they represent an ever-present risk not only to children who live in them today, but also to generations of children who will inhabit them in the future.

A great deal of good came out of the struggles over lead in the 1960s and 1970s. As popular awareness of the dangers of lead increased dramatically, lead was eliminated from paint, and tetraethyl lead began to be phased out as new cars designed to run on unleaded gas came onto the market. According to the Centers for Disease Control and Prevention, between 1976 and 1996 (when leaded gas was completely phased out) there was a 90 percent reduction in the average blood-lead levels of children.[118] Once lead became a concern for consumers as well as for factory workers, the discussion of industrial toxins never again focused solely on the workplace, but inevitably crossed the boundaries into discussions of the safety of the general population. Lead poisoning also raised consciousness about the subacute, subtle, and sometimes undefinable effects of industrial toxins on health. As the popular press exposed the insidious qualities of lead and its potential to cause serious harm to the public, citizens and environmental groups organized to limit lead's use and began to discuss industrial pollution issues in the language of class, race, and gender as much as in the language of science and medicine.

If lead was paradigmatic of the problems of industrial pollution in the first half of the twentieth century, plastics were emblematic of these problems in the second. Whereas lead had been understood to be a poison for centuries, the new synthetic materials produced by the chemical industry arrived on the scene without history, without "baggage." Whereas lead was considered a dirty industry and understood historically to be dangerous for those who mined it and poisonous for those who consumed it, the plastics industry seemed clean and had no toxic record. Plastics were generally viewed as benign and certainly beneficial in the production of consumer products. Thanks to a public relations campaign waged by the chemical industry, plastics continued to be viewed positively, even though workers in the petrochemical industry who came into contact with coal tar, benzene, and toluene were documented as suffering higher rates of bladder and other types of cancer. This erroneous perception of plastics ultimately allowed for such widespread production of them that by today plastics permeate every corner of the earth, creating what one sociologist has called "a carcinogenic environment."[119]

5

Better Living Through Chemistry?

Today chemicals pervade so many phases of man's environment we might say the environment has been "chemicalized."

—Harvey F. Ludwig, "Chemicals and the Environmental Health," 1955

In the 1940s and 1950s the chemical industry, much like the lead indus-try earlier, undertook an extensive public relations campaign to promote petrochemical products, particularly plastics, as materials that would transform the lives of Americans. Like lead, plastics were promoted as essential to modern American consumer society—vital in the building and maintenance of homes and the production of automobiles, the development of new styles of clothing and modern conveniences. Like lead, these products and their byproducts persisted in the environment, not degrading, penetrating into the food chain, ultimately ending up in the human body.

But the story of plastics was different from lead in one significant way: Lead had been used for centuries and was known to be dangerous to workers, while plastics, particularly vinyl, were new substances and their health effects were unknown. This fact accounts for slightly different plots in these stories. Because plastics were unknown substances and because industry operated according to the notion that a product was to be considered safe until proven dangerous, the industry was able to build huge plants that produced untold amounts of these materials for disposal throughout society.

This chapter examines the period from the end of World War II to the establishment of the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) in 1970. As we saw in the last chapter this was a period of growing activism among environmentalists, labor unions, and civil rights groups. Because the late 1950s through the 1960s was a period when Americans were both becoming aware of dangers to the environment and growing increasingly suspicious of industry's motives and trustworthiness, it was not long before armies of environmental activists and labor unions joined to challenge the arguments of industry concerning industrial pollution. Unlike in the history of lead, in which industry scientists, managers, and spokespeople held nearly absolute power before the 1960s, the chemical industry was quickly confronted by an environmental and labor movement that pressed newly created federal agencies to control the industry.

In the decades after World War II, the chemical industry argued that the pollution from its plants constituted a nuisance, not a health hazard, and that it represented the price the country had to pay for economic progress and the good things that chemistry made possible. But privately, industry worried that the stinging eyes and bad water might lead the public to believe that these chemicals were toxic. If the public did, the industry would see its growth and profitability greatly affected.

In the 1960s the environmental, consumer, and labor movements began to express their mistrust of the chemical industry. Rather than seeing the public and the workforce as allies who needed to be protected, the industry saw them as enemies. As in the case of lead, the industry believed that it had to keep the public unaware and, if the public learned of danger, the industry had to convince people to put their faith in the honor and integrity of an industry that was making their lives richer, more comfortable, and more convenient. While some within the chemical industry viewed environmental pollution as a very serious hazard that the industry ignored at its own peril, publicly the industry remained united in assuring the public that it could be trusted to protect community residents and the environment as well. The industry tried to convince the public that federal regulation should be kept to a minimum and that local and state regulators would work hand in hand with the industry itself. Despite the industry's assurances, most Americans moved from a generalized faith in industry's ability to look after the health of its workers and the well-being of communities to a conviction that there was no alternative to the federal government's taking on this responsibility.

DARKNESS AT NOON

After World War II the chemical industry proclaimed for itself a special role in America's newfound affluence. DuPont announced that the American century was made possible by "Better Things for Better Living... through Chemistry." For over fifteen years, despite particular environmental crises and increased scientific concern about pollution, Americans were fairly hypnotized by a parade of technological advances and remained largely unaware of the ecological and health costs of progress. Most eagerly incorporated the products of the chemical industry into their lives, never

thinking that the synthetic chemicals in these products could possibly pose a danger.

Industry understood during the 1950s that the anxiety most Americans felt about the threat of nuclear war and the reality of fallout from atomic testing had the potential to translate into a fear about the toxicity of chemicals. Americans listened to Civil Defense advertising, watched the building of fallout shelters, and participated in air raid drills and "duck and cover" exercises in schools. The vaguely understood effect of unseen radiation on human health raised the specter of unknown dangers posed by human manipulation of the natural environment. The testing of atomic bombs in the Nevada desert destroyed the immediate environment and threatened children—both immediately downwind and thousands of miles away—as dangerous levels of strontium 90 were found in milk sold in upstate New York supermarkets. At any moment these general fears might cause people to wonder about the possible toxicity of chemicals.

Americans remained largely indifferent to pollution from the chemical industry[1] until a tragedy occurred in 1948 in Donora, Pennsylvania. This small factory town near Pittsburgh was enveloped in "a poisonous mix of sulfur dioxide, carbon monoxide and metal dust... from the smokestacks from the local zinc smelter where most of the town worked" as an air inversion turned the street dark at noon. "Twenty residents died and half the town's population—7,000 people—were hospitalized over the next five days with difficulty breathing."[2] Donora was home to a number of smelters and steel mills, including the American Steel and Wire Company's zinc works. For five days, a cloud of toxins sat over the town. It was estimated that the air contained between 1,500 and 5,500 micrograms per cubic meter of sulfur dioxide emissions, whereas today's Clean Air Act mandates 80 mg/m^3 as a maximum average.[3] For a brief moment, Americans were shocked and forced to confront the dangers of air pollution.

The following year, undoubtedly in reaction to Donora, the Manufacturing Chemists' Association (MCA) formed the Air Pollution Abatement Committee. (The MCA, the major trade association for the chemical industry, was established in 1872; by the second half of the twentieth century it represented one hundred seventy-four U.S. companies, responsible for "more than 90 percent of the production capacity of basic industrial chemicals" in this country.[4]) Dudley A. Irwin, representing the Aluminum Company of America, argued in January 1950 that "the repercussions of the Gauley Tunnel episode on silicosis [America's worst occupational health disaster, which occurred in the early 1930s] probably will be dwarfed by the effects of Donora on air pollution. The Donora incident," he continued, "has not only made the public air pollution conscious and unduly apprehensive, but also it has advanced opinion with regard to the imposition of restrictive measures by many years." The implications of this for the legislative arena were clear: "The politicians have not been slow to sense this changed attitude of the public."[5] But, as *Modern Industry* magazine put it, "smart plants are cleaning up their exhaust gases right now—before laws or lawsuits start to pinch."[6] Decrying the lack of information, Irwin reviewed what was known and not known about the effects of industrial air pollution.

