

# NATIONAL Safety News

Published

**STAY  
ALIVE**

National Safety Council, Inc.

November 1936

**ALERT  
ALIVE**

136.026

PLAINTIFF'S EXHIBIT

NSC-151



*Take*  
**CARBON MONOXIDE**  
*out of*

*the "UNKNOWN HAZARD"*  
**CLASS!**

## **M•S•A CARBON MONOXIDE INDICATOR** *and* **CARBON MONOXIDE ALARM**

The low but exceedingly dangerous concentrations of carbon monoxide that exist in so many places; that steal away the mental and physical efficiency of the men; that directly cause many an accident, yet escape the blame—you can make them visible with an M.S.A. Carbon Monoxide Indicator . . . you can make them audible with an M.S.A. Carbon Monoxide Alarm.

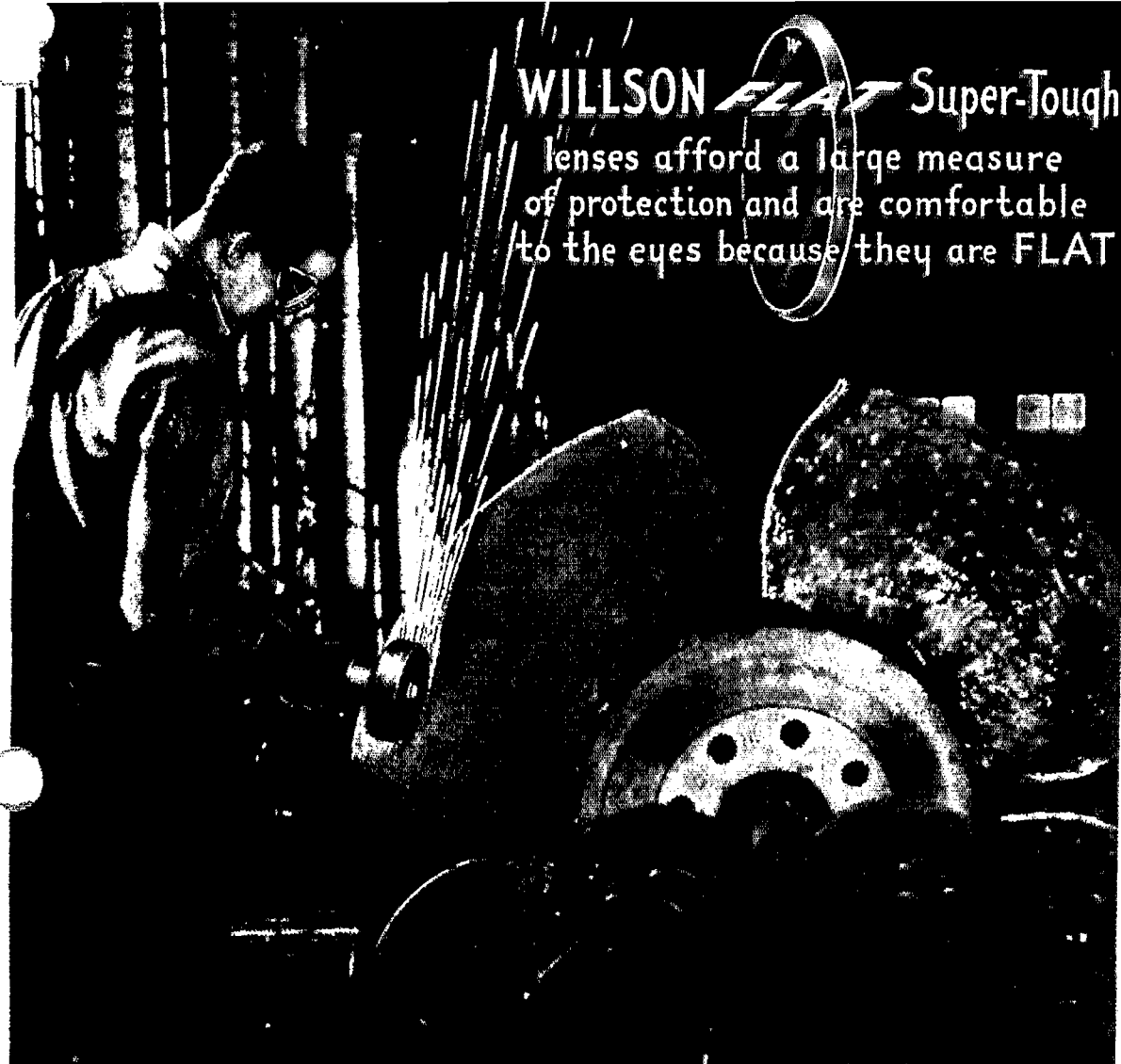
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**WILLSON *FLAT* Super-Tough**  
lenses afford a large measure  
of protection and are comfortable  
to the eyes because they are **FLAT**

—and for use on operations where lens fogging is a problem, we recommend the New Willson Goggle, Style RR50, which has several exclusive patented features:

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—No lugs to break off

*Improved Design*

—Cup walls thicker at critical points

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NOVEMBER, 1936

# APPROVED



Wherever "Form-Set" Purple Strand Wire Rope has been used it has been accepted with utmost praise.

PURPLE STRAND

For use  
wherever it's  
"TOUGH GOING"

You, too, will appreciate this, the utmost in Wire Rope Quality when you once use it.

It is tough, made from the most durable, fatigue resisting wire of most minute accuracy in the sizing and close fitting of wires.

Will you tell us what you would like to use this rope for and let our engineering department specify the most suitable construction and send you our latest catalog?

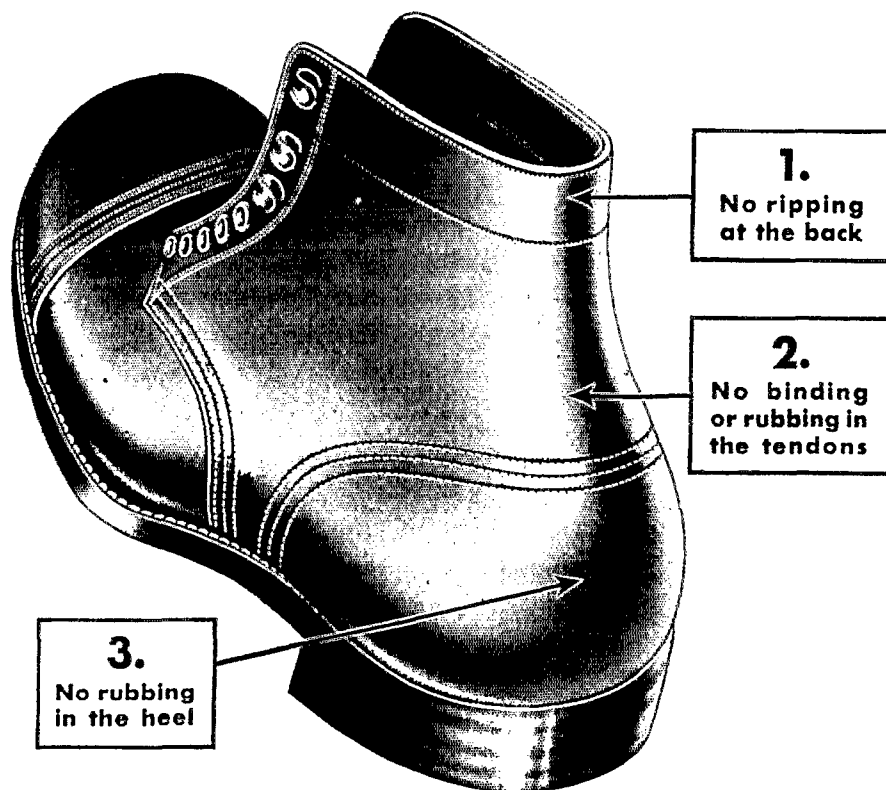
## WILLIAMSPORT WIRE ROPE CO.

Williamsport, Pa.

*Other Offices in All Principal Cities*

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NATIONAL SAFETY NEWS



## Saf-eze...THE SAFETY SHOE THAT SCORED A HIT!

THE decided hit scored by the new *Saf-eze* shoe, when introduced at the National Safety Congress & Exhibition by Hy-Test, indicates that it fills a definite and long-felt need. Interested Safety executives recognize in *Saf-eze* a unique comfort development; a new *one-piece quarter* providing a smooth, glove-like fit, with no ridge or seam at the back to cause friction or discomfort and greatly minimizing the possibility of tender or blistered heels.

Good looking, *really comfortable*, this radical departure from ordinary safety shoe construction has caused Safety Directors throughout the industrial world

to investigate; to see for themselves the real comfort the *Saf-eze* brings, while still retaining all the protective features that have made Hy-Test Safety Shoes so highly regarded wherever worn. Foremost among these is the Isco steel box toe with the *safety anchor flange*, the famous protective feature which goes far in preventing tipping or shifting back under shock of impact, common under all hazardous working conditions.

Write now for a descriptive and attractively illustrated catalog, detailing the many special industrial models Hy-Test Safety Shoes offer.



Inside view of  
*Saf-eze* One-Piece Quarter

Note the smooth glove-like inside fit of the one-piece seamless quarter. No ridge or seam to cause friction, blisters, or discomfort.

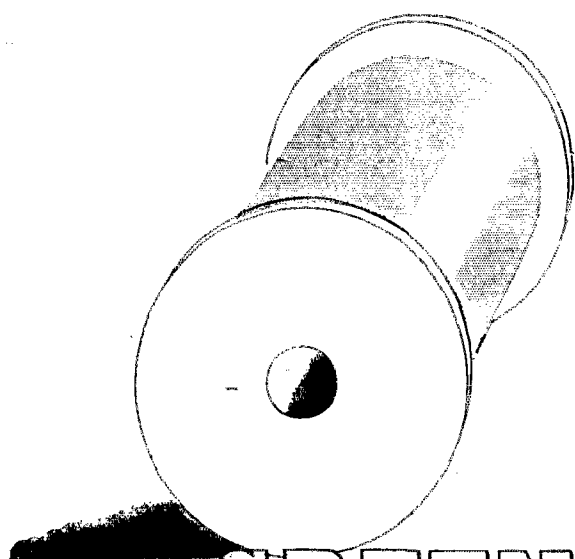


# HY-TEST SAFETY SHOES

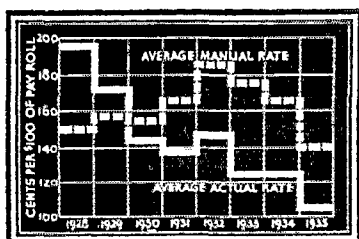
DESIGNED AND MANUFACTURED EXCLUSIVELY BY  
**INTERNATIONAL SHOE COMPANY, ST. LOUIS, MO.**  
THE WORLD'S LARGEST SHOE MANUFACTURER



Let's Use Our Heads  
To Save Our Feet



# THE GREEN THREAD OF SAFETY



The solid line shows the actual rates per \$100 payroll, paid by a leading tool manufacturing company, an American Mutual policyholder. The broken line shows the manual rates paid in that state by plants in their classifications. Our policyholder, starting with rates above normal, for the past five years (due to safety work with American Mutual) has paid far less than the average rate.

The obvious hazards in an industrial plant are often just the focal spots of the disease of danger that is spreading throughout all operations.

With this in mind, American Mutual's safety engineers search for the *hidden* causes of trouble—workers' indifference, operating inefficiency, etc.—which allow danger to grow and fester into accidents.

It is their aim—not only to sew up the most likely danger spots, — but to check the spread of danger with the green thread of safety, weaving it around each worker, each machine, each square foot of space.

For American Mutual workmen's compensation insurance policyholders, this type of safety engineering helps to:

- A. save on insurance costs by lessening the frequency and severity of accidents (see chart)
- B. eliminate many indirect losses (lost time, spoiled work, lowered morale, etc.) not paid for by insurance, yet costing many times the benefit payments.

## AMERICAN MUTUAL'S ENGINEERING PROGRAM

*Is One of 3 Opportunities for Employers to Profit*

Machines are safer when men are safety-minded. Knowing that the human element determines the success of a safety program, we help train workers in the safety practices that make mechanical safeguards effective.

No one machine is entirely safe unless a whole plant's trend is toward safety. Tracing danger where-

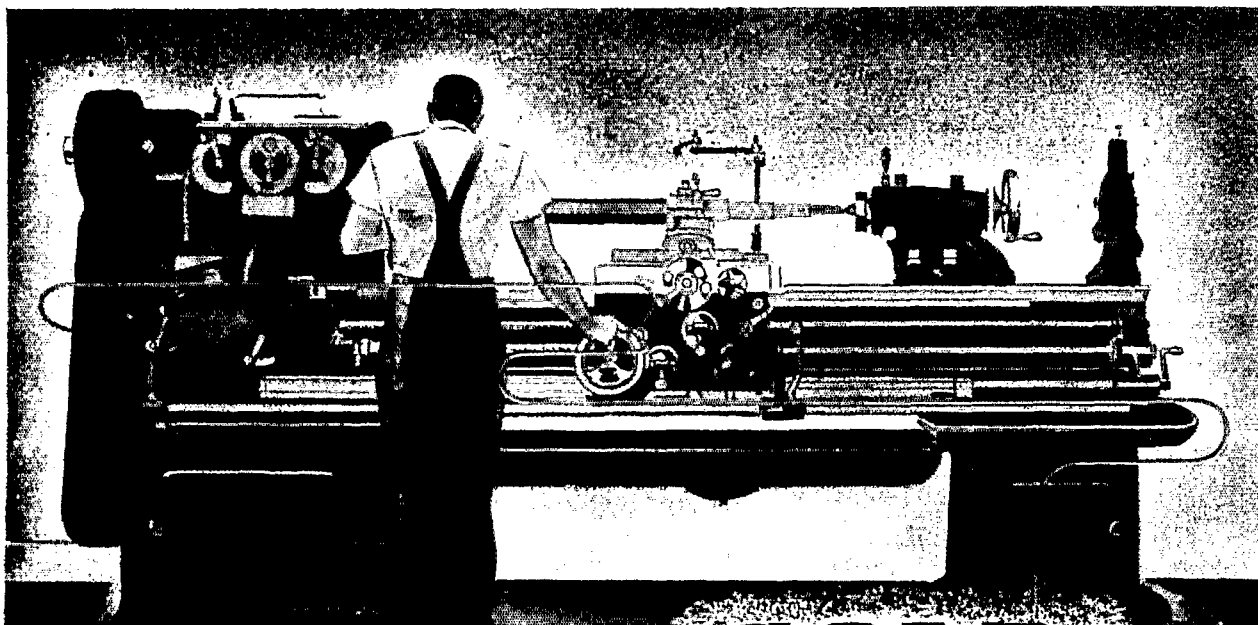


# AMERICAN MUTUAL LIABILITY

WE WORK TO MAKE

BRANCHES IN 53 OF THE

NATIONAL SAFETY NEWS



# THAT TURNS TO GOLD

ever it goes, we aim to coordinate men, machines and system in a safety program that marks every step in the plant's production.

**Yesterday's accidents and today's danger are clues to tomorrow's safety.** From the reasons behind past accidents and from our appraisal of present habits and attitudes, we can predict your accident probabilities and thereby can better do away with major accident causes.

**Our service is gauged by your needs . . . not by the calendar.** Our men call at your plant as the conditions require . . . not according to a routine schedule.

## TWO OTHER PROFITS

*in Cash . . . and Men*

A dividend of 20% or more has been paid all American Mutual policyholders each year since 1887. Recently the total of earnings shared during the half-century passed the \$50,000,000 mark.

Our specialized medical service aims to restore injured workers to their jobs. In many cases, we have saved employers the valued experience of their injured employees.

Workmen's Compensation, Automobile, Fidelity Bonds, Elevator, Burglary, and other forms of casualty insurance are written by American Mutual; Fire Insurance by our Associate, Allied American Mutual Fire Insurance Company.

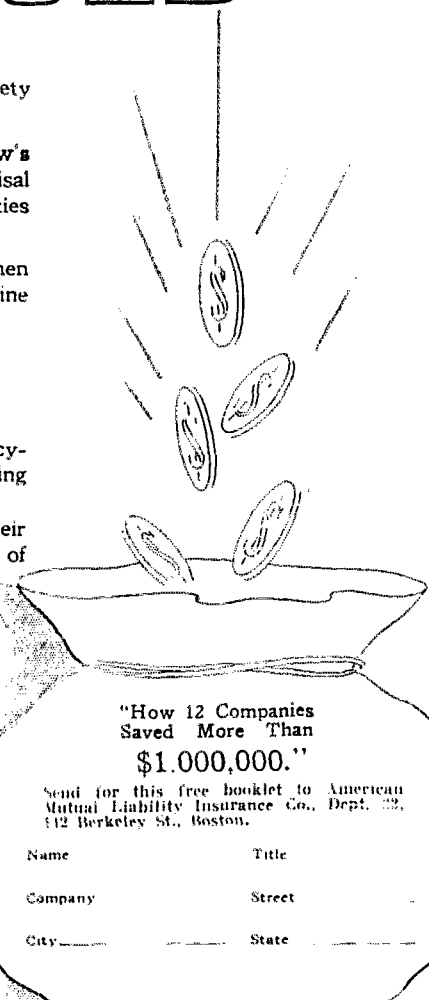
Admitted Assets: \$23,809,545.32      Liabilities: \$19,424,978.69  
Surplus to policyholders: \$4,384,566.63  
As of December 31, 1935

ALL WORK SAFE

# INSURANCE COMPANY

COUNTRY'S PRINCIPAL CITIES

NOVEMBER, 1936



**"How 12 Companies  
Saved More Than  
\$1,000,000."**

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City \_\_\_\_\_ State \_\_\_\_\_

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13,700 copies of this issue were printed.

## National Safety Council, Inc.

20 North Wacker Drive, Chicago, U. S. A.

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

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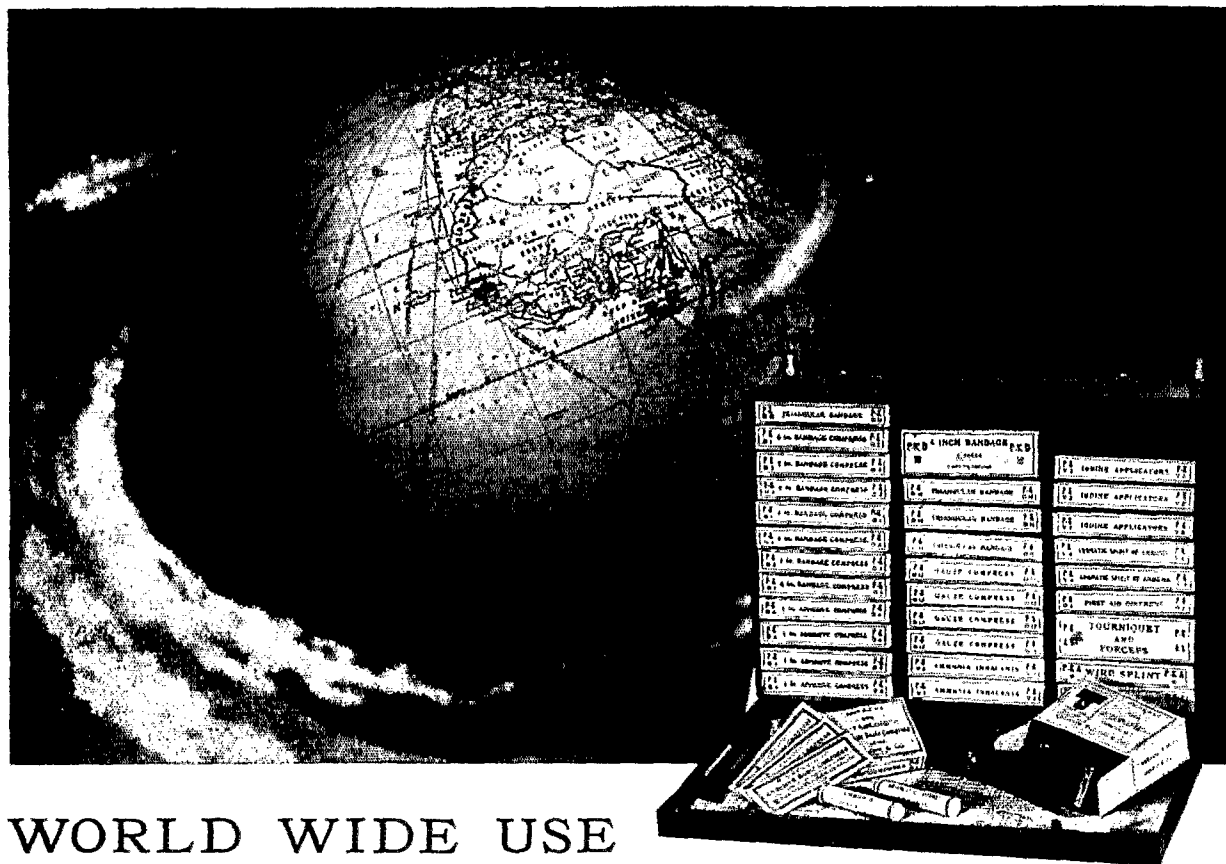
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FIRST-AID



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over a long period in the fields of industry and public utility definitely proves the practical value of 'TABLOID' FIRST-AID.

Since the beginning of the Safety First Movement, this pioneer equipment has provided efficient first aid protection in emergencies—reducing the casualty list and safeguarding the lives of employees.

*Every factory—everywhere—should have 'TABLOID' FIRST-AID readily available for immediate service.*

*Write for full particulars and quotations*

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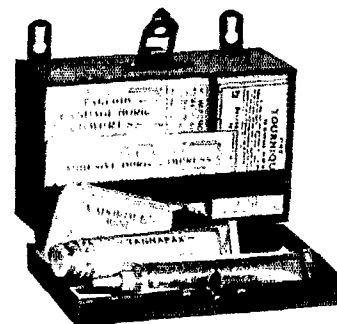
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NEW YORK CITY

*Associated Houses:*

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No. 754 'Tabloid' First-Aid ("Pac-Kit"). (36 unit.) Measurements: 13 1/4 x 9 x 2 1/4 in. Weight: 8 lbs., 10 ozs.

**For Motor Vehicles, Trucks, Salesmen's Cars, etc.**  
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N. S. N.

Please send me latest descriptive literature regarding 'Tabloid' First-Aid.

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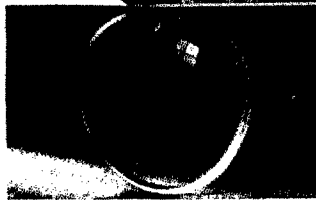
NOVEMBER, 1936

More **SAFETY** more **COMFORT**, and **BETTER LOOKS**

## The AO FUL-VUE GOGGLE



Self-adjusting nose pads fit comfortably on the sides of the nose. Men wear these goggles with comfort.



Another patented AO feature — 6-Curve Super Armorplate Lenses give greater resistance to impact.



A patented feature — high-up end-pieces remove every obstacle to vision — and add to the goggle's appearance.

Here is a goggle that was planned to please the man who wears it — a goggle to be worn with absolute comfort.

Patterned after the popular Ful-Vue glasses, the Ful-Vue Goggle is good looking. High-up end-pieces add to the goggle's appearance and also, as a safety factor, remove every obstacle to vision.

Self-adjusting nose pads fit comfortably. 6-Curve

Super Armorplate lenses are shaped to fit the orbit of the eye and offer far greater resistance to impact.

With all these patented features the AO Ful-Vue Goggle is in a class by itself. See that the workers in your plant who need its protection — get it. Ask the AO industrial representative stationed in a branch office near you to show you this new goggle.

# American Optical Company

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



NATIONAL SAFETY NEWS

# NATIONAL

Published by National Safety Council, Inc.

November, 1936

# SAFETY NEWS

## This Month's Cover

**M**OST of us can remember the days when a few faded and fly-specked posters tacked on the factory walls constituted most of the safety "advertising." Too often such a poster display was characteristic of the whole safety program.

A well-kept attractive bulletin board has become recognized as an essential part of accident prevention work. Posters have improved in both subject matter and technique and many new attention-arresting devices have been added to the safety man's equipment.

