NIH endorses unproven methods

Young Women Misled in Glamour Campaign Against Breast Cancer

Glamour Magazine, which claims 10 million readers, and an advertiser, Hanes Hosiery, have launched a major promotional effort to help young women prevent breast cancer. The campaign is endorsed by the National Cancer Institute (NCI); the director of the National Institutes of Health (NIH), cardiologist Bernadine Healy, M.D., praised the project, which was launched in Glamour's October issue.

In a coverline "Preventing breast cancer" [emphasis in the original], and in the article that goes with it, on what young women should know about breast cancer, Glamour strongly suggests that self-help methods will allow women to avert this dread disease. The major self-help methods it proposes are breast self-examination (BSE) and diet.

But, contrary to Glamour's bold message:

There is no way to prevent breast cancer. "It's appalling," the American Cancer Society (ACS) media director, Joann Schellenbach, commented by phone. "We've stressed with them over and over again that this [BSE] is early detection, not prevention." The ACS has not endorsed the Glamour-Hanes campaign.

An NCI early detection specialist, oncologist Barnett Kramer, M.D., agrees with Schellenbach: "BSE doesn't prevent cancer — it detects it."

Glamour and Hanes in fact acknowledged as much in a pitch letter to reporters and editors, but not in the magazine. "[T]here is no way to prevent this disease," publicist Jill Goodwin, of GTFH Public Relations, in Manhattan, which represents the promotion, wrote to the press.

BSE not only does not prevent breast cancers, it has never been proven to detect them early enough to prevent advanced breast cancer, or deaths. "If you're looking for studies that show that BSE works," NCI information specialist Patricia Newman told PROBE by phone, the answer is:

"No, there aren't any."

The dietary part of the program, focused on eating less fat and more fibrous fruits and vegetables, has never been proven — which Glamour acknowledges. What the magazine does not say, and what NCI certainly knew when it wrote its endorsement, is that a major, long-awaited, NCI-supported nutrition-and-cancer study strongly indicates that diet is worthless. This Nurses' Health Study was published last month in the Journal of the American Medical Association (Oct. 20) (See Box). Summarizing the findings in a news release, the AMA said:

"The amount of fat or fiber in a middle-aged woman's diet does not affect her risk for breast cancer."

But the diet-minded author of the Glamour article, New York free-lance journalist Sue Woodman, does not cite the new Nurses' Study findings — or any other data that might continued on page 4

What Nurses’ Study Found

Ninety thousand healthy middle-aged nurses were followed for eight years by Harvard internist Walter C. Willett, M.D., and his associates in their Nurses' Health Study. The nurses were questioned carefully about their diets and other health habits; the diets of those who later developed breast cancers were compared with the diets of those who did not. A wide variety of statistical analyses were performed on the massive data set.

"In this large prospective cohort study we found no evidence of any positive association between intake of total or specific types of fat and risk of breast cancer among either premenopausal or postmenopausal women," Dr. Willett's group reports in JAMA. They add: "[O]ur data suggest that a protective effect of total dietary fiber, or crude fiber intake in humans, if any, is not likely to be large."

An editorialist in the same JAMA issue concurs: "Certainly," he writes, the Willett study and others "demonstrate that, if an association exists, [it is], at most, modest in terms of epidemiologic studies, and the data are as compatible with a complete lack of association [between high-fat diets and breast cancer risk as they are with one of] a modest risk."

© 1992, David Zimmerman, Inc.
Are ‘Titty Wars’ Bad Words?

PROBE’s aim, as its name says, is to deploy some journalistic slings and arrows to show our readers facts and perspectives they can’t find in the mainstream press. So we expect a few stones and arrows in return.

We knew some readers might be rankled when, in August, we used the phrase “titty wars” to describe the damaging personal conflict between immunologist Therese Imanishi-Kari, Ph.D., and post-doc fellow Margot O’Toole, Ph.D. But we hardly expected to become a target of feminist outrage — which is what has happened.

We’re very sorry some readers have been offended! We should not have used the phrase as we did. Here’s why:

Fast Transition Sought

Journalistically, this phrase allowed us to deal, mercifully briefly, with the long, tortured relationship between these two women scientists, who clearly hate each other — and have made their feelings quite public. Their conflict has gone far beyond science (if that’s where it started, which we doubt). The phrase also was meant to distance our report from the early bickering in the case, so we could cut to the more critical public events.