While the industry had argued throughout the twentieth century that if you could protect the worker, the public was safe, Irwin wasn't so sure. Industrial workers "are usually healthy individuals, while the general population includes those who are infirm or chronically ill." Furthermore, in the factory, workers were "usually exposed to a single contaminant while city air is a mixture of many contaminants, some of which may act synergistically." Finally, workers were only exposed to toxins "on a part time basis in contrast to the full-time exposure of ordinary citizens." Even so, Irwin was unwilling to acknowledge that "ordinary air pollution has any significant adverse effect on the health of the general population."[7]

The MCA developed a program that incorporated its view of nature and the environment as another resource at the disposal of industry. In its "Basic Principles of Legislation," the association laid out its vision in 1950: "the atmosphere should be regarded as a useful natural resource." According to the MCA, nature "should be utilizable for dispersion of wastes within its capacity to do so without harm to the surroundings." Rather than envisioning the atmosphere as a *national* resource to be protected for the people as a whole, it was simply considered a *local* resource. Therefore, "air pollution is a local problem," and the state should only interfere "to enable a particular locality to take action."[8] This reasoning was part of the industry's efforts to prepare for fights over threats to its sovereignty. Of particular concern was the U.S. southwest, where the chemical industry had experienced "unprecedented growth."[9] Similarly, the rapid growth of Los Angeles and its dependence on the automobile raised new worries about smog and its long-term effects on American health and therefore new worries for industry.[10] Smog, in the words of one trade journal, "cease[d] to be a joke to industrialists."[11]

Throughout the 1950s the MCA developed a keen awareness of the air pollution issue, closely monitoring national and state legislation. When New Jersey considered a bill to put the state Air Pollution Control Commission in the Department of Health, the MCA's Air Pollution Abatement Committee sought to have the legislation altered to place it in the Department of Law and Public Safety. Understanding that health was a potent political issue, the MCA sought to depict air pollution as "a nuisance problem and not a health problem."[12]

When the MCA became concerned about federal air pollution legislation, it met with the Public Health Service "to impress upon the officials that we feel control of air pollution is largely a local matter." If the purpose of legislation was the "collection of information," then the MCA would have no objection, but there was to be no federal regulation.[13] Arguing that there was "no basis for the fear that health is endangered by air pollution" and that air pollution was only "a nuisance," the MCA believed that the industry should begin a determined program as an "investment in good will."[14]

In 1956 the MCA participated in a federal-state study of air pollution in Louisville, Kentucky. The industry needed to be on top of information about pollution if it were going to be prepared to counter challenges to its control. Monitoring the study for the MCA were technical personnel from the B. F. Goodrich Chemical Company, the same plant that would, in less than two decades, become the site of the first cancer deaths linked to the plastics industry. It was clear to the study organizers that emissions from the plant were escaping into the general population; the study was designed to identify the frequency and types of emissions that were escaping. As part of the project, "several school children in Louisville's West End," a predominantly poor, African American community, were given "sniff-kits," which were "small bottled samples of many materials used in Rubbertown processes." The children were taught how to use the kits to identify odors they noticed in the air.[15]

The MCA's state affiliates were less attentive to the looming issues of environmental and air pollution than the national organization. When the MCA approached the Louisiana Chemical Association (LCA), whose state was emerging as a center of the petrochemical industry, about holding a workshop session on air pollution abatement, the LCA declined: "they felt no pressing need for technical assistance on air pollution problems at present." Even the Air Pollution Abatement Committee believed that such attitudes were "all too typical of the 'let sleeping dogs lie' philosophy, likely to lead to frantic 'too little and too late' efforts when the pressure for action mounts."[16]

In 1960, as the MCA's Medical Advisory Committee considered what kind of public face to present, it was clear that its members understood that the field of environmental health had come to encompass both the environment of the factory as well as the outside world, into which companies were pouring pollutants. Pollution, particularly smokestack emissions and groundwater contamination, were real problems that industry was "doing an improved job" of addressing. The industry's dilemma was that emphasizing such claims would simply call attention to what had not been done to protect the environment in the past.

Monsanto's representative, Dr. R. Emmet Kelly, said, "If we claim we are keeping pollution down to low enough levels, we will be asked how we know such levels are low enough." Unfortunately, he candidly admitted, "there is bound to be pollution." H. H. Golz, American Cyanamid's representative, agreed that "it is difficult to prove that certain levels of pollution are not harmful to people. Absence of evidence of harm was not acceptable" in the contemporary social climate. The Enjay Chemical Company's representative pointed out that "so long as people die from unknown causes, pollution will be blamed." One way of proving that industry acted responsibly outside the plant, according to Union Carbide's representative, was to "show what a good job we are doing in industry to prevent the exposure of workers" inside the factory. But this, in turn, would pose other dilemmas. As DuPont's spokesman noted, critics would "tell us we protect our workers by pumping the pollutants out into the atmosphere and thereby exposing the general public." Golz worried that any statements made by General J. E. Hull, the MCA's president, could be used as an excuse to increase government regulation of the chemical industry and that any admission of responsibility for "a public health problem" should be accompanied by a "go-slow policy by government."[17]

The very success of chemicals in altering America's environment was accompanied by a growing sense of unease about the chemical industry's link to the military, about the possibility of nuclear war, and about radiation. President Dwight Eisenhower would soon warn America of a spiraling interdependence of investment and armaments—the military-industrial complex. DuPont's representative on the MCA's Medical Advisory Committee, Dr. A. J. Fleming, argued that the industry had to begin to change the terms of the debate. Rather than addressing the solutions to the hazards that industry posed, the chemical industry itself had to "work in some propaganda" that emphasized the "benefits to mankind through chemicals" such as the notion that "feeding the world will depend on the use of chemicals." "Chemicals," he maintained, "are important for both protection and production of food. Industry should set its own safety factors." Furthermore, American Cyanamid's Golz proposed that the MCA be more active in shaping legislation and ideas: "We should suggest liaison between MCA and the Public Health Service in an attempt to solve problems. MCA could have representation on government committees." He even envisioned a scenario in which "industry and the public health services should get together to prevent harmful legislation."[18]

The American Petroleum Institute (API), the trade association of the portion of the chemical industry that was primarily concerned with petroleum refining, directly addressed the growing fear that the industry's air pollution was linked to serious diseases. Seeking a way to reconceptualize the health issue as one of annoyance and nuisance, John C. Ruddock, a former lead researcher and the chair of the API's Sub Committee on Atmospheric Pollutants, argued repeatedly that with the exception of Donora, London, and Meuse, Belgium (where air inversions resulted in many deaths), no one had been able to prove "aggravation of such diseases as asthma, tuberculosis, bronchitis, etc., nor does air pollution particularly affect the aged or very young." He agreed that air pollution should be reduced. And he was "sympathetic with all those who do not like 'smog.' As true Americans, we do not like our rights infringed upon, whether it is the inability to see as far as we desire, or whether it is the discomfort and eye-smarting that occurs with air pollution." Certainly, there were many "poisonous and noxious fumes" in polluted air. But, they were dangerous only when they exceeded "a certain density and are either inspired or ingested." The API members assured themselves as well as the government that whatever the claims about the effects of air pollution, "we have found no single case, nor have we found any pathological effect attributable to atmospheric pollutants per se."[19]

Until 1960, the MCA hoped that most Americans would accept the industry's line that any general anxiety about the environmental impact of chemicals was generally overblown or based upon a few dramatic instances. Old-line industries such as steel and coal production had led to seemingly bizarre ecological disasters such as the one at Donora. Industry representatives argued that isolated ecological incidents were largely a result of unique local meteorological or local geologic characteristics.

