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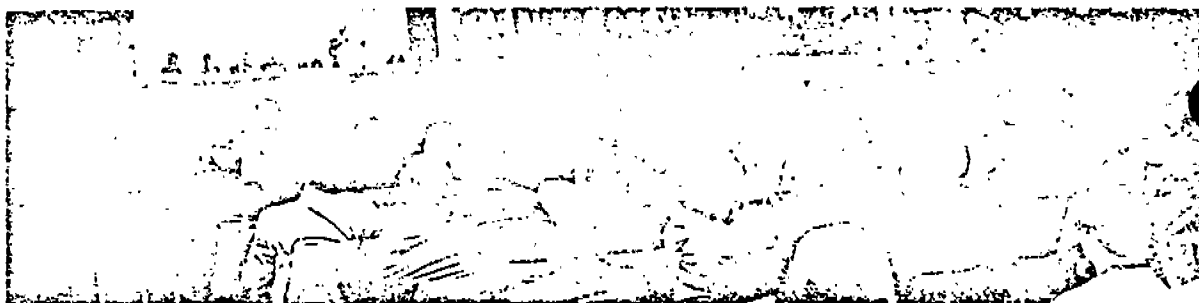
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SPELLBOUND—Hundreds of rubber workers listen attentively as Peter Bommarito, URW International president, gives the keynote address at the URW Health and Safety Symposium April 9 at the Shoreham Hotel, Washington, D. C. A battery of experts including physicians and educators stressed that unions must increase their involvement in occupational health programs in order to protect members from work hazards created by years and years of neglect by industry. The high-powered program was unique

in that sessions kept the complete concentration of the large audience. Major areas discussed included university programs to investigate health problems, hazards and deaths in the manufacture of polyvinyl chloride (PVC) resin, and the need for a national program to study and control occupational cancer. Bommarito and Louis S. Beliczky, URW Industrial Hygiene director, moderated and coordinated the program. About 625 persons attended the seminar.



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Health Hazards From Industry Neglect

By John R. Oravec
 AFL-CIO News Staff

Unions must step up their involvement in occupational health programs to protect members from job hazards caused by years of neglect in industry, the rubber workers were told at a national safety seminar April 9.

Disease such as leukemia, stomach cancer, liver tumors and heart ailments are now being linked directly to the worker's job environment.

A battery of occupational medical experts advised the nearly 600 URW local and regional representatives that it's up to organized labor to lead the fight to correct conditions in the workplace.

While the seminar focused largely on the serious health threat of the cancer-causing chemical, vinyl chloride, it also explored labor's efforts to reduce worker exposure to other toxic chemicals, fumes, dusts, gases and heat and noise stress.

URW President Peter Bommarito said that labor must take up the slack because of the weak enforcement of the federal Occupational Safety & Health Act.

"The intent of the law was excellent," Bommarito said, "but the administration of the act has fallen far short of our expectations."

"If we want the job done right, there must again band forces to strengthen the law and encourage Congress to provide the proper financial appropriations."

Recent standards issued by the Occupational Safety & Health Administration on vinyl chloride and other carcinogens leave the agency open to serious criticism, he warned.

"Influence peddlers seem to affect their judgment regarding the law, which was initially designed to protect people and not corporate giants," he declared.

Although only 1,500 URW members are exposed directly to vinyl chloride, the scope of the hazard is extensive, the delegates were told.

Throughout the country, 7,000 workers are directly involved in the production of vinyl chloride or its polymerization, URW Industrial Hygiene Director

Louis Beliczky noted.

Beliczky and Dr. Irving J. Selikoff of the Mount Sinai School of Medicine pointed out that many thousands more workers come in contact with vinyl chloride products since 35 pct. of all plastics used in the country are made of the chemical.

A serious health hazard could also be linked to the families of workers who bring home the dust of polyvinyl chloride on their work clothes, Selikoff said.

Meanwhile, the Environmental Protection Agency and the Food & Drug Administration have taken steps to curb the use of vinyl chloride gas and plastics in consumer products.

Vinyl chloride gas is

used in household pesticide sprays and as a propellant in hair sprays. The use of plastic liquor bottles was banned last year because studies found that vinyl chloride was leaching into the liquor.

The widening vinyl chloride scare emerged with reports earlier this year that several workers died and others showed symptoms of angiosarcoma of the liver caused by their long exposure to vinyl chloride at a B. F. Goodrich plant in Louisville, Ky.

Before the revelations, this rare form of liver cancer was little known, although some industrial doctors had been involved in research on the chemical for a number of years.

Bommarito charged that reports of the cancer threat were closely guarded to shield the companies from workmen's compensation claims.

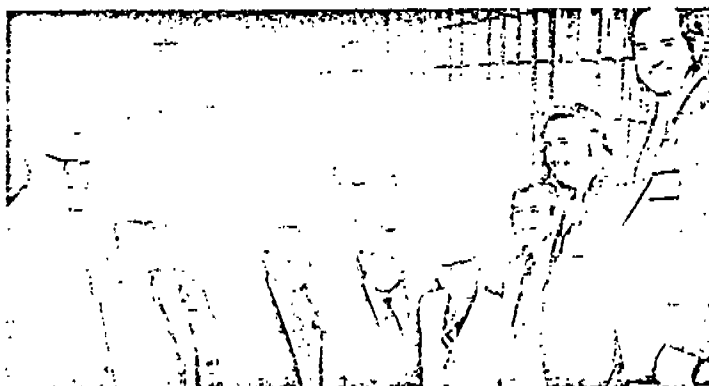
What little research was done on vinyl chloride was not published until recently. The dam broke with the testimony of an Italian researcher, Prof. Cesare Maltoni, at Labor Dept. hearings in March.

Now studies are getting wider publication. But Bommarito expressed concern that many thousands of workers have been unnecessarily exposed to the chemical because of the long-held secrecy.

He pointed out that joint occupational health programs like those the URW has with major tire and chemical companies will provide the needed information to aid researchers in further studies.

Dr. Thomas Mancuso of the University of Pittsburgh, who serves with Dr. Selikoff as a medical consultant to the AFL-CIO Industrial Union Dept., called for the wider development of labor-industry health programs and workmen's compensation laws.

Charles Levinson of the International Chemical Workers Federation in Geneva, said the vinyl chloride threat is not exclusively American. And since it is an international danger, organized labor throughout the world must bring pressure on industry to reduce exposure to the carcinogen to safest level for workers.



URW WELCOME—U.S. Sen. Henry M. Jackson felt as "welcome as 32-cent gasoline" as URW officers escorted him to speak at a luncheon during the April 9 Health and Safety Symposium. From left are Harold A. Terry, URW Local 154 president; M. L. Pucka, URW District 5 director; E. James Penick Jr., URW International Pension, Insurance and Fair Practices special representative; Robert L. Hill, URW International Organizational director; Sen. Jackson; Julian D. Evans, URW Local 100 president; Robert R. Krapp, URW Local 724 president; John J. Morehouse, URW Local 131 president; and Richard D. White, URW Local 43 president.

Dangerous Chemicals In Industry

By Peter Bommarito
President.

URW International

(The following is Peter Bommarito's keynote speech at the April 9 Health and Safety Seminar held in Washington, D.C.)

The focus and main thrust of our Health and Safety Seminar today is on chemicals in industry—the exposure of workers to toxic dusts, fumes, mists and gases from thousands of chemicals that are used every day, in some form or other, in virtually every work place in the country.

For years you have attended safety conferences and all the national attention has been on accidents—on what you can readily see happen—the loss of an arm, leg, eye and the loss of life.

The accidents are sudden, the effects are immediate and you can see and recognize the physical cause that was responsible.

What we are concentrating on today is on what you can't see—the chemical dusts, fumes and gases that the microscope measures and the laboratory analyzes.

The harmful effects of these chemicals can be just as disastrous, just as disabling, just as permanent and death just as certain.

We are concerned because the workers trained primarily in safety do not know how dangerous chemical substances are in the work place.

The serious findings of cancer and cirrhosis of the liver among workers in the vinyl chloride operations, a comparatively new process, illustrate the need for continuous industry studies.

It confirms the importance of investigating the effects on health of chemical dusts, fumes and gases. These findings now pose a major international question that affects all workers. How many other cancers, how many other health hazards exist or have gone on unrecognized during the past 30 to 40 years, in all industries in the U.S., Canada and throughout the world?

This sudden identification of vinyl chloride process cancer has served a brutal purpose. It has uncovered what industry, government and labor do not know—the toxicological and cancer potential of thousands of chemicals used in industry. The point is, if the industry does not know, if the government does not know, if we, as labor leaders, do not know, how is the average worker going to know? These are tremendous odds against the industrial workers everywhere. Worse yet, how will these harmful effects be recognized and identified; how will indus-

try, labor and the government ever know, unless these industries are investigated and studied?

We must ask too, just what is being done about the toxic substances that industry and government have known about for a great many years? There are hundreds of harmful chemicals and minerals used in industry for which there exists now enough scientific information to require protective control measures—enough toxicological information so that levels—concentrations of the dusts, fumes and gases have been specified, in standards, that should not be exceeded in the work place. Yet, for these harmful substances, some in

there are industrial health problems? There are enough chemical substances already in use in industry—just as certain to cause disease, disability or death, and this is happening every day in industries everywhere.

The question is asked again—where is the worker to go for help? The reliance on industry for voluntary and even legal compliance, has not worked. The reliance on government to implement the laws on occupational health and safety has not worked. There must be a better way.

We had hoped that when the federal legislation—the Federal Occupational Safety and Health Act—was

have access to the record thereof.

Further, the employee has the right to be informed promptly by his employer of exposure to any toxic materials or harmful physical agents in concentrations or at levels in excess of those prescribed in the standards. These legal requirements are very important—they are essential—but the URW questions their implementation.

How many times have you, or the members of your unions—the workers at the plant—seen actual measurements being made at the work place, in the past weeks, months or past year, or since the law was passed? And what about the years before the law was passed?

If the air sampling or measuring was done, was it done for one chemical or all the toxic substances—dusts, fumes, gases—the air contaminants in the work place? Were the air measurements done at each workplace, at each department or manufacturing process, for each shift of workers, for each plant? If measurements were done, were you told of what was found? Did you see the records? Were the measurements evaluated and interpreted by qualified technical persons?

If the air sampling and measurements have not been made of the chemical dusts, fumes, gases, etc. in the air at the breathing zone of the worker—if the necessary number of measurements have not been carried out, how does the company know that it is complying with the law?

How can the company tell the worker whether or not there has been an excessive exposure to a particular chemical, or any of the materials in the toxic standards, on air contaminants, if the measurements were not done?

How can the company maintain a record of measurements of air contaminants to make available to the workers or their representatives, or the government, if the air sampling and measurements were not done?

How can the company know whether it is providing a place of employment "free from recognized hazards" if no measurements or studies are done to recognize whether there is a hazard or not?

If the company has not done or is not now carrying out a continuous system of environmental monitoring of the toxic substances in the work place—if it has a lack of awareness of the necessity of environmental surveillance—how can the hazards ever be identified or recognized?

If the companies have not identified and measured the toxic substances in the work place—and therefore have not identified for the worker—the chemicals and their concentrations, and have not warned him of the harmful effects of the substances to which he is exposed, then how does the worker know—how does his doctor recognize when he has an occupational illness or disease? There are probably tens of thousands of occupational illnesses and diseases that pass unrecognized during the year because of this.

If the companies don't know and have not measured and evaluated and recorded the levels of toxic dusts, fumes, mists and gases, then how is the gov-

(Continued on Page 3)

Goodwill's Goal Is Rehabilitation

May 5-11 has been set aside as National Goodwill Week to encourage public support for the international program of Goodwill Industries.

The successful rehabilitation of handicapped and disabled Americans is a goal shared by many private and public organizations in the United States. Goodwill Industries located in 158 cities in the U.S., are actively engaged in assisting the handicapped to attain this goal.

National Goodwill Week is observed each year to bring about greater public awareness of the many ways in which an individual is helped through Goodwill and of the many ways in which individual citizens can support the work of Goodwill.

Traditionally speaking, we think of a handicapped individual as a person with a visible problem—one who is confined to a wheelchair, an amputee, or someone who is mobile only with the aid of crutches. Goodwill Industries has broadened this traditional concept and serves all people who are unable, for one reason or another, to compete in the labor market. These individuals include the socially disadvantaged, the alcoholic, drug addict, mentally disabled, the paroled convict, and those disadvantaged by age, to name only a few.

Goodwill operates from financial contributions, business contracts, and donated surplus items. All donations have as their end product—wages for the handicapped.

Donations of useable items, patronage at Goodwill stores, and financial contributions are three examples of how everyone in your community can share in the accomplishments of making "Goodwill—A National Priority."



existence since the beginning of industry, the necessary protective control measures are not provided, and the necessary protection of the workers ignored. There is a tremendous need to correct these problems in every industrial plant. No magical formula need be discovered to figure out how to control these common problems. They can be controlled.

What is being done about all of this? The workers have turned to the companies and they threaten to close the plants. They tell them there is no problem. The workers have turned to the government for help and they have got nowhere for years.

When a sudden disaster occurs, such as occurred in the coal mines, and national attention is focused on the tragedy, then the industry and the government recognize that there must have been a problem. Must everything reach such disastrous proportions before decent, rightful and corrective measures are taken by the industry and by the government? Must a new cancer or disease be discovered every year before an investigation is undertaken by the government or industry—before there is an awareness that

adopted, that we would see a great change for the better—that the legal requirements, the standards adopted, would accomplish what for generations was not done. This has been the hope of the worker and even when these hopes now became a legal right, the magnitude of the industrial health problems due to toxic dusts, fumes and gases, have not been touched. The problems are overwhelming—where is the professional staff of the government that has promised to do so much and has done so little?

I should like to refer to a few sections of the law.

The law requires that the employer furnish a place of employment free from "recognized hazards" that are causing or likely to cause death or serious physical harm to their employees, and to comply with the Occupational Safety and Health Standards promulgated by the Secretary of Labor.

To maintain accurate records of employee exposures to potentially toxic materials or harmful physical agents which are required to be monitored or measured and to provide employees and their representatives with opportunity to observe such monitoring or measuring and to

More Bommarito . . .

(Continued from Page 2)

ment ever going to know whether a company was in compliance (not at the time of the visit), but any time during the previous months and years?

If the government compliance staff is so limited, if its professional staff of industrial hygienists are so few, how can proper evaluation of toxic substances in the work environment be made for the industries in the U.S.? The federal government has simply not carried out its responsibilities to protect the workers' health.

I should now like to refer to the main part of our seminar—the URW Joint Occupational Health Program with the large master corporations, to provide you with some background for the presentations that will follow.

Our approach to the industrial health problems was based on the need to know just what was happening to the members of the URW. We didn't know—the companies didn't know, or if they did know, they certainly didn't tell the URW and the workers.

We decided not to wait for the federal government to develop a program, or wait for legislation (and that was a fortunate decision). We decided not only to find out, but made occupational health a major objective in our collective bargaining negotiations, and in 1970 an agreement was reached with the large Master Contract Corporations on a Joint Occupational Health Program. The agreement designated that investigative research be conducted by university scientists for the identification and evaluation of potential and actual health hazards.