The phrase “titty wars” is not our own, and was set in quotes. Through the reference, “one female academic doctor whom we know,” we indicated that our source was our wife — whose name appears on the masthead. She has, under several hats, watched and in some cases mediated similar conflicts between women in science, and has participated in a few of her own. So we were glad to borrow her generic description of this kind of confrontation.

Readers, however, have chided us: Would we say the same thing about men? We think that we would, but we haven’t — at least not in the same way. We write often about conflict between male researchers. In one case, we described, directly and at length, the “unabated enmity” between two of them. But we did not say directly that theirs was a ball-breaking conflict. Neither have we said — though it certainly is journalistically acceptable — that “Joe and Sam were locked in what one colleague called ‘a ball-breaking race’ for Nobel glory.”

So, if we had (or could remember) using such a locution for men, we would insist that it was equally appropriate for us to employ it for women. But, failing to do so, we accept the criticism. We used the term gratuitously — and should not have.

# # #

Traumatic brain rehabs: We wrote an exclusive report last December on serious abuses in facilities that provide care for convalescing brain-injured patients. A federal grand jury is hearing evidence against one of these providers, New Medico Systems, of Lynn, Mass. Last month FBI agents seized New Medico’s corporate records. Sources close to the case say an indictment is expected soon.

Seeing Science In

The debate about science rages: How shall we teach, shape, use and support it? But it is very hard to discuss how to teach science to minority students, or anyone else, or figure out if and how it can help the nation, without some sense of what science is, and how it works.

Thoughtful efforts to understand the subject are complicated by special interests that have a heavy investment in science, such as industry, and also government: One current and controversial plan is to create a new governmental-industrial-academic consortium for science-based biotechnology. It would be modeled on a comparable consortium for computer software and electronics that fueled Japan’s recent economic growth, but may now, as markets fall, accelerate its burnout.

New Agers, meanwhile, are intent on transmuting science into religion. (This fundamental error is explored on p. 7, in a review of Al Gore’s book Earth in the Balance, by our colleague Lee Edson.) Science is like religion in the sense that it provides some — but specifically excludes other — explanations of the universe. Science may suggest and even help create ways for people to live better (or worse). But, unlike religion it does not offer moral imperatives. It does not tell people how to conduct their lives, or what to do. Nevertheless, science is deeply entwined in all of our lives — so it is well to refresh our sense of it.

Social Base Necessary

Against the many ungraspable notions being advanced, a more down to earth concept of science has begun to emerge. This view discounts religious and idealistic notions of science, and instead sees scientific creativity and effort as a reflection of concerns in the societies in which individual scientists live and work. As a book reviewer in the Sunday Times (Sept. 20) said, in discussing a newly published history of ancient and medieval science, “The work of a scientist must be viewed in the light of the society in which he lived.”

This seemingly prosaic approach, which is called STS, for science and technology studies, offers significant insight, and perhaps even some resolution for current dilemmas about the nature of science. It has been elucidated by chemist Henry H. Bauer, Ph.D., of Virginia Polytechnic Institute, in Blacksburg, in a recent and readable book of essays, Scientific Literacy and
A Fresh Light May Make It More Fun


Scientific ‘Methods’ Vary

The “scientific method” may be an ideal for scientists, Bauer writes. But there is no one method, inductive or deductive, that hastens all science along. Each discipline has its own set of methods, which change through time as new problems arise, requiring different solutions. Some disciplines are more intuitive, others more observational; they may depend more or less on logic. Scientific discovery, in this reading, is more associative than linear, more akin to fitting together pieces in a jigsaw puzzle than it is to deductive reasoning.

The common and underlying themes: Science gains its authority as mankind’s effort to explore and rationally explain nature, including himself. Science, at its core, is a rational process.

Where the Fun Is

Bauer makes this clear and very useful distinction: Textbook science, Newton’s laws for example, is accurate and important, but dull. Frontier science, on the other hand, is tentative, sloppy, and riddled with error — but it also is exciting and fun to do. It’s where the action is.

It’s the frontier stuff that’s reported in journals, and in the newspapers and on TV, Bauer notes. It can’t — shouldn’t — be expected to be as accurate as textbook knowledge.

A process of scientific consensus operates to filter and reduce frontier discoveries, bit by bit into the distillate of rules and laws that appear in science textbooks. Science thus is a collegial process; a peer group defines what, at any moment, is accurate. But they do so with the certainty that new and compelling discoveries at the frontiers will redefine or overturn the present consensus, though some of the dry distillate — the great rules and laws — will survive.

