

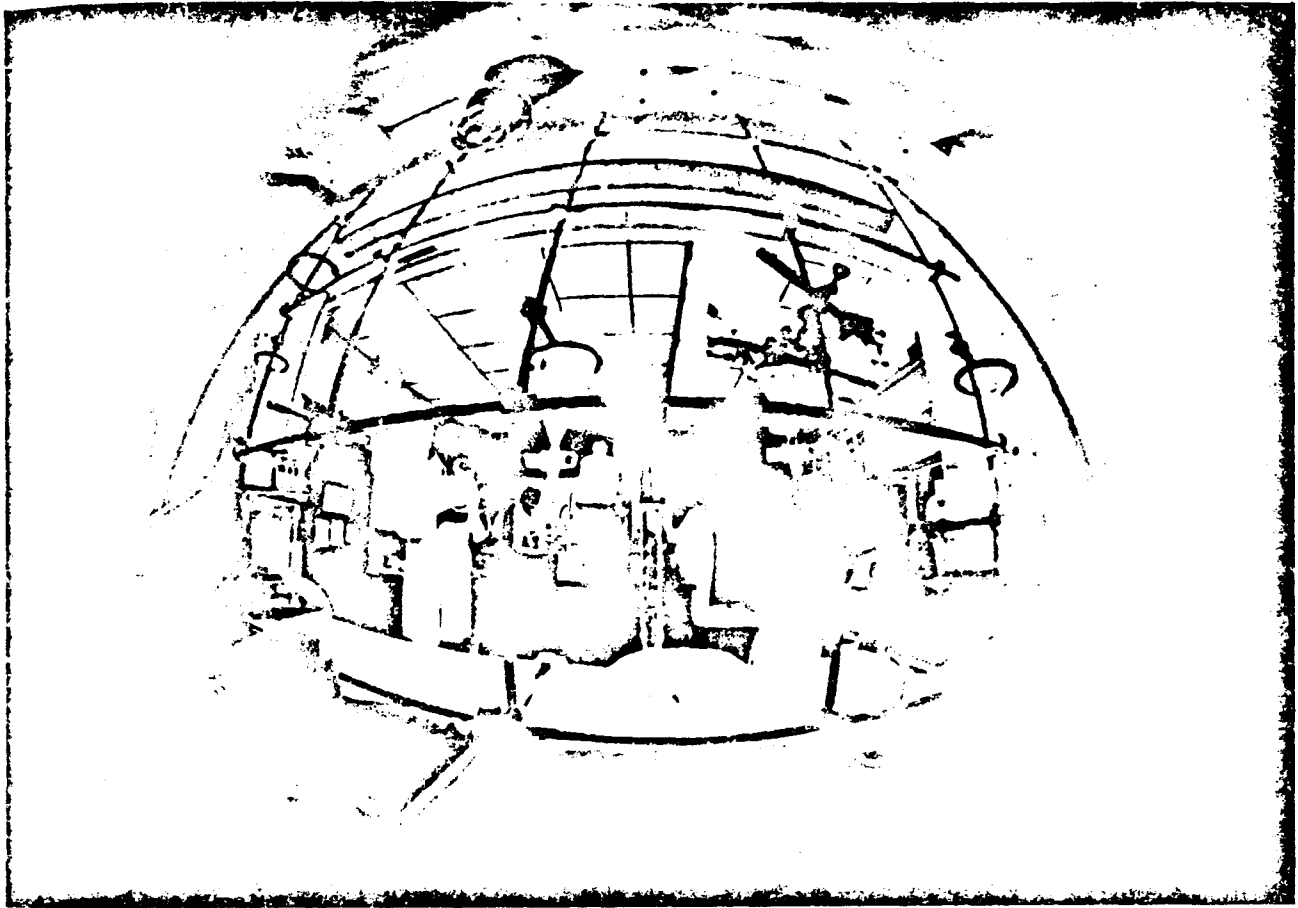


Photo by Bill Shrout, courtesy of EPA

Outbreaks of occupational disease rock industry

THE nightmares about invidious occupational disease have turned to stark reality for two major companies.

An epidemic of peripheral neuritis struck 128 of 950 production workers at the Columbus, Ohio plant of Columbus Coated Fabrics Div. Borden Chemical Co. last August and September. Cause of

the outbreak remains a mystery, although scientists suspect the solvent methyl butyl ketone (MBK).

Early this year, B. F. Goodrich Co. rocked the chemical and plastics industries when it disclosed three cases of a rare liver cancer called angiosarcoma of the liver in its vinyl chloride polymerization process plant in Louisville. NIOSH

investigated, and Dr. Marcus Key, director of NIOSH, announced that "it would appear that a new occupational cancer has been discovered..." The suspected carcinogen: vinyl chloride.

