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Citation

Allan M. Brandt. 1990. The cigarette, risk, and American culture. *Daedalus* 119(4): 155-176.

Published Version

<http://www.jstor.org/stable/20025343>

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Allan M. Brandt

The Cigarette, Risk, and American Culture

ON SATURDAY, January 11, 1964, Surgeon General Luther Terry stepped to the podium of the State Department auditorium to begin a nationally televised press conference. Seated directly behind him were ten eminent physicians and scientists, the members of his Advisory Committee on Smoking and Health. This group of individuals had met regularly over the last eighteen months to evaluate the evidence about the risks of cigarette smoking. Although the results of this investigation had been held top secret, signs prohibiting smoking hung in the auditorium, a harbinger of the coming announcement. In the outside corridors, members of the press puffed away. Reporters were offered copies of the report in the closed auditorium for an hour before the press conference. At the conclusion of the session, they rushed to phones to call in the story. The next day, the report received front-page coverage throughout the country.

For the 70 million regular smokers in the United States, the report constituted bad news. It found that among men who smoke cigarettes the death rate from cancer of the lung was 1,000 percent higher than among nonsmokers. The report also cited chronic bronchitis and emphysema to be of far greater incidence among smokers. Additionally, the committee found that the incidence of coronary artery disease, the leading cause of death in the United States, was 70

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percent higher among smokers. In short, cigarette smokers placed themselves at much higher risk of serious disease than did non-smokers.¹

These findings, contained in the massive 387-page document, which cited thousands of research studies, held few surprises. In fact, the committee had conducted no new research. It had merely reviewed existing data. And indeed, since the early twentieth century and beyond, physicians had pointed out hazards of cigarette smoking. As long as there have been cigarettes there has been concern about their impact on health. By the time of the release of the report, polls showed that most Americans already associated cigarettes with cancer. If such information was widely known, what is the meaning of the surgeon general's committee report, and what was its significance? What were the social and scientific forces which led to the report and what was its impact?

The report marked the beginning of a revolution in attitudes and behaviors relating to cigarettes. In the last quarter century, half of all living Americans who have ever smoked have now quit. At the time of the 1964 report, 42 percent of all U.S. adults smoked; in 1989, only 26 percent were smokers. According to the most recent *Surgeon General's Report* (1989), approximately 750,000 smoking-related deaths have been avoided since 1964 because people have quit or not started smoking.² Terry's *Surgeon General's Report* signaled the beginning of a profound change in the meaning of the cigarette and spurred new interest more generally in the relationship of behavior, risk, and health.

This essay briefly traces the history of the debate about the risk of smoking and places the *Surgeon General's Report* in a broader context by examining the process by which the cigarette came to be defined as a major health risk. The report raised fundamental questions about the nature of biomedicine, public health, and especially causal inference; it profoundly altered the way we think about issues of health and disease. This was part of a broader debate in twentieth-century science about the nature of evidence, proof, and causality, a debate about the epistemological foundations of biomedicine. How do we know what we know? What constitutes "proof" in modern science? What is the nature of causal relationships? And finally, how will risks be defined, measured, and regulated?

The cigarette provides a means of tracing an important watershed in medical “ways of knowing.” But the issues raised go beyond the realm of biomedicine; the debate about smoking was shaped by the meaning of the cigarette in American culture, the nature of the tobacco industry, public health, and government. In short, the process by which risk is assessed and perceived reveals deep social, cultural, and political values.³

THE RISE OF THE CIGARETTE

In many ways the cigarette seems such a ubiquitous part of American culture that it is difficult to imagine that it is really a twentieth-century phenomenon. Between 1900 and 1965, per capita consumption rose from 49 to 4,318.

Developments in agricultural technique, production technology, and industrial organization, as well as such factors as the introduction of the portable match, all contributed to the growth of the tobacco industry.⁴ The cigarette marks the convergence of corporate capitalism, technology, mass marketing, and, in particular, the impact of advertising.⁵ These forces induced new modes of individual and group behavior. With the rise of consumerism, a new behavioral ethic was defined. From a culture that promoted self-denial and self-discipline in the late nineteenth century—one condemning indulgence in all forms—Americans were now encouraged to indulge.

