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Asbestos, long known as
a life saver, is now
recognized as the leading
industrial cause of cancer.

T.L.L.

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AN ASBESTOS TOWN STRUGGLES WITH A KILLER

PLAINTIFF'S
EXHIBIT
SWG-352

As company towns go, Manville, New Jersey (population: 15,000), has much to be thankful for. Besides deriving its livelihood from the 2,225 jobs provided by the Johns-Manville Company—the nation's largest manufacturer of asbestos products—the town enjoys a number of fringe benefits. In the late 1950s Johns-Manville donated \$100,000 for a high school building. Over the past three years it has given another \$100,000 to Somerset Hospital in nearby Somerville. The company has also picked up the bill for a large part of Manville's \$125,000 worth of ambulance and rescue vehicles, and it has donated some \$250,000 worth of pipe for the town's new sewage system. Town garbage is dumped at the company's refuse site, a service worth another \$100,000 a year. On a smaller scale the company is an easy touch for everything from building materials for the new Veterans

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BY BRUCE PORTER

of Foreign Wars hall to the \$10,000 needed for beer and hot dogs at the annual volunteer firemen's picnic.

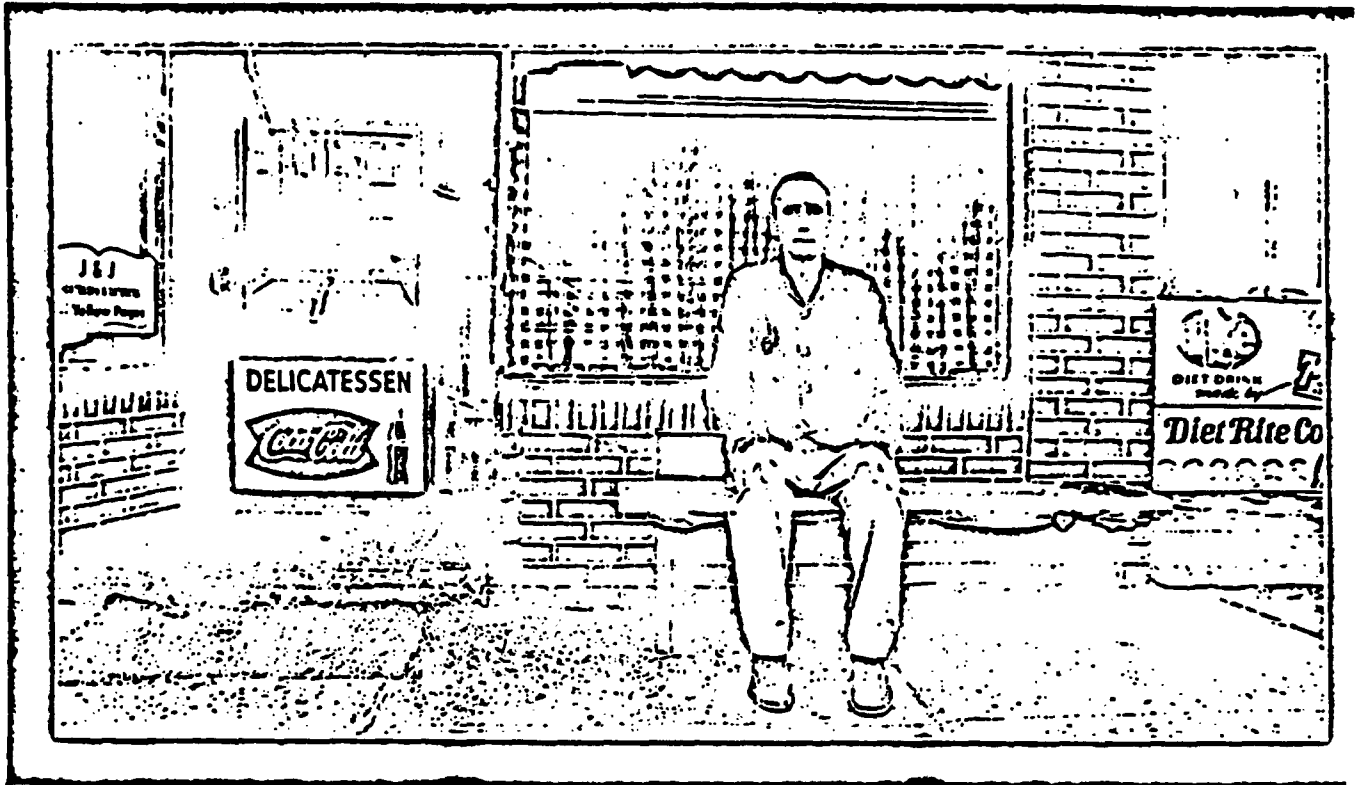
But now, it turns out, Manville citizens have been paying a high price for such largess. The incidence of lung cancer among Johns-Manville employees is four times the national norm. Mesothelioma—a form of chest or abdominal cancer that accounts for only one out of every 10,000 deaths in the general population—has in the last eight years claimed the lives of at least fifty-eight Manville residents, most of them workers in the Johns-Manville plant. Asbestosis, or "white lung"—a severe scarring of the lungs caused by inhaling asbestos fibers over the course of many years—is another disease that plagues the company town. Beginning as a mere shortness of breath, asbestosis develops into a near paralysis that makes breathing and bodily movement increasingly difficult. In the end the victim's lungs function so marginally that, if the individual does not suffer death from respiratory illnesses such as pneumonia,