The price for past ignorance has been high. Workers have paid with their health. Some had paid with their lives. The companies have

borne the medical and compensation costs, strained labor relations, the probing intensity of Federal and State health agencies' investigations, and the glare of adverse publicity.

Thoughtful industrial hygienists and medical directors wonder when and where the next occupational disease disaster might strike.

The next scientific discovery in the field could send shock waves through your industry or your company, despite the presence of top-notch safety programs as measured by traditional standards. For this reason, the CCF and Goodrich cases warrant the attention of every industrial hygienist, occupational physician, and safety manager.

Epidemic strikes

Columbus Coated Fabrics (CCF) prints and dyes textiles and fabrics and coats fabric wall coverings with plastic.

Last spring, some workers in the plant's north and south print shops began complaining of dizziness and weakness. By August, doctors had hospitalized five workers with peripheral neuritis, which had been caused by an unknown toxic chemical. Peripheral neuritis is an inflammation or degeneration of the nerves in the arms and legs. Symptoms include a tingling feeling or numbness in the limbs and weakness or paralysis in the muscles.

Late in August, Dr. Donald Billmaier, a physician with the State of Ohio's Department of Health, was notified about the hospitalized workers. Lionel Nosenchuck, CCF's spokesman, told OCCUPATIONAL HAZARDS the company called the Department of Health because it was concerned about the mounting incidence of the disease. Dr. Billmaier said a doctor treating one of the hospitalized workers called to inform him.

"I learned about the outbreak by phone late in the afternoon on Wednesday, August 22," Dr. Billmaier said. "The next day I interviewed the hospitalized workers, reviewed their hospital records, and researched medical literature on known chemical neurotoxins.

"On Friday, I met with CCF's management and explained my suspicion that the disease was job-related. The company agreed to let me conduct an industrial hygiene



Photo courtesy of Standard Oil of California

NIOSH hopes to pinpoint the causes of two recent outbreaks of occupational disease through extensive laboratory tests, including animal tests.

survey and organize physical examinations for other workers in the two print shops."

CCF also called its workmen's compensation insurance carrier, which sent Dr. Norman Williams, head of the department of community health and preventive medicine at Jefferson Medical College, to consult with the company.

The news reached AFL-CIO headquarters in Washington D. C. Union officials called Dr. Samuel Epstein, a professor of environmental health and human ecology at Case Western Reserve University School of Medicine, and asked him to advise Local 487 of the Textile Workers Union of America, the bargaining unit for CCF employees.

Suspect found

Drs. Billmaier, Williams, and Epstein and company and union officials met on September 10.

Company officials listed nearly 100 chemicals used in the plant. They were grouped as solvents, resins,

stabilizers, pigments, and plasticizers. None was a known neurotoxin. Only one chemical had changed in the past few years. In August 1972, CCF substituted the solvent methyl butyl ketone (MBK) for the solvent methyl isobutyl ketone (MIBK). MIBK is photoreactive (its fumes turn to smoke when exposed to light) and is considered a pollutant. MBK was substituted because it was less of an atmospheric pollutant than MIBK. One part MBK was mixed with four parts methyl ethyl ketone (MEK) to make the most commonly used solvent in the plant.

Because no peripheral neuritis had been reported before the use of MBK and because the change from MIBK to MBK was the only change in worker chemical exposure in recent years, MBK became the prime suspect as the cause of the peripheral neuritis. Up to this time, there were no medical data identifying MBK as a neurotoxin; scientists still have not proved it was the cause of the disease outbreak at CCF.

Court rules OSHA preempts Ohio Industrial Commission

In October 1973, the Ohio Industrial Commission scheduled a hearing to discuss closing the Columbus Coated Fabrics plant until the cause of the peripheral neuritis outbreak there had been found and removed.

Three days before the hearing date, CCF won a temporary restraining order from the U. S. District Court for Southern Ohio preventing the Industrial Commission's hearing.

Later, at a hearing before the court, CCF argued the Industrial Commission could not hold a hearing because OSHA had preempted its authority to do so. The company based its argument on Section 18(a) of the Job Safety Law, which states:

"Nothing in this chapter shall prevent any State agency or court from asserting jurisdiction under State law over any occupational safety and health issue with respect

to which no standard is in effect under Section 6." (Section 6 of the Job Safety Law gives OSHA authority to promulgate standards.)

CCF reasoned that because the company was covered by OSHA standards, the Ohio Industrial Commission had no authority over the plant in the field of occupational safety and health.

Attorneys for the Industrial Commission argued that Section 18(a) applied only to those States which had approved OSHA State plans. Because Ohio did not have an approved State plan, they reasoned, Ohio could enforce its State laws on occupational safety and health.

The court ruled the Industrial Commission's interpretation of Section 18(a) was contrary to the express wording of the Job Safety Law and its legislative history.

