Sidestream Cigarette Smoke Called a Major Killer — Is It?

Secondhand smoke kills 53,000 Americans each year.

That's what ASH (Action on Smoking and Health), a pioneer nonprofit anti-smoking organization says in a special new report headlined "Involuntary smoking: the factual basis for action."

"Today," ASH declares, "we know that . . . 'secondhand smoke' is the deadliest danger to which we are exposed. Indeed, it kills . . . a staggering 53,000 innocent victims each and every year."

**Analysis**

ASH claims its report is based on "major findings" of a massive 1992 Environmental Protection Agency (EPA) document, *Respiratory Health Effects of Passive Smoking: Lung Cancer and other Disorders*, and other studies. The "action" ASH seeks is "to protect the majority of Americans who don't smoke ... from the deadly effects" of environmental tobacco smoke (ETS). This "can only be done by restricting smoking in all public places," since "there is no safe lower level" of exposure to ETS toxins.

So: Is this all true? Do the data show that each downwind whiff of smoke in a bar room or bus station is a hazard to health and life — as well as, for many, an intrusive annoyance?

We phoned ASH, in Washington, D.C., for more information, particularly for verification of the scary 53,000 deaths, which, ASH claims, makes ETS "the third major U.S. killer."

The phone answerer told us the pamphlet was based on the EPA document. But the 53,000, the centerpiece of ASH's scare piece, does not appear anywhere in the EPA report.

ASH's executive director, John F. Banzhaf, III, then pointed out that a quote in his group's publication, in which the 53,000 figure is attributed to ex-U.S. surgeon general Antonia G. Novello, M.D., in fact did not come from EPA, or from an official Surgeon General's Report on smoking — either of which would have given it significant credibility. It came, rather, from a brief comment Novello provided in response to a question in a newspaper (*USA Today*, June 11, '91). This is a far less credible source.

**Cut to the Source**

Banzhaf told us that while the 53,000 is not in the EPA document itself, the source for it is cited there. That is true:

The scary number originates in a recondite scientific paper, written by retired chemist A. Judson Wells, Ph.D., now of Kennett Square, Pa. He published it in 1988, in an obscure British journal, *Environment International* (vol. 14, pp. 249-265). This publication has a circulation of 1100, according to a standard reference source. It is not easily accessible in the U.S.

In the paper, Wells analyzes published (and some unpublished) data from a number of epidemiologic studies.

He found a consistent, significantly higher death rate in key age groups among nonsmokers married to smokers, compared to nonsmokers wed to other nonsmokers.

**Long-Term Exposure Assessed**

All of these data, Wells notes, reflect continuous, long-term exposure of 10 or more years to a smoking spouse's secondhand smoke. Occasional exposure, such as occurs in public places, is factored out of his findings as "background," and so does not contribute to the 53,000.

The Wells analysis is carefully reasoned. It sounds plausible. Of the 53,000 estimated annual deaths, only 3,000 — or about 6% — are attributed to lung cancer, which ASH accounts for in the pamphlet.
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knowledges. Other cancers account for 11,000. But the vast majority of these deaths are attributed to cardiovascular disease, specifically heart attacks.

However: These figures have significantly different levels of credibility. Most credible are the 3,000 lung cancer deaths. Several other analyses, using different methods, have come up with remarkably similar estimates. The EPA document, reflecting this agreement, contains this explicit finding: "Approximately 3,000 lung cancer deaths per year among nonsmokers of both sexes are estimated to be attributable to ETS in the U.S."

Cardiac Data Excluded

The EPA document does not contain any analysis or estimate of cardiovascular deaths due to ETS. It says, explicitly:

This report does not develop an analysis of either the nonrespiratory cancer or the heart disease data, and takes no position on whether ETS is a risk factor for these diseases. If it is, the total public health impact from ETS will be greater than that discussed here [emphasis added]." ASH does include this strong qualifier in its excerpt of this quote from the EPA document.

The EPA, in other words, vouches for only 3,000 of the 53,000 deaths estimated by Wells. (As we went to press last month, tobacco companies and industry groups sued EPA on the ETS issue. They claim that the data and analysis EPA used to validate its strongest ETS claim — that it causes lung cancer — was highly "flawed." EPA said it stands by the findings. Banzhaf and other anti-smoking advocates denounced the lawsuit, and predicted EPA will prevail.)