he will eventually suffocate.

One Manville resident who is only too well acquainted with asbestosis is George Smith—"Smitty" to his friends—who moved to New Jersey twenty years ago from a Pennsylvania steel town. He was thirty-nine years old at the time, and he was active and healthy. "I was always off hunting or fishing," Smitty told me. "I couldn't stand not to be doing something, you know." A year ago last fall, after seventeen years of making asbestos-lined sewer pipe in the Johns-Manville factory, Smitty came down with asbestosis. "I didn't know what the hell it was," he recalled. "It was just a little shortness of breath, you know, and I'd always been as healthy as a horse all my life. The last doctor I'd seen was when I was born. At first I thought it was just something that would pass, but then it started getting worse and worse, until one day I came to work and I could barely move. I didn't think I'd make it through the day."

Smitty is now virtually immobile. Unable to work, he sits all day in the kitchen of the J & J Delicatessen across

George Smith, a victim
of asbestosis: "God help
the man who ties up with
anything like this."



the street from the plant. At night Smitty hobbles back to his room above Mary's Tavern—a one-block journey that takes him nearly twenty minutes because he must stop to catch his breath every three steps. His body is thin and frail, and when he talks the words rattle out of his mouth in a series of hoarse belches. "Even if my friends would take me, I don't think I could fish anymore, because if I got a bite I couldn't do anything about it," Smitty said. "I'm finished. I can't work. I can't do anything. God help the man who ties up with anything like this."

While the effects of asbestos-related diseases are, in themselves, fearful, the prospect of the toll they may take in Manville in the near future is even more so. In the next few years, physicians who have studied the problem predict, the number of deaths resulting from asbestos-related diseases can be expected to reach near-epidemic proportions. This is so because the gestation period for asbestosis and mesothelioma ranges between twenty and forty years. Hence, workers who joined the plant in the late 1930s and 1940s are just now be-

ginning to suffer the consequences. A study of 689 Johns-Manville employees that was released last May showed that out of seventy men and women who had worked at least twenty years in the plant's formerly very dusty textile division, some twenty-four of them, or 34 per cent, had died. This death rate is nearly triple that of a similar group in the general population.

"The next five or ten years are going to be rough in Manville," I was told by Dr. Irving J. Selikoff, director of the Environmental Sciences Laboratory at Mount Sinai Hospital in New York and the scientist who conducted the study, "because a lot of people are going to be dying, and so far no one knows what to do about it." Dr. Selikoff adds: "What is tragic is that this is a man-made disease. It is not a visitation from heaven. It was preventable. The serious situation that now exists is a record of failure on the part of us all—scientists, industry, and governmental authority. And industry is correct, in my opinion, in pointing out that what we're seeing now is a result of our mistakes in the past. Having said this, I would

urge the most intense efforts to ensure that we do not continue to make the mistakes. Too many men and women have died of our blunders already."