No hearing was held. ■

Worker exposure to chemicals at CCF was through inhalation, ingestion, and absorption through the workers' skin.

Dr. Billmaier's industrial hygiene survey had shown levels in in-plant air of 500 to 700 ppm, ranging as high as 1,000 ppm, of MEK; and 0 to 25 ppm, ranging as high as 49 ppm, of MBK. The threshold limit value in the OSHA standards for both of these chemicals is 100 ppm.

An OSHA inspection of CCF in June 1973 had revealed excessive worker exposure to other chemicals. After that inspection, the company was cited for non-serious violations of OSHA TLV's for antimony, lead, chromium, 2-butanone, and chromic acid. After an earlier OSHA inspection in April 1973, CCF was cited for non-serious violations of standards governing combustible and flammable vapors in air and for poor housekeeping, as well as for other minor violations of OSHA standards covering machine guarding, walking and working surfaces, and materials handling.

CCF did not contest any OSHA citation, although it did ask for and receive an extension from August to December to implement industrial hygiene controls to abate the hazards uncovered by OSHA's June inspection. OSHA gave CCF credit for good faith when calculating fines for the citations. CCF had a full-time safety director and access to its parent company's corporate safety staff. CCF's accident frequency rate in 1972 was 11.2 compared to the chemical industry average rate of 4.12 and the industry-wide average rate of 10.17 during the same year.

Corwin Smith, president of TWUA Local 487, accompanied the OSHA inspector on the April inspection. He told OH editors he was satisfied with the results of the OSHA inspections, except for the absence of a citation for excessive solvent vapors in the plant.

Work practices in the CCF plant added to workers' chemical exposure. Workers frequently ate lunch at their work stations making ingestion a second avenue of exposure.

They used a bucket of dirty solvent to remove ink from their hands and arms; thus absorption through the skin was a third avenue of exposure. Dr. Bobby Craft of NIOSH said his analysis also showed that employees who frequently worked overtime were more likely to have peripheral neuritis than those who did not.

NIOSH called

The September 10 meeting produced a joint labor-management safety and health committee to implement industrial hygiene controls in the plant. Drs. Billmaier, Williams, and Epstein formed a medical committee to advise them. Two sets of recommendations also grew out of the September 10 meeting.

One set dealt with improving industrial hygiene in the print shops: MBK was removed and MIBK returned to use. Work began immediately on improved ventilation. CCF provided organic vapor masks, gloves, and other personal protection and built a separate, enclosed eating area in the plant.

The second set dealt with finding and treating other workers who might have the disease and with learning what caused the outbreak. The doctors suggested NIOSH be called and its resources used to set up a medical monitoring program and to investigate the toxicity of chemicals used in the plant.

A NIOSH team, headed by Dr. Bobby Craft, arrived in Columbus on September 11. About this time, cases of peripheral neuritis were cropping up outside the print shops, in other areas of the plant. NIOSH responded by helping extend new industrial hygiene practices to the entire plant.

NIOSH also launched an epidemiological study to learn of other cases of peripheral neuritis among users of MBK. Some possible cases have been found and are still being investigated.

Research begins

The search for the cause began under NIOSH supervision. The company retained scientists at Ohio State University and Wells Laboratories to conduct chemical and animal studies. These scientists are investigating not only the effects of exposure to MBK alone but also to

MBK in combination with other chemicals. Tennessee Eastman Co., the manufacturer who supplied MBK to CCF, is also supporting research. Suppliers have provided information on the composition and purity of the chemicals used at CCF. NIOSH analyzed the chemicals, searching for impurities that may have caused the disease.

Dr. Craft said, "We will not have the results of these studies until 1975 and even then we may not have an answer to what caused the disease. If the disease was not caused by MBK alone but by a synergism between MBK and another chemical, or by an additive effect on the workers from exposure to many chemicals and we have not zeroed in on the right combination, we may come up empty handed after this series of experiments."

Medical screening

NIOSH grappled with the question of how to diagnose peripheral neuritis in its earliest stages. A program was launched to learn if doctors could use electromyograms (EMG) as an initial screening device to detect the disease. EMG's measure the electrical impulses generated by active muscles.

Typically, an EMG is given only after a broader physical and neurological examination. Because the test was usually used on the already ill, doctors had no agreed upon baseline of what was normal.

Dr. Norman Allen, head of the department of neurology at Ohio State University's School of Medicine, proposed a numbered rating system that combined findings from an EMG, a physical examination, and symptomatology to diagnose peripheral neuritis. NIOSH had the proposed rating system reviewed by nationally recognized experts in neurology and by scientists at the National Institute for Neurological Disease and Stroke, part of the National Institutes of Health in the U. S. Department of HEW.

