

NATIONAL SAFETY COUNCIL OFFICERS 1935-1936

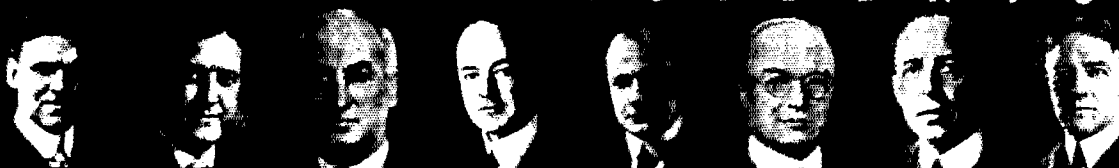


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NSC-143

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1913-1915

ARTHUR T. MOREY
St. Louis, Mo.
1915-1916

LEW R. PALMER
Equitable Life Assur. Soc.
1916-1917

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Boyle, Tolman & Travis
1920-1921

ARTHUR H. YOUNG
U. S. Steel Corp.
1921-1922

MARCUS A. DOW
Gresham & Mag. Co.
1922-1923

LEWIS A. DeBLOIS
Consulting Engineer
1923-1924

CARL E. AUEL
Westinghouse E. & M. Co.
1924-1925



CHARLES B. SCOTT
Bureau of Safety, Inc.
1925-1926

WALTER B. KING
American Optical Co.
1926-1927

LT. COL. H. A. REMINGER
Lehigh Portland Cem. Co.
1928-1929

C. E. PETTIBONE
Am. Mutual Life Ins. Co.
1929-1930

CARL W. BERGQUIST
Western Electric Co.
1930-1932

JAMES I. BANASH
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1932-1933

JOHN E. LONG
O. & H. E. R.
1933-1935

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V. Pres. Public Relations

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Chgo. Rapid Transit Co.
V. Pres. Health

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Western Electric Co.
V. Pres. Safety Councils

HON. H. C. HOFFMAN
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V. Pres. Engineering

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D. H. & N. E. F.
V. Pres. Industrial Safety

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V. Pres. Membership

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H. S. BUTTENHEIM
The American City
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Astro Casualty &
Surety Co.

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The Pullman Company

C. E. LARSON
Hudson Pacific
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THOS. H. McDONALD
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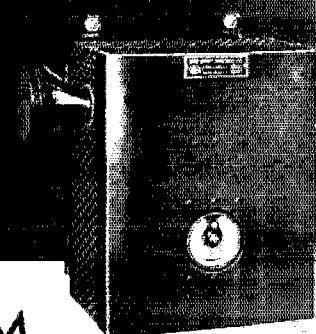
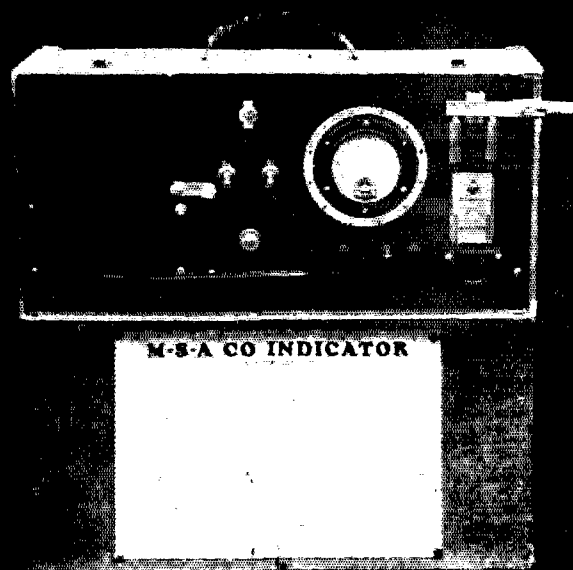
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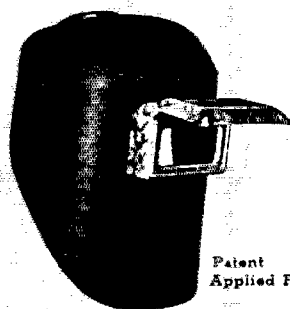
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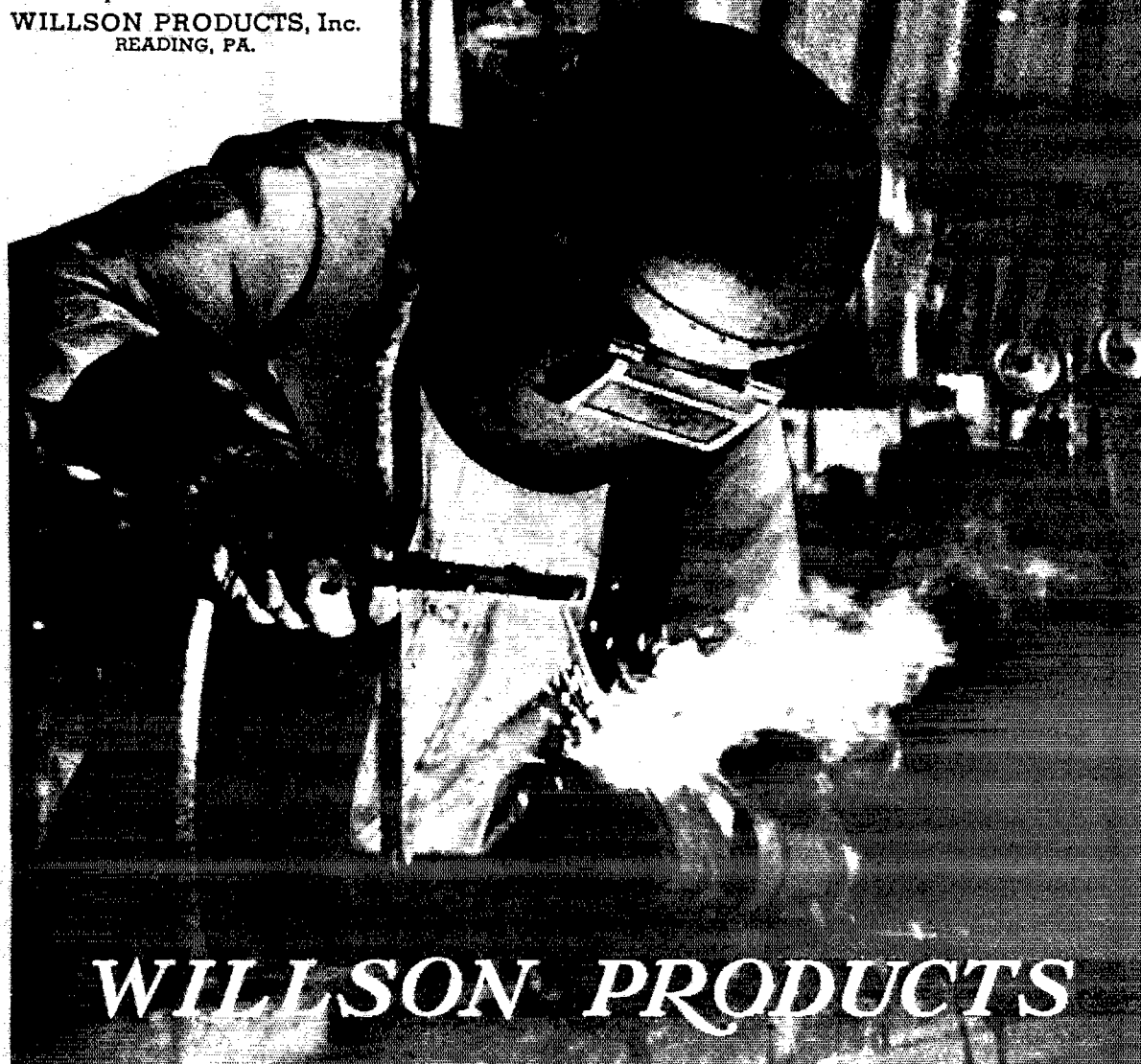
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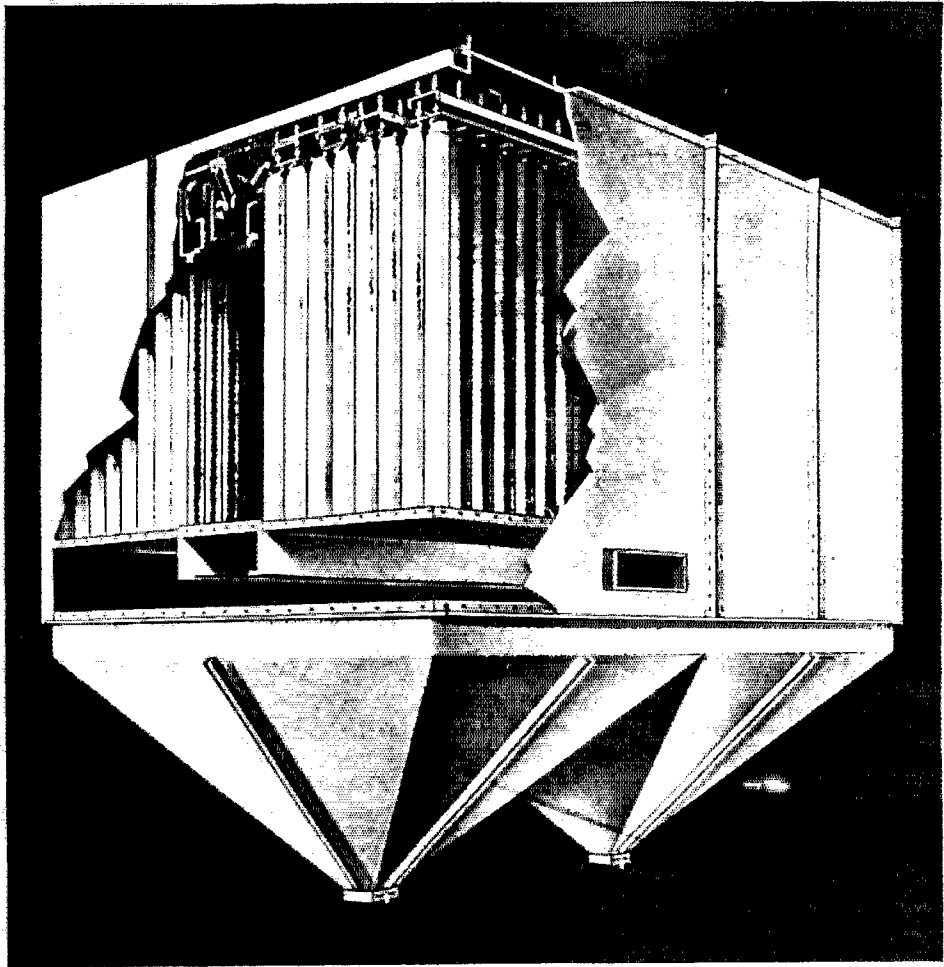


WILLSON PRODUCTS

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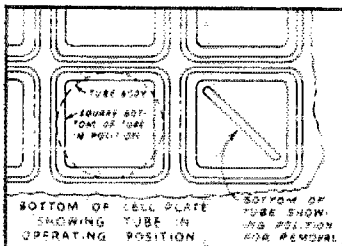
DECEMBER, 1935

DUST CAN BE SUPPRESSED



. . . WITH AMERICAN DUSTUBE COLLECTORS

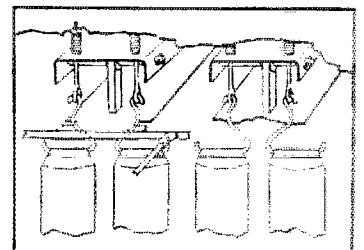
American Dustube Collectors are the most practical and simplest operating dust collectors ever built. In their simplicity no efficiency has been lost. Greater effectiveness has been gained.



Simple method of inserting tubes in cell plate.

The tubular design insures low operating and maintenance cost. This design permits easy and rapid replacement of worn tubes. The tube shaking device is designed to effectively clean the Dustubes. Patented features maintain a tight dust seal at the base of the tubes. Less wear by erosion on the interior of the equipment. For complete detailed information

SEND FOR FOLDER 222



Design of Tube Hangers and Shaking Device.

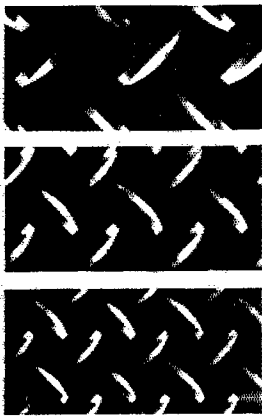
THE AMERICAN FOUNDRY EQUIPMENT COMPANY

637 BYRKIT STREET, MISHAWAKA, INDIANA, U.S.A.

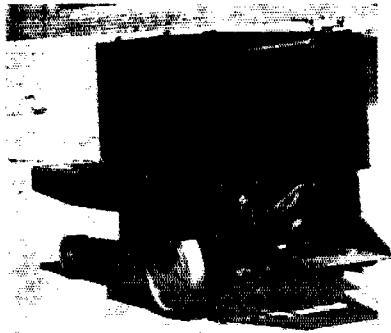
NATIONAL SAFETY NEW-

Since 1931 • Inland 4-WAY Floor Plate

Stands Guard Over Thousands of Danger Spots



Relative size of projections on Large, Small and Light Patterns of Inland 4-Way Floor Plate.



Above: Inland 4-Way Floor Plate around powerhouse equipment—Wilson & Co., packers, Chicago.
Below: Lift truck by Mercury Mfg. Co., Chicago. Operator's platform of Inland 4-Way Floor Plate.

● Inland 4-Way Floor Plate is already an old product, measured by its tremendously varied and widespread application. Introduced in 1931, it was accepted as the answer to the problems of making danger spots safe for foot or wheel.

It was far in advance of any steel floor plate. Its new 4-Way pattern (patented) combined 4 advantages which could not be secured elsewhere: 4-Way Safety (equal resistance to slippage 4-Ways instead of two), 4-Way Matching, 4-Way Drainage, and Extra Stiffness (projections overlap, reinforce one another lengthwise as well as crosswise of plate).

Made in 3 patterns, differing only in size of projections, and in thickness from 16 gage to $\frac{3}{4}$ inch to meet all requirements exactly. Write for new descriptive folder. INLAND STEEL COMPANY, 38 South Dearborn Street, Chicago, Illinois.

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Safety**

**Extra
Stiffness**

**4-Way
Matching**

**4-Way
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Sheets Strip Tin Plate
Plates Structurals Piling

Rails Track Accessories
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P. W. LITCHFIELD

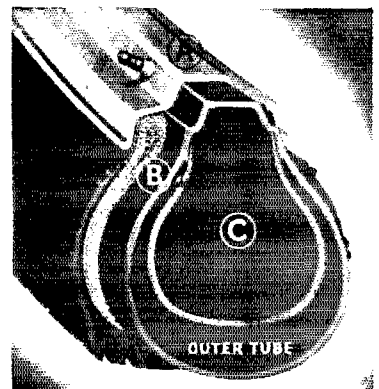


A personal message to the Motoring Public

I WANT to speak directly to you on motoring safety. No one can ignore the importance today of developing every practical protection to human life. With the increasing speeds and density of modern traffic in mind, I charged Goodyear men some years ago with the duty of meeting this situation squarely so far as tires are concerned . . . One of the greatest dangers, though relatively a rare one, is what happens when a tire blows out, and control of the car is lost. Now, after long research and literally hundreds of experiments, an effective solution is offered by our LifeGuard★ tube . . . So thoroughly does this remarkable tube remove blowout danger at the source, I hesitate to see any members of my family without its protection while traveling in a car at speed. You would feel the same way if you were fully aware of what the LifeGuard means to safe and full enjoyment of the performance capabilities of this season's wonderful new cars. In the interest of protecting you and yours, I cannot urge you too strongly to investigate the merits of this trustworthy product, which is designed not to save money but to save life.

★ Registered

P. W. Litchfield
President,
THE GOODYEAR TIRE & RUBBER COMPANY, INC.



- A Look for the yellow valve stem and blue cap
- B LifeGuards take a little longer to inflate because air passes gradually from "inner tire" to outer tube through this VENT HOLE
- C On this two-ply "INNER TIRE" you ride to a stop with car under control, even though casing and outer tube blow wide open

NATIONAL SAFETY NEWS

YOUR SHIELD IN TIME OF EMERGENCY

TRADE
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'TABLOID' BRAND FIRST-AID FOR THE FACTORY



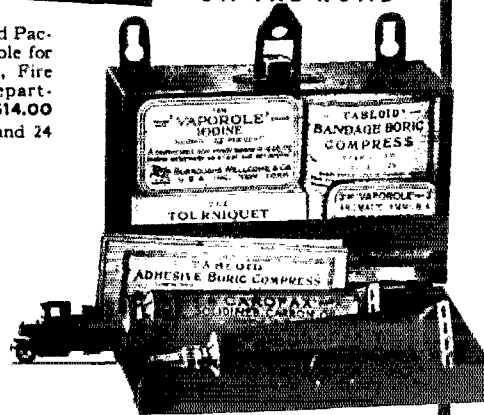
IN THE AIR



No. 731 'Tabloid' First-Aid (Avion)
In accordance with the U. S. Department
of Commerce (Aeronautical Division)
meets all requirements of the aeronautical
industry
List Price, \$4.80

No. 754 'Tabloid' First-Aid Pac-
Kit 36 unit specially suitable for
Public Utility Companies, Fire
Departments, Police Depart-
ments, etc. List Price, \$14.00
Also supplied in 10, 16 and 24
unit sizes.

ON THE ROAD



No. 728 'Tabloid' First-Aid (Moto Kit),
for use on motor fleets, buses, trucks and
by railroad section gangs. List price, \$3.60

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BURROUGHS WELLCOME & CO. (U.S.A.) INC.
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DECEMBER, 1935



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Published weekly in the interest of epidemic prevention and the health of industrial workers

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CARMAN T. FISH, Editor
CURTIS BILLINGS, Associate Editor

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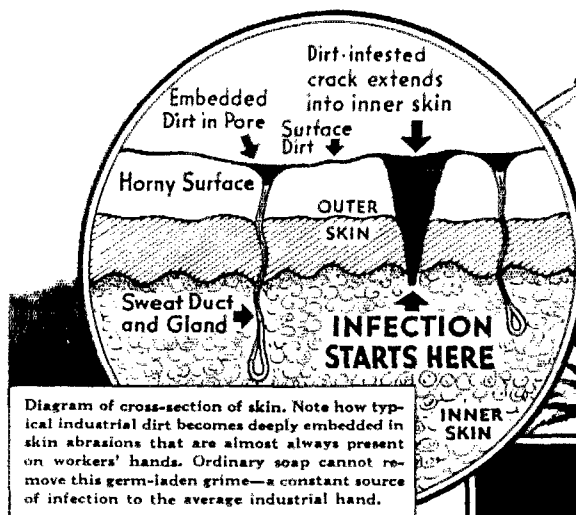
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High Cost of Hand Infections Revealed

N. Y. State Labor Department
Reports Annual State Compensation
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72% of All Infections Occur
To Hands And Fingers.



SEVENTY-TWO percent of all infections are to hands and fingers . . . a study of one group of typical hand infections showed average compensation cost per case of \$188 . . . national compensation cost for industrial infections averages from 10 to 12½ million dollars a year.

This is the new and searching light thrown on the seriousness of hand infections by a recent release of National Safety Council, Inc., quoting recent figures of the New York State Department of Labor.

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Many leading industrial plants have found this solution: (1) Displaying Lava Soap Safety Posters which emphasize the importance of reporting injuries and of cleanliness; (2) supplying or recommending to workers Lava Soap, a special pumice soap made by Procter & Gamble especially for extra-dirty hands.

Lava Soap removes any embedded grime quickly and safely. Its lather contains imported pumice . . . so finely pulverized that it cannot irritate the skin. And Lava contains glycerine and other soothing oils that protect the skin, heal up little nicks and scratches and help prevent chapped hands.

Lava Soap samples and free Lava Safety Posters are available to all responsible parties interested in reducing hand infection rates.



Practical method of reducing infection danger. Worker about to remove safely all germ-laden grime with Lava—famous Procter & Gamble pumice soap.

Cost of Compensation for hand infections staggering. Typical N. Y. Study shows average cost of \$188 per case.



Scores of Leading Industrial Plants report free Lava Soap posters an effective means of pointing out dirty-hands dangers to workers and reducing infection rate.

FREE . . . LAVA SAFETY POSTERS

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POSITION _____ COMPANY _____
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Number Posters Wanted _____ ☐ Please send me Lava Soap sample



1983

**Published monthly in the interests of academic
and general education in the engineering work-**

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1. The first step in the process is to identify the problem. This involves gathering information about the situation and understanding the needs of the stakeholders involved.

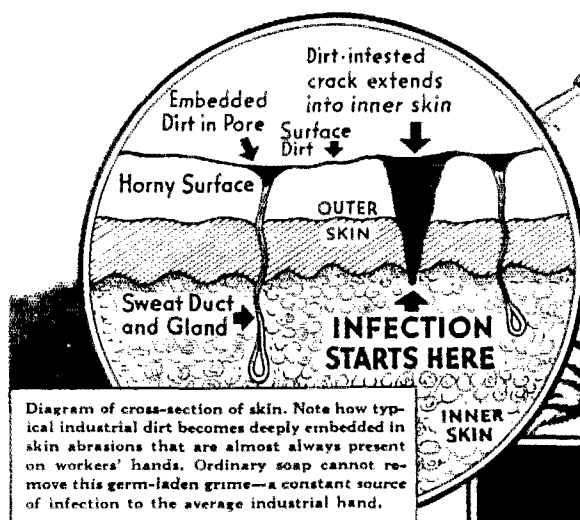
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Office of the Education Director, 1 Park Ave., New York City

High Cost of Hand Infections Revealed

N. Y. State Labor Department
Reports Annual State Compensation
Cost of Infections at \$2,495,007.
72% of All Infections Occur
To Hands And Fingers.



SEVENTY-TWO percent of all infections are to hands and fingers . . . a study of one group of typical hand infections showed average compensation cost per case of \$188 . . . national compensation cost for industrial infections averages from 10 to 12½ million dollars a year.

This is the new and searching light thrown on the seriousness of hand infections by a recent release of National Safety Council, Inc., quoting recent figures of the New York State Department of Labor.

Cleanliness a Major Aspect

Leading safety experts agree that the major attack on this serious problem lies in the constant education of workers to report every injury and to get their hands *clean*.

Many leading industrial plants have found this solution: (1) Displaying Lava Soap Safety Posters which emphasize the importance of reporting injuries and of cleanliness; (2) supplying or recommending to workers Lava Soap, a special pumice soap made by Procter & Gamble especially for extra-dirty hands.

Lava Soap removes any embedded grime quickly and safely. Its lather contains imported pumice . . . so finely pulverized that it cannot irritate the skin. And Lava contains glycerine and other soothing oils that protect the skin, heal up little nicks and scratches and help prevent chapped hands.

Lava Soap samples and free Lava Safety Posters are available to all responsible parties interested in reducing hand infection rates.



Practical method of reducing infection danger. Worker about to remove safely all germ-laden grime with Lava—famous Procter & Gamble pumice soap.

Cost of Compensation for hand infections staggering. Typical N. Y. Study shows average cost of \$188 per case.



Scores of Leading Industrial Plants report free Lava Soap posters an effective means of pointing out dirty-hands dangers to workers and reducing infection rate.

FREE . . . LAVA SAFETY POSTERS

A set of new posters is mailed out every two months. They are yours merely by filling out and mailing this coupon to PROCTER & GAMBLE CO., Dept. LNS-125, Box 1801, Cincinnati, Ohio.

NAME _____
POSITION _____ COMPANY _____
CITY _____ STATE _____
Number Posters Wanted _____ ☐ Please send me Lava Soap sample



Don't wait for Accidents

to uncover
Eye Hazards

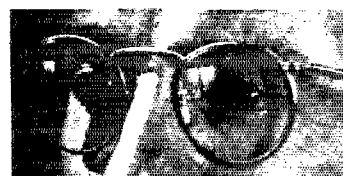
They thought his eyes were safe... yet they paid \$2000. The most dangerous industrial eye hazards often *seem* to be the *least* dangerous. They look so harmless that the men working on them are seldom required to wear goggles. But in one industry "unclassifiable" causes accounted for over 60% of all eye injuries.

It pays to supply American Optical Company goggles for every worker whose job contains even the slightest possibility of eye injury.

American Optical Company has a complete line of eye-

protection equipment that gives a choice of 24 different standard types. They are strong, cool, comfortable. Also—the services of American Optical Company industrial representatives are always available to help make your eye-safety program most effective and profitable. Write your nearest branch office for a representative to survey your plant, study the eye hazards and make recommendations.

The Ful-Vue Goggle offers all-day long comfort... unobstructed vision... the protection of the 6-Curve Super Armorplate Lens which is far stronger than lenses regularly used in standard safety goggles. Patented.



American Optical Company



Manufacturers, for more than 100 years, of products to aid and preserve vision. Factories at Southbridge, Mass. In Canada, Consolidated Optical Co., Ltd. Branch offices in all principal industrial centers

2039

NATIONAL SAFETY NEWS

DECEMBER, 1935

NATIONAL SAFETY NEWS

Published by National Safety Council, Inc.

A Call to Arms

A reduction of 35 per cent in traffic accidents by 1940—a saving of 38,000 lives in five years.

This is the objective of the Safety Movement for the next five years. In the special insert facing page 16 of this issue are presented the preliminary details of a campaign in which the American public is urged to join whole-heartedly.

If any community of 38,000—or even one-tenth that population—were menaced with destruction all the resources of the state and federal governments would be mobilized for their protection.

The objective is no less important because the individuals to be saved are scattered over half a continent. It does, however, make the work of protection even more difficult.

If all the potential accident victims could be segregated and placed under special protection the problem would be simple. But accidental death is erratic. Actuaries and statisticians can forecast death rates with amazing accuracy, but they cannot name the victims. Nor can they tell which of 25,000,000 motorists will be responsible for the next tragedy.

The goal of a 35 per cent reduction—seven per cent a year for five years—may seem like an impossible one. The next few years will undoubtedly see a great increase in motor vehicle mileage, with cars capable of higher speed and greater power. There will be no comparable improvement in the vast majority of drivers.

The construction of supposedly fool-proof highways cannot possibly keep pace with the expansion of motoring.

The prospect is not a pleasant one but it is far from hopeless. Only in a few scattered locations has any serious effort been made to curb accidents but these examples have shown what can be done by concerted effort.

The saving of 38,000 lives will be worth all the expenditure of time, effort and money needed to make it a reality.

Changing Human Nature

"You can't change human nature," has long been accepted as an axiom. It is still advanced as a reason for wars, traffic violations and breaking the Ten Commandments.

There are still plenty of evidences of primitive savagery to be found. The crowd at a prize fight is outspoken in its disappointment if the participants do not receive plenty of punishment. Occasionally there are shocking outbreaks of mob violence. Greed, lust and brutality are luridly displayed in the headlines. And the accident toll is advanced as another evidence of man's depravity.

Viewed in comparison with the past, however, this age does not seem so degenerate. Half a century ago there was no voice raised against war, except from a few obscure sects. Every war was a righteous war—at least on our side. Now we are not so sure.

Blood is no longer accepted as a necessary accompaniment of industrial progress. That is not the least of the Twentieth Century's achievements.

A conscience—public or individual—is something that can be developed.

DECEMBER, 1935

Discipline

No foreman who is fit for his job finds any pleasure in imposing a three-day lay-off on the worker who persists in grinding without his goggles. He knows what the loss of pay will mean to the worker's family. But many a foreman who shrank from inflicting punishment has had to break the news gently.

The traffic court judge may feel a genuine sympathy for the offender when he imposes a jail sentence or suspension of license on the motorists who has been driving in a zig-zag course while under the influence. The culprit may be a good fellow at heart, and the sentence may cause a real hardship on an innocent family. But the judge realizes that law-abiding motorists and pedestrians must be protected.

Enforcement is not a pleasant remedy, but it seems to be the only method of reaching those who do not understand the meaning of self discipline.

In This Issue

The miracles of modern surgery would have been impossible if man had not learned methods of protection against bacteria. Dr. Paine's fascinating story of medicine's progress against this ancient enemy is one that will interest every reader. (Page 10.)

Industry is more humane now. Conditions which were accepted as inevitable only a few years ago are no longer found in progressive industrial plants. And industry has profited greatly from the improvement. Here is a story of progress told by one who has participated in accident prevention work as a worker, a foreman and an executive. (Page 15.)

Too often we think of painting as part of the spring clean-up. But it is also valuable in conserving light and brightening up work places on dark winter days. In the modern factory the paint brush is seldom idle. (Page 15.)

Measures for dust control may bring about a large percentage reduction in dust but it is not really efficient unless the dust concentration is brought down to below the danger line. Nor is any method which interferes seriously with industrial operations likely to gain acceptance. (Page 17.)

New processes with highly flammable substances have brought new fire hazards, but there is a type of extinguisher for every risk. (Page 17.)

Interest in earthquake insurance has been stimulated by recent shocks in various parts of the North American Continent. However, the average American home is much more likely to be destroyed by an overheated furnace or by forgetting to turn out the gas under the water heater. As a cause of personal injury and death, earthquakes cannot compete with slippery floors and icy steps. (Page 32.)

the WAR against infection

BY EDWARD W. PAINE, M.D.

1918, *Chapman, Shattuckworth & Maloney Company*



The World War taught man some valuable lessons in his unceasing conflict with harmful bacteria

LAST year 100,000 people were killed outright by accidents in this peaceful land. This is just twice as many as there were American soldiers killed in the savage fighting of the World War when men faced the most efficient death-dealing instruments that man's ingenuity could devise. In addition to the 100,000 who were killed, 8,000,000 received disabling injuries. How many received injuries less severe, the Good Lord only knows but I suppose in the course of a year hardly any of us escape some injury that may seem trivial at the start but which may, if it becomes infected, lead to serious trouble. If the occurrence of such a number of casualties doesn't make us see the tremendous importance of really scientific first aid, nothing else will. In a broad way we all know what the term "infection" means. It means invasion of the human tissues by certain types of bacteria.

Bacteriology, which is the science that deals with these microscopic organisms which cause infections and disease, is one of the youngest of the sciences. Absolutely nothing was known about the part bacteria play in our lives before 1865, and most of what has been learned has been learned in the last 50 years.

Before 1865 men were working on the problem but only a groping start had

been made. Pasteur in 1860 proved that distinct living organisms and not witchcraft caused fermentation and decay. This work of Pasteur's inspired Lister to the series of experiments that were to result, in 1865, in the birth of the antiseptic method of doing surgical operations. Both Pasteur and Lister were young unknown men when they gave their discoveries to the world. Both received the abuse and ridicule that always greets men whose ideas are ahead of their times, but both men lived long enough to see their pioneer work given the recognition it so richly deserved. When we add to these two names the name of Robert Koch we have named the three men to whom the world owes most for lifting from our lives the burden of misery that bacteria caused.

Probably no discovery man has made since the world began has meant so much to him as this one. It is impossible for us living in this relatively healthy age to conceive a world unacquainted with bacteria, and consequently unable to guard against their ravages. Go back with me in time a few years and let me give you some idea of what life meant in the days before any of these facts were known. Before 1865 every operation became infected. Infection had brought surgery practically to a standstill. A reliable anaesthetic had been discovered but the well grounded fear of infection held surgery down to a few crude procedures, such as amputations and superficial skin-deep operations. Before 1865 abdominal surgery or any invasion on the other cavities of the body was attended with so nearly 100 per cent mortality that not even the bravest surgeons dared attempt it. The whole series of constructive operations that are done in any cross road hospital was for-

bidden before 1865. There was serious thought of abandoning hospital care altogether because of the terrible state into which hospitals had fallen. Probably no side of this curse of infection was as tragic as the manifestation, called in those days childbed fever and in our day septicemia. Healthy women going into a hospital to perform a natural function died by the thousands everywhere. The mortality rate in some epidemics reached such height that hospitals were closed but no remedy for the ghastly business was in sight.

Before 1865 if surgeons were specialists in anything they were specialists in pus. Whatever else might happen after they did an operation the appearance of pus was one thing they could predict with complete confidence. They tried to make a virtue of a necessity, as man is in the habit of doing, and to find some justification for pus. They even grew to think that it was in some way necessary to healing. Certain pus was known as laudable pus and its appearance in a wound was hailed as a sign that the tissues of the victim were reacting in a normal and orderly manner, and this, mind you, was in the youth of men now living. I can remember one of our surgical instructors telling the class how operations were done in the days of his youth. The visiting surgeons stood around the operating table in street garb and from time to time the operator would invite one of them to come up and put a finger



An address before the Eighth Annual Maine Safety Conference, Portland, Me.

in the wound to see how things were going. Perhaps under those circumstances they were right in feeling thankful if the inevitable infection resulted in laudable pus.

Lister proved that there was no need for pus appearing at all, that instead of being a phenomenon of normal healing it was a morbid process, that wounds should heal by primary union and not by the old slow method of granulation. He achieved his end by what he called the antiseptic method. As he practiced it he sprayed the operative field during the operation with a fine mist of carbolic solution. The antiseptic method as practiced by Lister was valuable rather as a demonstration than as a workable method of doing operations. Carbolic solution, while unfriendly to germs, was also unfriendly to the hands of the operator. It was displaced almost immediately by the aseptic method. Asepsis is nothing in the world but cleanliness applied to everything that comes into the operative field.

In the 40 odd years that passed from its origin to the outbreak of the World War, surgery had gone a long way. It had so completely enchanted men's minds by its miracles that no other method than the aseptic method was taught in the schools or thought of anywhere. The antiseptic method was as completely shelved as though it had never been. The use of antiseptics had not been abandoned, but it was not apparent to anyone that the aseptic method was not sufficient and consequently antiseptics were not developed as a workable way of handling a certain class of cases. It took the World War to show us where the aseptic method was weak. War is a test for all civilized institutions, probably for civilization itself. They tell us that during the Thirty-Years' War in Europe people resorted to cannibalism. We didn't go quite that far in the last war but that was about the only thing we balked at.

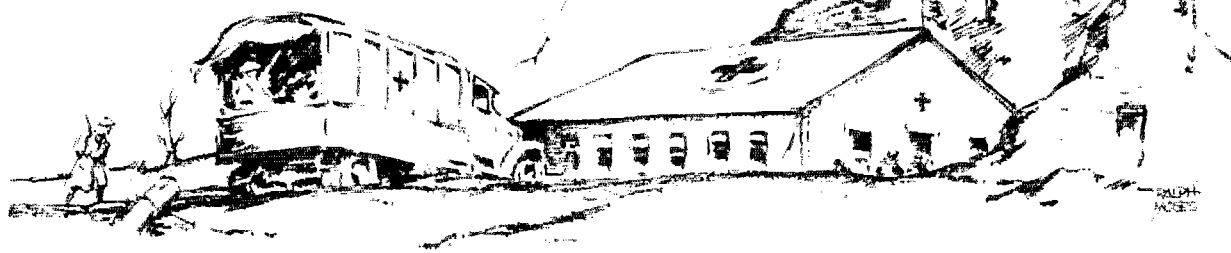
The flood of casualties that the continuous fighting on a scale never before imagined had released had completely

overwhelmed the surgeons. At the outbreak of the war every surgeon in France became a military surgeon, so there was no lack of talent. The trouble was that the method, asepsis, was at once found wanting. It failed on a larger scale and seemed on that account more of a failure, but it merely brought to light for everyone to see, a condition that had always existed, that is, the inadequacy of the aseptic principle to cope with really serious tearing, lacerating, rending injuries such as were commonplace on every battlefield of Europe.

You all know of the wonders that surgery performs every year; all of us, directly or indirectly, owe it a debt of gratitude. But there is more to surgery than the surgery done with formal preparation in the hospital operating rooms. For every one operated upon with aseptic precautions, dozens are operated upon with no precautions at all, by every conceivable sort of instrument that can cause a wound to human flesh and bone, in shops and homes and highways all over the land. What of those eight million who last year received crippling injuries? No shining operating rooms for them, crude first aid administered by the first one who got to them, perhaps a fellow worker, perhaps a street cleaner with negative ideas about asepsis. It is in this class of cases that we have a right to hope for better things.

I happened to be in France during the two years that to a doctor were the most instructive years of the war, 1916 and 1917. I wish all of those who have looked up to surgery as almost above human criticism could have been with me during those years. They would have come away with an entirely new conception of surgeons and surgery. About the first thing I did after I got settled in a base hospital was to go at night with a convoy of ambulances to the railroad station for a load of wounded. It was a hot sticky night in July, we stood on the platform waiting for the train to pull in with its cargo of human wreck.

(Please turn to page 56)



INDUSTRY

is

More Humane Now and More Efficient

By JAMES W. BURNISON

Vice President, RCA Manufacturing Company, Inc.

THE outstanding reason why employers should promote safety in industry is the simple unvarnished fact that accident prevention is good business. Going back 25 to 30 years we find that the owners and directors of industrial projects at that time accepted safety as a minor consideration in operating a plant. Until a few years ago federal and state laws were lax and in the majority of cases it was up to the man himself to keep out of harm's way. If he chopped off a finger in a punch press, he was allowed the doctor's charges and in most cases permitted to return to work at a light job until his injury healed. It was, of course, natural that the direct supervision in the shops, the foremen and assistant foremen, were impressed with the safety problem because they were close to the job and had to assist the victims. The directors of the business seldom viewed the situation with alarm, as balance sheets did not record the breaking down of morale or the suffering of thousands of unhappy victims.

I had the good fortune back in those early days to work for a large corporation that has always led in safety work. I refer to the General Electric Company. I was privileged, as a workman in the shop, to observe the early awakening of the owners of industry to the need for safety procedure and education. I had the good fortune to serve on the first safety committee as a workman representative and later I was connected with safety committees as a foreman. If all

industrial executives, as well as workers, could be brought face to face with some of the tragedies I have seen, they too would take a close personal interest in this problem.

