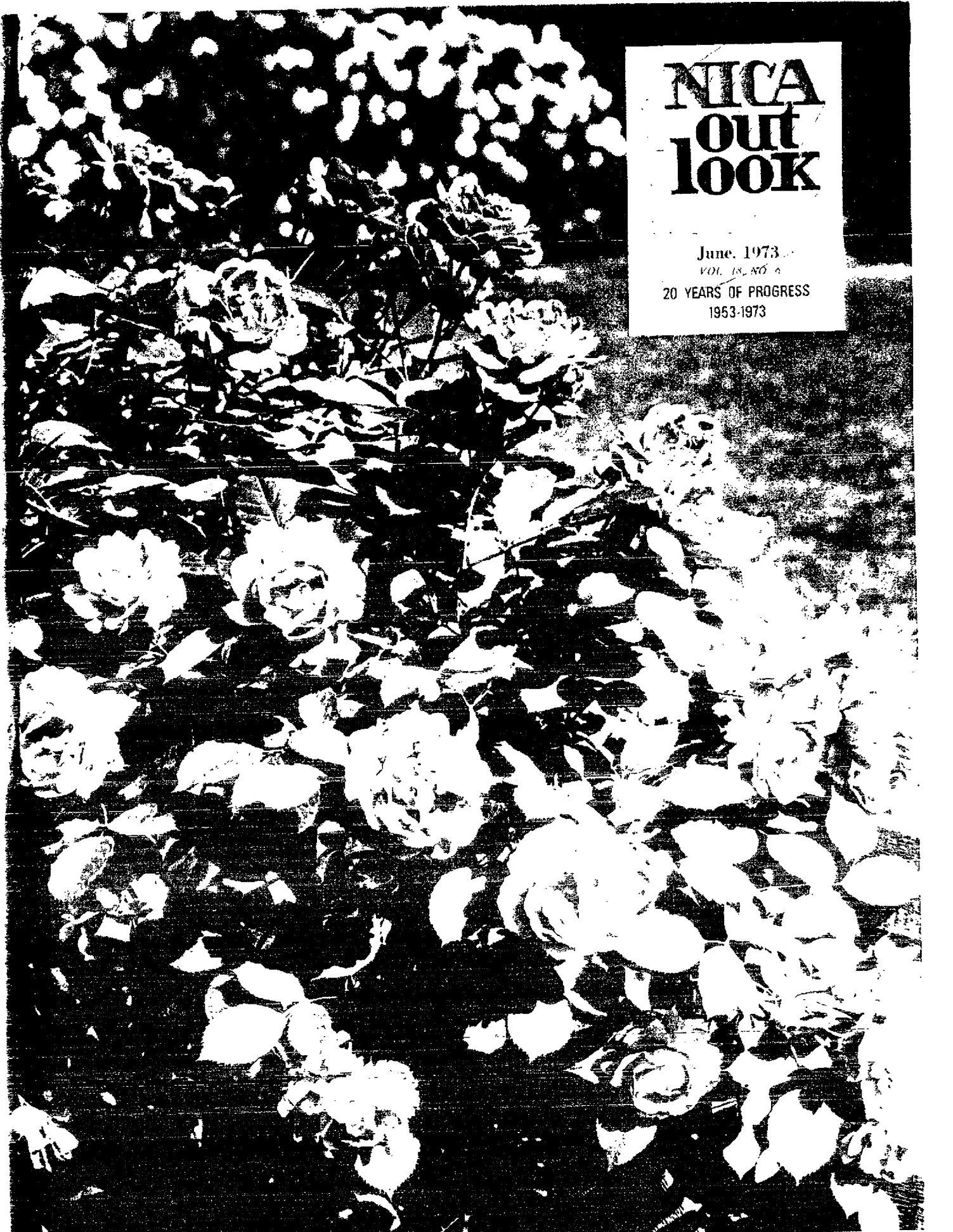


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20 YEARS OF PROGRESS
1953-1973

out look

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INSULATION HYGIENE PROGRESS REPORTS

FROM THE INSULATION INDUSTRY HYGIENE RESEARCH PROGRAM

Irving J. Selikoff, M.D., Program Director

Vol. 5 No. 2



Summer 1973



Members of the International Association of Heat and Frost Insulators and Asbestos Workers attending a conference on the health hazards of asbestos work presented by Local 95 in Toronto, Canada.

Health and Safety Meeting Held in Toronto

On Saturday, January 13, 1973, a meeting was held in Toronto to discuss health hazards in insulation work. Drs. Irving J. Selikoff and William J. Nicholson of Mount Sinai School of Medicine spoke to nearly 200 members of Local 95 about the risks of asbestos work and described what can be done to improve working conditions. Because of the general interest in the health problems of insulation work a selection of questions and answers that followed these talks is published here.

Tom Carson: A few years ago I was doing insulation in a room where painters were spraying. The fumes bothered me and I came out of the room, but, like a dope, I went back in and got this tremendous pain in my chest. They took me to the Doctor and after looking



Tom Carson

at the X-ray, he said my lung had collapsed. Could this have been caused by
(Continued on fifth page)

International Experts Meet on Mesothelioma

On April 2 and 3 an international working group met to discuss research programs for the treatment and cure of mesothelioma. The meeting was held at the National Headquarters of the American Cancer Society under the auspices of the Mount Sinai School of Medicine—A.C.S. Environmental Cancer Research Program. The treatment experiences of several medical centers were reviewed and future research programs discussed.

Cooperation Pledged

Andrew Haas, Asbestos Workers President, pledged the full support of the Union in any research efforts to find a cure for mesothelioma. He described how nearly 10% of the deaths in the membership of his union were from mesothelioma and that finding a successful treatment for this cancer should be one of the priority items of the Federal Government. Similar support for such research work was offered by Jack Solon, Vice-President of the Johns-Manville Corporation.