With a few revisions, Dr. Allen's system was adopted. Screening revealed 128 cases of peripheral neuritis. A continuing medical surveillance program is underway. No new cases of peripheral neuritis have been found since MBK was removed from the plant and the new industrial hygiene measures were imple-



Photo courtesy of Mt. Sinai School of Medicine

NIOSH's occupational disease research is conducted by thoroughly trained laboratory personnel using the best research equipment available.

mented. All but 10 workers of the 128 afflicted at CCF have regained their health.

Plant closing?

Long before peripheral neuritis struck, labor relations between CCF and Local 487 were notably uncongenial. CCF's Nosenchuck told us: "The Columbus plant has more work stoppages than any of the other 150-plus Borden plants in the United States or Canada."

With the outbreak of the disease, relations between CCF and the union broke down completely. The union asked its members not to report to work and filed a complaint in the U. S. District Court for Southern Ohio asking the court to declare the union's work stoppage protected under the National Labor Relations Act. At the height of the stoppage, about 500 of the 950 union members were staying home.

In October, the Federal Mediation and Conciliation Service was called in. On November 5, the union and management signed an

agreement on improved health conditions in the plant, and the work stoppage ended.

According to Nosenchuck, CCF paid temporary total workmen's compensation benefits to every worker who filed a claim. At press time, the number of workers receiving workmen's compensation claims stemming from the outbreak had dropped to 10.

In February, the CCF contract with the union expired, and the union went out on strike. Spokesmen for both the union and the company have told OH the main strike issues involve wages and benefits, not safety and health.

At press time, the strike is still on. Borden has announced it is considering closing the plant, claiming union demands for wages and benefits are too costly. Nosenchuck told us Borden has already removed some equipment from the plant.

Cancer discovered

As negotiating prospects grew dimmer at CCF, a second occupa-

tional disease nightmare unfolded. On January 23, 1974, B. F. Goodrich Co. announced it had voluntarily reported to NIOSH and the Kentucky Department of Health three cases of a rare liver cancer called angiosarcoma of the liver which fatally afflicted employees working in the vinyl chloride polymerization process plant in Louisville. The men had died of the disease in September 1971, March 1973, and December 1973. Only 20 to 30 cases of angiosarcoma of the liver occur in the United States each year.

NIOSH rushed to the scene and immediately began an investigation. On February 1, Dr. Marcus Key, Director of NIOSH, briefed other Federal health agencies, including the National Cancer Institute, the Food and Drug Administration, and the Environmental Protection Agency, and then announced:

"On the basis of the medical, epidemiologic, and toxicologic findings, thus far, it would appear that a new occupational cancer has been discovered: angiosarcoma of the liver. It is associated with the polymerization of vinyl chloride in the manufacture of polyvinyl chloride. Vinyl chloride is the chief suspect among the more than 50 chemicals used in the plant."

Polyvinyl chloride is made by stringing together single molecules of vinyl chloride in the polymerization process. The vinyl chloride monomer (VCM) is manufactured in 14 plants employing 1,500 workers. VCM is polymerized into polyvinyl chloride (PVC) in another 37 plants employing 5,000 workers.

U. S. companies made 5.2 billion pounds of PVC last year, one quarter of the world's supply. The production of the plastic PVC is second only to the production of polyethylene plastic.

The major producers of PVC are Goodrich, Goodyear, Firestone, and Uniroyal among rubber companies; BP Industries, Conoco, Exxon, Shell, and Tenneco among the oil companies; and Allied Chemical, Borden Chemical, Diamond Shamrock, Dow Chemical, Monsanto, Olin, PPG Industries, Stauffer Chemical, and Union Carbide among the chemical companies.

In 1971, OSHA promulgated as a standard the recommended list of threshold limit values (TLV) of the

American Conference of Governmental Industrial Hygienists (ACGIH). The TLV for vinyl chloride at that time was 500 ppm and was the OSHA standard at the time Goodrich announced finding the cancer. ACGIH lowered its recommended TLV from 500 ppm to 200 ppm in 1972. For several years, the vinyl chloride industry has aimed at a standard of 50 ppm, and Goodrich was close to this standard in its Louisville plant. OSHA's recently issued emergency standard for vinyl chloride sets 50 ppm as the TLV.

Worker exposure

About 270 of the 1,200 employees in Goodrich's Louisville plant work in the polymerization process. Worker exposure begins when VCM is transferred from railroad tank cars to storage tanks and then to the polymerization reactor vessels. More chemicals are added and the batch is "cooked" for 10 to 12 hours, producing a PVC slurry. The slurry flows from the reactor vessels, to the blow-down tank, to the blending tank, and then to a dryer. The now powdery PVC is packaged for shipment.

The polymerization process from the reactor tank to the blending tank is a closed system, but workers who enter the reactor vessels to clean them after every third batch are exposed. Near the blending tanks, dryers, and packaging lines, workers may be exposed to vinyl chloride gas from leaks in the system and from the gas coming off newly made PVC, and from PVC dust.