I recall my first real sickening experience. It was one of those experiences that sear themselves on your memory. The man in this case was setting a large die to cut out the center of a large punched ring. He had both arms inside of the die ring when he accidentally stepped on the unguarded pedal. Both hands dropped off. Only the ugly dripping stumps remained.

Another case that still lingers in my mind after many years occurred in a division for which I was responsible as an executive. As I recall the circumstances, I had ordered a large group of bench punch presses as the work in the department was rapidly expanding. When the request for equipment was sent out from the shop, I had asked that the presses be equipped with safety clutches. Through some misunderstanding or poor judgment on the part of someone who did not understand the benefits of the safety clutch, the presses were ordered with ordinary stopping clutches. This was noted when the machines came in but it was necessary to set them up and get under way immediately, so it was decided to put a hand trip guard on each job and in that way cut down the clutch hazard. Some time

later, a girl in operating one of these presses met with a serious accident. It was a particularly sad accident, as the victim was an attractive young woman who was about to leave the shop to be married. Such facts as this and the great amount of suffering experienced by the victims are not a part in the cold facts as presented in our accident reports.

In operating this press the parts were put under the die and the press oper-

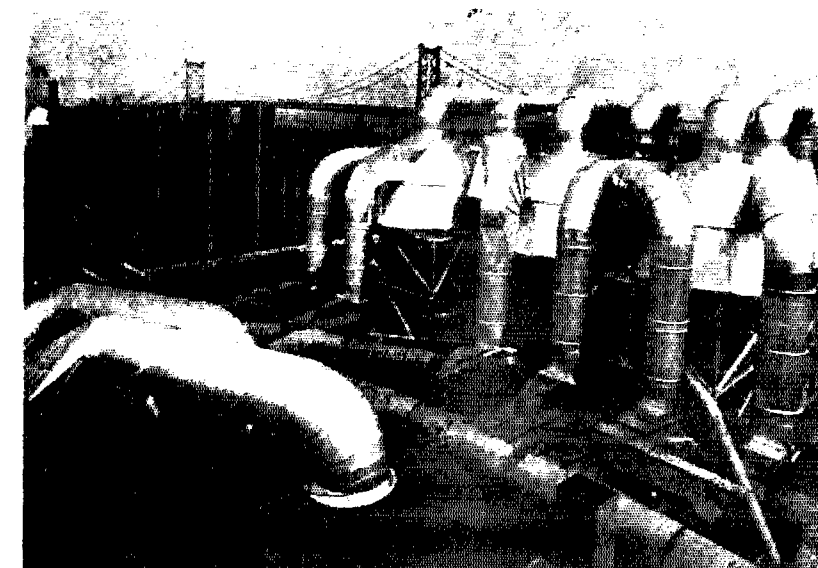


James W. Burnison

Looking back only a few years we find conditions that would not be tolerated today by an employer who had any regard for his workers or for profits

ated with a simple hand guard in front of the die. As nearly as could be determined, the press was tripped, the guard came up, the young woman working at a high rate of speed very quickly inserted her fingers between the dies to remove the punchings and the clutch repeated. Three fingers were lost. Those of you who are familiar with shop morale can understand what this accident did to the large group of girls employed in the department. Cases of this kind, when you come face to face with them, are never forgotten. They are bound to make safety a real issue to those who have to face the grisly facts.

I think the word "accident" is very much abused. It seems to me we should have another word that would more adequately express the so-called accidents even in recording minor injuries. Experience convinces me that there are very few unavoidable accidents occurring in our shops. Don't be content with the



Getting rid of dust is essential for both health and safety. A view of the large dust collector unit on top of the RCA cabinet factory.

simple facts as stated in the average accident report. Have a neutral investigator check up each case and determine whether proper supervision could not have recognized and eliminated the hazard. This check up of minor accidents is the surest way to prevent costly lost-time cases.

I believe it would be a good idea to coin a new word that would more suitably express those cases which indicate some form of managerial neglect. What

I have in mind is some word that would express the supervision responsibility to the management. For instance, we might have a word such as "Colax" to designate these cases. This word would immediately point out the fact that it was the company's lack of planning at some point, either improper guarding, lack of inspection, or lax supervision that was behind the so-called accident.

In recent years chemistry has become increasingly important in almost every industry. We have many new processes involving chemicals that should be thoroughly understood before they are freely used. Many chemical mixtures that appear innocent to the layman throw off toxic gases. Other mixtures may cause skin ailments which are difficult to heal. In other instances we find substances which are harmless in themselves but become hazardous to health when contaminated by misuse.

I recall a case where operators on a group of screw machines became infected with a skin disease. Examination revealed that the men had contaminated the oil by spitting tobacco juice into the machines instead of into the receptacles provided. We installed an oil purifying system and educated the operators in hygiene.

Eye hazards are another source of difficulty. In some cases fine wire may break and injure an eye. In other instances the danger is from flying particles, such as those thrown off by grinding wheels. We often find adequate protection provided for a welder but none



A dangerous machine has been muzzled. The high speed cutters on this wood shaper have been completely covered. A spring-operated guard returns to position after the cut has been taken.

for the eyes of those who work or pass in the vicinity. Goggles provide one of our cheapest forms of insurance.

In addition to the services of the plant physician, it is desirable for every company to have a connection with an eye

accidents caused by infections. In order to minimize the serious results from such infections, we must impress on all our supervisors and through them the operators, that it is absolutely a fixed rule that all cuts or abrasions must be treated

minor injury. This case involved a man who ran a veneer sliver into the palm of his hand. He reported promptly to the dispensary; the sliver was apparently removed and the wound treated. However, either a particle of the sliver or some other foreign matter still remained in the wound, and a serious infection followed. The man has not recovered and returned to work but with a lost time case of 52 days duration involving an extreme amount of suffering. He has not recovered the full use of his hand and may find a permanent stiffening of one of his fingers.

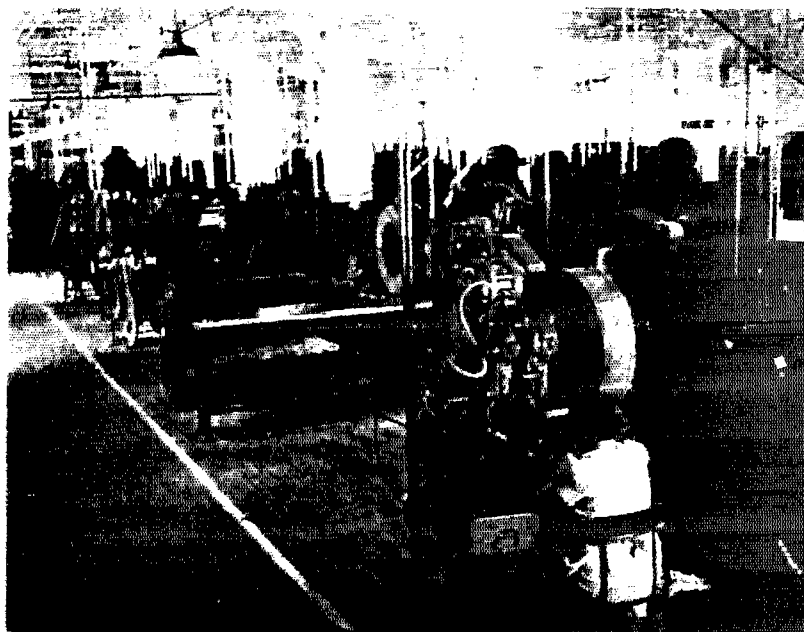
This last case parallels a personal experience that I had a number of years ago while working in the shop. I noticed a small inflamed spot near my left elbow. I did not notice any cut or sliver but as I had been working with my sleeve rolled up, I thought it possible that some small particle might have pressed into my arm. I immediately reported to the dispensary. The doctor decided to cut a little slit and drain out any possible infection. He told me there was nothing to worry about, that it was a simple little something and I should return the following day for treatment and would probably find the thing had cleared up by that time. During the night, however, a severe throbbing set up in the wound and when I reported the next morning it was found that a very serious infection had developed. It was many weeks before this infection cleared up, and one of the junior doctors later told me that for a time they were afraid that I might lose my arm.

That was clearly a case where the instrument used by the doctor had not been properly sterilized. It is one thing to read about some fellow's left arm on an accident report as Case No. 542, and it is another thing to be that fellow. If you have never been up against it, you cannot fully appreciate what I am talking about. Let me assure you, however, that the need of your active support is really important and that the agony from these injuries is in no way overdrawn.

I believe most of you are sold on the need for and the effectiveness of safety procedure. If you have allowed yourself to become lax and have not kept up with the various hazards of your industry, I would urge that you take immediate action to see that this work gets proper consideration. If you have kept in touch with the work of the National Safety Council and the bulletins sent out by that efficient organization, you

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NATIONAL SAFETY NEWS



Adequate lighting and good housekeeping, as well as guarded machines, make the power press department safer.

specialist. If you have such a specialist on a retainer basis, your own dispensary is more likely to send doubtful cases to him than if some extra effort is involved. In eye cases the element of time is more important than in many other types of injuries.

One of the most obvious and perhaps the most neglected safety measures is the planning for orderly handling of materials in process and finished products. The methods of moving and piling materials and parts should not be left to the judgment of the workers. Definite instructions indicating the correct methods should be insisted on.

Following this same thought our safety procedure must cover the possibility of injury to the operators due to wearing improper clothing while at work. I have seen many injuries caused by loose sleeves or blouses caught in moving parts of machines which resulted in an injury to the operators. In other cases we must protect our girl operators by insisting that caps or hair nets are worn when they are operating certain machines.

In looking over our accident records and going back to my own experience, I find a large number of our lost time

at the dispensary immediately. This rule cannot be made too strong, and it might be well even to point out that anyone found ignoring this rule will be dismissed. I have seen many cases where a small wound has caused either a serious amputation or death to the unhappy victim.

In looking for examples, in our recent accident records, I found two types of cases that I would call to your attention. One of our men on the shipping platform had a small particle of foreign matter blown in his right eye. The accident happened on a Friday. The man did not report to the dispensary. He treated it at home over the week-end and on his return to work on Monday he called at the dispensary. He was immediately sent to our eye specialist who reported that the eye was seriously infected. An X-ray was taken and the man is still under treatment. The doctor reports, however, that the man will never have better than 10 per cent normal vision from this eye.

Another instance, however, is a case that would indicate that our own dispensaries do not always give close enough attention to what seems to be a

Brighten Dark Days



By

LELAND P. HART

National Paint, Varnish and Lacquer Association

PAIN'T has a traditional part in the spring clean-up program but it is just as important at other times of the year. During the winter months, with their shortened hours of daylight, paint is an important aid to better light. Interior painting can be carried on regardless of weather, and in many modern plants the paint brush is never idle.

"The Light Reflecting Values of White and Colored Paints," by Dr. H. A. Gardner, director of the Scientific Section, National Paint, Varnish and Lacquer Association, was published in 1916. This circular discussed the practical application of white and tinted paints with respect to their psychological and light reflection value.

These studies brought out the latent possibilities of paint and the proper selection of color to improve and increase the amount of illumination without increasing power consumption. In these early tests on several tints the recorded reflection of light ranged from 11 per cent for a medium green to 66 per cent for a light cream color. The immediate result of this publication was to create a very active interest in securing more efficient and effective light by the proper selection of paint and color applied to interior surfaces of schools, hospitals, factories, public buildings and dwellings. In the past few years considerable activity in this field has resulted in a better understanding of the fundamental value

of better lighting and its relation to health and industrial hazards. To the business executive it is reflected in dollars and cents by increased production with a minimum of rejects from defective workmanship.

The psychological effect of better lighting is of great importance. First: because better light means better sight with more alert workers producing better work; second: because fewer accidents occur; and last, but not least, because cheerful, properly illuminated surroundings improve the general morale of the entire organization and increase the normal visual acuity of the worker.

The effectiveness of paint as an aid to better illumination has been graphically demonstrated in a recent series of tests using a model room containing a table in the center. The light reflected from the walls and the ceiling was recorded by a sensitive instrument placed upon the table. In these tests, which were conducted by Mr. D. L. Gamble, indirect lighting, semi-indirect lighting and direct lighting were compared, using white, yellow, green and gray surfaces.

In the indirect light test, the white room was 67 per cent more efficient than the yellow, 78 per cent more efficient than the green, and 89 per cent more efficient than the gray. It is obvious, therefore, that in the case of the gray room, considerable light was absorbed by the low reflecting paint. This illustration indicates the important part the proper selection of colors and paint assumes in the treatment of wall surfaces in order to better utilize available illumination.

The selection of paint for the factory, public building, office or dwelling, depends upon several factors. The principal consideration is the quantity and

quality of natural light admitted through windows or skylights. In the factory, it is generally considered good practice to use a semi-gloss paint on the side walls and a flat paint on the ceiling. The lower portion of the walls (dadoes) are usually coated with a darker colored paint. The darker color is not easily soiled and presents a pleasing contrast with the upper walls and ceiling. In office buildings, the use of pastel shades of green, blue and yellow find great favor. These same color schemes are carried out in school rooms and dwellings.

In this connection, it is of interest to note the results of some experiments conducted on students placed in rooms treated with various colors. The effect noted is as follows:

Black: Melancholia. Decreased work.

Red: Temporary stimulation, followed by a reaction, accompanied by nervousness and headache.

Blue: Calmness and seriousness.

Green: Increased vitality, happiness.

Yellow: Increased vitality, amiability.

With the above chart in mind, we might venture into our home. Certainly the first color, black, finds no possible application. Next in order, we have red. This color, used sparingly, can be effective without the undesired effects. In this order also falls combinations of red and black (brown), red and blue (purple), etc. By elimination, we find blue, green and yellow, the colors available for the desired psychological effect. These colors when used on large surfaces should be tints on a white base.

With the coming of Spring, the annual clean-up and paint-up program for home and factory takes first place. The coming year should show a tremendous ac-

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The Managing Director's Page

War, Peace and Safety

SAFETY comprehends both war and peace. War on inertia, indifference, tradition and selfishness—all of them accident-makers. Peace, because the philosophy of accident prevention is the only hope for international friendship—protection of myself and the other fellow from injury.

The English poet, Browning, said "Man's aim must be higher than his reach." We must be loyal to our own homes, to our own country, to our own nation; but this very loyalty should lead us also to an international outlook. If we can receive from the British Empire, Japan, France, Italy, and other nations, ideas and methods that will lead to a better understanding of the accident problem, and if we can generously contribute our experience, the benefits will be world wide, and those benefits, in my judgment, will not be confined to accident prevention alone. Just as safety in the individual plant always leads to a better understanding on other problems of the employer—employee relationship, I am convinced that international cooperation for safety will

INTERESTING ITEMS

A new record for speed in editing and producing will be established when the 1935 Congress Transactions go out to members this month.

Again we learned of the real reader interest back of the NEWS. For the first time in years the November issue was late (an unpardonable sin; but due to the later date of the Congress which upset editorial and advertising deadlines). In less than a week letters arrived from all over the country saying, "Where is our November NEWS?" So we say in one breath, "We are sorry, but thanks for this genuine interest."

By next month we hope to make an announcement which should be shouted from every house top. It touches the welfare of every man, woman and child. We can only hint that the automotive industry has determined, that, besides building safe cars, they are going to take an even greater, aggressive leadership in traffic education, enforcement and engineering.

The new Jumbo outdoor poster service for industrial plant yards and entrances is in full swing. The second monthly poster (December) is now going up on the boards. If you haven't noticed the announcement, write for full details.

Fifty-five police officers in charge of traffic attended the two weeks' Traffic Officers' Training School at Northwestern University last month, and have gone back to their duties in Baltimore and Seattle, Texas and North Dakota, and various mid-western cities, better equipped to understand modern traffic and how to control it. For the third successive year, Lieut. F. M. Kreml directed the school and four members of the Council's headquarters staff were among the instructors.

pave the way to a peaceful settlement of other world problems.

Why should we in America think of safety, the prevention of all kinds of accidents, from an international point of view? Here are a few reasons:

1. Practically all countries interchange goods with us. If German toys which we give to our children are safe, if water faucets from Japan are safe, if, in fact, all products which we bring into this country are made in such a way that the user is not endangered, how much better it is for us. And we can be sure that other countries will appreciate similar standards of safety on goods we send to them.

2. People are constantly traveling all over the world. Our tourists are everywhere. Agents of all governments, immigrants and students forever move from nation to nation. The ships, trains, airplanes, must be safe for mutual protection and the same can be said of street traffic and even the elevators in buildings. If we in America are trained in safety we shall take to other countries our habits and knowledge. If the citizens of other countries have been trained in safety, they will not, when they immigrate here, be a menace to our people because of careless habits. The time may come when immigrants must pass examinations on knowledge of safety as well as on other aspects of good citizenship.

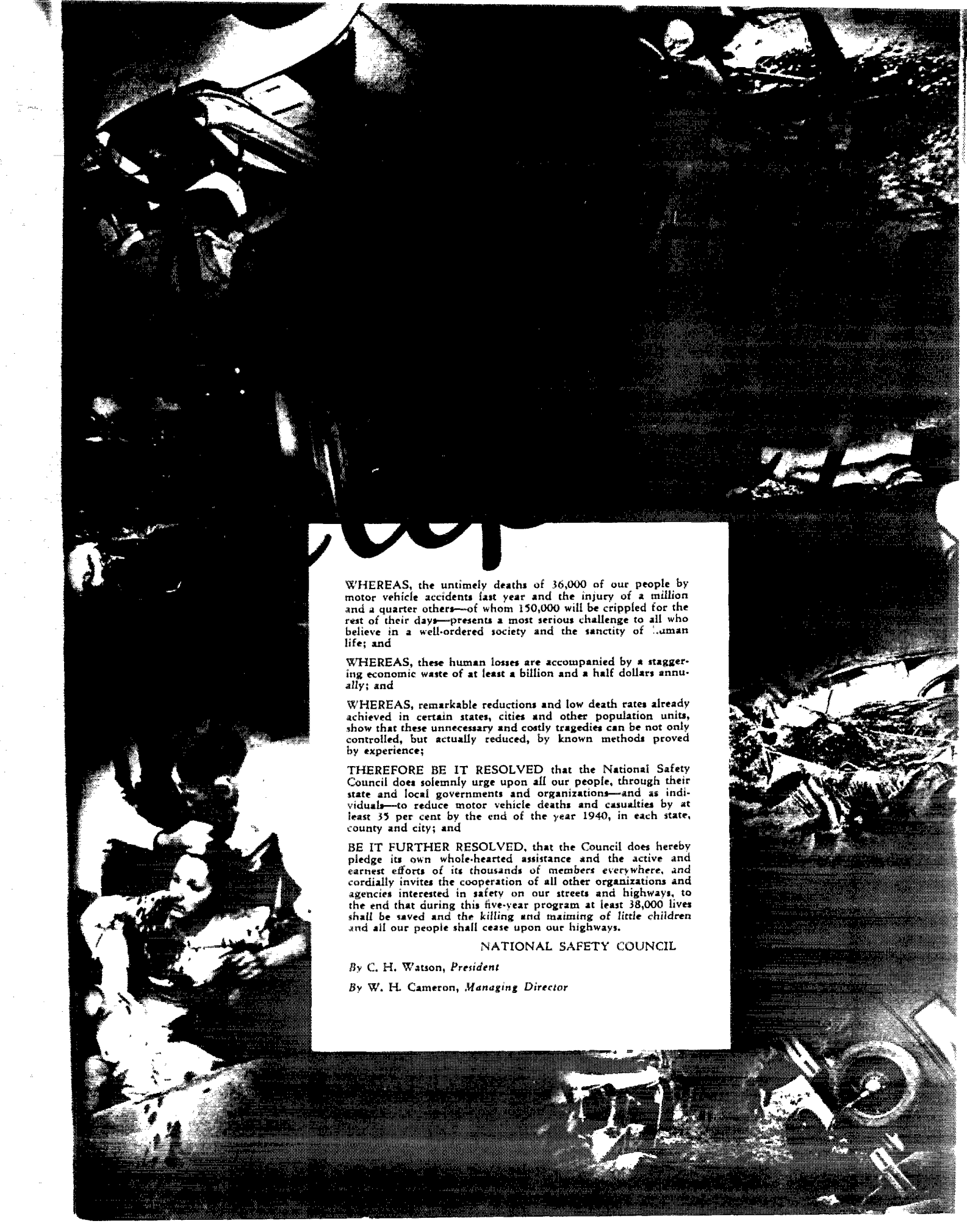
3. We have much to learn from other countries about safety. A new kind of guard, a new protection from an occupational disease, a safer process of manufacture may develop at any moment in a foreign country. To do our safety job best, we need that guard, that protection, that process. International cooperation will secure it for us.

A sense of international brotherhood, the spirit of charity, a better understanding between races and nations could well be based on such a practical demand as this one: that no goods shall be interchanged between countries without meeting definite standards of safety and protection. The safety movement should stand for international as well as personal good will and should help to bring peace to the world.

The demand for international safety standards is just beginning. Progress is sure to come. Some day our philanthropists will see the great opportunities for the conservation and enrichment of life which are possible through the projection of this great international movement to stop accidents to human beings who, in reality, are so closely affected by each other the world over.

M. J. Ameron

NATIONAL SAFETY NEWS



WHEREAS, the untimely deaths of 36,000 of our people by motor vehicle accidents last year and the injury of a million and a quarter others—of whom 150,000 will be crippled for the rest of their days—presents a most serious challenge to all who believe in a well-ordered society and the sanctity of human life; and

WHEREAS, these human losses are accompanied by a staggering economic waste of at least a billion and a half dollars annually; and

WHEREAS, remarkable reductions and low death rates already achieved in certain states, cities and other population units, show that these unnecessary and costly tragedies can be not only controlled, but actually reduced, by known methods proved by experience;

THEREFORE BE IT RESOLVED that the National Safety Council does solemnly urge upon all our people, through their state and local governments and organizations—and as individuals—to reduce motor vehicle deaths and casualties by at least 35 per cent by the end of the year 1940, in each state, county and city; and

BE IT FURTHER RESOLVED, that the Council does hereby pledge its own whole-hearted assistance and the active and earnest efforts of its thousands of members everywhere, and cordially invites the cooperation of all other organizations and agencies interested in safety on our streets and highways, to the end that during this five-year program at least 38,000 lives shall be saved and the killing and maiming of little children and all our people shall cease upon our highways.

NATIONAL SAFETY COUNCIL

By C. H. Watson, President

By W. H. Cameron, Managing Director



A Challenge Accepted

A PLAN of unprecedented dimensions for mobilizing the people of the United States in an unremitting war on automobile accidents, the goal being a reduction in fatalities on our streets and highways of no less than 35 per cent by 1940, was adopted by the Executive Committee of the National Safety Council which met in Chicago on November 18.

Starting January 1, 1936, the drive will continue for five years. The active support of every governmental body, the largest and strongest of the civic organizations and of thousands of prominent citizens everywhere will be enlisted. The resolution as passed by the committee of the Council is printed on the preceding page.

Three reasons were advanced for the passage of the resolution now. The first was the toll in 1934 and the likelihood of a comparable loss of life in 1935. The second was the fact that at the moment more interest in safety is being shown by officials and by the public at large than ever before. This interest is rapidly increasing. The third was that certain cities and states, through carefully planned programs, have demonstrated that such an achievement is possible by any community—and records are available to prove it.

Thirteen states had reduced their traffic deaths by more than seven per cent during the first part of 1935 from the corresponding period of 1934. Almost all of these states are conducting notable campaigns. A large number of cities can boast of comparable achievements.

Happily, in the National Traffic Safety Contest the Council already has a huge, *functioning* organization ready to proceed with increased vigor under the impetus of this challenge. Thirty-three states were entered by their governors in the contest for 1935 and nearly 800 mayors entered their cities. It is confidently expected that both the roster of states and the list of cities will be greatly increased for the 1936 contest.

That the goal of 35 per cent in five years, or seven per cent a year, is not impossible of achievement is evidenced not alone by the records of the cities and states referred to. In 1923 the Association of American Railroads and the Steam Railroad Section of the National Safety Council embarked on a similar campaign to run for seven years, the aim of which was to reduce accidents by five per cent a year or 35 per cent for the period. At the end of the seventh year the reduction was 50 per cent instead of the hoped for 35 per cent.

In the public safety field, the accident experience of those groups which have been subjected to even a modicum of safety education is far better than the record of the public at large. These groups include the school children of the land who have been taught safety in their classrooms, the commercial vehicle operators who have felt the benefits of training, and the drivers license law states.

The National Safety Council calls on every man, woman and child to accept this challenge.



When is Dust Control Effective?

THE selection of any method of dust control will depend primarily upon its effectiveness in reducing a given hazard, and upon its adaptability. A large percentage of reduction in dust does not necessarily indicate an efficient method unless the reduction brings the exposure below the safe limit and the method does not interfere with industrial operations.

In general, there are four methods of dust control in present use:

1. Substitution of non-dust-producing or harmless substances.
2. Isolation of the dusty operation.
3. Wetting the dust at its source.
4. Local exhaust ventilation.

In certain instances the above methods may be supplemented by personal respiratory protection.

The first method has a rather limited application. One example is the substitution of a non-silica parting compound for a silica compound in making foundry molds. Table I shows that although the use of a parting compound in this particular study only necessitated an exposure of 54 minutes of the 540 minutes of a molder's work day (10 per cent), actually this activity accounted for approximately 58 per cent of the molder's total exposure.

In the case of abrasive cleaning with steel instead of sand, we have the example of the substitution of a substance involving a lesser dust exposure as well as the use of a less toxic material. Table II shows the improvement affected by this type of substitution. Not only is

A method cannot be considered efficient unless it brings the dust count below the danger line and does not interfere with industrial operation

By J. J. BLOOMFIELD

Sanitary Engineer, United States Public Health Service

Table I—Dust Exposure of Molders

Activity	Time of Exposure in minutes	Average Dust Exposure in Millions of Particles per cu. ft.	Particle-Minutes in Millions
	(a)	(b)	(a x b)
Use of Parting Compound	74	63.8	3,445
Remaining Tasks in Molding	412	4.4	1,913
Pouring	28	3.1	134
Dumping molds (shake out)	16	32.5	520
Total	540		5,958

5,958 million particle-minutes = 11.0 million particles (per cu. ft.)
540 minutes

the dust concentration reduced from an average of 969 million to 155,000 particles per cubic foot with the use of the steel abrasive, but the potential exposure to quartz dust is diminished from 42-98 per cent to 3 per cent.

The second method of control consists of isolating the dusty process. It has many possibilities, but unfortunately it is not widely used. The theory underlying isolation is to concentrate the dust sources to one locality or to a single closed space. In this way, a minimum number of employees are exposed to dust.

During shake-out, many foundries expose workers who are normally engaged in occupations with low dust concentrations. Thus molders in a particular foundry may be exposed to a dust concentration of 3,000,000 particles per cubic foot under normal occupational conditions. When shake-out operations are carried on close by, their exposure may be increased to more than 50,000,000. The same condition exists when

annealing flasks containing ground slag are emptied in malleable iron foundries, frequently exposing grinders and tumbling barrel attendants at work close by.

Perhaps the best example of isolation of a dusty process is the abrasive cleaning room. This completely encloses a very hazardous process and exposes only the blaster who is generally equipped with a protective helmet. The room is also exhausted, which further assists in reducing the dust concentration. Processes which are isolated require good ventilation. Other examples are the automatic turntable for abrasive cleaning, tumbling barrels, and batch-mixing rooms that are found in some pottery establishments.

The third method, and perhaps the oldest, is the practice of wetting the dust at its source. In Table III, an example of this control method is depicted in connection with the drilling and loading of rock in anthracite coal mine operations.² From the results shown in the table, it is apparent that a tremendous reduction

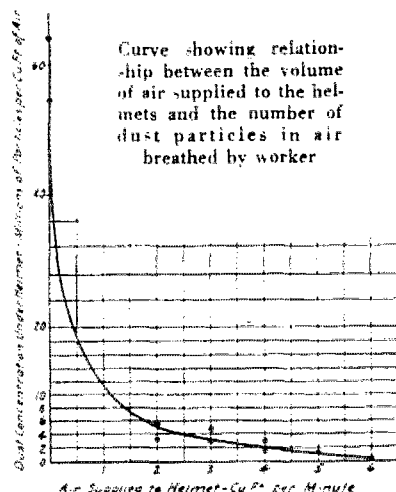


Table II—Reduction in concentration and quartz content of dust in sandblast room with substitution of steel shot for sand abrasive

Type of Abrasive	Avg. Dust concentration, millions of particles per cu. ft.	Percentage of quartz
Sand	969	42-98
Steel	155	3

in dust has been effected. However, as pointed out previously, unless the dust is reduced to a safe limit, the method cannot be considered successful. In the present instance, the workers engaged in drilling are still exposed to unsafe concentrations, and the more positive method of controlling the dust in drilling operations with dust traps would be indicated. For drilling and loading operations involving an exposure to dusts less toxic than those containing high amounts of free silica, as in the case of coal or certain talcs, the reduction shown by the use of wet methods may be considered highly effective.

The fourth method—exhaust ventilation—is perhaps the most effective and the one with the widest application. It is not within the scope of this article to enter into details of theory and design except to point out that there is a real need for more fundamental studies of the type conducted by DallaValle with reference to the design of local exhaust

hoods. This he has recently presented in detail in Public Health Bulletin No. 217. The work of Hatch and his colleagues⁴ on the control of the silicosis hazard in the hard rock industries is another example of a scientific approach to the dust elimination problem.

It is apparent by now that there are no set rules for the mechanical protection of workers from the dust hazard. Specific conditions encountered in an industry or plant will determine the type of protection. Experience has indicated that by studies of occupational exposure it is often possible to find the solution to the problem.

Table IV indicates the various control measures found in use in the anthracite coal mines investigated in the study referred to earlier. Although no single mine practiced all the control measures shown in this table, by an occupational study in several representative mines it was possible to show that methods are now known and practiced for the elim-

ination of the dust hazard in this industry.

Another example of present methods used in an attempt to control industrial health hazards is indicated in the results of a study now in progress in connection with mercurialism in the hatters' fur-cutting industry. Table V shows the exposure to mercury dust and vapor under controlled and uncontrolled working conditions. It is quite apparent that where some measure of control is practiced by such methods as segregation or local exhaust ventilation, a material reduction in the exposure to mercury has been effected. It is our belief that in the case of the blowers' exposure, a reduction may be effected by mechanical enclosure and local exhaust ventilation, and that the shippers' exposure to mercury vapor may be lessened by a general system of ventilation. Unfortunately, the present investigation has revealed no plant in which an attempt has been made to reduce the exposure for these two occupations.

In some dusty occupations the methods of controlling dust have not been developed. In fact, such industrial operations as removing the cores from very large foundry castings, sandblasting, handling used storage battery plates, paint chipping, and cadmium oxide manufacture appear to offer no practical means of adequate control. In such cases it is therefore necessary to furnish the worker with personal respiratory protective equipment. These devices consist of various types of respirators, masks and helmets.

It is important, first of all, to recognize the limited use of personal protection devices. Because a worker cannot wear a mask or helmet continuously with comfort, such devices must be employed intermittently. Consequently their use is extended to those operations where other methods have failed, or to supplement them, as in storage battery repair.

In connection with respiratory protective devices, it is necessary to point out that at the present time the U. S. Bureau of Mines is equipped to conduct approval tests of respirators. (Schedule 21). These tests are conducted against the dust for which the device is to be used. Respirators are rated not on an efficiency basis but on the amount of dust that actually passes the filtering medium. With reference to masks or helmets of the positive pressure type, it may be of interest to present the results of a study of such devices made during the sandblast investigation conducted several

(Please turn to page 64)

NATIONAL SAFETY NEWS

Table III—Contrasting "Wet" and "Dry" Methods of Rock Drilling and Loading

Processes	No. of Samples	Average dust count in millions of particles per cubic foot	
		Dry	Wet
Drilling	22	568	33
Loading	10	636	32

Table IV—Summary of Results Contrasting Dust Exposure of Mine Workers under Controlled and Uncontrolled Working Conditions

Operation	Dust Concentration, millions of particles per cu. ft. of air		Remarks
	Controlled	Uncontrolled	
Firing charge	40	834	Unless at least 15 minutes elapsed after firing a charge, miners found to be exposed to high dust concentrations
Loading coal or rock	32	636	By wetting the loaded material dust count is reduced as shown
Loading coal	4-26	291-1136*	Mechanical loading decreases dust exposure as indicated
Drilling	33	568	Wet drilling is effective in reducing the dust concentration. Further reduction would necessitate exhaust ventilation
Hauling coal in mines	1-2	17	Wetting coal and empty cars reduces dust in haulage ways
Preparation of coal	24	380	Wet breakers reduce dust counts as shown

*The lower result is associated with the hand loading of wet coal while the higher average is based on the hand loading of dry coal.

Table V—Exposure of Hatters' Fur Workers to Mercury Dust and Vapor under Controlled and Uncontrolled Conditions

Occupation	Total Mercury Exposure in Milligrams per 10 cubic meters		Method of Control
	Uncontrolled	Controlled	
Blowers	4.6	—	None
Shippers	7.2	—	None
Cutters	4.6	1.9	Local exhaust ventilation
Sorters	3.9	1.7	Local exhaust ventilation
Brushers	3.9	1.4	Local exhaust ventilation
Drummers	3.9	0.8	Segregation
Clippers	3.9	0.7	Segregation

Visualize Traffic with Models

Toy autos and miniature streets can be used very effectively in teaching traffic lessons and for demonstrating the lessons of accidents that have occurred

By EDWIN D. JACKSON

Asst. Supt., Motor Vehicle Service, Post Office Dept., Chicago

A NUMBER of years ago while seeking different and more impressive ways in which to train truck drivers we conceived the idea of illustrating traffic laws and safety rules by means of toy automobiles on a replica of a city street.

We constructed a flat surface about four feet long by two feet wide, set at an angle of approximately 17 degrees so as to be visible from all parts of the instruction room. Upon this we outlined two intersecting streets, one of which contains a double street car line with a safety island, and an alley. At the intersection we erected a three light "stop and go" signal which is operated by means of a small flash light battery which is used in illustrating the red, yellow and green signals.

Class rather than individual instruction is given. After roll call announcement is made that each one will be called upon to demonstrate problems involving traffic regulations and safety rules by moving a toy automobile on the replica in the same manner in which he would drive his machine.

The driver called upon proceeds with his demonstration describing each move and explaining his reason therefore after which without comment inquiry is made of the class whether all agree with him. If any disagree they are requested to demonstrate their way. The problem is then thoroughly discussed and the instructor in order to firmly fix the principles in the minds of all present again makes the correct demonstration and re-states the law or rule involved.

Whenever possible the problems are stated in such a manner as not to suggest the method of its solution. For instance, if we desire to test a driver's knowledge regarding the law which requires one to stop before emerging from an alley. We state the problem as follows: "You are the operator of this car which is standing in this alley. It is now your duty

to drive it onto the street and park it as near the intersection as the law will permit. In your demonstration explain each move you make so that all may understand."

There is no suggestion that there is a law which requires that a stop be made at the sidewalk line before emerging from the alley.

In order to demonstrate that it is not safe to pass an overtaken street car at a street intersection the following problem is given:

"Your car and a street car are standing at the near side of a street intersection. As all of the passengers board the street car and it starts forward you start your car. It is your duty to pass the street car as the motorman is in no particular hurry at this time. Now move your car, while I move the street car, and demonstrate how you would drive under this condition."

If the driver attempts to pass the street car within the intersection I quickly stop the street car and move up a car from the left, which had been standing at the intersection, in such a manner as to cause a collision. We then explain why it is unsafe to attempt to pass any overtaken vehicle at a street intersection when the vision to either side is obscured.

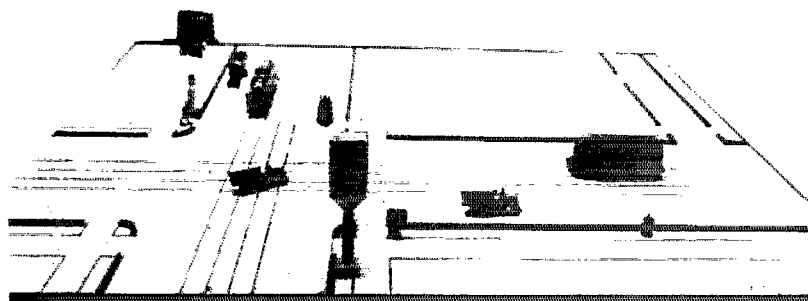
In order to illustrate the proper way in which to make a left turn the following problem is given:

"Your car has been parked along the right hand curb while you were making deliveries in the vicinity. Your next stop is on the intersecting street toward the south of your present position (the top of the replica representing north). It is now your duty to proceed from your present position to your next stop. Please demonstrate how you would drive under these conditions, explaining each move you make and give reasons therefore."

In making a proper demonstration in this instance the driver must tell what precautions he should take before starting from the curb, signals required, etc., he must show how he would reach the center line of the street and make the left turn around the center of the intersection. While he is engaged I generally move a car forward from the opposite direction so that unless he stops his car while in the act of turning a collision will occur. This is to test his knowledge of the law which grants the right of way to vehicles proceeding straight across the intersection over those making a left turn therein.

In demonstrating the correct way in which to make a right hand turn at an intersection we place a car in the lane of traffic nearest the center of the street and then request that the car be moved to a place on the intersecting street to the right.

In making this demonstration the operator must make his way into the first lane of traffic and make the turn as close to the curb as possible. As he approaches the intersection we operate the "Stop and Go" signals. Sometimes



The board used by Mr. Jackson for training drivers in traffic regulations and reenacting accidents that have occurred.

the operator fails to note this and makes the turn against the light.