Perhaps no other mineral is so woven into the fabric of American life as asbestos. Impervious to heat and fire—it is the only mineral that can be woven into cloth—asbestos is spun into fireproof clothing and theater curtains as well as into such household items: noncombustible drapes, rugs, pot holders, and ironing-board covers. Mixed into slurry, asbestos is sprayed on girders and walls to provide new buildings with fireproof insulation. It is used in floor tiles, roofing felts, and in plasterboards and wallboards. Asbestos is also an ingredient of plaster and even of many paints and putties. "A mineral of a thousand uses"—an old nickname: the present count stands at around 3,000 uses—is probably present in some form or other in every home, school, office building, and factory in the country. Used in brake linings, clutch facings, in mufflers and gas in sealants and caulking, and exten-

Open spraying of asbestos on construction sites has only recently been banned in some Eastern cities.

ly used in ships, asbestos is also a component of every modern vehicle, including space ships.

An estimated five million people—men and women employed in asbestos plants, insulation workers, construction workers, steamfitters, carpenters, tile setters, and the like—daily breathe in significant amounts of asbestos fibers. During World War II some 4.5 million Americans worked in the shipbuilding industry and were thus occupationally exposed to asbestos fibers. An estimated 3.25 million of these people are still alive. Medical scientists fear that the Seventies will bring the first big wave of asbestos-induced cancers among this segment of the population.

In a study published last March in the *Journal of the National Cancer Institute*, Dr. Merle F. Stanton, a scientist at the National Institutes of Health, ranked asbestos second only to cigarette smoke among the known causes of cancer. Dr. Stanton's study points up the fact that asbestos fibers pose a threat to the health of the general public. It is a threat that most cities and towns and federal agencies, like most asbestos-products manufacturers, have been slow to recognize and slow to respond to. For years the sight of flurries of asbestos fibers floating down from construction sites was commonplace in American cities and towns. It was not until February of last year that New York City banned, outright, the use of asbestos in sprays used to fire-proof buildings. And New York was a leader in this field. (Last December the Environmental Protection Agency—following the example set by New York, Boston, Philadelphia, and the state of Illinois—took the first legal steps toward banning construction site spraying and "the visible emission of asbestos particulate matter" during repair and demolition of buildings throughout the nation.) How many New Yorkers were breathing the stuff in? Two years ago Dr. Selikoff and his associates at Mount Sinai studied lung tissues from 3,000 consecutive autopsies performed at three different New York hospitals; they found traces of asbestos in 48.3 per cent of them. The air in New York may not be typical of that in other cities, but the statistics stand as a warning.

The fibers to which the general public may be exposed do not come only



in visible blizzards or invisible swirls in big cities. Each time a car mechanic airhoses out a brake housing, he spreads asbestos fibers through his garage. Each time a do-it-yourself or professional carpenter saws up wallboard or plasterboard containing asbestos, he releases fibers into the air. So ubiquitous is asbestos that one tends to forget it is there at all. Last fall the New York City Department of Air Resources tested several brands of powdery papier-mâché mix widely used in elementary school, and found that some samples contained 50 per cent or more asbestos.

The United States is the world's foremost consumer of asbestos. In the span of years from 1965 to 1969 American manufacturers purchased almost one-third of the world's output of asbestos—an average of 800,000 tons per year. Johns-Manville is the giant of America's booming, \$1-billion asbestos manufacturing business. According to Matt Swetonic, secretary of the Asbestos Information Association, an industry-funded data distribution center with headquarters in New York City, Johns-Manville manufactures between 35 and 40 per cent of the nation's asbestos fiber. In 1971 the \$700-million corporation netted \$42.7 million; last year it netted \$55 million. Of the country's 400 asbestos-products plants, which employ a total of 31,000 men and women, Johns-Manville owns fifty-five, the largest of its plants being the one in Manville, New Jersey. (In 1912 Henry W. Johns, Jr. and Thomas F. Manville

established their first asbestos-products plant in what was then called the township of Hillsborough. Soon the plant was receiving so much freight addressed to Johns-Manville that railroad men nicknamed the place Manville. In 1929 this name was formally adopted by the company town.)

Located some forty miles southwest of New York, Manville is a plain, predominantly Polish-American town built out on either side of a long main street punctuated by a single traffic light. Most of the houses that line the side streets are post-World War II bungalows and Cape Codders, each with its small front lawn and backyard. The tall factory stack and the sprawling complex of dingy old and spanking new buildings of the Johns-Manville plant dominate the scene.

