Chapter 3

STUDIES, WE'VE GOT STUDIES

I don't get it. I did everything right to take care of myself and look what happened. Why in the world did I do all those push-ups?

— Jacqueline Kennedy Onassis[1]

The evidence linking tobacco to human disease is so overpowering that we should never have to do another study.

— Richard Bordow, M.D.[2]

There's a hell of a lot of junk coming out under the guise of epidemiology.

— Epidemiologist Richard Peto[3]

BACK IN 1958, Charles McArthur and colleagues at Harvard University found that, among a group of 252 Harvard men they had followed for about 15 years, the ability of smokers to stop smoking was directly related to how long they had been breast-fed as babies. The longer they had been breast-fed, the more likely it was that they would be able to quit. Conversely, the earlier they had been removed from the maternal nipple, the less likely they would be able to quit.

For example, light smokers who could stop smoking had been weaned at an average of eight months; heavy smokers who could stop had been weaned at 6.8 months, and those smokers (mostly heavy) who tried to stop but couldn't had been weaned at the early age of 4.7 months.[4]

The obvious lesson of this stunning discovery was that smokers, especially those who couldn't quit the habit, were suffering from oral needs that were not satisfied when they were infants, and hence as adults were hooked on a surrogate teat in the form of a cigarette. (One can only speculate about men who were never breast-fed at all; they evi-

dently were not surveyed. I also wonder what the explanation is for chewing gum chewers.)

But wait a minute. Did anybody really look at those figures? Consider just the last group of men who were weaned at 4.7 months. What is seven-tenths of a month? In a month of 31 days, it's 21.7 days. What is seven-tenths of a day? It's 16.8 hours. What is eight-tenths of an hour? It's 48 minutes.

At first glance, it would seem that 252 adult males not only knew that they had been breast-fed but could tell you down to the very minute when, with what must have been great psychological trauma, they were rudely and abruptly taken off the breast!

Well, they couldn't know, of course; it was "purely statistical" (just as no family has 2.3 children, although that is said to be the "average" family size in the United States). But such finely tuned statistical precision is typical of studies about smoking and is what impresses people and makes them believe anything the researchers come up with.

Another example of impressive-sounding statistical precision was reported by the Academy of General Dentistry. It concerned two separate studies, one of 495 healthy men and the other of 583 healthy postmenopausal women, each extending over 30 years. The studies found that males who start smoking at age 18 lose their teeth at the rate of 2.9 teeth every 10 years and that female smokers lose 1.5 teeth every 10 years. Both male and female smokers were twice as likely to lose teeth as nonsmokers.[5]

I would think that if you've lost nine-tenths of a tooth, or even half a tooth, you've pretty much lost a whole tooth. Again the point is that those fractions of teeth were mathematical artifacts derived from statistical analysis of the studies. But note the use of the present tense above. The researchers leaped to the conclusion, or at least conveyed the idea to the public, that because people in their studies with a smoking history *had lost* teeth at a certain rate, *all* smokers *are losing* their teeth at the same rate. This kind of generalization is also typical of smoking studies.

Even if the men in the McArthur study had known when they were weaned, they could only have obtained that knowledge from their mothers. (This is called anecdotal evidence, which is valid only when it goes against smoking, unlike my anecdotal evidence, which the antismoking community of course rejects out of hand. In this case,

however, it was not just anecdotal evidence but secondhand anecdotal evidence.) I doubt if my mother, who nursed me and three siblings, could have told any of us, had we been so curious as to ask her, what year, let alone what month, she had put us on the bottle or solid food.

But "Interestingly," adds my source, "McArthur found no clear-cut difference between smokers and lifelong nonsmokers as to how long they had been breast-fed."

The entire study really proved nothing? Fifteen years down the drain? Another "never mind"? Well, at least this was one smoking study smokers didn't have to pay for since it was completed in 1958.

It's easy to make fun of this study because, even if it had revealed some truth we never knew before, that knowledge would be something less than momentous. It usually takes a little more effort—though not a whole lot—to perceive the flaws in modern studies used as weapons in the antismoking crusade and to realize that they too, more often than not, prove nothing, unless it's the researchers' bias.

MOTHERS HAVE BEEN getting a bad rap since at least 1942, when author Philip Wylie in his book, *A Generation of Vipers*, coined the term "momism" to describe what he saw as too much adulation of mothers in American society and too much maternal overprotectiveness of offspring, particularly male offspring, to the detriment of their independence and self-reliance as adults.

Although "momism" had nothing to do with smoking and has long since joined the lexicon of forgotten terms, today's mothers are not only guilty of bringing smokers into the world by weaning them too soon but, through their own smoking, are responsible for disabling their offspring in countless other ways. Let us count a few of them:

"Women who smoke during pregnancy are increasing their chances of giving birth to a future juvenile delinquent, a new study suggests." (Note those last four words; they constitute the most common phrase in all health reports.)

That was the lead sentence of a July 1997 Internet flash from Action on Smoking and Health (ASH),[6] which is ever-eager to trumpet how smoking parents are harming their children. (For how eager they are, even to the extent of encouraging the break-up of families, see Chapter 7.)

The study, reported in *Archives of General Psychiatry*, was conducted

by Dr. Lauren Wakschlag and a team of researchers from the University of Chicago Medical School and the University of Pittsburgh.

The researchers studied 177 boys aged 7 to 12 who had been referred to outpatient clinics in Pennsylvania and Georgia for possible "conduct disorder." Conduct disorder, ASH explained in a follow-up release,[7] is a persistent pattern of "lying, setting fires, vandalism, physical cruelty, forcible sexual activity and/or stealing." Three of these behaviors exhibited for six months earned a boy the conduct disorder label, and 105 of the boys were so diagnosed.

The mothers of all 177 were then asked if and how much they had smoked during pregnancy. Forty-two said they had smoked more than half a pack a day, while 23 said they had smoked up to half a pack a day. The other 112 mothers said they hadn't smoked at all. (Note the word "said." Anecdotal evidence again.)

When this data was put through the statistical mill, out came the finding that 80 percent of the sons of the heavier smokers and 70 percent of the sons of the lighter smokers had conduct disorder. For nonsmoking mothers, only 50 percent of their sons exhibited the disorder.

Dr. Wakschlag acknowledged that "smoking during pregnancy was found to be associated with a number of other risk factors for conduct disorder, including having less affluent and less well-educated parents, larger family size, maternal use of alcohol and other drugs during pregnancy, having a biological father who met diagnostic criteria for antisocial personality and/or substance abuse disorders and maladative parenting."

But after using "statistical methods" to eliminate the effects of these other variables, the researchers found that mothers who smoked more than half a pack of cigarettes a day during pregnancy were more than four times as likely to have a child with conduct disorder than mothers who did not smoke during pregnancy.

One can be sure that if the researchers had been trying to make a case against something other than smoking, say maternal TV watching, "statistical methods" would also have yielded the desired result.

Come on. Smoking during pregnancy overrides every other influence as a cause of a child's conduct disorder—even having low-income, poorly educated, alcohol-using, drug-taking, antisocial and all-around lousy parents? Even gullible nonsmokers have to shake their heads at that. Were any children of high-income, high-education and well-adapted

parents, smoking and nonsmoking, studied as a control group? Apparently not. That might have "confounded" their finding.

Nonsmoking women can take little comfort in this study, however, for their chance of bringing a sadistic, violent, pathological liar of a child into the world is 50-50 if they have a son. But there's one bright side: since about half of all newborns are girls, nonsmoking women's chance of giving birth to a moral monster drops to a mere 25 percent. That should be quite reassuring to all nonsmoking expectant moms.

Even if her child doesn't turn out to be a delinquent, a mother who smokes during pregnancy is bequeathing him, or her, a "significantly lower" IQ than the mother who doesn't smoke during pregnancy, and the more cigarettes smoked, the lower the IQ.

That disturbing information was reported in *Science News* in February 1994 and was the finding of a Cornell University/University of Rochester study published in the journal *Pediatrics*.[8] Specifically, 3- and 4-year-old children whose mothers smoked 10 or more cigarettes a day during pregnancy scored an average of nine points lower on IQ tests than the children of nonsmokers. Even after "controlling" for other factors the deficit was still more than four points.

Again, fortunately, there's a bright side. The researchers also found that a comprehensive program of nurse home visitation during pregnancy largely eliminated the potential IQ deficits of children born to smoking women, in part, they think, by reducing the number of cigarettes smoked (with nagging, warning, frightening?) and by improving the diets of the women. (And I'll give you one guess which they would say was more important, a healthier diet or less smoking.) When smokers were visited by nurses throughout their pregnancies, their 3- and 4-year-old children had average IQ scores five points higher than the children of smokers who were not visited.

Interestingly enough, no significant differences were found among children younger than 3 and no independent effects were found at any age from exposure to secondhand smoke. The researchers also stated that no mental deficits from prenatal smoking have been shown to exist in children older than 4. Does that mean that children start getting smarter on their own after age 4, even if their mothers smoked during pregnancy? Could it be because kids go into kindergarten or preschool after that age and receive more intellectual stimulation than they may have gotten at home? Your guess is as good as mine.

Alas, once again mothers who don't smoke shouldn't necessarily be congratulating themselves. They too may be harming their children.

For instance, other researchers have found that mothers who criticize their children too severely "could "(another word to note) be reducing their children's IQ scores. So reported Drs. Mary Gauvain and Beverly Fagot in the journal *Developmental Psychology*.[9]

They followed 93 children and their mothers and found that disapproving behavior by the mother increased a child's likelihood of developing learning problems by age 5. Specifically, children whose mothers gave them disapproving looks and criticized them had lower verbal and math scores on IQ tests at that age.

Which gives even deeper meaning to the phrase, "Looks can kill."

Is it possible that the parents of some of these low IQ kids just aren't feeding them right (though that surely must have been one of the variables "controlled for" in the Cornell/Rochester study)? Another study in *Pediatrics* found that heavy smokers "may" (another word to note) be providing their children with less nutritious food than nonsmoking parents. Children of low-income families whose parents each smoked more than 20 cigarettes a day consumed diets higher in fat, salt, cholesterol and total calories and lower in fiber and vitamin A than children whose parents didn't smoke.[10] For this reason the researchers suggest that smoking cessation interventions should specifically target low-income parents.

This study didn't investigate the effects of poor diet on children's intelligence, but I wonder again if the researchers compared the study group to a control group of high-income parents. High income usually goes with better education, and better educated parents, smokers or nonsmokers, are more likely to see that their children eat well. But it wasn't income or educational levels these researchers were interested in. It was smoking.

Incidentally, the title of the *Pediatrics* article was "Tobacco May Compete With Other Food Dollars." With higher and higher taxes being placed on cigarettes, thanks to antismoking agitation (and the companies adding their own price increases, thanks to their greed), and because low-income, less educated people constitute the majority of smokers today, and because we *know* that smokers are hopelessly addicted to the weed, the antismokers may actually be ensuring that the children of low-income families will enjoy even poorer diets in the future.