Soon after Goodrich announced finding the rare liver cancer, Goodrich doctors met with workers in small groups and explained the medical findings. Each worker received a copy of the NIOSH recommended industrial hygiene practices the company was following. The president of the Distillery Workers Union Local which represents the polymerization workers was named to the investigation team.

Goodrich has hired Tabershaw-Cooper Associates to conduct an epidemiological study of angiosarcoma in Goodrich vinyl chloride facilities. Goodrich operates five plants, including the Louisville plant, that make PVC, and one plant that makes VCM.

NIOSH briefing

On February 13, NIOSH briefed industry, labor, and science leaders on the Goodrich cancer outbreak.

Vernon Rose, assistant director for research and standards development, described NIOSH's recommended industrial hygiene practices. They included:

- Housekeeping to clean up old resins in the plant background and storing PVC resins and wastes in closed containers in the future.

- A system to inventory how much VCM was put into each batch and how much PVC was produced to learn how much VCM was escaping from the system.

- Construction of eating facilities separate from the production process.

- Fresh, clean coveralls, gloves, foot covers, and head covers for workers at the beginning of each day and showers for workers at the end of each day.

- Impervious suits with self-contained breathing apparatus for workers cleaning the reactor vessels.

- Self-contained breathing apparatus for workers transferring VCM from tank cars to storage tanks and reactor vessels.

- Dust respirators for packers.

- Continuous monitoring to detect leaks in the piping and vessels used in the polymerization process.

- Eight-hour breathing zone samples for each worker to measure the extent of his exposure.

Dr. Henry Falk, an epidemic intelligence officer from the Center for Disease Control, talked with the families of the angiosarcoma victims and investigated their medical records. He also found and reported a fourth cancer case. This worker's death in 1968 had been attributed to cirrhosis of the liver. Dr. Falk said all four angiosarcoma victims had non-alcoholic cirrhosis. They died at the average age of 46 years. Each had an average exposure to VCM of 17 years.

Dr. William Lloyd, director of NIOSH's office of health surveillance and biometrics, whose early studies showed 20 to 30 cases of angiosarcoma of the liver occur per year in the United States, said a more thorough study of death certificates was underway and would include examination of certificates

for VCM workers whose death was attributed to cirrhosis.

Dr. Joseph Wagoner of NIOSH said an epidemiological study of VCM workers was being launched. He said the plants chosen for the study would have a 15-year production history, large VCM worker populations, and be located in States whose health department maintained detailed, comprehensive records. At press time, eight plants had been selected for the study.

NIOSH's Dr. Edward Fairchild reported a literature search was underway. He said 100 to 150 reports could be found, but that translating some from Russian, German, and Polish would slow the work.

OSHA action

On February 15, OSHA held a public hearing to take suggestions on how OSHA should proceed. Sheldon Samuels, director of safety, health, and environmental affairs for the Industrial Union Department of the AFL-CIO, presented a petition on behalf of the IUD and the United Rubber Workers urging an emergency standard for vinyl chloride. Tony Mazzochi, legislative director for the Oil, Chemical and Atomic Workers union, supported the petition. Statements from Goodrich, Shell Oil, and the Manufacturing Chemists Association urged OSHA to follow the regular standards setting procedure for vinyl chloride. This would allow thorough research and public comment on the new standard without the 6-month deadline imposed by an emergency standard.

OSHA issued an emergency temporary standard for VCM on March 29. The emergency standard reduces permissible exposure to VCM from 500 ppm to 50 ppm. It also requires continuous monitoring of the workplace and use of personal protection whenever the standard's TLV is exceeded. On the same day, OSHA proposed a permanent standard for VCM which parallels the OSHA standards for cancer-causing substances issued last January and aims to eliminate all human exposure to VCM.

As we go to press, NIOSH has found nine angiosarcoma victims—the original four, three more at the Goodrich plant (two of whom are living), one at a Union Carbide

polymerization plant in South Charleston, West Virginia, and one at a now closed Goodyear VCM manufacturing plant in Buffalo, New York.

On February 21, Ralph Nader's Health Research Group petitioned the Food and Drug Administration, the Environmental Protection Agency, and the Consumer Product Safety Commission to ban PVC aerosolized products and PVC pesticides. As yet, none of the agencies has taken action on the petition.

More coming?

Perhaps the most disturbing lesson learned from the CCF and Goodrich cases is that occupational disease outbreaks like these can

happen again in almost any industry, can happen, in fact, in your own plant.

There are 25,000 chemicals on NIOSH's 1973 Toxic Substances List. OSHA has promulgated standards for only 500 of them. And as if fate had designed to prove the frailty and fallibility of occupational health knowledge, the chemicals suspected of causing both outbreaks were among this slim fraction covered by OSHA standards, and worker exposure to those chemicals was within the standards' limits.