Attending the meeting from Great Britain were Dr. Muriel Newhouse of the London School of Hygiene and Tropical Medicine, Dr. Margaret Turner-Warwick of the Institute of Diseases of the Chest, London, and Dr. Geoffrey Sheers of the Beaumont House Chest Clinic in Plymouth, England. Dr. Sheers' report on the incidence of mesothelioma in workers, other than insulators, in the Devonport Dockyard was especially disturbing. Here, the frequency of cases in painters, electricians, or shipfitters, etc. appeared to be nearly as great as in insulation workers.

(Continued on second page)

Insulation Hygiene Progress Reports

Vol 5, No. 2

Summer 1973

from the
Insulation Industry Hygiene Research
Program

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PURPOSES OF THE INSULATION INDUSTRY HYGIENE RESEARCH PROGRAM

1. To develop improved methods for minimizing exposure of insulation workers to dusts and fumes encountered in their work.
2. To disseminate knowledge of these improved methods of dust control wherever they may be applied advantageously and to offer cooperation, advice and assistance toward their universal adoption.

(Continued from page 1)

Also present at the meeting were Dr. Marcus Key, Director of the National Institute for Occupational Safety and Health, Dr. Douglas Lee of the National Institute of Environmental Health Sciences, Captain George Lawton of the U.S. Navy, and representatives of the National Cancer Institute.

Results of Asbestos Workers Survey In

Over five thousand members of the Asbestos Workers Union responded to the questionnaire, distributed by General President Andrew Haas in December, 1972, to find out what effects the new asbestos regulations had had in reducing exposures of Asbestos Workers. The important provisions of these regulations as they applied to insulation work were covered by the questions.

One of the mandatory requirements of the new standard was that each work place where asbestos fibers were released should be monitored by December 6, 1972. The number of dust counts seen by Asbestos Workers in the different regions of the United States and Canada are shown in Table I.

Few Dust Counts Seen

One hundred and seventy-one members observed an air sample being taken; 4956 did not see any such activity in six months. After making all reasonable allowances for unobserved surveys, it must be concluded that there has been no major effort to comply with this part of the regulations.

By itself, air sampling does nothing to reduce exposures. In this situation, however, it is an indication of the activity of employers or official agency industrial hygienists in complying with at least the mandatory provisions of the regulations.

The distribution of the surveys was noteworthy. Fifty-four, or about one-third of the observed surveys, were reported by the relatively few (165) replies from members of shipyard and

maintenance locals. As many of the members of these locals work in facilities which have an industrial health program, this result is understandable.

In order to reduce dust concentrations below the established Threshold Limit Value of 5 fibers (longer than 5 microns) per milliliter of air, certain procedures were listed in the standard. These included the use of plastic bags for mixing cement, vacuum cleaning of asbestos debris, the use of containers for waste material disposal, and exhaust ventilation on all power equipment. Workers were also queried on the availability of this equipment as well as the availability of respirators and change facilities.

No Widespread Adoption

Table II lists the questions and complete results obtained in the survey. It is evident that there has not been any widespread adoption of work practices recommended or mandated in the standard. As with the dust counts, the presence of an industrial health program and stable work location in maintenance and shipyard locals resulted in a lower percentage of "never" responses to the questions on the availability of change rooms, respirators, and personal protection equipment.

However, across the United States, the standard had little effect in improving conditions in construction work.

Reportedly, there has been an increase in the proportion of asbestos-free insulation being installed, and this

TABLE I
Number of dust counts seen by insulation workers during the period June 7, 1972, to December 6, 1972

Region	Dust counts seen?		Percentage of men seeing a dust count
	Yes	No	
New York-New England	12	743	1.6
Middle Atlantic	25	755	3.2
Southeast	6	326	1.3
Southwest	18	474	3.7
Midwest	5	936	0.5
Central	16	740	2.4
West	24	509	4.5
Canadian	9	363	2.5
Maintenance Locals	23	38	37.7
Shipyard Locals	31	73	29.8
All regions	171	4956	3.4

Few Improvements Seen

may be a positive effect of the standard. However, if substitute materials are used with no regard to control of dust, it is possible that other health hazards can be created. Exposure to high atmospheric concentrations of any inorganic dusts can be injurious.

Along with returned questionnaires, many workmen sent excellent letters describing conditions in the field. An especially good one was sent by Jay H. Mackiey of York, Pennsylvania and because of its relevance we are publishing excerpts from it.

Dear Sirs:

I hope this letter attracts more attention than the numerous questionnaires that I have been returning. My seven years of being an asbestos worker, I have not yet seen one precau-

tion taken to prevent dust or any other efforts taken to better our working conditions. I'm a young man with many years ahead of me in the trade. From the few years I worked, I observed there isn't "those golden years of retirement" to look forward to. The few asbestos workers, that do reach retirement age soon after succumb to cancer or a related disease associated with asbestos.

The good working practices, that were suggested in the November journal are very seldom used and some are not even practical. Trying to get the company to furnish a downdraft cutting table for uses during hand sawing and a portable vacuum cleaner for proper ventilation is next thing to impossible, we're very lucky if we even have a box to lock up our personal tools.

If we are going to change and improve our working conditions, let's start with a few of them that can be corrected immediately. For instance: have a change

shanty large enough for the crew and well ventilated; most of them are cramped and very dusty. On larger jobs, have adequate wash rooms or at least be given time to clean up. Have a wash machine or vacuum cleaner in the shanty for work clothing, there is no need to carry the dirt home. Have questionnaires that an insulator could write in his own suggestions that he might think will improve his conditions. Have regulation on dust control that the local can enforce and the journeymen can very well understand.

To use an old cliché "An ounce of prevention, is worth a pound of cure," would apply very well to our trade. I think it would be a lot easier to eliminate the dust and try to clean up the trade—than try to find the cure for lung cancer and all the other dreadful diseases. I hope my letter does not go unanswered, I'm anxious to read your reply. Thank-you.