In demonstrating how one should drive from one side of a street to the other the following problem is stated:

"Your car is parked along the right curb of this street while you are making a delivery. Your next stop is on the other side of the street and because of the weight of the article to be delivered there you cannot carry it across but must drive across and stop your car at the curb in front of the place of delivery. Now move this toy car in the manner in which you would drive explaining as you proceed."

Sometimes an operator will move the car across the street in a diagonal manner and stop it with the left side at the curb instead of making the complete turn and stopping with the right wheels at the curb as the law requires.

To illustrate the law which prohibits the passing of an overtaken street car on the left side we state the problem thus:

"You have been following this street car for quite some distance and finally decide to pass it. While I move the street car you move this toy showing how you would pass under these conditions, explaining your acts." And in order to make it easier to pass to the left than to the right we place other toys along the right side of roadway making it difficult to pass on that side.

The safe driver, of course, will wait until he can safely pass to the right.

These problems, taken at random, are sufficient, I think, to illustrate how vividly traffic laws and safety rules can be taught by means of models on a replica of a city street. Each one can see exactly how each move should be made and not knowing who will be called upon to make the demonstration each must pay very close attention throughout the session. Moreover, we have found by experience that the drivers become very much interested and watch each move intently trying to detect some error on the part of the demonstrator. Frequently some very interesting discussions arise over disputed moves.

In preparing for these sessions the instructor should make a careful survey of the accidents in which the drivers were involved during the previous six months and prepare special problems illustrating the rules and regulations involved.

We have found that drivers not only grasp safety principles quickly by this method of instruction, but that they can explain how their accidents occurred far more easily by the use of models than by

written reports.

So the accident investigator after preparing a replica of the scene of an accident drawn to scale requests the driver to demonstrate in detail each move made by all involved.

By this means the investigator is enabled to secure a far more accurate and detailed account of the accident than is possible through the usual question and answer method. By it also he can detect discrepancies which otherwise might pass unnoticed.

For example, a driver submits an accident report wherein he stated that while crossing B street westbound in A street his vehicle is struck by a truck southbound in B street at a high rate of speed, the left front of the other car coming in contact with the right front of his; that when he was about 50 feet from the intersection he observed the approach of the other vehicle which was then several hundred feet from the intersection; that he continued since he was approaching the intersection so far in advance of the other car; and that just before the collision he again observed the other car nearby whereupon he turned toward his left and applied his brakes but was unable to avoid a collision.

If this driver should be called before an investigator who uses models he will find a replica of the scene of his accident placed in front of him and he will be told that the blue car, for instance, represents the car operated by him while the red car represents the other car involved. He will then be requested to place the blue car in as nearly the same position on the replica as his car occupied in the street as he approached the intersection and at a considerable distance therefrom, say about 200 or 300 feet if possible on the replica.



The driver then places the blue car in the first lane of traffic at a distance representing about two or three feet from the curb and advises that when at that place his vehicle was moving about 15 miles an hour. He then moves the toy forward to a place corresponding to the place where he stated he was when he first observed the approach of the other vehicle. His toy is stopped there and measurements taken and it is found that the place was about 50 feet from the intersection.

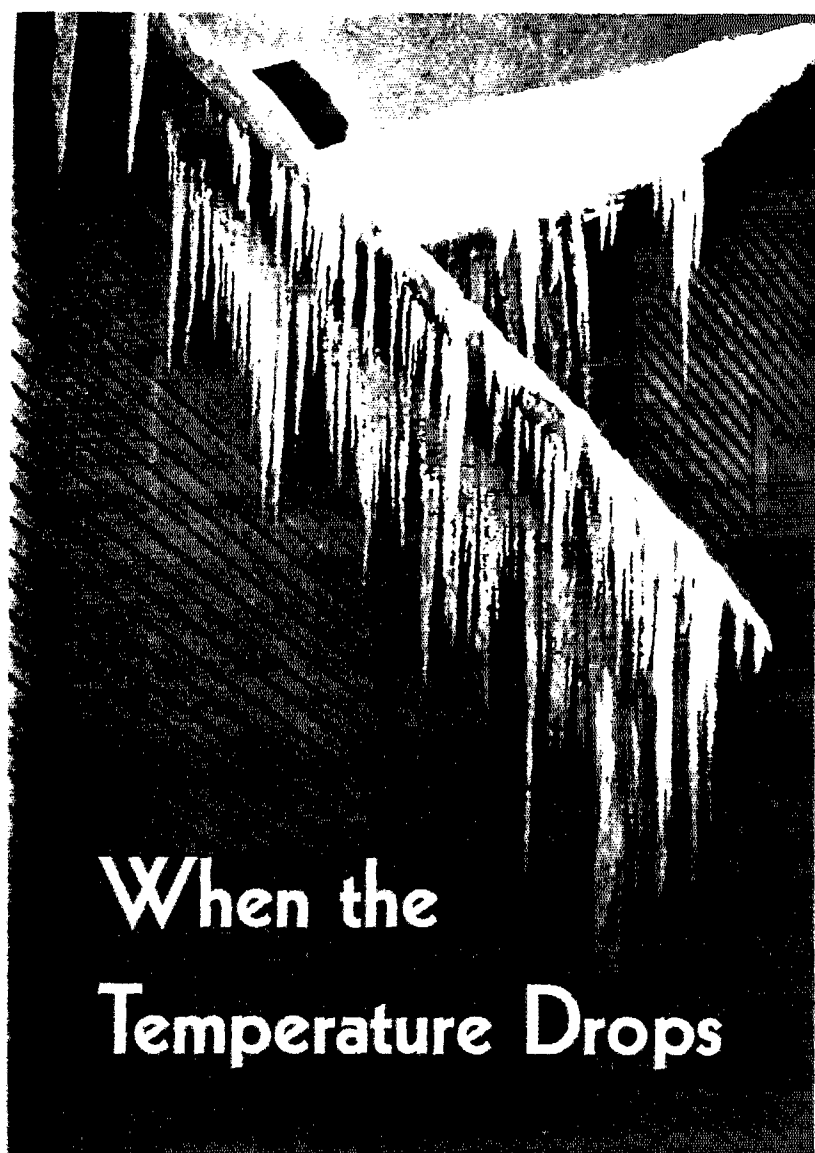
He is then requested to place the red toy in the position corresponding to that of the other car when it was first observed by him and places it in the lane of traffic nearest the center of the street at a point which upon measurement proved to be about 150 feet, not several hundred feet, from the intersection. He then moves the blue toy toward the intersection explaining that he reduced his speed as he did so to about 15 miles an hour; that on arriving at the east sidewalk line he looked toward the left for traffic continuing his course and then again to the right at which time the blue toy is near the center of the intersection.

At this point he again observed the other car which was then crossing the north curb line of the intersection as indicated by the red toy; that he turned toward his left and the other driver toward his right and that the right fender of his car and the left front of the other car came into contact.

Apparently there are not many discrepancies between the two versions of the accident as given by the driver. However, it so happened that the building located at the northeast corner of the intersection extended to the sidewalk line on both streets. Now by drawing a line representing the field of vision of the driver from the place he indicated he first observed the other vehicle, you will observe that the other car could not have been seen from that place unless it were within about 50 feet of the intersection, and as it was approaching from the right, it had the right of way over the other car.

The driver, disconcerted by this disclosure, quickly admitted that he did not observe the other car until just before the collision occurred, which might have been only a theory in the mind of the investigator had he not insisted upon a visual demonstration.

Even the most illiterate driver can, by the use of models in discussing accidents, re-enact every one clearly and concisely thereby reducing the work of the accident investigation department.



When the Temperature Drops

Accidents are likely to mount unless precautions
are taken to offset well known seasonal hazards

UNLESS all signs fail and laboriously compiled statistics have no meaning, approximately 31,000 American men, women and children will be killed in accidents during the four wintry months ahead of us. It is, to be sure, a bleak and sad prospect.

Strangely enough few of the victims will be suffering particularly from the rigors of the weather at the moment the tragedy occurs: they will be at home; they will be riding in an enclosed and possibly heated automobile; or they will be walking in more or less comfort out of doors. Many accidents peculiar

to winter occur in industrial works also and typical ones to beware will be mentioned in this article.

The sentimental admonition, "Keep the Home Fires Burning," is well observed throughout the country. The fires are kept burning so brightly and with so little care on the part of the householder that several thousand persons are burned to death each winter. It is not surprising that more burns occur in the cold season than at any other time of the year; for in the greater part of the country fires are lighted in the fall and are not permitted to die

until spring.

The common causes of domestic conflagrations still include practices which have been outlawed by people of sense for many years. Starting a fire in a stove or furnace with gasoline or kerosene is an example. Another is storing ashes in combustible containers such as baskets and boxes. Still another is neglecting chimneys and flues year in and year out so that they become excessively dirty or otherwise defective.

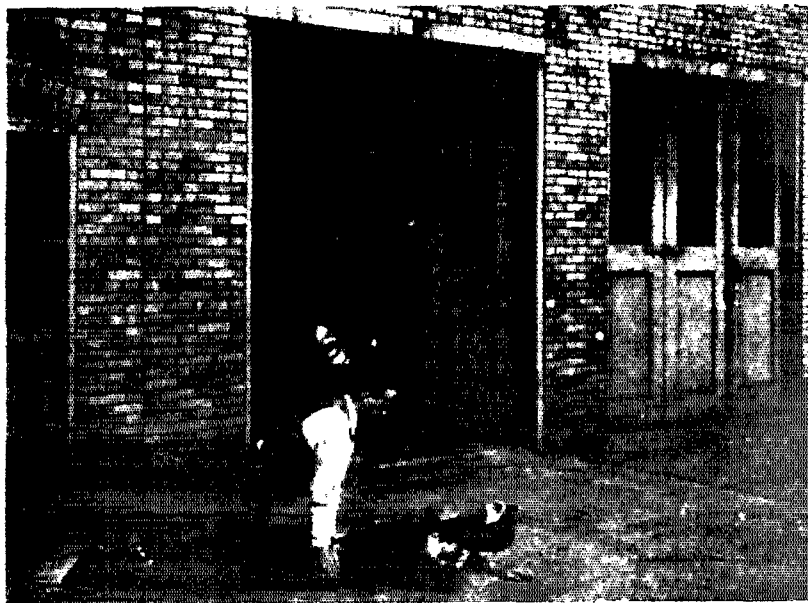
The Christmas holidays is a time when special care must be taken not only because of the decorated tree and quantities of tissue paper and other combustibles but also because at this time people are apt to relax their ordinary caution. There is no more effective way to spoil a holiday than to set fire to the house, and there is no more common way of achieving this than tossing a match which is not quite out into a wastebasket or dropping a cigaret butt into the pile of paper the presents came in.

There are other hazards around the home in winter. Porches, steps and walks should be kept free from snow. Ice should be melted off with salt or sprinkled with sand or ashes. Icicles should be removed from gutters, particularly over porch steps. In the garage the greatest hazard is carbon monoxide gas. Before starting the motor of your car, open the doors. This may run up the heating bill, but to fail to do so is suicidal. A small fraction of the deadly gas in the air is sufficient to asphyxiate a robust man.

Driving an automobile in winter is a tricky business. A mid-day thaw may melt a sheen of ice so that one drives along in comparative safety only to return over the same road a few hours (or even minutes) later to find that it is ice once more. Even on level pavements there are dips where water accumulates and freezes, and if the unsuspecting motorist attempts to swerve his car or apply his brakes at such a point, he may lose control.

Because of the suddenness of changes in temperature it is probable that state and county highway officials never will be able to safeguard the highways from this grave danger. Calcium or sodium chloride mixed with sand, or heated sand will give an abrasive surface even to hard ice, but it is impossible to apply these substances soon enough to protect the first motorists who drive over the highway after the freeze.

Tire chains help the motorist control his machine, and he should use them on slippery roads or streets; but for driving on ice the best safety device is skill and



U. S. Bureau of Mines
He started the engine with the garage door closed. Resuscitation has saved many a carbon monoxide victim, but first aid often comes too late.

care. It is possible on a country highway to drive too slowly for safety, especially on banked curves. If the centrifugal force of the car is not sufficient to offset the slope, the machine will slip and slide into the ditch. The best trained and most expert commercial drivers in the country dread ice. The average motorist would be wise to leave his car in the garage until such conditions pass.

Various devices are on the market for melting sleet and ice from the windshield of an automobile. Probably the most effective are the electric heating units which keep at least a portion of the area clear. A bag of salt attached to the ordinary wiper is said to work, but sometimes too much snow and sleet fall for such a device to cope with.

While it is true that the pedestrian is generally at the mercy of the driver, it is also true that many a driver has steered his car deliberately into curbs, trees and even oncoming machines to avoid striking a walker who through ignorance or indifference bolted into his path. Children are by no means the only offenders in this respect. Pedestrians can do much to make streets safer especially in winter when the traction of the automobile on the pavement is none too good. Walkers should realize the difficulties under which the driver is operating. And they should also realize that their skin is at stake too.

Other dangers besides being run over beset the pedestrian. Plain ice on a flat

sidewalk has sent many a person to the hospital. Elderly people especially suffer from falls. They should wear foot rubbers on slippery walks, and younger, more active people should give them a hand when they need it. All of these little "good deeds" should not be left to the Boy Scouts.

Since frost-bite is classified as an accident it would not be inappropriate to mention the symptoms and the treatment of this exigency of winter here. If your nose or ear or hand becomes painfully cold and then suddenly loses the sense of feeling entirely and if it

turns white or grayish-white, the part is frost-bitten.

The object of treatment is to bring the part back to normal temperature so that circulation will be restored; but this must be done slowly. Keep the patient away from fire. Do not even permit him to enter a very warm room. Apply the palm of your hand or a piece of wool or fur to the affected part and massage it gently. Then apply cold water. Use ointment as you would in the case of a burn for frost-bite has the same effect.

A 3,000 pound icicle hanging from a leaking sprinkler tank 75 feet above the roof of a machine shop in which scores of men worked was a spectacular hazard at a northern plant last winter. It typifies the kind of dangers which industrial safety men must be on the lookout for in the cold months. This particular icicle, by the way, did not fall; the management did not wait for a thaw to melt the mass and let it drop. A worker with a gasoline blow torch was suspended in a bos'n's chair from the platform and, working from the bottom, melted away about eight inches at a time. It took a day to complete the job.

Smaller icicles than this perhaps are more dangerous, because they do not look so formidable. But it takes only a few pounds of ice dropping on a man's head to fracture his skull. Icicles should be removed as fast as they form any place around the plant.

The late fall is a good time to check fire extinguishers and to remove to a warm place all of the soda-acid type. Since they are full of plain water, nothing will prevent their freezing.

All walks and steps should be sanded or salted as soon as ice forms—certainly before shifts change. Workmen should not be permitted to carry heavy objects over slippery places. Snow should be removed from flat roofs at once. Serious accidents have occurred when such roofs collapsed under the extra burden of deep snow. Boards and all loose objects should be picked up from the yards. They will freeze to the ground and form a serious tripping hazard.

Salamanders are looked upon as an evil by most safety engineers—albeit a necessary one. These devices, while they have created warmth, have caused many a fire and not a few asphyxiations too. A workable guard for a salamander is shown and described on page 31 of this issue. The guard will help to keep chilly men at a safe distance. Workers whose clothes are oily should be particularly careful. A salamander should not be
(Please turn to page 66)



NSC Poster No. 5352

What Makes Tools Hazardous?

Tools in bad shape and workers who lack caution or skill in their use are responsible for a heavy total of disabling injuries

By A. A. RALL

Power & Light Company
Safety Supervisor, Kansas City

EVEN in this age of machinery many operations must still be performed with hand tools. And statistics show that these hand tools contribute a large proportion of the accidental injuries in industry. Many machine accidents can be prevented by the use of safety devices but safety in handling materials and using hand tools depends largely upon training and control of the individual worker.

The hands seem to be the chief sufferers in hand tool accidents. It might be a literal interpretation about not letting the left hand know what the right hand doeth. In giving charitable aid this is an admirable principle, but it is a most unsafe one in any industrial occupation.

One cause of injury is the habit of letting the hands wander about without direction or conscious control, as in making gestures while talking. This is especially dangerous around electrical apparatus, moving machinery (industry is not yet 100 per cent safeguarded) sharp edges or hot objects.

When we suffer such an injury we may be wholly unable to explain how our hands happened to be in the danger zone. But they get there if we do not attend to what we are doing.

We received our hands free, but we can have only one pair. Yet we take all manner of chances with them, allowing them to become bruised, infected and mutilated. The ways in which injuries to the hands are caused are as varied as the number of different kinds of tools.

For the most part, there appears to be no remedy of a mechanical nature. The accidents usually result from carelessness or from lack of dexterity in the use of tools, so that the remedy lies in the exercising of greater personal care on the part of the workman. However, it might be well to discuss the use of the more familiar hand tools.

WRENCHES: Many an accident has been caused by the simple slipping of a wrench; yet this exceedingly common hazard is seldom appreciated. The

danger is particularly grave when men are working on ladders or platforms or in the other elevated positions. There are numerous ways in which accidents may arise, but the following are perhaps the most common:

1. The use of open-end wrenches which are not the right size to fit the nuts to which they are applied.
2. The corners of the nuts may have become misshapen through long-continued use (if nuts have become badly worn in this way they should be removed with a pipe-wrench or an alligator wrench, and new nuts substituted).
3. Monkey wrenches are applied with the jaws pointing away from the users, instead of towards them.
4. The adjusting mechanism of monkey wrenches and pipe wrenches sometimes become so worn that it is no longer possible to set the jaws tightly.
5. The wrench that is used may be too large for the job or it may be unreasonably lengthened by slipping a piece of pipe over the handle, so that the bolt twists off under the excessive leverage that is applied.

The methods of eliminating these accident causes are fairly obvious.

PLIERS: Too many of us are plier mechanics. The slip-joint pliers are the most commonly used and come in handy in many ways, as they hold square objects as well as round ones. Its use is generally understood but the tool is subjected to considerable abuse. One abuse is in helping the screw driver to remove a tight screw or slotted head bolts. This frequently results in spreading of the slot so that it practically becomes impossible to remove the part with conventional tools. It being necessary to maintain a grip on the pliers, one cannot steady the screw driver properly when additional leverage is necessary.

COLD CHISEL: This instrument is intended to cut metal softer than the tool itself and must have the same amount of care as any other tool to do good work. The chisel head will swell or broom out from constant use. This swell or broom should be ground off as a matter of safety. When the chisel is properly tempered the hammer will not

do much damage. A chisel should not be used on an anvil. A good anvil is made of the same material as the chisel and tempered to the same degree of hardness. Contact of the two under the blow of the hammer is injurious to both. Also bear in mind that the chisel should be of sufficient length to permit holding it properly.

HAMMERS: The hammer is probably subjected to more abuse than any other tool. The types of hammers in general use are the claw and pall peen. The claw hammer comes in for considerable abuse because the handle is of such proportions that it is amply strong for use as a claw. However, it is impossible to pull spikes with the average weight hammer. It is bad practice to use a pipe over the handle to secure additional leverage. A broken handle and a bad fall is the inevitable result. Security of the hammer head on its handle is important as a loose head results in poor work as well as danger. The hammer head should be fitted to the handle with properly fitted wedges.

SCREW DRIVER: The leverage applied to this tool is practically governed by the twist of the wrist in rotating the tool. Care must be taken in obtaining leverage by offsetting the screw driver since the effect on the slot is apt to be much the same as that produced by an improperly shaped point. An improperly shaped tool will mutilate the screw head

TOOLS DON'T CAUSE ACCIDENTS



NSC Poster No. 3420

as it does not have a good bearing slot. To counteract this tendency to slip, the screw head, being of softer material, swells where the point touches on its edges. This increases with each effort until finally the sides of the slot are so tapered that some make shift arrangement must be used to remove the screw.

Constant usage depreciates the tool and it must be dressed to restore its condition, but this dressing must be understood to get maximum service. The practice of holding the screw driver in one hand and the material to be worked on in the other, is decidedly unsafe. If work is done in this manner, a pierced hand is often the result caused by the slipping of the screw driver from the screw slot. To reduce the hazard of slipping, screw drivers are now being manufactured with ribbed points.

A screw driver presents several hazards when used as a makeshift tool for other than its intended purpose. The shank often becomes bent from use as a pinch bar. The handle becomes split and splintered from hammer blows when used as a chisel. Inguinal ruptures have also been caused through bruises to the body when the driving points have suddenly been released from the screw slot.

FILES: Never use a file without a handle. Many men have violated this precaution and have had the sharp point driven far into their hands. Never hit a file with a hammer as pieces of hardened steel are almost sure to fly

The Ice Man's Equipment

Tools most commonly used by the ice-delivery man are tongs, picks, and axes. All these tools should be kept sharp and in good condition in every respect. A suitable holder or rack should be provided for the ax on every wagon, and the ax should always be kept in it when not in use. The delivery man should have a suitable shield in which to carry his pick and should never carry it in his pocket. Empty tongs, when carried, should be closed so that their points overlap—both handles being held in the hand. He often opens them out and carries them by hooking one point over his shoulder. This is a dangerous practice and would be likely to result in serious injury if he should fall. A great many accidents happen through the improper sharpening of ice tongs.

There have been more injuries in ice plants due to the breaking of some parts of the ice-pulling equipment than in all the other departments combined. It is the duty of the ice puller, as well as the engineer in charge, to watch his ice pull-

BECAUSE of the limited time between the conclusion of the Twenty-fourth Annual Safety Congress and the publication date of the November issue of the National Safety News, only a few portraits of the general chairmen of the various sections could be obtained. The photographs shown here have since been received.



W. A. BROWN
Tennessee Electric
Power Co., Nashville,
(Transit)



D. B. COLEMAN
Missouri Portland Ce-
ment Co., St. Louis,
Mo. (Cement)



C. W. DEMPSEY
Liquor Carbonic Co.,
Chicago. (Food)



ALEXANDER FOSTER
JR.
Wagner Co., Phila-
delphia. (Shoes)



R. M. GODWIN
Philadelphia Electric
Co., Philadelphia,
(Public Utilities)



E. E. GRANT
Crystal Tissue Co.,
Middletown, O. (Pa-
per and Pulp)



J. A. PURDY
Michigan Mutual Li-
ability Co., Detroit,
(Wood Products)



C. T. WINEGAR
Chrysler Corp., De-
troit. (Automotive
& Machine Shops)

ing equipment for any dangerous defects, and should he detect any part of this equipment showing signs of wear or defects that are liable to cause him or any other puller injury, he must report such condition to the one in charge and it should be remedied as soon as possible.

It is very essential that one should use extreme caution in handling heavy machinery, especially when rope blocks, hand tools or chain hoists are employed. One should know approximately the weight of material to be handled, the capacity of the hoist, and the strength and condition of the supporting beam to sustain the entire weight. As a rule, when a machine or part of a machine falls it results in broken parts and injury to one or more of the employees.

The Tool Room

The tool room has been found to be a profitable investment as it has paid a company with which I am acquainted in three ways:

1. Bad hand tools were practically eliminated. It was surprising to note the condition the tools were allowed to get into. In some instances only half of the tool was returned.
2. Longer life of tools, greater care shown, and elimination of abuse to tools.
3. Better grade tools were purchased, consequently the maintenance of tools improved.

Charging Accident Costs to Departments

To make the whole organization realize the cost of accidents, one company adopted the plan of charging against each department an arbitrary amount for each injury sustained.

For accidents not involving compensation the schedule is: first aid cases, 50 cents; redressings, 25 cents; disabling injuries, \$100.

If it's for the personal protection of the worker, you're almost sure to find it in the extensive safety wardrobe at Hawthorne Works

ANY industry whose operations involve a wide variety of occupations must use many types of protective equipment which must be selected carefully with due consideration for the needs of the job. To assist our foremen in the selection of equipment, we have standard specifications and every foreman has a copy. In it he will find the specifications for every class of work.

Following is a summary of the main classes of work at Hawthorne with the types of equipment provided:

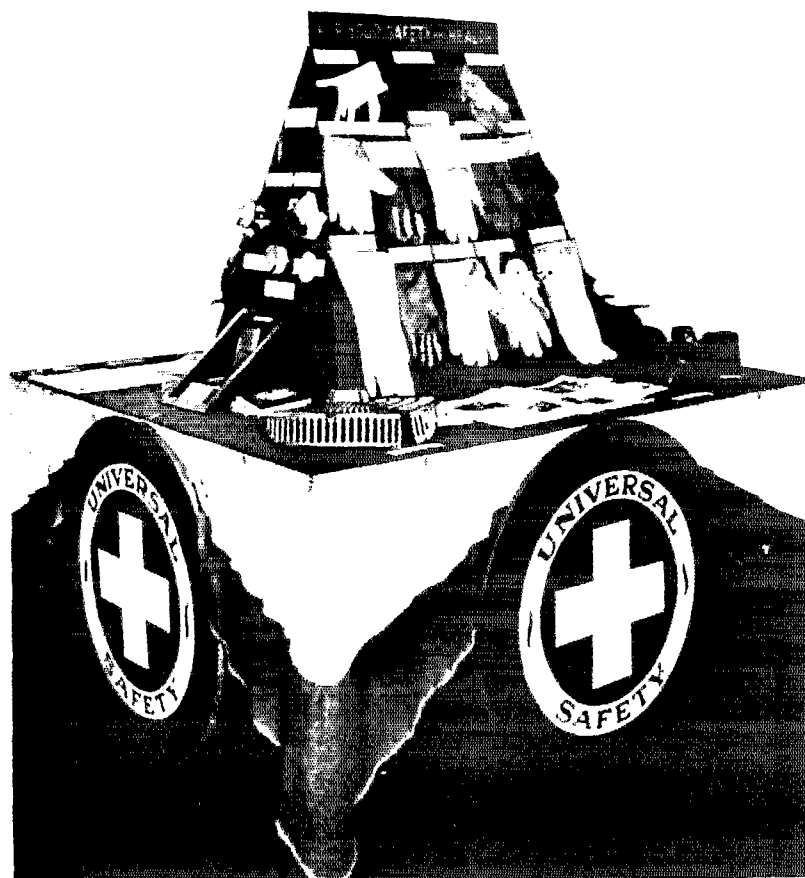
Foundry and Forge

Molders, cupola tenders, furnace tenders and helpers in foundry and forge are equipped with heavy duty metal or composition cup goggles with hardened lenses. The lenses in the furnace tender's goggles are of a forge and furnace shade. Electric furnace tenders, however, wear a welder's goggle, described later. Goggles with clear lenses are used for such operations as breaking defective castings, cleaning castings with compressed air, grinding castings to remove gates or fins, pounding on castings to remove sand cores, pouring molten metal into molds with hand or bull ladles, removing gates or fins from castings with air chisels, or hand chisels and hammers, and working in vicinity of chipping hammers.

Leggings are of the non-lacing, non-buckling and snap buttoning type held in place by hidden steel springs similar to the old bicycle pants guard. They will come off instantly from a tug at any point. There are no gadgets to confuse the wearer or those who are trying to help him in an emergency. Just one simple thing to remember—grab anywhere and pull.

Men wear safety hats when chipping slag out of cupolas. Our construction crews of masons, carpenters, millwrights, and so on, wear them whenever they are engaged in work where there is the slightest chance of objects falling from overhead.

DECEMBER, 1945



Dressed for Safety

By ELMER J. SMITH

*Safety and Health Director, Western Electric Company,
Hawthorne Works, Chicago*

Our employees wear "Congress" safety shoes for their protection in addition to the leggings.

We use a leather steel faced glove when charging a cupola or handling pig iron.

Full leather palm gloves with band top are used in chipping casting fins, loading and unloading tumbling barrels, and removing castings from sand.

For the protection of health, workers in the brass foundry are provided with overalls and undershirts with full length sleeves. This is in accordance with Illinois labor laws. At the termination of a shift molders take shower baths on company time. Workers in this classification are provided with two lockers, one for working clothes and the other for street clothes.

For protection against solid non-volatile particles suspended in air, men clean-

ing inside of a cupola are provided with respirators.

Incidentally, our supervisors make periodic inspection of respirators and other safety equipment to insure that they have not become worn, damaged, or deteriorated to such an extent that they no longer provide adequate protection. Special precautions are also taken to see that cracked, broken, or pitted lenses in goggles are not used, leggings are not worn threadbare nor with torn places so as to permit molten metal to get into the upper portion of the shoe and Congress shoe soles are not worn through, nor the upper torn outside the area covered by leggings.

Woodworking and Wood Finishing

Employees operating woodworking machines are required to wear goggles.

when, in the opinion of the supervisor there is the slightest eye hazard present. Goggles are mandatory on all tool grinding operations.

The hands of all employees handling rough lumber on machines such as swing saws, rip saws, molders, automatic and glue jointers are protected against cuts, scratches, and slivers with leather-palm canvas gloves.

Those engaged in shellac dipping operations are supplied with rubber gloves.

The fingers of employees gluing miscellaneous wooden parts are protected with finger cots.

The personal clothing of employees dipping parts in shellac or spraying parts is protected with overalls.

Manufacture of Rubber

In the manufacture of rubber and in other operations our supervisors instruct employees in the proper manner in which equipment is to be worn to insure the greatest possible protection.

When mixing rubber compound, sifting or handling sulphur or powdered shellac, cleaning dust collectors, sacking powdered rubber, breaking rubber scrap, blowing soapstone and sandblasting rubber parts, our employees wear heavy duty cup type goggles. It protects against large heavy particles, severe impacts and high dust concentrations.

When handling india-rubber yellow or vermilion, or cleaning brass equipment in an acid dip tank our men wear light acid gloves.

Gauntlet gloves are worn when mixing shellac or rubber compounds containing poisonous substances on milling rolls. They are also used in handling hot molds subsequent to vulcanizing operations.

Respirators are also worn when mixing rubber compound containing a high percentage of hard rubber powder, handling sulphur, sifting powdered shellac and in the performance of other work, where harmful dusts and material are encountered.

Plating and Acid Dipping

A special goggle is used to protect against sprayed or splashed corrosive solutions and irritating liquids.

Undershirts and overalls are also furnished for platers and acid dippers. Protective clothing is laundered weekly.

Rubber gauntlet gloves are worn by those engaged in all plating and dipping operations.

Wooden soled shoes are well known in plating operations. The kind we use, however, are equipped with safety toe caps.

Rubber aprons are worn whenever acid is being changed or tanks are being cleaned.

Electric Arc Welders

All arc welding at Hawthorne is performed inside special enclosures. Welders, helpers, and others in the welding booth are provided with eye and face protection and safety clothing which, with their personal apparel, affords complete protection from the heat and the rays of the arc.

The type of welding mask we use is equipped with the lens and two cover glasses.

Goggles are worn under the helmet. They protect the eyes against an unexpected flash which sometimes occurs while men are arranging their work with the helmet in the up or overhead position.

The arms, hands, body, and feet of welders are protected with such clothing as tanned leather gloves, tanned leather sleeves, chrome leather aprons, chrome tanned leather leggings, jumpers.

Periodic inspection is made of this equipment too. Special precautions are taken with masks to insure that they do not leak light, cover glasses are not broken or cracked, colored lenses are protected by cover glasses, cover glasses are replaced when burned or pitted to the extent that vision is affected, fibre is not bruised nor broken.

Machinist Clothing

In lathe, milling, shaping, and similar machine operations our employees wear the light duty type of goggle. When side protection is required from materials thrown from neighboring machines goggles with side screens are worn.

When acetylene welding or cutting,

a goggle with shade No. 8 is generally used. It is also equipped with a cover glass.

Although these are not furnished by the company, every effort is made to encourage employees to wear safety shoes. This shoe is equipped with a safety steel toe cap which will withstand 1,950 pounds before deflecting one-quarter of an inch.

Rough chrome soles are worn in our rod mill and other places where drawing compounds or oil are encountered.

Sandblasters

Sandblasters wear the same white acid gloves as are worn by platers. Incidentally, we stock and order the right and left as separate items because the right hand glove wears out much faster.

They also wear flame proof sleeves.

Grinders

On most grinding operations we use a goggle with screened sides. On lighter operations, however, where no side protection is required we use the light duty type of goggle.

Miscellaneous Clothing

All men at Hawthorne working at a height of ten feet or more above the floor are required to wear life belts. For seven years not one occasion occurred to bring a life belt into play. In the eighth year, however, a 210-pound apprentice, equipped with a safety belt and life line, was working on a scaffold twenty feet above the ground dismantling a gas holder when one of the hooks failed. His body dropped a matter of inches when his safety belt came into play.

To prevent callouses forming on fingers men who lay out the lines or form the harness for switchboards wear special gloves. To facilitate dexterity the glove fingers are cut off wherever protection is not needed.

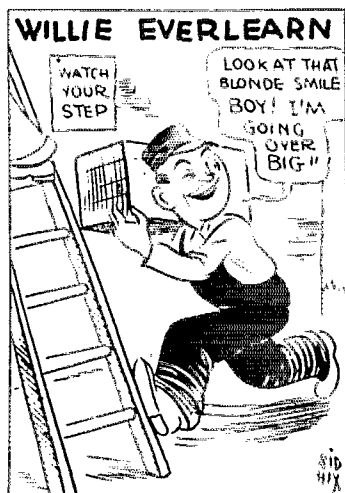
We use a cotton flannel glove for removing hot work from plastic material molds and die casting machines.

Rolling mill operators in our copper rod mill wear puttees for protection against hot rod stock. The copper sheathing on the inner side is put on by us. It affords additional protection when men straddle the rod as it comes through the rolls.

Where men lift heavy objects, such as pig lead, from one pit to another or load them on a truck, metal foot guards to be strapped on over the shoes are provided. Because of the tripping hazard presented by these guards, their use is

(Please turn to page 66)

NATIONAL SAFETY NEWS



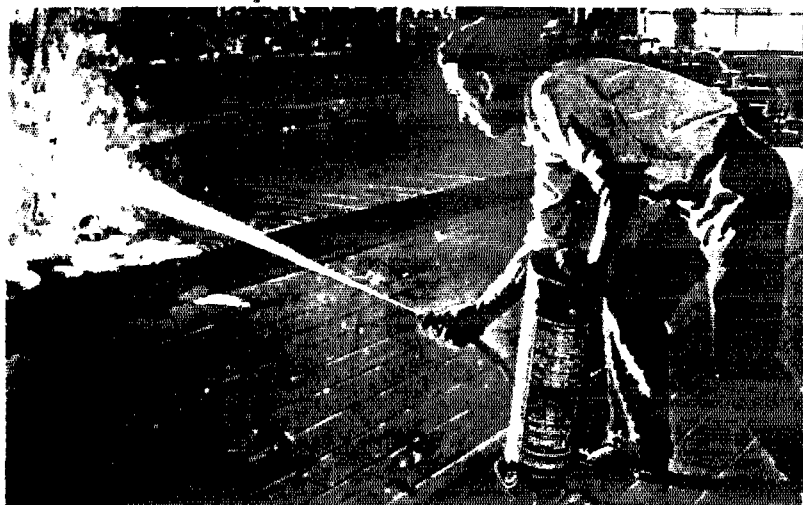
There's an Extinguisher for Every Fire Risk

By C. B. WHITE

Chemist-Engineer, American-La France and Foamite Corp.

BEFORE discussing the fighting of fires in common commercial substances let us review some of our modern first-aid fire fighting appliances in order to understand the tools at our disposal.

First, the *Vaporizing Liquid* type of extinguisher. The extinguishing medium is a liquid which readily evaporates producing gases which will not support combustion. The substance usually is carbon tetrachloride. When sprayed on a fire the heat converts it into gas rapidly. The quantity of vapor which may be produced from one pound of the liquid is about 2½ cubic feet at room temperature and normal pressure. It has a smothering effect, the action amounting to a dilution of the atmosphere to the



A foam extinguisher in action. Foam has a smothering effect on a blaze which makes it a valuable extinguishing medium for many types of fires. At the left is a sectional view of a hand type foam extinguisher.



point where it will not support combustion.

Since the smothering gas is a free gas, it will function better when it can be confined. A good example of this is a fire under the hood of an automobile. Here the fumes may be trapped long enough to produce a substantial dilution of the atmosphere and the fire goes out.

Next the *Soda Acid* extinguisher which operates by means of pressure produced by the liberation of carbon dioxide from a solution of bicarbonate of soda when acted upon by an acid. The fact that the soda-acid device is actuated by chemicals does not increase its extinguishing ability over water. In fact the extinguisher is merely a convenient device for squirting water on to a fire. The extinguishing action is almost entirely produced by cooling with very little if any smothering.

Closely allied to this extinguisher is an old type which has lately come into favor again. This device instead of producing its own CO₂ by the chemical reaction between a carbonate and an acid contains CO₂ under pressure in a small cylinder. The extinguishing me-

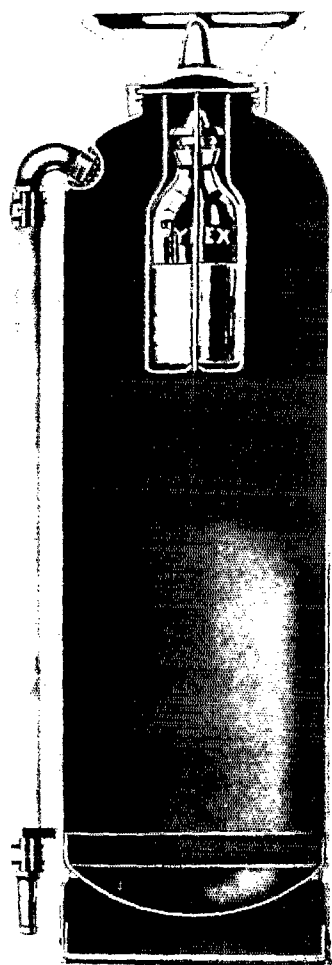
dium is plain water which is forced through the hose when the CO₂ gas is released from its little cylinder.