As individuals came to fear the loss of autonomy in an industrial world, cigarette smoking promised individual redemption. The Marlboro man was the first urban-industrial cowboy, a symbol of modernity, autonomy, power, and sexuality. Such advertising pointed away from the product toward the moral and psychological value of the patron.⁶ Advertising promised consumers well-being and power.⁷ Creating demand for relatively undifferentiated, nonessential items was the core of the new consumer culture, which the cigarette epitomizes. The tobacco industry boomed, as did state revenues associated with the manufacture and sale of cigarettes. When demand for cigarettes rose, so too did concern about their impact on health.

As cigarette smoking became increasingly popular in the early twentieth century, claims for its virtues and vices ran strong. Though many touted the positive and pleasurable aspects of the cigarette, the

dramatic rise in smoking was accompanied by a powerful anti-cigarette movement which sought to identify both the moral and the health risks of tobacco. By the first decade of the twentieth century, concerns about the demoralizing impact of the cigarette were widely cited.

Boys were often caught sneaking off behind school buildings to smoke in groups, and “cigarette fiends” were identified as a major social problem of the growing cities. Among the most prominent anti-cigarette crusaders was Henry Ford. “If you will study the history of almost any criminal you will find that he is an inveterate cigarette smoker,” advised Ford.⁸ He donated the funds for the publication of a national journal which appeared under the title “The Case Against the Little White Slaver.” On another occasion Ford explained, “With every breath of cigarette smoke they inhale imbecility and exhale manhood. . . . The yellow finger stain is an emblem of deeper degradation and enslavement than the ball and chain.” Ford enlisted Thomas Edison to investigate scientifically the harms of smoking.

In addition to the concern expressed about young boys smoking, anti-cigarette activists centered attention on the detrimental consequences of smoking for women—now vigorously solicited as smokers—and its impact on their health and social mores.⁹ As the movement for prohibition gathered momentum, cigarettes were frequently tied to the use of alcohol. By the First World War, some thirteen states had enacted legislation prohibiting or regulating the sale of cigarettes; anti-cigarette activists often cited medical and scientific experts in support of such controls.¹⁰

By the 1920s, as consumption continued to rise, research into the consequences of smoking intensified. Researchers focused attention on the impact of tobacco on what they called “mental efficiency.” Usually in such studies, smokers fared poorly.¹¹ But the problem with such research was clear; as one scientist explained, “It might be either that the smoking habit induces lethargy or that lazy men are the kind that find smoking agreeable.”¹² This problem of inference would continue to plague the debate about smoking into our time. Other studies concentrated on the physical growth and development of smokers; did cigarette smoking stunt growth?¹³ The moralistic nature of such experiments lay just below the surface.

It could be argued that moral reformers protesting the rising use of cigarettes in America hid behind the cloak of scientific authority in offering their arguments. But this would misrepresent their ideas and tactics. They simply saw no tension in seeing the cigarette as ungodly *and* unhealthy; they equated moral dangers and health risks. Moral reformers had absolutely no compunction about employing arguments based on weak data about the physically debilitating impact of smoking. Medical doctors and researchers moved easily between citing the moral and citing the health consequences of smoking; there was no attempt to differentiate such arguments.

MODERN EPIDEMIOLOGY AND STATISTICAL INFERENCE

By the late 1920s, researchers began to focus more precisely on the *specific* health consequences of smoking. As early as 1928, in a somewhat primitive epidemiological study, researchers associated heavy smoking with cancer.¹⁴ In addition, surgeons published clinical reports associating cancer in their patients with their smoking habits.¹⁵ In 1931, Frederick L. Hoffman, a well-known statistician for the Prudential Insurance Company, tied smoking to cancer. Hoffman noted the difficulties of conducting epidemiological studies in this area. The basic methodological questions of statistical research—issues of representativeness, sample size, and the construction of control groups—all presented researchers with a series of complex problems. Hoffman called for the exercise of moderation in all behavior, a truism of progressive hygiene, suggesting that “extreme moderation in smoking habits would certainly be advisable.”¹⁶

In 1938, Raymond Pearl, the Johns Hopkins statistician and biometrician, published the first significant statistical analysis of the health impact of smoking. Pearl came to the conclusion that in individuals it was difficult to assess the risks of such behaviors, especially when their impact was not immediate and when many intervening variables also affected health. Therefore, he concluded, the only precise way to evaluate their effect on health was to employ statistical methods after collecting data on large groups. Comparing the mortality curves of smokers and nonsmokers, Pearl found that individuals who smoked could expect shorter lives. He offered no explanation for why this might be so.¹⁷

