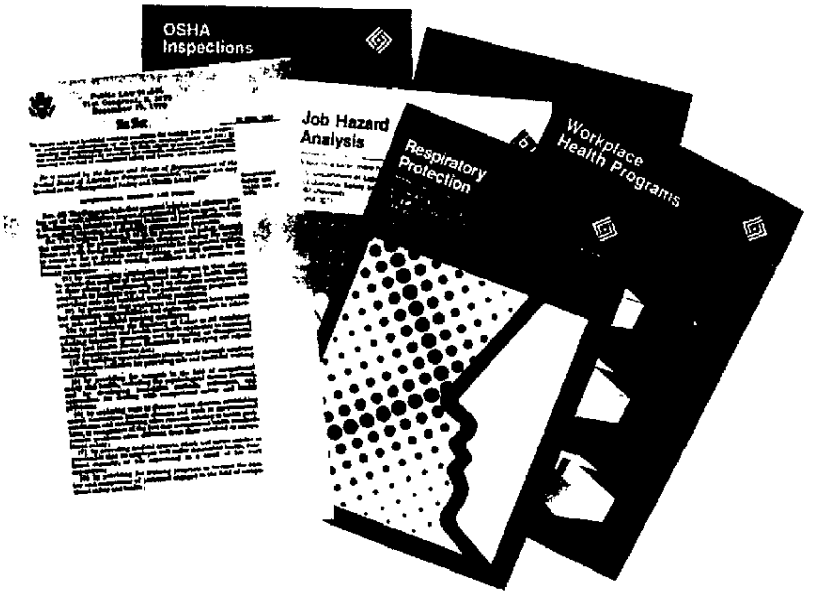
The Occupational Safety and Health Administration (OSHA), in September 1991, began the ambitious task of obtaining information on indoor air quality. Their goal is to determine whether regulatory action is appropriate and, if so, the extent to which it is feasible to address issues relative to poor indoor air quality. The OSHA request for information specifically targeted five broad areas: the definition of and the health affects pertaining to indoor air quality; monitoring and exposure assessment; control mechanisms including ventilation, filtration and source management; local policies and practices and the suggested content of potential regulations.

Health complaints related to indoor air quality have increased significantly following energy conservation measures instituted in the early 1970's. These measures reduced the levels of outside air entering the newly-designed airtight buildings, resulting in the accumulations of all forms of airborne pollution inside the buildings.

OSHA pointed out that during the past decade, the National Institute for Occupational Safety and Health (NIOSH) has conducted over 500 health hazard evaluations for indoor air quality. These studies were workplace investigations conducted at the invitation of the employers to determine the presence of health hazards and to recommend measures to remove them.

The main types of problems encountered in these investigations involved contamination both inside and outside the buildings. Inadequate ventilation was a major culprit, but the contaminants included microbes, emissions from building materials and furnishings, chemicals used inside the buildings and some contamination from unknown sources.

Specifically, OSHA requested information on carbon monoxide, carbon dioxide, bioaerosols, radon, tobacco smoke and volatile organic compounds. With ten years of practical experience in the field of indoor air quality, HBI responded to OSHA's request for information and focused on several important themes.