* * *

ALL OF THE ABOVE **handicaps** inflicted upon children by their smoking mothers depends of course on whether their mothers didn't kill them outright in the womb with their smoking.

According to an article in the April 1995 *Journal of Family Practice*,[11] between 20 and 62 percent of all pregnancies end in spontaneous abortion, and as many as 7.5 percent of these miscarriages "may" be caused by smoking. This "is a poignant reminder that use of tobacco products affects many innocent individuals who have not chosen to assume the risks involved," said one or the authors of the study, Dr. Joseph R. DiFranza, a doctor in the Fitchburg Family Practice Residency Program at the University of Massachusetts and another individual who has found a career in antismoking research. (Make that "research.")

The study was not based on any original research, however, but rather on a "meta-analysis" of some 100 studies of the relation between smoking and prenatal and neonatal (newborn) health. Meta-analyses, which are combinations of different studies from which researchers pick out what is useful to them and discard the rest, are notoriously slippery (see Chapter 6). But based on theirs, the researchers came up with a "best case" *estimate* (note that word too) of 19,000 tobacco-induced miscarriages a year. This in turn was based on the lowest *estimate* of the proportion of pregnant women who smoke and included only those pregnancies and miscarriages that were recognized by the women and their doctors.

Their "worst case" *estimate* was 141,000 tobacco-induced miscarriages. This figure was based on the highest *estimate* of smoking prevalence among pregnant women and included miscarriages that occurred before the women realized they were pregnant.

The best way to reduce this toll, the study concluded, would be to "focus on preventing nicotine addiction among teenage girls."

The researchers also found "evidence" from many of the 100 studies that smoking elevated the risk of stillbirths, neonatal deaths and SIDS (Sudden Infant Death Syndrome). Indeed, "The most dramatic effect of maternal smoking is on the risk of SIDS, which is tripled" when mothers smoke, they reported. In fact, two-thirds of SIDS deaths among children of women who smoke during pregnancy can be attributed to smoking, they said.

Rather than attempting to challenge these 100 studies, which I haven't seen, I will refer the reader to the studies in the bibliography near the end of this chapter that tell a much different story about the smoking/miscarriage/stillbirth/neonatal death connection. However, the idea that parental smoking is largely, or even partly, responsible for SIDS is vigorously questioned—not by me, not by any prosmoking organization, not by the tobacco industry, but by the Sudden Infant Death Syndrome Foundation itself (see Chapter 8). Because the smoking/SIDS allegation has been pretty much blown out of the water, I respectfully suggest at least a modicum of skepticism regarding the other DiFranzi et al. claims.

If smoking mothers have a lot to answer for, yet again those who don't smoke aren't going to be let off the hook, especially if they work outside the home.

Long hours and high stress on the job "may" increase the risk of miscarriage early in pregnancy, according to a study of female lawyers. The study, published in the *Journal of Occupational and Environmental Medicine*, looked at 584 women who graduated from the University of California-Davis law school between 1969 and 1985.[12]

Women who "said" that they worked more than 45 hours a week were both five times more likely to characterize their jobs as "high stress" and three times more likely to have a miscarriage early in pregnancy than those who worked less than 35 hours.

Unfortunately, even stay-at-home moms who aren't stressed at work but who are depressed (maybe because they're stuck in the house all day?) can cause their children to have behavioral problems.

Geraldine Dawson, a University of Washington psychology professor, studied the brain activity of 117 children, 54 with mothers who had been diagnosed as depressed when their infants were 14 months old and 63 children whose mothers were not depressed. She found that nearly 39 percent of the children with depressed mothers exhibited reduced brain activity.[13] This was true both at 14 months and at 3 and a half years.

These children, she said, "may" be vulnerable to their own depression and other emotional problems in later childhood.

Maybe stressed or depressed women should get away from both home and job occasionally and take up some activity, perhaps join an exercise club. Surely this would be good for their mental as well as their physical health.

Then again, maybe not. From Australia comes the warning that pregnant women who exercise "could" affect the birthweight of their babies as badly as smoking. Dr. Robyn Bell, an epidemiologist at Melbourne's Royal Women's Hospital found that women who exercised at least five times a week gave birth to more premature and low birthweight babies.[14] A low birthweight baby was defined as one weighing less than 2.5 kilograms (about five and a half pounds).

Some of the heavy exercising women in her study gave birth to babies near two kilograms (about 4.4 pounds) and one gave birth eight weeks early. On the basis of these few examples, she concluded that overexercise was "probably (yet another word to note) equivalent to smoking a packet of cigarettes a day" and "may produce an effect on the same order as smoking in terms of public health."

On the other hand, a young woman's risk of developing breast cancer is "dramatically" reduced if she engages in regular physical exercise, according to a study published in the *Journal of the National Cancer Institute* and based on a survey of 545 breast cancer patients and 545 other women without the disease.[15]

Each woman estimated (anecdotal evidence) how much time she had spent on such activities as team sports, swimming, running and jogging, gymnastics and dance or exercise classes. This info was fed into the computer and "adjusted" for such differences as the age of first menstruation, age at first full-term pregnancy, number of full-term pregnancies, use of oral contraceptives and family history of breast cancer (also anecdotal evidence). Out popped the finding that, despite these differences one might think were rather important, the more a woman had exercised, the lower her risk of breast cancer.

Unfortunately, as we have seen, too much exercise by a pregnant woman is "probably" equivalent to smoking a pack of cigarettes a day and can result in an underweight or premature baby. We have also seen that smoking can cause a spontaneous abortion when a woman may not have been aware that she was pregnant, so presumably its equivalent in exercising could too.

Thus women who are pregnant as well as those who could be pregnant and not know it face a dilemma: in the first case, whether *not.* to exercise and avoid having an underweight or premature baby but risk breast cancer or, in the second case, whether *to* exercise and avoid breast cancer but risk having a miscarriage.

My advice to all of them: avoid health studies.

Finally, even if a mother who smokes during pregnancy doesn't bring a tobacco-induced miscarriage upon herself, even if she doesn't give birth to an intellectually retarded child or a sociopathic son, and even if she has a daughter who is lucky enough to escape being among the 25 percent of girls who develop conduct disorder, her smoking may affect her daughter in another way.

"A new study shows (another oft-used phrase)," said my source, that the daughters of women who smoke cigarettes during pregnancy are more likely themselves to smoke during adolescence. This study was reported in the *American Journal of Public Health*.[16]

Dr. Denise Kandel of Columbia University studied some 1,000 adolescent girls and found that they were four times as likely to smoke if their mothers had smoked during pregnancy. (Another instance of secondhand anecdotal evidence; she could only have gotten this information from the girls, who could only have gotten it from their mothers.) The finding held true even after taking into account (another way of saying "controlling" or "adjusting" for) environmental and social factors such as education and whether the mother or other household members smoked while the girls were growing up.

As for why maternal smoking during pregnancy didn't seem to be a factor in boys' smoking in adolescence, Dr. Kandel speculated that male sex hormones "could" provide protection against nicotine's stimulatory effects.

Well, if that's so, you may ask, why don't the hormones of sons of smoking mothers protect them against becoming delinquents? That's not a fair question because that study was done after Dr. Kandel's and she probably wouldn't have been aware of it anyway. Why confuse her?

In any event, she suggested that prevention programs should target daughters whose mothers smoked during pregnancy.

With all this antismoking "prevention" and "intervention" and "targeting" going on, medical researchers may reach the point where they won't have the time to conduct studies. One can dream.

SO MUCH FOR MOTHERS and other women. Whatever consolation it may be to them, smoking fathers too are doing terrible things to their children. I'll cite just one study, both to keep this chapter within reasonable bounds and because it is one of the most outrageous examples

in recent years of how antismoking bias can pollute medical research.

The study, which was published in the December 1997 *British Journal of Cancer*, found that the children of fathers who smoke 20 cigarettes a day have a 30-percent higher risk of developing cancer than the children of nonsmoking fathers. For children whose fathers smoked 40 or more cigarettes a day, the risk was 60 percent higher.

About 1,500 children under 16 are diagnosed with cancer or leukemia each year in the United Kingdom. The study "suggested" that 150 of those cases "may" be associated with fathers' smoking. "[I]n Europe alone, there would be around 1,000 fewer cases of childhood cancer each year if fathers didn't smoke," said Dr. Tom Sorahan, leader of a team of researchers from the University of Birmingham, demonstrating his intellecual athleticism by leaping from a shaky surmise to a distant conclusion.[17]

The study was based on interviews (anecdotal evidence) with the parents of 2,567 children who died of cancer in Great Britain between 1971 and 1976 and interviews (also anecdotal) with the same number of parents of healthy children. (At least this time there was a control group.) Once again, the findings could not be explained by social class, family size or age of parents.

The researchers also reasoned that secondhand smoke wasn't responsible for these cancers because mothers' smoking would be expected to be at least as important as fathers' smoking, and it wasn't. So what was the explanation?

"Damaged sperm is the likeliest culprit," said Sorahan, winging back in from way out in left field.

Carol Thompson, president of the Smokers' Rights Action Group, who writes for FORCES Canada and is not known for excessive reserve when debunking the antismokers, shot a rather large hole in that theory.

"In the first place," she writes, "it is nothing but sheer, empty speculation to claim that 'damaged sperm' causes any kind of cancer. There is not a single type of cancer that has been shown to be caused by 'damaged sperm.'

"Furthermore, hot baths are known to damage sperm. And the only known effect of damaged sperm is failure to conceive, not cancer or even birth defects.

"Furthermore, different cancers are known to have different

causes—cancer is not a single disease—and it is sheer scientific nonsense to lump all forms of cancer together and simply call them 'cancer,' as in this article.

"Plus, the leukemias have been increasingly linked to infection or other factors which [the researchers] did not investigate. These quacks did nothing but cobble together some circumstantial evidence with a flimsy glue of speculation and spew it into the public's faces with an act of bravado."[18]

I will only add two comments.

1. The risks of 30 percent and 60 percent meant that the researchers, after "controlling" for family social class, etc., could only come up with a relative risk of 1.3 for moderate smoking and a relative risk of 1.6 for heavy smoking, both of which are well below the 2.0 relative risk which is considered the very minimum for a study to be considered statistically significant.

2. It is a sad thing when parents in the midst of terrible grief are encouraged to believe that it was something they did that caused the death of their child. But that too is a typical tactic of antismokers (again see Chapter 8). Anything goes in the cause of a "smoke-free society."

THE MENTION OF leukemia forces me to digress briefly to two other studies, which have nothing to do with smoking but give some insight into what it means to "adjust" and "control" for various factors in an epidemiological study and how much trust we should place in this procedure. The first one has few rivals as an example of how even the most ludicrous "finding" can be published in the scientific literature—because the computer said it was so.

I crib what follows from Steven Milloy's *Science Without Sense*, a humorous and all-too-brief but eminently readable "handbook" on how to win fame, if not fortune, in the field of public health research. Milloy is a biostatician who, as "the Junkman," maintains the Junk Science page on the World Wide Web (www.junkscience.com) which I cite in almost every chapter in this book.

