what, me WORRY!

Americans worry too much about the dangers of cellular telephones, silicone breast implants and nuclear waste dumps while doing little to reduce the truly life-threatening risks of auto accidents, handguns and AIDS

As health-risk controversies go, the recent breast implant frenzy ranked with the Alar-on-your-apples scare as one of the all-time classics—a major media dust storm that whipped up out of nowhere, sent things flying in all directions and then just drifted away, leaving everyone exhausted but unsure what, exactly, the fuss had been all about. The Alar affair, in case you've forgotten, was about chemically tainted apples (a potent symbol ever since Genesis) and had Meryl Streep in a starring role.

But the breast implant shocker went Alar one better. It had breasts. The basic issue was that some implants tended to leak, harden or otherwise deteriorate inside the body, possibly causing a number of problems, including cancer. A gruesome prospect,

By JOHN SEDGWICK

certainly. After the ABC news show *20/20* broke the story nationally, Congress investigated, the Food and Drug Administration (FDA) launched a major review, victims' groups attacked, breast implant suppliers fought back and the national press fanned the flames with, literally, several thousand articles on the controversy.

Partly because of the nature of the afflicted area of a woman's anatomy, the health risk was not the sole, or even necessarily the central, topic of interest. "There was a lot more going on," says George Annas, director of Boston University's law, medicine and ethics program. "We were talking about women's autonomy, women's appearance, their position in society, their ability to make decisions, the role of individual choice." If anything, the risk itself seemed to be almost forgotten amid all the shouting, in part because it was so minimal. After all, breast implants had been on the market for 30 years, 2 million of them had been inserted, and over 90 percent of the recipients said they were fully satisfied with the product. At the height of the scare, only 1.5 percent of customers were sufficiently worried about the hazards to have the implants removed. "If there really had been horrible problems, we would have expected to see bigger effects," Annas concludes. Nevertheless, declaring that further study was required, FDA commissioner David Kessler announced last spring, five years after the first concerns were aired, that he was imposing a moratorium on most implants until the troubling questions about them could be resolved.

OUR LIVES HAVE NEVER BEEN SAFER. SO WHY ARE WE SO WORRIED THAT TRACE AMOUNTS OF A CHEMICAL WILL GIVE US CANCER 30 YEARS FROM NOW?

The breast implant story might be considered a harmless sideshow, a porthole view of the national zeitgeist. But the amazing ease with which the public's attention is diverted to such issues and away from the real dangers to the population is, as Massachusetts Institute of Technology public policy expert Harvey M. Sapolsky, Ph.D., once put it, becoming positively hazardous to our health. For the breast implant fright is far from being an isolated case. In the past few years, we have also been at least temporarily obsessed with outbreaks of food poisoning at Jack in the Box restaurants, salmonella in eggs, electromagnetic fields from power lines and computer screens, cellular telephones, secondhand smoke, the possibility that the Earth might be struck by a meteor, ozone depletion, the greenhouse effect and red dye number three—not to mention such hardy perennials as dioxin, EDB, PCBs, toxic waste dumps, radiation of all sorts and the prospect of a China Syndrome–style nuclear meltdown.

Certainly some of these hazards offer legitimate reasons for concern. Yet you would be hard-pressed to prove that more than a hundred people have ever died from all of them put together. Even at Three Mile Island, the worst domestic nuclear power debacle and the one that is usually cited as the chief exhibit in the case against modern technology, no one was killed. Meanwhile, in 1991 alone, 45,000 people died in automobile accidents, 390,000 were killed by smoking-related illnesses, 25,000 were murdered, 30,000 committed suicide and more than 700,000 fell victim to diet-related heart disease. A high percentage of these deaths could have been avoided, and one big reason they weren't is the country's bizarre risk myopia, which magnifies small risks and minimizes big ones. We are like some vast army that is busy arresting drunk drivers—even as the enemy is storming across the border.