During the 1920s and 1930s, as the first studies attempting to link cigarettes to cancer were conducted, the field of epidemiology stood at a crossroads. The bacteriological revolution of the late nineteenth and early twentieth century had directed attention away from the traditional environmental questions which had brought epidemiology to the fore. Research came to center on mechanism: identifying causative agents, universally assumed to be microorganisms. Indeed, the notion that disease was actually “caused” by hazards in the environment fell into disrepute. Public health officers were compelled to demonstrate Robert Koch’s postulates, the fundamental truths of the new germ theory.¹⁸ There were, of course, exceptions to this trend, especially in the study of industrial and occupational health. But these fields for the most part were distant from the central concerns of medicine and public health. In fact, the major statistical work of the period came from population genetics and the actuarial studies of the insurance industry, rather than from the disciplines of public health. Neither Hoffman nor Pearl would have considered himself an epidemiologist.

The municipal laboratory had become the new focus of public health. Even when researchers identified environmental or behavioral risks, they generally focused on the mechanism of disease. The whole notion of statistical inference was questioned, as research centered on the cellular level. In this respect, exposure to a carcinogen was equated with exposure to an infectious organism. Identifying the health risks of a particular behavior like smoking fitted this model poorly. The length of time before the disease developed was protracted (and equated with an “incubation period”); in addition, the large number of intervening variables confounded notions of specific causality. Everyone “exposed” did not get the disease; indeed, most did not; and some who were not exposed did. Also, there was broad cultural discomfort with notions of comparative risk assessment. How dangerous was the cigarette? How did this danger rate vis-à-vis other risks? Finally, medical theory offered few persuasive models for understanding systemic and chronic diseases; the anomalies of cigarette smoking did not fit the biomedical model’s ideal of specific causality.

Changing patterns of disease, however, forced researchers to search for other models of causality. By the end of the Second World War, concern about lung cancer had intensified. It seemed to

statisticians and physicians to be a striking exception to many other disease patterns of the twentieth century; deaths from lung cancer had risen from 4,000 in 1935 to 11,000 in 1945. By 1960 the number of annual lung cancer deaths would rise to 36,000.¹⁹ By the mid-1980s carcinoma of the lung would become the most prevalent of all cancers, accounting for more than 140,000 deaths each year. Yet, at the turn of the twentieth century, the disease was a relative rarity, with less than 400 cases recorded in 1900.

There were, of course, many theories to account for this shift. Some observers attributed the rise in cases to better reporting, more sophisticated diagnostic abilities, the widespread use of X rays, and the ability to make precise pathological analyses. Others suggested that increasing life expectancy permitted the development of disease that in an earlier era would not have had the chance to wreak its havoc on victims who would die earlier deaths from other causes.²⁰

But some physicians and public health officers pointed to one of the most dramatic behavioral changes in the history of American culture, the rise of cigarette smoking. By the late 1940s it was already known that prolonged exposure to certain industrial chemicals and vapors—chromate, nickel carbonyl, and radioactive dusts—could produce lung cancer. Some scientists now suggested that the inhalation of cigarette smoke might have similar effects. This hypothesis led to a series of epidemiological studies of the risk of smoking. These studies, in turn, would lead to a redefinition of risk, epidemiology, and public health.

First published in the 1950s, these investigations were based upon retrospective findings: in other words, individuals with lung cancer were identified in hospitals and interviewed regarding their smoking practices; they were then compared with a similar group who did not smoke. The findings revealed that cigarette smokers were at far higher risk for the development of lung cancer than were non-smokers. But critics raised a series of objections to such studies. In particular, it was clear that there were a number of opportunities for bias in the construction of sample and control groups. For example, it was suggested that lung cancer patients were likely, because of the nature of their disease, to exaggerate their smoking habits.²¹

Given the methodological problems with retrospective studies, two major prospective studies on smoking and cancer were begun in 1951. Under the auspices of the British Medical Research Council,

Richard Doll and Bradford Hill sent questionnaires on smoking practices to all British physicians.²² When members of the profession died, Doll and Hill obtained data concerning the cause of their deaths. The results were consistent with the earlier findings from the retrospective studies.²³