TABLE II
QUESTIONNAIRE—OBSERVATION OF ASBESTOS STANDARDS

In the period June 7, 1972, to December 6, 1972:

1. Dust counts				
I did not see a dust count done				4956
I personally saw one or more dust counts done				171
2. Work clothes and facilities				
In order not to bring dusts home from the job, special facilities are recommended.				
Facilities and supplies for clothes change were available:				
All the time	(100%)			1291
Usually	(50-75% of the time)			340
Occasionally	(1-49% of the time)			872
Never	(0%)			1964
3. Respirators ("masks")				
Were provided by the employer:				
At all times	(100%)			2038
Usually	(50-75% of the time)			1014
Occasionally	(1-49% of the time)			1242
Never	(0%)			787
4. The following materials and equipment were available:				
	Always	Usually	Occasionally	Never
Cement in plastic bags	570	549	616	3252
Exhausted power table saws	594	402	603	3004
Exhausted power hand saw	112	74	176	4125
Vacuum cleaner for clean up	203	136	425	4127
Bagging of waste for disposal	407	388	681	3439
Drop cloths & collector for hand sawing	190	227	513	3943
Portable exhausts for confined spaces	125	154	443	4150

It should be noted that an ambiguity exists in the replies to the availability of exhausted power saws. On some jobs where there was no use of power equipment the response was "never" as to the availability of exhausted saws.

Cigarette Smoking Is Dangerous to Your Health

Results from the health survey, conducted by Dr. Irving J. Selikoff and Dr. E. Cuyler Hammond, of the full membership of the International Association of Heat and Frost Insulators and Asbestos Workers dramatically point to the severe effects of cigarette smoking on Asbestos Workers.

The 17,800 men enrolled on January 1, 1967 in the International were studied through December 31, 1971. 11,656 completed a questionnaire providing, among other details, information concerning their smoking habits. The results of the causes of death of all members, listed according to their smoking habits, is shown in Table I.

Among the 9,590 men with a history of regular cigarette smoking, there were 596 deaths, 134 of which were due to lung cancer. Of the 2,066 men who had never smoked cigarettes regularly, only 2 of 73 deaths were from lung cancer.

Mortality studies of Locals 12 and 32 have been reported which indicated that cigarette smoking increased the risk of death of lung cancer among asbestos

insulation workers approximately ninety times over that of men who neither worked with asbestos nor smoked cigarettes.

The results of the current, more extensive, survey substantiate the earlier data on the added effects of smoking on the production of lung cancer in asbestos workers. However, they also illustrate the importance of not smoking in lowering the incidence of cardio-vascular disease. In the non-cigarette smoking group, only 36 deaths from all causes other than cancer were seen where 93 were expected. Most of these other deaths were from cardio-vascular disease which was significantly reduced in the non-smoking asbestos workers.

In fact, comparing the number of deaths of non-cigarette smoking asbestos workers with those expected from statistical data on the mortality of the general population, it is seen that only 73 insulators died where 112 or 113 deaths were expected during the 1967-1971 period. Forty fewer deaths were seen than expected.

Two factors account for the improved mortality data of insulation workmen. Firstly, at the beginning of the observation period, most of the insulators were working and thus healthier than many in the general population where many deaths occur in those who are disabled, sick or otherwise unable to hold a job. This factor usually will reduce the expected mortality over a five year period by no more than 20% from that of the general population.

The second major factor is the absence of cigarette smoking in this group of Asbestos Workers compared with the general population which contains many smokers. Even including deaths that occurred from asbestos exposure (asbestosis, mesothelioma, and G-I cancer) these data show that over this five year period of time the effects of cigarette smoking on health is greater than the effects of working with asbestos containing insulation materials.

Table I
Expected and Observed Deaths among 17,800
U.S. and Canada Asbestos Insulation Workers,
Jan. 1, 1967-Dec. 31, 1971*

	Total		No history of cigarette smoking**		History of cigarette smoking		Smoking habits not known	
Number of men Jan. 1, 1967	17,800		2,066		9,590		6,144	
Person-years of observation	36,200		10,153		46,615		19,522	
	Expected deaths	Observed deaths	Expected deaths	Observed deaths	Expected deaths	Observed deaths	Expected deaths	Observed deaths
Cancer all sites	144.09	459	19.92	33	79.58	265	14.59	161
Lung cancer	44.42	213	5.98	2	25.09	134	13.35	77
Pleural mesothelioma	***	26	***	2	***	17	***	7
Peritoneal mesothelioma	***	51	***	9	***	29	***	13
Cancer of stomach	3.62	16	0.95	1	3.50	3	2.07	7
Cancer of colon, rectum	17.51	26	2.52	4	9.53	14	5.46	8
Cancer of esophagus	3.21	12	0.44	0	1.30	7	3.97	6
Asbestosis	***	78	***	4	***	45	***	29
All other causes	561.64	355	92.37	36	356.67	266	212.20	233
Total deaths	805.63	1,092	112.59	73	436.25	596	256.79	423

*Expected deaths based upon age specific U.S. mortality rates for white males disregarding smoking. Lung cancer statistics based upon U.S. rates for cancer of lung, pleura, bronchus and trachea. Categories 162 and 163.

**Included 609 men who smoked pipes or cigars.

***United States data not available, but these are rare causes of death in the general population.

How much do you smoke?

None?



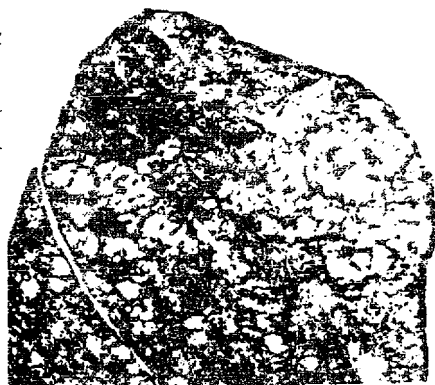
The bronchi and blood vessels appear as small round holes in this normal lung.