One of these, which attracted much attention at the Congress is shown on the cover of this issue. It uses light, sound and motion to call attention to the safety message. The light globe at the top displays a Universal Safety emblem or a slogan. Beneath is a slowly revolving cylinder on which posters are mounted. In the base is a loud speaker which can be operated by remote control.

In summer the device can be stationed in the plant yard during the noon hour and in cold weather it can be moved into the lunch room or rest room. A brief talk by the safety man, a company official or a guest speaker and a few phonograph records will provide an interesting informal program for the noon hour.

Safety men are giving more thought to poster displays and find that ingenuity brings increased interest. Many of them are using the practical ideas presented each month on "The Bulletin Board" page of the NATIONAL SAFETY NEWS.

## Many Thanks!

**A**LTHOUGH a large part of this issue is devoted to the events of the Twenty-fifth National Safety Congress, the issue would seem incomplete without editorial comment. So we again wish to express the warmest appreciation of the Safety Movement to the State of New Jersey, particularly to Governor Hoffman and his energetic associates of the Greater New Jersey Congress Committee.

It was a Congress that will long be remembered by every delegate who attended. The seaside setting was unusual but even more important was the cordial welcome to the Congress and the personal and official recognition of Safety by the State's chief executive.

Our grateful thanks are also due the program committees and the speakers who contributed such a wealth of invaluable information from their experience. And from the united efforts of all these loyal workers comes that intangible force, inspiration, which vitalizes the whole safety movement.

When the thanks are distributed, the exhibitors should not be forgotten. Their equipment has been invaluable to

the safety man in his daily job of preventing accidents, and the exhibits have made each Congress more interesting and colorful.

One successful congress, or even twenty-five does not mean the continued usefulness of the Safety Movement. Safety men, however, do not rest on past accomplishments. They realize how much must be done during the ensuing year. They are looking toward another year of accomplishment before the Twenty-sixth Congress meets in Kansas City during the week of October 11 to 15, 1937.

## In This Issue

**S**AFETY engineers are not economic experts; they have no panacea for social maladjustments. But the success of their efforts adds much to the happiness and security of humanity, as President Watson pointed out in the Annual Message to Members. (Page 11.)

Governor Hoffman's address was more than a conventional address of welcome. It was another stirring message and challenge to the Safety Movement in the same spirit as the one he delivered at Louisville last year. (Page 13.)

The swift streamlined Diesels which have caught the public's fancy are only one of the many items in transportation's progress. There has been steady improvement in both freight and passenger service. The safety problems involved in modern railroading are described by the president of one of America's largest railroad systems. (Page 14.)

Every year we approach the task of reporting the Congress with a feeling of humility and inadequacy. The Congress was so vast, with so many important events going on simultaneously, that any individual's report is sure to be lacking in important details. (Page 16.)

Like many others, we used to think motion study was merely a cold-blooded scheme for speeding up workers. That impression, which is still widespread, is entirely without foundation. Motion study teaches the worker to perform his task with fewer motions and consequently less fatigue. And since each motion is another opportunity for accident, safety men have a very practical interest in Motion Study. (Page 22.)

Inter-fleet contests have raised the standards of commercial vehicle operation; why not apply similar methods to employees' private motoring? So Detroit's industrial workers are now competing to keep their records clear while driving their own cars. (Page 25.)

Principles similar to those presented by Mr. Mullee in his able discussion of motion study are applied by P. G. Hunter to the problem of handling materials. Here again few motions mean fewer chances for mishap and more speed generally with less haste and confusion. (Page 27.)

# The Managing Director's Page

## "Where Do We Go from Here?"

THE Atlantic City Congress was a success any way you look at it. The attendance was larger than at any recent Congress; the program the most comprehensive and satisfactory to those interested in the many phases of safety in industry, industrial health, street and highway, aeronautical, railroad and home safety. There was something interesting each of those five days for the old-timer, the neophyte, the man from Mars, and even for those with only a curiosity about another Congress.

Who could have seen the exposition without marvelling at the enterprise and ingenuity displayed in the exhibits? The panel discussions taught many a safety director how to conduct meetings at home. The experience of the year was recapitulated. The presentation of the awards in the contests reminded thousands of people that many employers are keeping up the good fight for a No-Accident record.

Then amidst all this talk of tragedy, responsibility and design for safe living there was the necessary counterpart of jolly entertainment. There was plenty of color in this meeting of minds, and there was the good will necessary to continue loyalty to a great cause.

But we need to do more than congratulate ourselves on a creditable demonstration. Another year is before us. It was evident among the thousands of people attending the Congress that they want safety, but I ask myself frequently "Will they pay the price?" I thought of those who proclaim vociferously that they are in favor of abolishing war, but do nothing about it. People of that type do nothing about a world court or disarmament: they never act to get rid of the things that make war.

We need something more than applause and an expression of public sentiment "I am for Safety." True, there must always be conviction and public sentiment for an idea, if the idea is going to live and grow. Professing devotion to a great cause may not only help to avoid its condemnation but may also give one great satisfaction, even though the convert may be doing little to promote the idea to which he has subscribed. However, to profess devotion to the great cause of accident prevention and then leave to others the burden of accomplishment is not altogether paying the price for advantages received. A member stopped me on the Boardwalk and said—"How many safety men would lose their jobs if the safety movement was not vigorously maintained day-in and day-out during the entire year?"

Safety has become a necessity. It is the intent of the National Safety Council to keep the public interest alive; to impress the employer and the employee and the citizen that it is a necessity, not a luxury.

It was evident at Atlantic City that the public is looking the National Safety Council as the focal point for creating a sentiment for safety. As we start a new year we are confronted with the problem of getting from each member his share of practical contributions to the movement. The Council must add stability to the safety movement. Gen-

erous sentiment is needed. It must have the authority to speak on behalf of the heart and mind of its members and adherents; but, until we meet in Kansas City in October, 1937, it needs more than anything else a new and definite program; including almost a fierce day by day search for definite things to do. We should not be satisfied to see the sun set until these changes and reformatations have been made.

We want careless habits stopped; we want the best of good housekeeping. We want every worker, down to the janitor, to understand what safety means and to help to bring it about. We want clearer and more definite safety laws and rules; and insistence upon their compliance. We want homes built in accord with safety practices, and streets and highways and factories and railroads operated in accord with safe recommendations. Instead of a seven per cent reduction in street and highway accidents this year, let's make it 25 per cent.

Every attendant at the Atlantic City Congress ought to roll up his sleeves and say—"I won't have any accidents and I will be ashamed to turn up at the Kansas City Congress next year without having applied the experience so vividly presented to me at the Atlantic City Congress in October, 1936."



## INTERESTING ITEMS

1. The 1936 Safety Congress and Exposition was a huge success. Attendance 60 per cent over last year and near the record of 1929; exhibits were undoubtedly finer and better attended than any previous Congress; over 1,400 at the Banquet; better attended meetings than almost any previous Congress; etc., etc.
2. Now, mark your date pad for the 1937 Congress: Kansas City, October 11-15. The entire Congress will be under one roof—the brand new Convention Hall.
3. Write me if you want a copy of our new pamphlet "Saving Lives Through a Drivers' License Law." We are helping many states in their campaigns for enactment of a license law by the 1937 legislature.
4. Two more states, Wisconsin and Indiana, have organized state safety councils, appointed by the governor, to coordinate and intensify the various official and other activities for highway safety.
5. A new series of seven leaflets on "First Aid Reminders" will soon be released to the membership. Watch for your samples early this month.
6. We hope to have the 1936 Congress Transactions ready for distribution sometime during December.
7. Seven members of the National Safety Council staff are among the instructors at the Northwestern University Fourth Annual Traffic Officers Training School.
8. Have you ordered your 1937 Safety Calendars? If you want them by Christmas you'd better get your order in now.



By CASSIUS H. WATSON, M.D.

*President, National Safety Council, 1935-37; Medical Director,  
American Telephone & Telegraph Company*

THE membership of the National Safety Council is honored at being the guest of the State of New Jersey at its 25th National Safety Congress. We have long admired your accomplishments in both industrial and public safety, and your tireless efforts to make this Congress a memorable event in the history of the Safety Movement demonstrates your earnestness.

To the officials, the industries and all civic organizations which have co-operated in the Congress preparation, and to Governor Hoffman personally, I extend our warmest thanks. Let me also

Read at the Annual Meeting of Members,  
Twenty-fifth Annual Safety Congress - At-  
lantic City, N. J., October 3, 1936.

NOVEMBER, 1936

express the hope that this great annual gathering of the Safety Movement will mean as much to the State of New Jersey as it does to the National Safety Council.

It is rather tempting at our Annual Meeting to review in detail the triumphs of the Safety Movement. We can point to the 200,000 lives that would have been lost in industry and on our great transportation systems had the death rate of 1913 continued unchecked. The organized National Safety Movement by its energetic efforts in arousing the public conscience and co-ordinating the efforts of the forces of accident prevention, feels that it is entitled to much of the credit for this accomplishment. Now

with the even more serious problem of deaths and injuries on the highways, the National Safety Council is rendering a most important public service in arousing the nation to an understanding of peril and stimulating the agencies designed to do effective preventive work.

But there is no time to pause for self-congratulation. The advances in human progress are won with too much difficulty and lost too easily to justify our becoming satisfied with our efforts. If we do pause to look back, it should be merely to study and apply the lessons of the past.

Security is a topic which at the moment is very close to the public mind.

We of the Safety Movement are not experts in the economics of production and distribution. Nor are we social engineers with plans which will eliminate the maladjustments of our present order. Our part in the achievement of security, however, is a most important one. It is to enable mankind to reach its destiny without the interference of those mischances which we call accidents. We realize, of course, that accidents constitute but one of the many scourges which afflict humanity and our business is with them. If we could eliminate them, or even make a substantial reduction in their number, the influence on human welfare and happiness would be incalculable.

### Many Converted, Few Saved

The year now drawing toward its close has seen the Safety Movement, particularly with respect to motor transport, seeking proselytes everywhere. The strange thing about it all, however, is that the country is filled with converts and multitudes are singing psalms of safety with a gusto scarcely less fervent than that seen at camp meeting revivals. In the language of the evangelist—everybody is converted but few are saved.

In philosophizing on the subject of accidental death, the Council has taken considerable satisfaction to itself because of the success which resulted in the application of safety doctrines to the railway and industrial field where it will be recalled that a quarter of a century ago, an appalling mortality and morbidity picture confronted the nation. It has been felt that the application of similar principles of safety which have grown out of our experiences would accomplish the same result in the startling rates occurring on the highways. Such an outcome was justified, but as we know only too well, it has not been completely forthcoming.

May I venture a reason for this, and base it on the fact that those intimately concerned in accident prevention fail to evaluate properly the things which lie behind human performance. In the industrial and railway problem, most of the reasons for the accident rates were correctly understood and the solution was apparent. The highway problem, however, has had much about it that is well understood, particularly those elements of a physical character that are included under such topics as the motor car itself, the motor highways, warning signals, legal requirements, etc. But, there still remains the mystery with respect to the human element.

Experiences of the last few years tell us that more must be done with human control, namely, the motor car driver. This brings us back then to the first principles which were so successful throughout the approach to the industrial problem, education and training of the man on the job; in other words, supervision. The other possibility and, to many of us, the most effective, is enactment of suitable laws covering highway conduct both for the driver and the pedestrian alike, plus adequate enforcement through mandatory penalties.

After all, those elements in the personality which cause the exhibition of the primitive egotistical qualities can rarely be reached by rational approach. They belong to that class of responses, reflexes and unvolitional reactions, racially very old, brought into the field of dangerous activity through stimuli equally primitive. Hence, it might be considered that such personality qualities are beyond education and may be reached only by disciplinary measures.

The motor highway problem is relatively new, but we hope that it holds the same answer to intense study and safety effort as did the industrial accident problem of 25 years ago. There was no organized safety work then. A few enlightened companies did have safety departments, more or less experimentally. But few managements were really convinced that accidents could be prevented. It took nerve to ask the boss for the money to buy a gross of goggles or to have certain machine parts enclosed.

And then, even with the passive approval of management, the battle had just started. Foremen and men resented innovations in methods of work. Men who prided themselves on their toughness ridiculed the very idea of safety. Much of the opposition had no basis other than the sheer perversity of human nature.

### An Endless Task

It was the enthusiasm and determination of those early safety men that overcame the skepticism of management and the hostility of supervisors and workers. Accidents were reduced as key men in the organizations were won over to the cause of safety and as sound engineering and training methods were added to the emotional fervor that launched the work. Now, the industrial worker almost invariably accepts safety rules as a condition of employment. To my mind, Safety's progress in our indus-

tries and on our railroads has been one of the remarkable developments of an age which has seen one amazing scientific discovery after another applied to our material progress.

The curious thing about it all is the fact that so many of the utilized environmental agencies, when wrought into our civilization, turn about and do us harm. So it is that the end of the safety problem is never reached. Even in industry, our task is far from complete. There are still many plants where safety work is limited to grudging compliance with state and insurance requirements. There is still a widespread disregard of even the elementary principles of safeguarding and good housekeeping. And even in some of the more enlightened establishments there are conditions still unrecognized that set the scene for serious accidents whenever a physical hazard and a human lapse may coincide.

It is still too early to indulge in boasting of our accomplishments. The depression years have shown that even past gains cannot be held without remitting effort. When training and supervision were relaxed and maintenance neglected under the stress of economic conditions, the inevitable happened. Where effort is abandoned, safety suffers a serious lapse, just as an untilled farm soon reverts to wilderness.

### Occupational Diseases

There is one problem which is causing increasing concern to industry and to its insurance carriers—that of occupational diseases. When the National Safety Council was organized in 1913, only a few of the dangerous materials or processes were recognized. Advances in chemistry have introduced many indispensable products such as the chlorinated hydrocarbons used so widely as solvents, many of which are definitely toxic. Increasing experience is showing that many substances formerly considered harmless must be surrounded with effective safeguards before they can be used without hazard. Industrial dusts, fumes and gases are now bearing the closest of scrutiny by governmental agencies.

The perplexing problem of compensation for occupational diseases is not primarily within the scope of the Safety Movement, but we cannot escape the medico-legal aspects of the situation.

The protection of the workers health, however, is very much our problem. Can we distinguish between the injury which

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Governor Hoffman  
addressing the  
Annual Meeting  
of Members.



# New Rules for the Game of Life

By HON. HAROLD G. HOFFMAN

*Governor, State of New Jersey*

*(From the Address of Welcome at the Twenty-fifth National Safety Congress.)*

**T**HERE is hospitality in our welcome, but there is also pride—for we have an accomplishment to show, of which we are as proud as a mother of her children.

A year ago, as Governor of New Jersey, I voiced at Louisville a challenge to the States—to reduce deaths from traffic accident by 33 per cent within five years. New Jersey, in the first of those five years has reduced deaths from accident upon her highways by 16 per cent; in one year we are nearly halfway to the goal.

That reduction of 16 per cent in the number of lives wasted in New Jersey is a matter only for statistical pride. It does not mean that we have attained safety. It means only that we are a little less careless—a little less wasteful, a little less wanton.

But it is a gain. There are 91 more persons alive in the world today than there would have been if we had killed with as reckless a hand as we killed a year ago.

The journey of mankind from the jungle to the modern world has been a continuous war against the enemies of human life. Slowly and at great sacrifice of life and treasure we have built

our wall against our natural enemies; we have sought to exclude famine, pestilence, fire and the curse of Cain—only to find, when we had raised our wall to the height of the stars, that our enemies were inside it with us.

The war for human safety is a civil war that we must fight in our own families, among our dearest friends and even in our own minds and bodies. It is different from other wars in this—that blood is shed only when we lose.

**T**HE grouping of men and women in communities was in its origin a measure of protection against the menaces of life. The friction of human minds against each other threw off the sparks which eventually lighted the torch of civilization. Instinct for mutual betterment produced art, science, commerce and government under the light of that torch.

Civilization banished most of the dangers incident to barbarism, but it invented and propagated new dangers of its own. As it became more complex, the dangers became more numerous, more insistent and more fatal. We created a machine too powerful for us to control.

Today our situation is similar to that of the first men who formed a community against the dangers of the wilderness.

We must organize for protection against the dangers of civilization; we cannot leave our environment and return to the wilderness; that would be to cancel all human progress.

Our answer to the problem must be to conquer our surroundings. We must defeat the dangers of civilization so that we may become truly civilized.

That, in effect, is the purpose for which the National Safety Council exists. We have volunteered to meet a danger just as pressing, just as menacing as any invasion by a foreign enemy. The dangers of civilization have exacted from us a greater tribute of human life than have all our wars since the beginning of our national existence.

Death from preventable accident, death from diseases which are the penalty of crowded living, lives blasted by mutilation and disease—all these are included in the dangers incident to civilized and collective living.

We insist upon universal education. We spend huge sums of energy and money to train our children for the responsibilities of mature life—and then we waste the product of our educational system. We invent and distribute devices for increased comfort and pleasure, and then we waste the lives which could enjoy the benefits of these things.

*(Please turn to page 82)*



The streamlined Diesel train is the railroads' answer to the demand for speed.

# Planning Safety for Tomorrow's Railroads

Improvements in both freight and passenger service demand increased managerial attention to safety

By RALPH BUDD

*President, Burlington Railroad*

**T**HE railroads are justly proud of their safety record. I shall not repeat the statistics, which are well known, but merely assert that in a period of remarkable developments in all forms of transportation, a railroad train is the safest means of transport and riding in a passenger train is about the safest thing one can do.

Running a locomotive was once considered hazardous employment, but now engineers are noted for their longevity. In talking with one of them recently I remarked that their average working life exceeds the average of railroad executives. He had the quick suggestion that they mostly lead exemplary lives.

The high degree of safety has been attained notwithstanding a combination of most difficult circumstances. In recent years the railways have faced severe reduction in revenues, and at the same time a demand for improved service. It has been necessary to regain and hold traffic, and to operate economically so as to realize some profit from the business handled, often at greatly reduced rates.

From a managerial standpoint, safety is a matter of policy, and, since executive officers and directors are the policy determining groups, responsibility for the policy rests primarily on the chief executives. Carrying out the policies they determine necessary falls to various department managers and employees.

This furnishes a convenient division of my subject, that is, first, activities which depend upon co-operation of employees, and, second, those which are the sole responsibility of management. I shall also say something of the desirability of the public taking a greater interest in the matter.

I

Actuated by humanitarian motives as well as by what may be termed an enlightened self-interest, management has made safety a watchword. There are a great many federal and state laws imposing upon the railroads a variety of duties, with varying degrees of responsibility, depending upon circumstances. However, railroad management has set for itself a standard higher than requir-

ed by technical legal liability; the purpose is to maintain and operate the railroads in such manner that there shall be no injury to passengers or employees and no damage to property.

Accident prevention by co-operation between men and management has been accomplished largely by the campaign for individual interest and care, which has had so much attention in recent years, and is organized under the supervision of safety departments. Safety work has come to be considered a regular feature of operation. There are safe and unsafe ways of doing almost anything. The knowledge or the knack of doing things safely is gained by experience, properly directed.

Those who have had the opportunity of attending the periodical safety meetings must have been impressed with the splendid spirit and the frank discussion of proposals of direct benefit, not only to those in attendance, but also to employees generally.

It has been said that the best safety device is a careful workman. Experience has shown that the best device

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for making more workmen habitually more careful, is a good safety department, well supported by management. Proper safety rules, well understood and carefully followed, effectively prevent accidents under all circumstances and conditions, whether on the road or in the shop. Each unit, designed for a specific purpose and section of the property, built and maintained to meet the demands upon it, presents its safety problem, which can be solved by co-operation of the supervisory officers and the men on the job.

Success in reaching the goal of accident elimination frequently depends upon the circumstances surrounding the operation, and judgment in adopting and maintaining standards of physical plant and operating rules. It is by no means essential to safety that the latest types of equipment, the newest inventions or the highest quality of track, should be provided at all times and at all places, but it is essential that the adopted standards be proper for the demands and requirements of the service. A railroad is a vast aggregation of units of all kinds of physical property, built, added to, and rebuilt in the light of experience. If each unit is operated consistently with its capabilities and limitations, the operation is safe.

For example, bridges on light-traffic, branch lines should be built and maintained to carry the lightweight locomotives suitable for the traffic. Track on such branches should be built and maintained for moderate train speeds. Such branch lines can be operated with the same safety as main lines if motive power, with axle loads which the bridges will carry, is assigned to such branches, and if the speed of trains is limited to that for which the branch-line track is suited. The same principle is applicable to other types of property and illustrates the responsibility of both men and management in operating every part of the system.

## II

In bettering the physical plant and advancing railway operation, particularly in speed and efficiency, definite responsibility rests with the management to protect and promote the safety of employes and passengers. The great improvement in freight and passenger service in the last few years has called for special managerial attention to safety.

Perhaps the most significant statement concerning these recent improvements has come from Mr. W. J. Patterson, Director, Bureau of Safety, Interstate Commerce Commission. In the *Railway Age* of August 1 1936, he pointed out four phases of railway

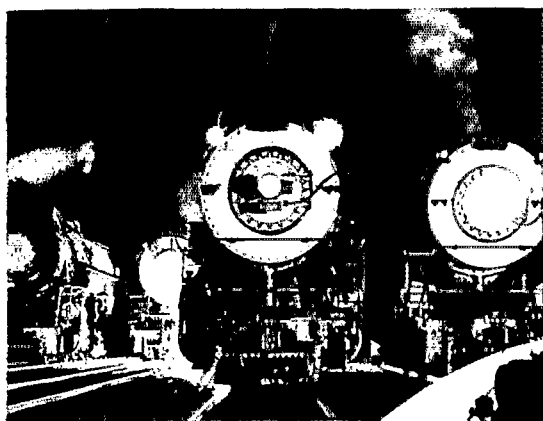
operation which require careful attention in connection with the handling of faster trains. These pertinent observations, from one so well qualified as Mr. Patterson, are worthy of consideration here:

## Track

Considering track first, what was and is involved is a careful appraisal of the characteristics of each stretch of track, and a careful laying out of schedules to suit the actual track conditions; then a constant watchfulness to make certain that the condition which is suitable for the scheduled speed is always maintained. Several rather essential things have been done to track where the highest speed trains are operated, but all of them have followed well-known engineering principles and practices, and have been splendidly treated in technical societies and magazines by staff writers and by engineers who are in charge of some of the most important track in America.

Of course the alinement, both on tangent and on curves, must be kept more nearly perfect than is necessary for slower trains, as must also the surface of the track. The superelevation of the outer rail on curves must be adjusted to suit the speed, and, where excessive super-elevation would be necessary for full speed, the latter must be held down to that which is proper for the superelevation decided upon. For safe and comfortable riding at the higher speeds, the superelevation must be distributed over a spiral at each end of each curve, and these spirals must be long enough properly to distribute the

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The steam locomotive is still the mainstay of rail transportation.



# New Jersey Salutes Safety at Atlantic City

By CARMAN T. FISH



The most impressive feature of the Boardwalk decorations during Congress Week was the illuminated Universal Safety emblem on the colonnade in front of the Auditorium. The emblem was 16 feet in diameter.

ATLANTIC CITY'S famous boardwalk has seen many conventions whose attendance has run into five figures. Many of them have been larger than the Twenty-fifth National Safety Congress but probably none has made a stronger impression on the seaside resort.

There are few organizations whose discussions have so great a popular ap-

peal as those of the National Safety Council. To the newspapers and press services the Congress is always one of the important events of the year, although obscured by the World's Series. And few conventions have been honored by having the governor of the State as personal host and the energetic help of scores of committees in arranging important details. During the entire week

Entire State is host to National Safety Congress, October 5-9 . . . Dr. C. H. Watson reelected president . . . Kansas City to be 1937 Congress city

of October 5 to 9 Governor Harold G. Hoffman established his headquarters in Atlantic City and devoted all the time that could be spared from official duties to participation in Congress activities.

To the thousands of safety minded delegates who attended, it was a memorable week. The setting, of course, was different from that of any previous Congress and few of the delegates had ever spent a week so crowded with both business and entertainment. From the opening of the session for community safety council managers on Saturday, October 3 until the Safety Special pulled out of the station the following Friday afternoon, there was something too good to miss on the program all the time.