A second major prospective study, conducted by E. Cuyler Hammond under the auspices of the American Cancer Society, led to similar conclusions. Total death rates were far higher among smokers than among nonsmokers. Lung cancer deaths were 3 to 9 times as high among smokers as among nonsmokers, 5 to 16 times as high among heavy smokers. Among those who smoked two or more packs a day, the death rates were 2.25 times as high as for men who had never smoked, a strong indication of a dose effect. Excess mortality was even higher for coronary artery disease than for lung cancer; rates for smokers exceeded those for nonsmokers by 70 percent. Quitting, Hammond found, reduced risk; formerly a heavy smoker, he himself now quit.²⁴ By 1960, a range of epidemiological studies had all arrived at consistent findings: cigarette smoking significantly contributed to lung cancer and coronary artery disease.²⁵

These epidemiological studies introduced the concept of large, population-based surveys. They focused attention on the definition of comparative risk and excess mortality. Implicit in such studies was a critique of the whole notion of specific causality; these researchers recognized that there were literally hundreds of variables affecting the incidence of disease. Therefore they sought to design studies which, by including many individuals, would be controlled except for a single variable—in this case, cigarette smoking.

This mode of research touched off an important debate within the scientific community about the nature of causality, proof, and risk. At stake were the very epistemological foundations of scientific knowledge: How do we know what we know? What is the reliability of causal inference from statistical data? Those committed to hereditarian, genetic views of cancer, for example, found fault with an epidemiologic approach which centered attention on behavioral effects.²⁶

At the basis of the epidemiological argument was the clear limitation of laboratory experimentation for making determinations about probability and risk. The debate about smoking and health revealed an intraprofessional battle between epidemiology and lab

science, a clash of values, assumptions, and expectations. Moreover, the debate revealed a deeper discomfort with statistical logic and quantitative methods in biomedicine, a trend which persists today.²⁷ Before any successful anti-cigarette campaign could be waged, the legitimacy of epidemiological data concerning risk for generating health policy would have to be established.

FROM EPIDEMIOLOGY TO PUBLIC POLICY

Knowledge of the risks of smoking—which continued to accrue throughout the 1950s—did not immediately lead to the formulation of public policy. Indeed, there was considerable debate about the implications of these findings for public health authorities. What was the appropriate role of the state vis-à-vis the risks of cigarette smoking? Should the government play a role in educating its citizens about the hazards of smoking? Recognizing the gravity of the hazard, should the government take steps to regulate the sale of cigarettes more aggressively, or restrict their use? These questions, of course, were complicated by the nature of the behavior itself: no one need be exposed to the hazards of smoking unless he or she so chose; the “voluntary” nature of the risks, it was argued, militated against any governmental intervention.

The first step which the federal government took—haltingly, in 1962—was to sponsor a commission to study the evidence that cigarettes were harmful. In some respects, this was a curious way to proceed, given the quality of the evidence which already existed. But the creation of the Surgeon General’s Advisory Commission on Smoking and Health revealed the political aspects of the debate.²⁸ First, powerful economic interests repeatedly called the epidemiological findings into question, suggesting that the relationship of cigarettes to disease was “merely statistical” and that no clear and objective findings confirmed these risks “in the laboratory.”²⁹ The industry responded to the epidemiological data with advertising campaigns which assured the public their brands were safe, at the same time that it introduced filter cigarettes with expansive claims for health and safety.³⁰ The industry worked diligently to undermine, if not obscure, public perceptions of the risk of the cigarette. Second, there was no single, authoritative “reading” of the mounting evidence. Forces in the public health establishment, especially the

voluntary health agencies, realized that the findings linking cigarettes to disease had to be legitimated in the medical and scientific communities, as well as among the public.³¹ Identifying “risk factors” for disease would become an increasingly important aspect of the work of the “voluntaries,” eager to assure the public—and especially contributors—of progress in finding “the cause” of serious chronic disease.³²

The advisory committee, appointed in July 1962, explicitly avoided all questions of social policy; its charge was to determine whether or not smoking *caused* disease. But it conducted no new research. The committee reviewed some 7,000 publications, including 3,000 research reports published since 1950.³³ It sought to arrive at a clinical judgment on smoking. As one public health official explained, “What do we (that is, the surgeon general of the United States Public Health Service) advise our patient, the American public, about smoking?” Implicit in this question was a particular model of public health and the role of the state.