1/2 pack?



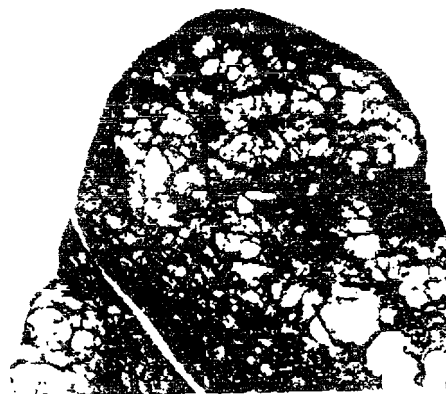
Small holes in upper lung typical of early emphysema.

1 pack?



A later stage showing larger holes in the lung.

2 or more?



Many large holes representing far advanced emphysema.

The National Clearing House on Smoking and Health has published a description of some of the changes that can occur in human lungs from various amounts of cigarette smoking. This description of cigarette smoking induced emphysema is based on work by Dr. Oscar Auerbach and Carmine Benante of the East Orange, New Jersey Veterans Administration Hospital and Dr. E. Cuyler Hammond and Lawrence Garfinkel of the American Cancer Society.

Can Asbestos Dust be Inactivated?

(Continued from first page)

the asbestos and the fumes together?

Dr. Selikoff: The condition from which Mr. Carson suffered is known as "spontaneous pneumothorax." That is, the lung develops a leak and ruptures. The air leaks out of the lung and, since it can't get out of the chest, it fills the space between the lung and the chest wall, collapsing the lung.



Stan Roos

Spraying Can Be Dangerous

This condition can occur to anyone, but it is more likely to occur from irritation by fumes or dust. Spraying, in general, can be an extremely dangerous procedure. If something may be harmful to you, to deliberately spray it into the air makes it worse.

Some of the new epoxy paints can be especially irritating and if there is a little weak spot on the lung, which might occur from scarring produced by asbestos, additional irritation by the epoxy paints can cause rupture.

Tom Carson: I now notice that paint fumes bother me even more since this happened.

Dr. Selikoff: That's correct. Whenever the lung has been so injured it is left weaker.

Stan Roos: I have a condition called bronchiectasis and have to sleep on the bed with the foot raised. Would I be more susceptible either to asbestos or to various fumes?

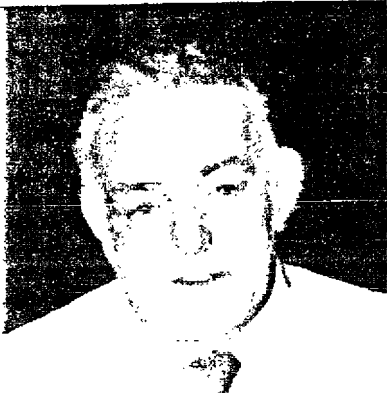
Dr. Selikoff: Bronchiectasis is a big word for a condition in which the small airway tubes, the bronchi, are dilated. With this condition mucus tends to collect in the bronchi and, when it does, it can become infected. Sometimes we even have to almost stand a person on

(Continued on sixth page)

(Continued from fifth page)



Dr. J. E. Cowie



John Cook

Insulators' Life Expectancy is Less

his head so that the mucus can drain out. Bronchiectasis can come from childhood infections and sometimes it can come from asbestosis.

Joe Mathews: You have raised the question of the possibility of inactivating dust in the lungs. Isn't there something now being done for miners in this regard?



Alex Eggert

Dr. Selikoff: Yes, this was first done at the McIntyre Foundation in Ontario for silica exposures. As you know, the silica produced in the dust of hard rock mining is also an irritant. The fine particles can get into the lungs and cause scarring as asbestos does, although it is a different type of scarring. The disease that is produced is called silicosis.

In Ontario it was thought that if these miners inhaled aluminum dust, the aluminum would coat the silica particles and prevent them from injuring the lung. The idea of coating the particles to neutralize them is a good one. However, at this time, there is very little evidence that aluminum is especially effective in this regard.

Chemical Prevented Scarring

In fact, though, this has led to the whole idea of such inactivation. In Germany, at this time, studies are under way by a scientist named Schlipkoter who has found that administration of a plastic polymer called polyvinyl pyridine-N-oxide administered in animals either before or after inhalation of silica, can prevent the scarring caused by the silica particles. This clearly establishes the principle that even after dust is in the lungs it can be neutralized.

This is why we believe that for every dust, silica, beryllium, asbestos, or coal, we may find chemicals that can inactivate it. What is urgent at this time is that we get 20, 50, 100 scientists to work on the problem to find appropriate chemicals that can neutralize these dusts in your lungs.



John Beardwood

Effects on the Heart

Joe DeWit: Does the dust that gets into our lungs cause any special kind of heart conditions?

Dr. Selikoff: That's a very good question. Let me tell you of two effects

that dust may have on your heart. First, the right side of your heart pumps blood through the lungs in order that it pick up oxygen. The blood then returns to the heart and is pumped to the rest of the body where the oxygen is released. When the lungs are scarred, your heart has to pump that much harder, sometimes so hard that it fails. This condition is called *cor pulmonale*. Heart disease caused by the lung.

We used to think that there was not much that we could do for this condition, because the primary cause was in the lung, but in the last 5 years we have learned that there are ways to strengthen the heart so that it can do its job.

The second problem is that when the lungs are scarred not enough oxygen enters your blood so the blood which goes to your heart itself doesn't have enough oxygen. Instead of being 95% saturated with oxygen it might only be 70% saturated. The heart must do more work at a time when it is receiving less oxygen, so that a man with ordinary coronary disease has even greater trouble.