Certainly more of these outbreaks may occur as new medical and scientific discoveries are made due to intensified research and heightened awareness of occupational health. ■

Vinyl chloride monomer:

Is it a cancer-causing agent?

Though the three cases of angiosarcoma reported by B. F. Goodrich Co. were the first to point to vinyl chloride monomer (VCM) as a human cancer-causing agent, the carcinogenicity of VCM has been under investigation by the Manufacturing Chemists Association (MCA) since 1971.

The first suspicions of the possible cancer-causing properties of VCM were voiced in 1970 at the Tenth International Cancer Congress by an Italian scientist, Dr. P. L. Viola who described malignant tumors in the ear canals, lungs, and bones of rats subjected to extremely high levels of VCM vapors.

In May 1971, Dr. Viola visited the United States and met with the Occupational Health Committee of the MCA. Based on this meeting and other evidence, MCA called a conference for VCM manufacturing companies in November 1971. Conference attendees agreed to sponsor research on VCM under the auspices of the MCA.

The contract for the VCM cancer study was let in February 1973. According to the study's protocols,

four groups of 600 rats, mice, and hamsters (100 males and 100 females of each species) will be exposed to VCM levels of 0 ppm, 50 ppm, 200 ppm, and 2,500 ppm. They will be exposed 7 hours per day, 5 days per week, for 12 months. The animals will not have food and water during exposures.

For comparison purposes, another group of 100 rats of one sex will be exposed to 2,500 ppm of VCM vapors along with their food, water, and bedding, following Dr. Viola's procedures.

The object of the MCA study is to:

- Duplicate European experiments using VCM manufactured in the United States.
- To extend VCM cancer studies to mice and hamsters as well as rats.
- To develop possible dose-response relationships.
- To determine the no-response level.

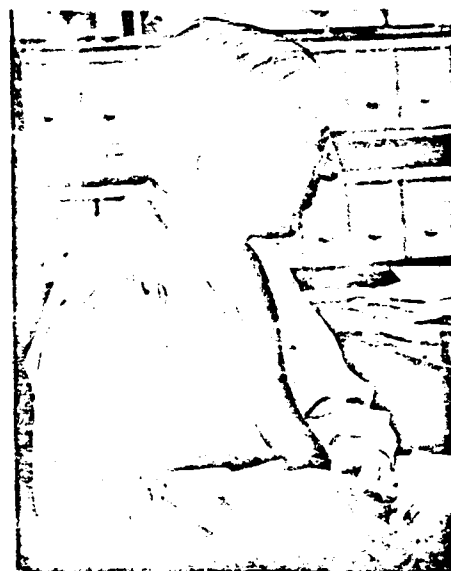
The MCA study got underway last July, but an equipment breakdown ruined the experiment. A new experiment was launched in September. ■

Activists push for new approach to occupational health

By CARL MUSACCHIO, Managing Editor



"It's our mission to provide an open forum where management and organized labor can meet for free discussions on health issues."



"Hopefully, our discussions will result in occupational health policies based on sound scientific data."

Occupational health is emerging as one of the hottest labor relations issues of the 1970's. No doubt, labor-management confrontations over health issues will increase as the decade draws on and the number of class action citizens' suits will soar.

Amid the growing turbulence, the Society for Occupational and Environmental Health offers an alternative to raw confrontation. So Dr. Samuel S. Epstein, president-elect of the society, told OCCUPATIONAL HAZARDS: "It is the mission of the Society to provide an open forum where representatives of management and organized labor can meet with experts from government and the academic world for free, sometimes adversarial discussions of occupational health issues. Hopefully the discussions will result in occupational health policies based on the soundest scientific data available, policies arrived at in open discussion among all affected parties and experts in the field."

Epstein, professor of environmental health and human ecology at Case-Western Reserve University Medical School, Cleveland, will take over as president of the Society at year's end. Dr. Irving J. Selikoff, of the Mount Sinai School of Medicine of the City University of New York, has been president since the group was formally organized in November, 1972.

The Society for Occupational and Environmental Health may seem, at

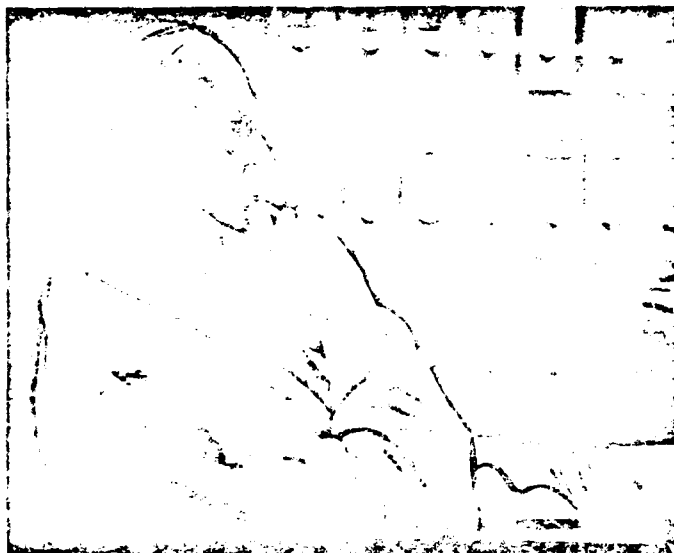
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*"Industry has failed . . .
But organized labor and
independent scientists
were never in the van
either."*