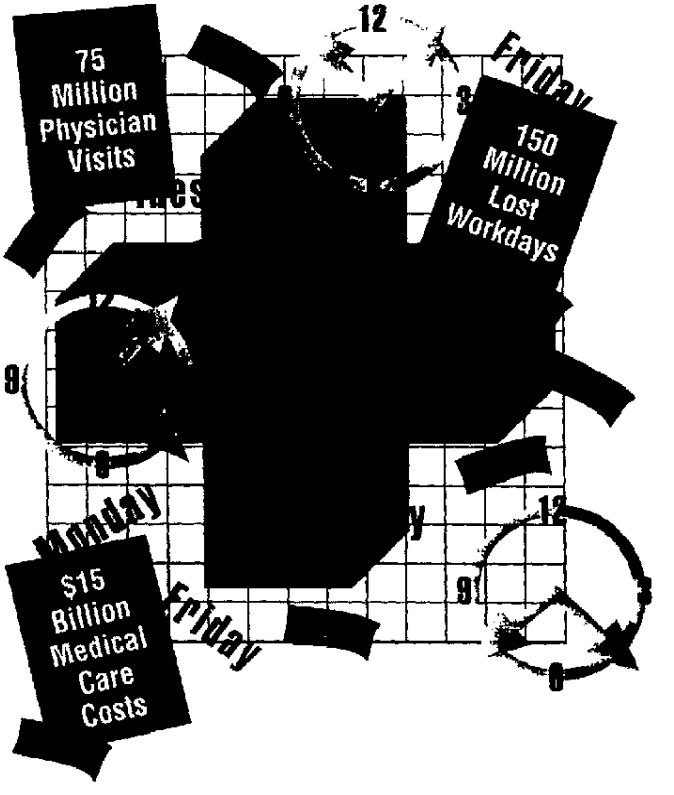
Building Systems Approach

The building systems approach to indoor air quality is the most effective, practical and economic path to improved indoor air quality in all types of buildings. Adopting this approach begins with adopting a ventilation standard similar to that established by the American Society of Heating, Refrigerating, and Air Conditioning Engineers Standard 62-89, "Ventilation for Acceptable Indoor Air Quality." This standard was developed and based on "real-life" feedback from architects, engineers, consumer organizations, health officials, medical researchers, building owners and operators, and consumers. Their experience showed that 20 cubic feet per minute (10 l/sec) of outside air per person in an office setting was effective in controlling indoor pollutants. This standard did away with the old two-tier standard which differentiated between smoking and non-smoking environments.

Another aspect of the building systems approach to indoor air quality is the proper maintenance and selection of air filters in commercial buildings. To maintain the proper maintenance and selection of these filters, specific standards must be developed for commercial offices. Until then, however, the ASHRAE-recommended 35 to 60 percent efficiency standard (by the ASHRAE 52-76 dust spot test) should be adopted for commercial buildings. These filters should also be carefully fitted and routinely serviced. Our research found that in more than 700 buildings examined over the past ten years, 43 percent did not meet the ASHRAE filter recommendations and a

Respiratory Tract Infections Are the Most Common Infectious Illnesses Among Humans

Estimated to Annually Cause in the United States:



further 16 percent of the buildings had good filters that were poorly installed, thereby reducing their efficiency.

If a decision is made to assure acceptable indoor air quality in commercial buildings by the use of regulation, a comprehensive regulatory approach would necessitate OSHA to become involved with the complete issue, including the development of design guidelines and practices, a building commissioning practice, maintenance standards, renovation procedures,and possibly standard-setting for indoor air quality technology.

Proactive Monitoring

Adopting preventive maintenance policies will avoid other inefficient, short-term solutions to solving indoor air quality problems. A proactive monitoring program that measures indoor air quality parameters every six months should also take a detailed look at the heating, ventilation and air conditioning (HVAC) system of the building. This detailed investigation determines how the system is maintained and whether it is clean and operating correctly. The results of these investigations guides the buildings facilities manager in achieving and maintaining acceptable indoor air quality.

Proactive monitoring programs are also a management tool that provides facilities managers with feedback on the success of their operating philosophies. These programs help to spot trends in a building's air quality and allows management to make changes in operations to achieve and maintain acceptable indoor air quality within the building and are actively managing it.

The Healthy Buildings Concept

This unique approach to building design and construction strives to create good indoor air environments that ensure comfort and productivity for employees by using "environmentally friendly" materials and innovative design concepts. The healthy buildings approach has helped property developers effectively market and promote their buildings in the volatile property management marketplace. An improved environment for building tenants leads to better productivity and yields significant savings on costs associated with employee absenteeism.

Two typical examples of these concepts were described. The first was the major renovation project of the Four Millbank Building in London, England. This project, undertaken by the Swedish company, Anders Nisses, was outlined in the July/August 1991 issue of this magazine. The renovation involved the use of a raised access floor for all the office areas coupled with an innovative underfloor ventilation system. The result is an unusually high standard of indoor air quality and a totally flexible design that can easily accommodate major changes in staff occupancy rates.

The second example was the Melbourne Tower project in the City of Melbourne, Australia. This building, featured in the March/April 1991 edition of this magazine, features a high tech pollutant sensor feedback system. These sensors, designed by Staefa Control Systems, provide real time monitoring of indoor air quality and are integrated into the ventilation system controls such that the ventilation rates are automatically adjusted for both temperature and air quality conditions.

These examples, and many others, demonstrate the practicality of a building systems approach to achieving good indoor air quality in the workplace. This approach is much more than simply an increase in ventilation and is clearly the most effective, practical and economic path to better indoor air quality in all types of buildings. If OSHA determines that regulatory action is needed, their approach should be pragmatic, effective and not onerous to an already pressured business community.

An inescapable conclusion remains: With innovative technological developments, with well-developed proactive monitoring programs and with the building systems approach, OSHA has many options which have a track-record of long-term success. If OSHA regulates indoor air quality by simply setting standards on individual pollutants alone, the outcome will be much less predictable.