A similar extinguisher is the anti-freeze type which also employs a cylinder of CO₂ but which contains sufficient anti-freeze chemical in solution in water to render the water non-freeze at minus 40°.

The point to be stressed under this general head is that the fire extinguishing action is accomplished, not by the chemicals used or by the gas produced, but the cooling action of the water.

Foam. Some devices designed to produce fire extinguishing foam are large, intricate and stationary while others are small, simple and portable. Each has its use but this article will be confined to the simple portable types.

Examination of the hand foam type will reveal three marked differences from the soda-acid type. First the glass bottle of the soda-acid machine has become an elongated metal cylinder. Second, instead of sulphuric acid this cylinder contains a concentrated solution of aluminum sulphate. Third, the bicarbonate of soda contains foam stabilizer or foam-



Sectional diagram of the familiar soda-acid extinguisher. Although chemically actuated, water is the extinguishing medium.

ing agent usually a derivative of licorice root.

When the device is operated the aluminum sulphate reacts with the bicarbonate just as the acid does in the soda-acid type to produce carbon dioxide but unlike the soda-acid stream, which is thin and watery, there is now produced a mass of foam consisting of minute bubbles which contain the carbon dioxide. Furthermore from a foam extinguisher having a liquid capacity of 2½ gallons it is possible to produce more than twenty gallons of this fire smothering foam.

The striking difference between the stream from the soda-acid machine and that from the foam type is brought about partly by a product of the reaction, aluminum hydrate, which gives strength to the bubble wall, and partly by the foaming agent which takes no part in the chemical reaction at all, but which acts as a protective colloid merely chang-

ing the physical nature of the stream from liquid to foam.

Foam accomplishes two objectives in firefighting. It cools and it smothers. The cooling action is accomplished by the water contained in the foam and since fully 85 per cent of the total weight of foam is water, this cooling action is practically as great as that from a soda-acid machine of the same size.

So far as the smothering action is concerned, foam is much heavier than air but lighter than the lightest flammable liquid. Hence it will float upon such liquids as gasoline like a blanket, effectually cutting off the air necessary for combustion.

Another valuable property of foam is its ability to insulate against heat. It is frequently used to cover property not on fire to protect it from the heat of a fire. In fact it has often been used to protect firefighters when they were forced to approach a particularly hot fire.

The smothering action of foam is produced partly by the CO₂ gas contained in the bubbles and partly by the bubble structure itself. Formerly it was considered that the carbon dioxide did all the work, but we have come to the conclusion that the foam structure itself performs the major part of the smothering and that the CO₂ merely contributes a share in the action.

The Carbon Dioxide type of extinguisher is different from all the other types. Into a relatively small bulk the gas is compressed by liquifying it. In this condition it is held in heavy steel cylinders and at ordinary temperatures exerts a pressure of about 800 pounds per square inch. When fire occurs and the gas is released it escapes with great velocity. The expansion is high: one pound of liquid CO₂ expanding into gas will occupy at normal room temperature and pressure 9 cubic feet. Since one pound of liquid CO₂ occupies only slightly more space than 27 cubic inches its expansion is 576 times. This means that into a small package may be packed a relatively large quantity of fire smothering gas.

As in the case of the vapor from a vaporizing liquid extinguisher the gas from a CO₂ extinguisher can do its work better and more efficiently in an enclosed space. However, portable CO₂ devices can do very effective work on small areas of alcohol or gasoline even in the open. This is largely due to the formation of CO₂ snow. This snow has a certain velocity which carries it through the flame and hot vapors above

the fire right to the surface of the burning liquid where it floats at the same time subliming rapidly to CO₂ gas.

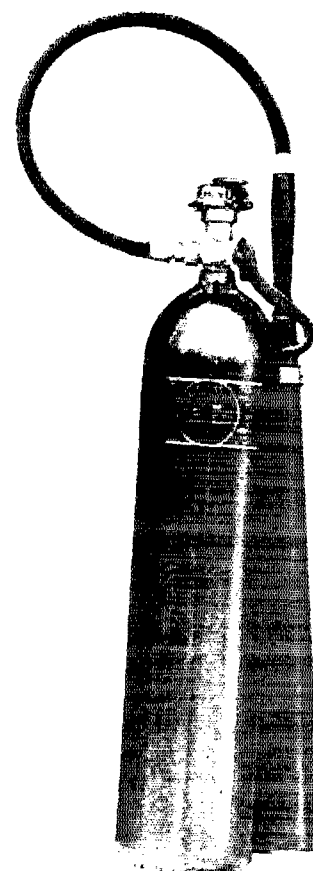
Underwriters' Laboratories recognize three broad types of fires, Classes A, B, and C. For convenience we will add class D. Setting up these classes against the extinguishing devices discussed, we are able to prepare a chart which shows where each of these extinguishers fits into the firefighting picture.

The chart tells its own story but in these modern times with our tremendous variety of fire risks, it is difficult to generalize. The chart serves merely as a guide.

Alcohol would probably be placed in Class B. It isn't gasoline but it is an extra-hazardous risk—a volatile liquid the vapors of which are highly flammable. But to use foam to fight an alcohol fire would be a mistake. Alcohol

*The chart, "Characteristics of Fire Extinguishers" is available from the American-La France and Foamite Corp. or National Safety Council headquarters.

(Please turn to page 68)



Where water is useless or even dangerous, carbon dioxide can be used effectively.

NATIONAL SAFETY NEWS

Traffic in the Plant

By G. J. ADAMS

Industrial Supervisor, International Paper Company

ELECTRIC trucks have speeded up the handling of materials in industrial plants and eliminated much muscular effort. However, they have introduced some problems of control which were absent in the days of hand trucking. Running into objects, failure to sound warnings, taking corners too fast, insecure piling of material on the truck, and borrowing the truck for a ride by an inexperienced operator are some of the problems encountered by supervisors and safety men.

The suggestions given here are based on the experience of the Three Rivers, Quebec, Mill of the Canadian International Paper Company. Realizing the hazards involved in electric truck operation, the plant prepared a set of rules and instructions for operators.

A limited number of operators was appointed. They were carefully selected from the rank and file of employees and given thorough training. No other workers are allowed to operate the trucks.

The names of authorized operators are kept on file. The manager, general

superintendent, electrical superintendent, repair superintendent, finishing and paper handling superintendent, and safety supervisor are furnished with copies of the list and notified promptly of any changes.

Upon taking charge of a truck, the operator's first duty is to make a personal inspection of the equipment. He must make sure that the brakes and the electric controls are working properly and that the scoop cables on paper loading trucks are not frayed. Any truck that is not in good condition must not be used.

Trucks that are out of order are reported or brought at once to the mechanical department or the electrical department as the case may require.

When leaving the truck, the operator must remove the control handle. If the truck is to be left for any length of time, he must also pull out the connecting plug.

Operators are impressed with the fact that these trucks represent a considerable investment for the company. They should be operated with due care and



The operator of this electric truck is protected by a guard made of boiler plate. It is fastened to the truck by 1½-inch angle iron and six half-inch bolts. Protection is assured if the truck should back into a stationary object or be struck by another truck.

used only for the purposes they were intended for. The operators are reminded that they are responsible for the safe operation of their trucks and it is up to them to see that they are in order before and while using them.

Having a truck in safe operating condition is the operator's first responsibility but he has other obligations. Certain traffic regulations must be observed on the plant thoroughfares as well as on the city streets.

The operator is instructed to sound his horn when approaching and passing communicating doors, entrances, exits, corners, etc. But he must not take it for granted that the way is clear after blowing his horn. He must make sure before proceeding.

He must come to a dead stop before entering the paper mill from the finishing rooms, sound his horn and then proceed cautiously between machines, using the horn as necessary.

Only one paper-loading electric truck is allowed on an elevator at one time.

Operators are not allowed to carry passengers on the platforms or scoops of their trucks.

Should any employee impede the operation of a truck, the operator should report the matter to the offender's superintendent. It should be understood throughout the plant that all employees must cooperate with the truck operator in preventing accidents.



The load should not be high enough to obscure the operator's view ahead. The nesting tote pans can be piled securely and carried on a transveyor skid.

THE SAFETY EXCHANGE

"A ROUND TABLE IN PRINT"



Life Net Protects Bridge Workers

Men working on high bridges are protected from serious falls by a life net

suspended beneath them. A net also serves to catch material which may fall. The accompanying illustration was contributed by the West Penn Power Company.

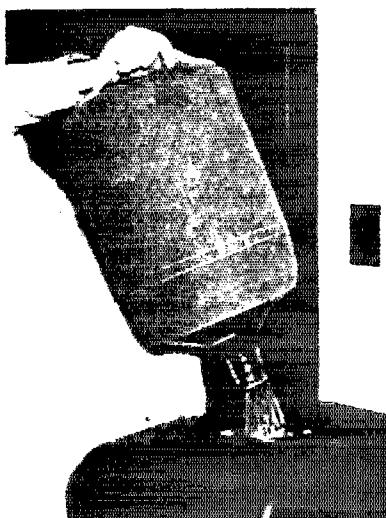
Jacket Prevents Breakage of Water Bottles

After a number of serious accidents from water bottles breaking while being handled, this jacket was designed by A. G. F. Schuster, Commonwealth Edison Company, Chicago.

Made of heavy duck, it is built to fit snugly over the bottle. The flared neck of the jacket has a pleat which, when the handle is put under tension by lift-

ing, causes the bottle neck to be gripped tightly. The handle at the bottom of the jacket assists in lifting and tipping the bottle. A grommet three inches from the bottom of the jacket lets the air out slowly while the bottle is being put in the jacket. This has a cushioning effect and prevents breakage.

Since adopting this jacket for general use there have been no accidents due to the bottles breaking.



Color Aids in Keeping Guards in Place

A policy in effect in the shops of the Chicago, Burlington and Quincy Railroad insures against the possibility of a machine being operated without all guards in place. All gears, wheels, clutches, and other moving parts that require guarding, were painted yellow and their guards painted a target red. Every piece of machinery in the shops, on the road, and on work or construction jobs was so protected.

Under this arrangement any workman seeing a yellow part exposed without a corresponding red guard knew immediately that the machine was not properly guarded and must not be used. A few exceptions were made in the case of gears that run in a bath of oil,

The ideas presented here have proved helpful. If you have developed some useful device or method send in a description, with illustration, if possible. These devices are home-made and are not available commercially

Cut-outs Serve as Safety Reminders

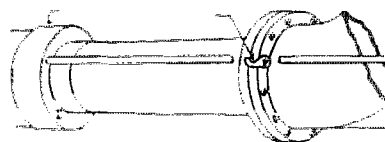
These home-made cut outs are used by the American Zinc Company as safety reminders. They are made by cutting out figures and letters from one-inch board, and painting them bright colors.



They are then nailed in conspicuous places throughout the plant and remain up a week or ten days. Only one subject, or slogan, is put up at a time. The possibilities for slogans are unlimited.

Prevents Skinned Knuckles

The accompanying sketch illustrates a hook on the side of a tuyere stock



which acts as a guide for bars seated in the tuyere cooler. It is set away from the pipe far enough to prevent skinned knuckles and bruises.

NATIONAL SAFETY NEWS

Hood Removes Dust from Work Table

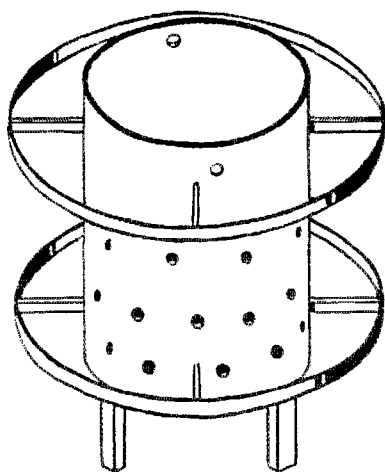
To remove dust created in brushing dried enamel ware, the General Electric



Company designed this table. It consists of a revolving platform, on which the article being brushed rests, and a surrounding hood. The inside of the hood is chromium finished to prevent dust adhering. A suction vent located below the platform removes the dust. A wire screen over the vent opening prevents the loss of small articles. All tools needed in the brushing operation are kept on a small tray in front of the table.

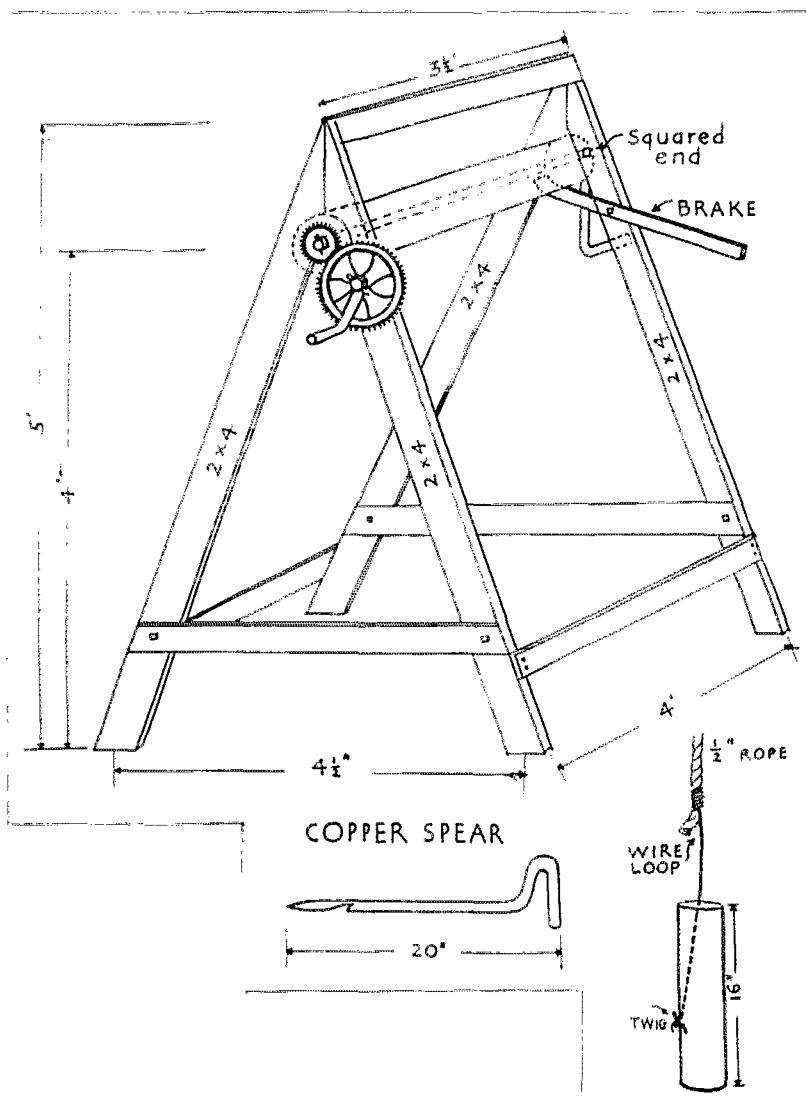
Salamander Guard Prevents Burns and Clothing Fires

This salamander guard was designed to protect workmen from contact with



hot salamanders. The metal rings which project about 12 inches, are fastened by steel or scrap iron brackets. These may be welded or bolted. The legs are 2x1/2-inch steel. This guard can also be made of pipe or angle iron.

DECEMBER, 1935



Geared Windlass Loads Explosives Into Holes

To speed up the loading of explosives into churn drill holes, windlasses of the type shown in the accompanying sketch have been devised. The sketch and description were prepared originally for The Explosives Engineer by C. W. Allen, of Ishpeming, Mich. The windlass is made of materials available in almost any mine shop. About 10 feet more rope than the depth of the deepest hole to be loaded is marked at 10-foot intervals and reeled up on the drum. At the end of the rope is fastened a 1 1/2-foot loop of No. 14 gage copper wire. In lowering a 17-pound 3 by 16-inch cartridge, the loop of the wire is pushed through the cartridge with a copper spear with a notch cut in it. The spear is withdrawn, a twig or shaving from a powder box laid crosswise inside the end of the loop is pulled up tight against

the paper wrapping of the cartridge, and the cartridge lowered into the hole by means of the brake on the windlass. A jerk on the rope snaps the twig, and bringing the rope up with the geared crank is a matter of seconds.

Lowering the cartridges by this method gives a constant check on the rate at which the powder rises in the hole. If a cartridge becomes lodged before getting to the bottom, a 40-pound dolly can be knotted to the end of the rope, lowered by means of the brake, and after the stick is dislodged can be raised with the 9-inch lever arm detachable crank at the other end of the windlass drum. The windlass saves wear on hands or gloves and the loss of time spent in untangling snarls or knots in the rope. It also saves considerable muscular effort when large quantities of explosives are loaded.



What was left of one building in Helena, Montana, after the earthquake. Modern structures and those built on rock suffered comparatively little damage.

Earthquakes Rock Many Sections of U. S. A.

RECENT earth tremors which shook many parts of the United States have aroused new interest in earthquake insurance. Seven deaths and property damage estimated at \$3,500,000 resulted from the 700 tremors which shook the city of Helena, Montana, during the month of October.

Residents of the eastern states, who had long regarded earthquakes as something that happened elsewhere, were shaken out of their complacency by two distinct shocks. The disturbance, which started in the Great Lakes region, was felt in parts of Michigan, Ohio, Pennsylvania, New York, and the New England states, and in the Province of Ontario. No serious casualties were reported, although one house in Syracuse collapsed and the residents of several shaken buildings in Brooklyn were ordered not to return to their homes.

One elderly lady in Helena, frightened by a slight tremor three days before the severe shock of October 11, called upon an agent and took out earthquake insurance. Her home was destroyed by the quake of October 18. Following the quake of October 11, several enterprising agents advertised earthquake insurance and sold several policies.

With the exception of schools, the modern buildings in Helena escaped with only minor damage, such as plaster cracks and bricks off cornices. A new high school, occupied only this fall, and

another presumably modern school were reported as badly damaged.

The residential west side of the city escaped with nothing more serious than damaged chimney tops. In this section the earth formation is different from the rest of the city, many of the cellars being blasted out of bed rock. On the east side where the soil is alluvial, the damage was much more extensive. This experience coincides with that of other countries where severe earthquakes are much more frequent.

Compared with many other countries, the United States has had little experience with devastating earthquakes. The earthquake which laid in ruins a large part of Charleston, South Carolina, in 1886 was scarcely more destructive than the man-made scourge of war which the city had already experienced.

The earthquake and fire which destroyed San Francisco in April 18, 1906, was by far the most serious disaster of this kind which has yet occurred in the United States. Several quakes had occurred on the Pacific Coast before this time and others have occurred since but the San Francisco disaster has obscured all the others. Its casualty list included 452 killed and 1,500 injured, and the property loss amounted to \$550,000,000. The greater part of the damage resulted from the fire which followed the quake.

But even this loss of life seems small in comparison with the earthquakes

which have visited other countries.

While earthquakes had occurred from the earliest times, the first one to attract the attention of the western world was the Lisbon earthquake of 1755 when the earthquake and a tidal wave resulted in the loss of nearly 50,000 lives.

Italy has suffered several disastrous quakes, the most serious in recent years occurring in December 1908 when 76,000 persons were killed and 95,000 were injured in Sicily and Calabria.

But for really destructive earthquakes, no part of the world can equal the Orient. In December, 1920, an area of some 300 square miles in the province of Kansu, China, was shaken, with a loss estimated at 200,000 lives.

On September 1, 1923, occurred the most terrible earthquake of this century in Japan, a country where earth tremors seem to be endemic. Large sections of the densely populated cities of Tokyo and Yokohama were destroyed with appalling loss of life. The dead totaled 99,331, the injured, 102,000, while 43,000 were reported missing.

But even in those countries where the earth's convulsions cause the greatest destruction, hurricanes and floods offer strong competition in destructiveness. In the United States, based on the experience of the past fifty years, earthquakes would be placed far down the list. Were it not for the spectacular nature of an earthquake, its casualties would not be segregated from the miscellaneous column in a total of 100,000 violent deaths.

Distribution of "We Drivers" Passes 1,500,000

"We Drivers", a General Motors booklet dedicated to safe and sane driving, has gone into its third edition as a result of requests for more than 1,500,000 copies since it first came off the press in May. Requests have been received from all quarters, ranging all the way from the individual asking for one copy to a state government desiring 200,000 copies for distribution to all registered motorists.

"We Drivers" started as a series of talks in connection with the broadcasting of General Motors Concerts last winter. The interest shown by radio listeners prompted the adaptation and publication of the talks in booklet form. Entertainingly written and illustrated, the booklet covers a wide variety of subjects related to safe driving.

NATIONAL SAFETY NEWS

INDUSTRIAL HEALTH

A Non-Technical Symposium for Physicians and Laymen

What Periodical Examinations Can Accomplish

By HART E. FISHER, M.D., F.A.C.S.

Chief Surgeon, Chicago Rapid Transit Company; Vice-President for Health, National Safety Council

PERIODICAL medical examinations of employee groups are of no value to either the employer or the employee unless competently performed and followed up to see that the employee institutes corrective measures.

Some of the values accruing from periodical medical examinations at regular intervals are:

1. Fitting the employee into work that he can safely and efficiently perform.
2. Reducing the annual labor turnover.
3. Increasing the longevity of the employee.
4. Reducing absenteeism.
5. Aiding employee in health maintenance and reducing the cost of medical expense in event of illness or injury.
6. Eliminating fraudulent claims for personal injury due to undetected physical defects.
7. Reducing the accident frequency and severity rate.
8. Reducing the death rate from natural causes.
9. Aiding in the detection of the accident prone man.
10. Reducing the possibility of delayed convalescence from injury due to complications following accidents.
11. Making possible, by conservation of health, an older average age of employees.
12. Aiding in maintaining the employee for a longer period of time with the company.
13. Assuring the travelling public that those employees responsible for their safe conduct daily are safe and efficient. This makes for good public relations.

These examinations are given to all employees seeking promotion or transfer to some other position within the company, and to all employees who have been absent from work for one week or more.

Contrary to theoretical statements, very few persons lose their positions because of these examinations. True, many defects may be revealed, but their nature is such that they can be corrected, allow-

ing the individual to remain at his occupation.

In our examinations we secure the height of the employee to correlate other physical findings against weight classifications and to insure that the employee will be of sufficient height to permit safe and efficient performance. Too much weight predisposes to disease and ushers in fatigue in work performance. Those underweight are prone to similar ailments.

The hand dynamometer is used to determine if the individual is in normal possession of muscular power in his hands and arms. Muscular weakness many times is one of the early symptoms of nervous disorder. Full control of one's fingers and hands is of paramount importance for safety in industry, as these are the members most frequently injured.

Tests for Vision

In the transportation industry, the perfect interpretation of colors is of great importance, since the two colors most frequently confused, red and green, are the two that are used in train operation. We make use of five different color tests in our color perception examination in order to prevent fraud and to avoid doing an injustice to the employee.

Presence in an employee of a color defect that was not present at previous examination is an early symptom of disease of an infectious nature and of constitutional disease. It has also been our first clue to severe interocular disease and nervous and brain lesions. However, the greatest percentage of cases of color blindness is congenital in origin.

The Jennings test provides us with a permanent visual record of the color perception of the employee and is of use in subsequent examinations. The Williams Test Lantern which we use is a very popular and effective color lantern used by surgeons of railway and marine service for the detection of color blindness. This lantern provides the examiner with means of simulating all atmospheric or climatic conditions and making the test for all colors under any conceivable condition. Other lanterns of equal value are the Green Color Lamp and Thompson's lamp. The other color tests used by us are the Holmgren worsted skeins, Thompson color stick and the Ishihara charts, all of which the employee is required to pass without doubt or hesitancy if he is to operate safely in transportation.

The testing of the visual fields is one of the most important steps in eye examination and is very seldom included except where symptoms direct the attention of the oculist to possibility of pathology. It is very seldom done with the idea of detecting the accident prone person. In our examination we want to know if the person can see out of the angle or corner of his eyes and if there are any so-called blind spots that might interfere with sight. The perimeter that is used in our examinations, while of an obsolete type, still is quickly applicable for testing the fields and requires no elaborate technique.

Some persons have what is called monocular or one-eyed sight when they should have binocular vision. Those thus afflicted fail to see objects in the three dimensions and lack what is known as depth perception. They are unable to estimate distance, speed or space. We have been experimenting with the Keystone Telebinocular which is a simple scientific apparatus as a diagnostic and depth perception test. From this apparatus we obtained the visual efficiency of each eye separately and combined efficiency of both eyes. Relaxed binocular vision and dynamic binocular vision is likewise determined. Stereopsis or stereoscopic vision is tested. Hetero-

phoria, which is a lack of parallelism between the visual lines due to insufficiency of the ocular muscles and other ocular diagnostic facts is quickly determined with this apparatus.

Acuity of Hearing

To test acuity of hearing requires more accurate and scientific methods than are used in most industrial physical examinations today. The expensive instruments of precision and scientific character include the Politzer audiometer, Galton's Whistle and others, the findings of which are a true indication of acuity of hearing. The audiometer provides a visible and accurate record of an individual's state of hearing. The cost of such may seem prohibitive in industry but the best is the cheapest in the long run.

It is essential also that we carefully examine the eyes with the ophthalmoscope. With this diagnostic aid we are able to discover ocular defects, signs of disease such as nephritis (kidney disease) and many times changes incident to high arterial blood pressure and constitutional disease. The pupillary reflexes are next elicited and the movements of the eye globe are secured by having the individual follow a light with his eyes. Next careful inspection is made of the cornea of the eye to detect opacities or scars that might obstruct proper vision.

Inspection is made of the nasal passages for evidence of infection or disease. Next the mouth, teeth, tongue and throat are inspected for pathology which undetected may cause discomfort and distract the attention of the person from his work.

The cervical (neck) glands and the thyroid are palpated for signs of enlargement indicating infection and goiter. The external ear is next examined for obstructions (cerumen) and the condition of the drums. The temperature of the person is taken at this point, as often we have found applicants and old employees who were apparently well but who were carrying one or more degrees above normal. This increase of temperature has led to the discovery of undetected and unknown respiratory diseases. These last procedures are used in ferreting out signs of incipient disease and defects that later in the employee's service may be productive of accident proneness or absenteeism from work.

Freedom from heart disease gives assurance that under long sustained effort the heart will be able to carry on in safety and there will be less oppor-

tunity for man failure from dizziness, sudden attacks of weakness and even temporary spells of unconsciousness which often are caused by heart disease. The presence of heart defects does not indicate that the employee shall be made idle or an invalid because of what is discovered but that sensible work placement and frequent medical observation will permit many of these persons to carry on successfully and without hazard other forms of activity for many years.

To insure both employee and employer against injustice in heart examinations it is necessary to include what is known as cardiographic records. These tests will often give the real picture of a heart when the ordinary examination with stethoscope fail to reveal the true condition. In addition they afford a permanent visible record of the heart, available for future comparisons.

There is no more controversial condition in medicine today than the physical defect known as high blood pressure. The arterial pressure is secured by means of a manual operated blood pressure apparatus and a visible record made on the self recording Sphygmomanometer. It serves as a visual record for the future. When heart pathology is present by clinical and cardiograph findings, X-Ray examination of the heart is likewise indicated.

Respiratory Disease

The employee should be free of respiratory disease. Measurements are made of the chest in inspiration and expiration, and the capacity of the lungs as well as vital capacity is determined by the spirometer. Vital capacity, also termed breathing capacity and differential capacity, is the maximal volume of air than can be expired after taking the maximal inspiration. It is not identical with lung capacity because a certain amount of air termed residual air always remains in the lungs. The ratio of vital capacity to the weight of a person is termed the vital index and is held to be of extreme significance because it expresses the balance between bodily size and the rate and completeness with which oxidation of the blood is, or may be, effected. The capacity is measured in both cubic inches and cubic decimeters.

We next examine the individual from a neurological viewpoint by taking the patellar or knee reflexes, looking for tremors of the fingers and testing the muscular coordination by bringing the fingers of the outstretched arms together

above the head while the eyes are closed. The Rhomberg test is used for the detection of swaying motion while the individual stands erect, heels together and the eyes closed. These tests aid in the detection of incipient nervous disorders. Both the upper and lower extremities are examined for freedom of motion of the various joints. The mobility of the spine is tested by having the patient flex, extend and rotate his body through all planes. Defects in the foot structure, such as flat feet, weak muscles and fallen arches, are detected by having the person rise upon the toes, sustaining this position for twenty seconds.

The patient's gait is observed by having him walk a straight line on the floor. By this test alone we have detected early evidence of nervous and cord disease.

In the next step of our routine physical examination, the employee is placed on his back while the abdomen is palpated and percussed to ascertain the position, size, shape and consistency of the various organs such as the liver, spleen, kidneys, stomach and intestinal tract. Search is made of the abdominal and inguinal (groin) region for evidence of hernia (rupture). The genital tract is likewise inspected for scars and evidence of disease.

We now come to one of the most important parts of our examination, one that is sadly neglected today, especially in industry -- the examination of the anal region and the interior of the rectum. The cases are legion wherein the examination of the rectum has revealed the presence of malignant growths (cancer), enlarged prostate glands, painful fissures, ulcers, fistulae and hemorrhoids (piles). These conditions undetected not only produce an upset in the nervous stability of the person but if neglected may become incurable and even result in death.

After careful study of existing methods of determining reaction time, we have been led to the use of the Chicago Psychometer Reaction Time Apparatus. This is designed to measure in sigma or nulliseconds (1/1000 of a second) the length of time it takes a human being to respond to a stimulus.

Physical examinations must include urine analysis, blood examination, X-Ray interpretation tests of the fluids and excretions of the body and metabolism tests.

The person who appears below par after the above tests without a definite diagnosis requires further study through the laboratory for sputum tests, gastrointestinal series and Wassermanns.

MERCURY

Industrial Data Sheet D-Chem. 17

A. Problem

1. What are the hazards of mercury and what precautions are necessary in its use?

B. Hazards

2. The principal hazards are those of poisoning by:

- A. Inhalation of toxic vapors and dusts.
- B. Absorption of mercury through the skin.
- C. Swallowing of mercury with food or other substances taken into the mouth.

C. Discussion

3. Mercury is a silvery liquid metal which gives off a slight vapor at ordinary temperatures. It is obtained from cinabar ore by a combined roasting and distillation process. A cubic inch weighs 0.49 pound. It does not evaporate when kept under water. It is used in the treatment of gold or silver yielding ores; manufacture of barometers, thermometers, and other scientific instruments; alloys with tin and copper; lead mercury solder; amalgamation of zinc for accumulators and electrodes; dental amalgams; preparation of fulminate of mercury (an explosive); manufacture of vermilion and anti-fouling paints; in the preparation (carrotting) of furs for felt hats; pharmaceutical products; antiseptic dyes; laboratories for measurement of pressures and for other scientific purposes; and in the manufacture and use of mercury pumps, mercury boilers and mercury arc rectifiers.

Symptoms

4. The cause of mercurial poisoning is the absorption and retention of a small amount of the metal in the body. A great majority of the cases are those due to the inhalation of the vapors. The absorption of 0.001 gram of mercury a day over an extended period is said to result in poisoning. This figure is highly variable because of the differences of susceptibility in individuals to the poison and even in the same individual because of varying physical conditions. Habits of excess, especially in the use of alcohol and tobacco, seem to increase the susceptibility of individuals and to increase the severity of the symptoms. The process by which mercury becomes harmful is not definitely known, but some authorities claim mercury combines with the tissue cells to form mercury album-

inate, which is soluble in water and is absorbed in that form. Mercury when applied to the skin is more readily absorbed if the person is perspiring or if the mercury is impure and dirty. When combined with grease, the mercury is easily absorbed by the skin and 0.65 grams rubbed into the skin daily will produce mercurialism. The beginning of the symptoms, as well as the type, depend upon the rate of absorption and elimination of the metal.

5. If the worker is exposed to large quantities of mercury, the poisoning is acute. In such cases, the first symptoms are usually foul breath and an increase in the flow of saliva. Later the mouth may become inflamed and the gums sore, and ulceration of the mouth and gums may follow. This condition may be followed by an infection, and in the advanced stages, teeth may be lost and gangrene of the jaw may occur. After absorption, the poison seems to act chiefly upon the large intestine and the kidneys. Sometimes within two or three days, the urine may contain albumin and become scanty in volume; the result may be death without convulsions in about a week. If the kidneys have not been too severely injured, membranous colitis may set in with dysentery and hemorrhages. In some cases death does not occur for weeks. In severe cases the blood pressure may fall and there may be a feeble pulse, coma and collapse prior to death or, in some cases, the patient may remain conscious to the end.

6. Chronic poisoning is due to the absorption of mercury over an extended period. Since, in such cases, but a small amount of mercury may be absorbed (by inhalation of fumes, by contact with the skin, or by swallowing with food or other substances placed in the mouth), the start of the symptoms is slow. At first there may be rash or eruption on the skin, or a loss of appetite with nausea and intestinal trouble such as constipation or diarrhea, followed by loss of weight, anemia and pains in the bones and joints.

7. For years the only signs of poisoning may be a general development of anemia, a tendency to inflammation of the mouth with tenderness and spongy

appearance of the gums, and flabby, silvery tongue with indented edges, and an occasional increase in the secretion of the saliva, and more or less gastric trouble accompanied by diarrhea. A bluish line on the gums, closely resembling that due to lead absorption, is seen occasionally. The worker may suffer from headache and have temporary pains or feeling of numbness in the limbs. The mental condition may undergo a change and the worker may become irritable or depressed and timid. Later, bodily tremors may develop. These are the most characteristic sign of chronic mercurial poisoning and usually begin with convulsive movements during the worker's sleep, which disturb his rest. They may start in the face, then extend to the hands, limbs, and finally become so convulsive as to involve the whole body to such an extent that the hand cannot be directed with certainty to a particular object. The speech may be slow and indistinct because of impairment of the muscles of articulation. Chronic mercurial poisoning does not often directly cause death. It appears to lower the body vitality to a marked degree which may result in death from phthisis (tuberculosis of the lungs).

8. Most patients suffering from chronic mercurial poisoning recover if they are removed during the early stages when there is inflammation of the mouth or even after the development of the tremors. Under these circumstances, recovery usually takes place within a few weeks provided the patient is kept removed from exposure to mercury. However, if the tremors have been severe and persistent, recovery may require months.

Treatment

9. In case mercurial poisoning by inhalation or by absorption through the skin is known or suspected, the person should be removed from all possible contact with mercury and means should be taken to stimulate the elimination through the kidneys and bowels by such methods as the administration of plenty of water. In case mercury has been swallowed, some recommend the prompt administration of an emetic such as warm water and mustard to induce

vomiting. In all cases, the services of a physician should be promptly secured.

Prevention of Poisoning

10. The following measures are some of those recommended:

- A. Working places should be ventilated, preferably by mechanical means, so that there is always an abundant supply of fresh air. (See Note W)
- B. All dusts and vapors should be removed at the point of origin by an efficient local exhaust system. (See Note X)
- C. For emergency work, such as after the breaking of mercury equipment, a gas mask with canister approved by the United States Bureau of Mines for use in mercury vapors, should be worn.
- D. Floors and walls of workrooms and locker rooms should be free from cracks and should be of non-absorbing materials, such as hard, smooth finished cement. Wood should not be used for this purpose.
- E. Floors should be washed each night with water containing ammonia to neutralize the effects of mercury vapors.
- F. Every precaution should be taken to prevent spillage of mercury. In case mercury is spilled, the floor should be flooded with water and the mercury cleaned up at once.
- G. Dry sweeping or brushing of floors should be prohibited. Instead, the floors should be well sprinkled with water and the refuse swept up and disposed of in a designated place.
- H. The amount of mercury in use at one time should be kept down to a minimum and the temperature of the liquid should be kept as low as practicable.
- I. Mercury should be stored only in tight flasks or under water in suitable tanks.
- J. Food should not be kept nor eaten near mercury nor in the work-room.
- K. All employees should be provided with separate lockers and adequate washing facilities. Each man's work clothes should be kept in one locker and his street clothes in another. The two sets of clothing should never be permitted to come in contact with each other. (See Note Y)
- L. Employees working with mercury should be given a complete physical examination every two or three months. All applicants for employment should be given a physical examination by the company physician. (See Note Z)
- M. Employees should be required to observe the following:
 - (a) Wash hands carefully before eating or handling anything that will be placed in the mouth.
 - (b) Clean teeth twice a day with a substantial tooth brush.
 - (c) Rinse mouth before partaking of food or water.
 - (d) Keep hair short and covered.
 - (e) Take a hot shower or bath, using plenty of soap, at the end of each day's work.
 - (f) Make a complete change of clothing before and at the end of each day's work.
 - (g) If feeling ill, consult company physician at once.

Safety Glass Is Used in All 1936 Automobiles

EVERY American make of car is now equipped with safety glass windshields, and 90 per cent of the makes use safety glass all around, according to a survey of the new 1936 models taken in connection with the recent automobile show in New York. The Pittsburgh Plate Glass Company, which made the survey, points out that a year ago, when the 1935 models were introduced, only 50 per cent used safety glass for windshields, and 30 per cent all around.

Twenty-five states, which include 75 per cent of the country's automobile registrations, have now enacted laws requiring the use of safety glass in public motor vehicles, passenger automobiles, or both. Such legislation became effective in 13 states this year and will be effective in ten more on January 1, 1936, one more on January 1, 1937. Of the 25 states, all require safety glass windshields, 24 require it all around, for public motor vehicles, while 23 specify its use for windshields, 21 all around, for passenger automobiles.

Oddly enough, the nation's capitol was a pioneer in the movement but has since been outdistanced by the various states enacting safety glass legislation. The District of Columbia's law, which took effect, in January, 1933, applied only to motor buses and has not been extended to other vehicles.