The editor who published Wells' paper had some strong reservations about it. In an editorial in the same issue of the journal, A. Alan Moghissi writes:

In contrast to cancer assessment, the assessment of risk associated with exposure to agents causing cardiovascular diseases is in its infancy...

The paper by Wells is an attempt to quantify this risk based on available statistical data. Because this paper is probably the first of its kind, the editors were particularly concerned over the validity of the original data, their application to risk assessment, and the statistical treatment of the subject.

The editors received recommendations from three reviewers. Two reviewers recommended publication subject to revisions... A third reviewer recommended rejection... on the basis that the paper was too speculative... Despite the "mixed" review, we chose to publish the paper.

Given the rudimentary status of ETS risk for cardiovascular disease, editor Moghissi adds, "there is no doubt that the estimate provided by Wells will be less than accurate." He says ETS "may be" a risk factor.

The journal subsequently received and published several letters criticizing Wells' estimate. He wrote a rebuttal (Envir. Int., vol. 16, pp. 187-193, 1990), in which he suggested that at least one of his critics was a "tobacco consultant."

Findings Supported

One other independent statistical analysis of the data, performed by Kyle Steenland, Ph.D., of the National Institute for Occupational Safety and Health, in Cincinnati, supports Wells. Steenland came up with a figure of 35,000 to 40,000 heart disease deaths annually among nonsmokers due to ETS — which is essentially the same as the Wells estimate (JAMA vol. 267, pp. 94-99, 1992).

The American Heart Association endorsed the estimate last year in a position paper which concluded that "ETS is a major and preventable cause of cardiovascular disease and death."

Landmark

Development of the 53,000 estimate for passive smoking annual deaths has been a decade-long labor of love. Chemist Wells says he retired from Du Pont, in Delaware, in 1980, and cast about for a worthwhile retirement project. He reasoned that efforts to ban smoking in the workplace would hinge on the evidence that it is harmful to others — and so set to analyze the then scant published data.

Wells first presented his analysis at Harvard, in 1984, and continued to update it in print. But the presentation in Environment International, in 1988, was its first peer-reviewed presentation. He has persevered, with several later updates — and says his estimates during the last decade still stand.

"For all I know," Wells said recently by phone from his home, "the number could be higher or lower than 53,000. It may be higher."

Asked why he thinks the New England Journal of Medicine, among others, has not accepted this number, Wells replied, "They're very conservative up there." He acknowledged that the published data he used on cardiovascular deaths is "somewhat more controversial" than that on lung cancer.

Looking back on his effort, Wells said, proudly, of the Environment International article:

"It's turned out to be a kind of a landmark paper — all things considered!"
An Editor Lambastes Conflict Disclosures, Saying They Are ‘McCarthyism’ in Science

Major science journals, including the New England Journal of Medicine (NEJM) and the Journal of the American Medical Association (JAMA), now require authors to indicate potential conflicts of interest — drug company payment for the research, for example — when they submit a manuscript for publication.

How editors use this information is not altogether clear. But if the researcher has a financial stake in a drug that he or she reports on favorably, presumably this triggers more careful scrutiny of the manuscript. The author’s statement of a possible conflict may be published, as a footnote, so that — presumably — readers will appraise the article more skeptically than they otherwise might.

Information Is Helpful

These alerts may inform professional readers, scientists, and clinicians. Journalists, who rely heavily on external clues, such as a researcher’s institution and professional rank, also value these disclosures.

But: There comes now a science editor who argues that the disclosure requirement represents “a new McCarthyism in science,” which unfairly biases readers against researchers whose reports, perforce, carry these “pejorative” alerts.

“Judging someone’s work by the funding source, or by any other characteristics other than the content, raises an ethical problem,” writes public health specialist Kenneth J. Rothman, DrPH, who is editor of the journal Epidemiology. His angry attack on this “unethical” mislabeling of researchers by conflict-of-interest statements appeared in JAMA (June 2, pp. 2782-84).