Registration desks were maintained at the Ritz-Carlton, Ambassador and Chelsea hotels and at the vast municipal Auditorium. Sessions were held at all four places, requiring unusual activity on the part of delegates with a wide variety of interests. The Boardwalk, fortunately, proved to be much easier on the feet than concrete sidewalks and the sea air was a good antidote for fatigue.

The Boardwalk was appropriately decorated for the occasion. Lampposts along the Boardwalk carried shields bearing safety slogans and messages of welcome to the Congress. On the colonnade in front of the Auditorium was a huge illuminated Universal Safety emblem 16 feet in diameter. At each end of the colonnade was a billboard displaying posters from various cities and states which had made use of this form of safety advertising. The posters were changed frequently during the week and many state and city officials posed

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for photographs before their own home posters.

Within the Auditorium was the greatest display of safety equipment yet assembled under one roof. The ballroom on the second floor of this vast structure provided an exceptional setting for the commercial exhibits, the stage being reserved for the Council's exhibit featuring the many services available to members.

In the corridors were other exhibits, including several interesting dioramas. Those of the United States Department of Labor featured housekeeping and plant lighting, contrasting good and bad examples. The WPA displayed several ingenious models showing safe and unsafe conditions on typical jobs. Out on the Boardwalk, where repairs were being made by WPA workers, safety posters were used to an impressive extent.

Other exhibits were arranged by the various departments of the State of New Jersey—Highways, Public Instruction, Motor Vehicles, and Aviation—all of which have an important part in public safety.

### Kansas City in 1937

This year delegates did not have to wait long for the announcement of the 1937 Congress city. Before any official announcement was made everybody knew that Kansas City had been chosen and the choice seemed to meet with universal approval.



"The Twenty-fifth National Safety Congress will now come to order."  
The Annual Meeting of Members.

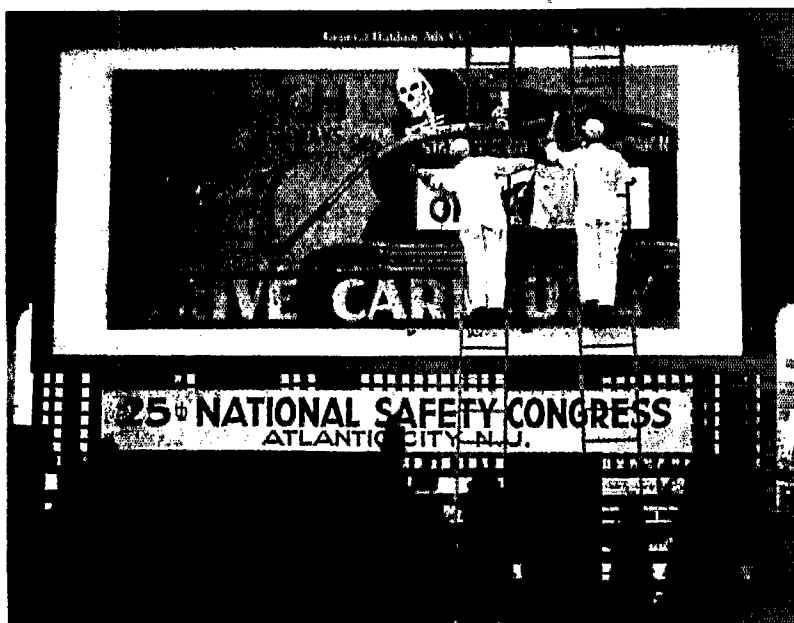
The other important business of the Congress was the reelection of Dr. C. H. Watson, medical director of the American Telephone & Telegraph Company, as president of the National Safety Council for the ensuing year. All of the other officers were also reelected, with a few new members being elected to the Executive Committee.

As for the general and sectional meetings, there were eighty of them all told.

A mere listing of them would occupy more space than is available. The subjects were extremely practical and much helpful information was presented which will become available during the next few weeks in the printed Transactions of the Congress.

Governor Hoffman's address at the Annual Meeting of Members was far more than a conventional address of welcome; it was an inspiring message to forces of safety. Dr. Watson summarized the progress of the past year and interpreted the objectives of the Safety Movement in the President's Address. Three other important addresses made this year's Annual Meeting unusually impressive. Willard E. Givens, executive secretary of the National Education Association, presented an educator's views on the importance of safety in preparation for life. Howard Coonley, chairman of the board of the Walworth Company and president of the American Standards Association, described the influence of safety in the social and economic life of the nation. Paul G. Hoffman, president of the Studebaker Corporation and chairman of the Traffic Safety Committee of the Automobile Manufacturers Association, expressed the automobile industry's interest in all practical measures for the promotion of safer traffic. The addresses of Governor Hoffman and President Watson were broadcast locally over Station WPG.

Beginning Monday afternoon the delegates were faced with crowded schedules and conflicting interests. Efforts



Posters on the billboards in front of the Auditorium were changed every few hours. Many states and cities contributed posters which they were using in their highway safety campaigns.



Governor Hoffman and his aides join the merry-makers at the President's Reception. Beside the bandmaster is Lloyd Blanchard, field representative of the National Safety Council.

have been made by the correlating committees to stagger the sessions so that all members will be able to attend the maximum number of general and subject sessions as well as their sectional meetings but with so many topics to be discussed in five short days, a certain amount of overlapping is inevitable.

On Monday evening the Ambassador Hotel was the scene of the President's Reception and Dance where Hal Kemp and his radio orchestra provided the music. Sharing the limelight with President Watson were Governor Hoffman, who appeared with his aides and personal band, and "Silver Knabe," a thoroughbred German shepherd dog from Oklahoma, who performed several tricks to an appreciative audience and showed that he had learned more about "safety first" than many humans.

The Annual Banquet on Wednesday evening eclipsed preceding events by a wide margin and is likely to hold the record for many years to come. With the versatile Governor Hoffman as toastmaster the program got off to a good start. The food for thought was provided by Colonel Willard T. Chevalier, vice-president of McGraw Hill Publishing Company, whose address, "Design for Living Safely," stressed the importance of engineering for safety in the broadest sense of the word and deplored the fact that highway building had lagged far behind modern needs in both convenience and safety. Following the

address of the evening was a program of entertainment which held the audience till after midnight. Stars of the screen, radio and stage provided a collection of talent that has seldom been equalled on any one program.

As at many past Congresses the World's Series provided competition not only in newspaper publicity but also in the minds of many delegates who found it impossible to tear themselves away from the lobby radios until the last man was out. The Yankees, however, ended

this distraction Tuesday afternoon by a brutal attack on the unhappy Giant pitchers.

On Thursday evening the Traymore Hotel was practically turned over to the Congress for the Annual Fun Fest. A Mardi Gras with a picturesque parade through the lobby, a circus with the customary side shows, and a Monte Carlo where games of chance were played with stage money were among the features of the evening's entertainment.

But amusement, after all, was just an incidental part of the Congress. For many of the delegates the Congress day started at 8:30 with attendance at one of the early morning classes. For the industrial members there were the Industrial Safety Lectures conducted by Arthur C. Horrocks, director of education, Goodyear Industrial University, Akron, Ohio. For those whose interest was in the field of public safety, there was the traffic school conducted by Earl J. Reeder, traffic engineer, National Safety Council.

Industrial health occupied an unusually prominent part in the Congress program this year. One session was devoted to the problems of rehabilitating the injured worker and one to occupational diseases. In addition, the Annual Meeting of the American Association of Industrial Physicians and Surgeons was held in conjunction with the Congress, with morning and afternoon sessions and a banquet at the Traymore Hotel. Of importance also from the standpoint of health was the session on Exhaust Systems at which three practical papers on the principles and practical applications of the subject were presented.



Reveille on the Boardwalk. Governor Hoffman's band provided a musical eye-opener for delegates each morning as well as entertainment for several meetings. The bandmen, members of the 114th Infantry Band, were cited for bravery in action during the World War. Although exempt from line duty they voluntarily served as stretcher bearers and messengers.

More sessions this year were devoted to panel discussions, and many favorable comments were heard on this method of presenting the subjects. The general sessions holding panel discussions were: The Safety Exchange—General Round Table, Maintaining Interest in Safety, Safety Fundamentals for Beginners, and Safety Training. As usual the sessions dealing with the problems of beginners in safety work were well attended by veteran safety men.

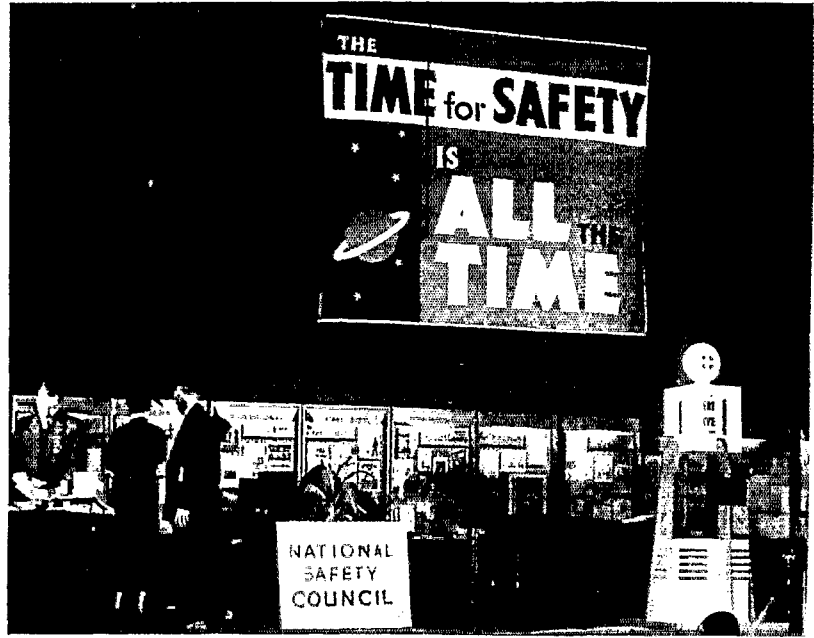
In spite of numerous other attractions, many delegates spent a quiet Tuesday evening viewing the new safety talks. Six films were presented.

This year a new publication made its bow at The Congress—an uninhibited little sheet called *The Morning Headache* which was distributed to all delegates. It presented a concise calendar of the day's events but the rest of its contents was not to be taken too seriously.

Through cooperation of Station WPG and the Columbia Broadcasting System, President Watson spoke over a National hook-up of 55 stations on Thursday. During the week brief talks were made by John E. Long, past president of the National Safety Council, W. H. Cam-



One of the most photographed men at the Congress was David Vaage, chief of safety service for the International Labour Office at Geneva, Switzerland. Here he is noting with interest some of his own publications on display at the exhibit of the Council's Bureau of Information. At the right is Swen Kjaer, Chief, Division of Accident Statistics, U. S. Department of Labor Statistics, Washington, D. C.



The Council exhibit, prepared by the Bureau of Information and the Poster Division, occupied a commanding location on the stage of the Auditorium ballroom. In addition to display of services available to members there were several new and ingenious devices for displaying safety posters.



Silver Knabe, the German shepherd dog from Oklahoma who has entertained many school children at safety demonstrations, knows how a politician feels. This time it's Barney Oldfield he is glad handling. In the background is Knabe's manager, Ed Slattery.

Committee and his genial presence at so many of the events of the week. Nor can we omit reference to Frank Amstutz of the Atlantic City Chamber of Commerce and Atlantic City Safety Council who seemed to be everywhere at once arranging countless inconspicuous but important details.

\* \* \*

The work of editing the Congress papers for the printed Transactions is progressing rapidly. At the present rate, volumes will be mailed to members before January 1.

\* \* \*

Just as soon as Kansas City had been announced as the 1937 Congress city, one forward-looking member put in his request for hotel reservations. Full details regarding Kansas City hotels will be announced in an early issue of the News. All sessions will probably be held in the new Convention Hall.

\* \* \*

#### OTHER CONGRESS FEATURES IN THIS ISSUE

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eron, managing director, Sidney J. Williams, director of the Public Safety Division, and Marian Telford, director of field activities of the Education Division.

As the managing director expressed it on his page, it was a great Congress—any way you look at it. Several thousand delegates will always have pleasant memories of New Jersey's gracious hospitality. To list those who contributed to the success of the Congress would be as long as Atlantic City's telephone directory. But no report would be complete without mention of Governor Hoffman's tireless efforts as chairman of the Greater New Jersey Safety Congress



*C. H. Watson*

**PRESIDENT:** Cassius H. Watson, M. D., medical director, American Telephone and Telegraph Company, New York City.

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Albert S. Regula



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# Motion Study Is Safety's Partner

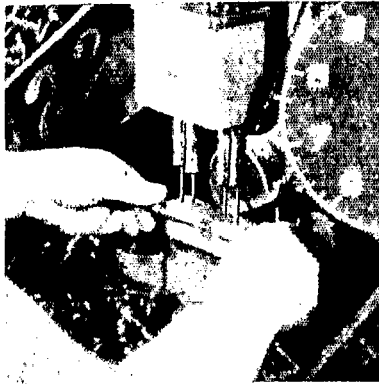


Fig. 1. Work is divided over both hands instead of speeding up one-hand method.

EVERY article you read about motion study tells of the huge savings in time; how the time for this job was cut in half, and that job by one-third.

I have often wondered how the safety man feels when he reads such an article. I am sure many of them are gravely concerned about the effect of time reduction on the safety of the worker. Is motion study a form of the "speed up"? Back in grammar school days they heard that "haste makes waste." A lost-time accident, is the cruelest form of waste. I think the safety man decides to keep an eye on motion study or it may spoil his safety record.

To begin with, motion study is not a hurrying process. We must distinguish between work done at high speed and work done in a hurry. With motion study, speed is attained by eliminating unnecessary motions and perfecting rhythm and skill of necessary motions; also by selecting motions that give the least fatigue. Without motion study both necessary and unnecessary motions are speeded up, resulting in fatigue, poor workmanship and many accidents.

Motion study also divides the work over both hands instead of speeding up the one hand method. It plans the workplace, tools, and materials. Savings through motion study run from 25 to 75 per cent and it is not necessary to use what Labor calls the "speed up" to meet competition. Motion study plans jobs according to the "One Best Way" which is always the safe way.

Let us follow a motion study man

By WILLIAM R. MULLEE

*Supervisor, Standards Department, American Hard Rubber Company, Butler, N. J.*

through the factory and note how safety follows every step he takes. In going about his daily work, the motion study man uses certain tools for the purpose of analysis, measurement, and rearrangement. The first tool he uses is the "process chart." This is nothing more than a detailed description of every operation, as well as every handling between operations.

Someone pointed out that even the nursery rhymes contain process charts. For example, here is one of interest to the safety man:

Jack and Jill went up the hill.....40 ft.  
To fetch a pail of water; ..... 5 min.  
Jack fell down and broke his crown .....40 ft.  
And Jill came tumbling after. .... 2 sec.

Now, here is the way it would sound in the factory with time or distance shown for each step.

| SYMBOL | ITEM                                               | MEASUREMENT |
|--------|----------------------------------------------------|-------------|
| (M)    | Walk to pail storage<br>(Man & Helper) .....       | 20 ft.      |
| (M)    | Carry pail to elevator<br>(Man & Helper) .....     | 35 ft.      |
| ▽      | Wait for elevator<br>(Man & Helper) .....          | 5 min.      |
| (M)    | Elevator to 3rd floor<br>(Man & Helper) .....      | 40 ft.      |
| (M)    | Carry pail to storage tank<br>(Man & Helper) ..... | 10 ft.      |
| (M)    | Fill pail<br>(Man & Helper) .....                  | 5 min.      |
| (M)    | Carry pail to elevator<br>(Man & Helper) .....     | 10 ft.      |
| ▽      | Fall down elevator shaft<br>(Man & Helper) .....   | 40 ft.      |

This chart shows eight steps. Each one we eliminate reduces the chance of an accident. For example, if we ran a pipe line down from the third floor, we would eliminate most of the steps and most of the accidents. Jack and Jill should have drawn up a process chart.

On a much larger scale this same thing is repeated all over the factory. You wouldn't believe how many times a piece is lifted on a truck, off a truck, placed in storage, taken out of storage, lifted up to bench level and down to floor level again, etc. We found that one of our standard articles required 86 handling steps. A process chart reduced

this by 12 steps. By eliminating excess handling, we eliminate accidents. Handling, we are told, cause 25.9 per cent of total accidents. Reducing the number of handlings gives the operator more time to devote to work on the product,



Fig. 2. Formerly worn-out molds were trucked via elevator from top floor in boxes shown. The new "Jack and Jill" method eliminates handling and promotes safety.

● More speed with less haste and less fatigue  
is the objective of the motion study man

where from statistics, he will have fewer accidents.

### Fatigue Conditions

As the motion study man approaches the operator at work, he first looks for conditions that might cause fatigue. Most safety engineers say that accidents increase when operators become fatigued. The accumulated fatigue blurs the operator's safety consciousness and his muscular response is slower. Doctors Haggard and Greenburg, of Yale University, show in their book, "Diet and Physical Efficiency," that both production and muscular efficiency fall off late in the morning and again late in the afternoon. Safety and motion study approach the subject of fatigue with a common objective.

If the operator works in a standing position, it is important that he is not leaning too far over the machine. Before we motion-studied a certain horizontal warming mill job, a projecting pan below the mill made the operator lean over it. While we were making the motion study, the operator lost his balance and at the same time, two finger-nails. This condition was immediately corrected, because the unbalanced position was not only fatiguing, but hazardous.

Constant sitting, as well as constant standing, is fatiguing. We try to intro-

duce the sitting-standing arrangement, whereby the operator can alternate. This rests the leg muscles, promotes blood circulation, and relieves fatigue. In one of our packing departments, for example, a number of operators were badly fatigued at the end of the day because of constant sitting while working at low tables. When the sitting-standing arrangement was introduced, earnings and output increased and fatigue decreased.

Another fatigue condition is the amount of illumination. We are often shocked when we read a foot candle meter, even in places where the job requires good vision and close attention to detail. In one department we had several thousand dollars damage and repair annually, above our budgeted allowance. A light meter reading in this department showed six foot candles. We increased this to between 15 and 20 foot candles and effected a \$3,000 annual saving in damage and repair; we found also that the frequency of injuries was reduced 18 per cent.

Dust, fumes and temperature are also noted as fatigue conditions. It is not necessary to say that dust and fumes are health hazards. Temperature, although apparently of minor importance, is considered because of its effect on production. One investigator reports that a group of manual workers dropped 15 per cent in output when room temperature was raised from 66 to 75 degrees F. Here again, motion study and safety



Fig. 4. Left hand on air valve. Right hand moves stock through pulley arrangement.

must join hands to improve fatigue conditions.

### Five Classes of Motions

The motion study man next observes what class of motions the operator is using. All motions are classed as:

- Class 1. Finger motion.
- Class 2. Finger and wrist motion.
- Class 3. Finger, wrist, and forearm motion.
- Class 4. Finger, wrist, forearm, and upper arm motion.
- Class 5. Involves bending the body in addition to the above.

It is the aim of motion study to reduce all jobs to the lowest class motion consistent with good workmanship. Fifth class motions, which involve the most fatigue, are very objectionable. If you don't eliminate fifth class motions, the operator may figure out his own method. We had a hand operated shear for cutting heavy hard rubber sheets. One man fed the stock to the blade and another sheared it to length, putting his entire weight on a hand lever. The feed operator had to reach around the machine frame to move the cut piece away from the blade. This was a fifth class motion. The job was a "man killer."

A motion study indicated that the feeder might try to reduce fatigue and increase his pay by reaching through the frame or under the blade. The job was rearranged for better motion practice. The feed operator moved the hard rubber sheet by a pulley arrangement, avoiding fifth class motions and eliminating the accident hazard. A pneumatic cylinder replaced the man on the lever, who was

Fig. 3. Bench lathe cut in half to permit sitting-standing arrangement.

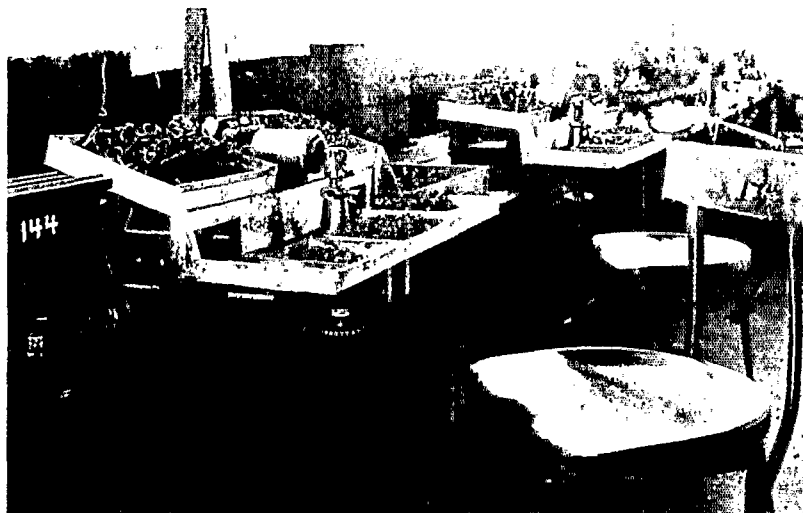




Fig. 5. The thumb is taped when the hand is used as a holding device.

in grave danger of abdominal strain. Operators sometimes forget safety in trying to increase earnings when the job is not planned properly. Labor cost was cut in half and safety doubled.

### Get Ready, Do, Clean Up

All jobs can be broken down into three parts: "Get ready" "Do," and "Clean up."

*Get ready* means placing the piece into position. *Clean up* means removing and placing it aside. In the past, a great deal of attention was focussed on the *Do* part of the job: elaborate machine guards were provided and the machine operation was usually well protected. Little thought was given to the *Get ready* and the *Clean up*. It has been found that great savings in time are possible by combining the *Clean up* of one operation with the *Get ready* of another operation. In many cases, this reduces accidents by avoiding additional handling.

Also, if we can have the operator *Get ready* and *clean up* while the machine is working on another piece, we keep the operator's hands busy and out of the way of the moving machine parts.

For example, on an operation of grinding a gun butt plate, the operator formerly placed the piece in a jig, brought the jig to and from the wheel, and then reached in to remove the finished piece. He often ground his knuckles and it was a common sight to see him work with taped knuckles.

In the new way, the operator gets the next piece ready while the previous one is grinding and then the finished piece is ejected by air down a drop delivery chute. In this way, the operator's hands are out of the way of the grindstone

during the grinding operation.

In many places we found that the work was placed aside on the floor, later loaded on a truck, moved to another location, and unloaded on the floor again. Motion study provided special rack trucks and skids so that truck loading was part of the *clean up* on one operation and truck unloading was the *get ready* on the next operation. This eliminates two handlings, and also the piling or stacking of pieces on the floor. Many employees are injured by round material like pipes and heavy objects that roll on their feet from an unwieldy pile. The special trucks and lift skids not only pre-position the pieces for use but also prevent them from falling. All

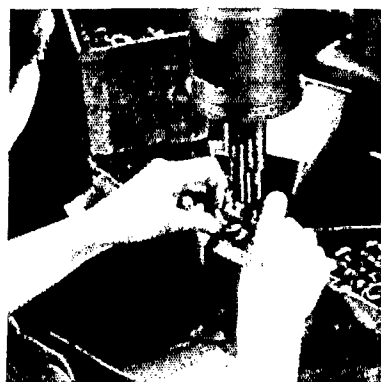


Fig. 6. Fixture holds piece in jig. Fingers used for transport. Production increases 40 per cent. No injuries to fingers.

this helps to reduce the 25.9 per cent accidents due to handling objects.

### Normal Work Area

When the motion study man stands alongside of the operator, the first thing he notices is whether or not the oper-

ator's hand movements are confined to the "normal working area." This area for the right hand is indicated by extending the right arm in front of the body and making one sweep across the table pivoted from the shoulder. The area for the left hand is similar. If all the movements are confined to this area, then there is little danger of becoming entangled in moving belts or gears. The only danger is immediately around the operating part of the machine. Arrangements must be made to keep the operator's hands away during the *do* part of the job or provide adequate guards. Hand and finger injuries make up 33 per cent of total accidents.

Fatigue within the normal work area is reduced to a minimum by confining all movements to the same horizontal plane, avoiding lifting or change of level. In some cases, we were able to reduce the movements so that only those of finger and wrist were required. The distance from the feed hoppers to the drill press was cut down to a minimum and the operator could slide the pieces across instead of picking them up. This confined the work within direct line of the operator's vision, keeping both hands in full view all the time.