The first state to require safety glass was Michigan, where the law, specifying its use all around on public motor vehicles, took effect July, 1932. Tennessee followed the example a year later.

NOTE W: Detailed information on efficient ventilating systems will be found in National Safety Council Safe Practices Pamphlet No. 37, "Industrial Ventilation."

NOTE X: Complete information on exhaust systems will be found in National Safety Council Safe Practices Pamphlet No. 42, "Exhaust Systems."

NOTE Y: Detailed information on locker rooms will be found in National Safety Council Safe Practices Pamphlet No. 27, "Drinking Water, Wash and Locker Rooms, and Toilet Facilities."

NOTE Z: For detailed information on physical examinations, see National Safety Council Health Practices Pamphlet No. 2, "Physical Examinations in Industry."

National Safety Council, Inc.
20 North Wacker Drive
Chicago, Illinois

Massachusetts, with its law effective January, 1934, was the first state to specify safety glass for passenger automobiles, and Michigan's law was extended to them six months later.

In addition to the legislation, the concerted campaign to reduce the staggering total of automobile accidents has stimulated public demand for the security offered by safety glass.

The state laws apply only to automobiles manufactured after they take effect, but many owners whose cars predated such laws are installing the safety glazing to replace their present windshields and windows. Increased production to meet growing demand has brought the price down very considerably.

It is its laminated, sandwich-like construction which gives safety glass its protective features. A filler of transparent plastic material binds two sheets of clear plate glass in such a way that, when a severe load or sudden blow causes the glass to crack, the particles adhere to the plastic instead of flying loose. The use of adhesives, heat and pressure in the manufacturing processes and extremely careful control of all factors are involved in the assembly of laminated safety glass to assure both clear vision and protection against shattering. Under slowly applied load, laminated safety glass will range from 10 per cent to 15 per cent stronger than normal glass, and under impact it will sustain from eight to ten times greater strain. A piece of laminated plate glass one-quarter inch thick will crack but not break out under an impact which will shatter an inch-thick piece of plate glass.

Like many important developments of science, discovery of the basic principle of safety glass was the result of an accident. This occurred early in the century when a French scientist named Benedictus, dropped a bottle which was thoroughly cracked but which hung together, because of the plastic nature of the solution it contained. From this point, development of safety glass progressed, slowly at first, because of the difficulty until recently of securing suitable plastics. But, within the past few years, its perfection has been achieved as one of the most notable contributions to safety.

Mercurochrome in Industry



IN INDUSTRY little things count. Slight mistakes may mean serious loss. So with industrial injuries a little scratch if ignored may become a serious infection. ¶The first defense against infection is thorough cleansing and the application of an effective antiseptic. All wounds, however small, should receive treatment promptly. Be prepared with Mercurochrome for the first aid care of all minor injuries. In more serious cases call a physician.



This seal denotes acceptance of Mercurochrome for New and Nonofficial Remedies by the Council on Pharmacy and Chemistry of the American Medical Association.

HYNSON, WESTCOTT & DUNNING, Inc., Baltimore, Maryland

DECEMBER, 1935

ASA Safety Codes Are Widely Used

THREE-FOURTHS of the States which have industrial safety code laws or regulations to safeguard workers use one or more of the 34 American Standard industrial safety codes, a survey just made by the American Standards Association shows.

Of these 34 codes, the National Safety Council is represented on 29 and is sponsor for eight of these projects. The Council is also represented on a number of industrial and public safety code projects now under way under ASA procedure.

Questionnaires returned by state regulatory officials of 46 states of the Union disclosed that 34 states have industrial safety regulations, and of these 27 have adopted some of the American Standard industrial safety codes "as is," or "as a basis" for their own rules. Eleven of these 27 states have adopted American Standard codes without change, and fifteen states are using these ASA approved codes as a basis for their regulations. Eight of these 27 states have both used American Standard codes "as is" and have used others in developing their codes on other subjects. Seventeen states reported that they are using American Standard codes "as a reference." Two states failed to answer.

Many states, including the above, have safety codes on subjects other than those covered by the 34 American Standard codes. The Boiler Code of the American Society of Mechanical Engineers, for example, is used in 21 states and 19 cities.

All but three of the 34 American Standard safety codes have been written into the law of one or more of the 34 states, the survey shows. These are in the coal-mining safety field, where an aggressive safety program has been developed by the Bureau of Mines, Department of the Interior.

Early in the history of the American Standards Association, the safety code work became an integral part of its program. Under the ASA procedure all groups which have a substantial interest in a given project are invited to name representatives to serve on committees, and the Association's policy has always been to secure as wide a range of representative interests as possible. The

safety code work of the ASA was begun about fifteen years ago.

Today, there are some fifty committees working on industrial and public safety codes, under the ASA Safety Code Correlating Committee, which has for its chairman C. E. Pettibone, vice-president, American Mutual Liability Insurance Company.

The survey showed that official state interest in industrial safety ranges from "very slight" in non-industrial states, to "keen" in those states where mechanized manufacturing has cost huge tolls of life, limb, and expense through neglect and carelessness. Many of the states have well organized and thorough-going inspection departments. Other states offer advice to manufacturers and other employers, but have no legislation to enforce industrial safety codes generally.

Authorities in the field of accident prevention agree that writing a safety code is only the first step toward saving life, limb, and property. A code, to be worth the paper it is printed on, must be used as a medium for educating workers to be careful. Safety devices, such as guards for gears, punch presses, abrasive wheels, and other equipment, show the employee that management is interested in his safety. The worker must learn that these devices alone will not prevent injury.

In developing and revising American Standard industrial safety codes, 137 state regulatory officials and 111 representatives of Federal departments and bureaus serve on the 34 ASA committees. Ten state officials and 11 Federal safety experts are members of the ASA Safety Code Correlating Committee mentioned above.

Sound Requirements

This close cooperation on this work by state and government officials is one of the reasons why American Standard codes have been used so widely as a basis for state regulations. These codes, written by these public officials, manufacturers, and users of machinery, represent the soundest possible requirements on subjects covered.

Several state officials pointed out that their codes did not cover subjects of the

group of American Standard codes, but said that they would use the ASA approved recommendations for such projects should the need arise. Many industrial commissioners explained that their codes antedated the American Standard documents, but these would be used for making revisions of their existing regulations.

Although not included in the questionnaire, the American Standard Code for Colors for Traffic Signals, one of the first public safety codes approved by the ASA, is one of the most far-reaching regulations in the United States. The administration of this code is also a municipal function, in addition to being under the jurisdiction of state authorities in certain states.

Guides for Inspectors

Maryland leads in the use of American Standard industrial safety codes. All American Standard Codes are the legal minimum requirements in the state of Maryland. The 26 state industrial regulations covered by the American Standard codes have been adopted without change. The state has other codes not among the ASA group, however.

Several states which have no formal safety regulations reported that ASA codes are used by their inspectors who base their recommendations to manufacturing plants on these codes.

The Safety Code for the Use, Care, and Protection of Abrasive Wheels leads the list of the 34 ASA approved industrial safety codes in use in the United States. Fifteen states have adopted the American Standard Abrasive Wheel Code "as is" or have used it in writing their own regulations. Five other states have written their codes independently, but three of these states will use the ASA approved code in revising their regulations on this subject, it was reported.

Eleven commonwealths are using the National Electrical Code as a part of their state regulations. However, several thousand municipalities and other jurisdictions are using this code in their building regulations in every part of the country. Its revision will probably have a distribution of more than 150,000, making it the most widely used of any ASA code.

The effectiveness of ASA procedure in developing industrial safety codes is shown by the general use of these codes by insurance engineers in every state in the Union.

LAST CALL



he loveliest of Calendars —
Perfect is what they say —
Compelling illustrations
And Safety for every day.

hen the plant shuts down for Christmas
And the folks all knock off shift —
Then's the ideal time to hand them
This ideal Christmas gift.

WARNING

One year ago this 27th
of December our stock
of 1935 Calendars was
depleted. Many mem-
bers were disappointed,
particularly those who
had underestimated
their requirements. We
suggest you recheck
the quantity you have
ordered and reorder now
if you may run short.

ut to insure delivery
We will have to hear from you —
DECEMBER 12 's the deadline
So write us — P. D. Q.

NATIONAL SAFETY COUNCIL, INC., 20 N. Wacker, Chicago

DECEMBER, 1935

THE BULLETIN BOARD

A page for those who maintain the Show Windows of Safety

Conducted by STAN KERSHAW

Beyond the Plant Gates

THE day's work is done, there's sudden activity in the locker room, a ringing of time clocks and the diminishing sound of foot steps as those who have toiled return to their firesides.

How many of these toilers leave their jobs when the whistle blows, feeling a sense of freedom from the pressure of the rules and regulations under which they work? How many leave with the feeling that the day's safety work is done, and now they can return to their homes, free to do as they please, free to get behind the wheel of the family auto and enjoy the thrill of top speed driving, free to drag out the old broken down step ladder to paint the kitchen ceiling, free to get along without goggles while using a cold chisel to fix the cement floor in the basement, free to climb a tree and saw off limbs without the protection of a safety belt—in short, free to take all the thousand and one chances that are either prohibited or frowned upon by the company?

Is this perhaps one of the reasons why so many more accidents occur away from work than on the job? No doubt the answer is "many of them do."

NOW is a good time to take inventory of the past year's bulletin board work, to plan not to repeat failures and to multiply the successful experiences during the coming year.

Give thought to the location of the boards. Are they in the most effective positions? What is their condition? Do they need cleaning or painting?

Look to your supply of posters. Do you have a sufficient quantity and variety to enable you to make suitable selections for special occasions? Are they filed away in such a manner that you can find the ones you want when you want them?

You will find the classified index on this page a valuable aid in ordering posters on specific subjects.

What then is wrong with industrial safety work that it permits men to leave the gates with a care-free feeling? If a man goes home in that frame of mind, it is certain that he is just as apt to take

chances while on the job when the boss isn't around.

Real success in safety comes only when a fellow's mind so absorbs the spirit of the idea that he develops a hunger for knowledge that will aid him in his efforts to guard against injury to himself and others.

The safety bulletin board can be made a powerful factor in bringing about this state of mind but its successful use depends upon the ability of its caretaker to arouse the personal interest and admiration of everyone who pauses to look and read, to use posters and bulletins that make safety a personal matter, that help to avoid the stigma that comes when there is too much paternalism on the one hand or too much discipline on the other, and that reach way beyond the limits of the daily tasks.

From the Scrap Book

Human nature is no different when working in the factory than when walking on the street or sitting in the home. Let the bulletin board publicity team with the same vital appeals which turn business publicity into sales profit dollars.

Subject	1935 Issues of the National Safety News in which Posters Are Illustrated					
	July	August	September	October	November	December
Cleaning, oiling, adjusting, and feeding machinery	5123	5530, 5151		4432, 4559	5239	4862
Clothing	On 180	5169, 5165	5560, 4752, 5057	4948		5745
Explosions, electricity, heat, etc.	5511-B, 5137	5530-B	4106	5214, 5210	4856	
Eye and face protection	4710, 4957, 4857	5150, 5538	5205	4612	5614, 5623, 5013	5650, 4487
Falling objects		5163, 5552	5204, 4420	5573, 4704, 4441	1530	5534, 5252
Falls of workers	5119, 5512, 5015	5542-B, 5531	5255, 5206	4431, 4594	5636, 4626	5648, 4555
Fire prevention	5139	5172	5577-B, 4756	4809	5616	5643
First aid	4700	5044-B		5506-B, 4301	5096	
Guards	5116	5170	4516, 5189, 5565	4437	4534	
Hand tools	4533, 5622, 5115	5175, 4754, 5023	4755, 5557	4955	5040	4571
Handling objects	5498, 5135, 5516					
Harmful substances	5510, 4366	5148, 5504	4785, 5075, 4417	4351, 4655	4933	5646, 4416
Health	5128, 5524	5687	5429	5535	5251, 5610	5008
Hoisting and conveying	4891		5203			5192, 5550
Horseplay and distracted attention	5516, 4316	5161	5570	5221, 5595	5253	5147
Housekeeping	4512, 5141			4472-B, 4500	5287, 4634	5655-B
Infections		5044-B, 5150				5659, 4389
Machinery—general	4510	5548	4794-B	5603-B, 4301		5258
Safety shoes	5513		5562	4461	5251	5292
Stepping on, or striking against objects (including nails)	4524-B	5548	5566	5599	4456-B, 5635	5276

NATIONAL SAFETY NEWS

**One
Accident
May be
One
Too many**
*It might be
your last*

NATIONAL SAFETY COUNCIL

**Protect
Your
Loved
Ones**



**Don't let an accident take
you away from them --**

NATIONAL SAFETY COUNCIL

**Safety
is
Free**



**Are you getting
your
Share**

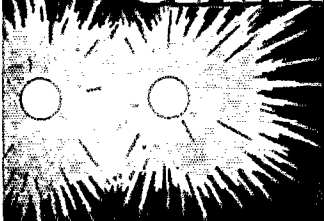
NATIONAL SAFETY COUNCIL

**ONE OF THE NATIONS
GREATEST KIDNAPERS**



HE TOOK 101,000 LIVES LAST YEAR
NATIONAL SAFETY COUNCIL

**YOU OBJECT
TO GLARE**



**HOW ARE
YOUR
HEADLIGHTS**

NATIONAL SAFETY COUNCIL

We're in the
SAFETY CONTEST
of the
NATIONAL SAFETY COUNCIL

*we're competing
with others
in the same
business and
a good record
will give us
a national
reputation for
safety*

*Whether or
not we win
depends on*



NATIONAL SAFETY COUNCIL



**Be
Wise**

*Don't add to
your troubles
by taking
chances*

**WORK
SAFELY**

NATIONAL SAFETY COUNCIL



NATIONAL SAFETY COUNCIL

**HAPPY
NEW YEAR**

*All you have done
to bring about a
better understand-
ing of safety in
our company is
sincerely appreciated*

**LET'S MAKE 1936 AN
ACCIDENT-FREE YEAR**

NATIONAL SAFETY COUNCIL



**HE TOO
THOUGHT—
he could take
a chance and
get away with
IT**

NATIONAL SAFETY COUNCIL



**A SKIN LIKE IRON
BUT HE TAKES NO CHANCES**

NATIONAL SAFETY COUNCIL



"His Mamma Lives Over There"

NATIONAL SAFETY COUNCIL



**No safety
device has
yet been
invented
to take the
place of the
one just
above the
ears.**

NATIONAL SAFETY COUNCIL

**The LINE in the Center
is your
LIFE LINE**



**Stay Alive
by
KEEPING
ON YOUR OWN
SIDE**

NATIONAL SAFETY COUNCIL

Did You Ever



**TRY TO HURRY WITH
ONE LEG IN A CAST**



**ATTEMPT TO THROW
A BALL WITH AN
INJURED ARM**



**TRY TO SEE A MOVIE
WITH BANDAGED EYES**

NATIONAL SAFETY COUNCIL

**Whose life
and limbs
are you
protecting
when you
work safely**



NATIONAL SAFETY COUNCIL



**PEOPLE WITH
HORSENSE
DO NOT INDULGE IN
HORSPLAY**

NATIONAL SAFETY COUNCIL

**GOOD
HOUSEKEEPING
IS
GOOD
SAFETY**

NATIONAL SAFETY COUNCIL

CARBON MONOXIDE

IS THE UNSEEN KILLER THAT LURKS IN
MOTOR EXHAUST GAS

IT MAY GET INTO
A CLOSED TRUCK
CAB



OR

A CLOSED
AUTOMOBILE

IT IS DEADLY IN
CLOSED GARAGES
WITH MOTORS
RUNNING-

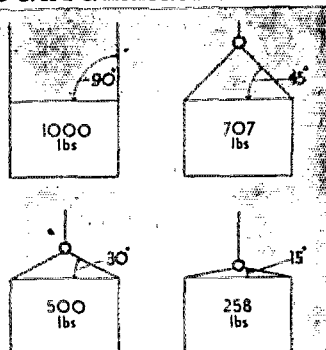


KILL IT WITH FRESH AIR
BEFORE IT KILLS YOU

NATIONAL SAFETY COUNCIL

HERE'S HOW

THE ANGLE OF A SLING ALTERS
IT'S SAFE CARRYING CAPACITY



NATIONAL SAFETY COUNCIL



IF YOU MUST
SNEEZE
SNEEZE IN YOUR HANDKERCHIEF
IT'S YOURS.
DON'T SNEEZE IN THE AIR -
IT'S EVERYBODY'S //

NATIONAL SAFETY COUNCIL

TO PREVENT SKINNED KNUCKLES



WATCH
WHAT
YOU'RE
DOING
WHEN
YOU'RE
DOING
IT

NATIONAL SAFETY COUNCIL

COLDS

CAN BE PREVENTED

AVOID
•
OVEREATING
•
LOSS OF
SLEEP
•
CONSTIPATION

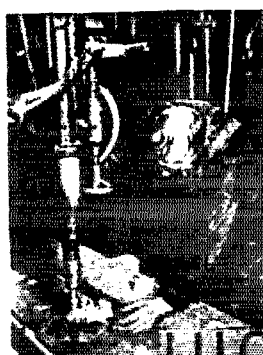
NATIONAL SAFETY COUNCIL

Trippers Make Trouble in Every Trade



To stop accidents, keep
them out of the way
and watch your footing

NATIONAL SAFETY COUNCIL



LUCKY
ONLY THE GLOVE
THIS TIME
MAYBE THE HAND
NEXT ... IF I
WEAR GLOVES

NATIONAL SAFETY COUNCIL

YOUR CHOICE
healthy
happy and
physically
fit
OR-

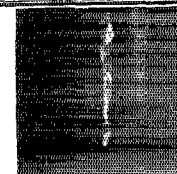
disabled, per-
haps depend-
ent thru your
own
carelessness



NATIONAL SAFETY COUNCIL



PREACH SAFETY
then practice
what you preach



NATIONAL SAFETY COUNCIL

**THERE'S
SATISFACTION**



**IN DOING WORK
SAFELY**

NATIONAL SAFETY COUNCIL

**STAY
ALIVE**



NATIONAL SAFETY COUNCIL

**WEAR SAFETY
SHOES**



NATIONAL SAFETY COUNCIL

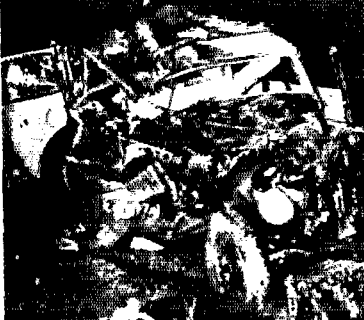
PREVENT Accidents



**Glasses, when needed
PREVENT Eye-Strain
and help you to work
SAFELY**

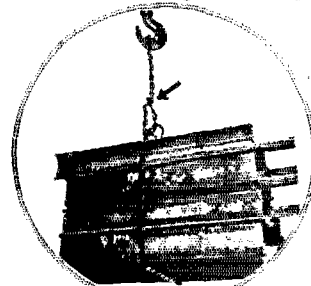
NATIONAL SAFETY COUNCIL

**ONE of the
36,000**



NATIONAL SAFETY COUNCIL

**STUDY THIS
CAREFULLY-**



**IT'S A DANGEROUS
WAY TO USE
A CHAIN!!**

NATIONAL SAFETY COUNCIL

**WHATEVER YOU LIFT
GET A
FIRM HOLD**



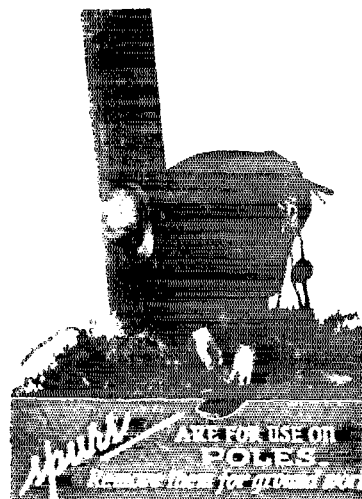
**A DROPPED LOAD MAY
BE A KNOCK-OUT DROP
FOR YOU**

NATIONAL SAFETY COUNCIL

**YOUR LIFE
AND
YOUR JOB
ARE AT STAKE
WHEN
YOU VIOLATE
THE
SAFETY
RULES**



NATIONAL SAFETY COUNCIL



NATIONAL SAFETY COUNCIL

SLIPPING TOOLS

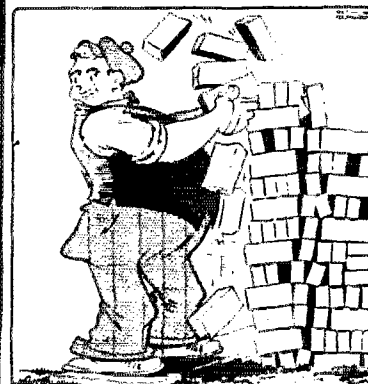


CAUSE MANY BAD FALLS
NATIONAL SAFETY COUNCIL

NEVER "BRAKE" a MACHINE with YOUR HAND



**YOU KNOW
WHY**
NATIONAL SAFETY COUNCIL

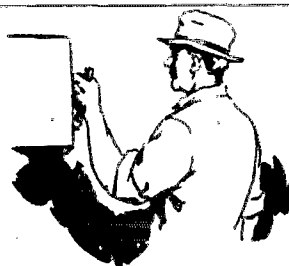


**MATERIALS PILED
CARELESSLY ARE
NOT SAFE!**
NATIONAL SAFETY COUNCIL

SAY JIM / COME DOWN
RIGHT AWAY /- I WANT
YOU TO TAKE JOE'S
PLACE -
HE JUST GOT HURT!



**ANOTHER ARGUMENT
FOR SAFETY**
NATIONAL SAFETY COUNCIL



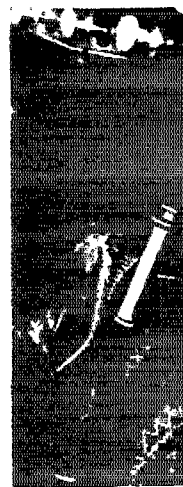
An easy way to lose a
finger hand or arm - or
maybe your life, is to reach
into moving machinery
to clean oil or adjust it.

ALWAYS STOP THE MACHINERY FIRST
NATIONAL SAFETY COUNCIL

A Thought for Today

• It's Better
and Easier to
Work Safely
than to
Explain an
Accident

NATIONAL SAFETY COUNCIL



**TRY
THE
BRAKES**
WHEN YOUR
VEHICLE
IS FULLY LOADED

Brakes which
stop a vehicle
effectively
when it is empty
may not control it when
fully loaded

NATIONAL SAFETY COUNCIL

THIS "HORSE" IS
**DEADLIER THAN
A BRONCHO**



INSPECT EQUIPMENT
NATIONAL SAFETY COUNCIL

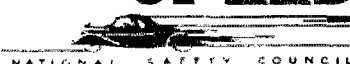
SHOT FIRERS



**TEST FOR GAS
BEFORE
AND
AFTER
EACH SHOT**
NATIONAL SAFETY COUNCIL



TRIPLE
YOUR
CARE
WHEN YOU
DOUBLE
YOUR
SPEED



NATIONAL SAFETY COUNCIL

YOU ARE RESPONSIBLE
for **YOUR SAFETY**

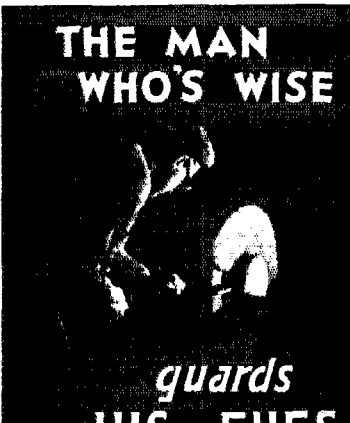


NATIONAL SAFETY COUNCIL

do
YOURSELF
A GOOD TURN
WORK
SAFELY

NATIONAL SAFETY COUNCIL

THE MAN
WHO'S WISE



guards
HIS EYES

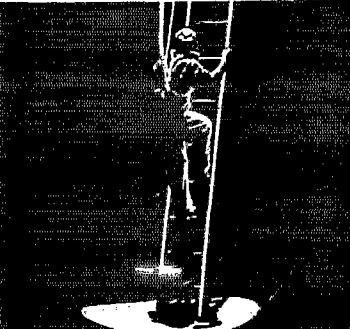
NATIONAL SAFETY COUNCIL

The **THREE MAIN CAUSES OF**
ACCIDENTS



I DIDN'T
THINK
I DIDN'T
SEE
I DIDN'T
KNOW

NATIONAL SAFETY COUNCIL



BEFORE ENTERING ANY TANK

1. Put on your safety harness.
2. Secure entrance opening as high as possible and use a rope.
3. Do not use a rope to hold on to the tank.
4. Have a helper stand by and use a rope to hold on to the tank.
5. Do not use a rope to hold on to the tank.

NATIONAL SAFETY COUNCIL

Another one hurt
◀ Here's How ▶



Believe me
it hurts to
get hurt!

NATIONAL SAFETY COUNCIL

WE ALL LOOSE IF
WE HAVE A BAD FIRE



Please help prevent the
little things that cause
BIG FIRES.

NATIONAL SAFETY COUNCIL

LIFE
MAY BE A FUNNY
PROPOSITION
BUT IT'S NOT SO
FUNNY WHEN A
FELLOW GETS HURT

Staten Bill



NATIONAL SAFETY COUNCIL



**SOME LIVE TO
ENJOY OLD AGE**

while others

**THINK A SMALL CUT
OR SCRATCH WON'T
AMOUNT to ANYTHING**

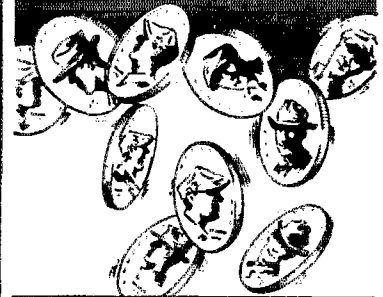
NATIONAL SAFETY COUNCIL

GROUCHINESS

If you ever have a "chip on your shoulder" watch out that an accident doesn't knock it off and you with it. Air that grouch before it hurts someone.

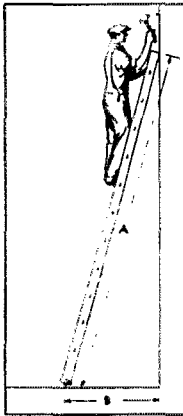
NATIONAL SAFETY COUNCIL

HEADS WIN IN PREVENTING ACCIDENTS



NATIONAL SAFETY COUNCIL

SAFE ANGLE FOR LADDER



THE best angle at which to place a ladder is that in which the distance B is approximately $\frac{1}{4}$ of A. In other words, a 12 foot ladder should be placed so that the bottom of it is 3 feet away from the wall or object it is leaning against.

NATIONAL SAFETY COUNCIL

SAFETY must keep pace with PRODUCTION

**Increased
Production
calls for
Increased
SAFETY**

NATIONAL SAFETY COUNCIL

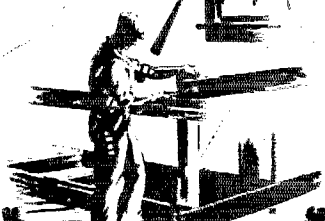


YOUZE GUYS MAY BE TOUGH
BABIES-BUT WHAT A LIL' SCRATCH
CAN DO TO YOU IS NOBODY'S
BUSINESS

NATIONAL SAFETY COUNCIL

make every
CONSTRUCTION JOB

SAFE



The few minutes used to
put up a guard rail
may save a life

NATIONAL SAFETY COUNCIL

CAUTION
+
GOOD SENSE
=
SAFETY

**REMEMBER
YOU HAVE TO**

SEE



HEAR



FEEL



THINK



**FOR THE VEHICLE
YOU DRIVE
It has no brains**

NATIONAL SAFETY COUNCIL

Industry Is More Humane

(Continued from page 14)

are, of course, aware of the large saving made by industries through this work.

When I first came to the RCA at Camden, our punch press department had a particularly bad record. Over a period of several years there had been numerous disabling injuries, and it looked like a big job to clean up that department. Without any radical changes but with the cooperation of supervision and the men on the job, we were able in one year to organize in such a manner that the division, which employs approximately 500 employees, went through an entire year without a lost-time injury. Based on such experience, there is no doubt in my mind of the effectiveness of properly applied safety effort. Let me add, however, that we have not yet found a system which will carry on without continuous and sincere pressure from the management.

Let us now consider more definitely some of the details of safety procedure. I believe, first, that our program should start with the organization of some group whose special duty will be to give consideration to safety problems. I have had experience with so-called safety committees. I am sold on the safety committee idea, and circumstances and type of industry should be considered in determining the committee set-up. In some industries the safety committee is composed entirely of members of the supervisory staff. This group can be made definitely responsible for carrying out the safety program. In other industries, safety committees are composed of both workers and supervisors. In such cases great care must be taken to select workers who are really interested in safety, as you cannot pin any definite responsibility on regular productive employees for the safety of others.

Another plan which works out very well in large industries is to have the central committee composed of members of the supervisory staff to meet at stated intervals. This group is responsible for the consideration and carrying out of all safety measures indicated or proposed. Back of this committee in various sections it is usually effective to have a committee composed of workers as well as the supervisory staff. The local committee can freely discuss and cover all points within the power of the workers and supervision in that division. Those things that are brought out in sectional meetings that are of general

interest or cannot be settled at that point would then be carried by the supervisor, who is a representative of that department, to the central safety group. I feel that a safety committee is necessary and useful part of any safety organization.

The management should make the safety record of each division a major consideration in determining the effectiveness of supervision. Safety suggestions should be encouraged from all employees and I believe it is advisable that a cash award be made for usable suggestions. This evidence of sincerity on your part is sure to encourage widespread interest in safety work. Careful safety records should be kept of each department. This encourages a spirit of competition between divisions. This team spirit where the workers and supervision are both working hand in hand is sure to win recognition and should reflect itself in other benefits to your business. It is a good procedure to recognize and publicly give credit to those divisions and supervisors who have outstanding safety records.

A competent safety engineer is a good investment and makes the installation of safety procedure in your business a simple job. A well trained safety engineer can relieve the management of the major part of the problems connected with your safety work. It is necessary in practically every business that all new processes and every new piece of equipment that are introduced

in the business be carefully examined with an eye to safety before the job is started. This examination of all new processes and equipment become, of course, a regular part of the safety engineer's work, if you are fortunate enough to have such a specialist.

Whether you are able to afford a full time safety engineer or not, a definite routine of safety inspection is indispensable. It is essential that a detail inspection be given to all active machinery and equipment at least every three months. On especially hazardous equipment, such as punch presses, an inspection should be made at least once a month. Power transmission equipment such as overhead shafting and motors should be inspected every six months. These inspections should be carried on by at least two people who are safety conscious and who can be trusted to have a neutral viewpoint when making inspections. These inspections are, of course, in addition to the normal, every day operating inspections.

General housekeeping is a major item in safety inspections. Do not let inspections become routine affairs set up merely to convince somebody that something is being done. Have the inspectors prepare a report in each case and have the reports reviewed by the various committees interested. In this way you get immediate and effective action. Another effective item in our safety campaign is the use of posters. There is no question that such posters do advertise the safety idea effectively and make many people safety conscious. Posters, of course, are only part of the program to sell every man the idea that safety and health are not a management problem alone.

Another effective means of bringing safety to the attention of the whole organization is to participate in contests. We cooperate with the New Jersey Department of Labor in the state-wide inter-plant safety contest which it sponsors each year. The enthusiastic response of our industries has proved that this contest is a very effective means of starting concerted action. It has been interesting to note that in backing up the state contest many industries have started contests of their own.

The most important consideration in safety work, I believe, is to sell the idea to the man on the job. Make him understand that his safety and health mean a lot to his employer but they mean far more to him and to his family. When such an idea is sold, you will find every last man in the plant working shoulder to shoulder to back up the work you have instituted.



**Protect Your Home
from Tuberculosis
BUY
CHRISTMAS SEALS**

MULTIGRIP FLOOR PLATE



NOTE THE RISERS

SCIENTIFICALLY DESIGNED
TO ASSURE MAXIMUM
SKID RESISTANCE
AT EVERY ANGLE

Sure Tooting

PLUS

READY DRAINAGE • EASY CLEANING
COMFORT UNDER FOOT • ECONOMICAL
CUTTING • ATTRACTIVE APPEARANCE • AND
OTHER FEATURES FULLY DESCRIBED IN OUR PAMPHLET

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The War Against Infection

(Continued from page 11)

age. All of us were struck by the fact that the odor of this train arrived at the station well in advance of the train itself. All those men had been treated at the front for a varying number of days and every last one was infected. A load of misery!

Smell? They smelled to Heaven! Just so General Lee's trains of wounded must have smelled as they hobbled back to Virginia through the stifling July heat after Gettysburg. Fifty years had passed and man had learned all sorts of things. Regular surgery was performing literally miracles in civil life, but the treatment of bad wounds received in war or industry was just where it had been at Appomattox.

Bone infection once started was chronic, no one knew how to check its vicious progress. All over Europe conditions were the same, the hospitals were crowded with infected wounds that no man knew how to cure. I was a youngster and was not expected to know much but I knew just as much as the men whose names were on the front page in civil life. One came to see after a time that the men whom we thought great were only great within a certain limited area. They navigated well when they could see land on all sides. It was not for them to go over the horizon looking for new worlds. The man who showed us the way was named Alexis Carrell, a man whose business it was to solve problems, who didn't go into panic if the horizon wasn't in sight all the time. He saw something that all of us failed to see; he saw that a new method must be developed to take care of serious injuries such as happened on the battlefield. He went back to the never much esteemed system of antiseptics. One of the first things Carrell did was to condemn all the antiseptics then in sight and develop a new one. We all know about antiseptics, or think we do. The sale of germ killers is one of our most lucrative rackets. If the truth were known we have a very small idea what antiseptics are, or what they should be asked to do. I suppose the idea generally held among both the laity and the profession is that an antiseptic is something you pour or paint on a wound to kill bacteria. You expect to do it at one shot as a farmer would kill a hawk.

I have heard men who considered themselves competent to write on the

control of infections say that as far as they could see one antiseptic was about like another. This would be true only if they meant that all were equally worthless. When I say "worthless," I don't mean exactly that; Iodine isn't worthless, it may do some good when painted on the skin before operating. It has been so used for years. What I mean is that it is worthless as an aid in carrying out an antiseptic technique because when you use an antiseptic in a real bad wound you are not first of all concerned with killing germs. First of all you are interested, or should be, in preserving the life of those tissues that have been laid open to the air by the tearing away of the skin. That is the first duty of traumatic surgeons, the first duty of first aid.

Help from the Laymen

Carrell working with an English chemist named Dakin developed the solution of chlorine gas and other substances that was called Dakin's solution. Twenty years ago it seemed to those of us who used it the ideal antiseptic, and I am still of that opinion. An antiseptic in order to meet first aid requirements must have certain definite properties. First of all it must be safe to use, not only safe for a doctor to use but safe for anyone to use, not toxic internally or caustic and corrosive externally. The foundation of first aid should be simplicity; we don't expect the average layman to do abdominal surgery. But believe me, the efficiency of your first aid program will depend on how much you can enlist the intelligent cooperation of the men around your plant. We should bear in mind at all times that the application of first aid is for the most part in the hands of laymen. If the accident happens in a factory, first aid is in the hands of the injured man's working companions.

I am afraid our pride won't always let us see the help we may expect from this quarter. For the past few years I have been attending the first aid classes that are held each winter for members of our plant. I realize now better than I did before the high quality of these men. They are eager to learn and their faces compare favorably in intelligence to the average first year medical class. If they are properly instructed they are

of inestimable aid around a plant, an aid to the doctor, to their fellow workers and to the plant itself. I have seen these men in action around our plant in plenty of tough emergencies and I would like to say that without their help our accident record would read differently.

Dakin's solution is safe in any hands. It is inexpensive, the formula not being a secret, it can be made up in any desired quantity. Universal applicability is perhaps the next most important feature of an antiseptic. Dakin's solution is used in the most minor or the most severe cases.

As to efficiency, no antiseptic surpasses it when you consider that we drink water contaminated with the most deadly germs with no ill effects, provided the water is treated with a quantity of chlorine so minute that taste will not detect its presence; therefore, you can realize what its efficiency must be in a fairly strong solution. But the value of an antiseptic does not lie wholly or perhaps mainly in its power to kill bacteria. I have said that aseptic surgery failed on the battlefield of Europe during the last war. It fails today in handling serious industrial or civil injuries because we do not recognize the very obvious principle that when the tissues are deprived of the protection afforded by the unbroken skin, as happens in any serious laceration on the flesh, something very undesirable takes place. Air gets at the tissues and they dry up, this drying action starts at once and when the tissues are dry they are dead, and when they are dead infection is just a step away.

The answer of aseptic surgery to a bad wound is protection but protection from what? The aseptic surgeon's answer is protection from bacterial invasion. He pours some antiseptic into the wound, covers it with sterile gauze and stops there. He has done all that aseptic surgery taught him to do. He wasn't taught that air was more to be feared than microorganisms and not being taught it he would never be capable of thinking it out for himself. You may ask how to keep air out. Well, why not keep the tissues wet, as wet as you please, as wet as they were before the skin was torn away, with an antiseptic we know is safe and efficient and can be used in every sort of case. This is antiseptic surgery, it is the principle Carrell brought to our aid when we were overwhelmed with pus and corruption in the year 1916.

Perhaps there has been a note of cynicism in what I have said. I am sorry that this is so; it is neither pleas-

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DECEMBER, 1935



ant nor becoming in anyone to impeach his professional brothers. I was not a cynic 20 years ago. I had seen order brought out of chaos as a result of one man's efforts and I saw, or thought I saw, a new day dawning for a certain class of surgical cases. I am sorry to say that I gave the profession credit for more elasticity, more open-mindedness than I had a right to expect.