EVERY VENTURE INVOLVES SOME RISK

In early 1962, coinciding with the impending publication of Rachel Carson's *Silent Spring*, the MCA's Public Relations Advisory Committee expressed a sense of "urgency of the situation confronting us." There was a "steadily intensifying assault on the right of business management to manage." While this assault came in part from organized labor, management believed that the more general impetus came from the federal government, which was pursuing "this line because it is the public's desire that it do so." The committee recommended a campaign to "educate," "inform" and "persuade" the American public about what industry was doing for them. They believed that without such a propaganda campaign government would adopt policies that would "result in the constriction and ultimate strangulation of the economic and social systems under which our free institutions have survived and prospered." They worried that "once the abyss [of government interference] has been reached" it would be too late to change direction.[20]

The MCA introduced into its argument the issue of acceptable risk. "Whether public health officials will admit it or not," Dr. E. O. Colwell of the Aluminum Company of America told the Air Pollution Abatement Committee, "there is a place for the term 'calculated risk' in this human health business." To the question "What price were we willing to pay for absolutely clean air?" he answered that it was both impractical and unnecessary "to make the air so clean that the most sensitive individuals will be comfortable if such is not economically sound." He argued that "the public we must satisfy would better risk a few cases of bronchitis or even emphysema than to risk mental and physical ills that would accompany the economic failure of an industry, a community, or a country." For the industry, as well as Colwell personally, public health could not be the paramount concern of the industry. The economic interests of the chemical industry were synonymous with the interests of the country.[21] The next year industry was pleased that the Clean Air Act encouraged states to initiate air pollution controls, permitting the federal government to act only at the state's request. Environmental historian Hal Rothman suggests that a "lackluster enforcement record followed," with "only eleven abatement cases filed between 1965 and 1970."[22]

Rachel Carson's *Silent Spring*, published in September 1962, sounded a loud alarm over the chemical industry. Carson's biographer, Linda Lear, has written that industry and others recognized *Silent Spring* as "a fundamental social critique of a gospel of technological progress." Some quarters were so threatened by Carson's book that they felt the need to attack her personally. Ezra Taft Benson, the secretary of agriculture in the Eisenhower administration and later a leading elder of the Mormon Church, is credited with barbed remarks about Carson. He asked "why a spinster with no children was so concerned about genetics," suggesting that it was because she was "probably a communist."[23] But it was the National Agricultural Chemicals Association, the trade association for pesticide manufacturers, and the MCA that led the attack on Carson and her writings, "sending out a steady stream of brochures and bulletins denouncing things that Carson had never said and circulating 'fact kits' to members."[24]

Almost immediately, the MCA began organizing to get a firmer hold on the broad issue of environmental pollution. Recognizing that an attack on Carson was not sufficient to regain public confidence, the board of directors voted to join with the National Agricultural Chemicals Association to wage a public relations campaign that emphasized the "constructive role played by chemicals in the field of environmental health."[25] As one of the board's officers stated in a general review of the MCA's program, the "public relations program on environmental health . . . is currently concerned with the problems created for the industry by such books as Miss Rachel Carson's 'Silent Spring.'" They feared that the public would accept "the implication that the chemical industry has no sense of public responsibility and is motivated solely by a desire for profits."[26] The MCA set up an Ad Hoc Technical Committee, developed contacts with other trade associations concerned about increasing environmental consciousness, and produced a "large volume of informational material" for consumers, scientists, politicians, and educators.[27] An Ad Hoc Planning Committee on Environmental Health was established in April 1963 to coordinate the defensive and offensive measures to carry out the "proper responsibilities for chemical industry leadership in this increasingly significant area."[28] The need to "get going" was essential "in light of mounting pressures for action, with the strong likelihood of a greatly accelerated program with or without industry cooperation."[29]

In June 1963 the Ad Hoc Planning Committee on Environmental Health, chaired by D. D. Irish of Dow Chemical, restated industry's long-held belief in its own beneficence and its role in improving on nature. "Man's environment has always been hostile, for it is from the environment that two of the traditional regulators of man's numbers—namely, famine and pestilence—have arisen," the committee posited. "Technological advances" were largely responsible for taming much of nature, resulting in longer lives, higher standards of living, and growing populations.[30] The panel argued that "the chemical industry has made major contributions to many of today's labor-saving, illness-retarding and wealth-producing elements of the total environment" and made possible "our way of life." It wrote, "Every venture involves some risk."[31] "The net gain has been tremendous," it boasted, but technology also had had some unintended consequences that industry had to address.[32]

The coming year brought a host of these "consequences" to the attention of the MCA. The Mississippi River, the drain for industries in the country's breadbasket, became the focus of congressional hearings after the U.S. Public Health Service blamed pesticides for the large number of "fish kills" in the lower Mississippi.[33]

By the mid-1960s, the chemical industry understood what it had taken the lead industry three decades to learn: it had to do something to stave off regulation. The political and social environments that chemical companies were operating in were substantially different from those of the 1920s and 1930s, when the lead industry could virtually ignore the government's presence. In November 1963, shortly after President John F. Kennedy's assassination, the Environmental Health Advisory Committee (EHAC) was established by the board of the MCA.[34]

"The environmental health problem, then, is simply this," summarized John Logan of Olin Mathieson and vice chair of the EHAC. "To what extent can the *increasing* population load up the *fixed* environment before the environment is so modified that it produces adverse effects on health?" "Nature," he pointed out, "has a solution to this problem.... When a population gets out of balance with its environment... the population is simply cut down to size... until balance is restored." This solution was clearly unacceptable. The gist of the problem was "that the environmental health problem should be taken seriously" for "it will not go away," he wrote. "If we do nothing, I am sure that the Government will tell us what to do."[35]

The MCA had to develop a program aimed at gathering information, cleaning its own house, providing knowledge to its own members about pollution, and helping the public with information needed to deal with the growing recognition that industrial wastes, whether in the air, soil, or water, were potential problems. "The program of the MCA [in the area of environmental pollution] has been largely defensive," but new action was needed to gain control over the pollution issue "before situations become acute."[36]

Again, as in the case of lead, the industry chose voluntarism as the method for reducing, not eliminating, risk from industrial pollutants. "Voluntarism" entailed two complementary components. First, the industry was to be left to itself. Whatever reform was to take place in the manner of production was to be done by the industry through its own initiative. Government was to have as minimal a role as possible. Second, communities and individuals had to recognize that the largest measure of responsibility for pollution resided in their own acts. "Effective action requires a high level of individual responsibility."[37]

The early meetings of the industry's Environmental Health Advisory Committee certainly underestimated the growing concerns about environmental pollution. It appears from committee documents that members believed that an effort to shape legislation, calm public worries, and provide the scientific base for decision making could quiet the rising cacophony of voices. "Handling of minor problems at the 'grass roots' could significantly reduce the hazard of a major conflagration" over pollution and chemical hazards, the MCA maintained. The MCA believed, as did the LIA in the case of lead, that industry's largest problem was public relations. "The greatest need in this area is for a strong program of education of customers and the general public in the *appropriate use of products,*" members believed.[38]

Some in the committee were not so sanguine about the possibility of easily assuaging public fears with a propaganda campaign. Cleveland Lane, the representative of Goodrich-Gulf Chemicals, pointed out that for years the industry had been trying to address public unease by mounting a public relations offensive. "The subject is not new," he reminded his audience. "As far back as 1937 or '38, Louis Bromfield" had "attacked chemical fertilizers claiming they... were dangerous in food." The view "that chemicals caused cancer was being spread as early as 1946 and possibly earlier," Lane recounted. "In 1949, DDT was banned as a cattle spray because some cattle had died and because of high concentrations of DDT found in milk."