"The misperception of where the real risks are in this country is one of the major causes of what I call statistical murder," says John Graham, Ph.D., of the Harvard School of Public Health. "We're paranoid about Alar and nuclear waste sites in Nevada, and that preoccupation diverts attention from the real killers—be it the AIDS epidemic, handguns or the startling rate of infant mortality in a society that is supposedly one of the wealthiest and best educated in the world." With a health budget of $600 billion and another $150 billion to protect the environment, he goes on, there should be ample funds to raise our citizens' life expectancy from its current lowly perch of thirty-third in the world, if only we were directing the money at the right problems. Many analysts find it distressing, for example, that government and industry are spending nearly $20 billion on the Superfund to clean up toxic waste sites when, despite public perceptions, the Environmental Protection Agency (EPA) itself has deemed the hazard to be medium to low. Even the generally pro-Superfund Adam Finkel, Ph.D., of the risk management center at Resources for the Future, concedes that the fund has outdone the monstrously wasteful anti-asbestos program, spending "the greatest amount of money for the least amount of gain of any environmental effort." In the case of Love Canal, which the government bought up at significant expense, subsequent studies have shown that the actual risk to the residents "may have been negligible," according to a review of the case in Stephen Klaidman's 1991 book about risk assessment, *Health in the Headlines.*

Ironically, the national preoccupation with marginal risks comes at a time when, statistically, our lives have never been safer. Life expectancy in the U.S. may lag behind that of other countries, but it has, since 1900, increased by more than 60 percent, from 47 years to 76 years.

If we are so safe, one might wonder, why are we so worried? Curiously, it may be that we are so worried precisely *because* we are so safe. Now that jobs for the vast majority of the population have moved from agriculture to manufacturing to information processing, few Americans ever work with anything very dangerous on a regular basis: no stampeding cattle, no whirling lathes, no roaring sawmills. Such obvious risks would immediately put the more subtle dangers from dioxin or PCBs into perspective.

At the same time, increasing prosperity has bumped Americans up what economists call the hierarchy of wants. Now that food, clothing and shelter are largely taken care of, we are free to bother about less-pressing concerns—like the danger of contracting cancer 30 years from now because we are exposed to some trace chemical today. It is hard to imagine the citizens of a third world country—or for that matter Americans on the lower rungs of the socioeconomic ladder—getting so exercised about the perils of Alar. It's the suburban upper-middle classes that fuss about the minor risks; the urban poor face the real hazards. "Basically we have whole segments of society that are denied the chance to live the life spans accorded the upper-middle class," says Dr. Graham. "The upper-income brackets focus attention and resources on parts per trillion of dioxin, and the lower-income brackets get lousy nutrition, high murder rates and AIDS. It's an outrageous allocation of resources."

Of course, 10 years ago the technology wasn't available to measure one particle of dioxin in a trillion, anyway. Now, sampling devices can pick up one particle in a million million, or 1,000,000,000,000,000,000. That may be infinitesimally small, but since it is not zero it gives those who are inclined to worry something to worry about. In some cases, such technological advances in sensitivity have also obligated the government to intervene over ridiculously small hazards. For instance, the 1958 Delaney clause (which is now finally under review by Congress) forbids the FDA to accept as a food additive any known carcinogen, no matter how small the quantity. In the Fifties, truly trifling amounts were ignored because they could not be detected. Not so today.

Further, by delving ever deeper into the unimaginably small, we have entered realms where it is impossible for the average person to evaluate the impact of all these scientific findings. With everyday risks, there is a clear link between cause and effect: Cross the street in front of a speeding car, and you are likely to end up in the hospital or the morgue. The same cannot be said of ingesting minuscule amounts of a substance that was declared dangerous for human consumption after being fed in maximum tolerable doses to especially sensitive laboratory animals, with the results projected onto humans according to mathematical formulas that are incomprehensible to all but the professionally trained. By this standard, peanut butter has been shown to be carcinogenic, as critics of the testing procedure never tire of saying. Further, the process is so clouded with uncertainties that no chemical ever comes out with a clean bill of health. As Mary Douglas and Aaron Wildavsky point out in their 1982 book, *Risk and Culture,* such tests "have a catch-22 quality: If substances appear carcinogenic, they are carcinogenic; but if they do not, they still might be."

Dependent as we are on scientists to set us straight, we never know quite how to take their appraisals. It's not the researchers' job to tell us whether to worry; they just spew out the numbers. But there are numbers

'THE UPPER-INCOME BRACKETS FOCUS RESOURCES ON PARTS PER TRILLION OF DIOXIN, AND THE LOWER-INCOME BRACKETS GET LOUSY NUTRITION, HIGH MURDER RATES AND AIDS.'

and there are numbers. Risk is defined as probability times magnitude, meaning the likelihood of something bad happening multiplied by how bad it is if it happens. It is usually measured as expected annual mortality, a kind of death harvest—a macabre notion that may account for a large portion of the attention that these risk stories generate. In those rare cases where there is enough information to affix a single number to the risk of some action or product, it is rarely as clear and meaningful as, say, Ted Williams' lifetime batting average or the current 30-year mortgage rate.