As you know, coronary disease is epidemic in our society today. Let me give you some statistics. In the general U.S. population 1 out of 6 male deaths in non-smokers is caused by coronary disease. In cigarette smokers the number is 1 out of 3. Twice as many. This is another reason for you to stop smoking. Not only will it reduce the risk of lung cancer but it will reduce your risk of coronary disease, an even more significant cause of death.

Where Do We Start?

Barney MacDonald: Most of your studies were done in the States. Canada seems to be about 5 or 10 years behind. How do we put the pressure on to get some of these things that you have described. We have no ventilation equipment, no masks, no nothing. Where do we start?

Dr. Selikoff: That's the key question of the whole afternoon. Where do we start? Who is going to do what? How is anything going to get done? Mr. Kirton, would you care to answer that?

Alfred Kirton, International Vice President: Some things are being done. We just had a meeting in Sarina with some of the contractors. They told me that in 3 different insulation materials they are taking the asbestos out. That's one step. As I understand it,

the manufacturers have been given a deadline to get it out of all insulation materials or they will be banned.



Alfred Kirton

Dr. Selikoff: That's a good answer. May I add to it? There is no reason why insulation workers shouldn't have disposable masks on the job. They cost less than a dollar a day to use. There is no reason that you people should be inhaling any of the other dusts in insulation materials. There is calcined diatomaceous earth in insulation materials which can also produce lung scarring. Fibrous glass is another material that shouldn't enter your lungs. It has been shown to produce cancer in animals just like asbestos. You shouldn't have to breathe in any mineral materials. They belong in pipe covering, not in your lungs.

Secondly, is there any reason why every power saw should not be exhausted when an effective dust collector costs only \$350.00. The jobs you're working on cost tens of thousands of dollars. Is there any reason why asbestos cement shouldn't be supplied in plastic bags so that it can be mixed without creating dust? These things may cost a little bit more money but, if all the employers have to do them, it simply adds to the cost of the job and no one is at a disadvantage. Especially you.

Here your International is doing a bang up job. It has appointed a full time man to work on the problems of health hazards. Roy Steinfurth, formerly business agent of Local 45 in Toledo, now has the job of coordinating all health activities in the International and I am sure he will be able to help you people here in Canada get the things done that you need to make the workplace safe.

The employers are not our enemy. They are in this with you and to the

extent possible activity on health problems should be joint activity. Their cooperation can certainly be beneficial in solving health problems.



Joe DeWitt

Clean Up Necessary

Joe DeWitt: I think one of the main problems that we have comes from ourselves. If you're working on a job and you start to clean up, the foreman might come by and say, "Look, you're not paid to clean up you're paid to put covering on pipes." So you leave the dust on the floor and meanwhile you're walking through it all the time.

Dr. Selikoff: You're right. Not only do we have to clean up the jobs, in some cases we also have to clean up our minds. The foreman sees dirt on the ground and knows that it will go away tomorrow or the next day. He doesn't think of 20 or 30 years from now when the dust that got into your lungs can cause trouble. That's the problem with all of us, we don't feel the urgency over something that will happen 30 years from now. We must get to the point that good housekeeping is automatic, so that it is not left up to the foreman.

Ilv Lunn: I have the same problem as Stan Roos. I find that I can work in any dust except fibrous glass. If I work with that for 4 or 5 hours my lungs would begin to hemorrhage.

Dr. Selikoff: Yes, we have found that in other circumstances fibrous glass can be irritating.

The Lung Clears Up

Paul Pasztor: If a person has been smoking for 10-15 years, how long will it be before his lung clears up?

Dr. Selikoff: The American Cancer Society has some good information on this. Not much change happens the first

year, but every year thereafter the risk goes down until after 10 years or so your risk is nearly back to normal. The risk is then about the same as someone who never smoked at all. While it may take 10 years for you to get back to the level of non smokers, the 10 years has to begin sometime. I suggest that it begins now.

Joe Berlasty: What's the average life expectancy of a pipe coverer?

Dr. Selikoff: For a male child born in the United States or Canada the odds are that he will live about 68 years. For a man 20 the life expectancy will be a little longer. He will live on average to age 70. The odds are that a man of 40 will live to age 72. A man of 70 will be expected to live to the age of 81. So when you calculate life expectancy it must always be age specific.

It even becomes more complicated because you must do this for each calendar year. For example, a man of age 40 today has a different life expectancy than a man age 40 in 1950. Taking into account all these factors we have found that the average life expectancy at any age for a pipe coverer is about 15% less than some one in the general population. This is a result of past asbestos exposure but it also will be the case in the future unless something is done about work conditions. Something has to be done because a pipe coverer should be able to live his full life span.

Significant Benefits

Ron Aldham: If I would quit smoking and wear a mask would my life expectancy become longer?

Dr. Selikoff: Yes. To stop smoking will bring significant benefits. Firstly, it will decrease your risk of having a coronary. Secondly, within a few years your risk of lung cancer will also decrease. Thirdly, it will reduce the progression of asbestosis. Finally, wearing a mask will prevent any more dust from entering your lungs. Therefore it can only help you to stop smoking and to wear a respirator.

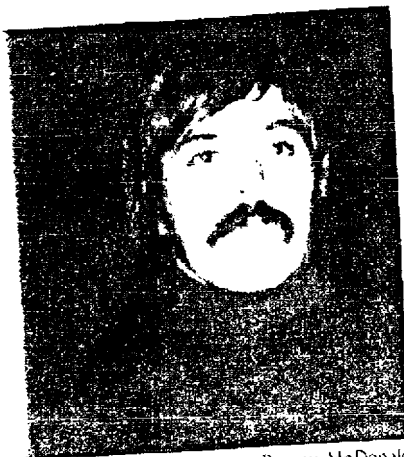
However, one thing that we have found is that mesothelioma is not associated with smoking and often is not associated with extensive asbestos exposures. What is needed, at this time, is considerable research by many scientists in many centers to obtain a cure for this disease.