This STS view, Bauer says, “enables one to think intelligently about the impact of science on human affairs [and] to arrive at sensible answers to significant questions.”

# # #

Scientific literacy, the focus of current debates, is not knowing what DNA is, Bauer maintains. Rather, he says, it is the ability to see and understand that science is “a strand in the intellectual and religious history of humanity.”

Scientific literacy allows one to fathom and accept that textbook science is trustworthy, while the present consensus is not. But Bauer warns that where there is no consensus — where the fun is — “you had better act on the basis that no one really knows.”

Benefits Suggested

What, then, is science’s value to nonscientists? Why support it with taxes?

“Answer: It can keep people honest,” Bauer says. “Emperors and popes,” he notes, “used to insist that people subscribe to lies about the Earth,” about the relationships among people, and much else. “They cannot lie to that extent any more. Science can put and keep politicians and prophets in their proper place, at least over some things.”

# Science also can be endlessly instructive about ourselves and our Earth. It helps banish ignorance, which is the handmaiden to superstition.

# “Studying science is excellent training for the mind,” Bauer asserts, “much better than the classically prescribed study of Latin.” Science is “reality therapy” — and it is very useful to know what is wrong as well as what might be right.

# Science can benefit “our health, our pocketbook and our ability to have pleasant experiences,” Bauer maintains. It is, finally, an investment in the future.

He adds this cautionary note, however, which may be very relevant to current bio-tech consortium schemes:

“Trying to make [science] pay off quickly is counterproductive, as is, in the economic sphere, skimming wealth from corporations through leveraged buy-outs instead of investing in the long haul.

“Science is part of humanity’s cultural heritage. Being educated in science is as important as being educated in philosophy, or psychology or foreign languages because without it one is ignorant, a primitive savage rather than a civilized being.”

To understand that, Bauer says, is to be “scientifically literate.” We agree.

Science Texts & Tests Are Killing Kids’ Skills

The dull, dead hand of textbook science is now blamed for the decline in American students’ interest and skills. This radical critique comes from educational analysts at Boston College (BC), working under a $1 million study grant from the highly conservative — but clearly worried — National Science Foundation.

The BC analysts examined classroom science materials and interviewed teachers. They found that standard tests, requiring rote learning of standard texts, powerfully shape curricula: Teachers are under tremendous pressure to boost students’ test scores, to the detriment of cognitive exercises that would help students learn and do science. Minority students are the most heavily drilled, and hence most seriously damaged by this sledgehammer approach, the BC report says. They are denied the chance to learn the reasoning skills that science and math are supposed to foster.

Standard tests “emphasize and mutually reinforce low-level thinking and knowledge, and were found to have an extensive and pervasive influence on math and science education, nationwide,” the report says.

A better way to train and test science students, the BC analysts suggest, is to have them design or perform simple experiments. The problem: Rote learning tests cost a few dollars each. Testing a kid’s-science skills might cost $100.

November 1, 1992
discount diet's value. She rather quotes unnamed "doctors" who "suspect" that the crucial time for a woman to eat fruits and veggies to prevent breast cancer is in her Glamour age, not in her Lear's years. But there is no proof for this.

Woodman, like NCI experts whom we interviewed by phone, looks to a forthcoming, highly-publicized — and highly politicized — Women's Health Initiative study to confirm diet's value (and so refute Willett's findings). But the results won't be known for a decade. What is more, the diet-breast cancer link will not be studied in young women at all: If Woodman is correct, this putative link will be studied in women ages 45 to 69, who will be older than the nurses Willett studied (ages 34 to 59).

NCI Expert Stands Pat

Cancer prevention specialists at NCI stand by the low-fat and high-fiber prescription, however, despite the Willett findings. It seems like "a paradox" that "a very good group of investigators" came to this conclusion, the director of NCI's division of cancer prevention, internist and public health specialist Peter Greenwald, M.D., said by phone.

"There are a lot of research data related to dietary fat as a risk factor for post-menopausal breast cancer, and evidence that there may be benefits from eating fruits, vegetables and whole grains," Dr. Greenwald said. "It's true," he continued, "that it's not conclusive. But we think the public should be aware of it."

Woodman said by phone last month that Willett's study "doesn't make any difference" because "Walt Willett has never found a correlation" between diet and breast cancer.