Seems some researchers decided to do a case-control, or retrospective, study of the possible risk factors in childhood leukemia. Looked at were such things as children's exposure to environmental chemicals, electric and magnetic fields, past medical history, parental smoking and drug use and the dietary intake of nine different foods. These included

breakfast meats, hot dogs, luncheon meats, hamburgers and several fruit beverages.

This is called "data dredging," says Milloy. "You have to analyze your data forwards and backwards, from the top, bottom, and sides, from the inside out, and from the outside in. You slice it, dice it, and pick it apart any way you can to find an artifact (I mean risk) worth all this trouble."

In examining the myriad of possible statistical associations with childhood leukemia, the study identified breast-feeding, indoor pesticides, children's use of hair dryers, black and white television sets, incense, mother's exposure to spray paints during pregnancy, and so on.

It was obvious right from the start, he says, that the researchers had no idea what they were looking for; they were simply on a fishing expedition. "Amazingly, they caught a big one!"

The one association that stood out was that between eating more than 12 hot dogs a month and leukemia. For this association, the researchers came up with a whopper of a relative risk—9.5—nearly eight times greater than the mere 1.19 risk of getting lung cancer from secondhand smoke the Environmental Protection Agency came up with in what Milloy calls "the Mona Lisa of all meta-analyses" and which has been used to brand smokers as Public Enemy No.1 (see Chapter 6).

In other words, children who ate more than 12 hot dogs a month were nine and a half times more likely to develop leukemia than children who ate few or no hot dogs. The association was biologically plausible, the researchers said, because hot dogs contain nitrites, which have been associated, or "linked," to leukemia in rats and mice.

"A great result from a fishing expedition," says Milloy. The press was informed, of course. I remember reading about it in my local newspaper, but either lost or failed to save the clipping.

Unfortunately, the researchers made a serious error that called into question the validity of their "finding": they admitted that they were unable to come up with an association between leukemia and other types of processed meats, including ham, bacon, sausage and luncheon meats, all of which also contain nitrites. They should have omitted this information from their report, Milloy says.[19]

Is it possible that the authors of at least some of the hundreds of studies "linking" smoking with name-your-disease *did* take care to avoid this kind of error and *did* omit "inconvenient" information

because it would have contradicted their findings and only have confused people and "sent the wrong message" about smoking?

The second example of a statistical fishing expedition actually has to do with a sport—hunting. This study found that children who live in Michigan are nearly three times as likely to be neglected and are twice as likely to be physically abused or sexually assaulted if they live in a county with an above average number of hunters.

The researchers compared Michigan and New York state. There were 235.2 identified victims of child abuse per 100,000 Michigan residents, but just 30.2 victims per 100,000 residents of upstate New York. There are also 25.4 child victims of sexual assault per 100,000 Michigan residents, but only 13.2 per 100,000 in upstate New York. (New York City was conveniently excluded from both calculations.)

Now here's the kicker: Michigan sells 16,430 hunting licenses per 100,000 population; New York, with almost identical licensing requirements, sells 8,627. Only seven percent of upstate New York residents hunt, while 9.6 percent of Michigan residents do.

Even when other factors associated with child abuse were considered, such as below average family income and population density, hunting participation was in first place. The association of hunting with child abuse may be even stronger, the authors of the study said, because most experts "believe" that child abuse tends to be underreported in rural areas where witnesses are few.

They did not go so far as to allege that hunting "causes" child abuse, but the data "support a *hypothesis* that both hunting and child abuse reflect the degree to which a social characteristic called dominionism prevails in a particular community" and "the coincidence of high hunting population with both poverty and child abuse is in itself indicative that hunting *may* be symptomatic of a poor social environment." [Emphases added.]

It may also be indicative of something else that the study was reported in an animal rights magazine.[20]

ALTHOUGH THE following studies also don't necessarily have a connection with smoking, they illustrate the kinds of speculation, guesswork and leaps of (il)logic that characterize smoking studies. They show that there is another way fathers may be harming their children—by dying early and thus depriving them of half of the nurture, guidance and

role models growing children need, as well as probably the greater part of a family's income.

For example, men who have high levels of anxiety (perhaps worried about what their secondhand smoke is doing to their children?) "may" be at an increased risk of sudden death from heart attack. So concluded a 32-year study of 2,280 men aged 21 to 80 by researchers at the Harvard School of Public Health.[21]

The subjects were asked five questions and their answers were rated on an "anxiety scale": Do strange people or places make you afraid? Are you considered a nervous person? Are you constantly keyed up and jittery? Do you often become suddenly scared for no reason? Do you often break out in a cold sweat?

This was worse than ordinary anecdotal evidence; it was highly *subjective* anecdotal evidence.

Anyway, men who scored highest on the "anxiety scale" by answering "yes" to the most questions were four to six times more likely than men who scored lowest to suffer fatal heart arrhythmias. During the study, 26 men had sudden cardiac deaths.

Only 26 deaths out of 2,280 men in a period of 32 years? That's just a fraction more than one percent of the study group. Seems a pretty small number for that many men for that many years. How old were those who died? That would seem rather important, but my source doesn't say.

Depression is another thing that takes a toll of men in the prime of life. Men who felt hopeless or thought of themselves as failures and expressed high levels of despair (subjective anecdotal evidence again) had a 20 percent greater increase in atherosclerosis, or narrowing of the arteries, which can lead to heart attacks and strokes, according to a report in the August 1997 issue of the American Heart Association journal *Arteriosclerosis, Thrombosis and Vascular Biology*.[22]

"This is the same magnitude of increased risk that one sees in comparing a pack-a-day smoker to a nonsmoker," said Susan Everson, an associate research scientist at the Human Population Laboratory of the Public Health Institute in Berkeley, California, and lead author of the report.

Sleeplessness is also related to anxiety and depression and its incidence among America's workers "could" be costing employers more than $18 billion a year in lost productivity.

An *estimated* 47 percent of U.S. workers *say* they suffer from sleeplessness, and at least 36 million Americans *think* this negatively affects their job performance, according to a survey by the Louis Harris organization that was sponsored by McNeil Consumer Products Company, which just happens to be a maker of pain reliever and sleep aid products.[23]

Good to know that something other than smoking is at least partly responsible for America's lost productivity.

If a man has never finished high school, he may also not live to see his children grow up. Dr. Murray Mittleman and colleagues of Harvard Medical School interviewed 1,623 patients who had suffered heart attacks and found a direct "link" (yet one more word to note) between anger and heart attacks and between anger and whether or not the subjects had finished high school.[24]

Nearly four percent of patients with less than a high school diploma "said" they felt "very angry, furious or enraged" two hours before their heart attacks, compared with only 2.2 percent who had finished high school and 1.7 percent of those with college experience.

Four percent, 2.2 percent and 1.7 percent equal approximately 65, 36 and 28 men respectively out of a total of 1,623 men (I can do statistics too). Again pretty sparse evidence on which to hang a theory, but enough to get your name and your study in a scientific journal, even if it's not about smoking.

Unfortunately, even if a man doesn't suffer from anxiety or despair or anger but becomes an outstanding success in life, he may be cutting that life short, especially if he succeeds too soon.

A study by Dr. Steward McCann of the University of Cape Breton in Nova Scotia looked at 162 leaders in America, Canada, Britain, France and New Zealand, including vice presidents, Supreme Court justices, British monarchs, popes, signers of the Declaration of Independence and first-time Oscar winners, and found that the younger the leaders were when they reached the top, the more likely they were to die before their time.[25]

You're not anxiety-ridden or depressed and you are a high school graduate but not a young national leader and you sleep well, you say. Even so, if you're the pushy "Type A" type you're 60 percent more likely than mild-mannered guys (such as myself) to die from a heart attack or stroke or suffer from other conditions such as high blood pressure.

That information is from a 20-year study involving 750 middle-class white men, conducted by Dr. Michael Babyak of Duke University Medical Center and published in the *Journal of the American Psychosomatic Society*. It was the first study to "link" long-term health risks with "social dominance" in Type A men, Dr. Babyak said.[26]

The exact reason Type As "may" be at greater risk of heart attack—about 50 percent "more likely" than easy-going Type Bs—was "suggested" by a study conducted nearly five years before Babyak's: it's because their bodies make unusually small amounts of good cholesterol, or HDL (high-density lipoprotein).

"Type As have substantially lower HDL. That seems to explain their greater risk of heart attacks," said JoAnn Manson of Brigham and Women's Hospital in Boston.[27]

We'll take her word for that as we add "seems" to our list of weasel words to watch out for.

If further research confirms this "link," she said, it would provide more support for the belief that reducing stress is good for the heart.

I'm willing to believe it. Just look at that high-pressure cooker called Wall Street—"the heart attack capital of New York," in the words of Ellen Karasik, an assistant vice president at NYU Downtown Hospital in Manhattan.[28]

The heart attack death rate during business hours for the 5,000 people who work at the stock exchange is 60 percent higher than the national rate for men between 18 and 65, according to the National Center for Health Statistics, and may be 10 times higher than that of the general public, according to Dr. Ira Schulman, directory of cardiology at the same hospital.[29]

On the other hand, maybe stress *isn't* a factor in heart disease after all. A four-year study of 1,489 men conducted at Duke University Medical Center between 1986 and 1990 found that coronary heart disease was just as common in patients with little on-the-job stress as among those with high-stress jobs.[30]

I'll let the researchers fight that out among themselves. In the meantime, the good news is that men who drink milk have a lower incidence of stroke. Scientists who tracked 3,150 men for 22 years reported in the American Heart Association journal *Stroke* that those who didn't drink milk were twice as likely to have a stroke as men who drank at least 16 ounces of milk a day.[31] (Tell that to the guy who sued the Washington state dairy industry. See footnote on page 107.)

Unfortunately, the researchers don't know if it's the milk that protects against stroke or if it's an overall healthier lifestyle. I've just thrown this study in as an example of how apparent correlations between all sorts of things and all sorts of other things occupy the energies of medical researchers. At least it keeps them off the streets.

To repeat the statement by statistician K.A. Brownlee from Chapter 1, ". . . the presence of a positive, zero, or negative correlation between two variables observed over time has been the basis for more ludicrous nonsense than any other statistical procedure."

Speaking of correlations, there's even better news for men: the more sex you have, the healthier you'll be. Epidemiologist Stephen Frankel and colleagues at the University of Bristol, England, followed 918 men from the Welsh town of Caerphilly and five nearby villages for 10 years. During the study, 150 of the men died, 67 of them from heart disease. When they crunched their numbers in the computer, Frankel et al. found that the risk of death from all causes was halved in men who reported the highest frequency of orgasm, compared to men with the least sexual activity.[32] (One must assume the researchers were confident that the first group didn't fudge the truth just a little.)