*"Organized labor
doesn't own me,
and it doesn't own
the society.
Financing comes
from labor,
government, and
industry."*



*"There is a lot
more occupational
disease out there
than anyone knows
of. Much of it
unreported or
undiagnosed."*



Managing editor Carl Musacchio questions Dr. Samuel S. Epstein.

first glance, to be another of the several groups formed by health professionals, many on the faculties of medical schools and universities, who discovered occupational health after a stint with the ecology and consumer movements. Their battles with corporate management convinced these academic activists that management held a monopoly on expertise in occupational and environmental health, and it was time they played trust buster. They freely offered their skills to organized labor whenever confrontation over health issues loomed.

Surely there is a good deal of that spirit in the Society. As Epstein put it, "Management has always wanted occupational health matters dealt with in-house, by loyal company men. The new, independent professional realizes these are matters of social policy and they should be settled in the open, not behind closed doors."

But the society offers more. For one thing, there's quality. The group's 300 members include many of the country's best-known talents in community, environmental, and occupational health and medicine. For another thing, there's balance. Membership is drawn from industry, organized labor, government, and academia. It includes, for example, John Sheehan, legislative director of

the United Steel Workers, and Dr. Merle Bundy, medical director of U. S. Steel. Epstein, aware that in some quarters the society is regarded as an instrumentality of labor, emphasizes the society's balanced aspect.

"Organized labor doesn't own me, and it doesn't own the society," he said. Financing, for example, comes from labor, government, and industry. The Society's program committee, responsible for setting project priorities, is also balanced among labor, management, and government.

New approach

The Society began as the result of an informal discussion between Dr. Epstein and Dr. Selikoff. Both are men of international repute: Crisp, no-nonsense Epstein as a cancer researcher and specialist in environmental medicine; the affable Selikoff for his landmark research into occupational disease among asbestos workers.

During the discussion, British Epstein and New Yorker Selikoff found they were in full accord on this issue: "It was apparent to us that the distinctions between occupational, environmental, and consumer health were artificial and unfounded," Epstein said. "Most toxic agents are first identified and used in the workplace, but eventually they find their way into the community either as products for sale or as pollutants. Widespread cases of community disease in the vicinity of plants using hazardous substances like lead or asbestos prove that."

What disturbed Epstein most was that the fragmented approach, flowing from those "artificial" distinctions, had resulted in "two sets of exposure standards for toxic substances—one applying to the workplace, the other to the community in general. I can see no scientific or ethical basis for such a situation," Epstein said.

First goal of the Society, then, would be to consider occupational and environmental health issues in their entirety—not as fragments, but as an entity. To do that, the society would have to draw from a wide range of disciplines: doctors, lawyers, engineers, toxicologists, and workers.

Epstein and Selikoff favored the open forum for free exchange of wide and varied viewpoints. "Most existing forums were too fragmented. There was no central, professional forum where the viewpoints of management, labor, government, and academics could be related," Epstein said.

The Society's forums would also overcome some of organized labor's disadvantages. "Most expertise in occupational health is in management. Labor usually has a hard time fielding experts to match the array that management can muster. But at our conferences, the independent professionals are there to provide backup expertise. What's more, we don't require formally trained experts. Many of the labor representatives have a high level of self-developed expertise, and they have made some of the most valuable contributions," Epstein said.

During 1973 the Society held forums on: carcinogens, byssinosis, beryllium, the *Robens Report* (a report to the British Parliament on the efficacy of safety legislation), and the standards setting process.

This year, sessions are planned on lead, polyvinyl chloride, the health hazards of alternate energy sources (nuclear power particularly), and pesticides.

"We are also setting up a procedure for reviewing NIOSH criteria documents. They will be distributed to Society members who are experts in the specific areas covered by the documents before their official publication," Epstein said.

Open forum

Because of some of his views, including support of the Oil, Chemical and Atomic Workers' strike against Shell Oil Co. on health issues, some in industry question Epstein's impartiality, maintain that he speaks only for labor. We asked him to comment on their observations.

"What is a labor point of view anyway?" he asked. "I find viewpoints ranging from, 'Health is the most vital issue' to 'Don't talk about it.' I don't consider myself allied with labor. Rather, I'm allied with anyone, wherever he comes from, who will work with me to control the health and safety hazards to the worker and the consumer."