Here, as well as in the area of dust inactivation, your International is now beginning to take steps to stimulate

(Continued on eighth page)

(Continued from seventh page)

scientific activity and to put pressure on the American government and the Canadian government to support scientists to find answers to these questions.



Barney McDonald

Does Exercise Help?

Barney MacDonald: Do the fibers that get into your lung cause scars if you are more active? If you're active do they do more scraping?

Dr. Selikoff: No. Physical activity will have little effect upon the amount of scarring that takes place. Most of the fibers are within cells and there is no scraping as such. In fact, chemical processes, perhaps even more than physical processes, seem to be important in the production of lung scarring. So you can do all the exercise you want so long as you don't overdo it. It can only be beneficial to you.

Unidentified Questioner: On the issue of the 10 years it takes to get back to normal if you stop smoking, will exercise reduce that time?

Dr. Selikoff: I think it could help, if you're short of breath because of scarring though, don't try to do too much because excessive exercise can put an additional strain on your heart. It is already doing extra work to pump blood through scarred lungs.

What Type X-Rays?

Byron Geddes: Usually the X-rays that are taken in these buses that come around are on small films, about 2 or 3 inches in size. Are they good enough to see the changes that can be produced by asbestos?

Dr. Selikoff: No, 70mm X-rays are not suitable for pipe coverers. What you need is a regular 14 x 17 inch full size X-ray.

John Beardwood: Are the results of the X-rays that are taken by the Province given to the employers?

Dr. J. E. Cowle, Ontario Environmental Health Department: I would just like to say that we absolutely do not use small X-ray films on pipe coverers. All our mobile units are equipped to take the standard 14 x 17 inch X-rays and this is what is used on all asbestos workers.

Additionally, let me assure you that we do not send confidential medical information to any of the employers, only to you or to your Doctor, if you wish.



Larry Graham

Pulmonary Function Measurements

Larry Graham: When we go for our X-rays, we also have to blow into this device and do it as hard as we can. What is the purpose of this?

Dr. Selikoff: That instrument is designed to show two things. Firstly, it determines how much air you can take into your lung. It measures what is called your pulmonary vital capacity.

Secondly, by measuring how fast you can blow the air out of your lungs, it tells us something about your airway passages, if they are obstructed or have other problems.

X-rays and pulmonary function measurements are both important. Often one is not enough, it doesn't tell the whole story. Sometimes people who have great difficulty breathing have "normal" X-rays, and other times people with no breathing difficulty have terrible X-rays. We have to look at the whole picture of each individual.

Joe Mathews: The average M.D. may not be too familiar with our problems. Is there a place in Toronto we can go for good diagnosis of asbestos disease?

Dr. Selikoff: I refer that question to Dr. Cowle.

Dr. Cowle: Our office is open to you at anytime. On occasions we have even

had physicians, a pulmonary function technician and an X-ray technician available on Saturday. We would be glad to help you in any way we can.



Joe Mathews

How Often a Check-Up?

Joe Mathews: Dr. Selikoff said that it might be useful for people twenty or thirty years in the trade to have a check-up every 3 months or every 6 months. Could we arrange that through your office?

Dr. Cowle: Yes.

Dr. Selikoff: If you will recall, the suggestion of a 3 to 6 month examination interval was for those pipe coverers who had 20 years in the trade and who had a history of cigarette smoking. Young fellows do not need examinations nearly as often.

Bob Parsons: What is the effect of the fumes from some of these adhesives?

Dr. Selikoff: We have very little information on the long term effects of these materials. However, many of the adhesives can poison the nerves of the brain. They act as a narcotic and affect you the same way as does alcohol. So affected, men have a much greater chance of accidents on the job or in driving home from work.

How Do We Change The Law?

Unidentified Questioner: What can be done to change the laws in Canada so that we can get better conditions?

Dr. Selikoff: That is a very good question. I am sure Dr. Cowle can answer it.

Dr. Cowle: There is only one way you can change the law and that is to go to the men that make the law. Go to your local member of Parliament. Let him know what your problems are. That's where you are going to find the solution.

Forty-Eight Insulations, Inc. (1923-1973)

A Biography of a Young Company

The company was founded 50 years ago by Louis Weber to manufacture the first plastic insulation, insulating cement. At that time the only insulating fibers produced were rock wools, from a basic raw material of argillaceous limestone. Mr. Weber found the fibers produced from lead and copper slag would not disintegrate in water and would withstand higher temperatures than rock wool. He started the company with one product, a mixture of lead/copper slag fibers with clay binders, a product he named Weber's 48 Cement because 100 pounds would cover 48 board feet.

Since that time FORTY-EIGHT continued to innovate to anticipate and serve the needs of the market for thermal insulating materials. In the 1930's it produced the first, or one of the first, high temperature mineral wool block insulations, to compete with 85% magnesia and diatomaceous earth blocks.

Subsequently, in the 1940's it produced both building and industrial insulations. The company, in conjunction with Magic Chef, made some of the first felts for home appliances. Prior to that time stoves and refrigerators were insulated by stuffing loose wool in the doors, around the ovens and in the refrigerator boxes.

In the late 1940's FORTY-EIGHT introduced the first machine felted metal mesh blanket insulations

and in the early 1950's was the first, or among the first, to manufacture batts and blankets with an aluminum foil vapor barrier.

Later in the '50's the felted metal mesh blanket was further developed and modified for use as pipe insulation. In this period between 1945 and 1955 the waterwall boiler was introduced, and FORTY-EIGHT was the first to provide intermediate temperature insulation batts for steam electric power generators to replace the more costly and more labor intensive block specified in the earlier days of wide-spaced tubes with refractory back-up.