The report, despite the fact that it offered no new data, nevertheless made a fundamental contribution to the study of causal inference in epidemiological studies. What did it mean to say, for example, that cigarettes *caused* lung cancer? How should “cause” be distinguished from “associated with,” “a factor,” or “determinant”? Members of the committee realized the complexity of saying simply that smoking causes cancer. Many individuals could smoke heavily throughout their lives and apparently suffer no adverse consequences; “cause” implied a single process in which A, by necessity, would lead to B. Therefore, they acknowledged the complexity: “It should be said at once,” the report explained, “that no member of this Committee used the word ‘cause’ in an absolute sense in the area of this study. Although various disciplines and fields of scientific knowledge were represented among the membership, all members shared a common conception of the multiple etiology of biological processes. No member was so naive as to insist upon mono-etiology in pathological processes or in vital phenomena.”³⁴ Yet their conviction was clear: smoking presented a tremendous risk to health. The committee developed a set of criteria for evaluating causal relationships which has been widely applied since that time. Causal evidence had to be (1) consistent, (2) strong, (3) specific, (4), supportive of appropriate temporal relationships, and (5) coherent.³⁵ At the press conference

announcing the committee's findings, Terry was asked whether he would now recommend to a patient to stop smoking. His answer was an unequivocal "yes."

The report served the political functions on which it was predicated. It provided power and legitimacy to the epidemiologic findings; indeed, the report was of fundamental importance in raising the stature of epidemiology as a discipline. It made clear that the government would accept broader responsibility for the determination of risks and for public education to prevent disease. The ability of self-interested parties such as the tobacco industry to disparage such findings was now delimited. With the first *Surgeon General's Report*, the battle against the cigarette was joined; less obvious was how the government would utilize this document in setting a public health agenda.

THE TOBACCO WARS

In retrospect, the immediate public and political response to the *Surgeon General's Report* appears strikingly naive. Newspapers reporting the findings speculated that the tobacco industry would wither away. The presumption was widely held that smokers—now apprised of the risks—would quickly quit. In Congress, such ideas influenced legislators, who in 1965 passed the Federal Cigarette Labeling and Advertising Act. The legislation established the National Clearinghouse on Smoking and Health to encourage health education about the dangers of smoking. In addition it required that all packs of cigarettes carry a warning: "Caution: Cigarette Smoking May Be Hazardous to Your Health." Given that the surgeon general had found that smoking *causes* lung cancer, the warning was remarkably weak, indicating the effectiveness of the tobacco lobby on Capitol Hill. It further reflected the relative lack of experience most legislators had had with scientific findings. At the hearings concerning this legislation, tobacco spokesmen challenged the findings of the surgeon general. By treating all perspectives as those of "interested" parties to be brokered in the political process, members of Congress sought compromise. Moreover, the powerful economic interests, especially of tobacco-growing states, acted forcefully to moderate any regulatory initiatives.³⁶ Nevertheless, as scientific studies collected in subsequent surgeon general's reports continued to indict the

cigarette as a major cause of serious disease, Congress took additional action. In 1971, the label was changed to "Warning: the Surgeon General Has Determined that Cigarette Smoking Is Dangerous to your Health." And, in 1985, four rotating labels were mandated.³⁷

Increasingly, the battle over the nature of the risks of smoking would be waged in the media. Luther Terry's effective control of the media, for example, greatly contributed to the success of his committee. First, Terry appointed a commission of elite scientists and clinicians to study the issue of smoking and health; he successfully obviated any easy dismissal of the report by requiring that none of its members had previously expressed positions on the dangers of the cigarette.³⁸ Second, he invited the tobacco industry to review a list of prospective committee members and reject anyone they desired to. This made it impossible for the industry to easily discredit the report. The "secret" meetings of the committee generated widespread speculation in the press during the eighteen months of its deliberations.³⁹ This interest culminated in the nationally televised press conference of January 1964. Sunday newspapers throughout the country reported the story on front pages.

By 1964, in the aftermath of televised presidential debates, a presidential assassination, and a growing war in East Asia, all powerfully portrayed through the electronic media, the expanding role of the media and possibilities of exploiting them for a range of purposes, including public health education, were increasingly recognized. Terry's report and the nationally televised press conference made the surgeon general, for the first time, into a *public* figure with access to the media. It gave the office a new meaning and authority which subsequent surgeon generals would augment. Indeed, the surgeon general's principal role—given that the office has little funding or authority to initiate programs—is to speak effectively through the media.