It was the URW that requested and insisted on the Occupational Health Research Program in the negotiations. The companies at that time were reluctant partners. Now I believe they have seen the light.

The universities agreed upon were Harvard and North Carolina. The main focus of the investigative research was directed at the chemical dusts, fumes, mists and gases generated in the manufacturing processes throughout the industry. We worked with Dr. Thomas Mancuso, Research Professor of Occupational Health at the University of Pittsburgh, in the design and development of the long range program in Occupational Health and we are very grateful to the doctor for his contributions to the URW.

Whatever future accomplishments do materialize

in the Joint Occupational Health Program by the university scientists in terms of advancement of scientific knowledge, the recognition and discovery of occupational diseases, these future accomplishments will not be looked upon by the URW with any sense of pride, but rather of sorrow—for each of these recognitions of occupational diseases are only the reflection of a great many years of neglect in industry—years of pain, suffering and death for the union members. It is from their death and work records now traced and studied so carefully by the scientists, that tell us why they did die.

Our satisfaction in this Joint Occupational Health Program comes from the hope and the expectation that the lessons of the past will not be ignored, that the diseases recognized will make possible the protection not only of the workers that follow in the rubber industry, but to all other workers exposed to the same chemicals and processes in other industries of the U.S., Canada and throughout the world. It is a painful price to pay.

The university studies are only in the first stages of investigation. It is a tre-

mendous undertaking to study 20, 30 or 40 years of occupational and death records. No one study can investigate and evaluate the accumulated health problems for all these years, for all of these plants. We recognize that the investigative research must be continuous, not only to study the effects of the chemicals of the past, but also because of the continuous introduction of new chemicals and changes in manufacturing processes and work exposures which occur each year.

In summary, we have cited the problems of industrial health, the needs for investigation, and the difficulties of progress.

As leaders of organized labor, all of us have tried in our own way, to bring about some measure of progress.

I believe now is the time that a fresh, strong stand on occupational health must be taken—that a new alliance of labor, of all workers, joined in common cause on occupational health, must be forged—that a better way must be found.

We extend an invitation to all of industry and government to join with us in finding this better way.



VINYL CHLORIDE DANGER—Dr. Irving Selikoff of the Mt. Sinai School of Medicine emphasizes that vinyl chloride is "a substance which can cause cancer and I see no reason for you to breathe it in the future—whatever the operation." The outspoken expert told URW delegates, "If you inhale it you are exposing yourself to a risk and I don't think that human beings in the future should be asked as a part of their job to inhale this cancer-producing material." His remarks were greeted with thunderous applause.

Cancer's impact

Dr. Joseph Wagner of the National Institute of Occupational Safety and Health addresses the cancer problem in this excerpt from his comments at the Health and Safety Seminar:

Each year in the United States there are more than 665,000 cases of cancer and about 385,000 deaths caused by it.

Now the World Health Organization estimates that about 75 to 80 pct. of these cases are derived from environmental origin. In fact, more recently the director of The National Institute for Health stated industrial and agricultural technologies are the major contributors in the production of most known environmental carcinogens.

The economic impact of cancer is massive. The direct costs of hospitalization and medical care for cancer in 1969 exceeded \$500 million. The direct and indirect cost of cancer including loss of earnings during illness and during the balance of a normal life expectancy have been estimated as a total of \$15 billion for 1971.

Now in spite of these facts little attention has been directed toward the identification of carcinogenic hazards in the industrial setting. What's of more concern to me is the fact that even less effort has been directed toward applying knowledge that we already have on the basis of animal experimentation or from epidemiological studies in other countries to corrective action here in the United States.

As a result, I think it is fair to say that today people are developing cancers that could have and should have been prevented.

Now the point that I am attempting to bring across is that historically what little effort there has been in the area of occupational carcinogenesis has come from the epidemiologic approach—that is where we go out and count the bodies. And then we confirm it out in the animals.

Only recently on three occasions has there been identified in the animal and in the experimental situation an agent which is carcinogenic and we are now seeing the same manifestations in humans. Those three examples are diethylstilbestrol, bis-chloromethyl ether, and vinyl chloride.

Now what I am going to recommend is where we should be in the future. I think that considerably more effort is needed in the field of cancer epidemiology to monitor the effects of our existing chemical envi-

ronment on the induction of cancer in the industrial setting. However, we must not lose sight of the fact that the epidemiologic method is directed to and after the fact exposure.

And I want to emphasize that when we are under Congressional mandate to provide occupational safety and health to the United States working population and we are dealing with an insidious fatal disease such as cancer and we are in a society as progressive and lucrative as we are in the United States that man should no longer be the proper object of study and I think the time has come where there must be an aggressive attack—an aggressive approach—on the part of the federal government and the researchers to encourage legislative changes requiring pre-testing of agents as part of the research and development costs of industry and the preclusion of entry of new agents into the environment with all their inherent dangers in the industrial setting and in the community setting if in fact these agents are shown to be carcinogenic.

I think only then we insure a completely environment. And I would like to say that there are other regulations such as the Delaney Amendment to provide this to the general population and I see no reason why that type of protection should not be provided to the working population.

Bommarito On National Broadcast

Peter Bommarito, URW International president, will be featured on the Mutual Radio Network's "Labor Press Conference" on Tuesday, May 14. During the half-hour broadcast, Bommarito will discuss and answer questions on the boycott of R & G Sloane Co. plastic pipe and fittings. URW Local 621 has been on strike at the Sloane plant in Sun Valley, Calif. for more than a year. Bommarito is also expected to be questioned on occupational health and foreign trade matters. The program will be broadcast at 9:05 p.m. Eastern Daylight Time, May 14. Check your local Mutual affiliate for the exact time and station in your area. The program will be heard on some 200 Mutual stations across the nation.

"Humans aren't guinea pigs"—Jackson

Here, in part, are Sen. Henry M. Jackson's remarks during the Health and Safety Symposium April 9 in Washington, D.C.:

Your conference here today in the area of health and safety I think points out to all of us that you operate on the basis of a high degree of professionalism—that you're not out just to demagogue some issue. But you're out to get the facts and that you bring into that decision-making process the very best people that you can obtain.

I want to just say a word about the problem on vinyl chloride. We have been working with Pete (Bommarito) and your officers to try to do something about this problem. As you know we're in touch with the Labor Department. I'm disappointed with the regulation. I'm disappointed because it does leave too much to chance.

I can only observe that when there is a danger such as that presented in the area of vinyl chloride—and we know that the danger is there—we're arguing over how much can we tolerate. I say we ought to stay on the side of safety to make sure that not a single human life should be used as an experiment.

Why should we wait? We know that there is a real problem here as it pertains to potential cancer of the liver and what other organs might be affected—we don't know. All science is a matter of trial and error. Science is not exact. To define it I guess you would say that you would attempt to predict that out of so many cases a certain thing might happen. It's the element of prediction that scientists are trying to deal with constantly. And all I want to make sure is that we're not using human beings as

guinea pigs in trying to come to a conclusion....

As I told the legislative group last week I always feel at home in talking to working men and women. My father was in the labor movement for some 50 years. I worked as a youngster being a member of the building laborers union handling a wheelbarrow full of concrete. And I

children than what you had.

Isn't that what it's all about? We want to be sure that our children can grow up having the best possible education that we can give them, so that they can go out in the world and have employment and earn the best possible wage or salary....

And may I add, the over-

getting somewhere—and they immediately got rid of it—was Phase 2 when we were bringing about some price-wage stability. Every phase has been a greater economic disaster and I hope you'll join me in Phase 3 and that is to help elect some good liberals this Fall so that we can get this country back on the track again.

Inflation is the biggest problem we face. And make no mistake about it, I saw the statistics even with all of the escalation provisions tied to the cost of living and the workers last year lost a net of 4 to 7 pct. Actual erosion of their buying power and inflation is starting off this year at better than 10 pct.—double what it was in the recession of 1970 and 71.

And so I think we all must recognize the need here to bring about the kind of price-wage stability that will provide for the productivity, that will provide for the buying power that we need and so that we can end this continuous erosion of the life-savings of our people and the hard earned money of our working people.

You know the way the economy is staggering President Nixon may be the first president to get his picture on a postage due stamp. Well, Pete has mentioned the energy problem. This goes to the heart of our industrial society. Energy impacts in every area of our gross national product, our whole economy.

I would point out to you that in this area we are dealing with one of the largest cost factors in industrial production. Our goal must be to never again—and some of us have been warning about this for several years—that we must never again allow the United States to be in a position where we are dependent for 35 pct.

of our petroleum supply from abroad. The United States of America does have the resources to be independent in this area, including petroleum that is yet to be discovered. We have enormous amounts in Alaska and the outer continental shelf.

But we have passed in the Senate and the House is going to act in the next few days on a \$20 billion research and development bill in which we can convert our coal—in which we have over half of the world's reserves. We can convert our oil shale of which we have an amount in petroleum equal to the total petroleum reserves of the world and we have great geothermal deposits in the United States all of which can make this country self sufficient.

And looking on down the road with this program we can harness the energy of the sun, solar energy, fusion in the atomic area, hydrogen which may well become the substitute for gasoline as we look further down that road. And I want to simply say to you that America must proceed with this effort as directed in the legislation. With the urgency of the Apollo moon program, when people laughed, when President Kennedy said in 1961 we'll have a man on the moon by the end of the decade. We not only had one, but we had twelve in six different voyages. I have great faith in the genius of America, the talent that we have, our great human resources—that we can do whatever we need to do to achieve this objective of self-sufficiency so that we will never be in a position where we are going to be blackmailed by any potentate anywhere in the world. Finally we want to see a world of peace. I want my country to use its resources wisely in this

(Continued on Page 5)



SEN. HENRY M. JACKSON

can assure those that have not had that experience that I tried to avoid it. It is all mechanized now and it is not half as bad as it used to be.

But I do feel at home because I think I understand fully and deeply the goals, the aspirations of working men and women. My father and mother who were immigrants from Norway had the same goal that your parents, that you have for your children and that is to make it possible in this great country to have a better life for your

riding objective must be—and it can be done—we have the leadership and the will—to achieve full employment for every able-bodied American at a good wage and a good salary. With all that we have to do in America there is no excuse for idle hands. There is too much unfinished business. And as I look down the road we can do that job with the right leadership and the right direction. We have witnessed in the last five years one phase after another: Phase 1, Phase 2, Phase 3, Phase 4. The only one that was



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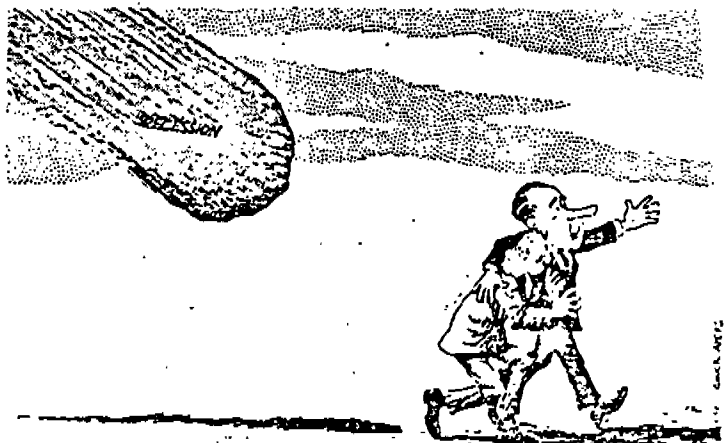
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"Don't be silly—the sky isn't falling"

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Jackson...

(Continued from Page 4)
game called detente. I am willing to provide economic assistance to the Soviet Union provided that they do at least two things: (1) That they show some movement towards letting people out of their country who want to leave.

We're not telling them how to run their internal affairs, but we are saying that we're looking for some evidence here that you do respect that right of a person to leave which the United Nations in 1948 voted unanimously under Article 13 of the Universal Declaration of Human Rights that a person in a country should have the right to leave freely and return freely. Oh, they say I'm messing in the affairs of other countries business and so on. I don't care what they say about me.

I am proud that I have been able to get thousands of people out that wouldn't have been able to come out had it not been for the Jackson Amendment to the Trade Bill in which the Russians are asking special economic help and assistance from the United States of America. We ask nothing for ourselves. We're asking only that they do something in the name of humanity—that they do something to make it possible for people to live, to leave the Soviet Union. And I want to see, and I will feel better—and I know we are moving towards a real detente when we see thousands of Russian students coming to the United States and thousands of American students going to the Soviet Union.

I looked at the figures a couple of years ago and Luxembourg sent more students to the United States—the smallest country—than the Soviet Union. And the average age of the Soviet students is around 40 years. They are students. You know what I mean. I want to see a freer flow of ideas and people through that iron curtain barrier. And the other area that I want to see some movement is real disarmament. The Russians are asking for billions of dollars in credits from the United States. They want us to build a huge energy complex in Siberia. My Lord, what about starting one here at home in this energy crunch.

As I say I am willing to provide some economic assistance, but I say look if you're going to ask for this help let's get something in return that will give some assurance not just to our people but to mankind that the world will be a more peaceful place in which to live.

I propose that the Russians cut back their strategic forces, land based which they cut number us substantially and the size of those missiles down to 800. We cut ours—they have 1600—cut ours down to 800. Neither side needs to have as much as they have. Cut back the submarines strategic to 30 from their 62 and our 41, then we'll save billions and they'll save billions....

Finally, we are living in a troubled time. I've never lived personally myself at a time when there is greater uncertainty. I think there is only one way I know of to overcome the ugliness of the past and for us to insure that. Watergate and all the rest will become nothing more than distant memories and that is for us together to reach out for a future that is waiting to be born—Business and labor, parents and children, north and south, black and white, farm and city, Democrat, Republican and Independent. That's what most Americans want to do and what they expect of their government is to lead them in that effort not to demean, degrade this country's noble purposes. We've got a lot of work to do all of us together. But it's a kind of work—it's the work I think millions of us are eager to start on. It's the work of decent and concerned citizens all across this great land. Others may seek to make America great again. I seek to make America good again for that is our best claim to greatness. Thank you.

Carcinogens

This word came up frequently at the recent Health and Safety Seminar. Carcinogens are chemicals that produce cancer.

Epidemiology

This word also will appear frequently in this edition along with "epidemiological." Epidemiology is the study of occurrence and distribution of disease. In the case of the Health and Safety Seminar, it most often refers to the study of illness and death records of workers.

Oops!

January's UNITED RUBBER WORKER neglected to mention that Eugenia S. McKelvey is secretary to Kenneth Okham, URW International vice president. Mrs. McKelvey recently celebrated her 30th anniversary on the job at URW International headquarters in Akron.

North Carolina Program

Dr. David Fraser spoke on the University of North Carolina's health program during the April 9 Health and Safety Seminar.

Highlights of his presentation follow:

The basic agreements that were made between the URW and the participating companies which have been so ably summarized by Dr. Peters and Mr. Bommarito are indeed remarkable and one day will be recognized as a most important milestone in labor-management relations.