In the 1960's and in 1970 and 1971 FORTY-EIGHT introduced MF PIPE INSULATION and N-1200 BLOCK, both of which had advantages of lower material and application costs, reduced shipping and warehousing costs, with advantages, too, of the elimination of the asbestos hazard and superior noise reduction properties.

FORTY-EIGHT has consistently supported national and regional independent insulation contractor-distributor associations and will continue to do so as a part of an industry which serves the public's newest priorities for energy conservation, for air and water pollution abatement, for a healthier and safer work environment and for better values for its customers.

Calendar of Coming Events

JUNE 18-19, 1973

SEICA Annual Spring Meeting
Table-Top Trade Show
HOLIDAY DOWNTOWN INN
Myrtle Beach, South Carolina

SEPTEMBER 12-16, 1973

TIAC Annual Conference
THE SHERATON-BROCK
Niagara Falls, Ontario

OCTOBER 1-2, 1973

SEICA Annual Fall Meeting
WAYNESVILLE COUNTRY CLUB INN
Waynesville, South Carolina

OCTOBER 4-5, 1973

EASICA Fall Meeting 1973
The Washingtonian
Gaithersburg, Maryland

OCTOBER 12-13, 1973

WICA Annual Meeting
Del Coronado Hotel
Coronado, California

OCTOBER 14-17, 1973

NICA's 18th Annual Convention
DEL CORONADO HOTEL
Coronado, California

JOBS & HEALTH

Continued from page 26

nized water. The water is used for electrical generation and electronics manufacture, among other uses.

Beta-propiolactone is used to sterilize tissue grafts and vaccines and also is used in producing acrylates.

Dichlorobenzidine is widely used to prepare pigment colors. The pigments, in turn, are used for inks in "everything from the Sunday morning comic strips and advertising supplements to the highest quality magazines," the producers say.

Beta-naphthylamine "is apparently a very ubiquitous compound," says D. J. Carney, Vice President for research of U.S. Steel Corporation. "It has been reported in coal-tar products, in cigaret-smoke condensate and in flue gases of industrial boilers. Therefore, it would appear likely that it would be present in many organic mixtures which have been subjected to high temperatures."

Wide Exposure

According to the petitioners, workers possibly exposed to the chemicals include equipment operators, packers, chemists and lab workers. Maintenance workers who clean plants and laundry workers who clean clothes might be involved. Other workers process the materials into dyes, rubber antioxidants and pharmaceuticals, new discoveries suggest exposures may even be much wider.

Some manufacturers are seeking substitutes for the carcinogens. Celanese Corporation, for instance, will close its betapropiolactone plant at Pampa, Texas, by the end of the year and switch to another material made in a new \$30 million facility. Synalloy Corporation stopped making betanaphthylamine about a year ago at an Augusta, Georgia plant it had acquired in 1967.

"We had never had any case of bladder cancer," says a Synalloy official. "But the evidence seemed to be pretty heavy that it was a carcinogen." He adds: "There was just no way we could manufacture the product and handle it and put it into some other products without some limited exposure."

NICA - 20TH

40

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FORTY-EIGHT - 50TH

FORTY-EIGHT INSULATIONS INC. AURORA, ILLINOIS

Some Other Arguments

Control of carcinogens raises several side arguments. One company asserts the union's proposed ban on exposure would make it "extremely difficult to conduct the highly desirable carcinogenic investigations of potentially new and valuable medicinal compounds."

Another argument was that if the regulations are adopted they should give employers the right to relate a worker's job assignment to his smoking habits. Because cigaret smoking and occupational exposure to asbestos may be related in causing cancer, an employer should have the right to transfer away from carcinogens any worker who smokes.

Companies have been worrying about carcinogens for years. Until 1968, one firm only assigned "men with prior exposure" to plants where carcinogen was produced, "rather than risk unnecessary exposure to new workmen." But the regulations sought now would require the transfer, at equal pay and seniority, of a worker showing urinary tract symptoms of exposure to carcinogens. Because cancer from carcinogens often takes 15 to 20 years to develop after exposure, transfers might be required even years after the Labor Department establishes standards for handling the chemicals.

16 FEDERAL DEFICITS IN 20 YEARS

"The deficit for the 1973 fiscal year is predicted to exceed the \$30 billion mark. The Federal Government has actually operated at a deficit in 16 out of the last 20 years. Can you imagine that it takes all of the tax revenues of American taxpayers earning less than \$10,000 in adjusted gross income just to pay the annual interest on the Federal debt?"—From "Federal Spending Control," a slide presentation of the Chamber of Commerce of the United States.

THE RESPONSIBILITY OF BUSINESS

"Business in the future will have to manage every dollar of expense and debt with greater care and ingenuity than ever before. Business will have to answer responsibility to the insistent demands of the public for corporate citizenship. Business will have to convert the U.S. into the world center of high technology, with the developing countries doing more of the manufacturing. And business will have to lead in making equality of opportunity a reality within its borders."—J. Irwin Miller, chairman of the board, Cummins Engine Company.