In the struggle concerning the "meaning" of the cigarette, control of the media was bitterly contested. The tobacco industry had considerable resources to expend in this fight, attempting to allay the growing concerns about the impact of smoking on health. Advertisements, for example, continued to suggest that smokers were youthful, healthy, attractive, and sexually seductive. Although the Federal Trade Commission took action to demand a higher level of account-

ability from the industry, regulations were weak and difficult to enforce. The anti-tobacco forces thus pursued other strategies. A young consumer lawyer, John Banzhaf III, decided to attempt to get the FCC to apply the fairness doctrine (for equal air time) to cigarette advertising. He formed the group ASH (Action on Smoking and Health). After a court struggle, he forced the national networks to air anti-smoking spots in prime time. Anti-cigarette ads got approximately \$40 million of free air time. These public-service announcements apparently did have an impact; per capita consumption fell from 4,197 in 1966 to 3,969 in 1970.⁴⁰ Given the success of this anti-cigarette media blitz, the industry then acquiesced to a legislative ban on broadcast advertising, thus averting the fairness doctrine.⁴¹

Congressional anti-smoking policy proved to be decidedly limited. Modest funding for public education, requiring warning labels on packages, and banning broadcast advertising constituted the entire federal program to reduce smoking. At the same time, tobacco subsidies were maintained, placing the government in the ambiguous position of working to limit cigarette smoking while simultaneously contributing to the growth of tobacco. The limits of the federal program revealed the ongoing power of the tobacco lobby and the economic interests that it represents.⁴²

TRANSFORMING THE MEANING OF CIGARETTE SMOKING

Additional research findings about the nature of the risks of cigarette smoking served to tip the balance in favor of anti-smoking forces during the last decade. Despite considerable gains in stigmatizing the cigarette, the anti-smoking forces had, by the late 1970s, foundered on a traditional American libertarian ethic: "It's my body and I'll do with it as I please." In keeping with this powerful cultural ideal, further governmental interference relating to smoking was seen as constituting unjustifiable intrusion into individual decisions. The Tobacco Institute viewed such intervention as "health and safety fascism." It was one thing for the government to inform the public about the dangers of smoking; quite another to restrict or ban the behavior.

For this reason, scientific studies of the impact of "sidestream" smoke took on special significance. With the publication of studies which demonstrated the risks of exposure to other people's cigarette

smoke—in particular, a higher risk of lung cancer—the anti-smoking movement was reinvigorated on the basis of a powerful communitarian ethic: “Do with your own body whatever you like, but you may not expose others to risks which they do not agree to take on themselves.” As epidemiologist Michael J. Martin explained, “Many people are willing to take on risk, even an enormous risk, themselves. But few are willing to tolerate even a small risk imposed on them.”⁴³ With the imprimatur of a new *Surgeon General’s Report* (1986), the data on “involuntary” smoking led to remarkable changes in the effectiveness of efforts to restrict smoking in public places.⁴⁴ By mid-1988, 320 local communities had adopted laws restricting smoking in public places, up from 90 in 1985.⁴⁵ Cigarette smoking was banned from virtually all domestic airline flights beginning in early 1990.

Another *Surgeon General’s Report* (1988) also called into question the voluntary nature of cigarette smoking, now for the smoker.⁴⁶ By documenting the addictive qualities of cigarette smoking, the report further undermined the notion of an individual voluntarily “deciding” to smoke. Not surprisingly, the tobacco industry challenged these findings. Walker Merryman, a spokesman for the industry’s Tobacco Institute, offered a socially elastic definition of addiction: “I’ve not heard of anyone holding up a liquor store or mugging an old lady to get the money to buy cigarettes.”⁴⁷ Nevertheless, the recognition that cigarette smoking subjects individuals to well-recognized biological processes of transient mood alterations, tolerance, and withdrawal symptoms led increasingly to the inclusion of nicotine addiction as one more aspect of substance abuse, a deviant behavior.⁴⁸ Moreover, the growing recognition of the difficulty of quitting undercut the notion that smoking was simply a matter of choice.