Motion study also aims to employ motions that are relaxed and a motion path that avoids jerky changes of direction. All of this means less fatigue, which in turn means fewer accidents.

### Holding

The next thing to look for is whether or not one of the hands is used for holding. The human hand is a poor substitute for a mechanical holding device and accidents may be caused if sharp cutting tools are used. Hand tools cause 7.6 per

(Please turn to page 34)



Fig. 8. Tool kits mean fewer motions and fewer accidents.

*Detroit News Photo*  
 At the conclusion of the test run which showed the futility of excessive speed. Front row: Walter F. Israel, Chief, Detroit Fire Department; K. T. Keller, president, Chrysler Corp. and president, Detroit Industrial Safety Council; Brigadier General Heinrich A. Pickert, Police Commissioner, City of Detroit. Rear row: C. E. Wormuth, manager, Detroit Industrial Safety Council; Marvin A. Heidt, personnel director, Budd Manufacturing Co.; and chairman of the Board, D.I.S.C.; Hugh Ferry, treasurer, Packard Motor Car Co.; Lieut. Edward Bellm, Detroit Police Department.



## Detroit's Drive For Safe Driving

By C. F. SCHEER

With the cooperation of industry, the Detroit Industrial Safety Council is applying the inter-fleet contest idea to the employees' private cars

**T**HRONGS gathered at the curbs as a fire engine with its throttle wide open, siren shrieking and bell clanging, hurtled through the busy streets of Detroit. Two minutes and 49 seconds after it had pulled up at the curb a police car glided alongside.

Both vehicles had started from the same point. The fire truck, with a head start of two minutes, had gained only 49 seconds over the time of the police car.

On its breath-taking run, with the siren clearing its path, the fire truck had flashed through nine red traffic signals, plunging headlong in exactly the same manner as if it were going to a fire. The police car, with no siren to blast the way open, had adhered to the speed limit, waited for the lights, and observed all the traffic regulations to which any car is subject.

To the residents of Detroit—not only those who saw the run, but all those who read of it in the newspapers—it was a graphic demonstration that speed and disregard of traffic regulations do not pay. A mere 49 seconds in a three-mile run, gained at what would be, to the ordinary car and driver, an extraordinary risk of life and property, are not worth the gamble.

The demonstration was conceived by the Detroit Industrial Safety Council last spring as one of the links in a chain of public safety work the organization is undertaking.

Detroit is an automobile town. It lives by, with, and—one might almost say—in the automobile. Buses and street cars constitute the only forms of public transportation. Thus, with a population of more than 1,500,000, this fourth city in the United States turns instinctively to the automobile to go to and from work, to do its shopping, to seek recreation. With shopping and business centers situated in far-flung parts of the city, with industrial sections scattered all about the greater Detroit area, and with suburbs forming a fringe about the city proper, it may be readily seen that

traffic arteries will weave through the city in criss cross fashion and that traffic, at times, may become a puzzling problem.

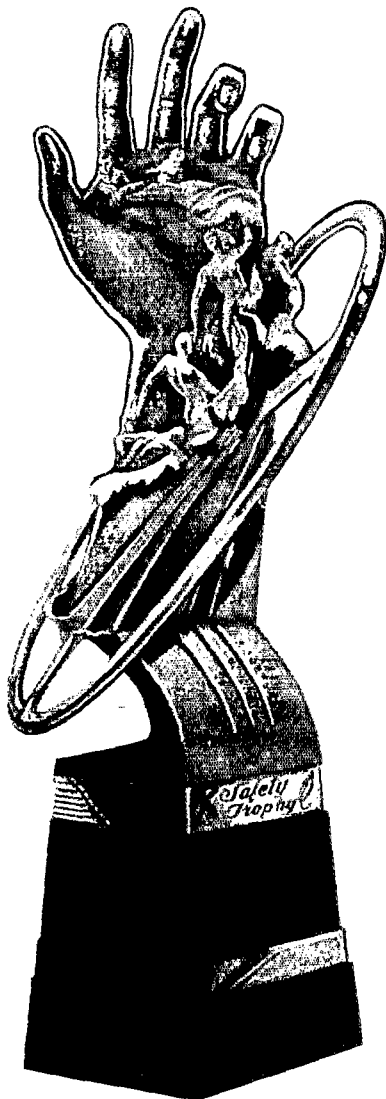
The Detroit Industrial Safety Council has recognized it as the problem of industry.

A public safety movement, to succeed, must be well organized, must follow a definite, continuous program, must be directed and must find its incentive in some common appeal. Once such a movement gains the support of the majority, further cooperation will readily follow.

A study of the field convinced the Detroit Council that it was equipped to tackle the task.

Its very industrial nature would give it the desired leverage, for about 300,000 of Detroit's industrial employees are drivers—more than 75 per cent of the motorists in the greater Detroit area.

Most of the plants in which these men and women are employed, cooperating with the Detroit Council and the National Safety Council, have been doing good work in safety. In many cases it was realized that more employees were being injured on the streets, as pedes-



The trophy awarded by the Detroit Industrial Safety Council to the company whose employees establish the best record for safe driving.

trians and motorists, than were being injured at work. The indirect economic effect of such accidents was not to be overlooked.

These industrial plants, which had found safety effective within their walls, decided to expand the program—and in attacking public accidents to use the methods which had proved so effective in the factory.

Plant accident records of Council members in Detroit offered ample reason for following this plan. During the past ten years, on the basis of reduced accident frequency and severity rates, it is estimated that organized safety work has saved some 320 lives in factories, prevented more than 40,000 accidents, and saved 4,158,819 working days.

Among the Detroit Council's Commercial fleet operators there has been an accident reduction of 75.4 per cent since 1928. The 1935 rate was 16.1 accidents per 100,000 hours of operation as against 65.5 in 1928. In other words, the contestants in this branch of safety work improved their record from one accident per driver every seven and one-half months to one accident per driver every two and one-half years.

In 1934, as a result of the steady improvement in commercial driving experience, the Detroit Industrial Safety Council was awarded the Inter-Council Fleet Safety Contest trophy by the National Safety Council. It won the trophy again in 1935.

With an experience of this kind the Council felt that it could not go far wrong in applying the inter-plant or inter-fleet contest plan to its proposed public safety work.

On February 27, 1936, a sub-committee of the Council's Public Safety Division met to plan a traffic control program. Members of the committee were Del A. Smith, of the City Department of Street Railways; Ralph Lee, research engineer of the General Motors Corporation; Harry W. Boulton, manager of Industrial Relations of the Murray Corporation of America; and Clarence E. Wormuth, manager of the Detroit Council and member of the committee ex officio.

The program, recently launched, revolves about a motor traffic safety contest in which the employees of each participating company compete with the employees of all other participating companies for a trophy to be presented by the Detroit Industrial Safety Council. Reports of all traffic accidents provided by the Police Department of Detroit and suburbs will serve as a basis for determining the winners of the awards. All member companies of the Detroit Industrial Safety Council automatically participate in the contest.

Since nothing of this nature had, to the knowledge of the sponsors, ever before been attempted, it was decided to proceed slowly—first holding a three-months' "experience test" or trial period to smooth out the imperfections of the contest, and officially opening the contest on October 1.

The experience test was vindicated almost immediately. At the outset it had been planned to use all traffic violations in compiling the records. It was found, however, that there are about 30,000 detected violations a month in Detroit alone and that the task, consequently, would reach monumental proportions.

Finally it was decided to use only the accidents reported to authorities.

When an accident takes place, the officers called to the scene obtain from the persons involved the information asked in the standard accident report forms and also the name of each victim's employer. New report forms, providing an extra space for this information, have been printed by the police department in and about Detroit.

Once each month the 16 suburban police departments send the Detroit Council report cards, bearing the names of all those involved in suburban collisions, together with the names of their employers. Within the city proper a clerk from the office of the Detroit Industrial Safety Council spends a part of each day at the Detroit police headquarters, checking reports of the previous day, then entering the information in the Council's accident files.

Each month a printed report is compiled in poster form, listing the names of all participating companies, the number of employees involved in accidents during the month, and the percentage rating of the company, that is, the number of employees involved in accidents per 100



Frank A. Morrison, president, Corporate Service, Inc., and chairman of the Public Safety Division of the Detroit Industrial Safety Council.

employees. It is pointed out that the actual number of accidents is not the base; it is the number of employees involved—either as drivers or as pedestrians, but not as passengers—in motor car accidents.

At the close of the contest year a handsome bronze trophy will be awarded

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NATIONAL SAFETY NEWS

# Less Handling Means Fewer Injuries

By P. G. HUNTER

*Safety Engineer, Motor Wheel Corp., Lansing, Mich.*

**Mechanical equipment removes many opportunities for injury but its use involves a few essential precautions.**

**R**OUTING all work to reduce the handling of material to the minimum is an important safety measure. Every time an object is handled there is another opportunity for accident.

Many years ago our company employed an average of 25 men to pile drums. This was made necessary by some machines turning out drums faster than the following operation could take care of them. These men were always suffering cuts, contused fingers and toes, severed tendons, and other injuries. Then we began to install conveyors and rearrange machinery to run all jobs in line production. This meant slowing down some machines and speeding up others with the result that there was no more drum piling and fewer accidents. This released more floor space and kept the shop in better order. There was less grease on the floor and there were fewer stumbling hazards.

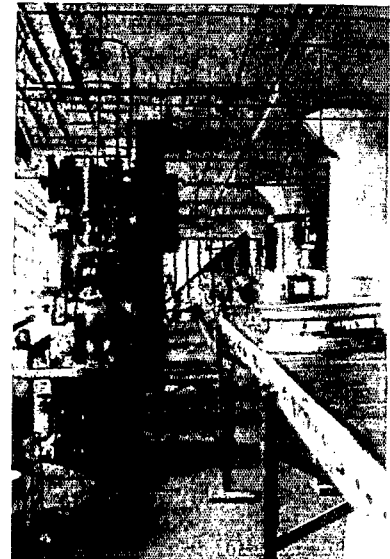
But with the advent of conveyors a different type of hazard appeared. Every time material is placed in a machine it adds to the handling or traffic problem. Here the type of conveyor or chute is important. A conveyor built too low causes loss of time, back strains and ruptures; if too high, cuts and smashed toes may result. So, in order to cover all types of jobs and men, the conveyor should have adjustable legs. More time used in picking up stock from the conveyor means less time to get it into the press and greater hazard to the hands.

To make the job safe, all parts of the operations must be studied and each operation tied to the others. The speed of motor-driven conveyors, incline of roller conveyors and height of conveyors are all important parts of the problem.

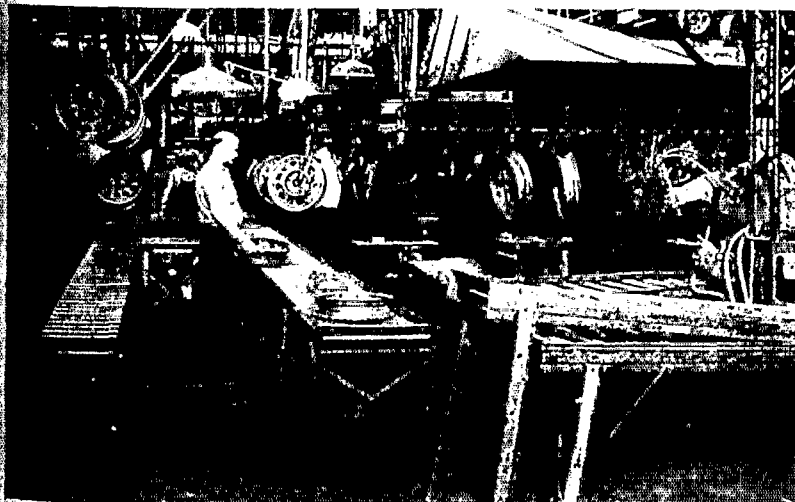
Mechanical means of propelling these loads meant that the loads became heavier, with increased hazard of falling material or too much speed. With the coming of the power truck the dangers of strains and ruptures passed but the new hazards more than offset those of the old man-powered truck. Driving rules were given to the operator; he had to be trained to drive the truck, and



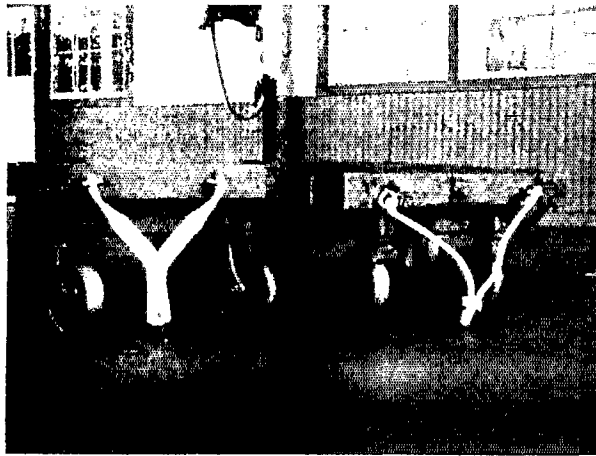
The operator is well protected on these electric trucks. An eight-inch opening in the rear makes it unnecessary to climb over the guards.



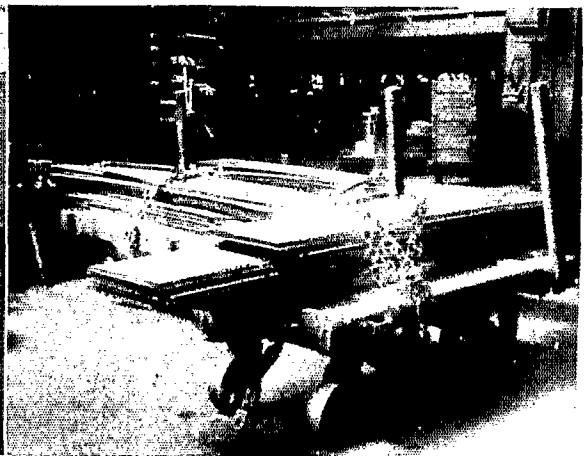
On the assembly line men throw wheels on the conveyor. An extra piece welded to the far side keeps the wheels from sliding off and injuring some one on the other side.



Hook conveyor systems should be controlled by switches that can be locked and started only from the point where they have been locked out. The hooks must be watched as they become bent and wear thin where the part is hung.



Two types of tongues on four-wheel trucks. The hook type (right) was hooked into the table of an electric truck, but at times it unhooked, allowing the truck to run free. The clevis type (left) avoids this hazard.



Stock which is rolled and oiled before being moved to the press is fastened securely to the truck with load binders.

to protect the driver the truck had to be guarded; rails had to be placed on docks to keep the truck from running off, and other precautions taken.

Our first step in handling material is the unloading of cars and trucks that deliver material to us. Our own employees seldom bring material into the shop and we have no control over other drivers, but the method of unloading is under our control. Steel coming in freight cars is unloaded with an electric crane, the hazards of which are quite familiar. Extra care must be taken during the winter months, as when steel is brought into a warm room there is danger of skidding when the frost comes out of the steel. Our steel comes in three to five-ton bundles with steel bands around them. This band is not removed until the steel is ready to go to the pickling room; it stacks more easily and does not slide.

From 10,000 to 30,000 tons of steel are kept in storage.

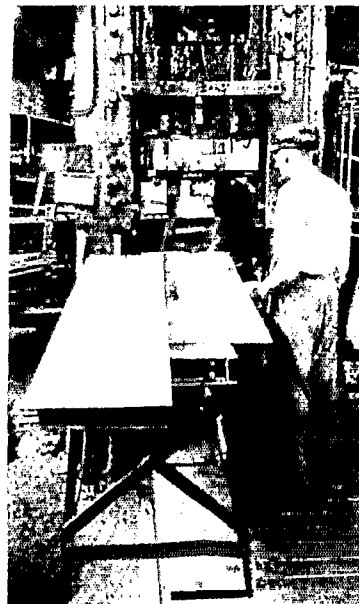
The pickling room has an electric crane for handling material. Cables are inspected daily for defects and changed every six weeks. There are no reverse bends in these cables.

The steel is taken from the pickling room on four-wheel trucks and stacked to cool before going to the press room. Two types of tongues have been used on these trucks. The hook type was hooked into the table of the electric truck, but at times it unhooked, allowing the truck to run free and endangering men working near. We have changed the hook to the clevis type and no more

trouble of this kind has been experienced.

We have had another difficulty from these four wheelers; they are made of wood and the wood becomes oil soaked and the side rails break. So our 800 trucks are being built over with steel. This will require some time but the change will aid both safety and economy. Steel trucks seldom need repairs.

The steel is piled at the press about 30 or 40 sheets high. This is a one-man job and requires the use of our all-steel tables with adjustable legs to take care of all types of jobs. This table is wide



The steel at the press is piled about 30 or 40 sheets high on all-steel tables. The table has adjustable legs for different jobs and is wide enough to permit the operator to slide the steel into the die without lifting.

enough so that the operator does not have to lift the steel; he just slides it into the die. One man places the steel on the table for several presses.

Some stock is rolled and oiled before being moved to the press and it is bound to the truck with load binders. Where the job is a three-man job the stock is oiled at the press by the man who feeds it into the press and no load binder is used.

The partly finished part is then conveyed from one operation to another by roller conveyor. The conveyor is built for this job and does not have adjustable legs. Here the proper incline is important as the parts are heavy. Too much incline would cause the parts to pile up and topple over on the operator and pinch his fingers when he reaches for the next part. He does not need to bend over or make any unnecessary movements in getting the stock or placing it on the other conveyor for the next operation.

After other press operations these parts reach the washer and are placed on the overhead hook conveyor for transportation to the inspector who places them on either skids or trailers. We have used two types of trailers; the old type caused many ruptures and bruised fingers and toes. To reach the bottom of the trailer the top half had to be lifted off and placed on the floor. This trailer was improved by bolting the top half to the bottom and hinging one side like a drop leaf table. There is no more lifting, no more accidents and very few repairs.

Before going on with the various operations and conveyors, let's return

to the electric and power trucks. There has been much dispute as to whether these trucks should be guarded and several types of guards have been installed.

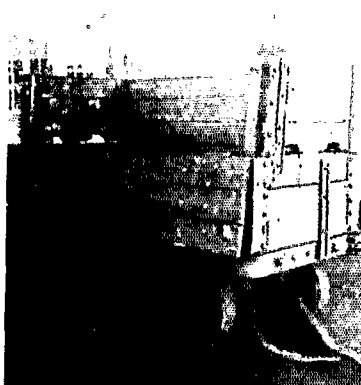
One employer states that he tells his operators how the truck must be operated, and if they fail to follow instructions they are discharged. Therefore no guards are needed.

What happens if a driver disobeys and is seriously injured? Will discharging him relieve his suffering? Will it prevent his successor from doing the same thing? Why make the operator live in fear of injury and loss of his job when the truck can be guarded at slight expense?

The job of the safety department is to correct the hazard before an accident occurs. What could you, as a safety engineer, say if your manager were to ask, "Could the hazard have been corrected before the accident?"

The sheet metal guard is of  $\frac{1}{8}$  inch steel, the angle irons  $1\frac{1}{2}$ -inch, with an eight-inch opening in the back so the operator does not have to climb over the guard. All handles on the truck are protected with one-eighth hand-forged guards and are strong enough to stand any blow the handle will stand. The rail is to prevent the operator from falling out over the top of the guard.

The operating rules are simple. The driver must not allow anyone to ride the truck platform unless a helper is required to hold something in place. The driver must always face in the direction he is driving, come to a dead stop and



A change in trailer design has prevented many strains and bruised fingers and toes. To reach the bottom of the trailer it was formerly necessary to lift off the top half. The top half has been bolted to the bottom and one side hinged like a drop leaf table.

blow the horn before going through a doorway, and slow down at blind corners.

Once I saw a man letting the oil out of the cylinder of a hand lift jack so the load would drop quicker. When questioned, he said he thought it was supposed to drop quickly. One worker suffered a broken jaw when the handle flew up and struck him. This could not happen with jacks of the newer types but most of them have to use the equipment we now have.

An electric conveyor is used to carry scrap from the press to trucks, also to convey parts from the rear of one press to the hopper of the next. This is also made adjustable for height and it has wheels so it can be moved from one job to another. All moving parts are well guarded.

We employ a standard type of roller conveyor on our wheel assembly line. Our only trouble was that men threw the wheels onto the conveyor and sometimes clear over to the other side, endangering the men working there. The speed of this operation does not permit the men to turn completely around and place the wheel carefully on the conveyor. So an extra piece was welded to the far side and this keeps the wheel on the conveyor.

Wheels and drums are loaded into cars with an endless belt conveyor with the stop switch located in the car.

Our chain conveyor system takes the wheels through the bonderizer on hook conveyors. The condition of the hooks must be watched as they get bent and wear thin where the part is hung. Also,

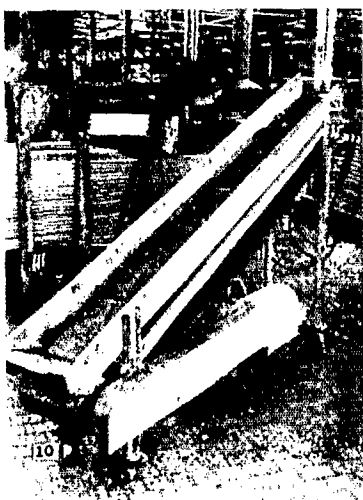
start and stop switches must be placed throughout the shop. The control must be of the type that can be locked and started only where it is locked out. Many a repairman has been injured because somebody started the conveyor while he was still working on it.

Now we come to the men who receive more criticism than any other drivers on the road—the fleet truck drivers. Our men have had an excellent record, having had no accident during the past seventeen years. Many of them have been with the company for the entire period. As nearly as we can figure, the total mileage has passed the seven million mark.

The safety department makes trips to this department every day but we make no suggestions for operating the fleet. We do not lay down any "don't's," with a record like this anything we could say would be a reflection on the judgment of the foreman and men.

When asked about his record, the foreman replied that the drivers had been with us for many years. They are all fine men who realize what it would mean to be involved in an accident, and they are courteous on the road. We request that they always give the other fellow the right of way, and that they give assistance to other drivers on the road. There is no set limit within which they must arrive at their destination.

*(Please turn to page 69)*



A portable adjustable elevator conveyor carries scrap from the press to trucks.



Partly finished parts being conveyed from one operation to the next by roller conveyor. There are no unnecessary movements in getting the stock and placing it on the conveyor.

# Heard at the Congress

Excerpts from addresses at sessions of the  
Twenty-fifth National Safety Congress

## When Accident Strikes

Foremen are persons and not machines, and there is no invariable formula which a foreman can follow in cases of accident. It is seldom that circumstances and details of two accidents are identical.

Rather must he rely on judgment and common sense.

His first concern should be for the injured person. During the first few minutes after an accident has occurred, he should be in complete demand of his department. Cool thinking and capable direction are needed while the first important steps are being taken which may mean the difference between a minor or a serious injury, or even between life and death.

It may be necessary to extricate the victim from a machine, check the flow of blood, start breathing after it has stopped, prevent the movement of fractured bones or perform some other first aid duties pending the arrival of a physician, nurse, attendant or ambulance. The foreman should know where emergency equipment is located, and though there may be others in the plant definitely given the responsibility of inspecting, it is well for the foreman to know the condition of apparatus which he may need unexpectedly.

—J. H. Kempster, General Superintendent, Buffington Plant, Universal Atlas Cement Co. (Cement Section.)

## Why Programs Fail

The effectiveness of a plant safety program is directly proportional to the interest, support and leadership of the plant management. Therefore, the manager in cooperation with his staff should develop policies and operating plans that conform to standard practice.

He should delegate the administration to competent personnel. The policies and plans should indicate the extent of the program and allocate responsibility and define authority for execution of the plans.

The personnel should be impressed with the importance of safety to the

company and to each employee. In many cases safety programs have failed to function effectively because company policies were so limited in scope as to be quite inadequate; were confusing to line or staff officers because delegated authority and responsibility were not definitely allocated; were not properly transmitted to all employees in easily understood terms.