Woodman said she had not interviewed Willett for her piece, and "didn't know" the study was coming. When she talked to NCI experts last summer, she said, "they didn't mention anything about Willett."

But Woodman's editor, Jennifer Cook, said by phone that she and Woodman were generally aware of the findings from conferences and interviews.

Hope Offered

"Nobody knows how to prevent breast cancer at the moment, unfortunately," Woodman added. But the unproven methods she describes in her article, she said "all are avenues that hold out some hope."

Woodman's view is not shared at the ACS, where oncologist Dan Nixon, M.D., the vice president for professional education, says he previously had felt that diet might help.

"It [Willett's paper] blew it out of the water, actually!" Dr. Nixon said by phone from ACS headquarters in Atlanta.

Neither Glamour nor writer Woodman seem daunted by scientific data or the lack thereof. Woodman's prescription for methods that "may" prevent breast cancer includes:

- eating lean
- staying lean
- wheat bran and other insoluble fibers
- whole grains
- beans
- vitamins
- beta-carotene
- oleic acid (in olive oil)
- sulforaphane (in broccoli, turnips and radishes)
- indole carbinol
- retinoic acid
- exercise
- Things young women should avoid, she suggests, are electric blankets, electrically-heated water beds, power lines and other electromagnetic fields, pesticides like DDT/DDE, environmental toxins, landfill contaminants, oral contraceptives, impure water, alcoholic beverages, and also mammograms.

The last is surprising. All the agencies that endorsed the

BSE Is Not Proved Helpful —

Breast self-examination (BSE) is the featured self-help method in the Glamour-Hanes Hosiery anti-breast cancer promotion targeted to reach millions of women through posters and free booklets. The color poster, which carries endorsements from NCI and the American College of Obstetricians and Gynecologists, shows a nubile, bare-breasted model, fresh from the shower, examining her breasts in the prescribed manner. The promo recommends these exams monthly.

The evidence collected and analyzed by NCI provides no scientific support for this practice in young, Glamour-aged women. What is more, the suggestion has been made, in the NCI Journal among other places, that BSE might be harmful (see below).

BSE does not prevent breast cancer, and there are "no studies" that demonstrate scientifically that it reduces the toll of late cancers or deaths through early detection, according to NCI spokeswoman Patricia Newman.

Older Women Studied

The few studies that suggest, even equivocally, that BSE prevents advanced breast cancer and death are on older women, in their 40s or 50s. These women are at far higher statistical risk of breast cancer, and so are much more likely to discover an early cancer by BSE than are teenagers and women in their 20s and 30s who read Glamour.

Glamour editor Linda Gordon, who claims responsibility for the BSE poster and self-care booklet — but not for Woodman's prevention article — said the campaign's "aim" is to help readers become "self-aware," and "comfortable" about examining their breasts while they are young, so they will be less fearful of BSE as they grow older.

No Problems Seen

"There's no down side!" the director of NCI's division of cancer prevention and control, Peter Greenwald, M.D., said by phone.

But this assumption is open to challenge. In fact, it has been challenged, most notably...
Glamour-Hanes campaign recommend mammograms, albeit only after age 40. So do the booklets "You Can Help Keep Your Breasts Healthy" that the sponsors are distributing to 16 million American women via doctors' offices, fitness centers, day care centers, and sororities. But in Glamour's pages, author Woodman and her editors strongly suggest that mammograms are "risky" and useless.

**Prevention Stressed**

The Glamour magazine headlines and article, which do not carry health agency endorsements, stress "prevention" over and over again. But on the back of the booklet, which does carry the health agencies' endorsements, a statement says: "There is no proven way to prevent breast cancer..."

Asked about this contradiction, editor Linda Gordon told us, "You're making a big mistake if you're connecting the coverline worked on completely independently of the article," and came solely from NCI and other health agencies, which carefully "There is no proven way to prevent breast cancer..."

Gordon phoned back to reiterate: The promotion "was worked on completely independently of the article," and came solely from NCI and other health agencies, which carefully reviewed it.

But: Glamour put them together. The box, which is inside the prevention story, promises information on "screening techniques," which include BSE. And a reprint of the story, with the cover overprinted with Hanes's trademark and a promotional announcement for the campaign, is part of the campaign press kit. So: The prevention story has been tightly linked, by the magazine, to the more circumstantial — and officially sanctioned — promotional material. There is no way for the reader to know that it is not all of a piece.