Studies of the risks of sidestream smoke and the addictive nature of cigarettes were promoted by a growing anti-smoking coalition which included physicians, public health experts, and aggressive consumer activists. This, of course, is not to question the scientific validity of such studies, but rather to emphasize the relationship between authoritative science and its social and political context. The new research agenda facilitated the ongoing process of delegitimizing cigarette smoking in American culture. The cigarette—the icon of our consumer culture, the symbol of pleasure and power, sexuality and

individuality—had become suspect. The smoker would subsequently be redefined, in a process which we continue to see played out—from the independent Marlboro man or liberated Virginia Slim to a new vision of a weak, irrational, and now, addicted, individual. The innocuous habit had become the noxious addiction. The stigmatization of the cigarette became a critical aspect of a revolution in American values about personal health and behavior.

The stigma of the cigarette is now tainting its producers. Increasingly, the production and sale of such a clearly dangerous and damaging product is being viewed as a moral issue; the cigarette companies are losing their standing as “reputable” industries.⁴⁹ Major social institutions have moved in recent months to sever their ties with an industry increasingly associated in the public mind with “marketing death.” The decisions of Harvard University and City University of New York, for example, to divest their endowment holdings in cigarette companies explicitly expands the moral valence of the cigarette issue, further isolating the industry.⁵⁰ Despite the continued profitability of the cigarette, the industry is losing the tobacco wars, the battle to maintain a legitimate place for the cigarette in American culture.

It would nevertheless be premature to celebrate the decline in cigarette consumption. Cigarettes continue to exact an enormous toll on health in the United States, and, increasingly, throughout the world. According to recently revised figures, 390,000 deaths each year are attributed to cigarette smoking in the United States alone.⁵¹ Smoking is estimated to cause 30 percent of all cancer deaths, 21 percent of all deaths from coronary artery disease, and 82 percent of all deaths from chronic obstructive pulmonary disease. Since 1986, lung cancer has become the leading cause of cancer deaths among American women, surpassing breast cancer, the epidemiological result of the rise in women smoking since the 1940s. Smoking remains the “single most important preventable cause of death” in the United States.⁵² A recent federal study estimated that cigarettes cost the nation some \$52 billion each year in health expenses and time lost from work.⁵³ Despite the decline in smoking, the tobacco industry remains highly profitable⁵⁴ and the industry continues to spend more than \$2.5 billion each year promoting the sale of cigarettes.⁵⁵

As cigarette consumption in the United States has declined, multinational tobacco companies have worked to market their product more vigorously in the developing world. Recent worldwide surveys of cigarette consumption show steep increases in Africa and Asia. The World Health Organization recently characterized the commercial marketing of cigarettes in developing nations as “intense and ruthless.”⁵⁶ According to WHO, 600,000 new cases of lung cancer now occur worldwide every year; most are the result of cigarette smoking. By the year 2000, the annual number of lung cancer cases may be as high as 2 million, with 900,000 in China alone.⁵⁷ In this sense, the risks of tobacco consumption truly are global; changes in Western consumption have been a catalyst for accelerating sales in the developing world.⁵⁸

WHOSE RISK IS IT, ANYWAY?

With cigarette smoking there remains a complex political and cultural conflict about risk and responsibility. Consensus about the risks of smoking touched off an important debate about the question of responsibility for risk: Who is responsible for the serious burden of disease imposed by cigarette smoking? In this respect, the first *Surgeon General's Report* marks an important watershed in the history of public health. The government accepted new responsibility for the elucidation of health risks through epidemiological studies. The report articulated an expanded vision of public health, suggesting that the government had an important regulatory function in protecting its citizens from harmful products by identifying risks and educating the public.

Nevertheless, the government has been caught in an ambiguous position in its efforts to control cigarette smoking. Given the history of the prohibition of alcohol, there is little support for an outright ban on cigarettes, even from the most aggressive anti-cigarette activists. Advertising remains a contested area of public policy, but even opponents of smoking have expressed concern that a total ban may conflict with First Amendment rights. Although education has been effective among the educated, the relationship between risk and behavior modification remains obscure.⁵⁹ More significant than any particular federal intervention have been the local bans on smoking in public areas and workplaces, which have created a powerful

anti-smoking social environment. In a relatively short time, public space has been subdivided; cigarette smoking has become the most rigorously defined of all public behaviors.