William Longgood's "*Poisons in Your Food,* the cranberry scare [of 1959, in which pesticides were suspected of causing cancer], the Donora, Pennsylvania, smog deaths, [and] various ammonium nitrate explosions," Lane noted, all preceded the recent uproar over *Silent Spring*. Public relations could not be the sole answer to the industry's crisis; in fact, public relations could be effective only if the industry maintained a reputation for honesty and reliability. The industry's most successful public relations efforts, Lane argued, occurred when "factual, scientifically accurate information" was made available. "This reliability may be our most precious weapon in meeting new criticism and must be jealously guarded."[39]

Lane admonished the committee members to ground their responses to the public's fears in "honest" science. He pointed out, "We have no control as to when or where these incidents [environmental crises] may arise, therefore, while planning and anticipation is very important, the Environmental Health Advisory Committee should always be prepared to deal with emergency situations." The Public Relations Committee has "developed very efficient means to combat public fear of chemicals and are ready to use these means in most cases. But no Public Relations operation, no matter how effective, can cover up acts of carelessness or neglect which do harm to the citizens, nor can such Public Relations operations prevent public corrective action in terms of legislation where our own control has been faulty." He admonished his colleagues to pay serious attention to the environmental effects of chemicals; relying on public relations experts was an approach fraught with danger. "As long as we produce products or conduct operations which can cause health hazards, public discomfort or property damage, we must do all we can to prevent these situations. This is a non-debatable condition of our doing business and should be a fundamental precept of this committee."[40]

Lane knew he was talking to a group that might very well see him as siding with kooks and environmental agitators. Therefore, he underlined his allegiance to the industry by depicting environmentalism as an effort by alarmists to cast doubt on his industry. "The Public Relations Committee," Lane concluded, "realizes that public fear of chemicals is a disease which will never be completely eradicated. It may lie dormant or appear from time to time as a minor rash, but it can flare up at any time as a major and debilitating fever for our industry as a result of a few, or even one, instance, such as the Mississippi fish kill, or the publication by some highly readable alarmist, or as an issue seized upon by some politician in need of building a crusading image."[41]

In June 1964, the MCA called on its Legal Advisory Committee to become more actively engaged in environmental matters, especially in "watchdogging legislative proposals" and to "offer advice on how to react to them."[42] The Environmental Health Advisory Committee pushed for the MCA to take the lead in maintaining a common front by industry against legislative and regulatory proposals.[43] Industry representatives had to follow "all matters in a given state or part thereof" and report activities to the air and water pollution committees "in order to ensure adequate depth of coverage of environmental health matters."[44] The MCA was determined to see that "regulation by government should be at the lowest effective level."[45] Three principles emerged as the basis of industry involvement in controlling the situation: self-regulation, support for local controls, and support for "appropriate" federal legislation.

Although self-regulation was clearly the industry's action of choice, it had its drawbacks. While there were responsible companies, the success of self-regulation would be "hampered by the fact that any effective industry effort" would be undermined by those in the industry "who will not fully adhere to the principles of self-regulation." Those who failed to act responsibly "in the absence of an enforcing power" could tarnish the industry's

reputation. Although "moral suasion" was necessary to bring renegade companies in line, the industry realized that any industry effort to control "the careless or wantonly negligent few would run a serious risk of violating other statutory schemes governing intra-industry relationships."[46] The EHAC cautioned, "Industry should make the most of opportunities for self-regulation," but such voluntary efforts had "limitations because of recalcitrance by a minority and because other industry segments may have different objectives."[47]

The industry grudgingly acceded to the idea that federal legislation might be useful as a means of relieving the industry of the unpleasant task of trying to regulate its members. Industry leaders knew its reputation, and the political position of all the responsible companies could be jeopardized by the irresponsible few. Hence, "recognition should be given to the inevitability and desirability under certain circumstances for increased Federal participation in environmental health matters," the committee decided.[48] If the federal government could be used as an arbiter for issues that the industry itself was unable to handle internally, it could become a valued partner in negotiations among companies that had different interests and different internal cultures.

But still the MCA was deeply worried that government would develop standards for industry conduct in the area of environmental health that would be anathema to many of its members, renegade or not. Most particularly, the industry was worried that government would establish technical measures of accountability and would set standards that would be incredibly costly and burdensome. As a result, the MCA jealously guarded the historical role of letting the industry itself establish the measures by which it was to be judged. In the 1930s and 1940s the industry had sponsored and controlled groups like the Industrial Hygiene Foundation and the American Standards Institute, which had taken control of standards setting in industrial hygiene matters. Government had played a minor role, generally acceding to the presumed integrity and technological sophistication of the industries themselves.[49] "Government agencies are pressing increasingly for criteria and standards in environmental fields," the EHAC declared in its Overall Environmental Health Program of 1966. "It is vital that MCA assume leadership for the chemical industry in constructive participation in these efforts, both with respect to the establishment of standards by governmental bodies, and wherever feasible, to develop criteria for voluntary adoption by the industry to minimize the need for governmental controls."[50]

Given government's increasing activism in the 1960s, it appeared inevitable that some form of regulatory activity would come to pass. The industry had to be proactive, gathering information and developing an arm of the industry that could define the problems of industrial pollution and the boundaries between industrial, individual, and public responsibility. The industry first set out to develop a clearinghouse for data, to be controlled by and responsible to the industry. The committee contacted a management consulting firm, Booz, Allen & Hamilton. The MCA agreed to pay the firm $35,000 for a preliminary study of how to organize an institute on environmental health and how to gather, disseminate, and develop future research.[51]

Booz, Allen strongly suggested a research agenda to identify problems in the industry with the intention of providing information to the broader community about the impact of chemicals on American life. Almost immediately, a survey was conducted of the approximately two hundred companies that made up the MCA to assess their responses to the Booz, Allen proposal. The survey questions examined potential problems associated with gathering damaging information. Most companies strongly opposed giving the proposed institute any degree of independence from the MCA. In fact, it was "felt that such a staff and program should be directly under MCA control." While staff members could have "freedom of expression" within the organization, the member companies believed, they should not be able "to express their views or make statements publicly." In other words, the industry was intent on controlling the research as well as any findings that might be generated by that research. Only one member company representative surveyed "deplored what he felt might be a substantial loss of scientific objectivity (from the public standpoint) resulting from close identification [of the institute] with and control by MCA."[52] In November Booz, Allen provided its study report, *Environmental Health Information Organization—Feasibility Study,* with the recommendation that a small staff composed of "a director, two technical professionals, and a technical librarian" be brought in to organize the effort to gather together information about air pollution, water pollution, and the long-term effects of workers' exposures.[53]

From early on it is clear that the MCA faced a concrete problem in trying to reconcile its members' interests and perspectives on the seriousness of the pollution problem and the chemical industry's responsibility regarding environmental dangers. Some of the larger companies, such as Dow and Eastman Kodak, talked about "corporate responsibility" and the need for an "objective" and independent research arm that could gain the public's trust. These comprised a distinct minority, however, that was unable to exert sufficient influence in an organization that represented all

companies and needed to provide a united front to the public and government.[54] It is not surprising, then, that of the $150,000 in the EHAC's 1966 budget earmarked for the new environmental health initiative, more than half of it, $83,000, went to "public relations activities."[55]