To name a single instance we saw the treatment of chronically infected bone brought to a point of perfection, as simple, as plain and as easy as any simple procedure in regular surgery. Not only did we see the method of treatment beautifully demonstrated but some of us were fortunate to be able to go into hospitals and work it all out ourselves in scores and hundreds of cases! Chronically infected bone is the most common case met with in military practice; it starts as a compound fracture which becomes infected and after the bone fragments unite, a discharging sinus is left. This is what we used to hear called a bone sore. It is fairly common in civil practice, as it is the end result in many compound fractures. Its treatment up to the time of Carrell's work in France had been extremely unsatisfactory, in fact the dozen or 15 methods that were taught admitted that no method was really workable or satisfactory.

Carrell showed that if the cavity in the bone which was always present in these cases could be eliminated by removal of a certain amount of bone, and a cavity with only one small outlet converted into a shallow depression and this resulting wound kept saturated with antiseptic solution, healing went ahead rapidly in all cases. There being no pus present while the healing process was going on, the resulting scar was solid and not tender and had no tendency to break down. In fact the whole thing was so simple that those of us who had treated these cases ineffectively for months felt that we must have been uncommonly stupid not to have seen it ourselves.

I felt sure that when I returned to the United States that here at least was one lesson that was so valuable and plain that it would be taken hold of at once by the entire profession. What actually took place is interesting. Five years after the close of the war, except for a handful of men who actually saw this work done and did it themselves in France, this lesson of Carrell's was all but forgotten. Then a surgeon in the middle west, Dr. Orr, wrote an article on a method of treating infected bone.

He followed Carrell in so far as his operative procedures went. The dead bone was cleaned out and the hole in the bone eliminated, but instead of applying an antiseptic and preventing the development of infection as Carrell and his pupils did, he said pus is of no consequence; he filled the hole left in the bone after operation with sterile gauze saturated with vaseline, put the limb up in plaster and returned the patient to bed. He said that pus would develop and that it would smell offensively. In both of these statements he was 100 per cent correct.

I have seen, at a safe distance, a few of these cases handled after Dr. Orr's modification of Dr. Carrell's technique. I had thought and hoped that pus had gone out of fashion at about the close of our Civil War. Between a method that eliminates pus and one that encourages it, I am all for the former. I know for a fact that wounds in a bone following these clean up operations heal in about a third of the time when the healing is not accompanied by pus. Pus indicates tissue destruction and nothing else. Cases that have been handled after the method of Dr. Orr's do get well, providing that the operative work has been thoroughly done, but they run rivers of pus and smell to high heaven, and the wards in which they are cared for are no pleasant stopping places for one with normal olfactory organs.

Wounds that run pus in the hot months become fly blown and full of animals known as maggots; Dr. Orr's victims so fared in many cases. Then some doctor, whose name I don't know and don't care to, conceived what has been said to be the master touch of our age. He saw that maggots in the wound didn't retard healing, perhaps they even hastened it, so he hit upon the idea of introducing maggots as part of the treatment. The maggots treatment of Dr. Somebody's is well established in the minds of the profession. It is being used in reputable hospitals all over the land and the individual who originated, what seems to me, the most barbarous practice ever conceived, even in the heads of the African witch doctor, is a member of learned societies and looked up to by his less gifted professional brothers. I don't like to close on a cynical note, but there is little hope for improvement in any profession or art unless a need for improvement is admitted. It would be unfortunate, yes tragic, if we thought that there was no room for improvement in our handling of surgical cases.

I had hoped to see the day come when

the man with a compound fracture or a bad lacerated wound could be assured of the same efficient scientific care as a man with a hernia or a case of appendicitis. I am afraid that this day is not in the immediate future. A profession that calls maggots to its aid and thanks them for their assistance is still a long way from the goal of perfection that surgery must aim at. There is no better place than a big industrial plant for the carrying out of sound first aid practice. Let none of us adopt an attitude of complacency, let us industrial surgeons, one and all, realize that there is still much to do, even to put our own house in order.

Five Principles for Safe Plant Operation

DURING a recent visit to plants of the General Motors Corporation entered in the Wilson No-Accident Campaign, C. E. Wilson, vice-president of GMC, made reference to five points which, he believed, contributed toward making a safe plant. These points were developed from observation of the safety practices of the 26 plants visited:

I. INTEREST IN SAFETY ON THE PART OF TOP MANAGEMENT

It is essential that the men who have the responsibility for the operation of the plant, and the authority to change bad safety conditions, have a sympathetic attitude toward safety and recognize it as a management responsibility.

II. GOOD HOUSEKEEPING

A clean plant with orderly aisles and good stock conditions sets a splendid example for the employee group to do their day to day job in an orderly manner. Good housekeeping shows a respect for both physical properties and the workmen who use them.

III. MECHANICAL SAFEGUARDS

Every effort should be made to provide mechanical safeguards on equipment. We should strive to make our machinery as accident-proof as possible. The use of goggles, safety shoes and other safety appliances which have definite accident-prevention qualities should be encouraged.

IV. SAFETY EDUCATION

The foreman should be trained in safe practice so that he is capable of properly instructing employees under his supervision in the safe operation of their jobs. This is of vital importance with employees new to a particular operation. It also means continual alertness after the employee is on the job.

V. PERIODIC SAFETY STIMULATION

The subject of safety should be brought forcefully to the attention of the entire organization periodically, through the medium of contests, stunts, safety exhibits, meetings, etc. Safety can be sold to the employee group much in the same manner that dealers merchandise automobiles.

C. E. WILSON.

SAFETY ENGINEERS:

Here is the Reason HY-TEST Safety Shoes give Greater Foot Protection

ONLY a Safety Shoe with a steel box toe that will not tip back nor pinch back when struck, can give your workmen the *real* foot protection they want and need. . . . That is why HY-TEST Safety Shoes are so popular wherever foot protection is necessary. It is one of the many reasons why Safety Engineers throughout the country are recommending HY-TEST to their men. The steel box toes in all HY-TEST Safety Shoes are prevented from

shifting or "loosening up" by a *patented anchor flange* which hooks securely under the insole. In this way maximum protection is accomplished. We have in our files scores of cases which prove conclusively that the HY-TEST steel box toe with its *patented anchor flange* gives greater foot protection.

Write for further particulars. Our Dress models as well as work types incorporate the well known HY-TEST Safety features.



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This DUPOR respirator has a clear entrance filter aperture of 7½ sq. in. It uses special felt filter pads 5/16" thick. Extra pads 4c each. The exhalation valve takes care of moisture and enables easier breathing. Made in soft, high grade rubber with face cloth. Foldable and reversible.

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THOUSANDS OF DUPOR RESPIRATORS NOW IN USE
Used for all kinds of dusts, smoke, light fumes, vapors and paint spray that is free from harmful gases.

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THE SAFETY LIBRARY

By MARY M. WELLS  LIBRARIAN, N. S. C.

Sudden Death

SUDDEN DEATH AND HOW TO AVOID IT, by J. C. Furnas and E. N. Smith, published by Simon & Schuster, Inc., 386 Fourth Avenue, New York City. 58 pages, illustrated. Price 25c.

"If you aren't tough-minded, skip the first two sections of this book and go to the comparatively milder medicine that begins on page 16," is the advice of the publishers of "Sudden Death."

Section I of this booklet is a reprint of the now famous article, "—And Sudden Death," reprinted from the *Reader's Digest*. But there are other calamities besides sudden death which might be included in the Litany. In Section II Mr. Furnas has contributed an article just as harrowing as the one which made him famous. It is entitled, "Better Off Dead," and is published for the first time in this book.

In his second article, Mr. Furnas dramatizes a less known but possibly even more tragic side of traffic accidents — the fate of those who have been robbed of usefulness, beauty, happiness, of life itself, while still living. It is to be hoped that this article also will receive nation-wide distribution.

The publishers have not stopped with presenting the sensational. Section III contains several chapters on "How to Avoid Automobile Accidents," by Ernest N. Smith, of the American Automobile Association. Mr. Smith has presented the essentials of safe driving in brief and readable style and the main points are illustrated with sketches. A check list for the motorist is a useful addition to the booklet. —C. T. FISH.

Training Foremen

CONFERENCE MANUAL FOR TRAINING FOREMEN. By S. M. Shellow and G. R. Harmon. Published by Harper & Brothers, New York. Price \$2.50. Book. 100 p.

Certainly in these days of labor unrest and management uncertainty any method of developing clear thinking among those responsible for directing industrial workers is welcome indeed. For that reason, the "Conference Manual for Training Foremen" is a most timely

volume. Sadie Myers Shellow is a consulting psychologist in Milwaukee; Mr. Harmon an official of The Milwaukee Electric Railway and Light Company. They have spent several years in various attempts to interpret on the one hand the psychological needs of workers to their foremen, and on the other the special problems of the foremen to their workers. Much of this has been done by individual interviews; in some cases classes were held. This volume represents the sum total of their experience in working with 400 foremen of different ranks in small group meetings.

Doubtless to many foremen and supervisors the conference method is a more or less mysterious procedure. The authors have done much to popularize the conference plan through a straightforward, clear, concisely written and yet complete exposition. The volume is extremely practical because it sticks to fundamentals and keeps away from idle theories which sometimes make a book more interesting than useful. It tells how to organize a practical program; prepare the plans; conduct the meetings; and then how to apply the results. It gives detailed plans for conducting conferences on many subjects of vital importance to management, such as inter-departmental relationships, discipline, the worker's interest in his job, the relationship between the foremen and his men, etc. Actual (or hypothetical) cases add interest in presenting the various problems. Complete outlines show the course of thought and its direction.

After reading the manual one is convinced that it will succeed in doing just what the authors intend, that is, to develop practical men to think for themselves. —T. A. BURKE.

External Causes of Death

THE MORTALITY FROM EXTERNAL CAUSES. Published by the Metropolitan Life Insurance Company, New York City. 148 p. Free. Book.

Much progress has been made during the past five years in collecting detailed facts about fatal accident occurrence. Fifty cities and ten states (including

some of the largest) now prepare monthly summaries giving the familiar occupational-home-public classification of accidental deaths, and with detailed subdivisions.

Such analysis should be extended as rapidly as possible to cover the entire United States and to provide more specific details. A distinctive contribution to our knowledge of this subject has just been made by the Metropolitan Life Insurance Company.

The Metropolitan's analysis is a thorough-going study of the deaths from external causes among its policyholders from 1911 to 1930. Accidental deaths, which numbered 170,088 are analyzed from every point of view. The following quotations are typical of the information contained: "Among males, in the aggregate, 21.0 per cent of the fatalities from falls resulted from falls on stairs, 9.4 per cent on the street, 6.7 per cent out of windows, and 5.4 per cent from scaffolds and staging. Among females 26.5 per cent occurred on stairs, 15.3 per cent on floors, and 8.3 per cent on the street"; and, for males, "during the main working period of life, 15 to 64 years, occupational falls were most numerous, accounting for 38.9 per cent of the total (of all falls)".

The reader is warned that the Metropolitan policyholders as a group are not completely typical of the whole U. S. population, that the data are "representative of the urban wage-earning populations of the United States and Canada." Having this limitation in mind the safety worker can get a great deal of useful information from this exceptional volume. —A. D. BATTEY.

Highway Accidents in Massachusetts

REPORT ON MASSACHUSETTS HIGHWAY ACCIDENT SURVEY, 1934. May be obtained from Massachusetts Institute of Technology, Cambridge, Mass. Free. Mimeographed.

This report gives some of the more general results of the Massachusetts Highway Accident survey which was conducted under the supervision of the Massachusetts Institute of Technology

NATIONAL SAFETY NEWS



The Living Room



The Bedroom

If a man falls out of the bed, it is not a serious accident. But if he falls out of the bed and hits his head, it can be a serious accident. The danger is not the fall itself, but the head injury.

People at all ages fall down but not people who are bony. People who are bony are the ones who, by moving frequently from falls, starting up at night and, having fallen, do not get up. They are the ones who, from nursing homes or hospitals, in a way, are the cause of these accidents. Methods must be taken to safeguard old people.

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Halls and Stairways

Halls and stairways are the most dangerous parts of the house. The danger is not the fall itself, but the head injury.

Halls should be well lighted and unobstructed. Stairs should be well lighted and unobstructed. The danger is not the fall itself, but the head injury.

The danger is not the fall itself, but the head injury. The danger is not the fall itself, but the head injury.



The Bathroom

The bathroom is not the most hazardous room in the house, but it is the most dangerous. The danger is not the fall itself, but the head injury.

Slipping is the great danger in the bathroom. Most of them could be eliminated by placing a rubber mat in the tub and installing a strong bar along the wall to grasp.

Porcelain water faucets should not be used under pressure. They will sometimes break off and cause a hand severely. Metal handles are recommended.

Electric light switches in the bathroom should be at a point where one cannot manipulate it with one hand or while one is in the tub. The danger is electrocution. If the light is hanging from the ceiling, it should be secured.



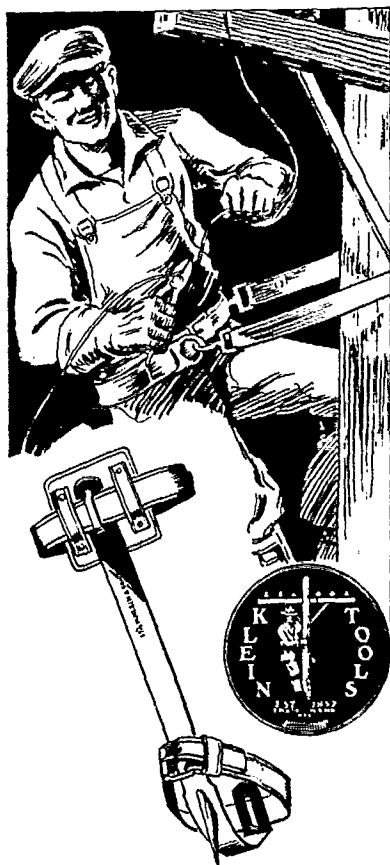
34,500 persons dead 150,000 others permanently disabled five million more or less seriously injured—that was the tragic toll of home accidents last year. It comprises one of the important "Hidden Losses" continually cutting into industrial profits.

The successful safety program carries safety into the worker's home. Thus a basic acceptance of accident prevention is created right at a time when the employee is surrounded by his loved ones and in a most receptive mood.

"Safe at Home" is a 6" by 9" pamphlet containing 24 pages of valuable, interesting and practical information on the prevention of home accidents. Every one of your workers should have a copy!!

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The four pamphlets listed below will be sent without charge to anyone interested. Check the ones you want.

- ☐ Safety for the Pole Climber.
- ☐ Specifications on Linemen's Belts and Safety Straps.
- ☐ The Safety Factor on Linemen's Leather Goods.
- ☐ Pocket Tool Guide.

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and operated as a project of the Civil Works Administration and Emergency Relief Administration, between December 1933 and September 1934.

Publication for general distribution of the studies in separate towns and cities, totalling about 200 reports, was not considered feasible, and this publication was compiled as a summary of the more important general conclusions. Data concerning particular locations and comparisons of different districts were omitted.

The ten parts of the report deal with field studies of characteristics of motor vehicle operation; accident analysis and report; questionnaire of driver opinions concerning traffic; measurement of short time intervals; braking-reaction time; pedestrian visibility at night; highway illumination; accident records of automobile drivers; the component parts of motor vehicles and their relation to safety; and mathematical analysis of accident situations.

The report contains a great deal of information concerning driver practices and highway conditions in Massachusetts. More than two and a half million cars were observed and their actions recorded in the study of behavior of cars on the road, alone. These observations add materially to the information upon various subjects of driver and vehicle performance. —E. J. REEDER.

Other Books and Pamphlets

Brass

BRASS PRODUCTS. *Published by Retail Credit Co., Atlanta, Ga., 1935. (12 Page Pamphlet) (Industry Report)*

A description of factory processes and potential health hazards.

Dusts

REVIEW OF THE LITERATURE ON EFFECTS OF BREATHING DUSTS WITH SPECIAL REFERENCE TO SILICOSIS. *Part III-A. Chapter 5: Economic and Legal Aspects of Dust Disease in Industry. By D. Harrington and Sura J. Davenport. Published by the U. S. Bureau of Mines, Washington, D. C., 1935. (I. C. 6857) Free. Mimeographed. 57 p.*

"This circular presents Part III-A of a series reviewing the literature on effects of breathing dusts with special reference to silicosis; it deals with the economic and legal aspects of dusts diseases in industry; Part III-B will contain data on the status and cost of compensation for silicosis. Parts I and II of the series have been issued as Information Circulars 6835, 6840, and 6848; Part I defines and classifies dusts, indicates

sources of exposure, and describes the physiological effects of breathing dusts; Part II-A discusses the principal dust factors producing pulmonary pathology and methods of determination of dust in air; and Part II-B presents data on the engineering and medical control in the prevention of dust diseases and general recommendations for their control in industry.

A summary and general conclusion will complete the series."

Electricity

NATIONAL ELECTRICAL CODE, 1935. *Regulations of the National Board of Fire Underwriters for electric wiring and apparatus as recommended by the National Fire Protection Association. American Standard. Approved September 27, 1935, by American Standards Association. Effective November 1, 1935. May be obtained from National Board of Fire Underwriters, 85 John Street, New York City.*

Sickness

DISABLING ILLNESS AMONG INDUSTRIAL EMPLOYEES IN 1934 AS COMPARED WITH EARLIER YEARS. *By D. K. Brundage. In U. S. Public Health Service, Public Health Reports, November 1, 1935, p. 1527-39.*

The incidence rate of new cases of sickness and non-industrial accidents causing absence from work for more than 1 week in a group of 174,643, male industrial employees was lower in 1934 than in the preceding year, when the lowest rate since 1921 was recorded. The frequency of cases in 1934 was 3 per cent below the rate for 1933, 21 per cent below the 1932 rate, 32 per cent lower than in 1929, and 14 per cent below the rate for 1921.

Asked and Answered

CADMIUM COMPOUNDS

QUESTION: We have a copy of your publication, "Compounding Materials used in the Rubber Industry, Part I. Accelerators, etc." If you have a similar publication covering the use of other compounding ingredients in the rubber industry, I should very much appreciate receiving a copy. I may say that at the moment we are particularly interested in the question as to whether cadmium sulphide as a constituent of rubber worn next to the skin will be likely to produce dermatitis or other deleterious effect.

ANSWER: The Safe Practices Pamphlet No. Ru-1, "Compounding Materials Used in the

NATIONAL SAFETY NEWS

Rubber Industry," is the only one to date that we have issued pertaining exclusively to this industry.

Dr. Alice Hamilton, in her book, *Industrial Toxicology*, says that Prodan (an investigator) in 1932, reviewed the bibliography of cadmium poisoning and of the uses of cadmium, finding that experiments with this element have not, so far, thrown much light on possible industrial poisoning, inasmuch as the methods used did not in any way reproduce the conditions under which men may be exposed to fumes and dust. He therefore administered cadmium in the form of dust, oxide and sulphide, and also fumes of the oxide, through inhalation. The sulphide proved to be less easily absorbed than the oxide, the symptoms come on more slowly, but are essentially the same.

Quoting Dr. Hamilton further: "Cadmium has a marked effect on the respiratory tract, causing, in high concentration, a rapidly developing edema of the lungs, from which the animal dies; in smaller amounts, a generalized pneumonia, with emphysema and atelectasis. This is accompanied by a fibrotic thickening of the alveolar walls, which constitutes a permanent damage. Changes in the liver vary from a general granulation of the cells to a pronounced fatty infiltration, which changes are also seen in the kidneys, in the convoluted tubes especially. It is stored chiefly in the liver, bones, and kidneys."

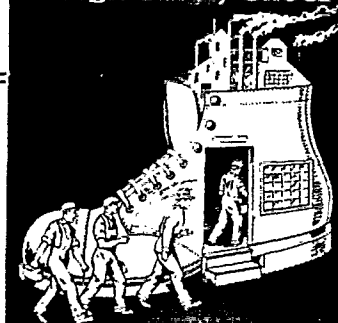
Dr. Hamilton further states: "Prodan (investigator) was able to collect a few case histories which are illuminating. The first to be reported (Soviet) was in three servants who polished silverware with cadmium carbonate and brushed off the dry powder, one of them doing this work for a day and a half, the two others for only half a day. All three suffered from dizziness, dyspnea, vomiting, and diarrhea, and the first was profoundly prostrated, with low pulse, incessant vomiting, colic, diarrhea, hiccough, and oliguria with tenesmus. Convalescence did not begin till the eighth day." Another investigator, Legge, reported three cases, one fatal, in a paint factory, where ingots of cadmium were melted during a period of three hours in a poorly ventilated room. All three men complained of dryness of the throat, headache, sensation of cold and nausea. The pulse was rigid and the urine brown-colored. Autopsy on the man who died showed congestion of air passages and gastro-intestinal tract, and acute inflammation of the kidneys and spleen.

Cadmium is extracted from zinc ores in the course of smelting and is a constituent of the so-called blue powder, a condensation produce which has up to 4 or 5 per cent of cadmium. It is also found in the sludge after the electrolytic recovery of zinc. It is used in alloys, but more extensively for the electroplating of metal, since it is harder than nickel or steel.

Prodan states that the greatest industrial hazards are in the smelting of ores, the working up of residues, the handling of "blue powder," production of compounds, spraying of pigments, welding alloys and melting the metal.

Dr. P. A. Davis, assistant medical director, Goodyear Tire and Rubber Company, Akron, Ohio, says that the principal use of cadmium in the rubber industry is as a pigment where the sulphide is used and the metal is used in certain plating processes. He further says that cadmium is similar to zinc in its reactions and uses but is several times more toxic. The fact

Industry Works in Lehigh Safety Shoes



Copyrighted 1935 by Lehigh Safety Shoe Co.

To the many users of Lehigh Safety Shoes we extend our heartiest greetings of the Season and are glad we have helped to keep your workers safe from accidental injuries so they and their families may enjoy to the greatest possible fullness the festivities of the holidays.

To those who have not yet realized the value of Lehigh Foot Protection we also extend best wishes for a happy Holiday Season and our sincere invitation to become a member of the growing family that provides protection with Lehigh Safety Shoes.

LEHIGH SAFETY SHOE CO.
31 S. SEVENTH ST. ALLENTOWN, PA.



Patented August 25, 1925

Knee Leggings Hip Leggings Spats 3804 Payne Ave. Cleveland, Ohio

DEPENDABLE LEG PROTECTION

Reduce accidents and compensation costs with these protective leggings. "FRANK" LEGGINGS are built for:—

1. SAFETY
2. SERVICE
3. COMFORT

In use in nearly 1000 Foundries, Steel plants and Welding shops.

Write for complete folder

**THE SAFETY CLOTHING
COMPANY**

Manufacturers

"Everything from a finger cot to an asbestos suit"



Why Wait Until There's a Costly Accident?

It's easy to say after an accident has happened that a certain hazard must be guarded, but it is just as easy to provide adequate protection before the accident occurs.

H & K Guard Accessories make it doubly easy because your handy man can build guards in his spare time to your own specifications.

All H&K Guard Accessories are under inspection service of Underwriters' Laboratories, Inc.

The Harrington & King Co.
PERFORATING

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NEW YORK, N. Y.

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SANKEY FOOT GUARDS

Sankey Foot Guards are made of 16-gauge steel, or Rigidum, an aluminum alloy. Being light in weight they are comfortable to wear and permit free and easy movement of the feet. Although light, they are constructed for strength and will withstand an impact of 300 foot pounds.

Designed so that the floor or ground takes the force of the impact in case of falling objects.

Write for your sample today.

ELLWOOD SAFETY APPLIANCE COMPANY
ELLWOOD, PENNSYLVANIA

that where the most dangerous percentage of cadmium is present there is also present the most dangerous percentages of lead, arsenic and zinc and many cases of cadmium poisoning have been ascribed to lead, arsenic and zinc, but with the advancement of industry many pure compounds of cadmium are being used and the metal is being used more than ever in solders and plating. The symptoms of cadmium poisoning are very similar to those of lead, arsenic, zinc and antimony in many respects and one must not rely entirely on physical symptoms but must resort to chemical methods of detection of poisons. The insoluble compounds are less toxic than the soluble ones and this is due only to the close chemical combination.

CORRESPONDENCE

SAFETY IS INTERNATIONAL

FORT WILLIAM, ONT.—When we received notice that an award had been made to our company in the accident prevention contest of the Public Utilities Section, we were very sorry that our company was unable to be represented at the Louisville Congress.

Mr. Wills MacLachlan, in view of his outstanding work in accident prevention and resuscitation throughout Canada and the U. S. A., made a most worthy representative. On his return to Toronto he delivered the trophy to our executive officers. Unquestionably this trophy will be a great stimulus to our own staff to carry on their efforts.

We hope, however, that it will result in greater interest throughout industry at large. It should bring to attention the international nature of the splendid work which your National Safety Council is prepared to do for all who will take advantage of your services.

The bronze plaque is a splendid trophy and reflects credit on both the donor and the recipient. While we would have preferred to modestly receive, yet in the interests of accident prevention at large, we have secured some local publicity which we trust will encourage others to pay more attention to accident prevention.

On behalf of our company, our staff and myself, I wish to convey an expression of our deep appreciation for the splendid work of your association. May your efforts be crowned with the greatest future success.

KAMINISTIQUE POWER CO., LTD.,
W. L. BIRD, Vice-President.

APPRECIATION

AUSTIN, IND.—We are pleased to enclose our check which takes care of our membership fees for 1936.

We think the National Safety Council is doing excellent work in its field and willingly send our contribution for its continued services.

MORGAN PACKING COMPANY
By I. H. MORGAN

HELP WANTED

WANTED by large Middle West Casualty Insurance Company. Safety engineer—must know schedule and experience rating. None over 35 need apply. Experience necessary. Write Box 296, NATIONAL SAFETY NEWS.

NATIONAL SAFETY NEWS

Liquor Accident Losses Are Increasing

LOSSES attributable directly to the use of intoxicants have been increasing alarmingly in recent weeks, according to *The Spectator*, a weekly publication in the insurance field.

This situation, first reflected in life insurance death claims and automobile losses, is now beginning to be felt in accident claims. As a result, several companies have recently issued new accident policies denying any liability in any accident where intoxicants have been imbibed.

Insurance officials have shown a distinct reticence on the liquor question, but most of them have admitted quite freely off the record that accidents directly traceable to liquor are increasing and have been since shortly after repeal.

Policies denying liability as a result of drunkenness are frowned upon, due to the difficulty of deciding legally whether a man is drunk or what constitutes drunkenness. There is a strong feeling that action of some sort will have to be taken by casualty and life companies to curb the increasing loss and mortality ratios resulting from liquor accidents.

The new "no liquor claims" accident policy is the first concrete step taken by insurance companies to curb increasing losses from this cause. There is a possibility that other companies may follow suit and that all accidents culminating from drunkenness may be denied liability. It is virtually safe to predict, says *The Spectator*, that if the companies do take such action, the policies will read along the lines of any accident where intoxicating liquors have been imbibed, rather than from drunkenness.

First Aid on Highways Saves Lives

A score of important cases and innumerable minor cases denoting the practical results of the first aid course taken by more than two thousand state highway engineers and police have been reported by district officers to Ernst Lieberman, Chief Highway Engineer for the state of Illinois.

Major cases, including those in which lives have been saved or permanent disability prevented by immediate application of first aid methods, have been reported by the following highway districts: Peoria district, four; Ottawa district, two; Elgin district, four; Chicago district, nine; and Effingham district, seven.

DECEMBER, 1935





Spray your burns

Vio Gen

New Instant Treatment
for Burns and Surface
Injuries

VioGen is rapidly becoming the "standard" remedy for burns of all types. Records show definite reduction in lost time through disability, less expense for attendance, and lowest cost per treatment. Perfectly suited to first aid requirements—anyone can apply VioGen safely and quickly in emergencies. Also recommended for cuts, abrasions, ivy poisoning, athlete's foot, impetigo, and varicose ulcers. Sold only on money-back guarantee. GET THE FACTS ON VIOGEN AT ONCE!

BURNHAM LABORATORIES, P. O. 154, W. Medway, Mass.

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TRIAL SIZE OF
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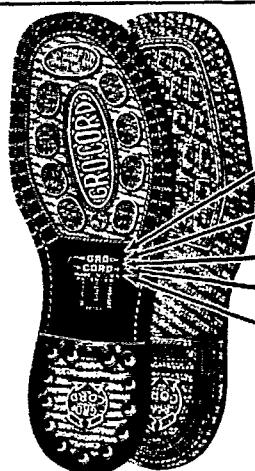
Gentlemen: Send Free Trial Size of VioGen to:

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Here is why *THEY ARE GOOD*



THERE are many reasons why Safety Workers prefer shoes equipped with Gro-Cord or Raw-Cord Non-Slip Soles and Heels.

Men and Women in all industries are using every precautionary measure they possibly can to protect their jobs and personal welfare.

They know that slipping causes a large percentage of lost time accidents and to offset this more and more people are demanding shoes equipped with Gro-Cord and Raw-Cord Non-Slip Soles and Heels. Realizing the large demand for shoes thus equipped they are being stocked so as to be readily available. Whenever work shoes or dress shoes are needed, ask for shoes having Gro-Cord or Raw-Cord Soles and Heels. They give added comfort and safety to the worker and they are available at no extra cost. Protect jobs—work safe by wearing Gro-Cord and Raw-Cord Soles and Heels.

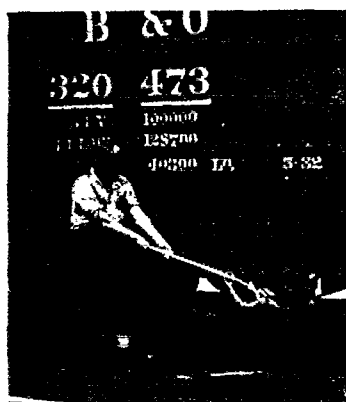
GRO-CORD and RAW-CORD Soles and Heels are used in dairies, on farms, iron and steel foundries, railroad shops, auto factories, gas and electric plants, ice and fuel stations, stone quarries, mines, general warehouses—where Safety is an important factor, also street and office.

The Lima Cord Sole & Heel Co., Dept. 7-F, Lima, O.

Fully Protected by Patents—Any Infringements Will Be Prosecuted

GRO-CORD

NON-SLIP SOLES AND HEELS



Close Hopper-Bottom
Car Doors with
EASE and SAFETY

with the
Prescott Safety Tool

This special tool will close hopper-bottom car doors. Prevent smashed fingers, strained backs, ruptures and other serious injuries. Saves time—Is inexpensive.

The Trumbull Mfg. Co.
Warren, Ohio

PERSONALS

LLOYD A. BLANCHARD, formerly executive secretary of the Massachusetts Governors Committee on Street and Highway Safety has joined the engineering staff of the Liberty Mutual Insurance Company, Boston, as fleet safety engineer. Before becoming secretary of the Governor's Committee, Mr. Blanchard was manager of the Springfield, Mass., Safety Council.

ANDREW D. PRENTICE, fleet safety engineer for the Hartford Accident and Indemnity Company at the New York Office, was drowned at Vero Beach, Florida, on October 30. He had gone to Florida for a vacation and was caught in an undertow while swimming. He had been with the Hartford Accident and Indemnity Company since 1929.

A Correction

In the list of members of the Executive Committee of the National Safety Council published on page 18 of the November NATIONAL SAFETY NEWS, two names were inadvertently omitted. The members whose names did not appear were: C. F. Larson, superintendent of safety, Missouri Pacific Lines, and chairman, Safety Section, Association of American Railroads—Steam Railroad Section, NSC; and Thomas H. MacDonald, chief, Bureau of Public Roads, U. S. Department of Agriculture.

Respirator Brings Relief to Hay Fever Victim

A NEW use for the familiar industrial respirator was discovered during the past hay fever season by Robert H. Krone, safety director for the Union Gas & Electric Company, Cincinnati. A victim of the ailment, Mr. Krone found constant wearing of the air cleansing device brought considerable relief through its faculty of removing pollens and irritating dust substances from air breathed.

A negative factor was the trail of consternation he left behind him in foot and motor trips about the city's streets, a circumstance which reached a climax when he was stopped by a policeman curious to know what bank he had held up.

NATIONAL SAFETY NEWS

Never Too Late To Do Your Best

WHEN safety work gets off to a poor start, there is always a difficulty in keeping employees interested. Under such conditions, H. B. Chaffin, master mechanic on the Eastern Division of the Pennsylvania Railroad at Canton, Ohio, issued the following bulletin to employees. It carries a real message and presents it to railroad men in familiar language:

"The thrill you experience from a job well done cannot be purchased. It is not for sale. You can get the thrill by only one route; that route is the avenue of hard work, close attention to the job at hand and perseverance.

"Back when the world was younger, I was working in a roundhouse and had an opportunity to congratulate a careful, alert, elderly passenger engineer after he had made a record run with a crack train on a new schedule.

"When we finished shaking hands he was all happiness and bubbling with mirth. As he picked up his grip and started toward the roundhouse his parting sentence was, 'We left sixteen minutes late.'

"In our schedule for 1935 in accident prevention we are late, though we left the terminal on time. The red blocks we encountered were self-inflicted. A little more than one-third of our 1935 schedule is ahead of us. Let us strive to make up our lost time by *no more accidents this year.*"

Dressed for an Accident

HERE is an example of what employees will wear if left to themselves. One morning a new punch press operator at the Edison General Electric

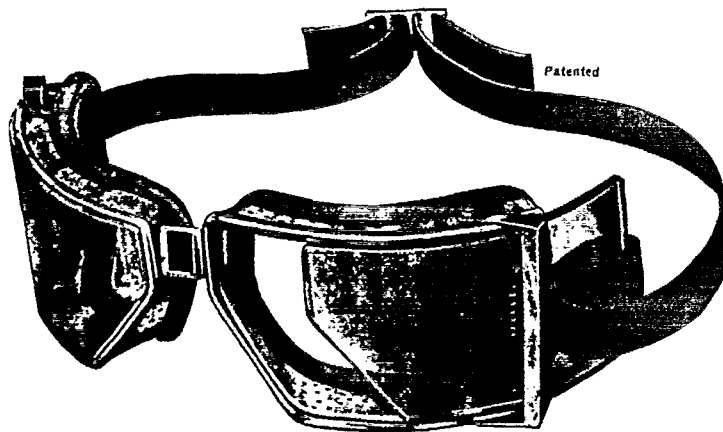


Appliance Company, Chicago, started to work wearing this pair of what once were gloves.

He did not wear them very long.

DECEMBER, 1935

CESCO....Pioneers in Better Eye Protection



No. 220 WIDE-VISION GOGGLE WITH SUPER-SAFETY LENSES

This wide-vision chipping goggle with its remarkably strong and tough Super-Safety Lenses is a recent development added to the CESCO Line.

The lenses are remarkable not only because they withstand severe blows and impacts but also they eliminate eye strain. (The optical properties of the lens do not deviate the line of sight—there is no distortion.) Wearers' say that the No. 220 is the most comfortable goggle they have ever tried.

You try it! Prove these statements yourself. Write for full details and prices.

CHICAGO EYE SHIELD COMPANY

2323 Warren Blvd.

Chicago, Ill.

WOODEN SOLE "STILL CLEANERS"



Stock No. 548 and No. 549

Boots and Shoes

One well known safety engineer of the Oil Industry writes—"Don't thank me for the order. Your shoes sell themselves. They are real protectors for this hot job."

Complete new catalog sent upon request.

REECE WOODEN SOLE SHOE CO. Inc., Columbus, Nebraska

REPUTATION A Priceless Possession



STEEL-GRIP gloves and safety clothing are not only pioneer products in their line but they enjoy a reputation for quality and workmanship which, to us, is a priceless possession.

Built on a foundation of fair dealing, honest endeavor and faithful service, we have, over the past thirteen years, manufactured and designed more than two thousand special protection safeguards for specific hazards . . . in reality, our ledgers are the "who's who" of American business.

Our customers purchase **STEEL-GRIP** gloves and safety clothing for one purpose—adequate and full protection of human life. Under no circumstances will we hamper **STEEL-GRIP'S** reputation by the use of inferior materials and workmanship.

MAY WE SERVE YOU?



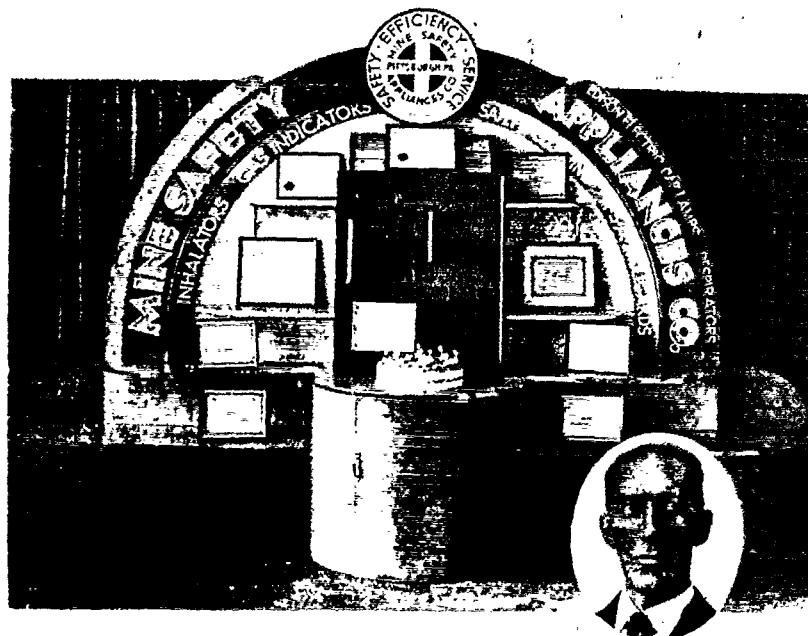
INDUSTRIAL GLOVES CORPORATION

725 GARFIELD BLVD.
DANVILLE, ILL.

Chicago Philadelphia Detroit

Trophies Displayed at Annual Safety Rally

By L. J. BOWKER



TO THE employees of the Mine Safety Appliances Company, John Oartel of the Carnegie-Illinois Steel Corporation was more than the principal speaker at their annual November Safety Rally. To them he was an old friend, and a good one, for it was eleven years ago that he generously aided in organizing a safety campaign which has resulted in the M. S. A. Company having an exceptionally fine safety record. Even previous to this campaign the company had had what was considered a good safety record.