Again, they don't know which is cause and which is effect. It may be that sexual activity protects a man simply by giving him a cardiovascular workout. On the other hand, it may simply be that men with a good sex life lead happier, less stressful lives. The findings need to be confirmed by other research groups, says Frankel. (I'm sure he won't lack for volunteers. The only problem will be to get wives and girlfriends to cooperate.)

One thing everyone can agree on is that, with or without sex, a cardiovascular workout is good for you, and luckily for men they don't have to worry about the complications of pregnancy.

"Every American adult should accumulate 30 minutes or more of moderate intensity physical activity a week," recommended Dr. Steven N. Blair, director of epidemiology at the Cooper Institute for Aerobics Research in Dallas.[33] It need not be strenuous exercise. "We're talking about walking three to four miles an hour, 15 to 20 minutes per mile."

He pointed to a study of 10,269 middle-aged Harvard University alumni (where would researchers be without Harvard alumni?) that found that those who started exercising reduced their risk of death just as much as those who quit smoking cigarettes.

Hmm . . . Moderate exercise is as beneficial as quitting smoking. But too much exercise is the same as smoking a pack of cigarettes a day. Depression is also as bad for the arteries as a pack of cigarettes a day. But anxiety is a greater risk for sudden heart attack death than smoking.

Smoking, it would seem, has become the modern benchmark against which health researchers measure the results of their studies. There's a use for the weed after all!

They never express it the other way around, of course, as in, perhaps: Smoking a pack of cigarettes a day is no worse for your health than overdoing it at the exercise club. Or being down in the dumps or possessed by worries.

ONE OF THE MOST bald-faced and brazen pieces of antismoking propaganda I have ever seen was an article in *Reader's Digest* titled "How Smoking Clouds Your Brain," which purported to prove that smokers' perception that cigarettes make them feel more alert, clearheaded and able to focus on work "is mostly an illusion."[34]

It reported an experiment conducted by psychologist George Spilich and colleagues at Washington College in Chestertown, Maryland, in which three groups of young people—nonsmokers, active smokers and smokers deprived of cigarettes—were put through a series of five tests of increasing complexity.

The tests began with each subject sitting in front of a computer screen and pressing the space bar as soon as he or she recognized a target letter among an array of 96. The next test required them to scan sequences of 20 identical letters and respond the instant one of the letters transformed into a different one. A third test required them to remember a sequence of letters or numbers and respond when that sequence appeared amid flashed groupings on the screen. The fourth test required them to read a message, then answer questions about it. Finally, the subjects were tested with a computer-generated driving simulator, similar to a quick-paced video arcade game, where they had to operate a steering wheel, gearshift and gas pedal and "cope with unexpected challenges such as twisting roads, the sudden appearance of cars and oil slicks."

"As our tests became more complex," Spilich et al. found, "nonsmokers outperformed smokers by wider and wider amounts."

By the end of the last test, the cigarette-deprived smokers were involved in roughly 67 percent more rear-end collisions than nonsmokers. And smokers who had just had a cigarette did even worse: they were involved in significantly more simulated accidents and three and a half times more rear-end collisions than were nonsmokers.

On the basis of these tests, Spilich et al. speculated that "a smoker might perform adequately at many jobs—until they got complicated. He could drive a car satisfactorily so long as everything remained routine, but if a tire blew out at high speed he might not handle the emergency as well as a nonsmoker. A smoking airline pilot could fly adequately if no problems arose, but if something went wrong, smoking might impair his mental capacity. If lack of sleep were also a problem, smoking could leave such a pilot relatively impaired—with dangerous consequences."

I have no comment about the validity of these findings but will again only refer the reader to the bibliography below, as well as to the next chapter where I cite a number of tests that demonstrated exactly the opposite—that smoking enhances mental alertness.

Regarding smoking airline pilots, however, the article stated that in 1978, the Federal Aviation Administration decided to let them smoke while flying, even as it was being forbidden for their passengers. "According to Dr. Andrew Horne, formerly with the agency's Office of Aviation Medicine," said the article, "the Federal Aviation Administration maintains this policy not because smoking makes pilots more alert, but because prohibiting cigarettes to chronic smokers might plunge them into mental impairment while flying an airliner."

This is absolutely reprehensible. It is one of the worst examples I have seen of how far the antismokers will go in an attempt to instill the fear of smoking in the public mind, and both the author and *Reader's Digest* should be ashamed of themselves. But, more's the pity, I'm sure they sincerely believe they are serving a good cause, and if it requires pious falsehoods (a.k.a. lies) to forward that cause, so be it.

Even if what Dr. Horne said is true, and I have no evidence that it is not, one could just as well suggest that the FAA allows pilots to smoke, not to keep them from crashing and killing everyone aboard, but because it sharpens their flying skills.

The FAA also knows that a lot of airline pilots drink. Some in fact have been known to be alcoholics. The agency does not permit pilots

to fly until, I believe, at least eight hours after their last drink, even at the risk that this deprivation "might plunge them into mental impairment."

I wonder which kind of pilot your average airline passenger would prefer to have at the controls—an alcohol-deprived one or a nicotine-deprived one.

I don't know how many fighter pilots in World War II smoked, but I'm sure a lot of them did and doubt if many of them were shot down because they tangled with nonsmoking enemy pilots. I know that Eddie Rickenbacker smoked cigarettes while he was becoming America's Ace of Aces in World War I. I've seen group photographs of members of the Lafayette Escadrille, and in every one almost all the pilots are standing around with cigarettes in their hands. I also don't know how many fighter pilots today are smokers. Maybe none is. But all that would prove is that if you train hard and stay alert, even a nonsmoker can fly as well as a smoker.

"How Smoking Clouds Your Brain" also makes a big deal of the fact that cigarette smoke contains carbon monoxide (CO), a gas that bonds to the blood's hemoglobin "at least 200 times more tightly than oxygen does . . . If a significant percentage of your hemoglobin were thus made useless by carbon monoxide, you would almost certainly die." Indeed so. If the body is given the choice, it will take carbon monoxide over oxygen any day.

The implication is that smokers are absorbing a deadly gas that, in sufficient amount, would kill them. (Never mind that a person walking along a busy city street inhales more CO than he could get from smoking hundreds of cigarettes.) If I were ever to decide to slip this mortal coil ahead of time, it would be in a closed garage with a car engine running, not by chain-smoking cigarettes.

"Each cigarettes pumps ten to 20 milligrams of carbon monoxide into your lungs," the article goes on. "People typically lose three to nine percent of their oxygen-carrying capacity while smoking. During periods of intense smoking, this loss can reach over ten percent, which may slow reaction time and reduce mental awareness."

So not only is a cigarette-deprived pilot a menace, so is an actively smoking one! Is the FAA aware of this?

I hate to weary the reader with my personal experiences but anti-smoking propaganda like this forces me to. It was because I used to be

a private pilot that this *Reader's Digest* article rankled me more than any other antismoking bullhockey it has published.

In 1956, with about 200 hours in my logbook, I flew a 65-horsepower Luscombe (what a great plane!) from Cleveland, Ohio, to pre-Castro Cuba and back, smoking all the way. After that adventure I sold the Luscombe and took up sailplaning, going as far as to win one leg of the "Silver C" badge—a five-hour duration flight—at the soaring capital of America in Elmira, New York, even though cigarette-deprived. (There was no lighter or ashtray in the Schweitzer 1-26 and I didn't think about smoking anyway.)

Then marriage and all sorts of other stuff (like earning a living) intervened and I gave up flying. In 1992, however, I decided to reactivate my license just to see if I could still cut the mustard. Somehow, despite having smoked for some 46 years up till then, I passed the third-class pilot's physical.

During my retraining I obtained an FAA pamphlet titled "Medical Facts for Pilots" (FAA-P-8740-41) which informed me that "Smoking several cigarettes can result in carbon monoxide saturation sufficient to effect visual sensitivity equal to an increase of 8,000 feet altitude."

Because I had flown at an average altitude of 6,000 feet during my Cuban trip, that meant I had actually been at 14,000 feet most of the way, and either a pressurized cabin or supplemental oxygen are advisable beginning at about 10,000 feet. I was too dumb to know it and, thus protected either by ignorance or the favor of the gods, made the flight without mishap. (Or did the FAA pamphlet possibly exaggerate slightly?)

Another personal anecdote, not mine but that of Lauren Colby, who is also both a smoker and a pilot:

> About six months ago [he told me via e-mail in 1996], I was flying a single engine airplane, a 1979 Cessna P210, over Ohio when a cylinder head blew. Climbing out of Toledo, the engine got dangerously hot and all of a sudden there was a loud noise and it quit. It had physically broken the bolts that hold a cylinder head to the block, and was throwing oil all over everything. I was at 6,000 feet [equivalent to 14,000 feet for a smoker, remember —D.O], sinking a thousand feet a minute, so I had six minutes to find an airport and make an emergency landing. I used 15 seconds to grab and light a cigar! After that, finding the airport and making the emergency landing was easy!!!"

Fortunately for Colby there was an airport nearby, in Fremont, Ohio. But "it could have been a real tragedy," he added. "The airport could have been non-smoking!!!"

THE FOREGOING ENABLES me to segue into a related subject—the class-action suit by 60,000 flight attendants demanding compensation from the tobacco industry for harm done to them by the secondhand smoke of airline passengers (*Broin v. Philip Morris, Inc., R.J. Reynolds Tobacco Co., Brown & Williamson Tobacco Corp., and the Lorillard Tobacco Co.*) and a government study that made hash of their claims—or might have if the cigarette companies had not copped out before the jury hearing the case in Miami in 1997 had a chance to deliberate on a verdict.

For nearly two decades Americans have been bombarded with study after study condemning secondhand smoke, or ETS. Rarely have they been told about studies exonerating it. One you probably never heard of was titled "Airliner Cabin Environment Contaminant Measurements, Health Risks and Mitigation Options," conducted in 1989 by the U.S. Department of Transportation in hopes of obtaining data to support a worldwide ban on smoking in airliners. Because smoking was already banned on many domestic flights, no-smoking planes were readily available for comparison with test planes in which the effects of smoking on cabin air were monitored.

To DOT's surprise, it was discovered that levels of respirable suspended particulates, nicotine and carbon monoxide were actually *the same or higher* in nonsmoking flights than in the nonsmoking sections of smoking flights. It also estimated that for business passengers flying 480 hours a year starting at age 35, the lifetime risk of premature cancer deaths from environmental tobacco smoke (ETS) was .27 deaths per 100,000 cabin occupants. (That's *point* 27.) For cosmic radiation, it was 504 deaths—some 1,867 times higher than the Environmental Protection Agency's alleged risk from ETS.[35]

Did that give the department pause? Maybe for a milliscecond. DOT still declared that smoking should be totally extinguished from the skies because it would be too expensive to improve the ventilation and filtration of airliner cabin air. How expensive? According to Sara Mahler-Vossler: 36 cents per smoker on a Boeing 747, 93 cents on a 727.[36]

The real reason it would be too expensive (though DOT didn't say so) was that, thanks to the smoking bans on domestic flights, the air-

lines had stopped ventilating cabins by blowing out stale air and replacing it with fresh air, which consumed a lot of jet fuel, and were using the cheaper method of mixing recirculated stale air with fresh air.