—J. F. Kolb, National Metal Trades Association, Chicago. (Automotive and Machine Shop Section.)

## Don't Kick A Man While He Is Down

The best method of getting a man back to work is to prevent his injury. Until we reach that Utopia, the problem of getting the injured back to work is an important and serious one.

The problem is not only to get the man back to work but to get him back in the best possible status.

Don't bawl him out while he is suffering the pain of injury. Don't aggravate an unstable emotional balance. Don't kick a man while he is down.

Dispel his fear of what the injury might be. It is not whether the doctor knows he is unharmed; it is whether the patient believes it. Assure him that his job is waiting for him, or, if necessary, assist him in starting over, and get him back to some kind of work as soon as it can be safely done.

—Dr. N. E. Eckelberry, (Session on "The Injured Worker.")

## Women In Industry

A full knowledge of the requirements of the job should be available in the employment department so that the proper type of person will be chosen for the individual need. If this is done, nervous or temperamental types will not be put on work of a monotonous and dangerous nature, and those with physical defects will not be hired for jobs requiring sound bodies.

The age of an applicant in relation to the job is an important consideration, as statistics have shown that young women are more prone to machine acci-

dents and less prone to fall than are their older sisters.

—Ellen D. McKeon, American Mutual Liability Insurance Co. (Food Section)

## Build For Fire Protection

Processes of manufacture have changed materially in recent years as a result of chemical research. These changes have been made without sufficient study of the fire and explosion hazards that may be involved. In addition, recent recovery activities have placed in use buildings which have deteriorated during the depression and which are not in keeping with standard, safe construction.

Recently a fire occurred in the sub-basement of a five-story industrial building. The original fire was so small that only a two-and-a-half-gallon extinguisher was required to put it out. The firemen were ready to leave when they noticed smoke coming from an open window in the unused top floor. They found two-thirds of this section in flames as the result of spontaneous ignition from the concentration of super-heated air which had come from the basement through stairways and other vertical openings. The loss of the original fire was nothing, while the blaze in the upper section cost several thousand dollars.

This emphasizes the importance of planning new buildings and reconstructing older ones to cut off the spread of dangerous hot air, gases and burning substances, not only upward, but also horizontally.

—T. Alfred Fleming, The National Board of Fire Underwriters. (Fire Prevention Session).

## New and Transferred Employees

Some one individual or group of individuals must be charged with the responsibility of heading a safety service or organization. However, enviable safety records never represent the accomplishment of any one man or particular group. Rather are they measured by the degree of cooperation which prevails within the organization.

Juveniles never resent being taught, but adults prefer to be coaxed. Therefore, an understanding of the slight differentiations in the education of new and transferred employees may be found helpful.

—A. A. Nicholson, manager of personnel, The Texas Company. (Rubber Section)

# The Safety Exchange

## A Round Table in Print



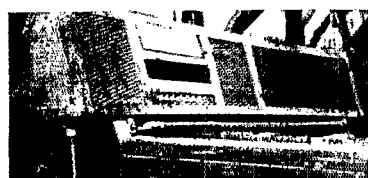
### Line Shaft Enclosures Guard Men on Walkways

Serious accidents frequently occur at points where line shafts run close to working platforms or walkways. The Utah Copper Company has eliminated

the danger of such accidents by enclosing these shafts in tubing as shown here. The tubing is slotted for its full length at the bottom rear to permit removal of accumulated dust. It is supported free of the shaft and is made of scrap pipe.

### Angle Iron, Wire Mesh Make Practical Guard

The Corduroy Rubber Company, of Grand Rapids, Mich., uses a veneer chopper to cut sponge rubber and guards



it as shown here. The principal guard which covers the veneer knife is made of angle iron and heavy wire mesh. A second guard is the strip shown at the bottom of the knife which is inserted between the knife and the material, so that the operator encounters less risk of getting his fingers under the knife as it comes down.

### Unusual Reminder of Safety Record

Near its bulletin board the Bath Iron Works has a large pane of glass, suspended on chains. Painted on the glass are the words, "Our Safety Record,"

NOVEMBER, 1936

followed by a number indicating the number of days the plant has operated since the last lost-time accident. A hammer hangs below with the sign, "If you must break our safety record, use this hammer."

### Weather-proof Box for Storing Explosives

This wooden box, easily portable, is suggested by the U. S. Bureau of Mines to store explosives for open-cut or quarry



use. It is weather-proof, kept locked with the key in the hands of responsible men, and flagged.

### Gold Stripe Buttons Awarded for Safety

At the start of a safety campaign at the Carbon Limestone Company, Youngstown, Ohio, employees signed pledge cards promising cooperation in the drive. In return the company promised to award a safety button to each employee going through the year without an occupational injury.

The button for the first year's work was to bear one gold stripe. The number of stripes on buttons issued during succeeding years was to correspond to the number of no-accident years turned in by the employee.

At the close of the first year—400,000 man-hours of work—all but four employees in the plant had earned the right to wear a safety button.

### Guard Rail Used on Steam Shovels

The J. E. Baker Company of York, Pa., has equipped its steam shovels with guard rails. The rails, as shown here,



do not run the entire length of the running board. It has been found that an open section at both ends of the rail would give the operator a better chance to leap off the shovel in the event that a stone were dislodged from the face of the quarry.



## A Hunting We Will Go —And Come Back Alive

THE sport of hunting is one of the last reminders that this country was once a primitive wilderness. And, executed in the modern manner, it is also one of the most perilous pastimes grouped under the flexible heading of "recreation." Game has diminished and hunters have increased to the point where it is a gamble whether a man will come home with his own skin, let alone that of a few game animals.

Today's nimrod faces a scene in which the competition is often so fierce that hunters are easier to hit than game. Barbed wire impediments give him an opportunity to discharge his gun accidentally. And the loading of firearms requires so little effort that it is easy to forget they are loaded. These dangers are doubly menacing because many hunters are oblivious to them.

There is one type of firearm juggler who is so impatient for the smell of powder that he can't even wait until he reaches the battlefield, but must load his gun before climbing into his car—although some states expressly forbid the transportation of loaded firearms. As he drives along, he courts disaster by watching for a promising patch of woods rather than keeping his eye on the road. Meanwhile his gun may jiggle off the seat and discharge at any time.

Once on the scene this kind of hunter demonstrates what can be done with a gun if one's mind really is made up. He waves and flourishes the weapon with all the abandon of a drum major, and if someone happens to be within range, well, that's all right—the gun isn't loaded . . . he thinks.

Whether or not the gun is believed empty, it is a sensible precaution to carry it with the muzzle toward the ground. The hammer should be uncocked, or the safety catch on.

A gun was devised originally for shooting, but the ingenuity of the human mind is remarkable when a man is out on the prairie or in the woods. There, in addition to hunting, guns are used for hurdling fences, for supports or rests for the weary hunter, for hammers, or for pointers to call attention to something the rest of the party might have missed. When guns discharge in the course of such use, it is assumed that they must be mechanically faulty.

Each year for the past seven years more than 3,000 persons have been killed by firearms in the United States. About 65 per cent of these have been the victims of hunting accidents.

Alarming? Yes. But it is astonishing that the toll is not even higher. For some hunters deliberately ask for the

feel of a charge of buckshot. They drag their guns behind them, through barbed wire fences, where the trigger might easily catch. It never occurs to them to push the gun through ahead of them, muzzle first, laying it carefully on the ground; or to let one man climb the fence while the other holds the guns, then pass both guns over the fence in safety.

Another stunt which could be devised only by prodigious mental effort is to lean a loaded gun against a tree, especially when hunting dogs are frisking about.

Still another way to add thrills to the hunting party is to carry a loaded piece in the crook of the arm, so that sooner or later someone will have to be within the firing line. The excuse for this trick is that the gun must be ready for a quick shot. Safe hunters, of course, find they can shoot just as quickly if they carry the gun against the right shoulder, muzzle up, or hold it with the muzzle toward the ground, so that they can swing it into action instantly.

At times the element of uncertainty may be heightened by doing one's hunting in a boat. Here the inveterate chance-taker comes into his own. He may rock the boat, may decide to change position with someone else, or may keep a loaded gun on the seat beside him, where, in the event that it falls off, it will be sure either to inflict bodily injury or to puncture the boat. In either case it will give everyone something by which to remember the excursion. The safest policy is to avoid venturing into a boat with a hunting partner and loaded guns. If a hunter goes out alone in a duck boat, he should prop his gun with the muzzle pointed upward and away from him.

Many hunters refrain from carrying a white handkerchief, because it might be mistaken for the white flag of a fleeing deer. Some wear strips of bright red cloth that would mutely deny the alibi of any other hunter who might shoot before looking.

But all the requisites of safe and enjoyable hunting could be summed up in three injunctions—if everyone would observe them:

A gun is not a relatively harmless thing, such as a golf club or a pair of ice skates; it is a lethal weapon. In handling it, use the common sense which this knowledge dictates. In shooting, look before pulling the trigger.

A man may get a big thrill out of bagging the limit, but his family gets an even bigger thrill out of seeing him come home safely—game or no game.

NATIONAL SAFETY NEWS

After a thorough investigation of the evidence for and against at the close of the last period of acceptance, the Council on Pharmacy and Chemistry of the American Medical Association has again reaccepted (1935)

# MERCUROCHROME, H. W. & D.

(Dibrom-oxymercuri-fluorescein-sodium)



**P**ROMPT care is important in preventing infected wounds. Even minor wounds may become infected when antiseptic treatment is delayed.

*Mercurochrome, H. W. & D.*

(Dibrom-oxymercuri-fluorescein-sodium)

is non-irritating and exerts bactericidal and bacteriostatic action in wounds. Industrial injuries are reported more promptly when Mercurochrome is the clinic antiseptic, because treatment is not painful. Be prepared with Mercurochrome for the first aid care of all minor wounds. In more serious cases, a physician should be consulted.

HYNSON, WESTCOTT & DUNNING, INC.

# Industrial Health

A Department for Physicians and Laymen

## Lesser Known Facts About Occupational Diseases

By ROBERT B. HUNT, M.D.

*American Mutual Liability Insurance Company*

**P**ROBABLY the leader in the parade of industrial diseases is an acute or chronic inflammation of the skin which we call dermatitis. This disease may present itself in any type of shop, factory or foundry. Any paste, powder, gas or liquid which comes in contact with the employee's skin, even the water supplied by the town in which he lives or works, may be the potential cause of such a skin disturbance.

The wide diversity of causes, together with the varying susceptibility of different individuals, makes the problem of control difficult.

Much investigation is under way to determine why one person may be susceptible to a certain substance while another is not. It has been proved many times that a poisonous substance formed within the body has been able to prolong the action started by some external influence. A printer developed a marked dermatitis from ink which persisted for two years. Finally food tests were made and showed that he was susceptible to lettuce. Removing this from his diet cleared the skin. He returned to his usual occupation without a return of symptoms.

The poisoning of allergic substances is usually an accumulative process. It takes time to produce a manifestation of disease, but let any other substance cause the disease, and the irritating food may be of sufficient strength to magnify its action.

All cases of dermatitis cannot be cured by eliminating offending foods, but further investigation along these lines may give us a clue with which to lessen the loss of time from work and

the discomfort now produced by industrial dermatitis.

### Metals

**LEAD:** The distribution of lead poisoning is quite extensive.

The skin of the body is a protective covering, and as long as it remains intact it does a good job except in the case of tetraethyl lead, which is used in blending gasoline and which is readily absorbed through the skin, having a tendency to create changes in the nervous system. The effect of other forms of lead, through that avenue of entrance, is practically nil, which explains the extremely low poisoning rate in typesetters, painters and others who continually come in contact with metallic lead.

Lead in any form, introduced through the mouth, acts rather slowly when compared with the inhalation of lead dust or fumes. However, no matter what the portal of entry may be, lead is acted upon by the body fluids and so converted that it may eventually be deposited within the bones.

Those bony safe deposit vaults may retain their lead contents for days or for years, and if the exposure is removed, may also free the employee of all signs and symptoms of lead poisoning. But imagine the surprise of that supposedly cured person when years later, perhaps following some type of infectious disease or the excessive use of alcoholic beverages, he awakes to find that he suffers the aches and pains and paralyzes of an acute lead poisoning. As the body fluids alter lead that it may be deposited, so may those fluids attempt to de-lead the body, and too rapid absorption may pro-

duce the original disease with all its discomforts.

One can readily see, then, that in some cases investigation of previous occupations is quite necessary to determine the original contact with lead.

Heating of molten lead causes a black scum of lead suboxide to form on its surface, and the heat from the metal disbursts the fine powder into the air. Hence, in the process of smelting ores such as zinc, copper and silver, mixed with lead, we find a rather high lead poisoning rate.

Those engaged in the manufacture of lead wire and cables, batteries, glass, pottery and rubber industries, plumbers and users of dry colors offer their share of lead poisoning cases.

Probably the greatest source of lead poisoning may be found among those who sandpaper, scrape, chip or burn lead paint, for the dust and fumes caused by those activities are rather rapid in their action. Such workers may become incapacitated in a few days because the inhalation of lead dust causes the maximum amount of absorption into the blood stream in the minimum space of time.

**CHROMIUM:** Chromium is a metal widely used as a foundation for colors, and dusts from its various salts may produce lesions of the skin and mucous membranes of the nose. Chromium plating by electrolysis may cause fumes which are similarly irritating. Although chromium poisoning does not usually cause death, the number of days of absence from work on account of incapacity which it causes is gradually increasing.

**OTHER METALS:** The most efficient portals of entry of foreign substances into the body are the nose and mouth. The smaller the dust (the size of smoke particles for example, the greater the speed of absorption by the blood. Fumes from hot metals carry not only poisons but numerous minute dust particles. This explains the incapacities occurring

NATIONAL SAFETY NEWS

# DUPOR

Reg. U.S. Patent Off.

*Better Safer*

## RESPIRATORS

THE Dupor Respirator No. 24 provides needed protection against Type A or Pneumoconiosis-Producing Dusts. It is approved by the U. S. Bureau of Mines, No. BM-2111.

The screw cap lid is eliminated by the new construction. The filtered air passes easily between the PLATE EXTRUSIONS to the protected opening and then to the interior of the Respirator.

Safety in construction is paramount. The marginal edge of the plate is curved inwardly so as to anchor the filter pads securely and to prevent leakage. The filter pads can be quickly replaced with new ones, or the old ones may be cleaned and used again. The soft, strong, flexible rubber used in the face piece assures a comfortable and tight fit against the face.

The new features of DUPOR construction assure all the highly desirable

qualities of the ideal respirator. These are—

1. Large Filter Area, securing,
  - a. Easy Breathing
  - b. High Efficiency
2. COMFORT
3. Light Weight, only 4 ounces without filter pads.
4. Good Vision.
5. Compact. Easily fits pocket or small box.
6. Audibility and Drainage.
7. Almost No Dead Air Space.
8. Low Cost and Long Filter Life.

The filter pads are 4½ inches in diameter and have a clear entrance filter aperture for both pads of more than 24 square inches.

Price \$27.00 per Dozen

Upon receipt of \$2.25 one will be forwarded as a sample, postpaid. It has only to be tried to be appreciated. Money will be refunded if not as represented.

Basic Patent No. 2,000,064  
Detail Patents Pending and Allowed

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# H.S. COVER

CHIPPEWA-A, SOUTH BEND, IND., U. S. A.



among those engaged in acetylene and electric cutting and welding.

When men are so employed over a prolonged period of time, the constant inhalation of fumes and dust might produce symptoms of the metal upon which they work. In the shipbuilding trade, particularly in the construction of metal ships, we find occasional cases of metal-fume fever. "Brass chills" and "spelter shakes" from zinc are names applied by the lay people to such diseases. The terrific heat applied to some of our common metals and alloys by acetylene torches produces sufficient fumes to cause a temporary incapacity in 24 hours. Permanent disability from such causes is rare, however.

### Diseases Due to Dust

Twenty-five per cent of all workers exposed to high concentrations of inorganic dust are expected to develop changes within their lungs due to that agency. We are at a loss to explain why the other 75 per cent are not so affected.

Mining, quarrying, foundry work, grinding, sandblasting, abrasive soap manufacturing, asbestos work, the making of emery and carborundum products and many other occupations offer opportunities for employees to inhale microscopic dust particles and create a foundation for possible future incapacity.

We are interested particularly in those men who work with sandstone, quartz, flint, granite, and sand, because they expose themselves to silica, and the chemical changes between that dust and the body fluids, in the presence of tuberculosis, may and usually do lead to a fatal ending.

It is safe to say, in light of our present knowledge, that the action of other inorganic dusts is much less virulent and incapacitating. That, however, does not allow us to lower the vigilant methods to improve dust control and protect employees, because all dusty occupations are potential trouble makers.

Although the actions of various dusts differ within the body, the exposure to asbestos fibres, present in the weaving and grinding of dry asbestos material, offers another type of dust which may cause fatalities among workers.

The organic dusts from cotton, silk, wool, tobacco, flour and similar substances are practically harmless. Such dusts rarely reach the lungs but may cause irritation of the windpipe and larger air tubes and result at the most in a mild bronchitis.

The factor which should be borne in mind, particularly when dealing with silicosis and asbestosis, relates to the progression of such disease. When changes occur within the lungs as a result of the presence of such dusts, nature forms scar tissue to heal such lesions but may fail to stop when the job is finished. As a result, the continuation of that healing process may lead to such structural changes within the lungs that partial or total incapacity may follow months or years after the employee has been removed from his dusty occupation.

### Benzol-Benzene

Benzol is a distillate of coal tar used extensively in industry. It is an essential ingredient in the manufacture of explosives. It is an excellent solvent for grease, oils and cements, and because of that property it is important in many phases of the rubber and cleaning industries. In the manufacture of shoes benzol may be an ingredient of the dressing applied to the leather and of the cement which fastens the heels and soles. Not only in the shoe trade but in other branches of industry where employees work with gummy, sticky material, the workers soon learn of the solvent and cleansing action of this liquid and use it freely for that purpose upon themselves. The subsequent outbreak of skin afflictions may be the first indication of such unauthorized use.

Benzol is extremely poisonous, entering either through the nose or mouth or absorbed through the skin. Its action within the body is varied and may produce a multitude of signs and symptoms. The bone marrow becomes affected which in turn alters the character of the blood; hemorrhages are common; it may cause death.

The fumes from benzol are heavier than air and lie near the floor, which is an important point in the engineering problem of ventilation.

The members of the benzene group are absorbed through the skin, and more cases of poisoning are found when men perspire than when their bodies are cool. Probably the answer to that is that the fumes may solidify as they cool and the powder may settle on the skin. The sweat on the body may dissolve this dust so that it is more readily absorbed through the increased surface blood supply.

### Chlorinated Hydrocarbons

This group of petroleum derivatives has been known to science for years but

during the past decade its advance into the industrial field has been widely distributed and most important. Led by carbon tetrachloride and its chemically associated members, it has furnished industry with refrigerants, excellent solvents for rubber, wax, oil and grease, thinners for lacquers and a very fine household necessity for the removal of spots from clothes. Hospitals have been using it more and more for the removal of adhesive plaster.

Due to the non-flammability of carbon tetrachloride, it is used in fire extinguishers. The rapid evaporation produces fumes which may smother a small blaze, but we must not forget that excessive heat of the actual fire may bring about combustion sufficient to produce such by-products as hydrochloric acid and phosgene gas. Like its associated member, chloroform, it may produce sleep when inhaled by an individual, and only 1/350 of an ounce in a quart of air is necessary to produce such action. That thought must be remembered when a large quantity of those liquid products is spilled on the floor, perhaps accidentally. Action should be started at once before the liquid gasifies, and employees should be notified to keep their heads up to avoid the low ceiling of gas.

Chemists have developed and introduced to industry many new products, the basis of which is the chlorinated hydrocarbons. These derivatives of petroleum distillation are frequently combined with those from coal tar to form valuable chemical combinations. They have been placed on the market so rapidly that medical science has been unable to determine their physiological effect upon the health of man. We have known that some of these chemicals are capable of creating changes in the liver, and only recently in a city in Massachusetts one of these newer products caused the death of two employees and a battle to retain life among two others.

### Carbon Monoxide

You remember the adage, "Where there is smoke, there is fire." We might add to that, "Where there is fire there is carbon monoxide."

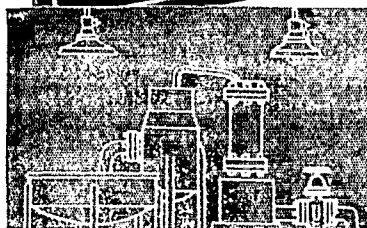
This odorless but poisonous gas may occur in any industry or in any home, but the poorer the ventilation the better the chance of producing physical incapacity.

Since the advent of the motor car, whose exhaust pipe may pour forth as high as six per cent of carbon monoxide, we are all exposed to that gas, particularly in crowded cities. The ordin-



Who Look at  
this picture

WILL BE  
WRONG!



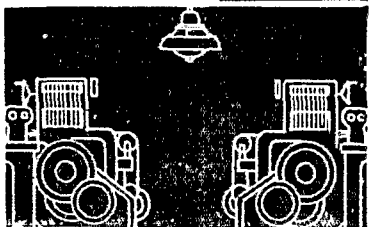
#### Explosion-Proof

Practically every plant has locations or processes with fire or explosion hazard where protective lighting equipment is specified by the National Electrical Code.

Benjamin Explosion-Proof fixtures are listed by Underwriters' Laboratories for Class I, Group D hazardous locations such as chemical plants, refineries, pyroxylin plastic processes and where petroleum, alcohol, natural gas or acetone vapors are present in the atmosphere.

#### Mercury-Incandescent Combination

Many industrial processes require normal identification and discrimination of colors in addition to the accurate perception of minute detail provided by Mercury light. Benjamin Combination fixtures for Mercury and Incandescent lamps improve the color distortion of Mercury lighting alone to a point where colors appear in practically natural values. These fixtures are widely used in textile mills, furniture and woodworking plants, etc.



**SAFE SEEING** is the result of **RIGHT LIGHTING!** The hand is surer, the eye is sharper, the mind is keener, where eye fatigue is minimized by scientific modern lighting. Tired eyes reduce alertness, reduce the quality and quantity of production, in addition to increasing the accident hazard.

Right lighting is good accident insurance—its premiums are paid for in dividends from the profits of better production—its **EXTRA DIVIDEND** in the cause of *Safety costs the purchaser nothing!*

Before you conclude your plant lighting insures **SAFE SEEING** consider the fact that nearly every plant executive who views the above picture of a satisfactorily lighted plant will conclude: "Our plant

lighting is satisfactory." Yet only 1 in 100 will be right! Because only 1 out of 100 American plants is utilizing all of the features and special applications of modern industrial lighting equipment as exemplified by Benjamin lighting fixtures.

The reason: few plant executives have thoroughly investigated all of the features of a modern industrial lighting system. The investigation must cover such factors as (1) overhead illumination (2) maintenance (3) specialized units (4) fixtures for hazardous locations and corrosive atmospheres (5) units with breakage protection features.

The first step in a checkup of your plant's lighting is the return of the coupon. Please send it today!

## BENJAMIN

Lighting Equipment



Benjamin Electric Mfg. Co., Dept. NSN  
Des Plaines, Illinois.

I'd like to go into this subject of lighting, so send me "6 TESTED WAYS TO MAKE LIGHTING PAY" and details of your Checkup Service.

Firm Name \_\_\_\_\_

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Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

any passenger car liberates about two cubic feet per minute, and one can readily estimate the physical damage that may be done if such a motor is allowed to run within the doors of a poorly ventilated garage or shop. Fortunately, serious cases of such poisoning are not common among those employed in public garages, but many employees are likely to complain of headache and faintness at the end of a day's work, especially in colder weather when doors and windows remain closed.

In the steel industry, where gas is used as the heating agency in the blast furnaces, care must be taken to provide proper ventilation. Within the mines, workers are warned to allow enough time following blasts for the escape of this gas.

### Infection

The skin is a protective covering of the body against infection and is extremely efficient as long as it remains intact, but allowing it to be broken or punctured introduces bacteria, and a battle ensues between the offensive agencies of infection and the defensive powers of the body. The winner of such a struggle may determine the presence or absence of incapacity. Infections are common throughout industry, but two types are particularly prominent—infection resulting from anthrax and infection among meat packers and fishermen.