He writes that the journal Science has gone a dangerous step further than JAMA and the NEJM by indicating that a researcher’s sexual orientation, or a tenacious belief in a scientific theory, also might create a conflict of interest. But, Rothman notes, Science’s editor, chemist Daniel E. Koshland, Jr., Ph.D., does not require comparable disclosures from his journal’s editors.

Rothman says editors might be swayed in their decisions by biases favoring a Science advertiser. Requiring conflict-of-interest disclosures for contributors, but not for editors, he charges, is applying a “double standard.”

Editor Replies

Science editor Koshland was at work on an editorial on Rothman’s commentary when reached last month by phone at his Washington office. He said Rothman makes some “pretty good” points; the implication that someone must be prejudiced because he owns five shares in a company is one of them. But, he said:

“I don’t think there is any alternative but to have our authors, editors, and reviewers reveal any possible conflict of interest.” In the cases of editors and reviewers, he added, Science’s policy is not to append a statement, but rather to find other, unconflicted editors to handle the paper.

With regard to authors, Koshland said, “Our policy is to make known what we think the intelligent reader should know.”

Conflicts are not limited to finances, in Koshland’s view. If a reviewer is competing for the same discovery, or was a teacher — or student — of the author, that, too, should be disclosed.

Money Talks Loudly

The NEJM’s editor-in-chief, internist Jerome P. Kassirer, M.D., said by phone from Boston that Rothman “misses a critical issue,” which is that reviewers for his journal are not shown a researcher’s conflict of interest statement when they are evaluating the manuscript. Only after the reviewers approve a manuscript, he added, do editors decide whether or not to include the conflict of interest statement — which at the NEJM relates only to financial matters. Such conflicts are “pervasive,” and are “very powerful” when a researcher is receiving tens of thousands of dollars annually from a drug company, Kassirer said.

JAMA’s editor, pathologist George D. Lundberg, M.D., who published Rothman’s piece, said: “I thought that there was merit in his [Rothman’s] argument, and so we decided to publish it.” But, he said in a phone interview from Chicago:

“We will not change our procedure based on his argument. We will continue to require statements from all authors because we think it is the right thing to do.”

Grudgingly — because we think that the more we know, the better — we have to agree Dr. Rothman’s point is well taken.

The reviewers’ recommendation to publish a manuscript validates it as science, and the editors’ subsequent decision to append the conflict alert compromises both the research and the review. This seems particularly problematic since, as Kassirer indicated, NEJM editors apparently decide which reports require the statement and which do not — rather than following a clear-cut rule.

It might be better, if the statements are needed, for them to be shown to the reviewer(s), after their initial approval, since they may be in the best position to judge whether a possible conflict has in fact affected the research. If the reviewer(s) finds no bias, the report might be published without the disclosure, which, as Rothman correctly says, is a presumption of bias.

Objectivity Abridged

“Unfortunately, and perhaps surprisingly, these policies of mandatory disclosure thwart the principle that a work should be judged solely on its merits. By emphasizing credentials, these policies foster an ad hominem approach to evaluating science. . . . [They] contribute new ethical problems, by abridging the right of honest scientists to an impartial hearing of their work.”

— K.J. Rothman, in JAMA
A soupçon of Kristin Luker's research:

Sociologist Studies Sex — and Finds

Princeton, N.J.
Contrary to public perception, young women know about contraception. But they often don’t use it, based on rational, but miscalculated beliefs that the odds are against pregnancy — and that if they do conceive, the man will marry them.

Sociologist Kristin Luker, Ph.D., documented this counterintuitive finding in a study of women in abortion clinics, and reported it in her book Taking Chances: The Decision Not to Contracept (U. Cal. Press, 1975).

She then interviewed Pro-Choice and Pro-Life leaders in California, and wrote in Abortion and the Politics of Motherhood (U. Cal., 1984), that social factors strongly determine these women’s positions: Pro-Life leaders tended to be blue collar, Roman Catholic mothers, who had a prevailing personal investment in motherhood and family; Pro-Choice leaders tended to be white collar, Protestant women with professional interests and careers outside the home.

Luker recently moved from the University of California, at Berkeley, to Princeton University, where she holds a chair in women’s studies. We visited her at her office to catch up on her work.

PROBE: As the abortion conflict has hardened, and become more bitter in recent years, do you discern any shift in the leaders’ social traits?