The airlines were in fact saving fuel worth $100 million a year this way, according to a witness for the cigarette makers at the flight attendants' trial, engineer and aviation consultant Martin Godley.[37] In many ways, airliner cabin air is actually worse today than it was before smoking was banned—and everybody thinks this was a great victory for the health, comfort and well-being of America's commercial airline travelers.

Judge Robert Kaye of Dade County Circuit Court allowed only limited testimony about cosmic radiation, as well as about ozone, a naturally occurring carcinogen that can enter jets at high altitude, and another study on airliner cabin air by occupational safety expert Yolanda Janczenski, who had found no meaningful difference in cabin air pollutants before and after smoking was banned.[38] The point at issue, the judge said, was whether secondhand smoke caused the diseases alleged by the flight attendants, not whether something else might also have caused them.

That issue was never determined. However, as for firsthand smoking, even though it wasn't at issue in the trial, a plaintiffs' attorney exacted a truly staggering, earthshaking, mind-boggling and frightening admission from one tobacco company executive.

After being on the stand for some two hours, Philip Morris CEO Geoffrey Bible was asked by Ron Motley, a private attorney representing the state of Florida: "Would Philip Morris agree that a single American citizen who smokes their products for 30 or more years, a single one, has ever died of a disease caused in part by smoking cigarettes?"

"I think there's a fair chance that one would have, might have," Bible responded, stepping neatly into the trap.

Well, how about 1,000? Motley asked. "Might have," Bible answered. How about 100,000? "Might have." And newspaper headlines were born.[39]

Oh, the perfidy of those tobacco people, keeping that knowledge from us all these years!

Naturally, Motley did not ask Bible if he thought it possible that an airline passenger might ever have been harmed by cosmic radiation,

which even the U.S. Department of Transportation estimates is nearly 2,000 times more dangerous than secondhand smoke. Attorneys suing tobacco companies aren't stupid; only those representing tobacco companies are.

Not that it mattered, because the defense abruptly settled the *Broin* suit. The reason, given in a Brown & Williamson statement, was solely in the interest of "keeping the proposed federal legislation on track."[40] This was a reference to the so-called "global" tobacco settlement that had been reached between the industry and 40 state attorneys general, America's most successful and admired legal thieves (see Chapter 12). It was not, said B&W, an admission that ETS causes disease.

The settling defendants agreed to pay $300 million to establish a foundation for scientific research in diseases associated with cigarette smoking and to support the enactment of federal legislation prohibiting smoking on international flights originating in or terminating in the United States. (DOT would like to ban it on all flights all over the world, but there's some silly inconvenience called national sovereignty that interferes.)

Susan and Stanley Rosenblatt, the attorneys representing the flight attendants, were to receive a cool $46 million in legal fees, but that was only half of the $93 million they said they deserved for the billable hours they put in over six years of virtually fulltime work in preparing for the suit. Anyway, 25 percent of their take would be donated to charity, said Susan Rosenblatt.[41]

That sure makes me feel a lot better about this deal since I and other smokers, not the cigarette companies, will be paying for it. Incidentally, I haven't flown in an airliner since 1985, so I don't know how many flight attendants I may have injured.

As for the flight attendants themselves, they received zero, zilch, not one penny. As part of the settlement, however, they were given the right to sue the cigarette companies as individuals and, in a complete reversal of traditional American law that says a defendant is considered innocent until proven guilty, the companies agreed that in any such suit the burden of proof would be on them to prove that secondhand smoke *did not* cause his or, more usually, her disease, whatever it might be alleged to be.

These cigarette company guys are simply much too clever for the likes of me to understand.

* * *

STUDIES THAT HAVE associated smoking with a multitude of diseases far outnumber those that have found no such association, or even that in some cases smoking may have a beneficial health effect. But there are still more than just a few of the latter. Unfortunately, they have seldom been reported in the popular media and many doctors themselves may never have heard of them—even though everyone knows it's only the tobacco industry that suppresses studies about smoking.

The following are among 37 such studies culled from the Centers for Disease Control and Prevention's "Bibliography of Continuing Smoking Studies, 1984-85" by Wanda Hamilton, vice-president of the Florida Smokers' Rights Association and an information specialist for Smoker's United Network, a network of smokers' rights activists around the country. She was kind enough to provide me with a copy of her bibliography, which I in turn have culled for those studies I think are the most interesting and provocative.

She deliberately excluded any study listed by the CDC as having been funded in full or part by the tobacco industry. All the abstracts quoted were written and submitted by the principal investigators of the study, but for the sake of economy she included only a summary or salient quotations (which I have italicized) from the original abstract, and for ease of reference categorized them under various headings. The numbers at the left of each citation are the index numbers assigned by the CDC. (Some of the studies were not indexed in the bibliography, nor was the source of funding given for all of them.) The introductory comments in quotes in the block paragraphs under four of the category headings and the Appendix are Hamilton's.

Smoking and Lung Cancer

"Though there can be no doubt about the well-established correlation between smoking and lung cancer, smoking is by no means the only risk factor for lung cancer, and in some occupations cigarette smoking appears actually to help protect against getting the disease . . . [L]ung cancer among nonsmokers seems to be increasing, while the rate of lung cancer among smokers is decreasing, thanks to the advent of filtered cigarettes, which nearly every study has shown decreases risk

anywhere from 20 percent to 30 percent (only one such study is listed here)."

In general filter-tipped cigarette smokers appear to be [at] *20% lower risk of. squamous cell lung cancer than nonfilter cigarette smokers*.
— 1216. American Health Foundation. Wynder, E.L.; Goodman, M.T.; Kabat, G.C. et al. "Studies in Tobacco-Related Cancers." June 1982-June 1985. Funding: National Cancer Institute (of the Department of Health and Human Services).

Rising lung cancer mortality rates during 1953-1982 were similar for both sexes in all parts of Oregon . . . Occupational risk differences among both sexes far exceeded those noted with other risk factors [including smoking—D.O.], *suggesting that occupational differences deserve primary emphasis in future efforts at lung cancer control*.
— 1375. University of Oregon School of Medicine. Morton, W.E. "Epidemiology of Lung Cancer in Oregon."

A possible flattening in the dose-response was found and a low relative risk in an area of the world with one of the highest recorded incidences of lung cancer. The flattening of the dose-response curve occurred with an above-average consumption of. 20 cigarettes/day. [That is, the more cigarettes smoked, the lower the risk of lung cancer!—D.O.)
— 0590. West of Scotland Cancer Surveillance Unit (Glasgow) and University of Michigan School of Public Health. Gillis, C.R.; Hole, D.J.; Hawthorne, V.M. et al. "Retrospective Case Control Study of Smoking Habits and Lung Cancer in the West of Scotland." Funding: National Institutes of Health (NO1-CP-05646).

Excess risks of lung cancer found in miners and foundry workers could not be fully explained by the high prevalence of smoking among these occupations.
— 0495. University of Zurich Institute of Pathology. Schuler, G. "Epidemiology of Lung Cancer in Switzerland."

Smoking has a protective effect on immunological abnormalities in asbestos workers.
— 0429. Institute of Immunology and Experimental Therapy (Poland). Lange, A. "Effect of Smoking on Immunological Abnormalities in Asbestos Workers."

Relative risk of lung cancer for asbestos workers was highest for those who had never smoked, lowest for current smokers, and intermediate for ex-smokers. The trend was statistically significant. There was no significant association between smoking and deaths from mesothelioma.
— 0565. University of London School of Hygiene and Tropical Medicine. "Cancer of the Lung Among Asbestos Factory Workers."*

Over the 22 years of followup, exposed workers have had a very high risk of. respiratory cancer, mostly of the lung. The risk has been dose related and has been much higher in nonsmokers and ex-smokers than in current smokers. The epidemic began to subside shortly after exposure to chloromethyl ethers ceased.
— 1388. Hahnemann Medical College and Hospital (Philadelphia). Weiss, W. "Lung Cancer Due to Chloromethyl Ethers."

Presence of chronic respiratory symptoms at baseline [beginning of study] *was inversely related to cessation of smoking. Respiratory impairment was positively associated with smoking cessation, but failed to reach statistical significance.*
— 1544. Department of Health and Human Services, Public Health Service, National Institute of Occupational Safety and Health. Ames, R.G. "Respiratory Effects of Exposure to Diesel Emissions in Underground Coal Miners." Funding: NIOSH.

Lung volume parameters were found to decrease with age, but there was no significant modification related to tobacco consumption.
— 0241. Institut d'Etudes et Recherches Pneumophtisiologiques (Institute of Studies on Tuberculosis, France). Kleisbauer, J.P. "Longitudinal Study of the Methods of Early Detection of Respiratory Diseases in a Population of Cab Drivers."

*In September 1997, Raymark Industries, Inc. of Bountiful, Utah, which used to make asbestos products and has paid more than $400 million to settle asbestos-related health claims, filed suit against the tobacco industry to try to get some of that money back. "Raymark has always disputed, and continues to dispute, that asbestos is a pure carcinogen, and contends that cigarette smoke inhaled by the asbestos claimants caused the cancers complained of," the lawsuit stated. A dozen other current or former asbestos manufacturers indicated they would join the Raymark suit. As of this writing it remained to be seen whether the tobacco industry would defend itself by citing exonerating studies such as the two above or whether it would play stupid again and shell out more millions from the pockets of smokers.[42]

Neither smokers nor nonsmokers showed any changes in bronchial responsiveness after smoking cigarettes.
— 0391. Yokohama City University School of Medicine (Japan). Okubo,T; Suzuki, S.; Sano, F. "Acute Effect of Smoking on Bronchial Responsiveness."

Smoking and Heart Disease

"The connection between smoking and heart disease is far more tenuous than that between smoking and lung disease. Though the medical establishment considers smoking to be a risk factor—among many risk factors—for heart disease, the fact remains that anywhere from 30 to 50 percent of those admitted to hospitals for coronary problems exhibit none of the known risk factors (including smoking) and that the research is by no means either consistent or conclusive in linking smoking to this disease. It is true that deaths from heart disease, which is still the number one cause of death, are declining, but most researchers attribute this to better surgical and medical techniques, not to a decline in smoking rates, since deaths from heart disease are declining worldwide, even in countries with high smoking rates."

No statistically significant association was found in either community between smoking and coronary heart disease, hypertension or somatic complaints.
—1477. University of Texas, School of Allied Health Sciences. Philips, B.U. Jr.; Bruhn, J.G. "Smoking Habits and Reported Illnesses in Two Communities With Different Systems of Social Support." Funding: University of Texas, National Institute of Mental Health. 1981-83.