Despite its efforts to quell negative publicity, the MCA found itself deluged in the coming years with complaints from the emerging environmental movement. But many in the industry still thought that "things aren't that bad." In a March 1967 meeting of the EHAC, the committee's chair, James Sterner, insisted, however, that the available data indicated that the problems would soon be approaching apocalyptic proportions. Given that sulfur dioxide contamination in some urban areas was already a serious problem, he suggested that in the future it was likely to become extremely dangerous. Water pollution had already caused the near death of such major rivers as the Cuyahoga in Ohio; some would "in another decade . . . have zero dissolved oxygen." While some in his audience might think him too extreme, he noted, "there is a growing procession of thoughtful and critical scientists and citizens whose initial skepticism has changed to concern and even alarm."[56]

Sterner recognized that many environmental issues depended upon the interpretation of necessarily incomplete and somewhat speculative data. He knew that it would be impossible to predict with certainty what environmental pollution would mean for the earth in future decades. Better data were needed, but, even with this data, estimation of the benefits and risks of technological change would entail "value judgments" that were "ultimately social and political in character." He wrote, "We will have to make increasingly difficult decisions, involving not only specific diseases associated with a particular product or pollutant but in addition . . . on longevity of man, and on genetic changes extending into future generations."[57]

Sterner noted that many within the MCA were still skeptical about the true extent of the problem, that several members had recently voiced the opinion that "this present environmental health kick is only temporary. If we wait awhile there will be some other thing to distract the public." But Sterner maintained that such beliefs were only "wishful thinking, and a dangerous delusion, for the longer we delay action, the more serious the whole problem will become with the certain result that our solutions, generated by crisis and emotion, will be more costly and less beneficial to everyone."[58] The industry was at a crossroads. It had to choose between delay and obfuscation on the one hand, and proactive, responsible corporate action on the other. Over the next few years the MCA, trying to balance the competing tensions among its member companies, often caved in to demands for the least action possible in addressing environmental concerns. Despite increased environmental consciousness and a "growing militancy" on the part of government, the MCA settled for public relations efforts rather than serious activities aimed at reforming industry practice.[59]

Not only were there differences of opinion regarding the extent and nature of the industry's responsibility, but there also were different opinions about how to handle joint government-industry-sponsored research. Historically, industry had seen government as a partner that provided legitimacy and credibility to industry research conclusions. The debacle of the 1920s tetraethyl lead crisis was a case in point: the government had allowed the industry to control the nature of the research and its timetable. By the 1960s this sort of overt manipulation of the process was less easily achieved. When the MCA embarked on a number of joint research enterprises with the Public Health Service and other government agencies to assess the effect of air pollution on public health in the 1960s, it accepted that it could not gain complete control over the research. Although the MCA was unable to control the release of data resulting from such joint research efforts, it did reach an agreement with the government not to "include 'interpretation of project findings'" in any such release.[60] While the industry was not given the right of final approval, as it had been in the 1920s, it was still able to stifle adverse interpretations of joint government-industry research.

In 1969 the MCA did finally acknowledge that air pollution was a health problem and not merely a nuisance, but still the industry downplayed the dangers. The association agreed that some people already suffering from respiratory disease could be "adversely affected" by air pollution, but it argued that people in good health, "even though temporarily discomforted," would quickly recover from acute exposure to chemical pollution "without residual damage." The MCA posited that it was "unlikely" that air pollution was "a sole or principal cause of any disease entity" and that at worst it could accelerate the death of those previously ill, particularly among older people. But the MCA conceded no clear health risk from long-term exposure, no relationship between allergic asthma and air pollution, and no clear relationship in the United States between bronchitis and air pollution. The association agreed with a statement in a Health, Education, and Welfare Department report that said, "The association between long-term residence in polluted areas and chronic disease morbidity and mortality is somewhat conjectural."[61]

In December 1969 J. S. Whitaker, the chair of the EHAC, wrote to its members to bemoan the decision of the MCA's board of directors to disband the sometimes difficult EHAC in favor of a committee dominated by board members themselves.[62] In January 1970, a week before the nation was shocked by a massive oil spill off the coast of Santa Barbara, California ("birds covered with sticky oil struggled for life; dead seals floated ashore."[63]), three months before the first Earth Day demonstrations occurred around the country, eight months before the Environmental Protection Agency was established, the EHAC was dissolved for sounding too much like environmentalists.[64]

In 1969 the federal bureaucracy included more than eighty agencies that dealt with air or water pollution and other problems of the environment. That year, Congress passed the National Environmental Policy Act, creating the Council on Environmental Quality to provide an "exhaustive study" of the environmental impact of any proposed federal project. The act required projects to pass a rigorous review, and each project "had to include possible alternatives."[65] The President's Advisory Council on Executive Organization, appointed by Richard Nixon and chaired by Roy Ash, the former chief executive officer of Litton Industries, recommended in the spring of 1970 that an Environmental Protection Agency be established as "an independent body concerned with pollution abatement and with jurisdiction over all monitoring, research, standard setting and enforcement."[66] In early July, Nixon formally proposed the EPA as part of a reorganization plan, thereby outflanking the Democrats, particularly Senator Edmund Muskie, a Maine Democrat and potential challenger for the White House who had staked out the environment as one of his major issues.[67] With little active opposition from industry, the EPA was established as a cabinet-level agency in 1970.[68] Nixon, rejecting Texas Congressman George Herbert Walker Bush as too "tainted with oil" to lead the EPA, chose William Ruckelshaus, a conservative lawyer who later achieved fame by resisting Nixon's "Saturday Night Massacre."[69]

Nixon's embrace of environmentalism owed much to the developing environmental consciousness, which had emerged in part from the turmoil and protest movements of the 1960s. In the short span of a decade, an industry that had been the symbol of the country's progress came to be viewed with suspicion. Sentiment grew for federal regulation of industry in general and polluting industries in particular. While in 1965 only one-quarter of the public told pollsters that they were concerned about air pollution and one-third about water pollution, by 1968 two-thirds of the public expressed concern about both.[70] Similarly, in 1965 Americans ranked environmental pollution near the bottom of the ten most important problems, but by 1970 pollution had become the second most pressing issue in public opinion polls, ranking just below crime reduction.[71]

In the late 1960s the chemical industry was tied to the military-industrial complex and the divisive controversies of the Vietnam War. When Dow Chemical Company produced napalm as a weapon used against civilian populations and created herbicides to defoliate the forests that hid North Vietnamese and National Liberation Front troops, college protesters across America linked "ecocide" of the chemical industry to the broader antiwar movement, sporting signs declaring "Dow = Death."[72] More generally, the prosperity of the 1960s derived from President Lyndon Johnson's Great Society programs had ironically led Americans to become far less naïve about the deleterious effects of modern technological and industrial progress. In fact, historian David Vogel argues, the strong "performance of the economy" was critical to the "upsurge of citizen activism during the late 1960s and early 1970s."[73]

During the 1960s, new conservation and environmental groups attracted younger, more politically active members. The more activist bent affected the entire consumer and environmental movements.[74] As historian Samuel Hays explains, this period marked a transition in the history of environmentalism in the United States. Older groups such as the Sierra Club, the National Wildlife Federation, and the Audubon Society, which had focused primarily on outdoor recreation, forest preservation, and the maintenance of open spaces now turned to a consideration of air and water pollution. In the 1970s, they looked at the conservation of energy and a consideration of the effects of toxic chemicals, radiation, and other threats to the environment and human health.[75]