Certainly the wisdom and creativity of those who conceived these agreements have made possible the scientific studies that you will be hearing about. But if these studies are important to both labor and management—and I submit to you in the light of recent discoveries of the health consequences of certain industrial materials that they are most important—they may be even more important to scientists in the field of public health.

For here is the opportunity to conduct cooperative studies never before possible, to carry out prospective studies, to design systems for the continuous surveillance of the health status of working populations and to apply preventive measures to protect health and prevent injury rather than rushing to the scene of the accident and trying to repair the damage or to minimize the tragedy.

You may be sure that no scientist or professional from a University or any other institution would undertake such a comprehensive obligation with anything other than great humility and gratitude for a unique opportunity.

At the University of North Carolina a working group of approximately 40 people (25 of these being full time) known as the Occupational Health Studies Group and comprised of physician-epidemiologists, industrial hygienists, statisticians, chemists, a toxicologist and other specialists has been assembled to undertake these studies. We have identified four long-range goals.

We want to be able to present to the Occupational Health Committees of each of the companies' recommendations for establishing a system which will provide continuous monitoring of the health status of their worker populations. Second, we want to make recommendations for the surveillance of the work environment in order that chemical and physical exposures can be identified and measured. In the event that any disease patterns become evident, those environmental exposures that may have contributed to them

will be recognized and corrected by appropriate control techniques. Finally we want to be able to point out those areas where our knowledge is inadequate and further research is needed.

Related to the ability to design a health monitoring system is the question: Is the present working population in the rubber industry healthy or are specific complaints or symptoms evident?

Three separate studies are being undertaken to answer this question. Each of these studies involve a rather extensive questionnaire sent to all union members at each of the plants selected. These questionnaires are mailed with a cover letter from Mr. Bommarito requesting the cooperation of the union members. Their response has been most encouraging.

In addition physical examination including X-rays, blood tests, pulmonary function, other specific tests are performed on a selected sample of the employees. From 12 to 1,500 workers are being asked to undergo physical examinations. Any abnormalities found in these tests are reported only to the worker or to his private physician. Individual results will not be communicated to either the company or to the union.

There are also numbers of well recognized substances which produce a known physiologic response but where the mechanism of this response is not clearly understood. One of these is toluene-diisocyanate (TDI) which is used in the production of polyurethane foams.

While the difficulty of breathing encountered by a few employees is usually ascribed to a sensitization reaction, this response does not seem to explain all of the cases that are seen. We have recently demonstrated the heretofore unexpected direct response of smooth muscle to TDI at low concentrations that may be experienced in the work environment. This is not related to sensitization and will be reported next month at the annual meeting of the American Industrial Hygiene Association in Miami. We are also investigating the development of sensitivity to TDI in the hope of developing a test that could be used to determine whether an individual has become sensitive to this material but before any permanent injury has occurred.

These studies represent fairly basic research which will provide the understanding and the tools that are necessary to detect potentially harmful exposures and adverse reactions before injury to the worker occurs.



LABOR-SENATE CHAT—U.S. Sen. Henry M. Jackson (right) talks with Peter Bommarito, URW International president, and Louis Saliczky (standing), URW International Industrial Hygiene director. Jackson lauded the URW for its professionalism in the field of health and safety when he later spoke to officers and members.

In-depth Look At Vinyl Chloride

"If vinyl chloride is present where you are a human being," says Dr. Irving Selikoff of Mt. Sinai School of Medicine. "It should not be there and you shouldn't be there."

This is just one of many observations during Panel II of the April 9 Health and Safety Seminar conducted by the URW in Washington, D.C. Panel II dealt with health hazards and deaths in the manufacture of polyvinyl chloride (PVC) resin.

Louis S. Beliczky, URW International Industrial Hygiene director, moderated the panel. Participants were Dr. Selikoff; Charles Levinson, ICF, Geneva; Dr. Thomas Mancuso, the University of Pittsburgh; and

sure it can become a liquid? But there is no other form other than the liquid or gaseous state of vinyl chloride. There are some related compounds one called vinylidene chloride but it is not the same and you don't use it at your local.

Baier: But by definition it is a gas.

Dr. Selikoff: Ed Baier is absolutely right vinyl chloride is a gas, but be careful because it is also dissolved in the finished vinyl—that is polyvinyl chloride. There are molecules of the gas just like the bubbles in a soft drink. They are in the water. It's a gas—the carbon dioxide is a gas, but it comes out. And there is very often in

process does contain vinyl chloride and a lot of it gets on the floors and a lot of it gets outside and runs into some of our streams.

Question from URW Local 101: Mr. Baier, you refer to the lunch area. When OSHA (Occupational Safety and Health Administration) came out with this standard they said that the place would be enclosed—the lunch room—and since then you said just a sanitary place. Now since we run into this problem, will this be changed to an enclosed place away from these toxic chemicals?

Baier: Well, I have no idea what the final standard that the Labor Department promulgates—the

large numbers of animals at each of the concentrations.

To get back to your specific question you can argue that since it is a gas you won't carry any gas over. If you read the carcinogens standards that the Labor Department has promulgated those things which are gaseous, like bis-chloromethyl ether you don't need a wash stand nearby because the gas won't stay on your hands. But, as Dr. Selikoff points out, the original shape of polyvinyl chloride as we were told by R.F. Goodrich and some of the manufacturers was a sphere, a ball, like a marble. The new polyvinyl chloride is shaped like—[

question to Lou Beliczky. Is vinyl chloride or polyvinyl chloride used in the manufacture of bulk and plastic pellets for injection molding and if it is could you run into problems with a gas coming off the plasticizer when you heat it to mold it?

Beliczky: I'll answer the first question. Polyvinyl chloride resin is used in mold injection operations and it will release vinyl chloride. Concentrations really haven't been measured but it depends on the kind of vinyl chloride resin you buy.

If it's the Italian resin Dr. Selikoff spoke about, the resin that's made by what they call the French process, relatively high concentrations of free vinyl chloride are usually found in mold injection operations. You will find some concentrations of vinyl chloride which will depend on the pressure and the heat involved.

Question from URW District 6 Director William Punnett: We have two local unions that are using this vinyl chloride in the making of arm rests for automobiles. What protection could we take to measure the amount of substance in the air, or is there anyway that we can do this? We have in Local 696 in Waterville, Quebec. One chap there now has cancer of the liver....

Beliczky: I'll try it and then maybe somebody else can pick up from that. First thing is to find out what the air concentration is, and that's not an easy thing to do because probably in Canada there hasn't been as much emphasis on the vinyl chloride and the resin as we have had in this country.

The majority of the instruments that were used in the past were sort of combustible gas indicators and about the best they could do was about 500 to 1,000 parts per million and a lot of them only went up to about 6,000 parts per million. There are four or five pieces of different equipment, I think one is the Morand, the Century flame

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PANELISTS ED BAIER, ANGELO CEFALO, DR. THOMAS MANCUSO AND LOUIS BELICZKY

Ed Baier, the National Institute of Occupational Health and Safety (NIOSH).

Here in part is a transcript of the polyvinyl chloride question and answer period:

Question from URW Local 644: Does vinyl chloride come in any other form other than a gaseous state?

Baier: Does vinyl chloride come in any other form besides a gas? Vinyl chloride is a gas. I have some information—I don't know that you need it or that you should even want it—but vinyl chloride is a gas and it boils at -13 degrees centigrade. And it's got a vapor pressure of 2,660 millimeters of mercury at 25 degrees centigrade which doesn't mean too much in those terms. But what this means is that it's always a gas—in working conditions, normal conditions. This is why it always comes in frozen condition where it can be handled as a liquid. It's like L.P. gas from that standpoint. Also that the latter number means that it becomes a gas very easily.

Beliczky: Ed, could you pressurize that and make it a liquid?

Baier: Yes.

Beliczky: So under pres-

many vinyl products—polyvinyl chloride products—one, two, three pct. vinyl chloride. The gas is in the finished plastic or in the liquid in which polyvinyl chloride often comes or in the powder in which it often comes. And it will be slowly released into the environment and you can then breathe it.

It's heavier than air so it doesn't go up to the ceiling and it doesn't go out into the atmosphere very easily—it tends to hug the ground where you are. And therefore if you are in some circumstances in which you have powdered resin around you, if you will test that air you will find molecules of the gas in that air. And therefore don't be comfortable knowing that you are dealing with a powdered resin and the vinyl chloride is a gas. That gas is being released from the resin with which you might be working. We know very little about this at the moment. This is one of the urgent areas of research that has to be done, but be careful.

Beliczky: There is one other comment in that vinyl chloride is also slightly soluble in water and a lot of the process water that did contain vinyl chloride was used in the

permanent standard—that it is going to look like. NIOSH had made recommendations as to the way it saw it. I'm glad you brought this up because this a point that I wanted to make before lunch and at the present that 50 (parts per million) limit really has no certainty. We don't know how safe that 50 is.

We had gotten together a group of experts who are toxicologists who are familiar with cancer-producing substances and cancer in general and we asked them specifically how good is this Maltoni data at around 50. Incidentally, Maltoni had 60 some animals that he tested 50 parts per million and found no angiosarcoma. We asked if 50 animals were sufficient. They did a statistical analysis of this and they said that in order to find a case of angiosarcoma at 50 you would need roughly 500 animals to expose them at 50 before you'd start seeing cases of angiosarcoma if you are, in fact, going to see any. And they intimated that in all probability you would see some cases in animals if you had an unlimited number of animals and, as a result of that, Maltoni is redoing the study with

think they described as a popcorn—and therefore it has all that open space that gases can trap and this is the point that we were talking about so that you would wash off the material which may have some of the gas entrained in it. What the seal standards look like though, we can't say.

Beliczky: I have an idea that there has been some direct input into the Department of Labor and I've had some too regarding the locker rooms, wash rooms and cafeterias. In most of the polyvinyl chloride resin plants everything is contiguous. It's in one kind of building, the locker rooms and the wash rooms and the control areas are all in the same process area, but they are walled off.

And, one of the recommendations that will be made in all probability is that all such rooms will be under positive pressure—that means fresh air coming in—so that even if you open up the door there would be a very slight possibility that the contaminated air could get into that area. Otherwise you would end up wearing a respirator everywhere in the plant.

Question from delegate: I want to direct a two-part

COPE gift

Even while prices soar, a URW retiree still found an extra \$3 to donate to COPE.

John Hammond of Mishawaka, Ind., sent his contribution to the URW on Dec. 7. We thank John for his thoughtfulness during these trying times.

More Vinyl Chloride...

(Continued from Page 6)
ionization chambers and you can collect the samples on the certain kinds of charcoal and it can be analyzed by gas chromatography. Samples may also be collected by using a simple vial or tube into which you push a needle to get a 10 cc. or a 15 cc. sample and have it analyzed by gas chromatography.

Generally available there is very little equipment that can really do you much good from the standpoint of sampling unless you have some of the more sophisticated pieces of equipment. What else can you do? Initiate as quickly as possible some kind of medical surveillance program so that we can find out whether or not there has been any minimal damage to the liver or other organs where vinyl chloride can affect people. And the NIOSH recommendations that you have in your pocket are probably pretty good ones.

Baier: If I could add just one thing to this what Lou says is absolutely correct. But if you can drive out the vinyl chloride where they make the polyvinyl chloride—in other words it's another drying stage where this time you literally dry out the vinyl chloride or you get it out, therefore you are not carrying the vinyl chloride into the other steps.

Where you get the polyvinyl chloride in which you have got some of the vinyl chloride absorbed when you open the bag there is an exposure. When you heat the material there is a potential for exposure. When you put it into the injection molds there is a potential for exposure. So if we can eliminate the gas at the plant so that when you buy a bag of it you can be assured that there isn't vinyl chloride in there; then you should not have a problem in your plant.

Bellczyk: Well, I tried in public testimony to recommend a number to the Department of Labor and it was that polyvinyl chloride resin shall contain less than 100 parts per million and this didn't sit too well with the Manufacturing Chemists Association who felt it should be a 1,000 rather than 100.

But the other thing to do just to be on the safe side is to make sure wherever you use the resin in any kind of a heat or pressure operation that you have good local exhaust ventilation to get the vapors away from the worker. And this now becomes a problem in this country because the Environmental Protection Agency (EPA) as far as emitting stuff into the out-

side. Vinyl chloride may be a problem here legally.

Baier: Well, vinyl chloride in sunlight only lasts for about two to three hours. The sun has something to do with it. On a day like today if you discharge it you would probably have an EPA problem.

But on a sunny day, the vinyl chloride, I don't know, I don't know what the chemistry of it is—if it just forms PVC or just simply burns up or disintegrates. But, it's got about a two to three hour life outside in the sunlight.

Dr. Selikoff: I would like to come to Canada's defense. Scientifically, the first two cases of death with vinyl chloride were reported in 1960 by Canada, by Dr. Mastramato. He reported two acute deaths and so we were first alerted to the extraordinary hazards of vinyl chloride by the Canadians.

Punnett: I'm concerned about this that this operation is that they fill a mold with this liquid which contains polyvinyl chloride. It passes through some heaters and the heat is set so that it makes the thickness of the skin they want and then the operator has to dump this hot liquid out into a pail and it is used again.

Now back in 1955, B.F. Goodrich had a plant they made plastic shoes for women for overshoes and both the president and the treasurer of that union—it closed in 1958—have died, the president of cancer. I have asked the Department of Health to go back now and go through the death certificates and check up to see whether they both had cancer and if that's what caused their death and if it could be attributed to polyvinyl chloride.

Question from URW Local 66 President John Hollingworth: We use mar-

vinol and I understand there is polyvinyl chloride in marvinol and we use it rather extensively in the banbury and mixing. I want to know if there is any additional danger used in this marvinol as compared to other powders and compounds?

Baier: About the only answer that I could give is the one that Lou Bellczyk gave earlier and that is to have it evaluated. Incidentally, the sampling data sheet that we sent to OSHA for detection is simply a glass tube which holds about—what would that be about a pint or half-pint 250 cc's.—roughly one-quarter of a liter. A liter is roughly a quart so it would be one-quarter of a quart of air.

And it is a sample thing just a regular glass tube with two valves on it. You open it up and you draw air through it at the right time when you think you've exchanged the air in there you close both of these, send it to a laboratory and they analyze it for vinyl chloride. That's about all we can say, because you have to really evaluate exposure levels and I mean to be sure to answer you properly and it would have to be looked at.

Bellczyk: I've seen them dump into a banbury and when you dump into that thing you know darn well it gets to be about 360 to 400 degrees and when they drop it into the mill, I could actually smell the vinyl chloride so that means that it could be between 225 or 400 parts per million.

Dr. Selikoff: There are a lot of questions such as the ones that we've just heard about this condition or that condition—what do we do and what is the hazard? I think there is one answer to this. I don't think any of you people should be exposed to the inhalation

of vinyl chloride in the future. Here is a substance which can cause cancer and I see no reason for you to breathe it in the future whatever the operation. The answer is going to be the same. I don't think it is any safer to inhale while polymerizing or injection molding or carrying the buckets of the material. If you inhale it you are exposing yourself to a risk and I don't think that human beings in the future should be asked as part of their job to inhale this cancer-producing chemical.