### We think the Glamour-Hanes promotion is misleading at best. The sponsors and endorsers — particularly NCI — should have known better, and it appears that Glamour was warned of problems by ACS's Schellenbach, if not by anyone else.

One technical requirement for a successful public health campaign is that the changes which people are urged to make must be certain, clear, and simple to understand, even if they are hard to do. The potpourri of proposals writer Woodman collected is anything but. A frightened young woman could spend much of her time trying to reduce her risk, using Woodman's lists, even though many items, like DDT/DDE and electromagnetic fields are virtually unavoidable.

**Right Idea, Wrong Cancer**

Glamour readers are the right age for life-saving cancer prevention information. But breast cancer is the wrong cancer, given that young women are at very low risk, and there is no reasonably sure way to prevent it. The right cancer, we believe, is lung cancer, which now kills more women than breast cancer.

It is highly preventable, particularly through simple steps that 18- to 34-year-old women can take to not start smoking, or stop if they already have started.

Glamour and Hanes might save many more young women's lives by launching a comparable health promotion against smoking — which apparently is what NCI originally suggested that they do.

"When they originally approached NCI," publicist Jill Goodwin told us, "the experts said lung cancer should be the one they were addressing. But since Glamour's readers are women, they wanted to do something specifically for them."

The NCI and NIH have justly earned reputations for speaking to public health issues on the basis of science. There is no scientific basis now for recommending BSE to young women, or proposing dietary changes to prevent breast cancer. The NCI damages its reputation by lending its name to promises that can't be fulfilled.

Next month: A brief post mortem on our opus recommending diet to prevent breast cancer, including critical comment on Willett's study.

---

**Potential Hazard Ignored**


This issue carried a report of one of the most careful BSE studies published to date. The researchers, in Seattle, Washington, found that the risk of developing advanced breast cancer in fact was slightly higher in women who practiced BSE than in matched controls who didn't. Commenting on the study, Journal editorialist Alan S. Morrison, M.D., a community health specialist at Brown University, in Providence, R.I., wrote:

"[T]he results provide no support for the use of BSE in [cancer] screening ..."

Dr. Morrison added:

"Disease-control policy should be grounded in quantitative knowledge of benefits, risks and costs."

One such risk may be that of exacerbating fear, in women who have virtually no reason for fear, because of their young age.

**Fear May Be Risk**

At age 25, as Glamour points out, a woman has only 1 chance in 19,000 of having had breast cancer. Significant risk starts at about age 40. But a young woman who performs monthly BSE starting at, say, age 20, as the Glamour-Hanes campaign advises, will have examined her breasts 250 times by age 40, feeling for signs of illness and possible doom.

This potential hazard of BSE is not wholly out of mind at NCI, even if it rarely is acknowledged in public statements. When we reminded Dr. Kramer, by phone, of Dr. Morrison's editorial, and the concerns it suggests, he declared:

"You've hit the nail on the head! There is a legitimate debate."

### Women's breasts are organs of vanity, pleasure, and nurturance. Examining them methodically each month in search of cancer well might reinforce, rather than relieve young women's cancer fears.

At this point, there do not appear to be any data, or risk/benefit analyses that would justify monthly self-examinations during the time in a woman's life when her risk is quite low, and she has little cause to fear breast cancer (unless it runs in her family).
Sexual Practices May Be the Key To AIDS Outbreak

Persuasive theories have begun to emerge about why AIDS erupted where — and when — it did about a dozen years ago. These ideas focus on a dynamic interplay between social traits of the infected human hosts, and the deadly pathogen, the human immunodeficiency virus (HIV), that infected them.

The standard view has been that a *pathogen* like HIV becomes *less* virulent through time, as it travels from host to host sexually, in body fluids, through the air or water, or via an insect like a mosquito (as in malaria). Pathogens die when damage (illness) in the host, because this also provides a higher advantage goes for their species as a whole. In some cases, Ewald says, there is a survival advantage in becoming *less* virulent, since the longer the host lives, the better the pathogen’s chance of surviving long enough to infect a new victim.

This standard theory now has been deconstructed by an evolutionary biologist, Paul W. Ewald, Ph.D., of Amherst College in Massachusetts.

He points out that viruses evolve — change — based on what benefits *individual* viruses, and not according to what is good for their species as a whole. In some cases, Ewald says, there is a survival advantage in becoming *less* virulent; in others, the advantage goes to a *more* virulent virus that causes greater damage (illness) in the host, because this also provides a higher concentration of viruses — which may facilitate transmission.