Many of our fur, hair or wool-covered animals may contract anthrax. The germs of that disease defy the ordinary methods of sterilization and may linger on hides, bristles or hairs for long periods of time. Tanners, wool sorters, and hair or bristle workers may introduce the anthrax spore beneath their skin and undergo much physical suffering and sometimes death.

Infections are frequently found among meat and fish packers and those engaged in deep sea fishing. Although death rarely occurs, the loss of fingers, hands and nasty septic wounds are the result.

### Summary

I feel that the time has come when an employer must demand of a manufacturer the answers to two questions:

1. How will your product affect my business?
2. How will your product affect the health of my employees?

That employer is entitled to honest answers based upon sufficient chemical and physiological examinations of the questionable product. Too many lives have been lost or jeopardized by too little knowledge of a product's action upon those who handle it.

# Ferrosilicon

## Industrial Data Sheet D-Chem. 20

### A. Problem

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

### B. Hazards

2. The principal hazard is that of poisoning by inhalation of the gases that may be given off, especially in the presence of moisture.

### C. Discussion

3. Ferrosilicon is prepared by melting iron ore or steel shavings with coal or coke and ganister or quartz at a temperature of about 2,000 degrees centigrade (3,632 degrees Fahrenheit) in an electric furnace. In making steel, ferrosilicon is used for removing objectionable gases and oxides and also as an alloying element. When alloyed with cast iron, it affects the carbides and renders the iron soft and gray. More concentrated silicon alloys are sometimes used in certain processes for making hydrogen gas and in the manufacture of explosives.

4. The hazard in connection with ferrosilicon results from very small percentages of phosphorus together with other elements which may be present as impurities originating in the raw materials used. In the presence of moisture the phosphorus compounds react to form phosphoreted hydrogen or phosphine. This is a gas which in sufficient quantities is decidedly poisonous. It has a strong and distinctive odor somewhat resembling garlic so that its presence can be readily recognized. The stability of ferrosilicon depends upon its silicon content, grades below 48 percent and above 65 percent being entirely stable and ferrosilicon in these ranges does not give off any appreciable quantities of phosphine, even in the presence of moisture. It is, therefore, only in the intermediate range between 48 percent and 65 percent that there is any appreciable hazard.

### Symptoms of Poisoning

5. When a person has breathed poisonous gases liberated from ferrosilicon, the symptoms of poisoning usually develop quite suddenly and are character-

ized by general and abdominal pains, nausea, vomiting, diarrhea, hemorrhages, loss of consciousness, dilated pupils, cold clammy perspiration and coma. Cases of poisoning have been mistaken for cholera, gastro-enteritis, ptomaine poisoning, pneumonia and influenza.

### First Aid

6. When a person displays any symptoms of poisoning because of the inhalation of the poisonous gases liberated by ferrosilicon, he should be promptly removed to the fresh air and, if conscious, be given a mild alkali drink. If unconscious, the prone pressure method of artificial respiration should be started immediately after the patient has been removed to the fresh air. In all cases of poisoning the services of a doctor should be promptly obtained.

### Precautions

7. Ferrosilicon should be stored away from such places as offices and work rooms or living quarters of any description.

8. All buildings in which ferrosilicon is stored should be well ventilated and dry. (See Note X.) Ordinarily, in an open factory building the natural ventilation through monitors in the roof or through windows is sufficient if the ferrosilicon is kept dry.

9. If men are required to handle wet ferrosilicon in a confined space, artificial ventilation should be provided.

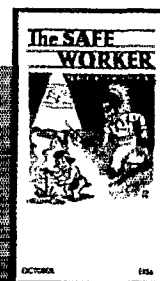
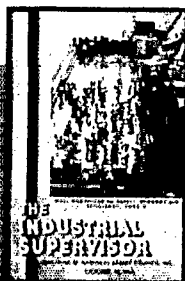
10. In case phosphine has been allowed to accumulate in a closely confined space such as a closed room or box-car, so that a strong odor of the gas is noticeable, no one, unless he is wearing a suitable gas mask or fresh air hose mask, should be allowed to enter the room until it has been thoroughly ventilated. (See Note Y.)

NOTE X. Detailed information on ventilation will be found in National Safety Council Safe Practices Pamphlet No. 37 "Industrial Ventilation."

NOTE Y. Detailed information on fresh air hose masks will be found in National Safety Council Safe Practices Pamphlet No. 64 "Respirators, Gas Masks, Hose Masks and Breathing Apparatus."

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

NATIONAL SAFETY NEWS

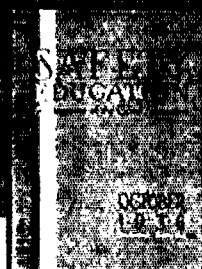


# MONTHLY PUBLICATIONS

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OCTOBER 1936



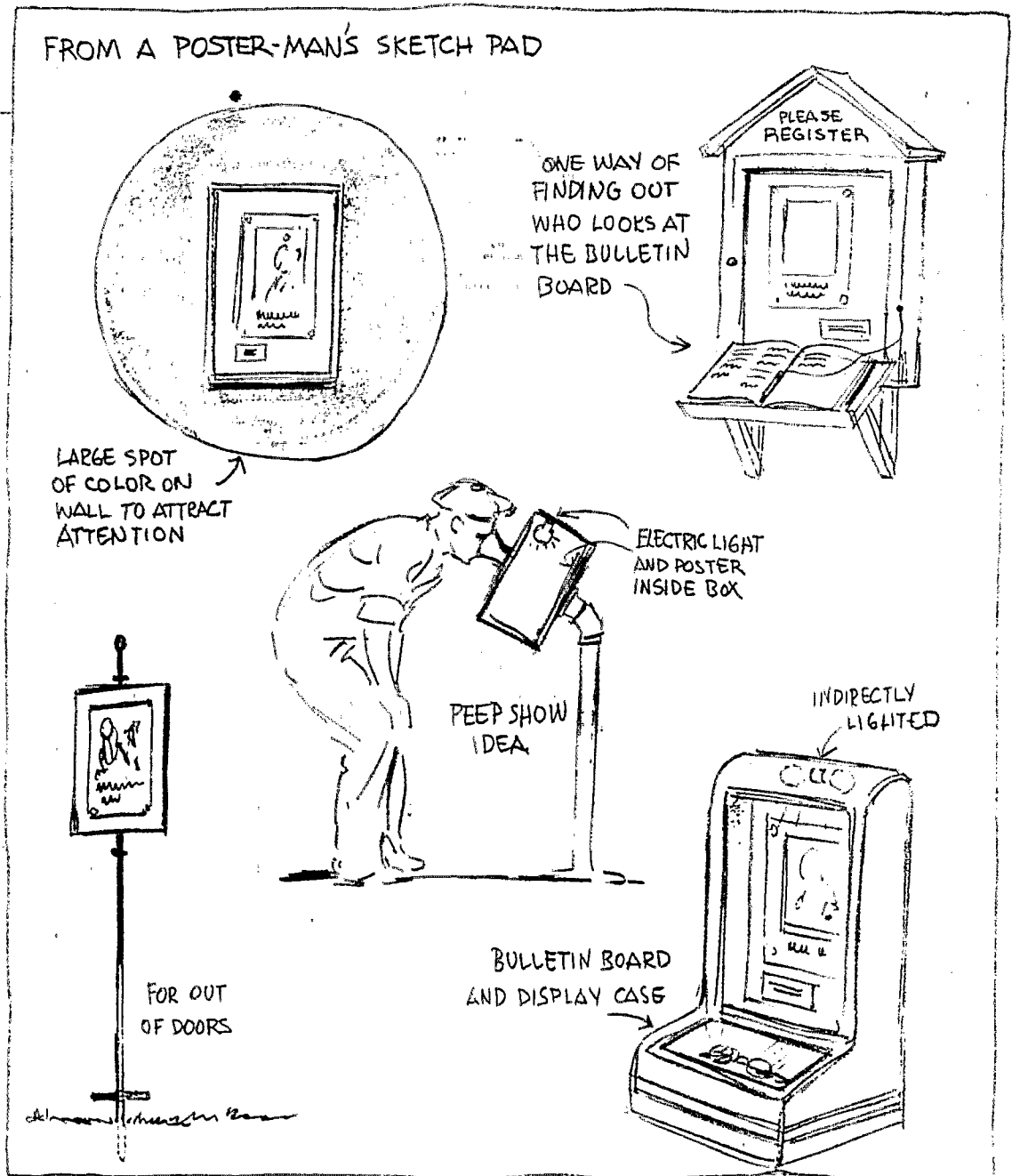
Sample copies gladly sent on request

NOVEMBER, 1936

# The Bulletin Board

A page for those who maintain the Show Windows of Safety

Conducted by STAN KERSHAW



Our Christmas is over.  
And this is good cheer.  
May safety be with you  
Each day of the year.

NATIONAL SAFETY COUNCIL

# Learn the DANGEROUS PLACES where you DRIVE and WATCH OUT

NATIONAL SAFETY COUNCIL

# WE TOO ARE AT WAR!

Thousands have  
already been killed  
and injured this year  
on our highways.

Enlist today in the  
NEW WAR ON AC-  
CIDENTS. Help to  
defend yourself and  
your fellow-men.

NATIONAL SAFETY COUNCIL

3117-B 17x23 inches 4 units

3162-B 17x23 inches 4 units

5950-B 17x23 inches 4 units

# SAD but TRUE

When the alarm clock rings in the morning, it arouses the millions of people who are gainfully employed in the United States. More than 3,900 will be injured during their day's work and 45 of these will never hear the alarm again.

NATIONAL SAFETY COUNCIL

# "Where's my daddy"?

NATIONAL SAFETY COUNCIL

# HIGHWAY ENEMY No. 1

# THE STOP SIGN PASSER

NATIONAL SAFETY COUNCIL

3117-B 17x23 inches 4 units

3117-B 17x23 inches 4 units

5951-C 25x38 inches 8 units

# CAREFUL DRIVERS

# SELDOM SKID

NATIONAL SAFETY COUNCIL

If you  
were running  
the company  
would you  
stand for  
*Accidents?*

NATIONAL SAFETY COUNCIL

# YOU CAN'T AFFORD to be INJURED

NATIONAL SAFETY COUNCIL

3117-B 17x23 inches 4 units 3117-B 17x23 inches 4 units 5951-C 25x38 inches 8 units

**MORE  
JUDGMENT  
FEWER  
ACCIDENTS**

NATIONAL SAFETY COUNCIL

5948-B 17x23 inches 4 units

*Your Safety*



IS YOUR BEST  
*Christmas Gift*  
to MOTHER and DAD

NATIONAL SAFETY COUNCIL

5952-D 12x18 inches 2 units

*Men..*  
IT'S OUR  
JOB



**ACCIDENTS  
MUST Stop**

NATIONAL SAFETY COUNCIL

5948-B 17x23 inches 4 units

*it's up  
to you to avoid*  
**BACKING ACCIDENTS**



GET YOUR HELPER  
OR SOMEONE ELSE  
TO DIRECT YOU

NATIONAL SAFETY COUNCIL

5949 17x23 inches 4 units

**We cannot  
always work  
without making  
dirt, but we can  
do better work  
if we keep it  
cleaned up.**

**CLEAN UP AS YOU GO ALONG**

NATIONAL SAFETY COUNCIL

5949 9x12 inches 1 unit

**NATURE'S LAW:**  
The survival of the  
fittest



**CIVILIZATION'S LAW:**  
The survival of  
the **CAUTIOUS**

NATIONAL SAFETY COUNCIL

5947-B 17x23 inches 4 units

**JAWS** *that*  
**KNOW NO MERCY**

KEEP ALL  
GUARDS IN  
PLACE



NATIONAL SAFETY COUNCIL

5947-B 17x23 inches 4 units

**HE KNOWS  
HIS JOB**



FACE WELL SPRAGGED  
SAFETY POSTS IN PLACE

•

WORKING PLACE IN GOOD  
ORDER AND . . .  
HE USES A BAR FOR SLATE

NATIONAL SAFETY COUNCIL

5947-B 17x23 inches 4 units

**BE ORDERLY**

SLOPPY HABITS  
result in  
POOR WORK  
and  
ACCIDENTS

NATIONAL SAFETY COUNCIL

5947-B 17x23 inches 4 units



NATIONAL SAFETY COUNCIL

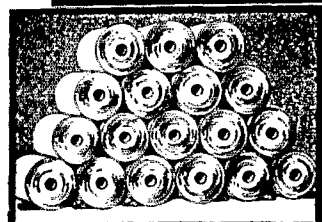


NATIONAL SAFETY COUNCIL

## Good Piling is Good Safety

Block every bottom roll. Then when the front roll is taken away, the rest will not spread and cause the pile to come down.

Simple precautions often prevent serious accidents.



NATIONAL SAFETY COUNCIL



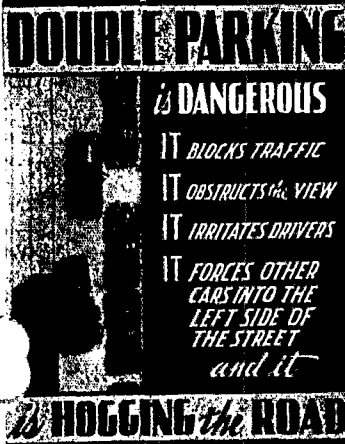
NATIONAL SAFETY COUNCIL  
(Full Color Process Poster)

## KEEP CUTTING EDGES SHARP

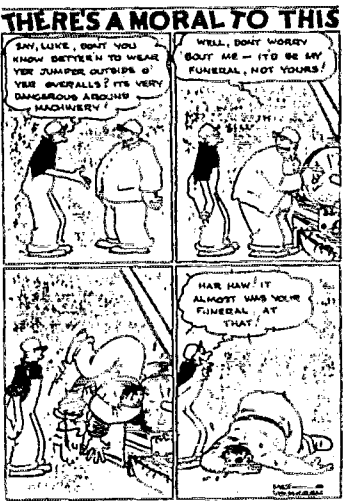


SKINNED KNUCKLES-STRAINED MUSCLES-BRUISED ARMS-BATTERED LEGS AND A HOST OF OTHER INJURIES COME FROM TRYING TO USE DULL TOOLS

NATIONAL SAFETY COUNCIL



NATIONAL SAFETY COUNCIL



NATIONAL SAFETY COUNCIL



DON'T KID ABOUT SAFETY!  
■ YOU MAY BE THE GOAT! ■

NATIONAL SAFETY COUNCIL



**WIDE IT UP  
BEFORE IT  
THROWS YOU DOWN**

NATIONAL SAFETY COUNCIL

5185 9x12 inches 1 unit

**Do you know  
that you and  
the company  
pay for all ac-  
cidents and  
that a no-acci-  
dent record  
helps the com-  
pany to keep  
you employed**

NATIONAL SAFETY COUNCIL

5186 9x12 inches 1 unit

*Give*  
**CARBON MONOXIDE the AIR**  
*and PLENTY OF IT*

A work driver was found dead in his cab, the car carefully parked on the roadside. By his side was a box of headache tablets from which six pills were missing. The coroner's coroner's verdict was, "Death by heart failure from an overdose of headache medicine." The State Motor Vehicle Authority, however, ordered an examination of the truck. A sensitive Carbon Monoxide Detector was placed in the cab, and soon after the engine was started the Detector showed that the gas in the cab contained enough Carbon Monoxide to cause drowsiness, collapse and finally death. The verdict was changed to read, "Accidental death from Carbon Monoxide Asphyxiation in an automobile."



**VENTILATE your cab**

NATIONAL SAFETY COUNCIL

5187 9x12 inches 1 unit

**MACHINES DON'T  
CAUSE ACCIDENTS**  
It's the Operators  
who use them



NATIONAL SAFETY COUNCIL

5189 9x12 inches 1 unit

**LOOK  
LOOK  
LOOK**  
**THEIR GOGGLES  
WERE BUSTED—  
BUT  
THE MEN STILL  
LOOK  
WELL**

NATIONAL SAFETY COUNCIL

5188 9x12 inches 1 unit

IT TAKES YEARS  
TO BECOME A  
SKILLED WORKMAN  
BUT ONE CARELESS  
MOMENT CAN  
MAKE YOU A  
HELPLESS CRIPPLE



NATIONAL SAFETY COUNCIL

5188 9x12 inches 1 unit

IT'S COOPERATION THAT  
PRODUCES RESULTS. LET'S  
GET TOGETHER ON THIS JOB  
OF PREVENTING ACCIDENTS.



NATIONAL SAFETY COUNCIL

5189 9x12 inches 1 unit

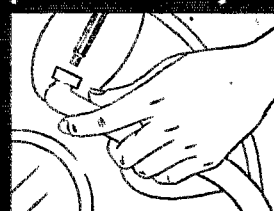
**IF YOU  
DRIVE  
OR WALK—  
WORK OR  
PLAY  
PRACTICE  
SAFETY  
EVERY DAY**

NATIONAL SAFETY COUNCIL

5189 9x12 inches 1 unit

**KEEP UP THE  
AIR PRESSURE**

Draggy steering  
caused by low tire  
pressure is tiring



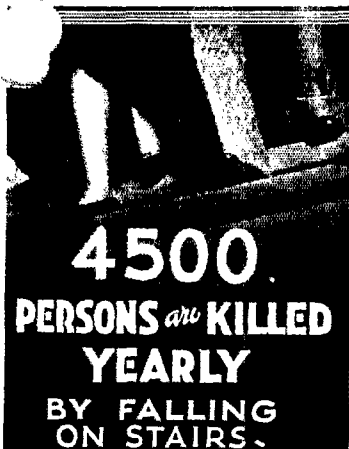
**TIRED DRIVERS are  
ACCIDENT MAKERS**

NATIONAL SAFETY COUNCIL

5189 9x12 inches 1 unit

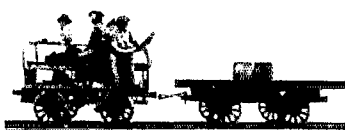
These posters are published from the National Safety Council for 12 weeks

NATIONAL SAFETY NEWS



**4500**  
**PERSONS** *are* **KILLED**  
**YEARLY**  
**BY FALLING**  
**ON STAIRS.**

NATIONAL SAFETY COUNCIL



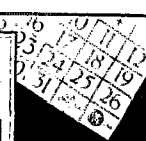
*There's NO EXCUSE for failure to*  
**operate motor cars SAFELY!**

- 1. Inspect the motor car before starting out . . . . .
- 2. Get proper line-up from train dispatcher . . . . .
- 3. Load tools and material properly . . . . .
- 4. Make proper coupling to trailer . . . . .
- 5. Test brake . . . . .
- 6. Keep constant lookout in both directions . . . . .
- 7. Approach all highway crossings prepared to stop . . . . .

**STUDY THE RULES**

NATIONAL SAFETY COUNCIL

**UP TO THE**  
**FIRST OF**  
**THIS MONTH**  
**WE HAD**  
**GONE**



*days*  
**WITHOUT A LOST-**  
**TIME ACCIDENT**  
**HOW MANY**  
**MORE DAYS?**  
**CAN WE GO!**

NATIONAL SAFETY COUNCIL



**OUCH**

NATIONAL SAFETY COUNCIL



**SCUFFLING**  
**ON AN**  
**ELEVATOR**  
**DANGEROUS**  
**AS ROCKING**  
**A BOAT**

NATIONAL SAFETY COUNCIL



**NEVER**

NATIONAL SAFETY COUNCIL

**TAKING**  
**CHANCES**  
**OFTEN**  
**PRODUCES**  
**GRAVE**  
**RESULTS**



NATIONAL SAFETY COUNCIL



**BARRICADES**  
**DANGER FLAGS**  
**AND LAMPS**

Whenever possible place barricades of least 25 feet from street openings.  
If traffic is one-way heavy provide additional barricades, space them at 25 foot intervals in the direction of ascending traffic and use a flag man at branch road parallel with street have flag man use vehicle as warning sign in branch of on coming traffic.  
If opening is at or near street intersection use flag man and use speed bump for protection because barricades cannot be spaced a great distance from street openings.  
Do not place a barricade where it will be struck.  
Display conspicuously all danger flags and red lamps or lanterns. Use plenty of them!  
If possible place sand barrels and materials within the barricaded area.  
Continue work about keeping outside the barricaded area.  
If truck is available place it in the direction of ascending traffic for added protection.

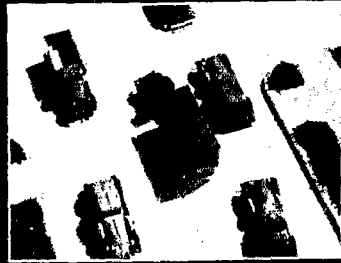
NATIONAL SAFETY COUNCIL



**A NAIL**  
**WOUND IS**  
**PAINFUL AND**  
**DANGEROUS**  
**NAIL those NAILS**

NATIONAL SAFETY COUNCIL

**BEFORE MAKING  
LEFT TURN**

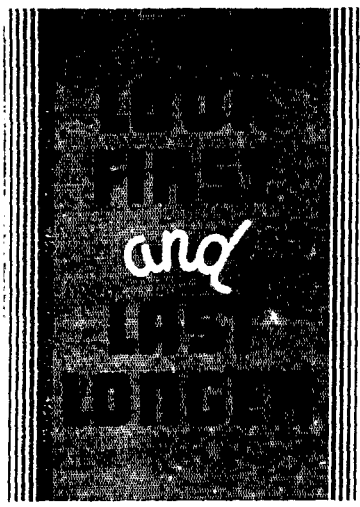


**EASE OVER  
TO CENTER OF  
ROAD**

NATIONAL SAFETY COUNCIL

4212 inches

1 unit



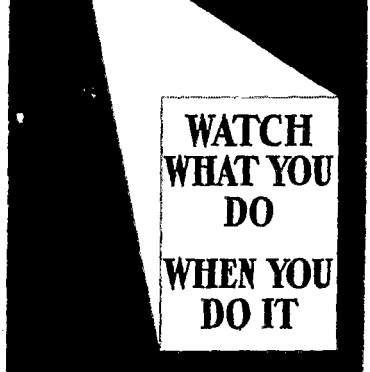
NATIONAL SAFETY COUNCIL

4235

9x12 inches

1 unit

**A Thought for Today**



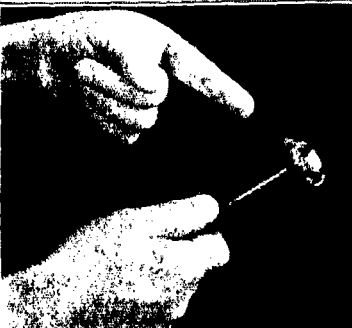
NATIONAL SAFETY COUNCIL

4501

9x12 inches

1 unit

**MUSHROOMED HEAD**



**TROUBLE AHEAD**

NATIONAL SAFETY COUNCIL

4612 inches

1 unit



NATIONAL SAFETY COUNCIL

4631

9x12 inches

1 unit

**WEAR GLOVES**



**NEVER WEAR GLOVES**



NATIONAL SAFETY COUNCIL

4752

9x12 inches

1 unit

**NEVER TRY TO BE  
A SAMSON**

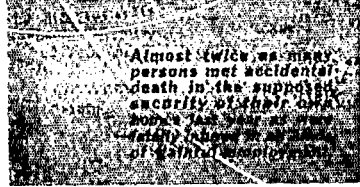


**GET HELP  
OR USE A  
HOIST**



NATIONAL SAFETY COUNCIL

**YOU  
OBLIE IT TO  
YOURSELF  
to be careful  
away from  
work**



NATIONAL SAFETY COUNCIL

**What to do  
IF YOU HAVE A COLD**



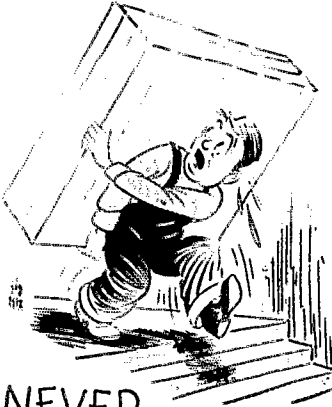
NATIONAL SAFETY COUNCIL

**ACCIDENTS**  
*Need No*  
*Appointments*

*They may occur*  
*anytime*  
*anywhere*

NATIONAL SAFETY COUNCIL

3528 9x12 inches 1 unit



**NEVER**  
**HANDLE MORE THAN**  
**YOU CAN HANDLE SAFELY**

NATIONAL SAFETY COUNCIL

3573 9x12 inches 1 unit

**FROM**  
**THE CRADLE**  
**TO**  
**THE GRAVE**  
**ACCIDENTS**  
**THREATEN US**



FROM 3 to 10  
Accidents kill  
more than  
any disease

FROM 3 to 40  
Accidents kill  
more males  
than any  
disease

[Source: U.S. Census Bureau data, 1933]

**ALL AGES AND**  
**BOTH SEXES —**  
Only 3 diseases  
kill more than  
accidents

NATIONAL SAFETY COUNCIL

3574 9x12 inches 1 unit

**LEARN**  
**FROM THE SAD**  
**EXPERIENCE OF OTHERS**

Often there's no stopping an infection—once it gets under way.