Question from URW Local President Ronald Darling: Management has been a bit disturbed over the investigations that you people have made. We are a conversion plant rather than a producer or a manufacturer—And we use about 80,000 pounds of PVC a day and they seem to be harping on the fact that conversion plants might not be affected to the degree that manufacturing plants are. My question is to anyone on the panel is would you recommend insisting on all the monitoring and precautionary measures to be taken under the Federal Register?

Dr. Selikoff: I think there is a standard answer now. Measurements should be made and we have magnificent scientific instruments that can see whether or not vinyl chloride is present in your particular plant under the conditions of your particular work. If vinyl chloride is present where you are as a human being—it should not be there or you shouldn't be there. One or the other and the company may be right. The process may be such as not to include exposure to vinyl chloride—in that case wonderful. No precautions are needed according to our current knowledge. We know nothing about polyvinyl chloride itself. But if

vinyl chloride is present then precautions have to be taken so that you do not inhale it.

Baier: Could I add one point, and I concur with Dr. Selikoff. In essence, we've been saying the same thing back and forth where the only true way of knowing if you have exposure is to take a measurement, because you can't smell it at the concentrations that we are concerned with and as Lou points out you're talking somewhere between 200 and 400 parts before you smell it.

But one request that I have for NIOSH is that if you get any such data—in other words, if you find vinyl chloride and you have some idea of concentration—please let us know what it is. We've got some teams out, meat wrappers, you are familiar with that, where they use a hot wire to cut the plastic—that's sheet vinyl PVC—and we know that there are a lot of chemicals with names this long which we're finding in the smoke that comes off of these.

We're also starting next week to look in earnest to see if we can find any vinyl chloride. So far we haven't been sticking like a sore thumb in the analysis but if we do find it we are going to look specifically for it now. But I ask you if you get any data—if you monitor any of these operations PVC operations, cutting of plastic, molding of plastic, injection, and if you do monitor and get some results that show vinyl chloride please let us know about it. That contributes to the store of knowledge that we are trying to put together on vinyl chloride.

Question from Distillery Workers Local 72: A fellow worker with about 20 years service time who did not

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PETER BOMMARITO, CHARLES LEVINSON AND DR. IRVING SELIKOFF

(Continued from Page 7)
work in a PVC department following a biopsy was told by the company doctor that he had a liver disease—no cancer—but a liver disease and that it was caused by vinyl chloride. Now he wants to know should he stay in the plant at all, change departments or get out of the plant?

Dr. Selikoff: We have a perfect answer for that. If staying in the plant is going to include his further inhalation of vinyl chloride he should get out of the plant even if his liver disease is not now very serious. In any case he should not inhale any more of this cancer-producing chemical.

Delegate: I don't see how he could keep from it anywhere in the plant really.

Dr. Selikoff: I have the greatest confidence in American industry and being able to totally enclose this system. If vinyl chloride were expensive it wouldn't be in the air of the plant. The engineers are able to totally enclose this system.

There are circumstances where it will not be possible in that case adequate respiratory protection can be given to the workmen who has to do something such as maintenance, repair, repair leaks and so forth under those circumstances. But no one should ask another human being to inhale something which can cause cancer.

Levinson: We have a number of proven situations in certain countries where traceable liver diseases—not cancer—related to vinyl chloride have been detected and in every such case the immediate therapy is removal from that work site and we have found that returning has resulted in recurrence of the malady.

There are three cases in Belgium, there are four cases in Germany where they have been taken out for a certain period of time, in a regressive thing, when they went back to work in the work area, the same ailments have taken place and seems now that once it happens the total removal is obviously the only therapy that is going to work.

Question from URW Local 5: I just turned a death certificate and an autopsy report over to the Harvard School, the man died of angiosarcoma. His work history showed that he has never worked with polyvinyl chloride. Are there any other suspect chemicals or compounds that would cause angiosarcoma that we might or should be aware of?

Dr. Selikoff: The answer is yes. If the man worked in a polyvinyl chloride, vinyl chloride plant he had exposure to vinyl chloride, but if he was never near it there are other causes.

Arsenic will do this and therefore arsenic smelters are now being looked at. The vineyard sprayers in Germany who have used arsenic compounds to spray the vines in growing these vines have been found to have angiosarcoma.

There are a number of chemicals which in animals which have already been shown to produce angiosarcoma. For example, nitrosamines have been shown to do it such as dimethylnitrosamine. Hydrazine compound has been shown to do it. In other words what we are saying is that the liver can respond only in a limited number of ways. It can be damaged. It can be scarred or it can produce cancer and many things can stimulate these reactions in the liver.

We are not at all sure, in fact, at this time that vinyl chloride is going to turn out to be the most important cause of angiosarcoma. We may be in for some surprise in the next year, two, five or ten. For example, one of my strongest recommendations to you at this time is that through the program that you've set up through your excellent leadership—through the vigorous work of Mr. Bommarito, Lou Beliczky, and yourselves that you see to it that every monomer is now looked at in the next several years, as soon as possible.

What right have you got to think that vinyl chloride is going to be the only monomer that you should be worried about. Everything is now suspect and industry should be asked and government should be asked to look at all of the things to which you people are currently being exposed.

Beliczky: I'd like to make one more comment regarding polyvinyl chloride. I have a literature reference here, entitled Pneumoconiosis Caused By Inhalation of PVC Dust. Maybe Dr. Selikoff would like to respond to that one.

Dr. Selikoff: I can respond to that, Lou. Yes we have examined now more than 450 vinyl chloride workers—practically 10 pct. of the entire U.S. workforce—in this field and I can tell you that our respiratory physiologists... have discovered definite evidence of lung dysfunction in the workers that we have examined.

There are two reports in the literature already of this lung disease among vinyl chloride workers and our studies in the United States have confirmed this. I might add that this discovery in the lung which goes along with the disease in the skin and the bones, blood vessels indicates that we are dealing with a very active substance. Indeed capable scientists like Dr. Mancuso and Dr. Wagoner

and Dr. Peters and others have already predicted that we are to be by no means sure that cancer of the liver—hemosarcoma of the liver is going to be the only cancer found as a result of vinyl chloride exposure.

Levinson: I would like to go back to what Dr. Selikoff said this morning—that we must not stop only at the angiosarcoma aspect of it. It is now confirmed that exposure to vinyl chloride carries with it a whole series of ailments prior to cancer initiation and promotion.

The whole Raynaud's syndrome—we have so many cases now on record—70 people were studied in a plant in Yugoslavia. The

Bommarito: Well, that's not too difficult to answer damn it, we've just got to raise some hell. That's what we have to do in order to get away from some of the problems that we're having that nobody is paying that much attention to. If you have a situation that is dangerous and all somebody is doing is skipping somebody on the wrist then it's of no value.

It's no different in one of the industries that had an acute problem. That happened in 1962 and while the companies were saying that nothing developed—that there were no chemicals in that plant that were affecting the lungs of the people. A number of people almost up to 300 or 400

once felt is to make certain that these administering agencies don't have enough means to carry out the application of the law. Therefore its application and implementation are way behind realities. The agencies are never staffed enough. They never seem to have enough.

If I understand it correctly they don't have enough budgeted. And so the laws are great but you know it's like passing laws. Lawyers are very rich today by people who get around laws. We're in the same thing in regard to health. Other countries fight like hell to keep decent laws from being passed but when they are passed they tend to be applied.

I think there is a contrast here that the question is power and how we move as a trade union movement. As Pete said to raise enough hell to get the public aware that these things have got to be looked at and that it's just not enough that they be placed on the books.

Bommarito: Not only that, but I think that after the law was passed we attempted to give NIOSH all the cooperation and support. As you recall, it was passed several years ago and we had a heck-of-a-time just getting the money to help NIOSH do the job. I think we've got to get a little bit more politically motivated in order to solve these kinds of problems. And in the meeting that I am calling of the people that are involved in the international unions this will be one of the main subjects of just what we should do.

I know when we were tackling the law, we had 700 representatives when I called a meeting and we went down to the halls of Congress and talked to the senators and the congressmen about this problem and we had some good support. And if you heard Senator Jackson say that he will help us legislatively if necessary, that's the area that we ought to go to in order to correct some of the conditions that the brother talked about.

Question from URW Local 107: We have an oiler who died two weeks ago of lung cancer. This oiler was working in and out of the ovens, where our material is dried out, and like I say he was in the ovens and with those gases. And I'm just wondering how much did these ovens contribute to his death?

Dr. Selikoff: It's a very simple answer, we don't know. We don't know because we haven't looked. We didn't even begin looking at this problem until nine weeks ago. Now why (Continued on Page 9)



DR. THOMAS MANCUSO, UNIVERSITY OF PITTSBURGH

results are conclusive that 15 came down with a series of ailments directly traceable to vinyl chloride—bone destruction, finger tip sensitization, degeneration generally speaking and then hospitalization before the cancer point which means that there is a toxicity to this which begins at point one and that we must not just wait until you get point "X" sufficient to induce carcinoma before we consider this to be a very serious hazard because we have a number of cases in several countries now confirming the realities of this particular hazard.

Question from Local 886 Member Jerry Parker: As I've seen with the Federal Register inspections made in plants, violations are noted and/or fines levied. Through court appeals fines are eventually watered down, violations go a very long period of time in a lot of cases before they are corrected. What I would like to know is what is going to set these standards—what's going to be the difference? How are we going to enforce these? Is there anything in these standards that are going to make them immediately enforceable?

people were affected. But right today the same person that was hired by that company, a doctor, has not made any kind of a report.

And these are the secret things that we take offense to. But I think the job that has to be done is to mobilize those problems—mobilize those international unions in order to do something on this kind of a trend. Get inspectors in there. Get people that are qualified in some of the programs.

Now I know the problem that you're having. We've had some meetings on it and I think we're going to get somebody to make a complete analysis of everybody in that plant. And, I think that it will be in the works.

Levinson: May I just make this comment. I think there is a contrast between certain practices in regard to the implementation of regulations in these matters. If I understand you correctly in the United States you have a country which passes laws, because you have enough political clout in the legislature.

But where industry and certain of the best of interest make their influ-

More Vinyl Chloride Panel

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didn't we? Because of exactly what Mr. Bommari said. There has been very little or no research on a critical problems over the years.

The Occupational Safety and Health Act said that NIOSH (National Institute for Occupational Safety and Health) the professionals in the field was to do the research that would tell the Department of Labor what to control. When NIOSH wanted to study the plastic the petrochemical industry, there were no funds—there were no funds for this and the studies haven't been done. And the answer to your question really lies in the fact that we didn't see to it, two, three, four, five, six years ago that NIOSH would have the funds to do the necessary research to tell us what to do.

URW Local 107 President John Alphonse: We have approximately 350 employees in our plant. We are in the floor covering industry. We use PVC almost exclusively and as a matter of fact in our operations we calendar, extrude, plus mix and what not from the basic raw materials to the finished product.

Now as he said we had one death recently in the past two weeks. We've had three deaths from cancer—two from lung cancer and one from stomach cancer. We have one man right now that has severe burns of the hands and face. The burns are so deep they go through five or six layers of skin he is presently off the job. But in the meantime we have asked the company for medical check-ups in 1971. The company has come up with the answer there has never been any reason for a medical check-up—you have hospitalization—go take a check-up of your own.

Now, we know for a fact, I personally have worked on these particular operations with the mixing of dust. One particular operation uses five parts PVC and two parts talc. That's the entire operation. It is basically 100 pct. unsafe. This was in 1972 that I insisted for medical check-ups. They have what you call a dust recovery system and exhaust fan basically in the front. Open air, the bags are cut on a little platform, powder is all over the room.

The company says this testing service—the Manufacturers Testing Service—say it is all right the parts are not bad enough that there is no contamination in the air. They agreed to last year to give X-rays to every member in the plant. Not one X-ray has been given out as yet. Now we had nothing to go by on

this, we had the state man in, he has given them a clear bill of health. Now what he gave them I don't know. All I say is we've had three deaths.

We've got two men suffering—the company calls it shortness of breath—we call it emphysema and we say they are job-connected—six cases possibly right here and now that are in very bad shape and it could get worse because we've used exclusively PVC. We have what you call a Uvinoi, if you are familiar with it, made by Dow Chemical Company. This causes a very severe burn. We have stuff that is irritant to the eyes. We have our lunch rooms and what not with no doors or what not to it.

Our eating places are exposed constantly to the powder. You have powder stored within 100 feet of the "rec" room from the lunch room. The safety men have come up with something like this, yet when I hear what is going on here today, I know something is wrong somewhere.

Dr. Selikoff: I think that this gentleman from Local 107 has hit upon a very important point. One of the reasons why it's impossible to set a lower threshold limit for cancer-producing substances and that is, we expose animals to one substance, but human beings don't live in vacuums or in cages, not yet. And, they are exposed to many things which add together. For example, in Local 107 your people are exposed to talc, which likely contains large amounts of asbestos and vinyl chloride. And, whatever we don't know about vinyl chloride we can multiply in spades about not knowing what the combination of two cancer-producing substances will do. Therefore, it's impossible to state what might be safe with one chemical, because that's not the way it is in industry.

Dr. Joseph Wagoner: I don't have any more gems of wisdom on that other than what Dr. Selikoff had, but I will go on record here in this meeting as indicating anybody in this room today who feels that they have problems I am here at this meeting and I would welcome the name of the plant, the name of the local union and who to contact.

Alphonse: I was wondering, we wrote the company a letter about a month ago. We asked them for a report on what their procedure is when they introduce a new material into our plant. What safeguards do they take or what do they do with it? We haven't gotten any reply from them. What can

we do to make them give us a report on it?

Beliczky: On the kinds of chemicals that they use in the plant?

Alphonse: The chemicals that might be harmful.

Beliczky: That might be harmful. At present time I don't know of any legal requirement unless Ed Baier can correct me on that that makes the company tell you about the chemical and how harmful it is. Something that we would like to refer to as a safety data sheet. There is going to be a new Department of Labor Advisory Committee that is going to talk about labeling and part of the labeling situation will refer to safety data sheets and providing information. How do some of the other locals handle it? They get it in their contract language and we haven't had a chance to talk about that. It's something that is negotiated and a lot of locals here have done it. It's been a usual thing under master contract language.

Levinson: I think that there is a point here too that merits a little emphasis. We are entered in an age where your industry along with the chemical processing industry is going to be what steel and heavy industry was to our whole economic system in the past. There is a whole structural transformation that's taking place.

We're going into an age of science. It's science-based industry today which is going to be the dominant factor which many, many workers—the majority of workers—are going to be involved. At the present time there is something like 700, 800 new man-made chemical compounds being introduced into industry all the time. There are any number of hundreds if not thousands of compounds that have not yet been tested. We are in industry working with an infinite number of these chemicals getting behind every year because the testing is not keeping up to date.