Every year John Oartel has attended the November rally and through his inspiring talks has helped to create in the employee a spirit of enthusiasm for safety. Each one of these years is represented by a candle on the birthday cake shown in the above picture. The many certificates and tablets displayed attest the success of the campaign. Here they are as John Oartel reviewed them: Rice Safety Award for 1928, Interplant Safety Contest, Western Pennsylvania Division of the National Safety Council:

Six-Month Certificates from January 1, 1931 to December 31, 1934, and from July 1, 1934 to June 30, 1935 for operating without a lost time accident.

Eleven candles in the birthday cake mark the eleventh anniversary of the M.S.A. Safety campaign. In the background are the trophies won by the company. Inset—John A. Oartel who has been the speaker at each annual rally.

January 1 to June 30, 1934 for operating during the six month period with an accident record better than the standing of the business group in which the contestant participated.

Commonwealth of Pennsylvania, Department of Labor and Industry:

Certificate of Merit — 1934, Safety Record Better than Average.

Certificate of Honor—1931, In Recognition of a Perfect Safety Record.

M. S. A. is starting on a new record of safe operation. It has one year and 175 days without a lost time accident to its credit. Each employee is determined that the new record shall beat the old one, and the old one is something to be proud of—4 years 157 days with 2,780,671 exposure hours without a lost-time accident.

There will be another cake and an additional candle for John Oartel next year.

NATIONAL SAFETY NEWS

Brighten Dark Days

(Continued from page 15)

tivity in the rejuvenation of many buildings. Methods of financing now available will help to put these long deferred renovations on the "do it now" calendar. It is not too early to begin making plans now.

With a can of paint, some imagination, and an eye for color harmony, the home owners' dream can be fulfilled. Chicago's "Century of Progress" was an outstanding example of what paint and illumination can achieve. Colorful spots from every corner of the world were reproduced and made realistic by the use of paint and carefully worked-out illumination.

The problem of interior decoration is so broad that it can hardly be touched in a short article. It offers many possibilities and the ultimate achievement is to treat the wall surfaces of a room so that they fail to confine the occupants. The use of the proper color and texture will assist in this direction. The master painter is a good man to consult.

"Save the surface and you save all." Quality paint can be depended upon to protect and beautify. Freshly painted surfaces are sanitary and easy to keep clean.

Where Do Non-occupational Accidents Occur?

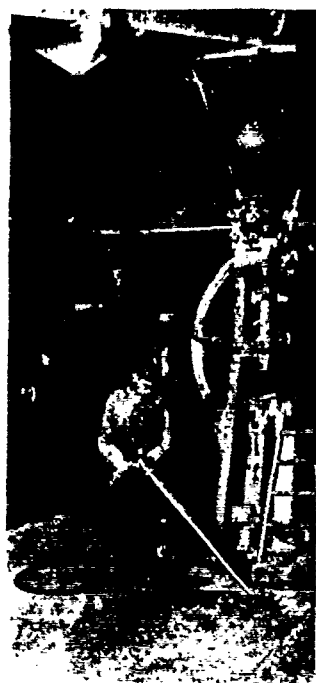
INDUSTRY is becoming more and more concerned about accidents that occur in the home and in public places, realizing that disability to an employee is costly, whether the accident occurs in the plant or elsewhere.

In this connection a recent analysis of approximately 25,000 claims paid by the Metropolitan Life Insurance Company on accident policies is of interest. It was disclosed that almost half of them occurred on home premises or within stores, offices and other buildings. Only one per cent occurred in trains, cars, buses and similar conveyances. Nine per cent of these occurred on the street but more than four-fifths of these were missteps and falls, unaided by vehicles. Further details may be found in the following table:

Where Injuries Occurred	Number	Per Cent
Inside buildings other than homes.....	7,063	28
Riding in or caring for automobiles.....	5,115	21
In the home or on home premises.....	4,306	17
Engaged in games or recreations.....	3,168	13
Other accidents in the open.....	2,745	11
Walking on streets, highways, etc.....	2,099	9
In trains, cars, buses, boats, etc.....	322	1

Total 24,818 100

DECEMBER, 1935



SPENCER

THE SPENCER TURBINE COMPANY, HARTFORD, CONN.

N-24

PROFITABLE CLEANLINESS FOR INDUSTRY

Industrial cleaning is no longer merely a necessity and an expense item. With a snappy vacuum and improved vacuum tools it is found that dirt and dust resulting from manufacturing processes can be removed as often as necessary during the day.

Spencer Central and Portable Vacuum Cleaning Systems in many types and sizes are reducing fire and health hazards, keeping dirt and dust from the finished goods, and improving production conditions by removing the dirt at its source before it spreads.

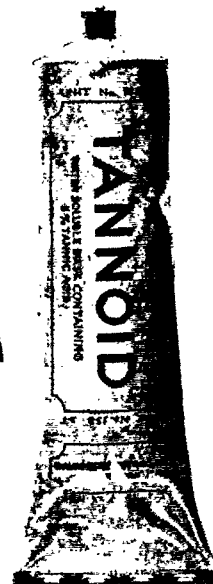
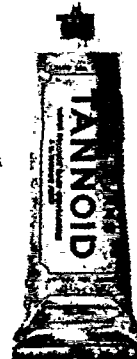
Quicker and more thorough than hand methods, easy to operate and with low maintenance costs, these units are showing the way to cleanliness with profit in many plants.

Our engineers will be glad to go over your plant layout and suggest methods of saving on production as well as on daily cleaning costs.

CENTRAL AND PORTABLE
VACUUM CLEANING SYSTEMS

PAIN KILLER -TANNIC ACID

1. The treatment of burns with Tannic Acid lessens the toxic effect of a burn—saves lives formerly lost.
2. Tannic Acid, as a dressing for burns, lessens pain.
3. The local astringent effect prevents loss of body fluids.
4. Secondary infection is markedly limited.
5. Scar tissue formation is less than observed after other treatments.



TANNOID is Tannic Acid, in a water soluble base and is available in convenient form for instant use in your first aid kit.

Send for your copy of TANNOID Bulletin.

DAVIS EMERGENCY EQUIPMENT CO., INC.
Chicago, Ill. • New York City • Houston, Tex.
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Davis Emergency Equipment Co., Inc.
55 Van Dam Street, New York City
Please send my copy of your Bulletin on TANNOID to

Name _____
Address _____
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N-2

Something New!

B-K ONE-HOUR Oxygen Breathing APPARATUS



Face-Piece Type

For Fire Fighting and Rescue!

TWO DESIGNS—mouth-breathing and face-piece types . . . the only one-hour oxygen breathing apparatus manufactured. Salient construction features include a new Koehler reducing valve mechanism, having only four moving parts, and special light-weight steel cylinder which furnishes a full-hour's supply of oxygen to the wearer.

For Details Write for
Bulletin 106

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Manufacturers
OXYGEN EQUIPMENT PRODUCTS

Dust Control

(Continued from page 18)

years ago by the Public Health Service in cooperation with the National Safety Council.¹ In this study it was found that the only practical safeguard to the worker inside the sandblast room was to provide him with a mask or helmet of the positive pressure type. In studying the efficiency of such devices, it was found that a relationship existed between the amount of air supplied to the helmet and the concentration of dust inside the helmet during blasting.

In an attempt to determine the optimum air volume to be supplied to such protective devices, it was necessary to obtain dust samples from inside the helmet while varying air volume, at the same time maintaining the dust concentration in the sandblast room (outside the helmet) constant. Figure 1 shows the results of such a study and clearly indicates that the positive supply of 6 cubic feet of dust-free air per minute will protect a worker under the operating conditions now in practice in sandblast rooms. The ultimate criterion of protection, however, is the result of dust determinations of the air within the helmet; that is, the air actually breathed by the worker and not the volume of air supplied.

Too much emphasis cannot be placed upon the necessity of maintaining these devices in good order. In fact, maintenance of exhaust ventilation systems and other types of protective equipment should be a rule in industry rather than an exception. Too often the term "good housekeeping" has been interpreted as signifying only the periodic removal of dust collected on floors, rafters, etc. Although such practice contributes to the general state of cleanliness and should always be in force, serious attention should be given to the installation and rigid maintenance of all types of dust control devices.

In every plant there should be some responsible individual charged with the periodic inspection of all workrooms for sanitation, ventilation, and maintenance of all dust removal and other protective devices. Perhaps the best criterion of the effectiveness of these devices is the periodic determination of the dust content of the air at the worker's breathing zone.

Often the benefits of even the most extensive program of dust control are not immediately realized. This is especially true in dealing with fibrosis producing dusts in plants where some of

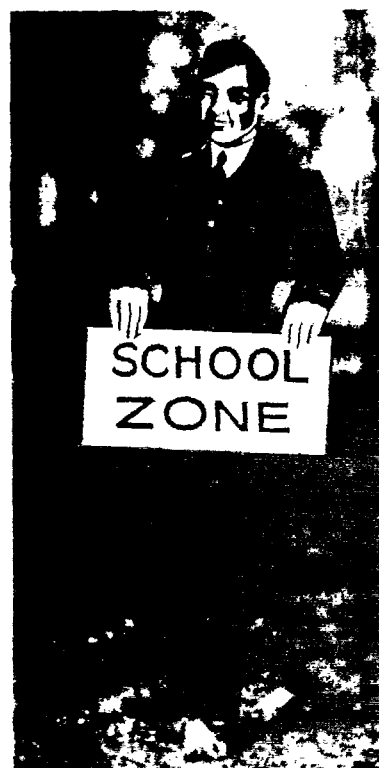
the workmen have already inhaled sufficient quantities of dust to cause disability. However, in dealing with such dusts as lead, cadmium and mercury compounds, control measures may produce measurable results in a relatively brief period of time.

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V. F. W. Installs Warning Signs

TEN unique warning signs, similar to the one shown in the accompanying illustration, have been installed in Wilmington, N. C., by Cape Fear Post



NATIONAL SAFETY NEWS

No. 2,573, Veterans of Foreign Wars. The signs have been placed in school zones and at dangerous intersections and each carries the wording, "School Zone" or "Dangerous Crossing."

In addition, the V. F. W. has stenciled safety messages on the pavement just off the curb at several locations in the business district. The safety program is in charge of a committee headed by C. W. Fulford of the Safety Department of the Atlantic Coast Line Railroad.

What Accidents Cost the Coal Industry

THE most recent report on cost of accidents in the coal industry is that compiled by the Division of Research and Planning, Bituminous Coal Section of the NRA. The report covers the 10-month period from April 1934 through to February 1, 1935; and these figures are based on operator's reports to the various District Code Authorities and comprise a production of 178,000,000 tons for the 10-month period, which represents about two-thirds of the total bituminous coal production east of the Mississippi River.

The report is a compilation of the cost per ton of coal at the mine, sub-divided into all the usual costs involved in mining. It also gives the selling price and the net profit per ton.

The actual average profit margin for this 178,000,000 tons of coal is 2.7 cents per ton, ranging from a loss of 6 cents a ton in the eastern Pennsylvania subdivision to a profit of 9 cents a ton in the southern No. 1 division. The average of compensation cost for this 178,000,000 tons of coal was 4.9 cents a ton and ranged from 3.1 cents in Alabama to 8.6 cents in Ohio. This amount in itself may not seem significant, but in comparison with an average margin of 2.7 cents a ton it assumes larger proportions.

Plainly stated, compensation costs for the industry as a whole are almost twice the profits per ton, and one fertile field for the reduction of costs lies in the field of safety; and based upon this 10-months' experience, one way in which the bituminous coal industry can double their profits is to cut their accidents in half.—J. T. Ryan, vice-president, Mine Safety Appliances Co., before the Mining Section, Twenty-fourth Annual Safety Congress.

DECEMBER, 1935

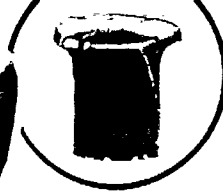
TO REDUCE ACCIDENT POSSIBILITIES

order the "SAFE-HED" STEEL STAMP MATTHEWS "PITTSBURGH HEAVY BEVEL"

The Safest and Toughest Stamp for marking hard Steel

The brilliant performance and endurance of these steel stamps is based on super-excellence in steel—accuracy in bevels—controlled Heat treatment and vigorous inspection.

NO MUSHROOMING



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No Spalling—Cracking or Mushrooming. In Short NO FLYING PIECES—NO ACCIDENTS.

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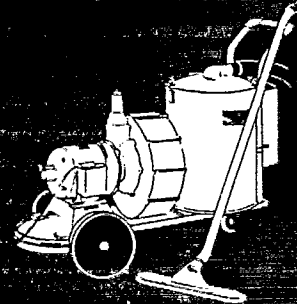
● NEW YORK — 488 CANAL STREET

CLEANLINESS
AND
ORDER

The Keystone of Your Safety Program

Vacuum-cleaned plants are automatically orderly plants.. Accidents due to falling, slipping, and tripping are invariably reduced.. Dangerous dusts are removed instead of being redistributed by sweeping... Best of all, INVINCIBLE PORTABLE INDUSTRIAL VACUUM CLEANERS quickly return their first cost by reducing cleaning costs....

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INVINCIBLE
HEAVY-DUTY
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INVINCIBLE VACUUM CLEANER MFG. CO.
2312 DAVIS ST. DOVER-OHIO

INVINCIBLE CLEANING COSTS LESS THAN SWEEPING

Dressed for Safety

(Continued from page 26)

confined to operations which involve a minimum of walking.

Where workers must wear spectacles, equipping them with goggles is more difficult. On certain jobs where goggles are worn less than 50 per cent of the time we use coveralls which fit over spectacles. However, they are too heavy for constant use. Where goggles must be worn more than half of the time, prescription lens goggles are furnished without charge to the employee.

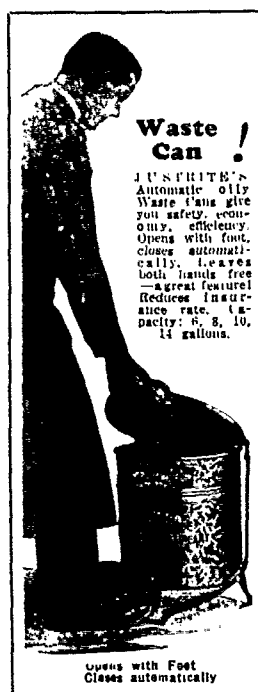
In selling our employees on goggles, we found that most of the complaints were about discomfort. After consulting several optical companies we found that properly fitted goggles could be as comfortable as a pair of spectacles. So we set up a goggle fitting department in the storeroom and placed in charge a man who had received his training with an optical company. Complaints are now rare.

We ran into more difficulty when we tried to put goggles on the girls. Here the chief objection was appearance but there were also some complaints about

discomfort. So we designed a different type of goggle. It is much lighter in weight and has a 42-millimetre lens with smaller frames. This goggle would not give adequate protection to men because the male orbit requires at least a 46-millimetre lens.

The same safety rules apply alike to women and to men but women are not employed on operations which involve contact with acids, oils, or other materials requiring protective clothing. Requirements for goggles, however, are ironclad. Women working around revolving machinery are required to wear hair nets.

PRESENTING New Justrite Safety Cans!

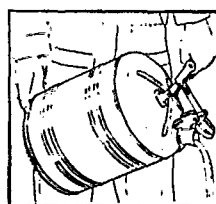


JUSTRITE presents a New Improvement in the 2, 3 and 5 gallon Safety Cans. The carrying handle has been redesigned. This permits "Easier Carrying" and "More Accurate Pouring." Large Spout—easily filled direct from filling station hose—no funnels required.

See how easy it pours—the most efficient can for the workman. Automatic spring controlled spout cap. Natural Hand Grip—opens in one operation—closes automatically. A safe container for carrying explosive and volatile liquids—no leakage or evaporation. Labeled by the Underwriters' Laboratories, Inc., and Approved by the Associated Factories Mutual Fire Insurance Companies.

LESSENS INSURANCE RATES

Protect your plant—your employee—lower your insurance rate premiums—by installing the latest improved and approved JUSTRITE Safety Devices TODAY. See your dealers or write us for interesting prices and literature.



Justrite

TRADE MARK

Justrite Mfg. Co. 2047 Southport Avenue CHICAGO, ILLINOIS



No More Accidents in This Shop!

—or in any other where WIESMAN SAFETY PRESS GUARDS are installed on the power presses. The cam action operating principle assures maximum safety and in no way interferes with rapid production. Simple in construction, automatic in action, and easy to attach. Made for right or left hand stroke. Write for details.

Wiesman Mfg. Co.

31 South St. Clair St.
DAYTON, OHIO, U.S.A.

When the Temperature Drops

(Continued from page 22)

used in an enclosed space unless ventilation is provided.

Decreased visibility is without doubt one of the paramount causes of accidents in winter. Nights are longer and days are not so clear. Windows should be kept clean to admit what natural light there is, and there should be adequate supplementary artificial light. Since windows will be kept closed, other means of ventilation must be provided. Men, groggy from impure air, are prone to have accidents.

Since extremely cold weather makes steel brittle, chains, bars, hammers, tongs and hooks may snap in winter under pressures they could withstand at normal temperature. Care must be taken to avoid the jerking of hoisting cables and lighter loads should be handled. Ladders should be fitted with spiked feet or other non-slipping appliances.

Produce New Movie on Mine Safety

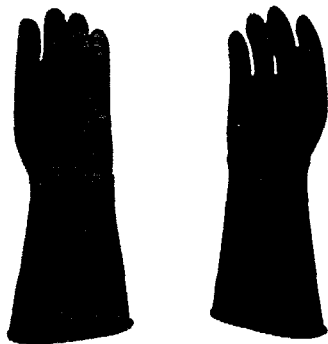
THE need for the exercise of safe measures in coal mining and of teaching safety and first-aid methods is emphasized in a newly revised 2-reel silent motion picture film entitled, "The Making of a Safe Miner," which has been produced under the supervision of the United States Bureau of Mines, Department of the Interior, in cooperation with one of our large coal mining companies. The film is a condensed version of one previously produced entitled "When a man's a Miner."

Copies of this film in 16-mm. or 35-mm. sizes are loaned for exhibition purposes, to schools, churches, clubs, civic and business organizations, and others, upon application to the Pittsburgh Experiment Station of the United States Bureau of Mines, Pittsburgh, Pa. No charge is made for the use of the film, but the exhibitor is asked to pay transportation charges.

NATIONAL SAFETY NEWS

BARN'S New Reinforced Electrician Gloves YELLOW with BLACK center

Steam Cured



Either Straight or curved Finger in all standard voltages and sizes. The **REINFORCEMENT** is one third heavier than the hands and fingers.

The records of large utilities show that from 47% to 75% of the gloves that are rejected on Retest are on account of mechanical injuries, namely: **TEARS, SCRATCHES, ABRASIONS** and **SNAGS** on the glove cuff.

The Reinforcement of the Cuff:

increases the factor of safety—longer service and greater economy—increases the efficiency and morale of the linemen.

Why the YELLOW with BLACK CENTER Glove?

The laminated construction gives added dielectric and tensile strength. Positive inspection in field and laboratory. Seriousness of all defects, snags, scratches, abrasions and imperfections are easily seen as black will show through the yellow.

Try a few dozen and be convinced of the economy and added safety factor, efficiency and high morale of your linemen. Price only 75 cents more per pair than regular gloves in all voltages.

Manufactured by The Wilson Rubber Company for

FRANK E. BARN'S
130 North Wells Street
Chicago, Illinois

An Extinguisher for Every Fire Risk

(Continued from page 28)

is miscible with water. Foam with its high percentage water content simply flattens out in contact with alcohol and ceases to be foam. Alcohol fires may be extinguished by diluting the alcohol with water to the point where combustion ceases but this method is practicable only when the container is nearly empty. The best method is to smother with CO₂. A few other liquids, such as acetone, are similar to alcohol with respect to fire extinguishment.

Carbon bisulphide is unique because it is a highly volatile flammable liquid which is heavier than water. Fighting a carbon bisulphide fire is not a pleasant job because the material burns with a light blue flame like sulphur so faint in color that it is very difficult to see unless one is fairly close. But it is almost beyond human endurance to get close to such a fire without a gas mask because one of the products of combustion is sulphur dioxide, a gas so irritating to the nose and throat that it strangles the fire fighters. Once the fire is located, however, the best extinguishing medium is water. Water because of its lower specific gravity will float on the surface of the carbon bisulphide and seal the flammable liquid from contact with air. Thus water acts as a smothering agent instead of in its usual capacity as a cooling agent. Sulphur fires respond in a similar manner.

Linseed oil seems like an innocent material but the more we learn about it, the more precautions we will take to guard against it. Linseed oil has long been used with paints because, mixed with pigments it oxidizes to a hard, elastic, weather-resisting surface. It is this ability to oxidize, however, that makes linseed oil dangerous. Exposed on the side of a house as paint it offers no hazard, but linseed oil-soaked rags and litter, provided with the right amount of air to allow oxidation, but more or less protected from draughts, are liable to ignite spontaneously because the oxidation is accompanied by the generation of heat. Other vegetable oils are similar to linseed oil with respect to spontaneous ignition but they have not received quite as much study.

Linseed oil presents still another hazard. It plays an important part in the manufacture of varnish where it is heated in kettles. Occasionally, through mistake or because of a fault in the heating

system, it is heated above its ignition point. Then there is a mass of burning oil at a temperature much above the boiling point of water, so that even a few drops of water tossed into the kettle will cause frying and spattering due to the sudden formation of steam. The addition of a quantity of water causes the whole mass to froth and boil over, sometimes spattering oil to a considerable distance due to the explosive violence of the sudden formation of steam.

Such a fire may be handled in several ways. First the heating system should be cut off and the surrounding hot brickwork of the furnace cooled as rapidly as possible. Next, if there is room in the kettle, cool linseed oil may be let in until the whole is cooled below the ignition point and the fire is out. If there is not sufficient room in the kettle, foam from a manually operated device will rapidly kill the fire; but only just enough foam to extinguish should be used because a big excess will wilt from the heat and the water thus liberated will cause boil-over. Linseed oil fires of this nature may also be extinguished with CO₂ very readily with no danger of splattering or boil-over. If the oil is very hot it may reflash after being extinguished the first time so it is usually necessary for the operator to stand by ready to apply the CO₂ for one or two reflashes.

These remarks about extinguishing linseed oil fires apply with equal force to fires in most vegetable and animal oils, paraffine, heavy mineral oils, tar, pitch and asphalt.

Calcium carbide of itself is non-flammable. A little moisture, however, liberates acetylene gas which is highly flammable and which with the proper mixture of air is capable of terrific explosive violence. Consequently in fighting fires where carbide is stored water or anything containing water should be avoided. Here is the place to use the carbon dioxide or vaporizing liquid type extinguisher.

Pyroxylin Plastic fires are exceedingly bad risks but fortunately they may be extinguished with water. Only on very small quantities of pyroxylin should foam be used. CO₂ or vaporizing liquid not at all.

It is true that either of the latter substances will extinguish a pyroxylin fire but the hazard of fumes from rapidly decomposing pyroxylin is great. These fumes contain quantities of carbon monoxide and nitrogen peroxide, either of which is deadly and in combination they are a first class war gas. Such fumes

are produced from burning pyroxylin after the actual flame has been extinguished by CO₂ or carbon tetrachloride or in a small vault after the oxygen of the air has been used up. In certain small pyroxylin fires, foam is sometimes used successfully but the true measure of success in such a case is isolation with the foam blanket rather than extinguishment. The proper treatment for pyroxylin-fires is to drown them in a deluge of water which will cool the burning material below its burning point and below the point at which it will produce fumes.

Pyroxylin Lacquer is merely pyroxylin in solution. Almost all of the solvents used today are highly flammable. Therefore when fire occurs in liquid lacquer it is more a fire of the solvent than of the pyroxylin. Water will not extinguish such fires but either foam or CO₂ will. After lacquer has been sprayed on objects set up in a spray booth a feathery structure of the solid lacquer may be found at the back of the booth unless careful housecleaning is the rule. This material is the pyroxylin minus the solvent. It makes a very mean fire and the only good extinguishing agent is water.

Potassium Chlorate itself is not a flammable salt but it belongs to that class of substances which when heated give up oxygen. It is used to some extent in gunpowder and when so used it assists in the rapid burning of the charcoal and sulphur by supplying the necessary oxygen. When potassium chlorate is present with a burning substance it assists very materially in the complete destruction of that substance just exactly as it does in the case of the carbon and the sulphur in gunpowder.

Casting about for a suitable fire extinguishing agent for such a fire one finds oneself faced with the problem of extinguishing a fire in which the oxygen is being supplied by the combustion. Smothering, therefore, is of no use. Water would seem to offer a solution of the problem but water has a tendency to cause spattering which might spread the fire. Probably the best solution is to isolate the burning mass rather than to attempt actual extinguishment and this may be accomplished with a layer of foam.

Other substances which are similar to potassium chlorate are the chlorates of other metals and the nitrates, the peroxides, the permanganates of metals and nitric acid.

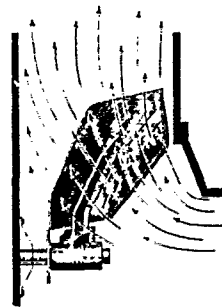
Aluminum dust. Without going into the general subject of dust explosions

and fires, a few words on finely divided aluminum may not be out of place.

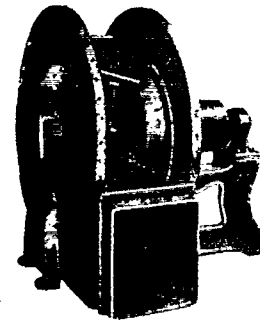
This material is quite common in industry and it presents a real problem because practically none of our modern first-aid fire-fighting devices has any effect upon a fire of it other than to make the fire worse. The fire once started is made up partly of a molten accretion of the metal and partly of particles actually being oxidized (burning) by contact with the molten material. The presence of water greatly intensifies the

heat and stimulates the combustion. This rules out water, soda-acid and foam as extinguishing materials. Carbon tetrachloride causes mild explosions blowing glowing particles about like a Roman candle. Carbon dioxide, if anything, causes the entire mass to burn more violently. Apparently what is required is some anhydrous material which will conduct away the heat. Experiments indicate that either dry sand or talc will make a passable extinguishing agent.

DOWN comes the cost of Dust Collecting—



Curve of Cycloidal Wheel, in action. Smooth flow . . . no sharp angles . . . less power used . . . more efficient work



Curve of Standard Wheel, in action. Note sharp breaks and angles. Causes friction . . . eats up power . . . reduces efficiency.

THE H¹ STATIC CYCLOIDAL EXHAUSTER

It's All in the Wheel

Here's the fan for low cost operation and steady efficiency for dust and shavings collection. The only real improvement in fan building in 50 years. No sharp angles—no abrupt breaks or "baffles" to fight the air flow, and cause costly friction. Smooth, free, unimpeded air movement results in easier operation at less power cost. Cycloidal wheels offers less impact-surface to air . . .

Write for details

GARDEN CITY FAN COMPANY

"A FAN OR BLOWER FOR ANY PURPOSE"

Mfrs.—Since 1879

332 S. Michigan Ave.

Eastern Office—55 W. 42nd St., New York City

Chicago, Ill.

FERALUN Anti-Slip Treads

Also Bronzalun,
Alumalun and Nicalun

PREVENT ACCIDENTS ON STAIRS and FLOORS

A hard metal matrix into which is cast an abrasive next in hardness to the diamond assures durability and anti-slip efficiency.

ALL ARE FIREPROOF

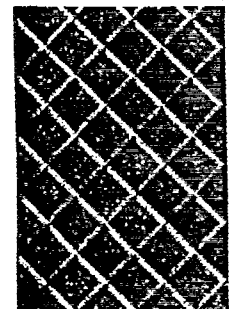
Originators and developers of Abrasive metals for

SAFE WALKWAYS

Specify Feralun and Be Sure

AMERICAN ABRASIVE METALS CO.

Irvington, New Jersey



PROTECT WORKERS with DRACCO DUST CONTROL

Plants that were never considered in the "Dust Zone" a few years ago are now faced with the problem of protecting their workers from Dust. DRACCO Dust Control Units will protect the health of your workers and make your plant a better and safer place to work.



The New DRACCO
Multi-Bag Filter

Dust Control Pays Dividends

The New DRACCO MULTI-BAG FILTER deserves the serious consideration of those confronted with a Dust problem because it offers ECONOMIC and EFFICIENT Dust Control. We offer you the services of our Engineering Department, with many years of practical experience back of it, to aid you in solving your Dust problem. Dust has no place in an efficiently operated plant. DRACCO Dust Control Units pay LARGE dividends. Write for details.

Write for Bulletin No. 301

DRACCO CORPORATION

Successors to The Dust Recovering & Conveying Co.
4073 E. 116th St. Cleveland, Ohio

IPCO SYNTHETIC RUBBER GLOVES

Designed for use in petroleum base oils, gasoline, naphtha and many chemicals which are solvents of natural rubber.



Made in 10½ and 14 inch lengths, light, medium and heavy weights. Gloves are seamless, flexible, extremely tough and hard to snag.

Especially recommended for cleaning operations and processes where solvents of natural rubber are used.

Send for copy of Bulletin S describing Synthetic rubber gloves, aprons and other products for protection in oils, acids and caustics.

INDUSTRIAL PRODUCTS COMPANY

Accident Prevention Equipment
800 W. Somerset St.
Philadelphia, Pa.

HONOR ROLL

Details of no-accident records in excess of 400,000 man-hours, or 200 working days, are invited for this department

Forstmann Woolen Co.

The weaving mill of the Forstmann Woolen Company at Garfield, N. J., is now working toward its second million man-hours without a disabling injury. The last injury occurred on November 28, 1934, and the first million safe man-hours was reached during the week of November 9, 1935. The mill employs approximately 650 workers and the safety program is under the direction of Superintendent James Wilson and his assistants Otto Leberecht and Carl Templiner.

Mine Safety Records

The following records established by companies in the mineral industries have been compiled by the U. S. Bureau of Mines:

METAL UNDERGROUND MINES

Commerce Mining and Royalty Co., Wilbur Mine, Treece, Kans. Jan. 1, 1929, to December 31, 1930; 400,944 man-hours.

Brule Mining Co., Berkshire Mine, Stambaugh, Mich. Jan. 1, 1928 to Dec. 31, 1930; 1,032,989 man-hours.

Phelps Dodge Corp., Humboldt Mine, Morenci, Ariz. Jan. 1, 1932, to Dec. 31, 1932; 400,384 man-hours.

NON-METALLIC MINERAL UNDERGROUND MINES

Alpha Portland Cement Co., Ironton Mine, Lawrence, Ohio. Jan. 1, 1927, to Dec. 31, 1932; 557,365 man-hours.

Retsof Mining Co., Retsof Mine, Livingston, N. Y. Jan. 1, 1931, to Dec. 31, 1934; 889,700 man-hours.

METAL OPEN-CUT MINES

Mahoning Steel Co., Mahoning Mine, St. Louis, Minn. Jan. 1, 1931, to Dec. 31, 1932; 465,955 man-hours.

Sagamore Ore Mining Co., Sagamore Mine, Crow Wing, Minn. Jan. 1, 1930, to Dec. 31, 1934; 423,552 man-hours.

Plymouth Mining Co., Plymouth Mine, Wakefield, Mich. Jan. 1, 1930, to Dec. 31, 1934; 660,865 man-hours.

Bennett Mining Co., Bennett Mine, Keewatin, Minn. Jan. 1, 1928, to Dec. 31, 1934; 654,578 man-hours.

Wakefield Iron Co., Wakefield Mine, Wakefield, Mich. Jan. 1, 1928, to Dec. 31, 1931; 1,243,854 man-hours.

QUARRIES

Michigan Limestone & Chemical Co., Rogers City, Mich. Jan. 1, 1932, to Dec. 31, 1934; 1,809,965 man-hours.

Louisville Cement Co., Speed, Ind. Jan. 1, 1925, to Dec. 31, 1929; 815,259 man-hours.

General Crushed Stone Co., Quakertown, Pa. Jan. 1, 1929, to Dec. 31, 1931; 464,685 man-hours.

Marquette Cement Mfg. Co., Cape Girardeau, Mo. Jan. 1, 1928, to Dec. 31, 1930; 634,762 man-hours.

Lehigh Portland Cement Co., Ormrod, Pa. Jan. 1, 1927, to Dec. 31, 1931; 1,107,807 man-hours.

Lehigh Portland Cement Co., Fogelsville, Pa. Jan. 1, 1930, to Dec. 31, 1934; 439,509 man-hours.

Lehigh Portland Cement Co., Newcastle, Pa. Jan. 1, 1927, to Dec. 31, 1930; 554,038 man-hours.

Lehigh Portland Cement Co., Fordwick, Va. Jan. 1, 1928, to Dec. 31, 1930; 475,431 man-hours.

Lehigh Portland Cement Co., Mason City, Ia. Jan. 1, 1929, to Dec. 31, 1933; 507,976 man-hours.

Lehigh Portland Cement Co., Iola, Kans. Jan. 1, 1927, to Dec. 31, 1934; 487,661 man-hours.

Lehigh Portland Cement Co., Birmingham, Ala. Jan. 1, 1928, to Dec. 31, 1934; 506,725 man-hours.

Cowell Portland Cement Co., Cowell, Calif. Jan. 1, 1926, to Dec. 31, 1929; 421,299 man-hours.

Pittsburgh Plate Glass Co., Zanesville Quarry, East Fultonham, Ohio. Jan. 1, 1929, to Dec. 31, 1931; 540,130 man-hours.

Marquette Cement Mfg. Co., Oglesby, Ill. Jan. 1, 1929, to Dec. 31, 1930; 489,769 man-hours.

North American Cement Corp., Berkeley No. 5 & 6 Quarries, Martinsburg, W. Va. Jan. 1, 1930, to Dec. 31, 1934; 480,412 man-hours.

Lehigh Portland Cement Co., Sandts Eddy, Pa. Jan. 1, 1927, to Dec. 31, 1933; 522,847 man-hours.

Penn. Dixie Cement Corp., Nazareth, Pa. Jan. 1, 1926, to Dec. 31, 1934; 476,449 man-hours.

J. E. Baker Co., Billmeyer, Pa. Jan. 1, 1933, to Dec. 31, 1934; 836,022 man-hours.

Inland Lime & Stone Co., (Schoolcraft Co.), Manistique, Mich. Jan. 1, 1933, to Dec. 31, 1934; 613,196 man-hours.

COMING EVENTS

Of Interest to Safety Men

Dec. 5-6, Washington, D. C.

Highway Research Board of the National Research Council, Fifteenth Annual Meeting. Roy W. Crum, director, 2101 Constitution Ave., Washington, D. C.

Dec. 5-7, New York City

National Society for the Prevention of Blindness. Annual Conference. (Rockefeller Center.) Lewis H. Carris, managing director, 50 West 50th Street, New York City.

Dec. 9-12, Miami, Fla.

American Association of State Highway Officials. Annual Convention. Executive secretary, W. C. Markham, 1222 National Press Bldg., Washington, D. C.

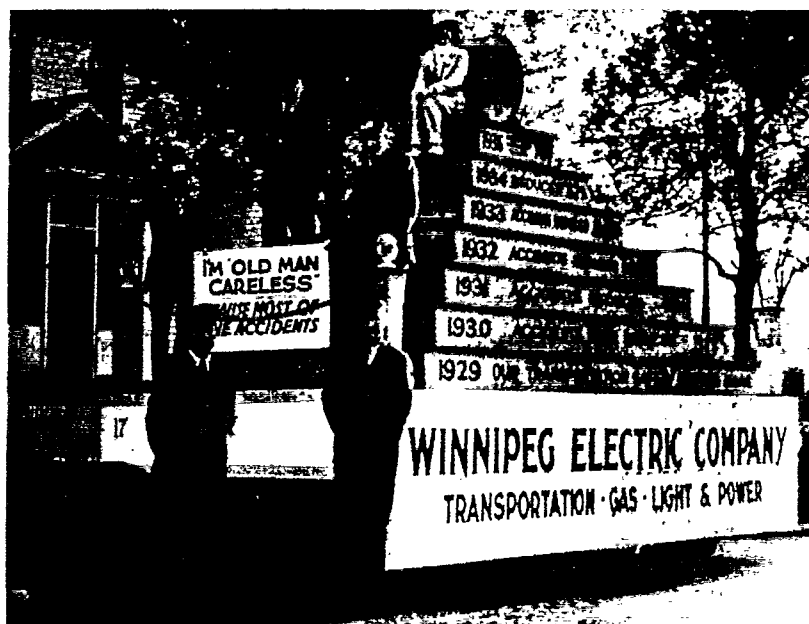
Jan. 9-11, Washington, D. C.

American Engineering Council. Annual Meeting. Executive secretary, Frederick M. Feiker, 744 Jackson Place, Washington, D. C.

Jan. 27-31, Chicago

American Society of Heating and Ventilating Engineers. Annual Meeting. (Palmer House) Secretary, A. V. Hutchinson, 51 Madison Ave., New York City.