Epstein notes that though he was

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an AFL/CIO consultant on health, he has taken issue with the AFL/CIO position on the carcinogen standard question. The union wanted a permit system, Epstein pushed for a permit coupled with a user tax high enough to make employers think twice before using any of the 14 carcinogens and suspected carcinogens covered by the standard.

"Whenever we schedule a conference, all interested parties are given a chance to participate," Epstein said. "When I set up the beryllium conference, for example, the first group I called on was management. They refused to participate. I was disappointed, but they were given the opportunity."

Management participation is essential to the success of a conference, and is in management's best interest, he believes. "You can't sweep these things under the rug anymore," Epstein said. "Times are changing. An active group of forward looking labor leaders and scientists realize that a high priority has never been placed on health before, and they're determined to make up for lost time."

Time to speak out

Does the fact that so many scientists saw the need for a Society for Occupational and Environmental Health constitute an indictment of what has been called the "industrial hygiene establishment?" we asked Epstein.

"It does, indeed," he answered unhesitatingly. "Industry has failed; I think that is a well-recognized, proper inference. But organized labor and independent scientists were never in the van either."

He deplores the number of health professionals whom he regards as owned lock, stock, and barrel by management. Some are speaking out, but not always loudly enough. "At one hearing I was amazed to hear an industry lobbyist voice dissatisfaction with his company's policies even as he enunciated them," he said.

Epstein deplores equally union leadership which shrinks from pressing health issues. "I have a report of severe health problems resulting from excessive exposures to lead at a smelter plant. The local union is unwilling to raise its voice because

it's afraid the plant may close down or move away," he said.

Epstein believes all health professionals, whether they work for corporations or for labor unions, should find their tongues and speak out vigorously for effective industrial health programs. Failing that, some employees may have to turn to the courts. "A recent meeting with the Ohio Trial Lawyers Association convinced me that class action suits for redress could become a powerful weapon. Use of the lawsuit would call company industrial hygienists to account for actions verging on the criminal. In no other walk of life could people make decisions affecting the health and safety of others with impunity," he said.

Epstein, like everyone else in the occupational health field, is closely following the progress of a \$100 million lawsuit now in the Texas courts. Employees exposed to asbestos who are now suffering asbestosis and lung cancers and the survivors of other employees now dead of asbestos and lung cancers have brought the suit against their employer and a leading industrial hygiene organization which had conducted a survey of the plant for asbestos fibers and given it a clean bill of health.

Health and safety strike

Epstein sees the strike as another weapon employees could use to make health and safety gains. A recent decision by the U.S. Supreme Court requires that any such stoppage be justified by presenting objective evidence of the hazard in advance. Some in organized labor see the decision as weakening their hand.

Epstein doesn't agree. "If there is to be a strike on a health or safety issue, all the facts should be laid out. If a panel of qualified, objective, disinterested experts were permitted to examine the facts, and it decided health hazards did, in fact, exist, no one could take issue with the decision to strike if it came down to that. Of course, the panel would have to have access to such information as what ingredients are used in a product, or what chemicals are employed in a process, and in what quantities. The panel would also require all records of environ-

mental monitoring, all records of medical examinations. If labor must make a case for a health hazard, management should be compelled to make the records available," he said.

Epstein believes not only that records should be accessible, but that they be kept much longer than present requirements call for. "NIOSH wants records of lead exposure kept for only 5 years, for example. That's nonsense," he said. "In many cases, adverse effects may not show up until 20 years after exposure."

Bad news coming

Epstein has figured prominently in investigations of outbreaks of occupational diseases both at Columbus Coated Fabrics and B.F. Goodrich (see story on page 43).

"I believe these outbreaks are really just the tip of the iceberg," he warned. "There is a lot more occupational disease out there than anyone knows of. Much of it is unreported or misdiagnosed. Things like these outbreaks happen because there is no requirement for advance testing of chemicals before they are introduced into the workplace. The lesson of B.F. Goodrich and Columbus Coated Fabrics is that reliance on epidemiology as a way of measuring hazards is wrong. We must test for agents before they are used in the workplace. The test methods are now standard in the consumer field. You'd not eat food if chemicals added to it had not been tested, yet we daily ask workers to submit to exposure to untested chemicals. We need comprehensive test data. In the absence of such data, the substance should not be used."

Most of the current industrial health standards reflect this dearth of real, comprehensive test data, Epstein believes. "They are based on gross, short term effects, not the subtle, difficult-to-recognize, long-term effects of exposure," Epstein said. "Industrial standards must be brought closer to community clean air standards. Perhaps they will never be the same because community standards must allow for the very old, very young, and weak, but the hundredfold difference that now exists between industrial and community standards is unconscionable." ■