"Just a little scratch," starting on the finger, sometimes goes on up through the hand and arm and, yes, often the whole body. And it goes through family savings too—and wrecks morale and kills hopes and ambition.

A recent infection case has already cost \$2800 and the victim is still under the doctor's care, although the "little scratch" occurred more than a year ago.

NATIONAL SAFETY COUNCIL

3584 9x12 inches 1 unit

**TOO FAST**



**TRUCK** • With full load of gasoline  
**STREET** • 3% down grade—high crowned—narrow—wet and slippery  
**SPEED** • 35 miles—too fast for safety  
**RESULT** • Driver painfully injured—250 gallons gasoline in street—truck almost a total loss.

NATIONAL SAFETY COUNCIL

3594 9x12 inches 1 unit

**PREVENTING**  
*Fires*  
**in WINTER**  
*is*  
**DIFFERENT**

When the heat is turned on and the windows are closed, fire prevention takes on a new meaning.

Combustible materials may get dry as tinder, static electricity becomes more prevalent. Flammable vapors become more easily confined and ignited, and the spontaneous ignition of oily rags becomes more prevalent near sources of heat.

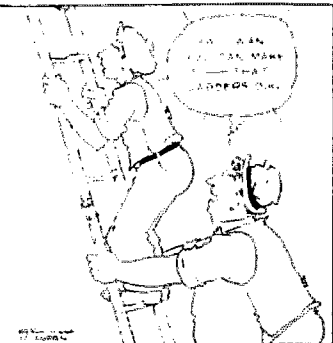
When there is ice and snow, fires are more difficult to fight and there is always a chance that extinguishers and hydrants may be frozen.

**PLEASE MAKE A SPECIAL EFFORT TO PREVENT FIRES THIS TIME OF THE YEAR**

NATIONAL SAFETY COUNCIL

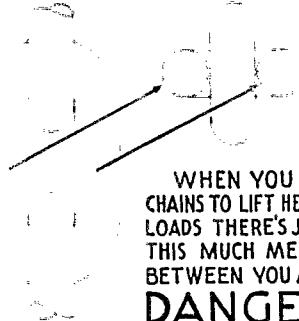
3592 9x12 inches 1 unit

**THE KIND OF A**  
**WORKER WE HAVE**  
**NO USE FOR!**



NATIONAL SAFETY COUNCIL

3604 9x12 inches 1 unit



**WHEN YOU USE**  
**CHAINS TO LIFT HEAVY**  
**LOADS THERE'S JUST**  
**THIS MUCH METAL**  
**BETWEEN YOU AND**  
**DANGER**

**NEVER OVERLOAD**  
**A CHAIN**

NATIONAL SAFETY COUNCIL

3605 9x12 inches 1 unit

**DO YOU KNOW**  
**OF ANY SAFE-**  
**GUARD FOR A**  
**WANDERING**  
**MIND.**



NATIONAL SAFETY COUNCIL

3606 9x12 inches 1 unit

# Safety Instruction Cards

Practical Information for the Man on the Job

**S**AFETY Instruction Cards are published primarily for the instruction of workers in safe operating methods. However, their distribution among foremen and operating executives is also advisable. These cards present a wealth of practical information in concise, readable form.

New cards are issued each month, and many of the previously issued cards are being revised and placed in stock. Members are invited to submit suggestions for new subjects or for the revision of cards previously published.

While these cards are not intended primarily for bulletin board use, some members make enlarged photostatic copies to serve as posters. Most companies, however, feel that the information is too specialized for bulletin board display and use the cards most effectively by distributing them to individual workers engaged in operations covered.

Miniature reproductions of 12 cards added to the list during the current month are shown herewith.

Following is a list of previously issued cards now carried in stock:

| Subject                                             | No.      |
|-----------------------------------------------------|----------|
| Acid and caustic pipe lines, opening flanged joints | 117      |
| Acid, sulphuric—handling                            | 242      |
| Acid tanks, repairing                               | 124      |
| Cleaning out large tanks                            | 293      |
| Air hoist operation                                 | 142      |
| Aprons, protective                                  | 228      |
| Artificial respiration                              | 165      |
| Asphalt Workers                                     | 326      |
| Auto tires, inflation                               | 208      |
| Axe, how to handle                                  | 191      |
| Babbitt, pouring                                    | 139      |
| Belt, to put on a pulley                            | 8        |
| Removing from pulley                                | 193      |
| Bicycles                                            | 241      |
| Boiler gage glasses, replacing                      | 103      |
| Boilers, low water                                  | 339      |
| Boxes and crates, shipping                          | 266      |
| Bricks, how to pile                                 | 243      |
| Broken glass, how to dispose of                     | 244      |
| Building wreckers                                   | 301      |
| Cable Clamps                                        | 36       |
| Camp fire hazards                                   | 248      |
| Carboys, safe handling                              | 195, 224 |
| Carpenters                                          | 127      |
| Carrying long materials on shoulders                | 39       |
| Case hardening with cyanide                         | 133      |
| Chain links, hooks, castings—detecting flaws in     | 3        |
| Chain slings, safe loads                            | 63       |
| Determining need for annealing or normalizing       | 267      |
| Safe use of                                         | 151      |
| Chemical laboratory practices                       | 207      |
| Chemicals, protection against                       | 42, 280  |

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| Hazards to                                          | 338     | Eye protection, making goggles comfortable  | 162           |
| Chlorine, safe practices                            | 345     | Keeping goggle lenses clean                 | 246           |
| Cleaning machine parts                              | 137     | Falling objects                             | 163           |
| Cleaning with distillates                           | 215     | Falls, general                              | 161           |
| Clothing for machinists                             | 230     | Things to look out for                      | 185           |
| For cold weather                                    | 269     | In the Home                                 | 330           |
| For men                                             | 83      | Files                                       | 174           |
| For women                                           | 84      | Fire, to put out clothing                   | 23            |
| Cold chisel, cutter or punch head, proper shape for | 28      | What to do in case of                       | 122           |
| Compressed air—practical jokes                      | 291     | Fire extinguisher, soda acid                | 17            |
| Couplings, link and pin                             | 46      | One-quart pump type                         | 18            |
| Crane and hoist operators, advice to                | 58      | Checking for winter                         | 264           |
| Crane Signals                                       | 5       | Fire fighting, electrical hazards           | 247           |
| Cranes, locomotive (steam driven)                   | 295     | Fire prevention, inspection check list      | 237           |
| Crushed hands, avoiding                             | 53      | First Aid, acid and caustic burns           | 75            |
| Cutting oils and compounds                          | 304     | Artificial respiration                      | 165           |
| Dog Bites, to avoid                                 | 175     | Burns                                       | 196           |
| Drill press operators                               | 87      | Carbon Monoxide                             | 116           |
| Driving long rods                                   | 21      | Emergency stretchers                        | 252           |
| Driving vehicles, attention to driving              | 209     | Fractures                                   | 211           |
| Backing                                             | 198     | Frost bite                                  | 145           |
| Bad weather hints                                   | 279     | Minor injuries                              | 223           |
| Braking distances                                   | 216     | Nose bleed                                  | 229           |
| Choosing routes                                     | 251     | Shock                                       | 284           |
| Courtesy in driving                                 | 275     | Simple tourniquet                           | 73            |
| Four basic driving rules                            | 319     | Transporting a patient                      | 173, 261, 273 |
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| Inspection by driver                                | 235     | Flash points                                | 265           |
| Other drivers' mistakes                             | 303     | Fly wheels                                  | 283           |
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| Setting out flares                                  | 292     | Fumes, nitrous                              | 219           |
| "Silly Sam Drives Out"                              | 347     | Fumigating with cyanides                    | 217           |
| Speed control                                       | 186     | Fuses, removing and replacing               | 274           |
| Stopping on highway at night                        | 260     | Garage mechanics                            | 82            |
| Traffic hand signals                                | 335     | Gas leaks                                   | 180           |
| What to do in case of accident                      | 183     | Gas masks, identification of canisters      | 212           |
| "Willie the Weaver"                                 | 336     | To test for air-tight fit                   | 97            |
| Drums, handling                                     | 44, 132 | Care of (canister type)                     | 305           |
| Dust explosions, preventive measures                | 239     | Gas welding—cylinders                       | 99            |
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| Electric motors, starting                           | 60      | Gases, explosive ranges                     | 290           |
| Electric truck operation                            | 300     | Gasoline, precautions in using              | 331           |
| Electric wires, safe carrying capacity              | 13      | Gasoline blow torches                       | 76            |
| Electricians                                        | 128     | Gasoline engines, cranking                  | 190           |
| Elevators, inspection and repair                    | 104     | Glass tubing                                | 287           |
| Operation                                           | 41      | Going to and from work                      | 158           |
| Freight elevator inspection                         | 271     | Grinding wheels, to check peripheral speeds | 10            |
| Sterilizing goggles                                 | 323     | Grinding wheels, mounting on spindles       | 50            |
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| Explosives, storage                                 | 118     | Handling and storage                        | 236           |
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| Preparing blast with cap and fuse                   | 294     | Making ring test                            | 108           |
| Explosive vapor, removing from drum                 | 171     | Guards, use of                              | 150           |
| Extension cord, fastening plug to                   | 26      | Punch press                                 | 207           |

Safety Instruction Cards are printed on white card stock, 3 by 5 inches, slightly heavier than government postcards. In any quantity the price is one cent per card (all of one kind or selection) with a minimum order of 25 cents. Stamps or cash may be sent with order, or an invoice will be rendered.

The order should specify "Safety Instruction Cards," and give the numbers of the cards selected.

|                                                         |         |
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NATIONAL SAFETY NEWS

### FALLS IN INDUSTRY

FATAL falls of persons are increasing year by year. Here are some common sense precautions:

1. Always look in the direction you are walking.
2. Hurrying on slippery or uneven surfaces, stairs or ramps is hazardous.
3. Do not stand on boxes, barrels, chairs, or other makeshift supports.
4. If carrying some bulky object that obstructs your view get help.
5. When going up or down stairs, WALK and use the handrail provided, never run.
6. Face towards a ladder, whether climbing up or down; carry nothing in the hands.
7. Keep away from the edges of elevated platforms and stagings, unless handrails, safety belts, or other adequate safeguards are provided.
8. Make sure by previous test that any safety belt, cable, or other support will sustain your weight.
9. When sighting from vehicles, face in the direction of travel. Do not alight from, or try to board, any vehicle in motion.
10. Pick up any loose objects in your path, arrange them so others will not trip over them.
11. Long or loose trouser cuffs may be dangerous.
12. Badly worn or ill-fitting shoes, or shoes with loose laces or high heels, are unsafe.



 SAFETY INSTRUCTION CARD No. 161  
Revised Oct., 1934

### BAD WEATHER DRIVING

(Hints for Motor Car Drivers)

1. Drive slowly on slippery roadways; stop, turn and use brakes with caution.
2. Approach curves, hills, bridges, railroad tracks, danger and caution signs with reduced speed and extra care.
3. Before descending steep or slippery grades shift into second or low speed.
4. Make sure the windshield wiper operates effectively.
5. Sleet on the windshield may be avoided by wiping the glass with glycerine and by raising or blocking up the rear end of the hood to let the engine heat help melt the ice.
6. In heavy mist or fog use the headlights with depressed beam, the upper beam or a spotlight will glare back at you.
7. In night driving wipe the mud or snow from headlamps frequently; also clean the entire windshield often.
8. Keep out of ruts in mud, snow and frozen ground. Beware of salt shoulders. If off the pavement, slow down and turn back with great care to avoid a skid or a lurch into another traffic lane.
9. Spinning the rear wheels only digs deeper into mud or snow. Rock the car forward and back a few inches repeatedly until you can pull or back out.



 SAFETY INSTRUCTION CARD No. 279  
Revised Oct., 1934

### DIE SETTERS

REPORT to your foreman if tools and equipment are not in good condition. Here are other suggestions:

1. Stop the machine before setting dies or making adjustments.
2. Do not set a die until you are sure it is in good condition.
3. To protect your hands use a rag or waste to wipe off splitter and dies.
4. Use at least four clamps for every die, make sure they do not interfere with any safety device and that clamps and bed of press are clean.
5. All stock chutes and conveyors must be placed in position before job is considered complete.
6. Place a steel shield in front of dies to protect yourself from splinters the first few times the press is run.
7. When lowering the ram, make sure that the press is hitting hard enough. Tighten the ram nuts before making adjustments.
8. Be careful when placing or removing bolts; see that the way is clear for a swinging belt. Do not leave a belt running idly over a pulley or line shaft.
9. Remove all sharp burrs from screw heads, bolts, etc., and be sure the job is set perfectly before leaving it.



 SAFETY INSTRUCTION CARD No. 350

These are miniature reproductions

### GASOLINE SERVICE STATION (Some Housekeeping Suggestions)

1. Do not permit oil or grease to remain on driveways or walks.
2. If soap and water are used to scrub the pavements, clean off the soapy water thoroughly.
3. Never use gasoline for cleaning purposes. Light fuel oil is effective and safe.
4. Remove ice and snow as soon as possible. If necessary, use a sprinkling of sand or some similar substance to cover slippery spots on the pavement temporarily.
5. Repair promptly, or report to your supervisor for repair, any broken parts of driveways or walks.
6. Keep your shoes free from oil and grease. Avoid shoes having rubber heels.
7. Permit no objects about the station which might fall on or strike passers-by. Leave no tools lying about.
8. Keep water hose, air hose, water cans and all other objects off the driveways and walks.
9. If an old-style greasing pit is used, keep the steps at the pit thoroughly clean.
10. Do not permit children to play about the station premises.



 SAFETY INSTRUCTION CARD No. 351

### PROTECTION AGAINST GROUNDED WIRES

LINEMEN, when working on one line, are often subjected to hazards from several other circuits near by with which they may not be familiar.

It is important, therefore, to cover with rubber goods each member which is grounded, or which may be grounded, and which is in or close to the primary working position. These members may include:

1. Secondary circuits, and wire of which is always grounded.
2. Telephone cable and messenger circuits, which are always solidly grounded.
3. Telephone t-ted parts—they may be grounded.
4. Transmission line ground wire risers, which are always well grounded.
5. Lightning arrester ground wire risers: they are connected with low resistance ground.
6. Police call wires, and fire alarm telegraph wires: they are additional good grounds.
7. Guy wires with broken or defective bracers—they may be well grounded.
8. Braces and other pole attachments close to these grounds.



 SAFETY INSTRUCTION CARD No. 352

### KINKS IN FIBER ROPE

EVERY precaution should be taken to avoid the kinking of a fiber rope. Kinks weaken the rope, and even a moderate strain might cause the rope to fail where a kink has occurred.

Kinks sometimes occur when uncoiling a new rope.

To avoid these, lay the coil on the floor with the inside rope end down. Then reach down through the center of the coil and pull this inside rope end up, and unwind the coil counter-clockwise (from right over to left).

If it uncoils from left over to right, turn the coil over and pull the rope end out on the other side and proceed as before.

After a rope has been used it may become kinked. Do not stretch the rope out along the floor in the effort to take out these kinks. Coil it up counter-clockwise (from right over to left). When you reach the end of the rope, pass this end down through the center of the coil, turn the coil over, and recoil the rope clockwise (from left over to right). (See also Safety Instruction Card No. 104.)



 SAFETY INSTRUCTION CARD No. 353

Actual size of cards 3x5 inches

### CARRYING LONG AND HEAVY PIPE BY HAND

MEMBERS of each crew should take the utmost care to work together. Accidents sometimes result because one man starts to lift or lets go of the load before the others are ready. Here are other suggestions:

1. Use the proper tools—a carrying bar with a U-shape to fit the pipe, or carrying tongs. Never use makeshift tools.
2. When lifting, bend the knees, placing the load on the leg and thigh muscles—not on the abdominal and back muscles. Keep the back fairly perpendicular.
3. Take a firm grip on the lifting bar or tongs; be sure your hand will not slip.
4. Lift at a given signal of your supervisor; all members of the crew lifting and moving together.
5. Carry the load without sudden starts or stops; move slowly and take care to place your feet firmly.
6. Stop at the appointed place, and wait for the signal from your supervisor to lower.
7. Lower the load carefully, bending at the knees at your end when lifting, and lowering slowly with all other members of your crew.



 SAFETY INSTRUCTION CARD No. 354

### CHLORINE CONTAINERS

SOME handling and storing safe practices are as follows:

1. Handle chlorine containers so that they will not be bumped or dropped. Two men in handling are safer than one.
2. Avoid hoisting containers. Low rubber-tired trucks or rail trucks are preferable.
3. If hoisting is necessary, use safe lifting clamps; ropes are a second choice. Avoid cables or chain slings.
4. Store containers (up to 150 lbs.) vertically; see that they are supported so they cannot fall over.
5. Arrange a storage place where containers will be shielded from any mechanical disturbance, especially moving objects.
6. Storage locations should be free from extremes of temperature. High temperatures are especially dangerous, causing high pressures and increasing possibility of leaks. Keep containers away from hot radiations, or hot pipes. When containers are equipped with fusible plug head tests are likely at temperatures over 180 degrees Fahr.



 SAFETY INSTRUCTION CARD No. 355

### COMPRESSED AIR HOSE (Some Cautions in Using)

1. See that the hose is sound and strong, and that couplings and connections are securely made.
2. If metal has been used in the hose covering, see that there are no sharp projections which may cause wounds.
3. If a portable pneumatic tool is to be used, make sure that the operating valve in the tool is closed before turning on the air.
4. When changing one pneumatic tool for another, first turn off the air at the hose control valve; never let the hose lie flat on the floor.
5. Wear suitable goggles, a mask, or other protective clothing or safety devices, as the character of the work may require.
6. Do not use air to blow dust or chips from the hair, clothing, or work-bench. This is decidedly an unsafe practice and may cause injury to yourself and co-workers.
7. Never point the hose nozzle at anyone or attempt practical jokes with air under pressure. 'Goosing' with air has resulted in many painful deaths; in some States it is considered cause for a charge of manslaughter.



 SAFETY INSTRUCTION CARD No. 356

## CARBON MONOXIDE

(Hints to the Motor Car Driver)

CARBON monoxide is a deadly gas, killing quickly and without warning in large quantity. Even in minute concentration, it may induce drowsiness and a fatal inclination on the crowded highway.

Fresh air is the one sure safeguard against it.

1. Before starting your automobile engine, open the garage doors wide.
2. Never crawl under your car while the engine is running.
3. Keep the engine in good condition, with combustion as complete as possible, by frequent inspection, adjustment and repair.
4. Make sure that all parts of the manifold, exhaust pipe and the muffler do not leak.
5. Be doubly careful to prevent gas leaks through a manifold car heater.
6. Never drive with all the windows of your car closed.
7. Sleepiness while driving may indicate the presence of carbon monoxide. Stop at once, get out and walk about in the open air, then drive with windows open.
8. Avoid following other automobiles too closely; their exhaust contains carbon monoxide which may easily drift into your car.



SAFETY INSTRUCTION CARD No. 357

## CARE OF YOUR EYES

(Eye Discomfort and Failure)

MOST persons protect their eyes carefully from accidental injury. (See Safety Instruction Card No. 113.) But many do not realize that their eyes can be seriously injured by very common abuses and neglect.

Among an average group of 100 workers, from 50 to 80 usually need some kind of correction for their eyes.

Eyes probably need correction when, in reading, the page must be held very close (near sightedness); or when it must be held at arm's length (far sightedness).

Other symptoms of increasing eye failure are: smarting and redness, inflammation, watery eye, fatigue, frequent headaches, and other phases of discomfort.

Eyes must see quickly and accurately to assist us in avoiding accident, too often their failure in alertness is a contributing cause of mechanical injury to hands or other parts of the body.

It is advisable to have your eyes examined by a competent person every two years, for their effectiveness changes rapidly. Let him prescribe, and if glasses are needed, wear them for your protection.



SAFETY INSTRUCTION CARD No. 358

## TOYS AND PLAYTHINGS

(Some Small Child Hazards)

1. Select toys and playthings with the safety of children always in mind.
2. Do not allow children to play with metal toys which have sharp points or edges.
3. Serious falls may be caused by toys left on steps, stairways and walks.
4. Small children have a way of putting anything into their mouths and are easily choked; keep all small objects out of their reach.
5. Avoid throwing razor blades, bottles and medicines into waste baskets; children may find them.
6. Keep matches where children cannot get them; put the sticks of "dead" matches, cigar and cigarette butts into closed containers.
7. Do not permit small children to play with tools, or to play where tools may fall on them.
8. Protect children from open fires, from kitchen stoves and all cooking vessels, and from kitchen utensils and other objects which might fall on them or be pulled over on them.



SAFETY INSTRUCTION CARD No. 359

## Safety Instruction Cards

(Continued from page 18)

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## *How long should a Man's legs be?*

*Lincoln had a good answer.  
"Long enough," he drawled,  
"to reach from his body to  
the ground."*

THAT seems like a good rule to apply to a business. It ought to be big enough to do the job it is intended to do.

Have you ever thought about the size of a company—what makes it big or small?

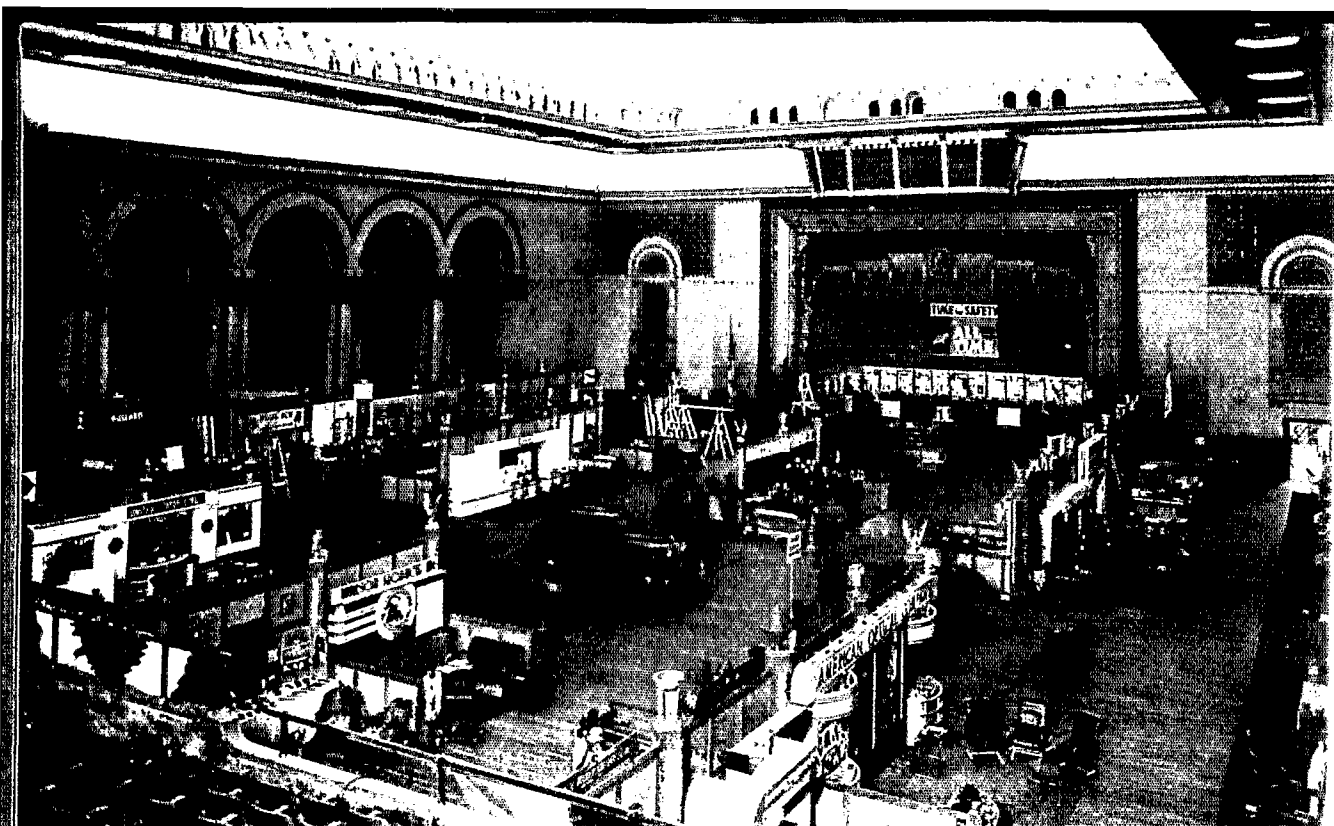
It isn't the directors and it isn't the stockholders—but the public. No business grows, and keeps on growing, unless it meets the people's needs and renders a worthwhile service at a fair price.