I went to Manville, not because the asbestos plant there was Johns-Manville's biggest and longest established but because the town's working population had been studied more closely than that of any other asbestos company town. I went also because I had read about the conditions that had long prevailed at the Manville plant, and which had been shown to be the cause of the local plague, and because I had heard of new policies that promised great, if late, improvement in those conditions. I saw Manville, New Jersey as a laboratory in which to study the phenomenon of a group of businessmen and industrial workers trying to cope with the painful discovery that their long-cherished means of livelihood has a lethal side to it. It is a phenomenon that I suspect, has occurred, and will repeatedly occur, in the course of this century in which industrial progress always seems to outstrip man's knowledge of the full human consequences of our progress. For, once on the move, industry is usually too preoccupied to pause, look back, and help out.

Evidence that asbestos fibers cause lung damage was on hand even before Johns and Manville started up operations in New Jersey. But, as Paul Brodeur observed in "The Magic Mineral" an article published in *The New York Times* in 1968, "coyness on the part of industry, timidity on the part of labor, an obtuseness on the part of the medical profession often combined to make ear investigations into the health of asbesto

An electron microscope reveals asbestos fibrils found in the air of an asbestos worker's home.

workers meaningless." Then, in 1928 and 1929, the chief medical inspector of the British Home Office's factory department examined 303 asbestos-textile workers and found that more than 25 per cent of them showed evidence of suffering from asbestosis. In 1931, on the basis of the inspector's findings, Parliament made the disease compensable and, among other measures, instituted periodical checkups for workers engaged in particularly hazardous processes in the industry. Next, in 1955, Dr. Richard S. Doll, director of the Statistical Research Unit of the British Medical Research Council, completed a study of 113 consecutive autopsies of men who had been occupationally exposed to asbestos for more than twenty years. Doll's study showed that the extent to which they had risked lung cancer over the whole period was eleven times as great as that of men in the general population of England and Wales. Brodeur observes in his pioneering article on this subject: "From then on, many doctors were convinced that a causal relationship between asbestos exposure and lung cancer had been demonstrated, although almost no part of the vast asbestos industry either acknowledged the relationship or found it advisable to aid the independent researchers who were investigating it."

The health hazard posed by asbestos came home to Manville in 1963, when Dr. Maxwell Borow, a local physician, found that seventeen townsmen had died of mesothelioma within the span of three years. Four years later Borow asked Johns-Manville for \$3,000 to finance a display to educate both workers and the medical profession at large on asbestos-related diseases; his request was turned down. Borow subsequently approached the workers' union, Local 800 of the United Papermakers and Paperworkers; the union organized the collection of the needed money.

Why had Johns-Manville declined to help out? "It was our opinion," Jack Solon, the corporation's vice-president in charge of environmental affairs, explained to me, "that in 1967 there was a need to learn more about mesothelioma before a relationship with asbestos could be affirmed or denied." Besides, Solon added, since 1950 the company had already spent some \$2 to \$3 million



on new dust-control equipment and, as a result, considered the Manville plant a safe place to work in. Men and women who worked at the plant in the Fifties and Sixties, however, failed to notice that the new equipment made any appreciable difference. "There were times when the air was so thick with asbestos dust in some places that you couldn't even see," I was told by a textile division worker who has been with the company for thirty-two years. "Sometimes it was even impossible to breathe with a respirator because the filters would get so clogged with asbestos." (Respirators are generally unpopular among asbestos workers. The wearer sweats and his eyes smart. For workers who have cardiac or pulmonary problems, breathing through an ordinary respirator adds to the strain on their lungs and heart. Air-cooled respirators that supply air to the wearer are bulky and costly.)

Even outside the factory the air was frequently full of the potentially deadly fibers. In the Lost Valley section of town—an area downwind from the factory—the fiber fallout would get so thick that homeowners had to hose the stuff off their houses. Directly in front of the plant conditions were even worse. "When I'd direct traffic there," Sgt. George Kahman of the Manville police recalled, "there were days when it was like we were having snow flurries in July. I'd take off my hat, and it would be covered with this white dust."