And this is not only an American problem. It's a worldwide problem and I think the time has come when we've got to change emphasis from reacting when problems arise to accepting the fact that there is a new quantity of difficulty in industry in view of the amount of new chemicals being introduced particularly in the petrochemical industry where the polymers and everything deriving from them may be toxic to the human organism, where the emphasis has got to be on pretesting before the chemical is introduced in industry rather than

awaiting negative effects to introduce it because we are getting farther and farther behind as the number of chemicals every year is increased in industry. And, I believe that this is a principal problem around which most of the health considerations are going to evolve.

Question from URW Local 885: We manufacture carpet underlay from polyurethane under which a vinyl is bent sealed. Do you think that this is a dangerous process?

Beliczky: I'll try to answer that. I have a concern about the use of any kind of vinyl that is heated and I think Dr. Selikoff referred initially in his talk to the meat cutters who are concerned about exposure to vinyl chloride from materials such as Saran wrap and maybe Dr. Selikoff would again comment on that.

Dr. Selikoff: We don't know the level of vinyl chloride from Saran wrap or any of the other plastic PVC wraps for meat. This is a subject which is causing a great deal of concern but about which very little is now known and in the absence of knowledge I don't think we should say anything at this point.

Question from URW Local 224: I want to know what is the percentage of monomer that is left in a bag—a 50 pound bag of PVC—and also where you store this material—if it's stored on the third floor you get heat, is it any real danger of being contacted with this material? And also we get it in bulk in silos and sometimes our men have got to go down into the silos. Would there be a great danger in this or not?

Beliczky: I would assume that it is a General Tire plant and you use General Tire resin or you use the resin that is going to be manufactured by Panasote. There is a real concern and I think we've discussed it before. It is possible that the resin can contain between 100 to 6,000 parts per million of the vinyl chloride. But I think the latter figure relates only to the French process. I have a feeling that when you open up a bag you could hit between 100 and 1,000 parts per million of vinyl chloride depending on how fresh it is. Now the bags are porous and they are porous purposely so the vinyl chloride will leach out of them. Now what was your other question?

Local 224: For storing in the areas like in heat?

Beliczky: I'm concerned—I haven't seen any data on it yet but I do have a feeling that in warehouses where they store a lot of bags or where you are han-

dling bulk polymer there may be a problem and the way to really find out is to get some information from the General Tire Co. They have a piece of equipment available now, the Century flame ionization chamber which they can use to evaluate the air concentration in those areas.

Question from URW Local 196 President Kenneth Finley: I've got a two-part question. Would an oily residue which comes off of an extruder—the fumes it collects say on the ceiling then drips down, or if a person comes in contact with this once it's been changed from the fumes into an oily thing and gets on him—with continuous contact, would this be harmful?

Beliczky: I think this is very analogous or similar to the curing fumes that the people from the university talked about today. I don't think there is a good information defining the break-down, degradation, thermal or heat break-down products that you get from an extruder. I think that this is an area that has to be investigated. I don't know the answer to that one.

Dr. Selikoff: When you talk about polyvinyl chloride remember you are not talking about polyvinyl chloride. You are talking about polyvinyl chloride with any number of chemicals in it, plasticizers, stabilizers, residuals of catalysts, a whole host of other chemicals that exist. Some of them are what are called phthalates. These are plasticizers and very often the phthalates will give an oily residual from the PVC. Dr. Rubin at Johns Hopkins has done a good deal of work on these phthalates with regard to health effects. We still don't know very much. But remember that when you are exposed to materials coming from polyvinyl chloride you are also exposed to many other things many of which have not yet been studied.

Question from URW Local 835: I work in a polyurethane plant in Bremen, Ind., and wonder if vinyl chloride is used with TDI to make this and how about the dust. We have an enormous amount of dust that we work in. We have a lot of people that are complaining that they are ill and not feeling well?

Dr. Selikoff: We have one of the world's great experts with us today on TDI, Dr. John Peters, John would you like to respond—you're one of the world's real experts.

Dr. Peters: Is the dust from the polyurethane?

Delegate: Yes.
Dr. Peters: Is it foam dust?

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Delegate: We have an enormous amount of foam dust, yes.

Dr. Peters: Well, what I know about polyurethane dust is that at least some preliminary studies in animals indicate that freshly formed polyurethane dust will produce lung tumors in the animals.

Again, we could well be dealing with a situation similar to vinyl chloride in that there aren't very many workers who have been around for 20 years who have been inhaling polyurethane dust. And we are I think in the midst of another human experiment to determine whether polyurethane dust is a carcinogen as well.

Dr. Selikoff: John, this TDI (toluene diisocyanate) also. She mentioned the TDI.

Dr. Peters: TDI itself will affect the lung in several different ways. One is it will cause an acute asthma like reaction and in these workers they will undoubtedly have to terminate their exposure to this particular material, because they can't tolerate any of this kind of exposure and the studies that we have done suggest that continuous low level exposure to so-called safe levels of TDI result in chronic impairment of pulmonary function.

Question from URW Local 367 President Peter Kiss: We are having several problems at our plant and I would like to ask you a question of titanium dioxide (TiO₂). We have a lot of dust problems with this.

Belickzy: I can respond but I think Dr. Selikoff is or has been involved in some research studies related TiO₂, ordinarily used as pigment. I ordinarily don't associate a high degree of risk in something like that but anything like that that is inhaled can create a problem. But, I think Dr. Selikoff can elucidate on that one.

Dr. Selikoff: When titanium dioxide was widely introduced after World War II to largely replace lead in house paint and exterior paints, we all assumed, again assumed without proper testing, that this was a totally inert material and was likely to do no harm.

Last year three cases of acute lung disease were reported from a titanium dioxide factory in Finland and two titanium compounds—not pure titanium dioxide—but two titanium compounds were reported by the National Cancer Institute to produce cancer in animals. Now we do not know whether any such risk exists in humans, but we certainly ought to take a good hard look.

Question from URW Local 367: In compounding and mixing operations we

often use PVC and a combination of it chlorinated polyethylene which when heated releases an extreme irritant to the eyes and nasal passages. Are the vapors toxic and are ordinary respirators sufficient to protect employees from the hazards of either or both of the substances?

Belickzy: As you say, is ordinary respiratory protection enough? Well first of all, I wouldn't rely on respiratory protection at all. I would make sure that the company had the proper kind of ventilation.

A respirator is the last resort or it's the kind of thing that is used before or during the time that you initiate corrective measures. It's only a temporary remedial thing. As far as what could be emitted, if it is irritating, it could be a chloride or could even be HCL, maybe Ed would like to comment on that.

Baier: Well, we've done several studies in the meat wrappers, you know where they cut it, and as I said the smokes are irritating. We've been looking at pulmonary function tests and we haven't been able to find too much... how well you breathe. We haven't been able to see too much difference from people who have exposure as a meat wrapper, controls, cashiers, check-out counters, that kind of thing in some of the supermarkets. This is something that we are looking at and as I mentioned earlier we're going to look for vinyl chloride in addition to some of these others. There are several, as I said, long chemical name things that we don't really have too much idea as to what the toxicology is and we're looking for it.

Belickzy: Vinyl chloride when exposed to heat can degrade and form HCL. So a free vinyl chloride exposed to heat can form hydrochloric acid.

Delegate: The other question is we have periodic burn jobs and they release chlorine gas in the air and it goes to the point that our people become instantly sick and they vomit right where they do the job.

Belickzy: I think your situation certainly indicates that the Stouffer Chemical Co., acts in very poor faith. In fact, it is one of the only companies in this country that has not permitted me access on their premises. And I think we are handling that situation now.

Bommarito: We are going to file a complaint against them. Do everything we can.

Question from URW Local 557: We received quite a bit of this PVC from Firestone and Goodyear; now is any one of these factories that manufacture this stuff worse than the other product as to what—I believe one gentle-

man said that under the rays of the sun it is dispersed more quickly. Now does that mean if it is stored in a damp area that it is more dangerous? This is the powder form, we receive it in pellets as well.

Baier: No, I was talking about the gas inside the plant versus outside the plant. In other words if you exhaust ventilate air containing—in other words take air out—out of the plant that has vinyl chloride in it, and it is a sunny day, the vinyl chloride you can measure vinyl chloride for about three hours, something like that. How you store the PVC—the plastic is immaterial.

Delegate: Well, we stack it maybe three or four skids high in an area that is quite damp and a lot of it is damaged from receiving it off of the trailers, so there is quite a bit of residue on the floor and this is what I was concerned about. Could that be carried into other departments to the individual himself?

Baier: In all probability, if the spilled material has had a chance to get the vinyl chloride out of it—I mean I don't know if that matters—again we have to test this. As I pointed out earlier, if you can drive the vinyl chloride out of the PVC or out of the plastic material, then you don't carry the vinyl chloride hazard beyond the maker of it.

Delegate: Then we would expect to have more from the injection mold machine where the vapor is preheated?

Baier: Yes, where it is heated now you have changed the temperature and you probably drive some more out and that's why I asked earlier if you have data or if you let us know and you want some of these tests made, NIOSH does have a right of entry so if you let us know about it we can get into any plant.

Delegate: I'd like to for the simple reason that the plant does a great deal of business in these various forms of plastics with this PVC. And the reason I ask this is because the employees are sometimes run from one department into the plastic, back and forth. Now, I don't know about this question here, but what if people with bronchitis subjected to this more so or less?

Baier: Well, as was pointed out earlier if you breathe the dust of PVC you can get pneumoconiosis. Coal workers pneumoconiosis is black lung. Any dust in the lung is pneumoconiosis if you have asthma to start with. If you are sensitized like with TDI and you get superimposed on this dust exposure, yes, these things all add up. The question that came up earlier is do combinations

of things and unfortunately we know very little about combinations of things. But, you mentioned about manufacturers and you mentioned different companies.

I've been to the R.F. Goodrich plant in Fredericktown, N. J., it's a clean plant. In terms of exposures there I don't think that the time weighted average exposure over eight hours could even approach 10 parts per million right now. When any workman goes into the tank to clean it out, as was discussed earlier, he is in an air suit. He's got a full airline. He could almost go to the moon in that suit. You know it is that kind of an operation. So even within the same manufacturer you have certain amounts of contamination in the air and that varies within the same company, different plants. The Fredericktown, N. J. plant is probably one of the newest.

Question from URW Local 797: I'd like to direct this question to Dr. Selikoff. Since this has come up in January, we have had something like 21 blood tests, chest X-rays, hand X-rays and liver profiles run at our plant on all personnel. Is this sufficient or do you recommend something more than this?

Dr. Selikoff: I think at this point it's the best we know how to do on a survey level. We are working to see what additional tests—more complicated, more refined might be useful. But I think what you have described is certainly a very useful step at this time. I think the very fact that a doctor is going to look at you is itself important. One of the most important things is to have a doctor in front of you to be able to tell him how you feel, otherwise they have no idea whatsoever is going on.

Question from URW Local 5: I would like to direct this question to Dr. Peters from Harvard. My name is Carl Whitten. I'm from Local 5, R.F. Goodrich Company. We were talking earlier about input into this program and I think it is important that we put as much into it as we can. So that I don't duplicate a service, doctor, would it be wise for me in my local union, we have an approximate death rate of about 13 a month. This is retirees, different people from different causes. Would it be appropriate or would it be not a duplication of service if I would develop a program to where I can receive from each of these deaths a death certificate and then submit to Harvard University the death certificate outlining the cause of death and then a work history, date of hire, departments worked in, and so on. Would this be a duplication of service or should

I try to develop this type of a program?

Dr. Peters: We'd like you to do that.

Question from William Orsz, URW Pension and Insurance Department: Directing my question to Mr. Baier. We're talking about NIOSH being called in to make certain studies. However, what is NIOSH doing about requiring the chemical industry to do the same thing for the use of chemicals in industry as the drug industry does for the medical profession in comparison to the physicians desk reference before a chemical is introduced into industry and being used by human beings?

Baier: There is the Toxic Substances Act. We would like to see that amended to show that all chemicals used in industry, at least get the same kind of test that is required for any consumer protection other than you as a consumer of governmental services. We would like to see that act amended. We have been dealing with this for almost two years now trying to submit the paper work through so that it would come into Congress and include that specific thing.

Belickzy: Bill Orsz, there is action in the hopper right now and I think Sheldon Samuels from the IUD is actively involved in that.

Question from URW Local 423: In our plant we have quite a few heart attacks and blood diseases. And we have two chemicals that are vaporized off of hot liquid solutions and these chemicals are styrene and toluene. Now do you know right now whether or not these vapors are harmful to the blood and cause heart attacks and so forth?

Belickzy: I've been to your local about a month ago and we tried to initiate some action with your assistant plant manager.

Delegate: They are beginning to do some things about it but so far they haven't. It takes a long drawn out program. I'd like to know now.

Belickzy: I'd like to respond to that. In my travels around the country I see quite a few of the styrene, butadiene polymers and the use of styrene monomer in a lot of operations. I've come across one case of tumor of the throat in one of our plants in Wisconsin. The worker had surgery and he is okay. In your local an individual exposed to styrene had a real problem with his larynx and has difficulty talking.

The incidence of cardiovascular disease in your particular plant concerns me very greatly. And that's why we felt very strongly about initiating immediate

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action and medical surveillance of the people working in those areas. Toluene basically is narcotic. TLV (threshold limit value) is 100 parts per million. We really don't know too much about exactly what it does, but NIOSH has recently developed a criteria document on toluene. I think it has many effects, and information indicates that it's easily absorbable through the skin and possibly may create damage to the blood forming mechanism.

Question from URW Local 831: Polyvinyl chloride—does it have a particular odor and if it does, what does it smell like?

Baler: If you smell it, get out.

Dr. Selikoff: It has a sweet smell and, just as has been said, if you smell it, it is much too high. You can't generally smell it until it is around 400 or 500 parts per million. And even then if you're in it for about five minutes you lose the smell. One of the reasons it was put in hair spray is that first of all it was cheap and secondly it had a nice odor. It has a sweet smell.

Bommarito: Let me ask Dr. Mancuso a question. Do you feel that the epidemiological study not from NIOSH can provide the adequate mortality data that is required to define the problem?

Dr. Mancuso: Well I'm glad that you mentioned NIOSH rather than the industry. I think NIOSH will undertake and do whatever epidemiological studies are necessary to uncover the problem. At the present time I do not have that confidence relative to the industry study. The preliminary information that was presented by the industry representatives gave all of the indications that it would probably come up with false negative results. I do not believe that the Manufacturing Chemists Association group have the necessary keen perception relative to all the difficulties and limitations relative to studying this particular problem. I also do not believe that they are applying or have applied a broad enough approach to the evaluation of this particular problem.

In other words, they initially began determining whether there was any angiosarcoma as listed on the death certificates. Well, as you heard this morning that there are only about 20 or 21 or so recorded death certificates in the whole United States of a population of about 200 on that basis it would be very difficult indeed to rely solely on death certificates.

Further the industry approach related to the fact that they were operating on just those death certificates that were provided to the consultants to undertake the study. Well, there are marked limitations to that approach and it's very easy not to get all the information that you need to make a proper evaluation of the problem.