LABOR JOINS THE FRAY

As the 1960s saw a trend toward greater federal involvement in environmental protection, aspects of labor and consumer activists joined to push for the passage of two significant pieces of federal legislation: the Coal Mine Safety and Health Act of 1969 and the Occupational Safety and Health Act (OSHAct) of 1970. Never before had the federal government established agencies with a mandate to protect the nation's workers. Before this, especially after World War II, an implicit labor-management "accord" virtually eliminated issues of workers' safety and health from the formal agenda in contract negotiations. While wages and hours were negotiable, safety and health issues were seen as a challenge to management's prerogative to maintain control over the work process. Although the labor movement of

the 1960s was viewed as conservative on account of its identification with the military and its blue-collar disdain for the youth movement of the day, there was a more activist strain within it. It was the Vietnam War, in fact, that placed new pressures for production on American industry, resulting in speed-ups, long hours of required overtime, and an increase in the number of industrial accidents, all of which laid the groundwork for rank-and-file attention to issues of health and safety.[76] In 1966 and 1967 the number of strikes was the highest in a decade, and declining productivity and an increasingly militant labor force spelled trouble for business.[77]

When Anthony Mazzocchi became the legislative director of the Oil, Chemical and Atomic Workers International Union (OCAW) in 1965, he believed that radiation was the only major health and safety problem his union members faced. "Then I started getting tons of calls about other health and safety issues and I finally framed [a] questionnaire to find out what was going on in the locals."[78] At the union's convention in 1967, the delegates passed a resolution that dealt with the dangers that had arisen over the previous two decades from the production and use of new chemicals and radioactive materials. The results convinced Mazzocchi that "all of these hazards threatened not only people working in the plants and operations involved, but also the residents of surrounding communities."[79]

More than any other union, the OCAW understood the relationship between what happened to workers in the factory and the threats that chemicals posed to the broader community. The OCAW resolved that, in addition to developing a health and safety program, it would cooperate with the rest of the labor movement to support "legislation and regulations—federal, state or provincial and local—which protect health and safety and place human values above property values."[80]

Mazzocchi's understanding that the substances his workers were handling could not be viewed as a narrow concern of the trade union movement had a history behind it. In 1956 he had become the president of his union's local in Roslyn, Long Island, and, working with the Committee for a SANE Nuclear Policy (SANE), he met Barry Commoner, who was documenting the presence of strontium 90, a radioactive isotope derived from the fallout of nuclear tests, in children's baby teeth. "Our members contributed thousands of teeth," Mazzocchi recalled. "Every morning, someone would come into the local with a little package. . . . It was their kids' teeth and to think that these teeth had strontium 90 in them."[81]

The results of Mazzocchi's 1967 survey gave him the leverage he needed to talk about the issue of nuclear testing to his union members, many of whom were engaged in producing nuclear weapons. ("Without that," Mazzocchi later wrote, "I think I would not have survived politically in the union."[82]) In late March 1969, Mazzocchi opened the first of a dozen sessions nationwide for nearly two hundred workers and union representatives at a Holiday Inn in Kenilworth, New Jersey, not far from Elizabeth and its oil and chemical refineries, where the tetraethyl lead disaster of the 1920s had occurred. Mazzocchi briefly reviewed the worsening situation faced by most of the chemical workforce.[83] Unlike the steel mills, mines, and foundries, where the dangers from accidents, extraordinary heat, dusty air, and odious fumes were fairly obvious, the new chemical plants looked clean and modern. "But," he warned, "the industry we work in has a danger that most people are unaware of, and it's insidious. It's the danger of a contaminated environment, the workplace; something we don't feel, see, or smell, and of which most of us become contemptuous, simply because it doesn't affect us immediately."[84] He lamented the conspiracy of silence that seemed to exist among government, organized labor, and industry, all of whom failed to protect workers from dangerous chemicals or even inform them of the danger. Not only were workers exposed to traditional and known toxins, but also thousands of untested and unregulated chemicals were regularly introduced into the environment where workers labored. "We're meeting within the framework of a situation where no one really knows about the problem; out of the 6,000 or so chemicals in use in industry today, there are only standards for a little more than 400."[85]

In the coming months, Mazzocchi visited community after community, developing an argument for the need for occupational safety and health legislation. Mazzocchi asserted that "exposing a person to a toxic chemical that shortens his life is tantamount to murder, in my opinion." He maintained that the tradition of overlooking the industry's liability for workers' deaths had to end. Up to this point, he noted, the workplace had been off-limits to federal inspectors, and state inspectors had been unwilling to assert their prerogative to inspect or condemn dangerous sites. Overall, the workplace was considered private property, owned by people who felt they had the right to do whatever they wanted behind the factory's walls.[86]

Now, he insisted, it was time for the government to stop treating the workplace as a private preserve. Even though Americans spent major portions of their lives at work, "there's no disclosure and no accountability; no one can be held accountable and there are no criminal penalties for actions" that lead to workers' disease and deaths.[87] Mazzocchi saw collusion between state bureaucracies and private industries in perpetuating dangerous conditions in the chemical industry. To demonstrate how systematic was the denial of information, Mazzocchi pointed to Texas, where it was a criminal act for any government official to disclose information on industry processes to the public. Thus, to publicize industry's harm to workers was viewed as the crime of revealing industry secrets.

Tony Mazzocchi argued that the Texas Occupational Safety Act was pernicious and actually a misnomer, in reality being a "disease promotion" act. In a section titled "Confidential Information," it required that "no information relating to secret processes or methods of manufacture of products shall be disclosed at any public hearing or otherwise." The Texas governmental representatives who violated the law would be subject to fine and firing and their action would be considered "an offense against the state." Mazzocchi pointed out that "here the state is certainly protecting the industries that they're going to be investigating, and making sure that there are criminal penalties for those who would even disclose what they might find out." Corporations suffered no penalty at all for "fail[ing] to disclose formulas that might be killing you."[88]

In these early days before the passage of the OSHAct, labor had been kept in the dark about safety and health statutes or uninformed about what was and was not covered by laws. In 2001 Mazzocchi talked about how not even he really understood the inadequacies of laws then in existence. When workers saw obvious danger they assumed that a law made such circumstances illegal. They believed that if they could uncover the relevant statute they could get industry to improve conditions. Even Mazzocchi was shocked to learn that the Walsh-Healey Act, passed in 1938 to enable the government to inspect the facilities of federal contractors employing more than 10,000 people, covered relatively few workers and that its provisions were not enforceable. He was further surprised to learn that the standards for some substances had been set not by government agencies but by private industries through organizations established by them or by voluntary agencies in which industry had a major role.[89]

At a 1969 meeting in Fort Wayne, Indiana, Mazzocchi questioned how the standards were set up. "Was an impartial investigating body set up? Were we represented on it? Was there public discussion? No." Instead, the standards were developed by the American Conference of Governmental Industrial Hygienists (ACGIH) through "consensus," which meant, Mazzocchi argued, "that if a large company had a representative on the committee, or objected to a particular standard, the committee raised it." The result was that standards were often set to allow higher levels of toxins so the least efficient, most powerful, or least responsible companies could meet them—what Mazzocchi called "the least common denominator, rather than strictly in accordance with scientific evidence."[90]

For Mazzocchi and most of the union delegates he addressed while touring the country, a major problem was that states were enforcing few of the environmental and occupational codes they had developed to protect the workforce, if in fact any enforcement provisions existed. Even in the industrial states, where the chemical industry was centered, codes were ignored. The "New Jersey safety program is an atrocity," Mazzocchi observed, to no objection, at the meeting at Kenilworth. "I think the fellows [i.e., the workers] from National Lead . . . would be the first to jump up and tell you, specifically" about the variety of problems in the plants and the complete lack of "response of the New Jersey State Health officials."[91] At the union conference in Fort Wayne, Mazzocchi noted that there were many times more game inspectors than state safety inspectors.[92]