Meanwhile, examinations by company doctors were carried out only once every two years—a schedule that was

increased to once a year in 1972. Such infrequent checkups may have been sufficient to monitor a slowly developing case of asbestosis, but they were less useful as a means of catching a victim of a swiftly developing cancer, particularly mesothelioma, a disease that normally proves fatal six months to a year after the cancer shows up in X-ray pictures. (To jump from past decades to an illustration from the recent past: in December 1971 Danny Maciborski, a forty-nine-year old ex-marine who had worked for Johns-Manville for thirty years, checked in at the company dispensary for his biennial physical and was given a clean bill of health. A few weeks later, however, he felt a strange sensation in his abdomen—as if his stomach were "getting bigger," as he put it—and went to see a private physician, who in turn sent him to Dr. Borow. Borow's tests showed that Maciborski had a malignant tumor of the membrane that lines the abdominal cavity—in other words, mesothelioma. "I knew what it was because everybody at the plant knows about asbestosis and mesothelioma now," Maciborski told a reporter for the *New York Post*. "I wasn't surprised or shocked about it . . . I just asked [Dr. Borow], 'How long have I got?'" Maciborski died last September. He lasted as long as he did because he was willing to go to the doctor every two weeks to have up to eight quarts of fluid pumped out of his abdomen. Johns-Manville paid Maciborski's medical expenses, and, as provided by New Jersey state compensation laws, it is paying his widow \$76 a week—a sum that will drop to \$72 this June, when her eldest son will turn eighteen.)

Why, throughout the Fifties and Sixties, did men and women continue to work in the plant if conditions were so hazardous? The answer would seem to have as much to do with psychology as with economics. "It's funny," says Chester Raczowski, a forty-one-year-old machinist and union shop steward at the plant, "but the only people who seem scared of this stuff come from outside the community." To Raczowski, who has worked at the plant since he was eighteen, his job is a way of life that he is not about to give up just because of a few "scare stories" in the press. "You and I can work in a place for thirty-five years, and maybe you get

An asbestos-induced mesothelioma may take up to forty years to develop. Here, an X-ray photograph of normal lungs.

cancer or something and I don't—who's to say? Dr. Borow says he's an expert on this mesothelioma or whatever it's called. How do I know? Maybe I'm fatalistic, but I'm a Catholic, and I figure you die when it's time to die." One thing Raczowski does know is that he would find it difficult to leave his job at the Johns-Manville plant. As a first-class machinist, he earns \$4.25 an hour, has a five-week vacation, and is entitled to a generous hospitalization program. "Where else could I get all these benefits?" Raczowski asks.

Raczowski's attitude—fatalism mixed with a sense of being pretty well off where he is—is one shared by the town's officials, most of whom work at the plant, too. Manville's mayor is a factory supervisor. A majority of the members of the local board of health, whose duties include seeing to it that the town's air is fit to breathe, are also employed by Johns-Manville. Last spring, when the town belatedly decided to ascertain whether asbestos fibers were still sifting down on Manville, it seemed only natural that the board should ask the company to do the monitoring. The air was found clean.

Indeed, by 1972 Johns-Manville had taken a series of steps to clean up its factory, thereby improving the quality of the town's air. Much of the impetus for improvement came in the form of a 158-day strike in the winter of 1969-70. The main issues involved in the strike included such conventional items as overtime pay and job security, but it wasn't until the union brought the issue of health into the talks that it found real clout. "It was then," I was told by Wilbur Ruff, former plant manager at Manville and now the factory's director of community and employee relations, "that they started getting a lot of sympathy in the press." Finally, the company agreed to admit union representatives to the plant's environmental committee, thus allowing them to examine fiber counts made in the factory, and to let workers see their own company-kept health records.

Two powerful nudges, felt by the entire industry, came later in 1970 and in 1971. In December 1970 Congress passed the Occupational Safety and Health Act, which established the National Institute for Occupational Safety and Health (NIOSH), a body charged



with conducting environmental and medical research necessary to develop safe industrial standards, and empowered the Labor Department's Occupational Safety and Health Administration (OSHA) to promulgate and enforce these standards. Shortly after the act became effective, in April 1971, Local 800 in Manville filed a complaint which brought inspectors in. Violations were found and citations issued.