Luker: I haven’t looked at it systematically. But my impression is that, especially with Operation Rescue, Pro Life has become more evangelical Christian. When I looked at Pro Life, it was predominantly Roman Catholic. Also, the leadership now is more masculine. Direct action attracts men.

PROBE: Can you see any end to this conflict?

Luker: No. I didn’t see any end when I wrote the book on the politics of abortion. I don’t now.

PROBE: How has Americans’ sexual behavior changed?

Luker: Fewer children are being born. People are postponing marriage. There is a greater propensity now to have out-of-wedlock children. Premarital sex is more common — and different. Before, it was pre-marital sex, with one’s intended. Now people practice a sort of serial monogamy with partners they do not plan to wed.

This is in part due to the availability of abortion, and technological innovations like the Pill. I don’t think we as yet understood the influence of technical advances like the Pill.

PROBE: What is your current research, here in the East?

Luker: I’m working on two books. One is on teenage pregnancy: How did Americans become so caught up in this issue? How have we come to see it as the hub of the poverty cycle, as Time and others have said? The evidence suggests that it is not. In this work-in-progress, I am finding data which show that the teenage birth rate in fact is dropping.

It’s a paradoxical situation: There are more sexually active teenagers, but fewer teen births (due to wider use of contraception and abortion). Yet everyone came to believe that there was an epidemic of teenage pregnancy. In this work, supported by the Commonwealth Fund, in New York, I’m interested in how the situation came to be bundled in this way.

PROBE: You also are studying sex education . . .

Luker: That’s the second book: I’m studying it to try to get at the maps of these issues that people carry in their heads about gender, sexuality, and marriage, and how these things fit into their children’s lives. People want sexuality to be integrated into their children’s lives. But they worry about what it means for the future.

I’ve looked thus far at sex education in school districts in California and in the South. In California, the secularists want sex education, the fundamentalist Christians do not. But in the South, both sides are Southern Baptists. Both sides are deeply religious. The liberals among them favor sex education; the conservatives don’t.

My colleague Robert Wuthnow has

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(Circulation, vol. 86, pp. 699-702). The American Lung Association has also endorsed the estimate, according to Wells.

Agencies Demur

Key government agencies, however, have not followed suit. An EPA spokesman, Dave Ryan, said bluntly of the 53,000:

“We do not subscribe to that. We do not support it. ”

Asked why, Ryan replied by phone from Washington that only “very limited” data were available on ETS and cardiovascular disease when EPA began its risk assessment of passive smoking, in 1988.

“We’re considering whether such an assessment should be undertaken in the future,” Ryan said. “But we have no plans to do so at this time.”

At the Office on Smoking and Health at the Centers for Disease Control (CDC), in Atlanta, spokesman Timothy Hensley said last month by phone:

“The number we are currently using is 3,000, and that is just for lung cancer.”

He added:

“The reports of the Surgeon General have not reviewed the [Wells] study. We’re not saying that number is wrong,” he added. “We just don’t have any official position on it at this point.”

An editorial last month in the New England Journal of Medicine (June 10) on passive smoking ignores cardiovascular risk entirely, and cites an annual estimate of 4,000 cancer
Some Very Provocative Surprises!

pointed out in his Restructuring American Religion (Princeton University, 1988) that conservatives in a religion tend to have more much in common with conservatives in other religions than they do with their liberal co-religionists — and this is true for the liberals as well.

PROBE: Can you say, yet, if sex education reduces or enhances sexual behavior?

Luker: The bad news is it doesn’t seem to do either. It doesn’t make kids more sexually active, and it doesn’t make them more careful when they are! But these sex education courses are so short, that it’s not surprising that they have little effect.

In one or two studies it has been shown that sex education can postpone sexual activity for several months in kids who are not yet sexually active. But this is only a short delay, and these findings don’t speak to the issue of whether these teenagers are more careful, once they start.

Sex education does do a pretty good job of changing what people know — but not what they do!

PROBE: You’ve written recently in the New York Times (Jan. 17) that new ways need to be found to study sexual behavior scientifically. What do you suggest?

Luker: It would be very useful to do some of the basic national sex surveys that have been stalled in Congress. We have some convincing evidence that behavior is changing — more sex before marriage, with more partners, for example — but we should get national baseline data. I’m suspicious of public opinion polls when it comes to something like sex. But they’re better than nothing.