I have great confidence that NIOSH itself will be able to study the problem and will supplement the information relative to mortality—that mortality alone will not be used. Unfortunately, and fortunately in a certain way a cluster of cases did occur of a group of workers working in the same place and the same department coming down with the same rare disease and this is proof enough that the phenomenon had occurred.

But it is the medical hospital records that need to be supplemented and the difficulty relative to all this is that when you are dealing with a histologically determined type of tumor you must depend upon the number of cases that have been biopsied or autopsied. Well there is only a certain percentage of the population that gets autopsied or biopsied when they die.

And consequently you are diminishing the potential of the actual number of cases, so I would say that regardless of what is found it will only be a fraction of what has actually occurred. Because individuals will die of heart disease, probably had cirrhosis of the liver and may even have had changes in the liver which were indicative of cancer of the liver and this will never be determined. And so this is a big problem.

So, whatever is uncovered relative to the NIOSH investigation you can rest assured that they will be thoroughly done but you can rest assured that it is a conservative estimate because of the factors beyond their control. The factors beyond anyone's control. Because there may or may not have been adequate medical records, adequate hospital records, and instead inadequate medical surveillance of the whole problem.

Bommarito: Mr. Cefalo, what is the expressed attitude of the workers in your plant?

Cefalo: I have the answer in writing. To answer your question and to back up what Dr. Mancuso just stated, the Machinists represent about 800 employees at the Union Carbide plant in Charleston, W. Va., which manufactures vinyl chloride. And we talked with our people and asked them to obtain as much information as they possibly could

on the causes of deaths of people working in the plant exposed to vinyl chloride since 1968.

This goes to the heart of an answer that Dr. Selikoff gave to a number of people who asked questions. And here is a break-down of the deaths from all causes among employees exposed to vinyl chloride at the Union Carbide plant in South Charleston, W. Va. from the period 1968 through Feb. 23, 1974. Four people died from lung cancer. Two died from leukemia. One died from a renal condition. One died from melanoma. One is recorded as having died from angiosarcoma. One from primary A.B.D. One from vertebral body. One from gall bladder. One from pancreatitis. One from diabetes. One from aorta aneurysm. One from cor pulmonale. One from cirrhosis and another from congestive heart failure.

I don't know whether these gentlemen to whom we'll pass this information on to will find this helpful but up to this point we don't know how far this area of vinyl chloride will strike.

This is the light of a disorganized OSHA which is still organizing themselves. They are disorganized by their own characterization. I think both OSHA and NIOSH have the dedication and the expertise. I believe they will do the job. I believe that we have to be on our toes.

The meeting that President Bommarito referred to—that he will be calling of the heads of the affiliates of the IUD—may throw some light on this whole situation and I hope part of that light will be in the area of taking whatever legal steps are necessary once a standard is promulgated and we're hopeful that the permanent standard on vinyl chloride will be what NIOSH recommended which was zero level. But, John Stander the Assistant Secretary of Labor for OSHA decided to go in the area of management and set it at 50 parts per million.

Dr. Mancuso: I would like to add to his comments. What he has done is illustrate several basic very important points. And it hits to the heart of the matter and applies to each of you. Actually each of you as local union presidents and representatives should make sure that you keep adequate records. Now in this particular case, and this is the first time that I have seen this, it would seem to me that there are some possibilities here that there may be other causes of cancer that may have occurred within this group.

Now, you must recognize that this could be due to

chance. And, it must be recognized that there may be other causes. One has to determine whether all of these workers were working in this particular area for a certain period of time relative to exposure and whether it may not have been due to some other cause. But, assuming for the moment that these were actually workers in this particular plant exposed to this particular chemical—he says in effect we have four cancers of the lungs, two leukemia.

Now, if there were 800 individuals working, there was only a percentage of those individuals that died and out of the percentage of the total number of deaths you don't get like two cases of leukemia. You don't get one case of kidney cancer. And he had renal cancer—and melanoma is rare. And he had the cause of death as hepatoma which then became angiosarcoma and then what struck me was the cancer of gall bladder. Now you don't get cancer of the gall bladder like that at all. Cancer of the gall bladder is extremely rare and there is a considerable debate about how often it occurs even among a tremendous number of autopsies, let alone an ordinary number of cancer cases.

So, what I'm saying in effect is that each international union and each local union has a responsibility to recognize the fact that they can make a substantial contribution—scientific contribution by collecting and properly recording all the basic information necessary so that this information in turn can be made available to those scientists that are cooperating with the international unions and to facilitate the work that is being done. I've already heard about a number of cases that have been identified—this is very shocking and very important. It is undoubtedly any question at all that if each of the local unions would record—record each month their observations—and then send these in; that I think that you can develop a system of what we call an epidemiological field team, epidemiological know-how.

An epidemiological system of observations out in the field, to the plants, in which you can feed back important information which you yourself at that time may not recognize as important but others may find that it is important. So I would say that you have the opportunity and that you can make an extremely valuable contribution by doing just what you are doing now. But please record it, don't just say it once out loud and let it go. Record all your observa-

tions no matter what they are and keep them and then transmit them to your international union.

Bommarito: I want to ask Dr. Selikoff a question. Do you have a feeling regarding workers exposure to vinylidene chloride and possible exposure to chlorobutadiene?

Dr. Selikoff: We know as little as we know about vinyl chloride we know that much less about vinylidene. Dr. Jaeger at Harvard School of Public Health has begun some animal studies with vinylidene. We don't yet have any results with them and the same I think would go for the butadiene. So that this is simply added to the long list of our ignorant subjects.

Bommarito: Would you be cautious about handling vinylidene chloride or could you? Do you feel that it could be in the same class as vinyl chloride, Dr. Selikoff?

Dr. Selikoff: I don't think we should jump to any conclusions. I don't think we should say that it is or could be in the same class as vinyl chloride. Once we say it could be somebody might misinterpret what we say and say, well look this is exactly the same thing, it's not, we don't know.

Rellczyk: Shall we be concerned?

Dr. Selikoff: Yes. I think we should be concerned now with every active plastic chemical and studies are urgently necessary. Dr. Maltoni has taught us something. Dr. Maltoni began to think about his research at the end of 1970, before we had any hint that chemical workers were going to die of angiosarcoma. His first experiments began in July of 1971. By the beginning of 1972 the animals showed cancer.

Incidentally, not only angiosarcoma, they also showed cancer of the kidney, which was particularly interesting in view of what Mr. Cefalo just told us that one of the people down at Union Carbide died of cancer of the kidney. So that Dr. Maltoni knew by the middle of 1972 and the industry in Europe and elsewhere knew by the end of '72 that this material could produce cancer.

Now, if this experiment had been done in 1910 I doubt whether we would be sitting here this afternoon with this bad news. My concern is that we not sit here in the year 2000 to discuss the chemicals that we are introducing in the year 1974.

Bommarito: Mr. Rale when the Manufacturing Chemists Association approached your office in June or July of 1973 did you sense the urgency of

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the problem which is currently confronting us?

Baier: Not really. Not at that point in time. As I mentioned earlier we had looked at the design and thought it was a well designed study. We're confronted with methyl butyl ketone and peripheral neuropathy. We have a toxic substance list that has about 25,000 entries in it. So putting the things into perspective I would have to say we didn't feel the urgency. If I could say one thing however, that we have reprogrammed as you can imagine in order to do what we are doing in the vinyl chloride problem. By so doing, we give this a very high priority and then drop off some of the things at the bottom. Right now, we're trying to find out just to what extent we have dropped off other important programs in order to do something in this vinyl chloride area.

Bommarito: Let me ask Lou Belicky a question. You've been working closely with our health program. What is the attitude of the companies that we deal with and are they cooperating?

Belicky: You're talking about vinyl chloride. Generally the attitude of the company is the same as that of the people, they are concerned. And those local presidents who I have visited and discussed the problems that they had, not only among ourselves but also with the management people. We have to make a statement that's a pretty difficult one to make. If you are diagnosed as having angiosarcoma of the liver you're dead. A very difficult statement to swallow.

In general, the attitude is one of concern. But, also in general, nothing is being done with the exception of maybe one plant that is beginning to initiate action. What are they all waiting for? They are waiting for the government to tell them what to do, because that's the law. They are waiting for someone to advise them properly.

But, all they are doing is waiting. So our response and the attitude of the local presidents is—we don't want to wait. If you really don't know what to do, at least initiate something and get something going—tighten up the ship—decrease the exposure—get some medical surveillance—check out our livers, that's what we should do.

At one or two of the plants I've just found out in the last couple of days, they are initiating studies. The Uniroyal Corporation, (our plant in Painesville) will be involved probably

with a study by the University of North Carolina in a special evaluation of vinyl chloride. This has not been finalized yet.

Bommarito: Mr. Levinson, this is a world wide problem on this polyvinyl chloride. How do you envision the international ICF's approach in informing the world membership about the problem that we are discussing and do you feel that adequate information can be provided to those unions involved in the manufacture of vinyl chloride and polyvinyl chloride resin?

Levinson: Well I think first when you come to participate in our executive board next week in Geneva as a result of your activities we've put this item on the agenda to develop into a world wide action program. And so by that we will immediately take off where you have arrived and make this a world campaign. Because as I said earlier the problems confront all chemical workers. The problems are identical around the world given that the same companies produce the same materials and create the same hazards. Information-wise, we have already circularized our affiliated organizations in over 65 countries as to the developments in the various countries and particularly in the United States in what you have done.

I said this morning that all of us are alerted now to the emergency standards and I'm sure that our affiliates are immediately now being asked to do investigations in their own plants amongst workers working with vinyl chloride to come up with the information and we will then have a world conference. . . And in conclusion I would say that the emphasis I would hope would be on the need for an aggressive, dynamic approach—not a static one because to a very large extent even the medical fraternity even our professors in the universities will be able to work to the extent that our initiative makes it feasible for them to operate effectively within industry.

And I would believe too that one of the new areas which we'll probably pursue would be through getting trade union representation within the corporations on the decision-making bodies, the board of directors, joint committees, in order that we participate directly and actively in the policy making on these problems and not have to fight it eternally from the outside and do it piecemeal and step-by-step, which in problems like this are too grave and too slow.

National Job Cancer Program Is Needed

Here, Dr. John Goldsmith of the National Cancer Institute addresses the need for a national occupational cancer control program:

The list of chemicals tested for carcinogenicity in animals needs to be far more thoroughly scrutinized in order to find out which of these materials is used in sufficient amounts and for which a population of workmen are at risk of cancer because they are exposed.

I personally am not as enthusiastic about looking at mortality data, although that is the place to start. I'd rather look at earlier findings.

But, there are two clues that I think are very important. The first thing is whether cancer which may be a common cancer, such as lung cancer or prostate cancer or cancer of the stomach, is occurring among workmen who are exposed at a younger age group. If this is true then the possibility that working conditions are making an important contribution is much more substantial and we should be looking for cancer among particularly young people and we would have if we had used this rule perhaps earlier found the angiosarcoma of the liver and the cancer of the lung that is occurring among workers exposed to bis-chloromethyl ether.

The second point is that while the present system is geared to individual agents, carcinogens and much work in experimental

animals that has to be done with them, this is why the normal occupational exposure occurs. There are multiple exposures and there are going to be to some substances of which we have some knowledge—often inadequate—and other substances to which we have very little knowledge.

The systematic observation of irritation and discomfort, eye irritation, respiratory irritation, skin irritation—all of these—should be heeded because by being responsive to these signals we may not have to have the disaster of occupational cancer. The third point I want to make has already been made. For individual carcinogenic agents there is no numerical threshold. The only acceptable practice from a scientific point of view is not to expose workmen to things which can cause cancer.

Already there is a scientific consensus about this with respect to radiation in general, although its application to the workplace isn't as vigorous as perhaps we would like. The fourth point is—and this has been alluded to also—that in the area that involves something as vital as the worker's health, particularly such devastating illnesses as we are speaking of today, secrecy has no place.

Secrecy about vinyl chloride has delayed our recognition in our reaction for months or years. Secrecy in the case of occupational

health has apparently been something, has appeared to be good business.

As far as I am concerned we've got to adopt regulations and programs so that secrecy has to be made too costly to be considered in industry where the workers health is involved.

The fifth point I want to make is that we've heard reports this morning about excess leukemia. One of the commonly used solvents, Benzene, is an agent which for years has been known to have an added risk of leukemia. Benzene is a carcinogen in this sense. The list of 14 carcinogens that has been much discussed does not include this and it does not include many other things.

The final point I want to make is that at all levels and at all levels of education as well, we need more input of workmen in the occupational health area. We need their study of death certificates. We need their knowledge about lung function tests, we need them to know whom to call for what kind of problems.

We need, in my opinion a national occupational cancer control program. This has to involve not only the governmental agencies at the federal level and at the state level—not only the Labor Departments, not only universities and medical schools, but it has and it should have properly the leadership of unions such as the URW, voluntary and scientific agencies and professional organizations.

NIOSH's Baier

Ed Baier of the National Institute of Occupational Safety and Health was a featured panelist at the Health and Safety Seminar. In part, here are his comments on toxic substances:

It was pointed out that there are about 25,000 entries in the toxic substance list, of which about half of them are in other ways, other names for some of the others, so that in essence we have somewhere between 10 and 12 thousand substances—different substances—and the rest of them other names for these substances. Now of that group, it's pretty hard to define what is a carcinogen.

We can say that certain things cause tumors which could lead to cancer. Certain things cause say rapid growth of certain cells which in itself is not defined medically as a cancer but could certainly become cancerous.

But, there are many others. In other words if we subtract the 600 carcinogens from these other toxic substances—silicosis is a very serious occupational disease—it's still with us. We've got a lot of it. Lead poisoning is a very serious disease. Now, we within NIOSH have recognized in the funds and resources, allocations that we have that we are putting a tremendous import to carcinogen or say carcinogenicity to certain of the chemicals.

The Labor Department has been branded as being safety oriented and

NIOSH being branded as being health oriented, neither of which is true. We're both health and safety. They are the enforcement. We're the research part of it.

With some of the occupational diseases which are not carcinogenic you can live longer, but suffer longer. We must look and prevent those also. So we have to put the whole thing in perspective by saying yes, let's emphasize this carcinogen and as you know we are doing this, but let's not lose sight of the whole big picture of all the things, the multitude of things that people are exposed to at the job.

We're trying to do something in NIOSH with what we have. We're trying to set up registries—cancer registries. We're trying to set up better field studies and procedures. We're trying to get a better base.

We're talking to motor vehicle administrations to try to find out how people migrate. Our problem incidentally in the carcinogens is not people who are working, but people who are retired.

If you go to the company and you can see the medical records, and everybody says, look, everybody here is healthy, because here are the medical records. But you start looking at the retirees and that's where the bladder tumors are and that's where the cancers are. And so this is the kind of thing, we're trying. Give us help.

More on workers' health: Dr. Borzelleca

Dr. John Borzelleca of the Medical College of Virginia speaks in these excerpts on the cancer problem:

Peter Bommarito: This is panel III. I want to ask Dr. Borzelleca would you please discuss your impression and feelings regarding the Department of Labor's carcinogen standards?