Then, in November 1971, under the provisions of the newly effective act, the industrial union department of the AFL-CIO requested then-Secretary of Labor James Hodgson to promulgate emergency standards for asbestos dust and lower the acceptable fiber count from five so-called long fibers per cubic centimeter of air to two. (A long fiber is one greater than five microns in length.) The AFL-CIO request claimed that five million American workers were being exposed to increasingly dense concentrations of airborne asbestos fibers and that the situation called for prompt action. Hodgson took his time. Early in 1972 he appointed an Advisory Committee on Asbestos Dust and hired Arthur D. Little, Inc., a consulting firm with a liberal reputation, to provide advice on the economic feasibility of lowering the fiber count. (Arthur D. Little, Inc., assembled a braintrust consisting of thirteen executives from the shipbuilding industry, twelve executives from the asbestos industry, and eleven doctors, most of whom had previously served as consultants to the asbestos industry.)

Meanwhile NIOSH put together a special advisory group of medical researchers to look into the fiber-count problem. Both the Hodgson-appointed Advisory Committee on Asbestos Dust and NIOSH panel recommended lowering the count to two fibers. The Arthur D. Little panel, on the other hand, concluded that the five-fiber count was safe—that bringing the count down would prohibitively expensive for all the industrialists concerned. Then, in June, 15 days were set aside for public hearings at the Labor Department's offices in Washington, D.C.

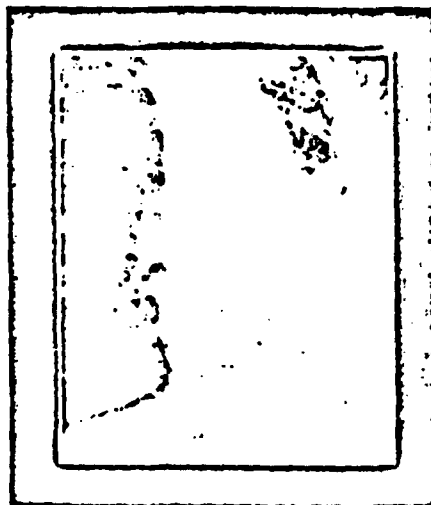
Predictably, Dr. Selikoff argued for the lowest possible count. (So, too, the last few months of his life, Danny Maciborski, whose appearance at the hearings on Johns-Manville I talked to referred to as having been "in bad taste.") Dr. Selikoff pointed out that, while researchers know that a worker must be exposed to large doses of asbestos dust before he contracts asbestosis, they also know considerably less exposure can cause mesothelioma. (As far back as the early 1960s medical researchers in such far-flung parts of the world as Johannesburg, London, and Pittsburgh, were coming up with reports on large numbers of mesothelioma victims who had no direct occupational exposure to asbestos: wives of asbestos workers who had inhaled fibers when shaking out their husbands' work clothes; people who had simply lived within half a mile of an asbestos factory; a fourteen-year-old boy whose only contact with the fibers occurred when he helped his father saw and install plywood board.) Lowering the fiber count would reduce the incidence of asbestosis, but it would not necessarily solve the problem of asbestos-related cancers. At this point, Selikoff was able to cite evidence from his just completed study of the 689 Manville workers. It demonstrated that, under usual factory conditions, as the incidence of asbestosis declines the incidence of cancer rises. In his survey of workers in the former high-fiber-count textile division, for instance, Selikoff found that 39 per cent of the workers' deaths resulted from asbestosis, 24 per cent from various types of cancer, whereas in areas where the fiber count was comparatively low (the not as low as counts recently achieved

Once active, mesothelioma spreads swiftly. This X-ray photograph shows a lung covered with cancerous growth.

at the Manville plant), such as the company's research laboratory or its maintenance shop, cancer accounted for 40 per cent of the workers' deaths, asbestosis for approximately 5 per cent. ("What was happening," I was told by Dr. William J. Nicholson, an associate of Selikoff's at Mount Sinai, "was that, without asbestosis, these people lived longer, which gave them time to die from cancer, also caused by asbestos.")