There’s been a striking outpouring of sexual studies in which the investigators are aware of their values and assumptions — their biases — and how they can shape a study’s results. This is good.

PROBE: How can the courts and other institutions that deal with human sexuality be encouraged to make better use of scientific information?

Luker: I think we have to get them better information. Everyone thinks he or she is an expert. But the quality control that other areas of science enjoy is not yet present in sexual studies. Sexology is a little like nutrition science: You have flawed research and a lot of self-styled experts.

Up to now, serious scholars have not taken up the job of separating the wheat from the chaff — and the judges only know what they read in Newsweek!

In the behavioral sciences, the rewards now go to people doing cutting-edge research. We need to reward analysts who ask: What do we know?

This is happening. But we’re probably fifteen years away from having the kind of synthetic work that could be helpful to judges.

Are Social Sciences Science?

Biologists and physicists differentiate their realms from that of the social sciences. They say that traditional sciences study nature, and produce an evolving body of verifiable knowledge about it. But social scientists do neither. We asked Kristin Luker to comment:

"This has become a hot topic in the social sciences as well!"

"There was a time when the social sciences thought they would grow up to be like the natural sciences. But now, it doesn’t look like the natural sciences have grown up to be what they have said that they are: Perhaps objectivity is not a reality, as they claim, but an ideal toward which all sciences should strive . . .

"Biologists are looking at the same objective data — male and female reproductive systems — that I do. The reproductive systems don’t change perceptibly. But the perception of them changes — albeit not in a linear way — toward a better understanding of reproductive biology.

"The social sciences may not be cumulative sciences, in the same way as biology and physics. One reason may be that our subjects read our findings, and change their behavior — because they don’t like what we are saying about them!"

Banzhaf Replies

Having scanned the documents, we phoned Banzhaf back, and told him our doubts. He stuck by his guns, and the 53,000, which he said "is the figure which I think is generally used." It has been widely cited, he said. No credible lower estimate has been produced.

"I’m not sure I understand why the Office of the Surgeon General on Smoking and Health does not agree with the Surgeon General," Banzhaf added.

Based on the no-lower-threshold assumption, he said, "If something causes cancer in the home or workplace, there is no reason to believe that it won’t cause cancer . . . at a bus station or anywhere else."

But, he said, such low statistical risks can’t be quantified.

# # #

We favor smoking bans in most, but not all public places. But we think it is both wrong and risky to predicate health policy on unconfirmed scientific findings.
Gene Therapy Targets Cancer

The speed, scope, and depth of recent genetic discoveries are hard to fathom.

A gene recently was identified that appears to cause some cancers of the colon, and also some cancers of the uterus and ovaries. One researcher — not the discoverer — told the New York Times (May 6):

"In my opinion it’s the most important finding on [colon cancer] in 30 years."

These research discoveries can be turned rather quickly into diagnostic tests. Treatments take longer — and are much harder to create. But here, too, progress is being made.

**Cutting edge**

Experimental human gene therapy — using introduced genes to relieve illness — is now just four years old. The aim is to insert copies of a gene into many normal or diseased human cells so that they will perform a useful function, such as instructing the cells to produce a biochemical (protein) in which the individual is deficient.

The genes, coded sequences of DNA composed of the four nucleic acids abbreviated A, T, G, C, can be produced in great numbers. To be helpful, they must be brought inside cells, whose genetic machinery they then will use to make their useful product. The standard approach is to use viruses, which normally inject their harmful DNA into cells, as vectors, or carriers, to bring the therapeutic genes into the cells.

The earliest method was to take cells out of the body, insert the genes into them in a test tube, and get them to replicate, or reproduce, so that a large number of cells, carrying the new gene could be returned to the patient’s body.

A major strategic shift now is occurring: Researchers are developing ways to insert therapeutic genes into cells inside the body, at the precise location — inside a cancer for example — that they are needed.

This is done with genetically engineered mouse cells, called “packaging cells,” which have been supplied with DNA that will make the parts and assemble a virus particle.

One carrier, or vector, used to get the gene inside the patient’s cells is a genetically-engineered retrovirus that has been modified so that it will pass its DNA on to, but will not reproduce itself inside human cells, as it otherwise might.