It would be nice if there were some common Richter scale of risk, but there isn't, in large part because it is hard to compare the risk of a rare catastrophe, say, to a common hazard, or one big hit of toxicity to millions of tiny doses. So, instead, the figures are blurred, compartmentalized, clouded with uncertainties and larded with so much technical language that it is virtually impossible for the average person to take anything from them except a vague sense of foreboding. For example, in the breast implant case, the FDA's National Center for Toxicological Research determined that women have less than a one in 10,000 chance of contracting cancer from 2, 4-toluene diamine (TDA), a product of the breakdown of the polyurethane foam that coats some brands of implants. This was, as usual, based on "worst case" estimates, in which it was assumed that the entire implant disintegrated, which, the FDA biostatistician David Gaylor, Ph.D., admits "is never going to happen," and extrapolated from tests on laboratory animals. This information was meant to encourage women with the potentially TDA-producing implants to leave them in, since they would automatically incur the same one in 10,000 chance of being killed if they underwent the major surgery to have the implants taken out. It is doubtful that women drew only that conclusion, however. More likely, they simply felt more anxious.

These broad economic and scientific trends may explain society's growing absorption with ever-slighter hazards, but not why the public should seize on certain negligible risks and ignore others. The answer to that conundrum lies in the very nature of risk. Compelling as it is, risk is not real. It cannot be perceived by the five senses, only by the brain, which is probably our least reliable organ. As such, risk is tailor-made for political manipulation much in the same way that sex seems to have been designed by God for commercial exploitation. If it's risky, the thinking goes, it must be bad; just as, if it's sexy, it must be good. This reasoning has not escaped the attention of political merchandisers. "There is no such thing as pure science when it comes to risk anymore," says Douglas MacLean, Ph.D., a philosopher at the University of Maryland who has written extensively on risk. "Just about everybody in it has a hidden agenda." Dig into any risk story, and you quickly find a large morsel of self-interest. In the Alar case, the story was pushed by the National Resources Defense Council, which, seeking to limit the use of chemicals in agriculture, actually hired a PR firm to market the story to *60 Minutes*. Antinuclear groups seize on the supposed dangers of nuclear waste as a way of limiting the development of nuclear power. And it is common for drug companies to draw attention to the risks of a disease when they are marketing a cure.

FOR NOW, THERE ARE HOPEFUL SIGNS THAT SOME PROGRESS IS BEING MADE IN ADDRESSING THE BIG RISKS, DESPITE ALL THE ATTENTION GOING TO THE SMALL ONES.

This would be fine if the risks were, in effect, board-certified as significant, but they aren't. The infant science of risk assessment might someday provide a clear-eyed ranking of priorities, but for now, its analyses are so vague and open to interpretation that they just become more grist for the political mill. "There is a great scientific engine spewing out data and reports," says Paul Slovic, Ph.D., a cognitive psychologist and risk specialist, "and the data are fuzzy enough that we can see what we want to see." Or what others want us to see. Those who have sought to draw attention to the dangers of breast cancer—in some cases because they have mammography equipment to sell—have for some time been trumpeting the frightening statistic that one woman out of eight will contract it in her lifetime. This is true, but grossly misleading, since breast cancer is largely a disease of aging and much of the risk occurs after age 80. At age 40, the odds of discovering a breast cancer are one in 1,200.

Unfortunately, the organization that should be help-

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ing to straighten out priorities is suffering from massive credibility problems of its own. Starting with the 1962 publication of Rachel Carson's *Silent Spring* and continuing through the Vietnam War and Watergate, the U.S. government has almost entirely lost the public's confidence. This sentiment explains the terrible unease that many people feel about such government-approved substances as saccharin, which they believe to be unnatural.

It also explains why many of the health risk stories play out the way they do. Nowadays, the often secretive and duplicitous behavior of government or industry will do more to deep-six a risky product than actual evidence that the product is hazardous. Thus, in the breast implant furor, reports that Dow Corning (a joint business of Dow Chemical and Corning Glass) had withheld some data on the hazards of the silicone implants created a greater uproar than the original report of the dangers. Dow Chemical, makers of napalm during the Vietnam War, did not enjoy the best reputation anyway, and the Watergate analogy did it in. *Business Week* titled its investigative piece "Breast Implants: What Did the Industry Know, and When?" in obvious reference to Senator Howard Baker's famous question about President Nixon. "We're talking cancer, we're talking breasts, we're talking a very vulnerable feeling where people feel a tremendous need to trust," explains Peter Sandman, Ph.D., a prominent risk communications specialist, using words that might apply to all health risk scares. "And they suddenly felt terribly betrayed."

