

mittee is to make management aware of the benefits of safety efforts and to educate workers. Joint safety seminars are held at scheduled intervals from four to seven months. Films are shown, panel discussions held, demonstrations given, and particular subjects are discussed, such as "X-ray and effects of radiation on the human body." Company representatives are also invited.

A campaign emphasizing the importance of defensive driving was launched the first week of June involving a questionnaire, visual aids such as posters, and newspaper and radio coverage. They are enlarging the scope of their off-the-job safety activities and operating with local safety council organizations and community officials.

Award of Honor to
UNITED STEELWORKERS LOCAL 6500
Sudbury, Ont., Canada

This local is receiving recognition for the third time. They received an Award of Merit for 1965 and the Award of Honor for 1966. They have now qualified for another Award of Honor for activities conducted during 1967. Their efforts have assured the continuity that is so important in keeping a good safety program going and growing.

They continue to give extensive publicity

to safety through local television, plant bulletins, and their own paper. Safety training is a vital part of their program for union members.

They have accelerated their activities and improved present ones, so that the Awards committee judges agreed they deserved to receive the top award again.

Award of Honor to
INTERNATIONAL LONGSHOREMEN'S ASSOCIATION
New York City

This international union received an Award of Merit for the year 1964, and now they have qualified for the top award — the Award of Honor — for 1967.

The International has consistently promoted safety in its publications. They have expanded their activities from the Port of New York and vicinity to the entire Atlantic coast and Gulf area and the Great Lakes. Safety training receives top priority. An example is the 12-hour training course on "Handling Dangerous Cargoes" given in

Milwaukee. They participate in committees of the USA Standards Institute. They have assisted in waterfront fire prevention month which included safety demonstrations. Correspondence and testimony on behalf of the Occupational Safety and Health Act of 1970 has taken hours of their staff time.

The judges noted the significant acceleration of safety efforts and agree that the International Longshoremen's Association truly deserves the Award of Honor.

Award of Honor to
OIL, CHEMICAL AND ATOMIC WORKERS LOCAL NO. 4-447
Destrehan, La.

This makes the fourth time that this local has received recognition for safety activities. They were granted the Award of Merit for the years 1964-65-66.

This local has significantly accelerated their accident prevention work over the previous years. A major activity was a "Poison Prevention Week;" the National Drivers Test was again extensively promoted among their members; they conducted the annual Christmas holiday safety campaign; and also

the annual Labor Day safety campaign. They are active in the entire metropolitan New Orleans area. The local is made up of 11 groups, each group employed by a different company. Each group leader is also safety chairman. All groups elect an overall safety director to coordinate and promote union safety activities.

The judges commend this local for increasing its safety efforts and agree they deserve the highest possible recognition.

Citation for Distinguished Service
to Safety to

JULIUS N. JACOBSEN, Safety Chairman,
Oil, Chemical, and Atomic Workers Local 4-447, Destrehan, La.

The judges were impressed with Brother Jacobsen's tenacious efforts on behalf of safety in his local union. The documented material vividly revealed the many extensive activities he promoted and participated in. It also showed the amount of time and energy he unselfishly put forth to promote safety.

The judges noted the many areas of activity in which he is engaged, including safety training, and the fact he was not deterred in achieving noteworthy goals. The Awards committee of the Labor Conference warmly commends him for his solid achievements.

OCCUPATIONAL HAZARDS—MAKING THE INVISIBLE VISIBLE

By **RALPH NADER**
Attorney, Author, Safety Critic, New York, N. Y.