Retroviruses encode their genetic material not in DNA, as most organisms do, but in its mirror image, RNA, a trait that they share with the AIDS virus (HIV).

A strand of DNA is assembled in a test tube. The therapeutic gene is spliced into it, using molecular biologic methods. These DNA strands are put into the packaging cells, in a lab dish. The packaging cells can use the DNA “template” to produce RNA copies of the genetic material, including the therapeutic gene, which are assembled into retrovirus-like vectors, called RV.

At this stage, the packaging cells are introduced into the patient’s body at the site they are needed, inside a cancer, for example. These cells produce and excrete many copies of the RV, including its useful gene.

The RVs will attach themselves to, and inject their RNA into any cells they encounter. But in order to be expressed, their genes require certain enzymes that are present only when the cells are replicating (mitosis). Retroviral RNA that enters normal cells during their long resting stages will disintegrate harmlessly.

But cancer cells, which replicate frequently — which of course is the reason that cancers grow — are producing the necessary enzymes much of the time. As the cancer cells replicate, the RVs will express their useful gene in these cells.

Which gene would be useful — and how? National Cancer Institute (NCI) researcher Kenneth W. Culver, M.D., chose a gene called HS-tk (herpes simplex thymidine kinase) to arm the RVs. This gene produces a protein that renders cells susceptible to a drug called ganciclovir. This drug kills cells in which the HS-tk gene is expressed.

Packaging cells that made RVs containing HS-tk were injected into mice along with mouse cancer cells, followed by treatment with ganciclovir. The cancers failed to grow.

The next step was to demonstrate that HS-tk armed RVs could kill established cancers in rats’ brains. They did.

The therapy thus was very effective. More cancer cells were killed than Culver and his colleagues could account for, based on the number of packaging cells and RVs they had loosed in the mice’s bodies. The researchers adopted the phrase “bystander effect” to indicate their belief that some cancer cells in the mice were being killed even without being penetrated by the RVs and their deadly HS-tk genes.

The bonus bystander effect has not yet been explained. One view is that stricken cancer cells release some of the HS-tk gene product, which is absorbed by adjacent cancer cells, rendering them vulnerable to the ganciclovir. Nearby normal cells, dividing slowly, are not — it is hoped — producing the HS-tk protein, and hence are spared by the drug.

Culver and several associates now are trying this method on brain cancers in humans. As of May, eight patients had been treated. Culver said then that it still was too soon to know if the therapy was working. Meanwhile, colleagues at the University of Rochester, in New York, are using genetically-engineered cells armed with HS-tk to treat women with inoperable ovarian cancers.

— Glen de Vries

de Vries is a virologist at the University of Pittsburgh.
Genetics Seen As a Threat To Freedom

"[The] concept called 'genetic essentialism' ... posits that personal traits are predictable and permanent, determined at conception, 'hard-wired' into the human constitution. If comprehensively known and understood, these inherent qualities would largely explain past performance and could predict future behavior. ... By stressing the importance of immutable biological qualities, genetic essentialism ... differs from traditions centered on the importance of life experiences in determining behavior."  

— Rochelle Cooper Dreyfuss & Dorothy Nelkin

Genetics now is a major focus of scientific endeavor, as exemplified by the Human Genome Project to locate and sequence all of the genes on our chromosomes for medical and other purposes (see story, opposite page).

Many people find reasons to fear this research; for example, the data will be used to identify, stigmatize, and even restrict some individuals' freedom based on their genetic traits rather than their overt behavior (PROBE, April, June).

No overall risk/benefit ratio on this effort is as yet on the horizon. But it seems obvious that some people will be significantly helped by discovering, for example, that their conceptus is likely to be afflicted by cystic fibrosis in time to abort it. Other people will face the anguish — as some already are — of learning that they almost certainly will suffer a dire hereditary illness like Huntington's disease, for which no cure or treatment is yet available.

The conundrum, of course, is that the cure or palliative, if there is to be one, almost certainly depends on obtaining genomic information.

Fate Is the Issue

A broader set of concerns also has arisen, regarding the influence of genetic knowledge and its social use — and misuse — on our sense of personal identity. These critical concerns are about genetics' impact on people's sense of freedom, will power, and motivation.