**Outbreak Explained**

Health officials from African nations continue to write letters to journals denying AIDS’ African origin. But genetic studies on viruses from humans and several non-human primates, including chimps, show that closely related HIV viruses have been present in Africa for thousands of years. The current best estimates, based on differences in various viruses’ genes, are that the AIDS virus (HIV) moved from monkeys to man between 50 to 1,000 years ago. Why, then, did HIV explode, suddenly, into a major human epidemic only in the 1980s? Our view, based on what researchers were finding then, long has been that the virus must have been concentrated in “a human population with a high prevalence of [HIV] infection but few cases of AIDS” (Newsday, Dec. 31, 1985). Biologist Ewald, on the basis of new data and analysis, confirms this view, extends it, and suggests the place where AIDS was concealed — and confined.

This cradle of AIDS, he says, may well have been in West or West Central Africa, where the rate at which people change sexual partners is low, and appears not to have risen dramatically in recent years. This stability of sexual partnerships would favor less virulent viruses that killed their victims only slowly, he says. Here’s why:

If two partners both became infected, but remained monogamous for, say, ten years, a virulent strain of the virus that killed quickly would not have a chance to be transmitted sexually to a subsequent host; hence, that viral lineage would die out with its victims. By contrast, this social setting would favor a less virulent strain that could lie in wait in a host for ten years, until, finally, a marital transgression allowed it to move on. The AIDS viruses that are native to West Africa tend to have relatively low virulence, especially where cultural traditions have led to stable sexual partnerships, Ewald says, which fits and supports this theory.

One key change, in this view, may have been the opening of long distance roads across Africa. These roads carry trucks, whose drivers dally with prostitutes along the way. This may have been one event that let HIV escape into areas of greater promiscuity in Central and East Africa. Urban migration, Ewald says, may be at least as important.

**Fast Action Facilitated**

Seeing things from the viruses’ viewpoint, once this breakout occurred, being *more* virulent had the advantage: Infect someone, get him or her very sick — meaning high virus loads — and move on quickly to the subsequent partner(s) that the hosts’ frequent sexual contacts provide. In Central Africa, there was no need to wait ten years for a trip to another host! These conditions, Ewald reasons, favored rapidly transmitted highly virulent HIV strains (as did the highly promiscuous lifestyle of American homosexual males in the late 1970s).

Based on his analysis, which he says fits the facts, Ewald predicts that HIV, the AIDS virus will not, of its own accord, become less virulent through time. But if opportunities for transmission — unprotected intercourse, or druggie’s sharing of needles — are blocked, or spaced out in time, virulent strains will tend to kill their hosts, and hence themselves, before they can be transmitted onward. Meanwhile, less virulent strains, which kill only slowly — and so can wait longer to be transmitted to a new host — will replace them.

Based on preliminary data, Ewald thinks this reversion to less virulent strains already is occurring among American homosexuals. Less promiscuity, more condoms, and measures to control needle-borne HIV spread would force the virus to evolve further toward decreased virulence, he says.

A fuller exposition of Ewald’s research on the evolution of virulence is forthcoming in *Scientific American.*
But Is It Good Science?

Al Gore's New Environmentalism Is Steeped in Old Time Religion

By Lee Edson

If environmentalism is the New Age religion, then vice presidential candidate Al Gore is certainly its self-proclaimed apostle. His best selling book Earth in the Balance: Ecology and the Human Spirit (Houghton Mifflin), is a semi-religious environmentalist polemic. It is reminiscent of fire and brimstone preaching in spirit. "The earth is in peril," Gore intones pontifically, "perhaps its gravest peril in 10,000 years."

This is all because civilization and human behavior have created two ticking time bombs ready to go off and destroy us.

Depletion of the earth's protective ozone layer, the legacy of man's insatiable use of chlorofluorocarbons (CFCs) and other gases, will let in an excess of harmful ultraviolet rays, causing disease, dysfunction and death. Global warming, the second evil which arises from pollutants like CO$_2$ in the atmosphere, is setting the stage for a global climatic upheaval.

Sea levels will rise. Millions of people will be forced to migrate. A new ice age may freeze civilization — if it isn't parboiled by solar overheating. The world, according to Gore, will end not with a bang but with a global pffft and a sizzle.