A second point made by Selikoff was that the monitoring techniques used to ascertain the fiber count set by the Department of Labor record only long fibers, although shorter fibers are equally capable of causing cancer. Moreover, in a cubic-centimeter sample of air containing the admissible count of five long fibers there may be ten to 100 times as many short fibers. And it is these uncounted ones that remain in the air the longest. (In a recent conversation I asked Dr. Selikoff what these figures meant in terms of the numbers of fibers an asbestos worker can be asked to breathe in the course of an eight-hour work day. Each of us respire approximately one million cubic centimeters of air in an hour, he explained. Thus, in eight hours men and women assigned to sections of an asbestos plant where the five-fiber count obtains respire some forty million fibers. If the so-called short fibers are taken into account, the number of fibers respired daily rises to around four billion.)

While Dr. Selikoff and other medical researchers stressed health factors at the Labor Department hearing, asbestos industry spokesmen emphasized economic considerations. Henry B. Moreno, Johns-Manville's senior operating vice-president, asserted that to achieve a two-fiber-count level in all of its asbestos factories would cost about \$12 million in capital expenditures, plus some \$5 million in additional operating expenses each year. This would mean, he said, that the company would simply have to close down the dustier operations in the Manville plant and fire 800 employees—all but killing off the economic life of the town. Nor, he argued, would the effects of a two-fiber standard stop there. Other asbestos companies would be forced to lay off workers; they would have to begin buying asbestos materials from abroad. "It is obvious," said Moreno, "that the overall effect of lowering



the present [standard] to two fibers per cc. would have a very substantial effect on our nation's economy."

In July Hodgson—rebuffing both his Advisory Committee on Asbestos Dust and the Nixon panel—agreed to allow the exposure standard to remain at five fibers for four more years; only in 1976 would the standard be lowered to the safer-sounding count of two fibers. Johns-Manville welcomed Hodgson's decision. "The new occupational health standard for asbestos issued today," declared a company notice to stockholders, which came out the same day as the Labor Secretary's decision, "will have no tangible effect on sales and earnings of Johns-Manville Corporation." The release went on to say that between now and the department's 1976 deadline company officials would have to study the "economics and overall profitability" of the Manville opera-

Asbestos Fiber Countdown

The chart below shows percentages of asbestos-fiber-count samples obtained at work stations representative of all those in full operation at the time at Johns-Manville's Manville, New Jersey, plant during four years for which such counts are available.

	Less than 2 fibers	2-5 fibers	5-12 fibers	More than 12 fibers
1965	15.6	24.8	51.3	8.3
1967	9.8	13.7	25.5	51.0
1971	14.0	27.2	43.9	14.9
1972	91.0	9.0		

(Figures provided by Sheldon Samuels, director of health and environmental affairs for the AFL-CIO's industrial union department)

tion before deciding whether it would meet the reduced exposure standards or close down much of the plant. (Apropos of Johns-Manville's priorities, it might be noted that, while the company expressed qualms about spending more money to make its factories safer places to work in, it recently spent \$25.9 million to transfer its corporate headquarters from New York City to a pristine setting twelve miles outside Denver.)

Dr. Selikoff took a different view of Hodgson's four-more-years decision. Estimating that some 100,000 men and women will enter asbestos-related industries before the fiber count is lowered in 1976, he predicted that 20,000 of them might be expected to die of lung cancer, 7,000 of mesothelioma, and another 7,000 of other cancers and asbestosis—a high rate of death from these diseases that could, and should, have been lowered.

1972 proved to be a paradoxical year in Johns-Manville history. In Washington, as we have seen, one company spokesman after the other had predicted dire financial results not just for the industry but for the entire economy if the fiber count were lowered. Back in Manville, however, company engineers were bringing the count way down without causing a dip in the dividends. At the hearings Sheldon Samuels, director of health and environmental affairs for the AFL-CIO's industrial union department, had told spokesmen for the industry this could be done; the spokesmen had insisted it couldn't. Fiber-count statistics provided by Samuels [see box] are revealing in a number of ways. Not only do they make dramatically clear how vastly the situation at Manville improved in 1972; they also indicate that controls were slack well into the supposedly safe Sixties.

With 91 per cent of the plant now operating within the standard set for 1976, things are looking up at Manville. Even such critical observers as Dr. Borow and Dr. Selikoff say that they are impressed by the changes made. Still, these tardy improvements are small comfort to people like Smitty, who "can't do anything." Nor shall the benefit those Manville citizens who in the next few years will suffer from having worked at or lived near the plant when conditions were far more hazardous than they are today. □