Borzelleca: Let me set the record straight before I begin. I have heard a lot of talk about commitments and agreements made between various groups. The only commitment that I made to Mr. Bommarito and to Lou Beliczky is that I would speak very honestly with you this afternoon and just tell you the truth. Secondly, I am not speaking in any official capacity as President of the Society of

time will tell whether it was the best approach. I have some concern about it but we thought we would look into it. Secondly, I thought I should get involved because I have a personal feeling that each of us must be concerned with each other's welfare.

The government has an absolute right to protect the health of all peoples. With these kinds of views or thoughts or feelings, we then looked at the emergency temporary standard and the 14 carcinogens. And, it was my feeling and that of the President's Scientific Advisory Committee incidentally, that it would be utterly impossible in the short time that we had to prepare a document that would satisfactorily or adequately cover these 14 chemicals.

They were very diverse chemicals, they had different chemical and physical properties and we saw no way that we could come up with a document that would cover all of them. We expressed these feelings to the Secretary's office and we were told that we were to come up with a single document, that separate regulations or separate standards for each of the 14 would not be found acceptable. We discussed this at length and our charge was go back and prepare a document.

It was our feeling at the time that if this is our charge the best that we can come up with would be general housekeeping guidelines, general recommendations concerning these chemicals that we would not become, couldn't get specific because we didn't have enough time. And so we submitted a report to the Secretary the latter part of August that included the recommendations of the committee—general guidelines. The committee also felt—at least Mr. Beliczky and I felt—very strongly about a couple of issues, one being the education of the worker.

It is my feeling as an academician, as a university professor, that education is important and I was appalled when I found out from representatives of the labor unions that workers were not indoctrinated or informed concerning the hazards of the operations in which they found themselves. I couldn't conceive that in this country and in this day and age that workers are dealing with hazardous materials and not being told about this. This in fact is a way of life, according to Lou Beliczky and our recommendation concerning worker education appeared in our final report.

It's our job, to minimize the risk or to make it as small a risk as possible to eliminate it if this were at all possible. Therefore, we recommended in our report that there be no acceptable level of a carcinogen mixture. And those of you who read our report will note that we did not accept the concept of a 1 pct. level being safe.

In the new standards, 1 pct. level set for eight of the carcinogens and 10 pct. for the other six, I believe was recommended. We also came to grips with ways of insuring that some of the suggestions that we offered were being implemented, could be guaranteed. We suggested certain procedures with respect to protective clothing and closed system technology.

There should be some way, if you pardon the expression, of checking up on companies to be sure that they are complying.

I must admit that I learned quite a bit about the problems affecting workers, especially in the rubber industry. I was shocked by some of the situations that were presented to us, most especially, of course, in the smaller shops. And I was somewhat taken aback by many of the things that I heard this afternoon. I guess those of us in some universities, Harvard and the University of North Carolina being exceptions, really aren't aware of what is going on in the outside world.

Mr. Bommarito and his union apparently had the vision and foresight to do just this some years back—to bring certainly top scientists and two very fine universities together with management, with industry with the labor union serving as a catalyst to bring these three elements together and from their inner actions apparently attempt to resolve the problems that confront workers. I think the first step that should have been taken was, and this is, retrospective epidemiologic studies. These kinds of studies as you know will help to define the problem or at least tell us in fact a problem exists, and this is the first step that has been taken.

Thomas Jefferson, one of our more prominent statesmen, was reported to have said, in the maintenance of our principles I believe the happiness of our country depends. I'd like to modify that to read that in the maintenance of principles of good scientific investigation I believe the health of our country depends. Mr. Bommarito, you have taken the initiative in the area of worker health and safety

and for this you must be congratulated. Your efforts certainly are benchmarked in the history of occupational health and safety, but there is an urgent need for much better information about non-fatal kinds of ill health and I urgently entreat you to broaden your support to include basic research that is germane to workers' health problems.

Dr. Peters' Comments

Here in part are comments of Dr. John Peters of Harvard University given at the recent Health and Safety Seminar.

The idea that is important to us I think is that the solution of the problems requires a team approach.

It can't be done by one discipline. It can't be done by two often. It takes engineers, chemists, physicians, epidemiologists, toxicologists and so on. Part of the effort involved in these problems is in identifying the exposure and frequently this is a significant problem as you might guess from the many chemicals that are used in the rubber industry.

There are the possibilities of multiple exposures. Exactly which one is a problem and which one might be producing disease is difficult. So our efforts contain at least half the effort toward identifying what the exposures to various chemicals are. The other half of the effort aimed at finding out what the health effects are. It should be pointed out very clearly that the ultimate goal of all of these studies is to protect the worker and the usual outcome is that once the problem is identified solutions are available.

Let me classify the way we have approached the research effort and this essentially is divided into two.

The first area attempts to uncover new problems or as yet unrecognized problems. And the second area of focus is on problems that we know about but that we need to know more about in order to control. Going back to the first effort looking for new problems, the major thrust in this area is to look at the death experience of about 50,000 past and present rubber workers, going back to about 1925, which requires a tremendous amount of effort to accumulate the occupation histories and the death certificates from these kinds of numbers.

But from this information death rates have been computed for about 8,000 deceased workers. Our data or information allow both internal and external comparison. External comparison consists of comparing the experience of the rubber workers deaths with the experience of U.S. deaths in general.

Internal comparisons allow looking at death experience by different departments in the factory. For example, is one part of the plant more hazardous than another in terms of the disease that might be expected? Now a detailed walk through survey of all plants covered by our agreements with the two companies was conducted during 1971 and 1972 to gain familiarity with the materials and the processes involved—the manufacture of rubber products. And to gain experience on what might be the potential occupational health hazards presented to the employees.

An early meeting with the union permitted us to view the specific problems during our plant tour. These meetings were extremely valuable in giving us useful leads to follow. A detailed preliminary industrial hygiene survey of the plant was conducted with both management and union representatives.

The company representative was usually the staff person who had the responsibility for safety and the union member was either the local president or the chairman of the union safety committee. All production areas were visited. Detailed information was made available on materials, processes and environmental controls and it is interesting to note that our access to plant areas and specific information was complete.

A major research problem under study is the exposure of curing press operators to the various gases and fumes from this process. We have initiated a detailed study of this exposure consisting of both a follow-up study of the effects of exposure and an environmental study to identify the significant components of the contaminant from the tire presses.

The initial phase is a laboratory review of the heat breakdown products to be expected from the curing fume raw materials and the sampling and analysis of the air contaminants in the curing rooms of selected plants. This complex analytical problem will be resolved by sophisticated laboratory techniques.

We believe we have made some productive first steps in ascertaining some of the occupational health problems of the rubber industry. The pursuit of these problems, we believe, will yield results that will greatly benefit the health of the rubber worker—our goal.



DR. JOSEPH BORZELLECA



DR. JOHN PETERS

The challenge to universities

Dr. Al Tyroler speaks on health, the union and industry:

You have given us a most compelling challenge: we are charged with mobilizing the resources of two of the leading universities to study the health of members of one of the leading unions in relation to their work environment. This is an important responsibility, one which we welcome, and one which we do not take lightly. I speak to you today for dozens of university investigators, committed to your well-being.

We have initiated our studies by collecting records of deaths occurring to URW members in the past.

In looking back at the death rates, that is the probability of dying, and analyzing the causes of death of rubber workers over the past several decades, we wish to answer questions of the following types:

Do URW members have the same, greater, or less likelihood of dying than otherwise comparable individuals employed in other industries?

Are there differences in the probability of dying among workers in different plants within the industry?

Finally, are there differences in the likelihood of dying among workers engaged in different activities within individual plants?

This series of questions starts with the most general and proceeds to very specific work exposures. The general questions, when answered, will permit us to speak to the overall death experience of the URW membership. The more specific questions will allow us to understand health hazards related to direct, immediate, local, work environmental exposures.

It is still possible that specific causes of death could occur with greater frequency and that individuals could be at greater risk of selected, specific causes of death.

Several other specific causes of death, however, did appear with greater-than-expected frequencies, using the U.S. male population's death rates as the expected. Among these were several types of malignancies, including leukemia and malignancies of the digestive system, particularly the stomach.

It should be pointed out that the deaths in one plant studied occurred among some 7,000 workers employed for at least 10 years and followed over a period of 10 more years. In the other plant, records of the mortality experience of

about 50,000 past and present employees going back to 1925 have been collected.

For that reason we have begun to analyze the death experience of workers of other plants covered by the contract. At the time of this report, the causes of death among 10 such plants have been analyzed and the pooled experience is consistent in showing more than expected leukemia deaths. In our preliminary analyses, the consistency across the plants studied to date regarding leukemia and stomach cancer has not generally been present for other causes of death. In some instances, in some plants, there are more than expected instances of particular malignancies; in other plants this is not true.

The data at this time indicate approximately 20 pct more deaths attributed to leukemia among workers studied than would be expected in an otherwise comparable U.S. population. This will be further studied to confirm or refute our strong suspicions.

In addition, detailed investigations have been initiated of the specific work histories of individuals who died of these causes. It is important to point



DR. AL TYROLER

out that there may be a latent period, between exposure and the appearance of leukemia if there is an environmental agent causing the leukemia; there could be many years between exposure and the appearance of symptoms of the disease and its final fatal outcome.

It is possible that an environmental agent discontinued in production 20 to 30 years ago could be responsible for increased numbers of cases appearing now. It will, therefore, be necessary for us to study the total work history of such individuals and to compare them with the work history of workers who did not die of leukemia. In an effort to identify possible occupational environmental hazards. Similar reasoning will apply to other malignancies, if more than expected deaths are found.

Our long term goal is the creation of a continuous monitoring system designed to provide early clues if there is any evi-

dence of health threatening agents in the work environment, long before the appearance of serious illness or death.

I am pleased to report that we have had excellent working cooperation among all interested parties in our collaborative research to date. The union leadership, their scientific person-

nel and members; and the company management, medical personnel and industrial hygienists have all cooperated with our studies. This is, I believe, an indication of the recognition by all, that each has an equal interest in the investigations underway.

Mr. Bommarito and the members of the union are

to be congratulated for convening this symposium and providing us the opportunity to share our findings with you. I thank you for the opportunity to present our progress report and genuinely look forward to the occasion when our preliminary results are translated into health promoting action.

Questions, answers

Bommarito: Dr. Wagoner, do you feel NIOSH has provided you with adequate personnel and support to handle your current involvement with vinyl chloride and future situations which will undoubtedly crop up in the next few years?

Dr. Wagoner: That's a difficult question to answer. Let me indicate why I think it is difficult.

First of all it goes back to a very basic point that Mr. Baier raised. When we are studying carcinogenesis I am under no illusion that we're studying carcinogenesis in a vacuum. I've yet to see an agent that we have undertaken in-depth study of, where indeed we are not seeing non-malignant respiratory or non-malignant effects also.

With regard to that I think one of the problems we're facing on how we as an institute are handling the investigations vinyl chloride is we're stealing from Peter to pay Paul. Now I can pull my staff off and go full blast on vinyl chloride, but we haven't solved the peripheral neuropathy question yet that recently came up in Columbus Coated Fabrics.

We have many other situations of that nature. So I think there is a basic problem internally. Do we have enough positions and monies and expertise and medical officers to undertake this study, and my answer to that is obviously we do not. But I think it comes that not only do we not but the whole institute does not have enough people to properly run the nation's program for occupational health and I was just trying to put things into their proper perspective with the large impact health-wise, economic wise of cancer in this country that less than \$1 million is the total bill affair that the National Institute for Occupational Safety & Health is addressing to occupational carcinogenesis.

And I would like to throw the challenge up to you people and to the other governmental agencies to see the matching funds available in the other governmental agencies because I think we could

exceed no more than \$2 million and the total national effort for occupational carcinogenesis. The answer is, no I do not have enough people. I do not have enough physicians. We do not have enough engineers. We're strapped to the hilt. We're working 15 hours a day. We're bleeding, we're hurting and the anxiety level—level of anxiety and the adrenalin is getting awfully tired.

Bommarito: We're going to try to find some adrenalin in our discussions with the labor movement.

Dr. Peters, in the experience that you have gained in the last three years with our joint occupational health program, could you enumerate by class the hazards which you feel should be studied more positively by your research team?

Dr. Peters: Let me first start by enumerating the major hazards that we have seen in the rubber industry so far in our experience they happen to be noise, heat, chemical exposure, dust and certain solvents. Now, at this point, largely related to what we were talking about this morning, about certain leads that we have come up with in terms of possible excess tumors in certain areas, this is one area that we intend to pursue vigorously—not only from the epidemiological point of view but from the laboratory chemical point of view. With dust, we are pursuing this in great detail at this point—in particular, the dust in the processing and the dust and fumes in the curing area. Talc and clay, carbon black being three of these that we're particularly interested in. Professor Burgess and the engineering portion of our team has been looking very carefully and will be doing more extensive work in the areas of heat—related to the question you just asked on heat standards—and in ventilation. The idea being that more standard ventilation practices would be eventually adopted because in some plants there is good ventilation, other plants there is poor ventilation. We believe that by studying this problem we

can come up with recommendations that will control environments more uniformly and more effectively.

Bommarito: I might say that there are many physical and chemical hazards which do confront our membership. The physical hazards are often more easily understood and usually easier to control, but we still have serious accidents and deaths resulting from unsafe equipment and operations. We had high hopes that when OSHA came along in December of 1970 that the teeth of the law would compel companies into voluntary compliance.

I feel that the intent of the law was excellent but the administration of the act has fallen far short of our expectations. As it looks today, if we want the job done right, labor must again ban forces to strengthen the law and encourage Congress to provide the proper financial appropriations. Unless NIOSH gets adequate support, recognition, and professional upgrading, OSHA will become another political lost cause.

OSHA by itself does not have the professional capability to write laws, to protect the workers from the many chemical hazards which face them, nor do they have the gut professional staff to implement them. Their action on the carcinogen standard and the vinyl chloride has left them open to serious criticism.

The influence peddlers seemed to affect their judgment regarding the law which was initially designed to protect the people and not the corporate giants who fight us, some time, every inch of the road and that could lead to that safe and healthful environment to which all workers are entitled. Perhaps this meeting has made us aware of the problems that we face and I hope this meeting has also planted the seeds to begin the fight that will extend to preserve the lives of the working men and women and produce a better and safer work environment for our children.

Cancer in a spray can

By Barbara Newman
National Public Radio

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In late January the B.F. Goodrich Company informed the National Institute of Occupational Safety and Health (NIOSH) that four of its employees engaged in the manufacture of polyvinyl chloride (PVC), one of the most common plastics, had died within the last six years of an extremely rare liver cancer, angiosarcoma. The workers had average exposures of 19 years to vinyl chloride, the gas that is used to produce the powdery chemical, PVC, which is the basis of the plastic industry. Then three more cases were found at Goodrich. While angiosarcoma is so rare that a check of death certificates at the American Cancer Society revealed that only one of 78,000 deaths result from it, estimates are that one out of 20 deaths among vinyl chloride workers will be caused by this rare liver cancer.