Sociologist Dorothy Nelkin, B.A., and her New York University colleague, law professor Rochelle Cooper Dreyfuss, J.D., have performed a signal service in conceptualizing these fears and some of their sources under the rubric genetic essentialism (see above). They have elucidated their views in a recent article in the Vanderbilt Law Review (vol. 45, pp. 313-348). Nelkin, a friend, studies disputes between science and the public as a means to understand the relationship between them. Cooper Dreyfuss is an expert on science and law.

Personality, they write, is socially defined, and varies from culture to culture. Some societies define personality — which influences both one's sense of oneself and of others — predominantly in relational terms, of family and society. Other societies see personality more in an individualistic and innately-determined sense.

The genetics revolution, abetted by careless or ill-considered comments by some of the revolutionists, has moved the concept of personality far toward the "hard-wired", fated side, the NYU analysts write. They cite these examples:

- Genetics pioneer James Watson, Ph.D., author of the Double Helix, has been quoted as saying, "Our fate is in our genes."
- Walter Gilbert, Ph.D., a genomic research leader, pulls out a compact disk containing some of this data and tells an audience, "This is you!"
- Other geneticists describe the Genome Project as a "quest for the Holy Grail," an effort to create the "Book of Man," or refer to the genome as the "Blueprint of Life."

Insofar as these tenets of genetic essentialism gain credence in peoples' minds — as the NYU analysts suggest that they have — they may profoundly change human relationships, including those defined by law. Cooper Dreyfuss and Nelkin are particularly worried about the idea that personal identity — uniqueness — is coming to be equated with genetic identity: Geneticist Gilbert has been quoted as saying that his field provides "the ultimate answer to the commandment 'Know thyself.'"

False Connections Found

Dreyfuss and Nelkin are correct in criticizing this kind of genetic essentialism. It's pretty vulgar stuff.

Biologic identity — for example each individual's unique immunological traits, which sometimes are called "self" — has virtually nothing to do with personality. This is not only because of the idiosyncratic mix of genetic, developmental, familial/social, and psychological determinants that make each of us what we are — the individual we sense as ourself. But personality also is separate from biologic identity because human awareness — consciousness — is not "hard-wired" to genetic or other biologic determinants as far as anyone knows.

The two realms certainly are linked. These links, what is continued on page 8

It's Not What They Do, It's What They Say...

We asked sociologist Nelkin, by phone, if it is geneticists' science or scientism — the belief that science provides meaning — that gives rise to the distortions of genetic essentialism.

"It's a "complex question," she replied. The problem "is not the science. The science is what it is." Rather, Nelkin said, "a lot of the problem is the scientism. I think the scientists are feeding into ... [the] public desire for easy answers — and for certainty."

When researchers explain their work to the public, she noted, they use images and metaphors that convey a much more deterministic picture than they will acknowledge when talking to colleagues.
Genetics . . .

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more, may be most distressingly clear in extreme — which is to say abnormal — situations. Genes that predispose for cystic fibrosis, or Huntington’s, sooner or later will have a cataclysmic effect on the sufferers’ personalities and sense of themselves. This is unarguable. It also seems unarguable that other less dramatic biologic traits can influence one’s personality for better or for worse.

But this is hardly new. People have always been categorized according to behaviors determined by their genes, and some are stigmatized by society because of this (physically handicapped children, for example). The hope of genetics research — the social justification for the high cost — is that it will yield ways to forestall or mitigate these pathologically-determined divisions between people.

Will genetic essentialism damage people’s sense of free will, as Cooper Dreyfuss, and Nelkin, and others worry? Will people stop striving to better themselves as the result of this new “knowledge”?

We don’t think so.

This whole debate seems to us to be a replay of the Protestant Reformation, when predestination was preached, and accepted by many in lieu of the Catholics’ free will. The Protestants didn’t stop striving, knowing that their fate already was sealed; they strove harder than their Catholic neighbors — thereby creating the Industrial Revolution — in the effort to prove to themselves that they were among the Chosen.

Everyone is vitally interested in his or her fate, and many seek to learn it in advance. Some will look to their stars and the world around them for clues. Others will look to themselves.

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