Mazzocchi likened his union's sad experience with industry oversight of occupational health to the tragedy of Gauley Bridge, West Virginia, the site of the worst industrial health disaster in American history. In the early years of the Great Depression (1931–32), a Union Carbide subsidiary drilled a tunnel through a mountain that was virtually 100 percent silica without providing the workers with respiratory protective equipment or without informing them of the danger. The tunnel was needed to create an aqueduct to provide power to a Union Carbide chemical plant that the OCAW later organized. Mazzocchi in 1969 told the workers that "600 miners died of silicosis" while drilling the tunnel and that union members should remember their suffering. "Most of us probably never knew that 600 human beings perished in building this particular aqueduct that would carry water to a plant where OCAW members are employed today." West Virginia alone had a sorry history of occupational disasters, including black lung and other pneumonicoses, which Mazzocchi estimated were a factor in the death of 80 percent of coal workers.[93]

Mazzocchi argued that the massive problems in the nation's plants and mines could not continue to be addressed by industry alone. Nor could the union movement depend upon scientists and technicians whose loyalties lay with the industries that hired them. Mazzocchi related his own story about when he was president of a local at a cosmetic plant on Long Island, New York. He admitted that he had never been concerned about the use of talc in the manufacture of the cosmetic powder, nor had he ever been informed about the existence of threshold value limits for talc. "I just never knew enough to raise a question. . . . We had a doctor who used to

say that, if you drank enough milk, you didn't have a problem." Later, notes Mazzocchi, "when the cost of milk went up, he decided that milk was unnecessary."[94] There were too many questions, too many issues, too many competing interests, and too many costs for any one union or any one company to address. It also required scientists who were not beholden to a single, and powerful, vested interest. "It takes the type of scientific personnel that are not on the payrolls of companies."[95]

Mazzocchi saw workers as the true repositories of information about unhealthful workplace practices. Their active participation and testimony would be crucial in creating an incentive for government or industry to provide the necessary protection. Mazzocchi knew what many workers were saying privately: that industries were dumping the dangerous poisons that they worked with in the plant onto the ground, into the air, and into the waterways of the nation. Workers reported "being instructed to permit certain emissions, into the air and into sewers, after dark but not during daylight hours." They were also instructed to curtail dumping activities when journalists or inspectors were present. "Workers in some plants tell of being ordered to inject perfumes into exhaust gases going up the stacks so that people in the vicinity cannot smell the gases."[96]

"Very few of us would now swim in water that we once swam in as children," Mazzocchi lamented in 1969. "Very few of us breathe the same quality of air or get up in the morning and see for any distance without our vision being cut short by haze and smog." He argued that the OCAW was particularly sensitive to these issues "because these very pollutants that are contaminating our environment emanate from the workplace. . . . So if the community at large is getting a bad dose of pollutants, we are getting it in spades, in much greater quantities, triple fold."[97] Mazzocchi warned that the country would soon face serious problems given the abuse of the work and environment by industrialization. "The urban environment is such that it is constantly assaulting us. . . . Cancer will probably reach epidemic proportions in major urban areas within the next ten years; urban dwellers will become particularly vulnerable to various forms of cancer."[98]

Glenn Paulson from Rockefeller University in New York provided attendees at the OCAW meetings with a warning about gases one couldn't see and couldn't smell. These included carbon monoxide and chlorine, substances that workers frequently complained about. Exposure to chlorine could destroy lung tissue, leaving workers unable to blow out a match from a foot away and making them "respiratory cripples" for the rest of their lives.[99] Chlorine, one of the most widely used substances in the chemical industry, had a particularly gruesome reputation, especially among older workers who remembered its military use during World War I: chlorine was a constituent of poison gases that were subsequently banned by international convention. Paulson reminded the workers that the recent attention to air pollution in urban areas should alert them to the fact that "chemical plants are much, much worse." The chemical plant of 1960s America was a potent stew of dangerous substances.[100]

At an OCAW conference in Salt Lake City, Utah, union representative Robert Marsh related his experiences at an acid plant in Arkansas: "The company insisted [that the pollution from the stacks] wasn't an unhealthy situation, it was just uncomfortable. We suggested to them it probably was unhealthy too because . . . for about a mile and a half from this plant, the trees were all dead. We got the company people to go out and see all these trees and we said, 'Look, if it doesn't hurt you, how come all those trees are dead?' And the company had a very logical answer. 'Hell, those trees can't spit it out.'"[101]

The meetings that Mazzocchi organized in Tulsa, Fort Wayne, Kenilworth, Montreal, Baltimore, Atlanta, Houston, and Salt Lake City were aimed as much at gathering information as disseminating it. At every meeting, workers were asked to relate their own experiences with dangerous chemicals and to become the eyes and ears, the experts and epidemiologists, for the union. The testimony, transcribed in order to document workers' experiences in the chemical, atomic, and oil industries, provide a rich source of firsthand descriptions of the conditions of work in Vietnam-era America.

John Dacey, the president of an independent union at Union Carbide in Boundbrook, New Jersey, spoke movingly of his plant, where asbestos was used in large quantities and where workers' exposure abounded. He related how it was only "since the militant group took over the union" that management was asking the workers, "after thirty five years of operation, to take x-rays, because they know that we're going to double check them." Dacey described how, even though the workers were confronted with "dust and fumes where you can't even see across the room," the boss would reassure the workers that "it won't hurt you. Look at so-and-so; he's been working here fifteen years. . . . This is the kind of attitude we have."[102]

Peter Mac Intyre, president of Local 8-3660, OCAW, at the National Lead plant at Sayreville, New Jersey, brought along an informal survey of some of the workers' experiences in various departments. One worker described being "gassed [by chlorine] ten times at least." Another worker described being overcome twice and, instead of receiving medical treatment, being given "just cough syrup." A third described being overcome: "Fumes were so bad that other operators could not get to me to help me. I managed to get down, trying to hold my breath and proceeded to cough and throw up in the street. The foreman went inside and brought out some cough medicine."[103]

James Orth, from the DuPont plant in Wilmington, Delaware, described his earlier work with silica: "Your nose would be drying out, your throat, just everything, just drying out. So we complained. So then they started to send us down to medical once a week . . . to get blood tests. Finally, after a year and a half, they came back and told us, yes, you can get silicosis from this. But before that, nothing, everything was fine."[104] One worker from the Woodridge, New Jersey, Chemical Corporation, described the effect of working with toxic chemicals on his family. His father had worked in a chemical plant right next door to the one he had worked for. "He's dead now." His uncle had also worked there and "died of cancer, this cancer in the throat." The uncle believed that "a certain chemical that he inhaled got in his throat and his throat was a mess and he died. I mean, I don't like the expression—he died like a dog. We're a small bunch, but we've got a problem. The chemicals are going to kill us all."[105]

While a few corporate leaders such as Ford's Henry Ford 2nd and Xerox's Sol Linowitz understood the need for reform and even government regulation, most trade associations followed the lead of the Chamber of Commerce, rejecting government regulation in favor of voluntary action. Notably absent from the coalition forming around the twin issues of workplace safety and environmental protection, as historian Charles Noble observes, were "the two preeminent liberal business organizations—the Committee for Economic Development and the Business Council—[which] failed to take any position at all on occupational safety and health." He notes that they "concentrated on economic policy in the mid-1960s."[106] But their inaction may also have been due in part to the general social crisis that existed in the late 1960s that distracted them.