On the heels of the Goodrich news, several other companies searched their death records, and after a superficial investigation found 13 angiosarcoma cases, including fatalities at a Goodyear Tire and Rubber facility in Niagara Falls, at Union Carbide in South Charleston, W. Va. and Firestone Tire and Rubber in Pottstown, Pa. The figures are misleading because industry does not routinely study employees' deaths to determine if contact with industrial chemicals may have been involved. Moreover, diseases like angiosarcoma are so rare that they are often misdiagnosed. As Dr. John Creech, the physician at B.F. Goodrich in Louisville, says, "Most doctors . . . attribute the cause of death as something else." Dr. Marcus Key, the director of NIOSH, admits that without Dr. Creech's voluntary disclosure, "it is entirely possible that the significance of the tumors would not have been realized for several years."

Because 10,000 new and untested chemicals are each year put on the workplace, additional occupational cancers may yet be identified. Every year in the United States, there are more than 665,000 new cases of cancer and about 385,000 cancer deaths. The World Health Organization in 1974 estimated that 75 pct. or 85 pct. of all human cancers result from environmental causes. More recently, the director of the National Institute of

Health stated that there is no doubt that industrial and agricultural technologies are the major contributors to most known environmental carcinogens. The direct and indirect cost of cancer, including loss of earnings during illness and during the balance of normal life expectancy, have been estimated at \$15 billion for 1971, yet serious attention has not been given to identifying carcinogenic hazards in industry.

Dr. Irving Selikoff of New York's Mt. Sinai Hospital has done much landmark research linking the inhalation of asbestos fibers with cancer and now says that the vinyl chloride illnesses will proliferate because the cancer victims that we are now seeing began work 20 years ago. According to Selikoff, "It takes 20 years or so for this cancer to become evident. There weren't that many people working with VC (two decades ago). Many new workers joined the industry in the 1950s and 1960s and the cases of cancer and other disease that will be found among them will become evident in the 1980s and 1990s unless, of course, we find ways by research to prevent the cancers that are being incubated now within these people. Unfortunately such research is not being done."

A month ago Selikoff took his staff up to the Goodyear facility at Niagara Falls and set up an improvised hospital in the local union hall. Working 12-15 hours a day, 401 workers participated in perhaps the most massive medical examination in the history of occupational health. Selikoff is now studying his findings but has already concluded that there is evidence of other PVC related liver disease, lung disease, and diseases of the skin, bones, hands and feet. PVC not only affects the liver to produce cancer but injures other tissues that it might touch.

Government research of occupational health has been very limited. The total budget for the National Institute of Occupational Safety and Health, the federal agency charged with research to protect worker safety, is under \$30 million. The NIOSH staff has only a few epidemiologists.

For years scientists and industry have known that vinyl chloride was a potential health hazard. Despite the warnings of liver damage from exposure to VC levels as high as 500 parts per million parts of air (ppm), the U.S. government regulated VC at precisely this unsafe limit, 10

times higher than that which many companies voluntarily set for themselves. In 1961, for example, Dow Chemical voluntarily lowered the average exposure to 50 ppm for its workers. Fifty ppm is too high because there is no certain, safe exposure level for a carcinogen. But 50 is the level at which the Labor Department's Occupational Safety and Health Administration (OSHA) set an emergency standard for vinyl chloride in early April. The OSHA action disregarded the petition of the Industrial Union Department (IUD) of the AFL-CIO and the recommendation of NIOSH that an emergency standard for VC be set at zero exposure. It also disregarded the advice of many cancer experts who in 1970 reported to the surgeon general that "no level of exposure to a chemical carcinogen should be considered toxicologically insignificant for man. For carcinogenic agents a safe level for man cannot be established by application of our present knowledge."

Some of those who accept that advice view the Labor Department's action as a sellout to industry. One who holds this view is Sheldon Samuels, the head of the IUD: "... it's just cheaper to let workers die than to spend millions of dollars to control toxicity. The worker subsidizes the cost of production with his life." The cost to industry of complying with a zero standard would be in the millions of dollars, mostly for engineering costs, but also for new equipment such as safety suits with respirators. *Business Week* recently quoted Walter B. Connolly, Jr., labor counsel of Firestone Tire and Rubber Company, which operates two PVC plants, as saying, "Improvements in work practices will probably require a 100 per cent increase in the work force." Lower productivity erodes profits.

The rationale the Labor Department uses to justify its emergency VC standard of 50 ppm is that the only conclusive experiments done correlating vinyl chloride and cancer (by Italian scientist Cesare Maltoni) showed tumors at 500 and 250 ppm but not at 50 ppm. Associate Assistant Secretary of Labor, Alexander Reis, who is in charge of standards for OSHA, says that the department could have been sued if it had promulgated a zero standard without conclusive scientific justification. But according to Vernon Rose, the director of the Office of

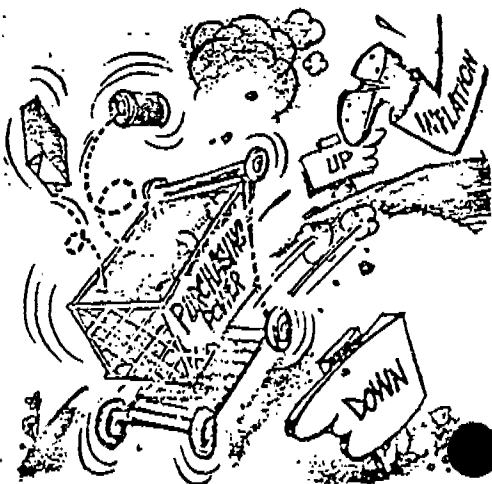
Standards of NIOSH, biostatistical extrapolations of Maltoni's experiments show that angiosarcoma would be expected to develop at an exposure level of 50 ppm. In the letter of transmittal to OSHA in which NIOSH recommended zero exposure as a VC standard, the agency noted that while Maltoni found no liver tumors at 50 ppm, "There is the possibility that tumors might have been produced if a larger number of animals had been exposed at that concentration." Late last week the Manufacturing Chemists Association (MCA), the trade group for the chemical industry, announced preliminary results of tests of animal exposure to VC. The MCA found angiosarcomas in mice exposed to 50 ppm. The Labor Department promised it will promulgate a permanent standard at zero ppm by June. Even if a permanent standard is promulgated at zero exposure, it could be as ineffective as the standards regulating 14 occupational carcinogens set earlier this year—if, that is, its standards lack any monitoring provisions or allowance for medical surveillance of the workers.

In addition to the 6500 workers involved in VC or PVC production, there are also thousands of workers engaged in the fabrication of products with PVC resin. One of the Rubber Workers locals is conducting tests on levels in fabricating plants and has come up with extremely high readings: levels ranging between 200 and 1000 ppm. There is no evidence yet on the extent of danger vinyl chloride poses to millions of Americans who have

come to use plastic products as a way of life—from phonograph records to auto seats, cosmetics and baby bottles and pacifiers. Dr. Selikoff believes consumers may be endangered as well as VC workers. Vinyl chloride has for years been used as a propellant in aerosol consumer products—paint, hairsprays, pesticides. Ralph Nader's Health Research Group has petitioned the Environmental Protection Agency, the Food and Drug Administration and the Consumer Product Safety Commission to ban the use of all vinyl chloride in aerosol products. To date, the petitions have been met with no action.

The Food and Drug Administration says it needs new authority to require manufacturers to list ingredients. FDA does not normally do any product testing. It has to depend on industry data and honesty. Honesty isn't always corporate policy: in response to the Health Research Group petition, the FDA stated that it informally polled cosmetic manufacturers to learn how much vinyl chloride was used in hairspray and the answer was none. The cosmetic company Clairol admitted that it manufactured "Miss Clairol" and "Summer Blonde" for four years with a propellant that was 25 per cent vinyl chloride, but the company said it stopped the manufacture in mid-1973 and "reformulated" the products. (According to Clairol, after one minute of spray from these products, the air level in the breathing zone of the user could reach 200 ppm). But in a letter to the Health Research Group in late March, Clairol said it did

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Runaways

"Safe" Level Still Too High?

AFL-CIO News Service

New scientific data show that laboratory animals can develop liver cancer at the same level of exposure to vinyl chloride currently permitted in the federal emergency standard covering the carcinogen.

The findings prompted the AFL-CIO Industrial Union Department to call on the Department of Labor to reopen the record on the vinyl chloride standard so organized labor could continue to press for a new emergency standard. Unions want "no measurable concentration" of the cancer-causing chemical in the workplace.

The emergency standard issued by the Occupational Safety & Health Administration (OSHA) reduced the exposure level from 500 parts vinyl chloride per 1 million parts of air to 50 parts per million.

But even at the 50 parts exposure level there was a high mortality rate among laboratory animals in tests conducted by Industrial Bio-Test Laboratories for the Manufacturing Chem-

ists Association.

A report on the study was made available by the rubber workers to a special meeting of the IUD Occupational Safety Committee.

In one phase of the experiment, the animals were exposed to vinyl chloride at levels of 50 parts, 200 parts and 2,500 parts per million. At each level, 100 rats, hamsters and mice were exposed for seven hours a day, five days a week over a period of several months.

Forty of the 100 rats exposed to the 50 parts concentration died; so did 40 of the hamsters. The study, however, did not pinpoint the cause of death.

Six of the 100 mice died (of tumors). Four deaths were traced to neoplasm and two to angiosarcoma of the liver—the once-rare form of cancer that has been diagnosed in the deaths of a growing number of workers at vinyl chloride and polyvinyl chloride plants across the country.

While the study indicates no definite trend in

deaths at higher exposure levels among rats and hamsters, there was proportionate rise in deaths among mice linked to neoplasm and angiosarcoma as the concentration of vinyl chloride was increased.

On the basis of the Bio-Test findings, the IUD Safety Committee members agreed that there is no safe level of exposure to vinyl chloride.

It also urged OSHA to take immediate action to control the measure of the vinyl chloride levels at all plants covered by the existing standard.

Peter Bonmarito, URW International president, pointed out most modern vinyl chloride plants could easily reduce the concentrations of the carcinogen with little difficulty.

Committee members expressed concern that the current emergency standard provide no protection for workers involved in the secondary use of polymerized vinyl chloride.

An estimated 6,500 workers are involved in the production of vinyl chloride

and polyvinyl chloride. However, hundreds of thousands of workers are employed in the secondary use of the chemical, which is the basis of most modern plastics, where exposure levels at times exceed concentrations at vinyl chloride plants. The secondary use of the chemical is found in such diverse occupations as painting, book-binding, meat cutting and electronics.

Meanwhile, a federal court directed OSHA to conduct periodic monitoring of workplaces involved in the production and use of asbestos materials.

The U.S. Court of Appeals in Washington found that employers who once meet a federal standard on the control of asbestos dust are not automatically excused from further monitoring by compliance officers.

Attorney George H. Cohen told the committee that the court also remanded to the Secretary of Labor a review of the standard which delays until July 1976 a two-fiber

exposure limit on asbestos dust.

Cohen represented the IUD in legal action against the Department of Labor in urging an immediate reduction from the current asbestos exposure limit of five fibers per 1 million parts of air.

The court conceded that all industries could not immediately meet the two-fiber standard, but it suggested that a blanket dispensation for all employers is contrary to the intent of Congress.

The Environmental Protection Agency also banned the sale of pesticide aerosol products which use vinyl chloride gas as a propellant. EPA said recent tests show that a 30-second burst from such aerosol products could produce concentrations of the gas similar to levels used on laboratory animals that have developed angiosarcoma of the liver.

EPA listed 28 pesticide sprays made or distributed by 24 firms that were ordered off the consumer market.



ATTENTIVE—Delegates to the Health and Safety Seminar listen as panelists (not shown) discuss problems and progress in rubber workers' health. Some 625 persons attended the all-day program held April 9 at the Shoreham Americana, Washington, D. C.

(Continued from Page 19) not "consider there to be grounds for recalling the small amount of product that is now in the field."

Then two weeks ago the FDA telegraphed Clairol asking for voluntary recall of these sprays from retail shelves, and Clairol readily agreed. All the cans of these products on store shelves contained vinyl chloride in the propellant because Clairol had not had a production run since last Summer. While the company said it had reformulated the product since then and left the clear impression that only a small number of the cans left on retail shelves contained VC, the FDA was at first taken in. Furthermore, while Clairol originally maintained that only these two products still contained VC, the FDA announced that VC was also used in four additional Clairol products, all professional hair products.

The FDA also announced that another company producing aerosol hair-spray, Bonat was also vol-

untarily withdrawing 13 products containing vinyl chloride from retail stores. That agency said that on information received from "industry" sources, an aerosol drug may contain vinyl chloride, but the FDA refused to release any information until the manufacturer "informs the FDA that this is so." It did turn out to be so and the FDA announced that Quick Aide medicated room vaporizer was being recalled. All of a sudden the FDA "discovered" 30 other aerosol products manufactured by Shield Chemical Company, including deodorants and first aid sprays that contain vinyl chloride. Now the FDA says all the products it regulates that contain vinyl chloride are being recalled.

The FDA has throughout assured the public that only a few products contain VC and at levels that are harmless. Dr. Joseph Wagner, head of field studies for NIOSH, says that he doesn't buy the

FDA statement that levels in hairspray at this time are free of any potential of inducing cancer. Wagner will shortly announce a sizable research contract to investigate the possible carcinogenic effect on cosmetologists from products they have been using that contain vinyl chloride.

The action of the EPA, which regulates aerosol pesticides, has been even more dismal. Three weeks ago, the EPA finally responded to the Health Research Group petition, but in an unsatisfactory manner. Instead of recalling the 41 pesticides produced by 23 companies that contain vinyl chloride, the EPA merely asked the manufacturers' permission to release the brand names. Among the 41 products using vinyl chloride that are currently registered are sprays for restaurants, for dogs and cats, and for the household. (Five more were produced until recently, but the manufacturers voluntarily stopped using



A QUICK "HELLO"—Kenneth Oldham, URW International vice president, shakes hands with U.S. Sen. Henry M. Jackson after the senator's talk to rubber workers at the April 9 Health and Safety Symposium.

vinyl chloride). Glenn E. Schweitzer, the director of the EPA's office of toxic substances and chairman of its study group on vinyl chloride, said that there currently is not sufficient evidence to warrant recalling these products. Yet Schweitzer said that one EPA study of vinyl chloride exposure resulting from the use of a household disinfectant spray indicated that if sprayed for 30 seconds in a typical bathroom, levels of vinyl chloride in the air would reach 400 ppm. Schweitzer insists that the usual exposure of humans to pesticides is too small to constitute an imminent health hazard.

On April 17 the EPA released a list of brand names of 26 aerosol pesticides that manufacturers or distributors had agreed to reveal. Despite this "sweeping regulatory action" the agency still refuses to force a recall. Manufacturers and distributors of 21 other products had various reasons for refusing to divulge brand names—including protection of "trade secrets." The EPA accepts such excuses because it says the agency currently finds no evidence of an imminent health hazard.

So consumers continue to use aerosol products containing this cancer-causing agent.