NATIONAL SAFETY NEWS



"Accidents can be reduced—our employees have proved this," was the message of the above float entered in a recent safety week parade in Winnipeg, Manitoba. The float showed graphically the impressive reduction in accidents made by the Winnipeg Electric Company.

Wins President's Medal

FOR resuscitating a fellow worker who had been overcome by carbon monoxide, Roy Jobe, an employee of the Republic Steel Corp. at Buffalo, N. Y.,



Roy Jobe was awarded The President's Medal for saving the life of Frank Bieber (right).

was awarded the President's Medal of the National Safety Council.

The victim, Frank Bieber, was working in a 72-inch gas main when he was overcome. He was immediately lowered to a platform where Jobe began the work of resuscitation.

R. H. Ferguson, manager of safety, made the presentation at a dinner which was attended by officials of the corporation.

DECEMBER, 1935

Accident Proneness Shows, Even in Cinders in Eyes

STUDIES of accident proneness which indicated approximately that three-fourths of all accidents happen to about one-fourth of the people applies even to such apparently pure mischances as getting a cinder in one's eye. So reports Great Britain's Industrial Health Research Board in its annual report as quoted in *The Week's Science*.

According to the British studies, the ratio applies not only to factory accidents but to those at home, such as falls, burns and accidental cuts with knives. Still more surprising is the same rule for people who get things in their eyes. All this might be dismissed merely by saying that these people who collect most of the hurts are merely unlucky, but that does not satisfy modern scientific students of accidents. No entirely satisfactory theory has been worked out, but it is believed that the chief item is not carelessness, but the way people differ in the quickness and accuracy of their muscular reactions, perhaps even in their eye winks.

Tramp: "Could you give a poor fellow a bite?"

Housewife: "I don't bite myself, but I'll call the dog."

PREVENT INFECTION ALWAYS

and You May Save a Life!

THEY may not seem serious, but cuts and scratches as well as deeper wounds can quickly become infected and lead to disability or loss of life. You prevent infection when you promptly treat all cuts and scratches with ISODINE-DAVIS.

Isodine-Davis, the new iodine antiseptic, as powerful as *Tincture of Iodine U.S.P.*, is less painful and less irritating to the patient. Your men will appreciate and want to use this important safety aid.

You may procure Isodine-Davis in your own selection of three styles of packaging. Choose the one most convenient for your use.

In swabs, like those surgeons use to sterilize wounds, packed in "D" cartons to fit your first aid kit, or in bulk. In handy applicators.

In convenient sized bottles—2 oz., 4 oz., 8 oz.



Use attached coupon to send for your copy of FREE interesting pamphlet fully describing Isodine-Davis.

DAVIS EMERGENCY EQUIPMENT CO., INC.
Chicago, Ill. • New York City • Houston, Tex.

Davis Emergency Equipment Co., Inc.
55 Van Dam Street, New York City
Please send my copy of your Bulletin on Isodine-Davis to
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Address _____
City _____

WITH THE MANUFACTURER

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published

Improved Fresh-Air Hose Masks

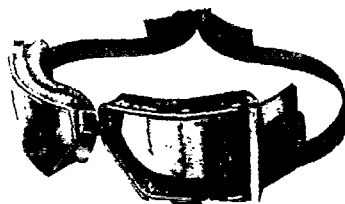
An improved design of the MSA combination hose mask, officially tested and approved by the United States Bureau of Mines, has been placed on the market by Mine Safety Appliances Company, Brad-dock, Thomas and Meade Streets, Pitts-burgh, Pa. The design was perfected in



the research laboratories of the company, and is principally characterized by innovations in the design of the blower, which is built with a double outlet for one or two-man use, and possesses increased air capacity for greater efficiency of operation and safety to the workmen. The new unit is approved for use by two men with as much as 150 feet of hose to each mask.

Cesco Style No. 220 Chipping Goggle

The Chicago Eye Shield Company, 2298 Warren Blvd., Chicago, announce an improved wide vision chipping goggle made for impact hazard work and equipped with a new type super-safety lens that does not change direction of light rays passing through the lens. A number of other practical improvements have been incorporated in this goggle, that insure

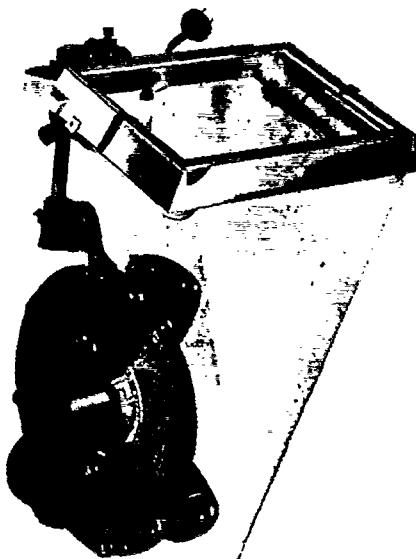


greater safety, wearing comfort and maximum usefulness. The shape of the eye cups allow natural, full and wide vision. The goggles are close fitting and edges contacting the face have a pure gum cushion binding. The large curved lenses are interchangeable by means of a simple hinged door. Super-safety lenses are a scientifically designed optical product and afford maximum protection with no interference

to the vision of the wearer. The curvatures are such that the lens is entirely free from focus and the optical center is located so that the line of sight for an eye looking straight ahead through the lens suffers no deviation. The manufacturers further state these lenses are made from a high quality crown glass and are free from bubbles and striae. The blanks are first molded to the approximate shape of the finished lens and then ground and polished in accordance with the latest opthalmic lens practice. Super-safety lenses are placed through a special hardening process which greatly toughens the glass, enabling the lenses to withstand severe blows and impact hazards.

Grinding Wheel Shield with Three Point Illumination

The Surty Manufacturing Company, 4139 W. Kinzie Street, Chicago, announce a new grinding wheel shield. While giving full protection for the major number of grinding operations, they especially stress



the fact that in giving an adequate, unchanging light exactly where needed, the eye is not under strain but is at ease all the time. With reduced chances for fatigue caused by eye strain, there is, consequently less likelihood of injuries. The hood shown is their regular standard approved hood.

Emergency Oxygen Breathing Apparatus

The Bishinger-Koehler Manufacturing Company, 7838 Kelly Street, Pittsburgh, Pa., announce a new one-hour oxygen breathing apparatus for use in fire-fighting and rescue work. It is available in two styles—one, a mouth-breathing type with nose clip and mouth piece; the other, a face-piece type similar in most respects

to a gas mask face-piece, for face protection. The accompanying illustration shows the mouth-piece type.

It is valuable for emergency use, weighing less than 25 pounds, small in size and with few parts. It contains a new reducing valve mechanism, invented by F. W.



Koehler, and having only four moving parts. The valve mechanism automatically controls the flow of oxygen to the wearer, when and as needed.

The manufacturers further claim firemen and rescue workers, when equipped with this apparatus, can enter oxygen deficient or highly concentrated gaseous atmospheres in safety.

New Hair Net

The Industrial Products Company, 800 W. Somerset Street, Philadelphia, Pa., announce a new hair net designed for all industrial operations where girls are employed around machinery and power

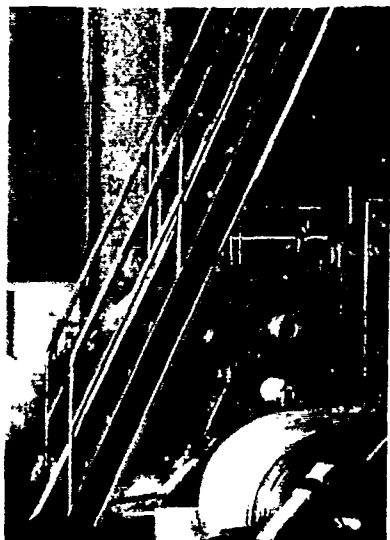


driven equipment. These nets keep the hair out of the eyes, close to the head and lessen the chance of accidents. They are attractively made of heavy rayon silk in a wide assortment of colors and designed so that they will stay firmly in place and will not shift or slip.

NATIONAL SAFETY NEWS

Pipe Railing Fittings

Pipe railings of an entirely new type are now being manufactured by the Fabricated Steel Products Company, Wheeling, W. Va. This company conceived the idea of making pipe railings entirely of steel and welding the components together. By



the use of specially designed equipment the parts are machined automatically to the intricate contours necessary. By an ingenious method of fabrication all of the welding is done within the pipe itself with the exception of the field joints so as to leave no edges to cut hands or tear clothing. Field welds, when ground or filed down are impossible to detect, says the manufacturer. Railings of two distinct types are available, namely those having "connectors" which simulate a railing made with the old type of plain pattern fitting and the flush type simulating in appearance railings made with flush pattern fitting. The company has been able to design railings so that there is no break in the post at the intermediate rail and have given them the trade name of "Jointless Post." Like the remainder of the railing, steel flanges have been developed which complete the all steel picture.

Statements published on this page are based on the claims of the manufacturer. While the National Safety News cannot guarantee these statements, they are believed to be accurate.

Accident Reduction Shows in Compensation Costs

A STEADY reduction in accidents during the past few years has brought substantial savings to the Kaminstiquia Power Company, Limited, Fort William, Ontario. In 1929, compensation payments for accidents totaled \$1,371; last year the accident bills came to \$45.02.

This company was awarded a trophy in the accident prevention contest for the Public Utilities Section, NSC, for the year ending June 30, 1935. The company came through the twelve-month period without a disabling injury, with an exposure of 81,324 man-hours.

DECEMBER, 1935

Trade Publications

for your

SAFETY EQUIPMENT LIBRARY

Information You Should Have

A reference file of trade publications on safety equipment should be a part of every plant's ammunition for the battle of controlling accidents. A wealth of valuable data and information is yours at no charge and with no obligations. Every executive should avail himself of these publications—much help in the every day problems of efficiency, safety and profitable operation are found in them. Mail the coupon today!

1. American Dustube Collectors.

Folder No. 222. Illustrates and describes dust collectors for various industrial services. Explains tube construction and other operating features. The American Foundry Equipment Company.

2. Metal Cleaning Handbook.

A veritable text book covering various equipment, methods and material for cleaning operations together with practical suggestions for their use. A valuable reference and guide. Contains over 200 pages and is well illustrated. Magnus Chemical Company, Inc.

3. Pulmosan Safety Equipment

Catalog. A splendid loose leaf catalog covering a complete line of safety equipment for industrial use. The various types of Pulmosan respirators are featured. Pulmosan Safety Equipment Corporation.

4. Ace Hard Rubber Protection.

This handy 64 page catalog is especially valuable for Chemical Process Industries. Gives information on rubber linings for steel tanks, rubber lined tank cars, hard rubber pipe and fittings, rubber lined steel pipe and fittings, hard rubber utensils and other specialties. American Hard Rubber Company.

5. MSA Carbon Monoxide Indicator.

New bulletin No. DS-1. Information on a portable instrument designed to indicate the low concentrations of carbon monoxide in air which are universally recognized as dangerous. Mine Safety Appliances Company.

6. Dual Purpose Car.

This interesting folder shows how a passenger automobile may be converted into an emergency ambulance for rushing injured to the hospital. Ideal for industrial uses as car may be used for other services when not employed as an ambulance. Arntzen Inc.

7. McDonald Safety Hat.

Folder illustrates and describes a safety hat embodying many new features of construction for comfort, durability and safety. Model for industrial and mining use. B. F. McDonald Company.

8. Bradley Group Washing Fixtures.

Catalog No. 435. This splendid catalog shows how a small floor space can be used to give workers adequate washroom and shower facilities by the use of group fixtures. Construction features clearly portrayed. Bradley Washfountain Company.

9. Fuses Made to Protect—Not to Blow.

This interesting booklet contains valuable information on the use of fuses and definite facts showing how needless shutdowns can be prevented. Bussman Manufacturing Company.

10. Stonehouse Signs for Accident Prevention.

Catalog No. 4. This profusely illustrated catalog contains 2000 signs of various shapes, sizes and wordings for warnings of practically every hazard. Signs are furnished in three gauges of steel and in three different finishes. Stonehouse Signs, Inc.

11. How to get the most out of your Watchman Service.

Folder tells about special watchman daily report forms designed to make watchman service more efficient and provide increased protection and safety. Minute Lessons Publishers.

12. Bullard Gas Masks.

This 6 page folder shows several types of gas masks for different uses. The reel hose mask approved by the U. S. Bureau of Mines is featured. This model is light in weight and is easily portable. E. D. Bullard Company.

NATIONAL SAFETY NEWS

20 North Wacker Drive
Chicago, Ill.

December, 1935

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I. E. S. Sponsors Better Light and Safer Lamps

SAFETY and better lighting are both the objectives of the certified lamp program now being carried on by the illuminating engineering society. Portable lamps bearing tags certifying compliance with I. E. S. specifications are now available throughout the United States and Canada. The origin and details of this program are described by William F. Little and R. B. Brown, Jr., in the *Transactions of the Illuminating Engineering Society*, September, 1935.

For safety, the electrical construction requires a high standard of insulation, such that should a person touch the switch of the lamp and at the same time a radiator or other well grounded object, he could not receive an electrical shock, even under very humid conditions. The maximum leakage current of 0.2 milliamperes was selected, first, because it was the threshold value for physiological sensation and, second, to provide a safety factor to allow the depreciation of the equipment. Leakage may result from a number of causes, such as poor insulating material in switch or sockets.

Impregnation, lacquer and rubber tape have practically eliminated this fault.

Of the first fifty lamps submitted to the I. E. S., not five per cent met the leakage current test. Weeks of experimental work were necessitated covering hundreds of sockets, switches and attachment caps to clear up all the difficulties. For example, because of the leakage in the brass shell socket interliners, in many cases it was found necessary to require porcelain sockets. Even here some trouble was experienced because of the hygroscopic properties of sealing compound. During the period of experimentation a high heat-resisting, impregnated interliner was developed for the brass shell sockets and a waterproof sealing compound for the porcelain sockets. These reduced failure to a negligible quantity.

The customary use of asbestos-covered picture wire for switches and in the pipe stems was found unsatisfactory. After much experimentation a lacquer-covered wire was developed to meet these needs. Manufacturers cooperated generously in these developments.

The first few lamps submitted were given a temporary certification because the high quality cord called for in the specifications was not available. In the course of several months, however, at least nine manufacturers were producing either cotton or rubber-covered No. 18 Awg. wire with No. 34 Awg. stranding. At present, a large percentage of all portable lamps are now equipped with this high quality wire which is supplied at a price no higher than that of the poorer quality of wire which was in general use prior to the certified lamp program.

To insure the desirable insulation qualities on the entire equipment, it is subject to a proof-voltage test of 900 volts.

Contrary to general opinion, an underwriter's approval label attached to the wire or some other integral part of the lamp does not insure its safe performance, since it does not eliminate all of the other possible defects which may be present. Contrary to another popular opinion, portable lamps as such are not subject to inspection and approval by local wiring authorities. Hence, there is very little opportunity to prevent poor quality lamps being sold.

The I. E. S. inspection requirements

are such that the assembled lamp shows reasonable excellence in electrical and mechanical features of construction in order to insure safety and continuity of service. All wiring connections must be made in accordance with best practice. Smooth wireways and bushings are required and all joints not terminating under screws must be soldered and double-taped. The switch must be on the proper side of the circuit and must be capable of opening and closing 12,000 times without failure. The socket must be well insulated and properly connected to the lamp, so that they will not loosen when lamps are screwed in and out. The attached cord must be at least seven feet long and must be either cotton or rubber covered for durability, have fine strands for flexibility and durability and must be of an approved type carrying the Underwriters' five-foot label.

Construction requirements even cover the style and type of attachment caps which must be of a material not easily broken, preferably of soft rubber compound, or the equivalent and must have a finger grip to aid its easy removal from the receptacle.

The stability of the assembled lamp must be such that it will not tip over when tilted ten degrees from the vertical in case of a table type, or seven degrees in the case of a floor lamp.

This Could Not Occur With Metal Handles



THE above photograph will explain why the editor of the NATIONAL SAFETY NEWS appeared at the office one morning with a bandaged thumb. The china handle broke under very little pressure, inflicting a rather deep gash.

The editor is ashamed to acknowledge that this was the second accident of that kind in his home within eighteen months. The previous victim was his nine-year-old daughter, who suffered a much more severe laceration. The only alibi that can be offered for the recurrence is that replacement was left to the landlord.

There are now metal handles on the bathtub faucets.

NATIONAL SAFETY NEWS



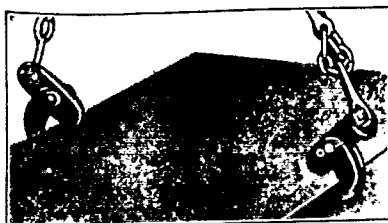
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"We have Pyroilized all grease and oil in our plants and find it very beneficial in every way. Not only in the easier running of all shafting, etc., but in cooler bearings, less lubricant and longer life for bearings throughout the plant."

Pyroil has created similar efficiency in many plants. Mail coupon for important facts. Manufactured and guaranteed by Pyroil Company, W. V. Kidder, Pres., 862 LaFollette Ave., LaCrosse, Wis., U. S. A.

The One and Only Genuine Pyroil (Patent Protected) Bears this Signature on Every Can.

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Boiler Plate Can Be Handled Safely

BOILER plate can be handled safely with Never Slip Safety Clamps. Old-fashioned chains or hooks, which have a tendency to slip, cause accidents to men. These clamps make carrying work over the heads of workmen safe. No time lost in adjusting the hold or forming a balance.

Made for horizontal and vertical lifting.

Write for details

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Aged in the Truck

"They interviewed a cross section of the average man who buys \$1 a pint whisky," says an advertising agency handout about preparations for launching a new blend.

Uh-huh! We used to see such cross sections in schoolbooks. But do they make good liquor advertisements?

--Editor and Publisher.

Five gallons of gas and a quart of gin.
and all they found was a mess of tin.

IF HE CAN WALK SECURELY HE CAN WORK FASTER

PLASTIC FUT-SURE Guarantees Safe Walking

PLASTIC FUT-SURE provides permanent under-foot security on floors, ramps and stairs, both new and old. Inexpensive to buy—easy to apply, here is a proven contribution to more efficient production as well as accident prevention. Folder and prices gladly mailed upon request.

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Reduce Slipping Hazards with AMERICAN MASON SAFETY TREADS

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Formerly known as "Carbo-Cast"



The carborundum or aluminous abrasive embedded in these stair treads is an integral part of the body metal. The flint like particles project above the surface, producing a surface that effectively prevents slipping whether wet or dry.

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Foot run over by push car and load weighing 6½ tons. Toe portion of shoe completely run over—sturdy construction of safety shoe prevented injury to foot.

Foot caught under elevator on which was a truck containing 6 tons of sheet iron. The steel toe took the rap and the foot did not get scratched.

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J

L

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Safety Clothing Co., The
Safety First Supply Co.
Sury Mfg. Co., The

Ladders, Safety

Bullard Company, E. D.

WATCH SMALL INJURIES They May Prove Expensive

The operator of an elevator punctured a finger with a splinter from the steel elevator cable. He made no report of the injury and received no medical attention until two days later. At that time he reported with a badly infected finger and received immediate care and hospitalization, but developed septicemia and died two weeks later.

This operator should have worn a protective glove in his work. After the injury, however, he should have reported immediately for first aid.

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Guards, Jointer

Industrial Products Co.
Safety Equipment Service
Co., The
Standard Safety Equipment Co.
Sury Mfg. Co., The

Industrial Products Co.
Safety Clothing Co., The
Safety Equipment Service
Co., The
Sury Mfg. Co., The
Wiesman Mfg. Co.

Guards, Saw

Bullard Company, E. D.
Industrial Products Co.
Safety Equipment Service
Co., The
Standard Safety Equipment Co.
Sury Mfg. Co., The

Guards, Shaper

Industrial Products Co.
Standard Safety Equipment Co.
Sury Mfg. Co., The

Guards, Treadle

Sury Mfg. Co., The

H

Hand Cream

Bullard Company, E. D.
Davis Emergency Equipment
Co., Inc.
Industrial Products Co.
Mine Safety Appliances Co.
Safety Clothing Co.

Hats, Safety

Bullard Company, E. D.
Industrial Products Co.

THE BUYERS' SERVICE

See Advertisers' Index, Page 75—When writing, please mention National Safety News

Dayton Safety Ladder Co.
Mine Safety Appliances Co.
Patent Scaffolding Co., The
Pulmonan Safety Equipment Corp.
Safety First Supply Co.

Lamps, Safety

Benjamin Electric Mfg. Co.
Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.

Lanterns, Carbide

Bullard Company, E. D.

Lanterns, Electric

Bullard Company, E. D.
Industrial Products Co.
Institute Mfg. Co.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.

Leathers, Hand,

Bullard Company, E. D.
Industrial Gloves Corp.
Industrial Products Co.
Pulmonan Safety Equipment Corp.
Safety Clothing Co., The
Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Strauss Company, The

Leggings

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Industrial Gloves Corp.
Industrial Products Co.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Clothing Co., The
Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Strauss Company, The

Lighting Equipment, Industrial

Benjamin Electric Mfg. Co.
Westinghouse Electric & Mfg. Co.

Lockers and Hangers for Clothing

Industrial Products Co.

Locks, Lamp

Industrial Products Co.
Mine Safety Appliances Co.
Safety Equipment Service Co., The

Locks, Locker and Padlock, Keyless

Dudley Lock Corp.

Lubrication

Pyrrol Company

M

Machines, Floor Cleaning, Electric

Markers, Traffic

Safety Equipment Service Co., The

Masks

American Optical Company
Bishinger-Koehler Mfg. Co., Inc.
Bullard Company, E. D.
Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Clothing Co., The
Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Wilson Products, Inc.

Mats, Standing, Safety

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Safety First Supply Co.

Mattresses, Fireproof

Sleepsafe Industries, Inc.

Metal, Expanded

Surtis Mfg. Co., The

Metal, Perforated

Harrington & King Perforating Co.

Safety Equipment Service Co., The
Safety First Supply Co.

Poster Service

Elliott Service Co.
National Safety Council, Inc.
Bullard Company, E. D.
Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Mine Safety Appliances Co.

Protectors, Arm

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.

Safety First Supply Co.
Salisbury & Co., W. H.
Standard Safety Equipment Co.

Publications, Safety

National Safety Council, Inc.
Safety Magazine Publishing Corp.

Pullers, Fuse

Bullard Company, E. D.
Industrial Products Co.
Mine Safety Appliances Co.
Safety Equipment Service Co., The

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.

Rope, Wire

S

Scaffolding, Safety

Patent Scaffolding Co., The

Screw Drivers, Non-skid

Surtis Mfg. Co., The

Shades, Eye, Non-breakable

Bullard Company, E. D.
Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Mine Safety Appliances Co.
Safety Clothing Co.
Safety Equipment Service Co., The

Shades, Window, Industrial

Shoes, Safety, Factory and Foundry

Bullard Company, E. D.
Industrial Products Co.
International Shoe Co.
Lehigh Safety Shoe Co.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.
Safety Equipment Service Co., The
Safety First Supply Co.
Safety First Supply Co.

Shoes, Wooden Sole

Industrial Products Co.
Reece Wooden Sole Shoe Co., Inc.
Safety Clothing Co., The

Signs, Accident Prevention

Bullard Company, E. D.
Industrial Products Co.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.
Safety Clothing Co., The
Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Stonehouse Signs, Inc.

Sirens and Signals

Bullard Company, E. D.
Industrial Products Co.

Slings, Safety, Wire Rope

Soap

Procter & Gamble Co.

Soles, Shoe, Non-slip

Lima Cord Sole & Heel Co.

Sterilizing Equipment

Straps, Safety

Buhrke Company, R. H.
Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Klein & Sons, Mathias
Portable Lamp & Equipment Co.

Stretcher Units

Surveys, Eye Sight

Systems, Dust Control
American Foundry Equip. Co.
Dracoo Corporation
Garden City Fan Co.
Surtis Mfg. Co., The

T

Tents, Pneumonia

Bishinger-Koehler Mfg. Co., Inc.
Mine Safety Appliances Co.

Testers, Fuse

Tools, Linemen

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Klein & Sons, Mathias

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Industrial Products Co.

Movers, Railway Car

Bullard Company, E. D.
Industrial Products Co.
Safety Equipment Service Co., The
Standard Safety Equipment Co.

O

Oxygen Breathing Apparatus

Bishinger-Koehler Mfg. Co., Inc.
Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.

P

Pads, Miners'

Lehigh Safety Shoe Co.
Portable Lamp & Equipment Co.

Pads, Knee

Bullard Company, E. D.
Industrial Gloves Corp.
Industrial Products Co.
Pulmonan Safety Equipment Corp.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.

Industrial Gloves Corp.
Industrial Products Co.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.

Safety Clothing Co., The
Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Strauss Company, The

Protectors, Finger

Bauer & Black
Industrial Gloves Corp.
Safety Clothing Co., The
Safety Equipment Service Co., The

Protectors for Linemen

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Industrial Gloves Corp.
Industrial Products Co.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co., The

Pumps, Oxygen

Bishinger-Koehler Mfg. Co., Inc.
Mine Safety Appliances Co.

R

Respirators

American Optical Company
Bishinger-Koehler Mfg. Co., Inc.
Bullard Company, E. D.
Chicago Eye Shield Co.
Coker, H. S.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.
Pulmonan Safety Equipment Corp.
Safety Clothing Co., The
Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Wilson Products, Inc.

Resuscitation Equipment

Bishinger-Koehler Mfg. Co., Inc.

THE BUYERS' SERVICE

See Advertisers' Index, Page 75—When writing, please mention National Safety News

Tools, Marking or Stamping Mathews & Co., Jas. H.	Treads, Safety American Abrasive Metals Co. American Mason Safety Tread Co. Carnegie-Illinois Steel Corp. Illinois Steel Company Industrial Products Co. Inland Steel Co. Surtz Mfg. Co., The	Trophies Mathews & Co., Jas. H.	W	Wrenches, Hopper Car Industrial Products Co. Safety Equipment Service Co., The Safety First Supply Co. Trumbull Mfg. Co., The
Tools, Non-sparking Ameco Metal, Inc. Bullard Company, E. D. Davis Emergency Equipment Co., Inc. Pulmoner Safety Equipment Corp.	Trestles, Safety, Extension Industrial Products Co. Patent Scaffold Co., The Safety First Supply Co.	V Valves, Oxygen Bishinger-Kehler Mfg. Co., Inc. Mine Safety Appliances Co.	Washers, Safety for Grinding Wheels Industrial Products Co. Standard Safety Equipment Co.	Wrenches, Non-sparking
Torches, Blow Klein & Sons, Mathias		Vending Machines, Sanitary Ventilating Equipment American Foundry Equip. Co. Dracoe Corporation Garden City Fan Co.	Washroom Equipment Industrial Bradley Washfountain Co.	Wrenches, Pipe
			Welding Equipment	

The following companies are those whose names appear under the various headings contained in this Buyers' Service

Abbott Laboratories North Chicago, Ill.	Fairway Laboratories, Inc. Belleville, Ill.	Never Slip Safety Clamp Co. New York, N. Y.
American Abrasive Metals Co. Irvington, N. J.	Garden City Fan Co. Chicago, Ill.	Patent Scaffolding Co., The Chicago, Ill.
American Foundry Equipment Co. Mishawaka, Ind.	General Abrasive Co. Niagara Falls, N. Y.	Pittsburgh Plate Glass Co. Pittsburgh, Pa.
American Mason Safety Tread Co. Lowell, Mass.	Goodyear Tire & Rubber Co., Inc. Akron, Ohio	Portable Lamp & Equipment Co. Pittsburgh, Pa.
American Optical Co. Southbridge, Mass.	Harker Mfg. Co. Dayton, O.	Procter & Gamble Co. Cincinnati, Ohio
Ameco Metal, Inc. Milwaukee, Wis.	Harrington & King Perforating Co. Chicago, Ill.	Protectoseal Co. Chicago, Ill.
Barns, Frank E. Chicago, Ill.	Hysen, Westcott & Dunning, Inc. Baltimore, Md.	Pulmoner Safety Equipment Corp. New York, N. Y.
Bauer & Black Chicago, Ill.	Illinois Steel Co. Chicago, Ill.	Pyrene Mfg. Co. Newark, N. J.
Benjamin Electric & Mfg. Co. Des Plaines, Ill.	Industrial Gloves Corp. Danville, Ill.	Pyroil Co. La Grange, Wis.
Bernhard, Robert A. Rochester, N. Y.	Industrial Products Co. Philadelphia, Pa.	Reece Wooden Shoe Co. Columbus, Neb.
Bishinger-Kehler Mfg. Co. Pittsburgh, Pa.	Inland Steel Co. Chicago, Ill.	Safety Clothing Co., The Cleveland, Ohio
Bradley Washfountain Co. Milwaukee, Wis.	International Shoe Co. St. Louis, Mo.	Safety Equipment Service Co., The Cleveland, Ohio
Buhrke Co., R. H. Chicago, Ill.	Inventive Vacuum Cleaner Mfg. Co. Dover, Ohio	Safety First Shoe Co. Burlington, Mass.
Pullard Co., E. D. San Francisco, Calif.	Johnson & Johnson New Brunswick, N. J.	Safety First Supply Co. Pittsburgh, Pa.
Burnham Laboratories W. Medway, Mass.	Johnson Ladder Shoe Co. Chicago, Ill.	Safety Magazine Publishing Corp. New York, N. Y.
Burroughs-Wellcome & Co. (U.S.A.), Inc. New York, N.Y.	Justrite Mfg. Co. Chicago, Ill.	Salsbury & Co., Inc., W. H. Chicago, Ill.
Carnegie-Illinois Steel Corp. Pittsburgh, Pa.	Kiddle & Co., Inc., Walter New York, N. Y.	Sanitary Institute of America Chicago, Ill.
Chicago Eye Shield Co. Chicago, Ill.	Klein & Sons, Mathias Chicago, Ill.	Sleepsafe Industries, Inc. New York, N. Y.
Clements Mfg. Co. Chicago, Ill.	Leigh Safety Shoe Co. Allentown, Pa.	Spencer Turbine Co., The Hartford, Conn.
Clippoe Belt Lacer Co. Grand Rapids, Mich.	Libbey-Owens-Ford Glass Co. Toledo, Ohio	Standard Safety Equipment Co. Chicago, Ill.
Cover, H. S. South Bend, Ind.	Lima Cord Sole & Heel Co., The Lima, O.	Stonelhouse Signs, Inc. Denver, Colo.
Davis Emergency Equipment Co., Inc. New York, N. Y.	Mathews & Co., Jas. H. Pittsburgh, Pa.	Strauss Co., Inc. Pittsburgh, Pa.
Dayton Safety Ladder Co., The Cincinnati, Ohio	McKay Co. Pittsburgh, Pa.	Surtz Mfg. Co., The Chicago, Ill.
Dracoe Corp. Cleveland, Ohio	Mierck & Co., Inc. New York, N. Y.	Trumbull Mfg. Co., The Warren, Ohio
Dudley Lock Corp. Chicago, Ill.	Micropolitan Life Insurance Co. New York, N. Y.	Union Switch & Signal Co. Syracuse, Pa.
Ellwood Safety Appliance Co. Ellwood City, Pa.	Mine Safety Appliances Co. Pittsburgh, Pa.	Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
Elliott Service Co. New York, N. Y.	National Safety Council, Inc. Chicago, Ill.	Wiesman Mfg. Co. Dayton, Ohio
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THE ACCIDENT BAROMETER

Prepared by the Statistical Bureau, National Safety Council

These items summarize briefly the monthly reports collected by the National Safety Council to show current accident trends. Certain of these reports are analyzed more fully in other monthly publications of the Council, devoted to industrial, traffic, commercial vehicle, home, and school safety. In addition, the Council's annual statistical report "Accident Facts," contains detailed information on all types of accidents.

ACCIDENTAL DEATHS OF ALL TYPES occurring in September are estimated at 7,380, or 8.1 per cent less than the September 1934 total of 8,044. This reduction was shared by motor vehicle, other public, and home accidents. Occupational deaths increased over last year. Only two months this year (April and August) have shown a higher total of accidental deaths than last year. The nine months' estimate is now placed at 71,520, compared with 75,477 for the same period of 1934—a drop of 5.2 per cent.

OCCUPATIONAL ACCIDENT FATALITIES totaled approximately 1,300 in September, an increase of 8 per cent from the September, 1934 total of 1,200. Estimates for most of the earlier months this year indicate only minor changes from last year, so that even after the addition of September the difference in totals is still small. The nine months' figure for 1935 is 12,100, and the comparable figure for 1934 is 12,000. Reports on the inter-plant contests of community safety councils indicate a September frequency rate per million man hours of 11.69 (a slight increase from last year) and a severity rate per thousand man hours of 1.25 (up from 1.00 for last September). During the nine months frequency averaged 13.20 or 11 per cent below last year, and severity stood at 0.99—down 27 per cent from last year's comparable rate. For the three sectional contests conducted by the National Safety Council September frequency was 9.00, 6 per cent below September 1934, while the nine months' cumulative rate was 8.75, or 14 per cent under last year. Deaths reported to Industrial Commissions in October increased 7 per cent over October 1934.

STEAM RAILROAD ACCIDENTS in July were fewer than in July last year. Deaths went down 4 per cent from 526 to 503.

and injuries dropped 9 per cent from 2,566 to 2,339. Trespasser deaths, alone, decreased nearly 8 per cent. Non-trespasser fatalities increased 2 per cent. The seven months' death total was 2,773, a slight increase from last year's comparable figure of 2,759, but the injury total was only 15,710 against 16,385 for last year.

MOTOR VEHICLE DEATHS in September totalled about 3,170, according to the latest estimate based on reports covering 90,000,000 population. This is a reduction of 5.9 per cent from the number occurring in September, 1934. There were decreases, also, in January, May, June, and July. Consequently it is somewhat surprising to find that the improvement in these five months has only been enough to offset the increases of February, March, April and August. The nine months' total is estimated to be 25,120, or just a little under the 1934 comparable figure of 25,222. In contrast to this national situation, the following state reductions for the nine months are noteworthy: Illinois, 13 per cent; Massachusetts, 14 per cent; Minnesota, 11 per cent; Oregon, 16 per cent; Rhode Island, 31 per cent; and Wyoming, 18 per cent.

COMMERCIAL VEHICLE FLEETS participating in the National Fleet Safety Contest maintained a low level of accident frequency during September. They averaged 1.59 accidents per 100,000 vehicle miles, compared with 1.81 for the same month last year—a decrease of 12 per cent. Passenger cars and buses showed large reductions, but trucks had a slight increase. The average rate for all fleets during the first three months of the contest was 1.62, or 11.5 per cent under last year. The bus rate went down from 1.31 to 1.01; the passenger car rate, from

1.17 to 1.01; and the truck rate, from 2.61 to 2.58.

FIRE LOSSES in the U. S. totalled \$173,891,000 in the eight months from January to August, according to estimates of the National Board of Fire Underwriters. Last year losses in these months amounted to \$197,162,000. This reduction of 12 per cent is remarkable in view of the fact that the 1934 total was one of the lowest in recent years. If the loss experience from September to December is as good as for the first eight months, the 1935 total will be about \$230,000,000—the lowest annual figure since 1915.

PUBLIC (NOT MOTOR VEHICLE) DEATHS totalled 1,200 to 1,300 in September, a drop of about 15 per cent from September 1934. A greater contrast is noted when September is compared with earlier months of this year. In July the total was approximately 2,400; in August, 2,200. The sharp reduction in September comes primarily from fewer drownings and excessive heat deaths. The nine months' total of public fatalities is estimated to be 13,400, or 4 per cent under last year's comparable rate.

DEATHS FROM HOME ACCIDENTS in September numbered approximately 1,900, or 14 per cent fewer than occurred in the same month last year. This estimate also indicates a downward seasonal trend this year, for in August there were about 2,700 home deaths. The total for January to September is set at 23,000 compared with 26,400 in the same period of 1934. This drop of 3,400 deaths is greater than last year's excessive heat fatalities, which indicates that some progress has been made in reducing the more ordinary types of fatal home accidents.

* * *

Looking Ahead

The December total of accidental deaths will probably be almost as high as that for any of the summer months. Motor vehicle fatalities will be practically at the year's peak. Firearms deaths (most of them in hunting accidents) will number almost as many as in November. Deaths from absorption of poisonous gas (carbon monoxide, etc.) will probably be at the winter's high point of more than 200. Fatal burns, also, will be about as numerous as in any month of the season.

NATIONAL SAFETY NEWS

All Accidental Deaths

January-September

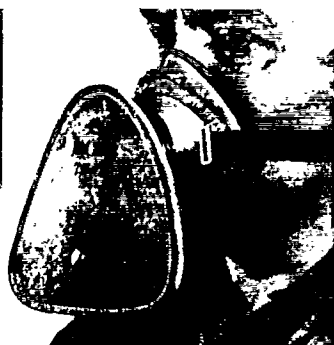
1935	71,520
1934	75,477
1933	66,167

U. S. Census Bureau totals for 1933 and 1934; National Safety Council estimate for 1935.

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PULMOSAN RESPIRATOR
for EVERY breathing hazard!

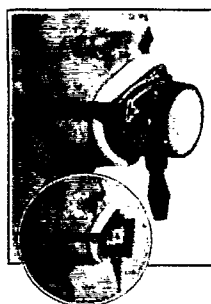
FOR DUSTS
M-15 Dust Respirator

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 BY THE
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 and a
 Happy New Year
 Bill and Fred Wahlert

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fort and easy breathing.

Get further details.

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 GOGGLE RESPIRATOR**

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3. Prevents the glass from being driven into the eyes if lens should break by a terrific blow.



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The men in your plant will get maximum eye protection if you supply them Super-Drednaut Goggles, fitted with Super-Drednaut Deep Curved lenses. Let us send you a pair for your examination.

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