Although the political impetus for the Occupational Safety and Health Act originated among labor activists and the Democratic Party, the Nixon administration quickly embraced the effort as part of its more general attempt to bring white working-class Americans into a new Republican coalition. Courting the "silent majority" in the years of the Vietnam War and capitalizing on "white backlash" against the previous administration's War on Poverty and civil rights efforts, Nixon embraced conservative blue-collar workers. But Nixon's vision for the new agency, one that would prove less threatening to industry, was quite different from labor's. His object was to sign an occupational safety and health bill, but to structure the resulting federal agencies in such a way as to have minimal influence on the way business was conducted. To that end, the Nixon administration was intent that the powers of standard setting and enforcement not be located in the same federal agency. Nixon devised a plan in which a new agency, the National Institute of Occupational Safety and Health (NIOSH), to be located within the Department of Health, Education, and Welfare, would do research and propose standards, while OSHA, in the Department of Labor, would handle enforcement.

Nixon also wanted a bill that had weak federal enforcement provisions. As the legislative negotiations proceeded in 1969 and 1970, Nixon was forced to concede more and more ground to the Democratic-labor plan but held firm to the concept of separate agencies for research and enforcement.[107] Even so, when the Steiger bill (which ultimately became the OSHAct) went to the Senate-House conference committee, Nixon still held out for a weaker bill. The prospects for passage seemed dim. OCAW leader Tony Mazzocchi remembers standing outside the committee room (which was closed to the public) and seeing Walter Mondale come out to say that the Democrats did not have the votes to pass it.[108] But then Nixon called the Hill and told the Republican leadership to bring the bill to a vote. In the aftermath of an assault by New York construction workers on antiwar demonstrators along lower Broadway near Wall Street, the Republican president saw the opportunity to steal traditionally Democratic blue-collar votes by supporting the OSHAct.[109] The bill passed in the waning days of 1970 "with varying degrees of enthusiasm" from business and labor; thus were OSHA and NIOSH established.[110]

The OSHAct established the principle that workers had a right to a safe and healthful workplace and that the federal government had a responsibility to ensure this through inspection, regulation, and standard setting. By authorizing the imposition of fines and even prison terms (a rarely used punishment) for managers and owners of renegade industries, OSHA brought an end to the long-standing principle that the workplace was immune from federal control. The act guaranteed workers access to information previously held to be proprietary trade secrets about the substances they worked with and the possible harmful results from exposure to these chemicals.

One of the most important features of the act was the rejection of the chemical industry's demand that the cost of protection be taken into account as a factor in setting standards. The act held that OSHA should

"set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life" (section 6B[5]).[111] Over the next several years, industry would make much of the phrase "to the extent feasible" to reassert the argument that economic costs to industry must be considered in any occupational regulation.

The very first complaint that OSHA was asked to address, and the first citation it issued under the OSHAct, was for a chlor-alkali plant of the Allied Chemical Corporation in Moundsville, West Virginia. The plant produced chlorine by the interaction of brine with mercury in an electrolytic process. Since 1965, Local 3-586 of the OCAW had complained to management about the health concerns of workers and had appointed a health and safety committee that tried to work with management to lower workers' exposures to chlorine, mercury, and other toxic materials. For years, management had essentially dismissed the complaints, maintaining that the environment was safe and that no health threats existed.

A few months before the OSHAct was passed, Thomas W. Riggle, the local's president, wrote to Tony Mazzocchi, then the OCAW's legislative director, seeking help. Ellen Silbergeld, then a doctoral candidate in environmental engineering at Johns Hopkins University and later one of the nation's preeminent lead toxicologists, was spending the summer as an intern in the union's legislative office and responded to the union's query.[112] She detailed the health hazards posed by the production of mercury, chlorine gas, and hydrochloric acid and explained that "mercury is such a serious problem that Tony and I would appreciate more information from you on conditions in the plant and on any history of incidents which, in your opinion, might be related to mercury poisoning."[113]

As conditions deteriorated in the plant, with several men showing "symptoms of possible mercury overexposure," union complaints went unanswered. Finally, the union sent a letter to Mazzocchi with copies to the company, the Department of Health, Education, and Welfare, the Department of Labor, and other state and federal agencies and representatives, detailing the environmental hazards faced by the workers. The union's complaint stated that the plant used "mercury type cells to produce chlorine, caustic soda and hydrogen. There are 104 cells of this type, each cell containing approximately 3,600 pounds of raw mercury or a total of around 1.87 tons." The union charged that "these products carry the deadly methyl mercury vapors.... Employees work in and around these vapors constantly. . . . Free and exposed mercury can be found all around the building. . . . Various acids and alkalis are dumped to waste beds through a system of pipes and open trenches. Vapors created from this operation are strong enough to irritate the eyes and respiratory organs, and often blanket the area with a dense, choking fog."[114]

Upset by the inability or unwillingness of the state to protect the workers and the unwillingness of Allied Chemical to voluntarily clean up its operation, the local's leadership, in coordination with Mazzocchi and with the support of Sheldon Samuels, director of occupational health, safety, and environmental affairs for the AFL-CIO's Industrial Union Department, decided to be the first major test case under the new federal legislation. They requested an inspection of their plant under the "imminent danger" section of the law. Five days later, on May 19, 1971, OSHA representatives arrived at the plant, where they observed pools of mercury on the factory floor and other hazards. "In one area chlorine fumes were so heavy that [Charles] Benjamin [of the Department of Labor] wore a respirator."[115] On May 28, the Department of Labor received air-sampling results showing that mercury levels were dangerously high. OSHA issued its first citation—the first time, according to Mazzocchi, that a federal agency held a company responsible for health rather than safety issues.[116] Months later, even though the company had made some improvements, workers continued to complain of liquid mercury, mercury vapor, and excessive chlorine in the plant.[117]

In the succeeding years, health issues grew in importance in industry-labor contract negotiations, sometimes leading to prolonged strikes. In early March 1973, chemical workers at nine Shell Oil plants along the Gulf of Mexico and in California went on strike for more than three months over issues of health, not safety. In general, management opposed union demands to create health and safety committees that would make critical decisions about workplace organization and procedures. Giving unions "a voice" in work-floor practices amounted to, in the words of one Shell spokesman, "'just another attempt at featherbedding' since workers could then decide how long they can safely work in the refineries and chemical plants."[118]

Still, the Shell strike significantly broadened the national coalition that began to see occupational safety and health as a critical social, as well as labor, issue. Noted academics, scientists, and activists from around the nation quickly joined hands with the workers, bringing attention and a kind of broad, liberal legitimacy to workers' issues. Leading scholars, scientists, and social activists such as George Wald, Richard Lewontin, Linus Pauling, and Barry Commoner joined public health advocates such as Samuel Epstein, Victor Sidel, Eula Bingham, Sidney Wolfe, Lorin Kerr, Jack Geiger, and Wilhelm Hueper in sending an open letter to the academic and labor communities.[119] Quickly, ten environmental groups, including the Sierra Club, joined with the OCAW to protest the terrible work conditions and the more general threat to the environment.[120]

This significant joining of labor and environmental groups was widely noted in both the national press and among environmentalists. Environmentalists had been tagged as "elitists who are more interested in conserving pretty vista and saving wildlife than in helping working people," while unions were alleged to be willing to accept any and all pollution "if it means higher wages for them." The strike was seen as marking "the beginning of a new awareness of the scope of environmental issues by both organized labor and environmental activists."[121]

But the true emergence of the environmental crisis in the plastics industry still awaited both labor and industry. It would not be until an industrial hazard of some magnitude occurred that the public would become alarmed. Not until there was a story that affected entire communities would newspapers and magazines report on it. Only then would public pressure begin to shape the response of government agencies themselves. Corporate liability would become virtually unlimited when damage was done to citizens who were not prevented from suing companies, unlike workers, who were usually constrained by workers' compensation laws from pursuing litigation against an employer. Only then would the press, the public, liability lawyers, and the new agencies of government charged with protecting the nation's air, water, and consumers' demand that industry give up its sovereignty over the workplace and its stranglehold on information about the dangers facing workers and community residents alike.