Some anthropologists go so far as to argue that risk is the modern secular equivalent of sin—it serves as a terrific rallying cry, since everyone is against it. For short-term tactical use, private interest groups have certainly found that risk can be a potent hand grenade. Karl Dake, Ph.D., a psychologist at the University of California at Berkeley, offers an example that shows how it can blast its target. "Suppose I say that a baby born in Central Los Angeles is at risk for being underweight because of airborne lead poisoning," he says. "Well, that is an absolutely loaded statement. It is not just a statement about the scientifically determined risk from air pollution. It is a call to arms. There is a victim—the baby. And there is a villain—the automobile manufacturer."

As Dr. Sandman has calculated it, risk is not just sin, it is the sins of others. In his terminology, it is outrage, a sense of being not just harmed but morally wronged. "Experts are all the time going around saying the public misunderstands the risk, the public just doesn't get it, doesn't perceive the data right," he says. "I think the problem is something else. I think the experts focus on hazard and ignore outrage, while the public focuses on outrage and ignores hazard." Many factors produce outrage, but the sense of a risk being imposed on a victim, rather than being undertaken voluntarily, is probably the most important. It is, Sandman says, one thing to be strapped onto a pair of greased boards and pushed down a mountain and quite another to go skiing. This helps explain why people object so strenuously to having toxic waste dumps placed in their town without their awareness or approval. The danger may in fact be slight, but it feels greater because of the government's high-handedness in the matter.

Secondly, it matters whether the suspected element is "natural" or not. This explains our obsession with dioxin, EDB and other man-made chemicals, but our tacit acceptance of the far more dangerous radon, which is a naturally occurring gas produced by the decaying of uranium in rocks. Studies show that people are more distressed by radon's effects on their property values than on their health. "It's God's radon," explains Sandman, "not a multinational corporation's radon, so it's a natural risk, not an industrial risk."

Having identified the factors that shift our attention from large risks to small ones, it may be possible to use them to shift attention back where it belongs. Outrage, for instance, has already been harnessed quite ingeniously to go after cigarette smoking. Instead of making an issue of what smokers were willingly doing to themselves, antismoking groups went after secondhand smoke by which innocents were supposedly being sacrificed for smokers' pleasure. (As it happens, the actual evidence of this is considered by experts to be inconclusive, but it was generally accepted because it felt morally right.) By the same token, Mothers Against Drunk Driving succeeded in increasing societal outrage over drunk driving by focusing attention on the children being slaughtered by the drivers' recklessness.

Similarly, where trust is really the issue, some federal agencies have started working to build it up as a way of reducing the perception of risk. For instance, the Department of Energy is helping communities that have been targeted as the sites to receive hazardous waste feel better about the prospect by actually paying them to hire their own experts in risk assessment so that they can have some faith in the information they are receiving.

In a larger sense, the discussion over risk is part of an ongoing debate about political priorities, a debate that has always seized on the totems and symbols that are most likely to move the electorate. If politics got us here, politics can get us back. But it will only do that if we can all somehow start speaking a common language once more. There have been frequent calls for more risk education on the part of the public in order to raise the level of the debate, but it may be more important simply to insist that those who are talking about risk actually talk about risk, not about trust or outrage or sin or any of the hundred other things risk gets confused with. Some experts call for a common gathering of opposing parties on a particular risk issue, somewhat in the manner of the convention called by President Clinton of environmentalists and members of the timber industry over the issue of the spotted owl in the forests of Oregon.

For now, there are hopeful signs that some progress is being made in addressing the big risks, despite all the attention going to small ones. Twenty years ago, car manufacturers couldn't imagine that their customers cared enough about safety to pay a little extra for it. Now, air bags and crashworthiness scores are prominent marketing features. During the same period, the proportion of the population that smokes cigarettes has declined from almost 50 percent to 25 percent. As recently as 10 years ago, parents almost never used car restraining seats for their young children; now they are required to in all 50 states. "There is clearly a lot of yearning for safety on the part of citizens," concludes Graham. "Now we have to help them ask the right questions of the right people in order to obtain it."