Help Is Coming

Not to worry however. Gore has put together a bold plan to save the world ecology. His Global Marshall Plan, he contends, will do for earth's deteriorating environment, its choking overpopulation, and its ruinous deforestation, what General George Marshall's plan did for shattered post-World War II Europe.

The Gore plan's strategic goals range from stabilizing the world population to setting up rules for measuring the impact of technical decisions on the environment.

To pay for this ambitious undertaking Gore would create an environmental security trust fund, fueled by payments based on the amount of carbon dioxide a nation puts into the atmosphere. The worst polluter pays the highest tax. These CO$_2$ taxes, Gore suggests, would be used to subsidize environmentally benign technologies, such as low-energy light bulbs and high-mileage autos.

Besides these taxes — which, curiously enough, are acceptable even to corporate giants like DuPont — Gore proposes a virgin materials fee at the point of manufacture: A paper mill's fee, for instance, would be based on the percentage of paper made from freshly cut trees vis-à-vis that made from recycled pulp. In Gore's view corporate despoilers should pay for destroying the forest and its environment.

Is It Good Science?

These proposals have of course polarized the critics. They have been attacked by conservatives in standard tax and spend terms, and praised by liberals as reasonable ways to save the earth from self-destruction.

Unfortunately for Gore, the evidence he presents for ozone depletion and global warming is still in considerable dispute. Philip Abelson, the former editor of Science, for example, editorialized two years ago that in global warming "there has been more hype than solid facts." Abelson pointed to a ten-year (1979-1988) NASA satellite temperature study which showed no warming or cooling trend.

Temperatures have actually gone down since 1938, the period in which two-thirds of the CO$_2$ buildup in the atmosphere occurred. In 1990, MIT's Center for Meteorology published a retrospective 137-year study which demonstrated the absence of a warming trend in the earth's water or surface air temperatures. Gore's book fails to mention these studies, relying instead on news accounts and Congressional testimony of well-publicized scientists, notably Steven Schneider of the National Oceanic and Atmosphere Administration (NOAA) and James Hansen of NASA, who both carry the global warming banner.

Ozone Returns

Ozone layer depletion by man-made chemicals is also less firmly grounded than Gore makes it out to be: This doomsday theory seems to rely, as it did when first proposed in the 1970s, on models which illustrate how CFCs can reach the stratosphere and react with the ozone. Holes actually have been spotted by NASA observers, but only in the Antarctic, where ozone depletion by natural means has been known for at least 50 years — and where, ironically, there is little industrial activity. (The recent observed expansion of the Antarctic hole seems to be related to volcanic activity and to other forces of nature.) Interestingly, the media reported the growth of the Antarctic hole just before it was cyclically filled up with ozone-rich air from the tropics, and with ozone created by solar radiation.

Falling short on scientific scholarship doesn't dampen Gore's apparently deeply felt ardor for saving the earth. His text is a litany of man's onslugs on the environment, particularly destruction of the life-sustaining elements — air, water and food. Like religionists who blame our problems on man's
alienation from God, he faults man's self-created disconnection from the earth.

"We are bulldozing the Gardens of Eden," he declares.

Religion Manifest
Gore's exposition is replete with religious themes, carefully and cleverly leavened with scientific notions and statistics:

Writing on air pollution, he says every breath we take into our lungs is the same air breathed by Buddha, Jesus, and Mohammed — except that it contains 600% more chlorine-containing molecules. He does not dwell on the fact that this is so tiny an amount of chlorine, compared to the permanent gases in air, that it can be detected only by highly sensitive instruments. Hardly a threat to our existence!

Despite the scientific patina, Gore's basic religious bias breaks through when he notes that the environment crisis is a crisis of values — historically the domain of the religious establishment. The Bible, he says, charges man with the duty of stewardship, or "care" for the earth. He extols the work of a minister in Appalachia who is fighting strip mining and efforts by other religious leaders to overcome environmental depredations.

Gore's affirmation of his belief in God and his personal relationship with Christ may lead the trusting reader to believe that radical activist environmentalism is doing the Lord's work — and not, as some of critics would have it, the Devil's.

Special Charter Subscription Offer for PROBE

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

YES, count me among those who support independent medical and scientific reporting. Enter my one-year subscription to PROBE at the special charter publication price of $53.

[ ] My check for $53 is enclosed. Please add a bonus extra month to my subscription.

[ ] Please bill me $53.

Fill out this form and mail it today:

Name: _________________________
Address: _______________________
City: _________________________ Zip: __________
State: _________________________

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