The chief forms of domestic violence affecting American working men and women are motor vehicle crashes and occupational dangers and diseases. Taken together or singly, their toll in death and injury utterly dwarfs the violence incurred through street crimes. While the nation is properly concerned about street crime, it virtually ignores the far greater death, injury, and wage losses on farms, in mines, factories and open work areas such as construction sites. Consider one comparison out of many that could be detailed: all the riots in this country during the past three years in our cities have led to about 260 dead; each working day brings death to 55 workers, disabling injury to 8,500 workers and lesser injuries to 27,200 other laborers. Every year, 14,000 to 15,000 workers die, over half a million are disabled by occupational diseases, over two million are disabled by occupational accidents, and over seven million are injured. The toll is even greater than indicated by the above data because death through toxic exposure over time to chemicals or particulate matter is rarely recorded. The half million plus workers disabled from the effects of asbestos, beryllium, carbon monoxide, coal dust, cotton dust, cancer-causing chemicals, dyes, pesticides, radiation etc. must be taking terminal doses over time from some of these exposures. There is another reason why the above data must be con-

sidered understated—a reason which leads to the first of six realities which should be recognized publicly before significant progress can be made to reduce worker injury and disease:

1. Under-reporting by industrial firms of actual injuries and disease experienced by laborers has long been an endemic managerial disease. First, the definition of what constitutes an injury is decided by an industry-dominated body called the United States Standards Institute of America—a group of industries and industry technical societies. Second, companies go to considerable length to avoid reporting a lost time injury—not only to keep their insurance rates down but to preserve their place in safety competitions. For example, a worker in a Jones & Laughlin steel plant received a groin injury; he was taken off his usual job and placed in a chair where he sat doing nothing for two weeks. Any blue-collar man knows that such a practice is not unusual in numerous industries.

2. Plant physicians surrender to or are constrained by corporate dictates as to the exercise of their medical judgment and right to publication of cases in the medical literature. A recent case in point involved a Dr. John Zalinsky, a physician at the Brush Beryllium plant outside Cleveland, who had cases of workers suffering from beryllium poisoning and wanted to publish them in a

medical journal (without mentioning their names, of course). He was told if he did he would have to look for another job. The doctor had a bad heart and was concerned about looking for other employment. Before he could do anything, he died of a second heart attack.

Dr. Lorin E. Kerr of the United Mine Workers Welfare and Retirement Fund, an authority on coal workers' pneumoconiosis (or, as the coal dust disease is popularly called, "black lung"), has sharply denounced "the attitude and influence of employer-oriented physicians who avoid facing known facts about the ravages of coal dust in human lungs because to do otherwise would cost money. The impact of physician knowledge and attitudes is apparent in inaccurate or incomplete death certificates. These documents are essential for determining the existence of a dangerous dust requiring governmental action for control or eradication. Too often, no records mean no action. Physician denial or avoidance of known facts can also determine the publication of information. In 1956, the concern of some physicians about management attitudes effectively blocked the publication of a paper of mine on coal workers pneumoconiosis in the most widely circulated medical journal in the United States. One can only wonder how many times other medical information vital for the protection of the health of workers has not been published for the same reason. Physician attitudes also influence other groups such as company lawyers, state legislators, and officials who, all told, are remarkably resistant to the elimination or control of coal dust because it would cost money."

Coal workers' black lung or pneumoconiosis affects at least 150,000 active and retired miners in advanced stages of lung destruction. Two thousand men die from this disease in Pennsylvania every year. What Dr. Kerr was referring to was a critical rupture in the recording and communicating of data by members of the medical profession.

3. State safety laws and regulations are weak, inspection is poor, and penalties rarely imposed. The states spend an average of 40 cents per worker per year on industrial safety. Some states such as Texas and Oklahoma have taken this down to two cents per worker per year. Of the 1,524 state inspectors, 697 inspect boilers, elevators

and mines, leaving only 827 inspectors for general safety inspection, construction, safety promotion and education, health, and industrial hygiene, according to the Bureau of Labor Statistics. (There are almost twice as many fish and game wardens — about 3,000 — employed by the states to look out for wildlife.) Four states have no safety inspection staff in any area and 17 other states have 10 or less on their safety inspection staffs. More shocking is the fact that only three states have staffs specializing in the area of occupational health and industrial hygiene.

4. By and large, union leaders have been far too pliable when confronted by management's inaction or decisions regarding worker health and safety. Too often, health and safety conditions are treated as trade-offs for more tangible union gains in wages at the collective bargaining table. This has been the case, for example, with the United Mine Workers leadership, which finally is becoming slightly aroused over the plight of their workers but little dedicated to overturning coal management's *modus operandi* that treats coal miners as being less expensive than coal. Union leaders simply do not give health and safety a first rank priority; their lack of aggressive lobbying for the proposed Occupational Safety and Health Act of 1968 in Congress cannot be covered up by resolutions and resonant statements for the records. Labor leaders are wanted on the ramparts, not just on the record.