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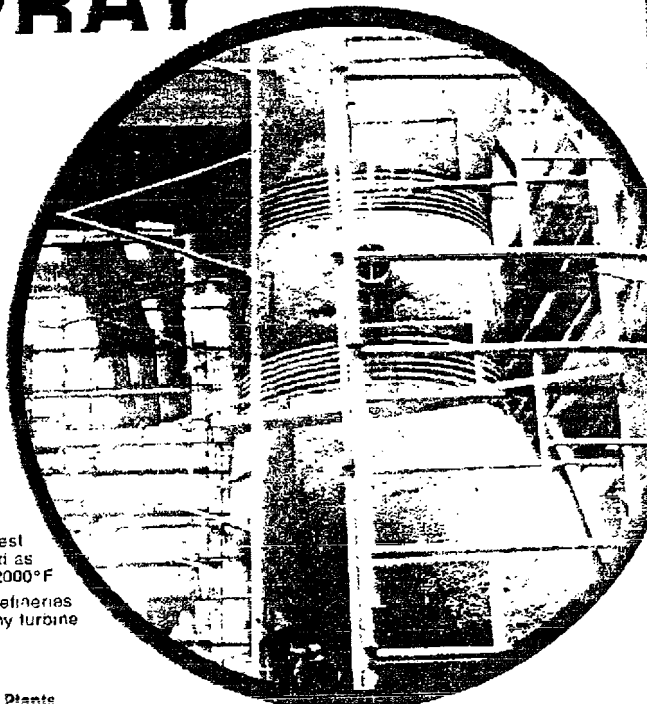
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each chemical, instead of the blanket order the petition seeks covering 10 carcinogens. Some companies insist workers already are protected adequately.

As the federal job-safety law already permits the department to block identified health hazards.

Some companies question whether laboratory experiments on animals prove the chemicals are dangerous to humans. The Benzidine Task Force of the Synthetic Organic Chemical Manufacturers Association asserts that workers are adequately protected and that the proposed rules would close plants and put workers out of jobs. And, the group's comment adds, if tumors do occur, they are removed "long before malignancy is expected to develop."

The petitioners seek a total ban on exposure to carcinogens. "It is really impossible to establish a safe threshold for a carcinogen," insists Dr. Sidney Wolfe, Director of the Health Research Group. "Every year brings more and more evidence that smaller and smaller doses still cause cancer."

'A High Priority'

Regulations of some sort are almost a certainty. When the Labor Department asked for comment on the emergency petition, Chain Robbins, Administrator of the Occupational Safety and Health Administration, said, "We have established a high priority on setting standards for these substances." And last July,

the Health, Education and Welfare Department's National Institute for Occupational Safety and Health recommended a permit system for manufacturers that's similar to a plan used in Pennsylvania. In that state, manufacturers must have a permit to manufacture or use carcinogens and must show that their control measures prevent exposures. The law, however, excludes substances in which a carcinogen is 1% or less by weight. Great Britain, India and the Soviet Union have regulated carcinogens for several years.

In addition to seeking "zero tolerance" of exposure to the carcinogens—in contrast to the asbestos standard, which permits some exposure—the petition urges virtual lifetime health monitoring of workers who may have been exposed. Some medical records would be kept for at least 40 years. Manufacturing processes would be constantly monitored. To the dismay of executives, unions would have wide access to company health records.

While the carcinogens generally aren't household names, some are widely used. Benzidine and benzonaphthylamine are starting materials for many synthetic dyes. Sales of benzidine and benzidine dyes total approximately \$14 million a year.

Bis-chloromethyl ether is an unavoidable by-product in the production of chloromethyl ether, in turn used to make resins for production of high-quality deio-

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NICA OUTLOOK

JOBS AND HEALTH

A reprint from the Wall Street Journal

The labor department is wrestling with its toughest job-health problem yet: occupational cancer.

It's clear from evidence the department has gathered that:

—A number of chemicals and other substances, some widely used in industry, can cause cancer.

—Many workers in manufacturing plants continue to be exposed to these chemicals.

—The risks of such exposure are persuading some companies to check workers more carefully for the first signs of health problems, and other concerns are abandoning the manufacture or-use of cancer-causing chemicals.

Nonetheless, the department thus far has issued a standard for handling only one cancer-causing substance, or carcinogen-asbestos. And the delay in issuing other standards, particularly for a group of key chemicals, is dismaying union officials and health researchers who assert workers' lives are being sacrificed.

"Each passing workday without regulatory intervention increases the number of employees who will be effectively exposed to these chemicals and who subsequently may develop cancer," assert the Oil, Chemical and Atomic Workers International Union and the Health Research Group, a Washington team associated with Ralph Nader.

Action Possible This Month

The two groups in late December petitioned the Labor Department to temporarily ban companies from letting workers come in contact with any of 10 chemical carcinogens. Federal law permits a temporary ban or standard in cases of "grave danger" to workers. The proposal, if adopted, would constitute the most

far-reaching job-health action yet taken by the federal government. The temporary ban would be replaced within six months with permanent standards reflecting studies made during the ban.

Several other labor groups, including the AFL-CIO's Industrial Union Department, have endorsed the carcinogen petition.

Labor Department officials insist they recognize the threat and hint they'll probably act this month. "Our purpose is to prevent. We don't want to count the bodies first," says one specialist. But he stresses that drafting standards for carcinogens is far more complicated than, say, writing specifications for roll-over bars on heavy equipment.

In the occupational-health area, the scientific and regulatory questions are serious and difficult. While job accidents cause 14,000 deaths a year, perhaps 100,000 persons die annually from occupationally caused diseases. The National Institute for Occupational Safety and Health has identified 8,000 toxic substances capable of harming man, and many more are under study.

It is particularly difficult to act standards for cancer-causing chemicals. Researchers aren't always sure how, or why, the carcinogens cause cancer. They often don't know what difference the length or amount of exposure makes.

'How Do We Monitor?'

Even where the scientific data are clear, department officials argue, total protection can never be achieved because test instruments can't be 100% perfect. "We have to decide how do we monitor to make sure people are being protected," says John P. O'Neill, Chief of the division of Occupational Health Standards at the Labor Department's Occupational Safety and Health Administration. "What do we do about medical surveillance?" Questions here include how often lung or urine tests should be made, and whether standards should require painful direct examination of the bladder when cancer is feared. Workers might balk at such a procedure, some researchers argue.

While some workers complain that the department is moving too slowly, some executives fear the carcinogen standards will be too stringent and too hastily drafted.

Most companies that have submitted comments to the department concede some regulations may be appropriate. But they prefer a separate rule-making for



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