Recognizing that the federal government's policy options regarding cigarettes are limited, some have called for a higher standard of corporate responsibility. Smokers who have incurred serious disease, acting as plaintiffs, have attempted to fix the burden of responsibility squarely on the tobacco industry itself. In the last decade, hundreds of civil suits have been filed making the claim that the tobacco companies persisted in selling a lethal product all the while knowing (and obscuring) the risks. Given the highly addictive nature of the cigarette and the slick promotion campaigns of the industry, plaintiffs' lawyers have contended that the companies should accept—in compensatory damages—responsibility for the debility and death their product has wreaked.

These liability suits have generally been unsuccessful. Although they appeal to a populist, anti-business strain of thought in American society, typically such suits have failed in spite of the ability of lawyers to portray the industry as cynical and profit driven. Within American society there is a powerful expectation regarding individual responsibility for risk taking. The labeling and educational activities of the government have served to reinforce these expectations. As consensus regarding the risks of the cigarette has grown, the industry has, ironically, been freed of responsibility for the risks of its product.

Increasingly, Americans have come to accept notions of individual responsibility for the systemic and chronic diseases. Because heart disease, cancer, and other diseases are powerfully influenced by a range of individual "life-style" behaviors, including diet, alcohol consumption, and smoking, many health care analysts have come to emphasize the significance of modifying behaviors to affect health status, and more generally, patterns of disease.⁶⁰

Such views have particular appeal in the context of the American health culture, which has historically emphasized the significance of an individual's responsibility for disease. Americans, in this respect, have largely come to reject fatalistic explanatory models of disease and its causes. Social values have underscored norms which suggest that individuals *can* and *should* exert fundamental control over their own health through careful and rational avoidance of risks. The

popularity, for example, of the “Just Say No” campaign against illicit drugs reflects an essentially “voluntaristic” notion of risk.

As effective as such values may be in serving to define healthful behaviors, they present an important political and cultural irony. According to this behavioral ethic, those who continue to take risks must be held accountable for the results; but this emphasis on individual responsibility may deny broader social responsibilities for health and disease. This view, which has developed increasingly powerful adherents in the last decade, actually misrepresents the history of cigarette smoking in the twentieth century. Smoking is a complex behavior which has reflected deep social, cultural, and economic forces, as well as a powerful biological process of addiction. Simply identifying individual behavior as the primary vehicle of risk negates the fact that behavior itself is, at times, beyond the scope of individual agency. Behavior is shaped by powerful currents—cultural, psychological, as well as biological processes—not all immediately within the control of the individual. Behaviors such as cigarette smoking are sociocultural phenomena, not merely individual, or necessarily rational.

The emphasis on personal responsibility for risk taking and disease has come at the very moment when cigarette smoking is increasingly stratified by education, social class, and race. In 1985, 35 percent of blacks smoked compared with 29 percent of whites.⁶¹ For college graduates the proportion of smokers fell from 28 percent in 1974 to 18 percent in 1985; for those without a college degree the decrease during the same period was from 36 to 34 percent.⁶² Thus, to emphasize individual accountability is to deny that some groups may be more susceptible to certain behavioral risks, that the behavior itself is *not* simply a matter of choice.

In assessments of environmental risks, we have often considered who lives nearest the hazard; the recognition that such risks are externally imposed generates social concern for their victims. Such has not been the case with risks associated with individual behaviors; individuals who “take”—note the voluntaristic bias—such risks are considered ignorant, stupid, or self-destructive. But perhaps we might begin to rethink behavioral risk; rather than simply hold individuals accountable for the risks they incur, we might ask who is at risk to become, or remain, a cigarette smoker and why.

To adequately understand the answers to such questions will, no doubt, require a new, multidisciplinary research agenda in which the relationship of social and cultural contexts (including powerful economic forces) will be related in a sophisticated way to individual psychological motivations to engage (or disengage) certain risk behaviors. We need to better understand the *meanings* of particular behaviors and risks to particular groups of populations. What are the biological, psychological, and social forces that make it possible for some individuals to quit smoking, for example, while others, eager to free themselves of addiction, nonetheless fail? And finally, how may we promote cultural shifts that enhance both personal efficacy and autonomy in the name of health? Until we can adequately answer these questions, the cigarette will continue to be a powerful, if not pervasive, risk.

ENDNOTES

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