5. The Federal government has abdicated its responsibility to devote funds toward effective research programs and training programs for occupational health and safety. The Department of Health, Education, and Welfare (HEW) has had no sense of the importance of this problem, the need to develop preventive systems and competent medical and engineering personnel. HEW's advocacy has been weak and, if anything, the occupational health activity in the Department has been downgraded recently. The one area where HEW has received some consistent funding—\$5 million since 1953—for research on the causes and prevention of coal workers' pneumoconiosis has had little to show for it, apart from a prevalence study completed three years ago. It is dismaying to note that not only does Western Europe spend twenty times the level on research in the coal dust disease area, but

control measures are years ahead of this country, which does not even have dust standards in force.

6. The workmen's compensation system in this country—its coverage, benefits, and deterrence—is creaking with obsolescence. A thorough inquiry is needed and serious thought should be given to uniformity. Not only are there irrational or politically inspired differences between states but some states are still mired in a value system of a bygone age. For example, coal miners' black lung disease is not considered work-related by the compensation laws of all states, except Pennsylvania (1965), Virginia (1968), and Alabama. Such human derelicts, spitting up coal dust, struggling for breath, afflicted with emphysema, massive fibrosis, or enlarged heart, are denied workmen's compensation in such states as West Virginia, Kentucky, Ohio, and Illinois. In Kentucky, according to the state's Department of Labor, about 1,400 out of 2,000 mines licensed to do business do not comply with the workmen's compensation law for other mine injuries apart from black lung. Yet,

the present governor and his predecessor have not considered law and order to be applicable to coal operators.

Where does this leave the National Safety Council? Certainly, it does no service to truth and candor to hide the fact that the Council's industrial members and constituency take a strong interest in how far the Council goes in the occupational health and safety area. That interest, to use a mild word, resulted in the Council's being placed in a difficult position regarding the Occupational Safety and Health Act of 1968. Some observers believed that the Council retracted from a relatively positive position on the bill in February to a statement more in consonance with industry's preferences a few months later. For the Council, it is the same old dilemma of "to be or not to be" that has plagued its potential independence in other safety areas. If the Council is to be true to its potential in occupational health and safety, it cannot ignore at least some of the above-noted problems obstructing progress toward more humane working conditions.

LASER BEAM PRECAUTIONS

By WILLIAM McCULLOUGH

Collective Agreement & Grievance Officer, Canadian Union of Public Employees, Ontario Hydro Employees Local 1000, CLC, Toronto, Ont.

Before we consider the hazards and precautions for the safe use of the laser beam, we should understand what it is. The name laser is an acronym for light amplification by stimulated emission of radiation. The original concept was invented by Dr. Townes in 1955. In 1958 Dr. Townes and Dr. Arthur Schawlow gave a paper on how to construct an optical maser. The name maser is an acronym for micro-wave amplification by stimulated emission of radiation. An optical maser is a laser.

In 1960 Dr. Theodore Maiman, a scientist then working with the Hughes Aircraft Company, gave the world's first demonstration of a laser beam. In 1964 Dr. Townes won the Nobel prize for his work on the theory of lasers.

The light that comes from a conventional light source radiates in all directions in waves of varying lengths that reinforce or

cancel each other. Because it is non-directional and of varying wavelengths, it is said to be incoherent. Light from a laser beam travels in only one direction and is all at the same wavelength, so that it reinforces itself and is known as coherent light. Because it travels in one direction in straight lines, it is a very narrow beam.

To obtain a directional beam from an incoherent conventional source of light it must be focused, and even then it soon spreads its beam again. Ordinary light sources are usually heat units such as incandescent lamps, arc lights, etc. In a neon tube the glass walls remain cool but the electrons activate the neon atoms within the glass tube and accelerate them to levels normally found at high temperatures. The atoms of the source material are brought to a continuous excited state and they fall back to normal by losing energy through heat and visible light.