Preliminary data indicate greater frequency of anterior infarctions among nonsmokers . . . Among patients with unstable angina, smoking was associated with less persistent rest pain and a lower proportion of smokers had chronic angina of effort prior to hospital admission. Preliminary analysis suggests a marginally lower in-hospital mortality rate among smokers after controlling for age and other prognostic factors.
— 0298. St. Vincent's Hospital, Department of Preventive Cardiology (Dublin, Ireland). December 1980-January 1986.

Preliminary data indicate a high prevalence of IHD [ischemic heart disease] *in South Wales. A significant association between white cell count and IHD*

defined cross-sectionally is not explained by smoking habits. Prevalent IHD is not explained by smoking habits.
—0598. Medical Research Council, Epidemiology Unit (Wales). Yarnell, J.W.G.; Elwood, P.D.; Sweetham, P.M. "Caerphilly Prospective Study of Ischemic Heart Disease."

Recent secular trends in sex and age specific mortality from ischemic heart disease both in the United Kingdom and in the United States appear to be independent of changes in cigarette consumption.
— 0564. University of Leeds, Department of Medical Physics (England). Burch, P.R..J. "Tests of Causal, Constitutional, and Mixed Hypotheses of Associations Between Smoking and Disease in Man." 1972 and continuing. Funding: University of Leeds.

No significant differences were observed between smoking and nonsmoking women with respect to myocardial infarction and death during the 12-year followup.
— 0464. Sahlgrenska Hospital, Medical Department. Bengtsson, C.; Lapidus, L.; Hallstrom, T. "The Population Study of Women in Gothenburg, Sweden."

In asymtomatic male aviators (aged 30 to 60), age and ratio of total cholesterol to high density lipoprotein cholesterol are most highly correlated with degree of. coronary artery disease found on angiography. After removing the effect of age and. this ratio, no statistically significant variance is explained by other risk factors [including smoking — W.H].
— 1465. Department of Defense, Department of Air Force School of Medicine (Brooks Air Force Base, Texas). Tolan, G.D.; Honch, P.; Hickman, R. et al. "Multivariate Approaches to the Detection of Asymptomatic Coronary Artery Disease." Funded by U.S.A.F. 1971 continuing.

Pipe smokers have a higher intake of nicotine than cigarette smokers (as measured by serum and urinary cotinine levels). Since pipe smokers have little excess of. CHD [coronary heart disease], *higher chronic nicotine exposure is unlikely to be the cause of the excess seen in cigarette smokers.*
— 0534. Medical College of St. Bartholomew's Hospital, Department of Environmental and Preventative Medicine (England). Wald, M.J.; Bailey, A. "Nicotine and Heart Disease."

ETS (Environmental Tobacco Smoke) and Heart Disease

No difference in prevalence of cardiovascular symptoms was found between those living with smokers and those not.
— 0591. West of Scotland Cancer Surveillance Unit, Ruchill Hospital. Gillis, C.R.; Hole, D.J.; Hawthorne, V.M. "Health Effects of Exposure to ETS in the West of Scotland."

Smoking and "Throat" Cancer

All countries experienced a sharp increase in lung cancer mortality; laryngeal. and oral cavity cancers showed divergent trends (10 countries had steady or decreasing rates). Results suggest that tobacco may not be the major causative factor for laryngeal and oral cavity cancers.
— 0244. Institut National de Recherche et de Securite (France). Moulin, J.J.; Mur, J.M.; Cavelier, C. "Comparative Epidemiology, in Europe, of Tobacco-Related Cancers (Lung, Larynx, Pharynx, Buccal Cavity)." Data from the World Health Organization, 1950-1977.

Secular trends in mortality from esophageal cancer in the United Kingdom are independent of secular changes in cigarette consumption, but well correlated with secular changes in alcohol consumption . . . alcohol acts as an indirect causal agent. The proximal causal agent is likely to be a precipitator, such as a microorganism. Genetic disposition is also indicated.
— 0564. University of Leeds, Department of Medical Physics (England). Burch, P.R.J. "Tests of Causal, Constitutional and Mixed Hypotheses of Associations Between Smoking and Disease in Man." Funding: University of Leeds. 1972 and continuing.

. . . alcohol consumption was the dominant risk factor for esophageal cancer.
— National Cancer Institute. Blot, W.J.; Brown, L.M.; Ershow, A. et al. "Epidemiological Studies of Tobacco Use and Risk of Cancer."

Smoking and Renal (Kidney) Cancer

Preliminary results implicate relative weight in both men and women as a principal risk factor in renal cell carcinoma. Comparison with population controls failed to implicate smoking or beverage use as risk factors.
— 1363. University of Oklahoma, Health Sciences Center. Asal, N.R.;

Geyer, J. "Risk Factors in Kidney Cancer." October 1981-February 1985. Funding: National Cancer Institute.

A weak positive association with cigarette smoking has been found, but only after controlling for selection biases . . . Findings appear to confirm previously observed associations with obesity, northeastern European ancestry, renal calculi [kidney stones]*, and use of phenacetin-containing analgesics*.
— 1060. Harvard University, School of Public Health, Department of Epidemiology. MacMahon, B.; Maclure, K.M. "A Case Control Study of Renal Adenocarcinoma." Funding: Harvard School of Public Health, National Cancer Institute.

ETS and Bladder Cancer

No association was found for exposure to sidestream smoke, coffee drinking, or artificial sweetener use. The association of several occupations with bladder cancer has been found in males.
— 1216. American Health Foundation. Wynder, E.L.; Goodman, M.T..; Kabat, G.C. et al. "Studies in Tobacco-Related Cancers." Funding: National Cancer Institute.

Smoking and Endometrial, Ovarian and Breast Cancer

Overall, smoking was not found to be associated with any of the cancers studied.
— Centers for Disease Control and Prevention, Epidemiologic Studies Branch, Division of Reproductive Health. Rubin, G.; Franks, A.L.; Stroup, M. "Smoking and Endometrial, Ovarian, and Breast Cancer." Funding: National Institute of Child Health and Human Development.

The risk of breast cancer does not appear to be influenced by cigarette smoking.
— 1039. Boston University Medical Center, Drug Epidemiology Unit. Shapiro, S.; Rosenberg, L.; Kaufman, D. "Multiple Case-Control Study of the Long Term Effects of Drug Use in the Treatment of Chronic Disease." Funding: Food and Drug Administration and National Institute of Child Health and Human Development.

Smoking and Cervical Cancer

Sexual behavior and socioeconomic indicators predict cervical cancer incidence, as has been demonstrated in numerous other studies.

— University of Utah, School of Medicine. Lyon, J.L. "Epidemiological Investigation of Cervical Cancer in an Area of Low Incidence." Funding: National Cancer Institute.

Smoking and Pregnancy

"Some studies have found a correlation between maternal smoking during pregnancy and lower birthweight in babies. However, there are many factors which correlate with low birthweight, and the dominant risk factors seem to be the mother's age and the mother's socioeconomic class. Even those studies which show a correlation between maternal smoking and low birthweight speak of weight differences in grams, not ounces, and one ounce=28.35 grams."

Risk factors associated with low birthweight (in rank order):

1. *Mother's age (too young or too old)*
2. *First pregnancy*
3. *More than two previous stillbirths*
4. *Lower birthweight of older siblings*
5. *Small stature and weight of mother*
6. *Fewer examinations during pregnancy*
7. *Smoking by mother or father*

— 0360. Department of Public Health, Jichi Medical School (Japan). Nagai, M.; Yanagawa, H.; Kawaguchi, T. et al. "A Study of the Factors Associated With Low Birth Weight. A Case-Control Study in Tochigi Prefecture." April 1982-December 1984.

Women who smoke during pregnancy have full-term babies which, on the average, are 5-6 grams [about a fifth of an ounce—D.O.] *smaller than full-term babies born to nonsmoking mothers.*

— 0755. University of Colorado, Health Sciences Center. Moore, L.C. "Maternal O_2 [dioxide] Transport During Pregnancy at High Altitude."

Birthweight lower in the smoking group, but the incidence of smoking was higher in young, unmarried women of lower socioeconomic status. Perinatal death was also higher among young, unmarried low income women . . . No differences in antepartum hemorrhage or congenital abnormalities between the groups . . . Hypertension and postpartum hemorrhage were lower in smokers.

— 0045. University of Tasmania, Queen Alexandra Hospital, Depart-

ment of Obstetrics and Gynecology. Correy, J.; Newman, N.; Curran, J. "An Assessment of Smoking in Pregnancy."

The proportion of complications of pregnancy and delivery were similar in smokers and nonsmokers.
— University of Oslo (Norway). Dalaher, K.; Grunfeld, B.; Jansen, A.

Data do not confirm the suggestion that changes in cord blood vessels similar to those of atherosclerosis are brought about by maternal smoking during pregnancy. Pathological changes in the cord at term may be found in infants of healthy, nonsmoking mothers.
— 0184. Universität Freiburg, Anatomisches Insitut (Germany). Staubesand, J.; Seydewitz, V.; Hugod, C. et al. "Effects of Maternal Smoking on the Neonatal Umbilical Cord."

Parental Smoking, ETS and Children

No convincing differences for viral infection or respiratory illness were seen with parental smoking as an isolated factor.
— 1462. Baylor College of Medicine, Influenza Research Center (Texas). Gardner, G.C.; Frank, A.L.; Taber, L.H. "Effects of Social and Family Factors on Viral Respiratory Infection and Illness in the First Year of Life." A longitudinal study, 1975-80.

The correlation matrix revealed that maternal education was the variable most significantly inversely correlated with infection . . . Its statistical significance persisted in the presence of other added factors . . . Maternal education appeared to have played a highly significant role in the health of the children studied.
— 0878. University of Kansas, College of Health Sciences. Homes, G.E.; Hassanein, K.M.; Miller, H.D. "Factors Associated with Morbidity Among Breast Fed and Formula Fed Babies."

Nicotine and Smoking: Benefits

"Though the risks of smoking are highly publicized (and highly exaggerated), the medical benefits of smoking are rarely mentioned. The greatest risks of smoking come from the tars released during the combustion of tobacco, and these tars are implicated in lung cancer and other breathing disorders, though even the tar apparently has some ben-

eficial effects in protecting the lungs from some noxious particulate matter (e.g. asbestos). According to most studies, the chief medical benefits of smoking are from the nicotine, which occurs naturally in tobacco as well as in certain vegetables such as tomatoes, potatoes and red peppers, though in much smaller amounts. Interestingly, these three plants originated in the Americas, so nicotine was essentially a 'New World' substance. Native Americans were well aware of the curative properties of tobacco, and used it both medicinally and ceremonially."

1. *Smoking improves human information processing*
2. *Higher nicotine cigarettes produce greater improvements than low-nicotine cigarettes*
3. *Nicotine tablets produce similar effects*
4. *Nicotine can reverse the detrimental effects of scopalamine on performance*
5. *Smoking effects are accompanied by increases in EEG* [electroencephalograph] *arousal*

— 0574. University of Reading, Department of Psychology (England). Warburton, D.M.; Wesnes, K. "The Effects of Cigarette Smoking on Human Information Processing and the Role of Nicotine in These Effects."

In general, motor performance in all groups improved after smoking.

— 0530. London University, Institute of Psychiatry. O'Connor, K.P. "Individual Differences in Psychophysiology of Smoking and Smoking Behavior."

Smokers in general are thinner than nonsmokers, even when they ingest more calories.

— 0885. Kentucky State University. Lee, C.J.; Panemangalore, M. "Obesity Among Selected Elderly Females in Central Kentucky." Funding: U.S. Department of Agriculture.

[S]mokers had less plaque, gingival inflammation and tooth mobility than nonsmokers and similar periodontal pocket depth.

— Veterans Administration Outpatient Clinic (Boston). Chauncey, H.H.; Kapur, K.K.; Feldman, R.S. "The Longitudinal and Cross-Sectional Study of Oral Health in Healthy Veterans (Dental Longitudinal Study)."

Smokers have lower incidence of postoperative deep vein thrombosis than nonsmokers.

— Guy's Hospital Medical School (England). Jones, R.M. "Influence of Smoking on Peri-operative Morbidity."

Hypertension is less common among smokers. Hypertension prevalence rate among smokers was 3.94 percent; among nonsmokers the rate was 4.90 percent.
— 0146. Shanghai Institute of Cardiovascular Diseases. (China) Chen, H.Z.; Pan, X.W.; Guo, G. et al. "Relation Between Cigarette Smoking and Epidemiology of Hypertension."

RBCs [red blood cells] *from cigarette smokers contain more gluahione and catalase and protect lung endothelial cells against* O_2 [dioxide] *metabolites better than RBCs from nonsmokers.*
— 0759. University of Colorado. Refine, J.D.; Berger, E.M.; Beehler, C.J. et al. "Role of RBC Antioxidants in Cigarette Smoke Related Diseases." January 1980 and continuing.

Appendix

"Following are studies listed in the Centers for Disease Control's 'Bibliography on Smoking and Health, 1991.' Many newer studies appear in this more recent CDC bibliography which support the earlier studies listed in the foregoing selected bibliography, including a lower risk of breast cancer, lower risk of endometrial cancer in smoking women, the improvement of fine motor control for smokers, lower incidence of overweight in smokers, lower incidence of high blood pressure among smokers. Below are selected studies which demonstrate the protective effect of smoking on Parkinson's Disease* and ulcerative colitis."

Several epidemiological studies have indicated that there may be an inverse relationship between smoking and Parkinson's Disease. There is an apparent protective effect of cigarette smoke.
— 1102. Carr, L.A.; Rowell, P.P. "Attenuation of Methyl-4-phenyl-1,2,3,6-tetrahydophyridine-induced neurotoxicity by tobacco smoke." Published in *Neuropharmacology* 29(3):311-4, March 1990.

These results indicate that in sufficient doses chronic treatment with nicotine may be considered in the pharmacological treatment of Parkinson's disease. It re-

*See also Chapter 4 in this book for more studies regarding the possible protective effects of smoking on Parkinson's Disease, as well as Alzheimer's.

mains to be demonstrated whether these protective actions can be extended to include also other injured neurons.
— 1190. Janson, A.M.; Fuxe, K.; Agnati, L.F.; Jansson, A. et al. "Protective Effects of chronic nicotine treatment on lesioned nigrostriatal dopamine neurons in the male rat." Published in *Progress in Brain Research* 79:257-65, 1989.

Several studies have reported an apparent protective effect of cigarette smoking for the risk of idiopathic Parkinson's disease (IPD). These observations are supported by neurochemical studies . . . These findings suggest that the inverse association between smoking and IPD may apply to NIP [neuroleptic-induced parkinsonism].
— 4014. Decina, P.; Caracci, G.; Sandik, R.; Berman, W. et al. "Cigarette smoking and neuroleptic-induced parkinsonism." Published in *Biological Psychiatry* 28(6):502-8, September 15, 1990.

There is a low prevalence of smoking in ulcerative colitis. The disease often starts or relapses after stopping smoking.
— 4101. Prytz, H.; Benoni, C.; Tagesson, C. "Does smoking tighten the gut?" Published in *Scandinavian Journal of Gastroenterology* 24(9):1084-8, November 1989.

These results indicate that nonsmokers and especially ex-smokers of cigarettes have a greater risk of UC [ulcerative colitis] *and thus confirm the results of other studies.*
— 4134. Lorusso, D.; Leo, S.; Misciagna, G.; Guerra, V. "Cigarette smoking and ulcerative colitis. A case control study." Published in *Hepato-Gastronenterology* 36(4):202-4, August 1989.

Ms. Hamilton has also provided me with references to a number of other studies having to do with maternal smoking, which evidently eluded Dr. DiFranza (page 134). Some of them:

We recently found no significant association between maternal smoking and either stillbirths or neonatal deaths when information about the underlying disorders, obtained from placental examinations, was incorporated into the analysis. Similar analyses found no correlation between maternal smoking and preterm birth. The most frequent initiating causes of preterm birth, stillbirth, and neonatal death are acute chorioamnionitis, disorders that produce chronic low blood flow from the uterus

to the placenta, and major congenital malformations. There is no credible evidence that cigarette smoking has a role in the genesis of any of these disorders.
— R.L. Naeye, "Disorders of the placenta, fetus, and neonate, diagnosis and clinical significance." (New York: C.V. Mosby Co., l992). [Naeye's work is highly significant because it depended on actual examination of a study population of ca.56,000 pregnancies in the Collaborative Perinatal Study—W.H.]

[T]he increase of SGA [small for gestational age] *infants in women whose pregnancies are complicated by abruption is not explained by maternal smoking . . . The association with SGA status was identical for smokers and nonsmokers.*
— Voigt, L.F.; Hollenbach, K.A. et al. "The relationship of abruptio placentae with maternal smoking and small for gestational age infants." *Obstetrics and Gynecology* 75(5):771-4, May l990.

No significant effect of smoking on the miscarriage risk was seen.
— Sandahl, B. "Smoking habits and spontaneous abortion." *European Journal of Obstetrics, Gynecology and Reproductive Biology*: 31(1):23-31, April l989.

There was no evidence of an association between any congenital defect and smoking.
— McDonald, A.D.; Armstrong, B.G.; Sloan, M. "Cigarette, alcohol, and coffee consumption and congenital defects." *American Journal of. Public Health*, 82(1):91-3, January l992.

Smoking was not associated with the risk of ectopic pregnancy after adjustment for potential confounding factors (including history of pelvic inflammatory disease).
— Parazzini, F.; Tozzi, L. et al. "Risk factors for ectopic pregnancy: an Italian case-control study." *Obstetrics and Gynecology*. 80(5):821-6, November l992.

The overall relative risk for cancer in children with mothers reporting smoking during pregnancy was 0.99. [A relative risk of less than 1.0 means that mothers who smoked during pregnancy had slightly FEWER children who developed childhood cancer than non-smoking mothers, but the difference is so small that in reality one should say that there is no difference—W.H.]

— Pershagen, G.; Ericson, A. et al. "Maternal smoking in pregnancy: does it increase the risk of childhood cancer?" *International Journal of. Epidemiology*. 21(1):1-5, February l992.

[T]here was no indication of any SA [spontaneous abortion] *effect resulting from active smoking.*
— Mantel, N. "Re: Tobacco smoke exposure and pregnancy outcome among working women." *American Journal of Epidemiology* 135(7):837-8, April 1, l992 (letter).

. . . found no increased risk [of congenital malformations] *for infants of. smokers.*
— Malloy, M.H.; Kleinman, J.C., et al. "Maternal smoking during pregnancy: no association with congenital malformations in Missouri l980-83." *American Journal of Public Health*, 79(9):1243-6; September l989.

The protective effect of smoking on preeclampsia [a form of toxemia] *was stronger for women who continued to smoke after 20 weeks of pregnancy. While smoking tended to reduce the risk of gestational hypertension, this effect was less evident than that for preeclampsia.*
— Marcoux, S.; Brisson, J.; Fabia, J. "The effect of cigarette smoking on the risk of preeclampsia and gestational hypertension." *American Journal of Epidemiology*, 130(5):950-7, November l989.

In an accompanying e-mail to me, Hamilton wrote:

> What one finds in looking at the research is that it's often contradictory. The problem seems to be that there are so MANY variables, and actually whatever negative influence researchers do find about smoking and pregnancy is so small that it's barely significant. Quite a few studies have found that maternal smoking is ONE among many risk factors for low birthweight in babies, but in none of them is it among the greatest risk factors and in fact may not exist at all once economic class or placental infection are taken into account . . . The great preponderance of the research has found NO connection between smoking and congenital abnormalities, and that in fact smoking mothers seem to produce slightly fewer neonates with congenital abnormalities.

She also added an interesting statistic:

> In l986 there were 12 nations with lower infant death rates than the U.S.; now there are 28, even though the U.S. has a lower smoking rate than all those other countries.

* * *

JUST IN CASE the studies cited above cause any smokers to feel smug about their disgusting addiction, the fact is that all of us—whether we smoke or don't smoke—are at daily risk of contracting serious diseases from a multitude of carcinogenic (cancer-causing) chemicals surrounding us—*some manufactured by our own bodies*.

That is the seemingly frightening finding of numerous studies conducted both by federal agencies and by researchers in the private sector. In her book, *The Apocalyptics*,[43] an epic exposé of the health and environmental scare artists, Edith Effron listed the following examples she found in a search of the scientific literature:

Cholesterol, found in the human brain, spinal cord, and fat, is carcinogenic and a carcinogen promoter. (Wogan, 1974; International Agency for Research in Cancer (IARC), Vol 10. 1976; National Institute of Occupational Health and Safety (NIOSH), 1976.)

The digestion of sugars produces acetaldehyde in the blood; acetaldehyde is reported to be mutagenic. (Environmental Protection Agency, *Potential Industrial*, 1977.)

The metabolism of carbohydrates requires insulin, which is reported to be carcinogenic. (NIOSH, 1976.)

Saliva contains bacteria which convert nitrate to nitrite, which may form carcinogenic nitrosamines. (Tannenbaum, Archer et al., 1978; Tannenbaum et al., 1974.)

The stomach contains bacteria which are reported to produce carcinogenic nitrosamines. (Sander, 1973.)

Trace amounts of nitrosamines are normally present in human blood following consumption of conventional foodstuffs. (Fine, et al. 1977.)

Intestinal bacteria are reported to produce carcinogenic nitrosamines (Tannenbaum, Fett et al., 1978); *to metabolize sterols to carcinogenesis* (Moore et al., 1979) *and to form co-carcinogens from bile acid to produce a carcinogenic metabolite, ethionine.* (Lewis et al., 1977.) E.coli *incubated in a sterile medium produced the reported carcinogen benzo(a)pyrene* (J. Miller, 1973.)

Mutagens, identified as N-nitroso compounds or volatile nitrosamines, have been found in the feces of healthy people. (Bruce et al., 1977; Varghese et al., 1978; Wang, 1978.)

Natural human sex hormones—estradiol, estrone, estriol, progesterone, and testosterone—are reported to be carcinogenic. (Clement Associates, 1978; IARC, Vol. 6, 1974).

Steroid hormones may precipitate or promote cancer; the synthetic steroids are reported to be metabolized in the human body by the same mechanisms as those of the natural hormones. (IARC, Vol. 6, 1974.)

Smegma [a cheeselike sebaceous secretion that collects beneath the foreskin or around the clitoris] *is a reported carcinogen; horse smegma is carcinogenic in mice. It is recommended by some scientists that the carcinogenicity of smegma be studied further in connection with penis cancer.* (Muir et al., 1979.)

Sperm may cause testicle and prostate cancer. In rats, the penetration of sperm into the cells and tissues of testicles and prostate caused cancer of those tissues. (Stein-Werblowski, 1978.)

Mother's milk contains lactose—milk sugar. It is reported to be carcinogenic. (NIOSH, 1976.)

Radioactive substances of natural origin are in the air we breathe and the food we eat. These radioactive elements become incorporated into our tissues to such an extent that, on average, the atoms of which our bodies consist are disintegrating at a rate of about 500,000 every minute, due to the presence of naturally radioactive species of carbon, potassium, and other elements. (Eisenbud, 1978.)

Comments Effron:

> These data, exclusively natural, suggest that by virtue of the nature of reality itself, there is nothing we can breathe, eat, or drink without encountering carcinogens . . . We see that carcinogens are reported to be every kind of thing: they are animate, inanimate; chemical, physical; animal, vegetable, and mineral . . They are everywhere: they rain down upon us from the skies, they radiate upward from crevices beneath the sea, from the rocks and soil, they flow through the veins of plants and trees, they gush out in torrents from forests. They are alive: They grow, they crawl, they bloom, they blossom. And they are inside us: They are part of our vital physiologi-

> cal processes; they course through our bloodstream, through our hormones; they are in our saliva, in our digestive tracts. We inhale them, we drink them, and we feed on them ceaselessly, and in the act of absorbing them, we renew the needed supply in our bodies, for we cannot live without them . . .[44]

Effron is seconded by Roger Bate, an environmental economist at England's Cambridge University in an interview by *The* (London) *Daily Telegraph*. Every time we eat, every time we breathe in, we play a giant game of Russian roulette with nature, he says. "There are at least 1,000 chemicals in coffee, and 19 of the 27 that have been tested are carcinogens . . . Peanut butter, lettuce, orange juice, black pepper, nutmeg, broccoli, they are all carcinogens."

If you want to suck in some serious benzo(a)pyrene, stand anywhere near a grilling hamburger, he adds. The cooking of bacon gives rise to the carcinogen n-nitro pyrrolidine, more than you could expect from passive smoking, and environmental tobacco smoke is peanuts next to the potentially deadly vapor of the frankfurter.

Finally, you also have more chance of contracting cancer from eating commercially grown mushrooms, which contain a potent genotoxic carcinogenic hydrazine derivative called agaritine, than from passive smoking.

But how big a chance is the question. And the answer is, vanishingly small to nonexistent. (Except, of course, in the eyes of those whose careers are devoted to scaring the hell out of everybody.)

"So why do we panic?" asks the *Telegraph*. "It is our modern failure to understand the dictum of Paracelsus, that the dose makes the poison. These days we are slow to see how something may be dangerous, but trivially dangerous. The public's mind works in binary: yes, no, black, white. Politicians and journalists tend to demand one-armed scientists, with no 'on the one hand, on the other.'"[45]

Does anybody think that if we could just eliminate smoking, the world would be Eden again?

By way of making all of us feel better and to conclude this chapter, the latest data from the National Center for Health Statistics and the Census Bureau show that the infant mortality rate in the United States has fallen to an all-time low (although still higher than many other countries) and life expectancy at birth has reached an all-time high of 76.1 years.[46]

For those of us who arrived on the scene too soon to share in this promising future for today's newborns, there is some slight solace. According to Harvard's Center for Risk Analysis in Boston, most of the people who die from cancer and heart disease tend to be near the end of their normal lifespan. Even if cancer or heart disease were conquered, other factors in the aging process would bring those lives to a natural end.[47]

Notes

1. To a friend shortly before her death from cancer, quoted in *Vogue*. *The Atlanta Journal-Constitution*, August 3, 1994, p. A7.

2. Quoted in Dennis L. Breo, "Kicking Butts—AMA, Joe Camel and the 'Black Flag' War on Tobacco." *Journal of the American Medical Association*, October 27, 1993, p. 1978. Courtesy the Advocacy Institute.

3. Quoted in Robert Matthews, "Cancer Reports Are Junk." *The Sunday Correspondent*, October 5, 1989. At www.forces-cdn.com/scares.htm.

4. Charles McArthur et al., "The Psychology of Smoking." *Journal of Abnormal and Social Psychology* 56 (1958), pp. 272-273. Cited in David Krogh, *Smoking: The Artificial Passion* (New York: W. H. Freeman, 1991), pp. 16-17.

5. Health Watch. *The Atlanta Journal-Constitution*, December 6, 1996, p. F2.

6. At www.ash.org/july97/7-97-3.html, citing *Archives of General Psychiatry* (1997);54:670-676.

7. At www.ash.org/97/august/8-19-97-1.html.

8. K. A. Fackelmann, "Mother's smoking linked to child's IQ drop." *Science News*, February 12, 1994, p. 101.

9. News & Notes. *The Atlanta Journal-Constitution*, May 13, 1997, p. B3.

10. "Tobacco May Compete With Other Food Dollars." *Pediatrics*, March 12, 1996; Sandra Boodman, "Smoking Parents Linked to Children's Poor Diet." *The Washington Post*, March 26, 1996, Health Section, p. 5. Sources courtesy of The Advocacy Institute.

11. *Journal of Family Practice*, (April 1995);40:385-394..

12. Health Watch. *The Atlanta Journal-Constitution*, May 13, 1997, p. C3, and reported again in the AJC, September 10, 1997, p. B3.

13. Bill Hendrick and Amanda Husted, "Maternal depression can affect baby, research suggests." *The Atlanta Journal-Constitution*, July 22, 1996, p. E2.

14. From FORCES USA Weekly Tobacco News, October, 1996, at www.forces.org.

15. Jeff Nesmith, "Exercise cuts breast cancer risk." *The Atlanta Journal-Constitution*, September 21, 1994, p. A4.

16. Anne Rochell, "Smoking: Like mother, like daughter." *The Atlanta Journal-Constitution*, October 4, 1994, p. A14.

17. From the Tobacco Bulletin Board, at www.tobacco.org/News/fathersmoking.html. Also *The Washington Post*, November 19, 1997, p. AO7. From http.yahoo.com/headlines/971117/news/stories/smoking_1.html.

18. Carol Thompson, "Counterpoint—Talking Back to the Media." FORCES Canada at www.forces-cdn. com/counterp.smo-dads.htm.

19. Steven Milloy, *Science Without Sense* (Washington: Cato Institute, 1995), pp. 26-28.

20. "Michigan Stats Confirm Hunting, Child Abuse Link." *Animal People*, October 1995. At www.junkscience.com/news/michigan.htm.

21. Amanda Husted, "32-year study links anxiety, sudden heart attacks in men." *The Atlanta Journal-Constitution*, November 14, 1994, p. C4.

22. "Depression takes toll on heart." *The Atlanta Journal-Constitution*, August 26, 1997, p. B3. From the Associated Press.

23. Kia Morgan Allen, "Survey suggests sleep problems present nightmare for business." *The Atlanta Journal-Constitution*, March 28, 1997, p. H12.

24. Bill Hendrick, "Anger, education levels linked to heart attacks." *The Atlanta Journal-Constitution*, April 14, 1997, p. C3.

25. Bill Hendrick and Amanda Husted, "Success at an early age could mean shorter life." *The Atlanta Journal-Constitution*, August 12, 1996, p. D8.

26. Bill Hendrick, "Pushy men flirt with death, study says." *The Atlanta Journal-Constitution*, May 28, 1997, p. D3.

27. "New heart attack theory for Type A's." *The Atlanta Journal-Constitution*, November 18, 1992, p. E12. From the Associated Press.

28. "Wall Street tries to arrest frequent heart attack deaths." *The Atlanta Journal-Constitution*, December 31, 1997, p. C7. From Bloomberg News.

29. Ibid.

30. "Job stress not a factor in heart disease, study finds." *The Atlanta Journal-Constitution*, August 5, 1995, p. E7. From *The Boston Globe*.

31. Amanda Husted, "Milk and strokes." *The Atlanta Journal-Constitution*, May 7, 1996, p. D5.

32. Smith, G. D., Frankel, S, and Yarnell, J. "Sex and death: Are they related? Findings from the Caerphilly cohort study." *British Medical Journal* 337 315 (December 20 & 27, 1997). Cited in Kathleen Fackelmann, "Valu-

able Vices." Science News Online, February 18, 1998. At www.sciencenews.org/sn_arc98/2_28_98/bob1.htm.

33. "A walk is as good as a workout." *The Atlanta Journal-Constitution*, July 30, 1993, p. E1. From the Associated Press.

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35."Alt.smokers.faq (frequently asked questions) v1.5." At www. cris.com/~trieger/smokers-faq.html.

36. Sara Mahler-Vossler, "Should Americans Be Concerned About the Toxicity of Second-Hand Smoke?" At www.forces.org/pages/sar-art3.htm.

37. Michael Connor, "Airlines saved millions cutting fresh air on jets." Reuters Security News at http://biz.yahoo.com80/finance/97/09/22/amb_bgl_htm.

38. Ibid.

39. Mike Williams, "Exec admits possible health risks." *The Atlanta Journal-Constitution*, August 22, 1997, p. A21.

40. "Brown & Williamson's Statement Regarding Broin Settlement." PR Newswire at http://biz.yahoo.com/prnews//97/10/10/yo0015-yo-4.html.

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42. Brendan Murray, "Asbestos firm sues tobacco giants." *Atlanta Business Chronicle*, September 22, 1997. At www.amcity.com:80/atlanta/stories/092297/story.html. Also CNN, "Tobacco faces a new foe." At www.cnnfn.com/hotstories/companies/9709/24/asbestos_pkg1. Sept. 24, 1997.

43. Edith Effron, *The Apocalyptics: Cancer and the Big Lie: How the Environmental Movement Controls What We Know About Cancer* (New York: Simon and Schuster, 1984), pp. 175-176.

44. Ibid, p. 177.

45.*The* (London) *Daily Telegraph*, September 27, 1997. From Infoseek News Center Article at www. infoseek.com.

46. "Infant mortality rate falls to record low, report says." *The Atlanta Journal-Constitution*, December 2, 1997, p. D3. From the Associated Press.

47. Michael Ryan, "What's *Really* Risky?" *Parade*, June 15, 1997, p. 12.