The Bell System has developed along those lines for over fifty years. It has grown as the nation has grown. It has to be big to provide efficient, adequate telephone service to 127,000,000 people.



BELL TELEPHONE SYSTEM

NOVEMBER, 1936



# Did You See It at the Exhibit?

By C. H. MILLER

**I**T WAS there—in fact, nothing was missing from the all-inclusive display of safety equipment at the 25th National Safety Exposition.

In case a few of the products escaped your attention, just come with me on this tour of the Exhibit, and we will review again this interesting and instructive panorama of safety products.

The American Mutual Liability Insurance Company departed from the usual display practice by the use of "black" light to feature accident cause and effect in safety education. A series of safety posters was displayed, each illuminated alternately with white and invisible light, changes taking place instantaneously and without visible reason. This exhibit adapted the methods of luminous stage effects, overcoming the difficulties of using ultra-violet light with fluorescent materials where external lighting can not be controlled. The observer, viewing the posters through an opening in a shadow box, saw first the picture of a "cause" illumined by ordinary white lights. The light then automatically was shifted to "black" light, and the picture of the "effect," painted in fluorescent

materials on the same poster as the "cause," alone was visible to the eye.

Safe walkways was the key of the American Abrasive Metals exhibit, where samples of anti-slip treads, floor plates, and other products of safe flooring were displayed.

The American-LaFrance & Foamite Industries exhibited units representative of its complete line of fire extinguishing equipment, including Alfite extinguishers and systems, Foamite extinguishers and systems, Childs soda-acid extinguishers, Arctic non-freeze carbon dioxide expelled units, and other types of portable extinguishers. Here also were found gas masks, inhalators, and other units commonly used by fire departments. Interesting motion pictures showed the equipment in use on actual fires.

The beautiful exhibit of the American Optical Company carried out its function of stopping all who came into the exhibit room for a more careful inspection of their wide-range of safety goggles. Sound movies were employed to tell the story of eye protection, and the photographic background of this ex-

hibit, which was effectively illuminated, added the right touch of industrial atmosphere.

Dust control was emphasized by showing one unit of a complete line of portable and stationery vacuum cleaning systems, also an exhaust unit for grinding wheels by the Associated Guard Manufacturers. Illuminating shields for grinding wheels, guards for punch presses, and woodworking machines and other products of safety were shown by this exhibitor.

Rubber gloves for hospital and industrial use were exhibited by Frank E. Barnes Company. The main feature of this exhibit was the Barnes reinforced yellow, black center, electrician's rubber glove.

*Safety Engineering* made its first official bow to the public in its new venture as a division of the Alfred M. Best Company. *Safety Engineering* magazine itself needs no introduction, as it has been closely identified with industrial safety for many years.

Infection wouldn't have had a chance at the exhibit under the watchful eyes of "First Aid." In a modernistic setting, Burroughs Wellcome & Co. featured the

NATIONAL SAFETY NEWS

**YOUR STOCK'S  
UP 100% WITH  
US, BOSS...**

*SINCE YOU'VE GIVEN US*

*Frigidaire-  
Cooled Water!*

*Modernize!*

**...INCLUDE FRIGIDAIRE WATER-COOLING  
EQUIPMENT IN YOUR BUDGET FOR 1937!**

● Frigidaire Water-Cooling Equipment throughout your plant is one of the soundest investments you can make in 1937. It is convincing *proof* to the men on the job that their welfare—their health and comfort—is of prime importance to you. No other outlay you can make in factory modernization will win more confidence, more goodwill.

And looking at it purely from the viewpoint of profit, it is equally sound. Because Frigidaire Water-Cooling Equipment means greater efficiency in every department. More production, fewer mistakes and accidents. It also means a tremendous saving in dollars and cents over old methods. A saving so great that Frigidaire actually

pays for itself in a short time and continues to earn a big investment return for years to come. When we say "pays for itself" we mean just that. And we're ready to *prove* it to *you* by a FREE survey and estimate in your own plant.

It will pay you to get complete details. Find out how little it costs you and how much it saves you to have cool, sparkling water throughout your factory. There is Frigidaire Water-Cooling Equipment for every need. Efficient, dependable, economical. *Investigate at once and include Frigidaire equipment in your 1937 budget.*

For free survey and estimate see your nearest Frigidaire Commercial Dealer or drop a line to Frigidaire Corp., Dept. 65-11, Dayton, Ohio.





"Tabloid first aid 'Pac-Kit'" in a dust-proof and moisture proof container, also "Tannafax" tannic acid jelly for burns. Hynson, Westcott & Dunning exhibited mercurochrome in the familiar applicator bottle and in other forms used chiefly in the hospital. Robert A. Bernard displayed standard first aid antiseptics in his own convenient applicator ampoule.

The exhibit of the Bradley Wash-fountain Company, manufacturers of group washing and bathing equipment, consisted of stainless steel, precast and enameled pressed iron wash fountains, a three-compartment, semi-circular group shower, and a drinking fountain. The washfountain was of the foot controlled type, 54 inches in size and sufficiently large to accommodate ten users at one time.

Stewart R. Browne Manufacturing Company's exhibit consisted of portable and non-portable lamps of non-conducting material. An automatic vapor-proof lamp and a water-tight, gas-tight, non-sparking and non-conducting flashlight was featured, also a new explosion-proof lamp of the 40 watt size, which has just been developed. This lamp has a non-conducting "Tuffite" handle and a globe support which cools the metal portion and also eliminates a large percentage of the globe breakage. A new grounding clamp for tank cars and a copper alloy cable were also shown.

Safety shoe manufacturers are certainly not at fault if industry's feet get hurt for they are turning out enough protective footwear to take care of every worker. Safety shoes are no longer

thought of as heavy and unattractive, as they may now be had in the smartest of styles and even your neighbor may be wearing them for Sunday best.

The Brown Shoe Company showed its complete line of Safe-Toe shoes, featuring the right shoe for every purpose.

H. Childs & Company featured the Iron Age safety shoe line which incorporates a rust-proof steel toe box.

The International Shoe Company, manufacturers of Hy-Test Safety Shoes, had a very attractive animated background for their display. This company featured an entirely new last for the first time, which is lighter in appearance than standard styles. Another improvement was their shoe without a back stay, developed to eliminate ripping and discomfort. The Reece Wooden Sole Shoe Company emphasized the rocker action of their well-known "Perfect Rocker" wooden sole shoes. A special feature of their display was the wooden sole shoe with a built-in safety steel toe. This shoe provides both toe and sole protection and is to be worn in plating departments, forge plants, hot stills, coke ovens, foundries, under extreme conditions of heat, cold, acid, oil, or water.

Lehigh Safety Shoe Company featured their new cord rubber sole, which is now used as standard equipment on Lehigh box toe shoes. This new cord sole is of special compound and was developed to keep men from slipping in places where a sure footing is difficult. All rubber footwear with safety toe manufactured by Lehigh is now equipped with genuine leather soles to stop the rolling of the insole. A complete line of

leather and rubber safety box toe shoes were displayed by this manufacturer.

Safety First Shoe Company, pioneer manufacturers of safety shoes, featured their complete line of steel box toe shoes. The giant boot which identifies Safety First shoes could be seen from all parts of the exhibition room. This huge boot is nearly 8 feet in height, and the length is 5 feet 4 inches. Its actual shoe measurement is size 168.

The Red Tung Brand—"The Shoe with the Tongue that Talks"—was displayed by the Safety Shoe Company. Their line of safety shoes is divided into three classifications: (1) regular work shoes; (2) work shoes made over dress lasts for special purposes; and (3) custom-styled dress shoes. This exhibitor has introduced a unique system of safety shoe installation which provides the factory management with a complete record of the shoe requirements of each employee in the plant. This record is made possible by first sending a shoe fitter to the plant, who measures and fits the workmen with correct shoes, entering all this information on a card-record system, which is turned over to the employment manager or to the safety engineer in charge.

Closely identified with safety shoes are the Gro-cord and Raw-cord non-slip soles and heels which were displayed by the Lima Cord Sole and Heel Company. This exhibitor showed the construction process of this well-known type of safety sole.

Louis Gerber made an attractive arrangement of his product—an antiseptic solvent cream for the protection of the skin against irritation and infection. This product is known as "Boon, the Invisible Glove."

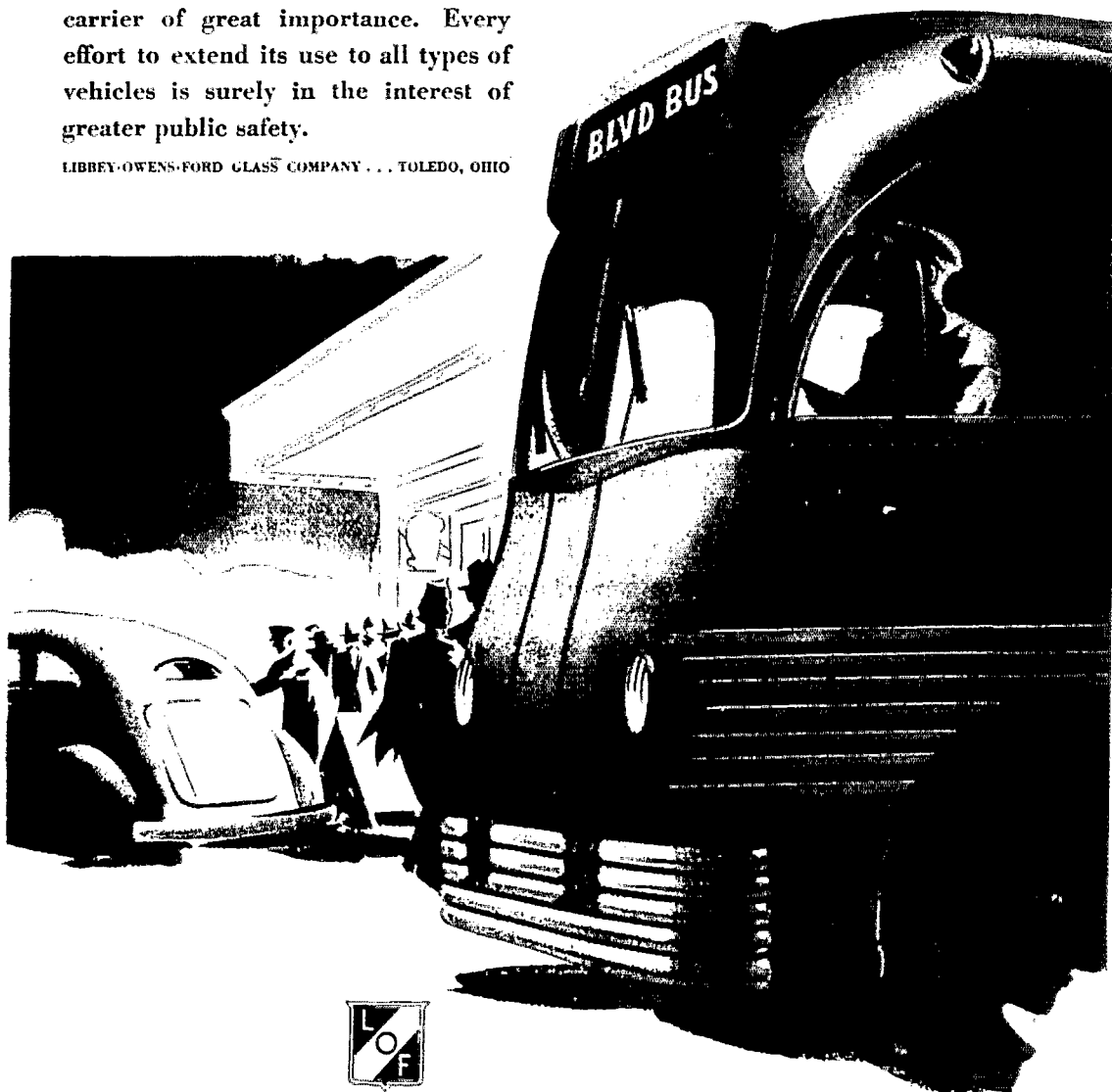
Safety belts of various types to protect men while working in perilous positions, and guards for all types of edged tools, as well as various products in leather, canvass and fibre for industrial use, constituted the exhibit of the R. H. Buhrke Company.

E. D. Bullard Company conducted a series of demonstrations and "card talks" on their principal lines of safety equipment. The products featured were: hard-boiled hats; hose, canister, and special masks; gas indicators; protective hand cream; cylindrical first aid kits, and the new Bullard Weatherproof Kit; the new Bullard Waterproof Kit and Combination Belt Kit; Morenci Safety Belts; compressed air purifiers.

What is claimed to be the first alloy steel sling chain was shown by Columbus McKinnon Chain Corporation. The principal feature of this new chain is the

● Practically every 1937 automobile will come equipped with Safety Glass All-Around. This fact, emphasized by car manufacturers, makes its use in practically every type of common carrier of great importance. Every effort to extend its use to all types of vehicles is surely in the interest of greater public safety.

LIBBEY-OWENS-FORD GLASS COMPANY . . . TOLEDO, OHIO



# LIBBEY - OWENS - FORD

*Safety* PLATE *uplane*

## ALL-AROUND

NOVEMBER, 1936



extraordinary strength and long-wearing qualities which make for safety. Severe tests have shown the endurance of alloy steel chains.

H. S. Cover showed his new Dupor No. 24 respirator which has just been approved by the Bureau of Mines. Mr. Cover's exhibit also included water chambered gas tight rubber goggles.

Davis Emergency Equipment Company, Inc., devised an attractive setting for their display of first-aid and safety equipment. They featured particularly air supplied paint spray and sand blasting protective equipment; the McDonald safety hat; finemen's climbing tools; the Davis salt dispenser, and many other miscellaneous products.

A new cup type goggle, the frame and lens retaining rings of die cast Duralumin, was shown by C. H. Dockson Company. Non-flammable, clear, side shields on spectacle type goggles were another new development of this exhibitor, who also showed a featherweight protective mask.

The Do More Chair Company displayed various models of their correct posture chairs, including a special design for the executive, another called the Air-Duct clerical posture chair, also several types of Do More factory chairs.

Educational bulletin board displays to promote employee cooperation in waste-elimination, quality production, cost control, accident prevention and suggestions for improvement, also management information characterized the exhibit of the Elliott Service Company.

The latest models of sodium chloride

dispensers, together with pure sodium chloride tablets and combinations of sodium chloride and dextros for the prevention of heat exhaustion were shown by the Fairway Laboratories, Inc. This company now offers the new metal hopper unit, in addition to the familiar glass hopper unit.

Huntington Laboratories' large illuminated dermatitis hand was convincing proof of the need for an effective germicide for the prevention of oil dermatitis. Derma San, the trade name of the product, is a colloidal emulsion, claimed to be non-poisonous and non-irritating.

Industrial safety clothing of all kinds, including asbestos suits, leggings, aprons, gloves, gauntlets, and other articles for the protection of the workmen from head to foot, made up the display of the Holcomb Safety Garment Company.

In a new, easy-to-review display, Industrial Gloves Corporation showed not only its well-known standard line of steel-Grip protective apparel, but also a wide variety of newly designed products. Of special interest were the new reversible asbestos gloves, welder's gauntlets, and hand guards.

Inasmuch as Industrial Products Company handle all kinds of accident prevention equipment, their exhibit was inclusive of practically all products for industrial safety.

Dust control equipment was featured by several manufacturers. The W. W. Sly Manufacturing Company displayed a small unit of their dust filter equipment, complete with exhaust fans. These units can be furnished to handle

air volumes of from a few hundred up to many thousands of cubic feet. The Sly "Purair" Helmet was also featured as a compact unit.

In the Spencer Turbine booth, heavy duty, portable vacuum cleaners were in actual working condition. This manufacturer also showed their Drill-Vac dust collecting device used in connection with rock drills, and a moving picture reel illustrating the use of industrial type vacuum cleaners and their Drill-Vac in connection with rock drilling in quarries and mines.

Attendants at the Keystone View Company's booth were kept busy giving visual safety tests by the use of telebinoculars. This instrument provides a means of checking eye sight quickly and making it easy to select those who are qualified to perform the different types of work.

Uniform garments for industrial workers were displayed by the Keystone Coat and Apron Manufacturing Corporation. This company not only provides a complete line of washable service uniforms for both men and women, but their service also includes a survey of the plant, recommendations for uniforming, and adequate samples.

It would not be a safety exhibit without a complete line of fire protection equipment. All of the latest models in fire fighting apparatus were shown. Walter Kidde & Company showed a complete line of up-to-date Lux portable equipment, also an improved Lux Automatic system for protection of the most serious of modern fire hazards. Motion picture films illustrated the effectiveness of Lux on actual fires.

In addition to vaporizing liquid, foam, soda acid, anti-freeze, and CO<sub>2</sub> carbon Dioxide type fire extinguishers, the Pyrene Manufacturing Company also exhibited the new Hydrogarde water type extinguisher which is discharged by pressure released from a carbon dioxide gas cartridge. Here was also seen the Phomaire play pipe, a new foam-making water nozzle.

MacWhyte Company showed new developments in sling designs of special braided construction. Through the use of pictures, an outline of the many features of safety slings was emphasized. These braided wire rope slings are used throughout industry for handling all kinds of material.

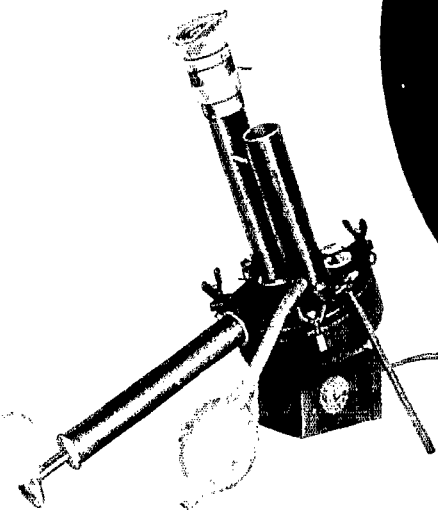
Among a number of important new developments in safety equipment displayed by the Mine Safety Appliances Company was the MSA abrasive mask. The new devices for splicing electrical

(Please turn to page 57)

NATIONAL SAFETY NEWS

# New

## THE B & L DUST COUNTER



### ADVANTAGES OF THE B & L DUST COUNTER

1. It is both a Sampler and a Counter
2. Can be used by any safety engineer or plant foreman.
3. Easily portable
4. Gives an exact comparison at any time and in any location.
5. Twelve tests can be made without changing slides
6. Furnishes permanent slide for further investigation of sample if necessary.
7. Inconspicuous and quick—does not distract workmen.
8. Sample can be quickly examined on location or in the laboratory.
9. Approved by well known authorities
10. Low price.



What you see through the B & L Dust Counter Eyepiece—A measure of the dust conditions in your plant easily interpreted—numerically—for comparison and control.

### REVEALS TRUE DUST CONDITIONS IN YOUR PLANT

Many of the silicosis and other dust hazards claims could be easily avoided by knowing dust conditions in your plant. The new B & L Dust Counter furnishes you with positive means of knowing whether or not you have dangerously dusty conditions—and points the way to controlling those conditions.

The accurate results, simplicity of operation, and low cost of this instrument make it an indispensable piece of equipment for every industrial plant and safety engineer.

For complete details, write to Bausch & Lomb Optical Co., 681 St. Paul Street, Rochester, N. Y.

# Bausch & Lomb

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681 St. Paul Street, Rochester, N. Y.

Please send me complete details on the New B & L Dust Counter.

Name \_\_\_\_\_

Address \_\_\_\_\_

Company \_\_\_\_\_

Title \_\_\_\_\_

WE MAKE OUR OWN GLASS TO  
INSURE STANDARDIZED PRODUCTION



FOR YOUR GLASSES, INSIST ON B & L  
ORTHOGON LENSES AND B & L FRAMES

# Trophy Winners in Seven Sectional Contests

**T**O THE winners of sectional no-accident contests, representing six types of industry as well as commercial vehicle operation, 123 bronze plaques and 51 certificates of merit, denoting exceptional safety records, were presented at the 25th National Safety Congress and Exposition in Atlantic City.

The industrial awards totalled 99 plaques and 51 certificates.

Included in the industrial contests were 816 units, representing six sections of the National Safety Council membership—the Marine, Metals, Paper and Pulp, Petroleum, Public Utilities and Rubber.

The records, which were made public at sectional gatherings during the Congress, were made possible through the combined efforts of 818,253 workmen, who labored a total of 1,348,698,221 safe man-hours.

In the Vehicle Fleet Contest 24 plaques were awarded. Engaged in the competition were 590 fleets, comprising 38,760 commercial vehicles. An aggregate of 664,702,000 miles is represented in the safe driving record accomplished during this sectional contest.

Contest periods in all sections but the Petroleum and the Rubber were July 31, 1935 until June 30, 1936. The Petroleum and Rubber competition ran from January 1, 1936, until June 30.

## Marine Section

In the Marine Section Contest first place plaques were awarded in five divisions—liners, tankers, harbor equipment, stevedoring, and shipbuilding and repair—together with certificates for second and third place winners.

Ninety-one units were entered, representing 87,975,029 man-hours of labor by 83,289 persons.

The average frequency for the contest was 12.629, which is a three per cent decrease from last year's rate. Twelve units completed the contest with a perfect record, as compared with nine last year.

The winners follow in the order in which they are placed:

### LINERS DIVISION

1. Lykes Gulf West Mediterranean Line, New Orleans, La.
2. Lykes American Gulf Orient Line, New Orleans, La.

3. Lykes Southern State Line, New Orleans, La.

### TANKERS DIVISION

1. Lago Shipping Company, Ltd., Aruba, N. W. I.
2. The Atlantic Refining Company, Philadelphia, Pa.
3. Venezuela Gulf Oil Company, Maracaibo, Venezuela.

### HARBOR EQUIPMENT DIVISION, GROUP A

1. U. S. Engineer Dept., Gulf of Mexico Division, New Orleans, La.
2. Erie Railroad Company, Jersey City, N. J.
3. U. S. Engineer Dept., Ohio River Division, Cincinnati, Ohio.

### HARBOR EQUIPMENT DIVISION, GROUP B

1. Standard Oil Company of New Jersey, New York, N. Y.
2. The New York, New Haven & Hartford RR Co., New Haven, Conn.
3. Boston Tow Boat Company, Boston, Mass.

### STEVEDORING DIVISION

1. Lago Oil and Transport Co., Ltd., Aruba, N. W. I.
1. Lykes Bros.-Ripley Steamship Co., Port Arthur, Texas.
1. Lykes Bros.-Ripley Steamship Co., Tampa, Fla.

### SHIPBUILDING & REPAIR DIVISION, GROUP A

1. U. S. Navy Yard, Norfolk, Va.
2. U. S. Navy Yard, Mare Island, Vallejo, Calif.
3. U. S. Navy Yard, Boston, Mass.

### SHIPBUILDING & REPAIR DIVISION, GROUP B

1. Erie Railroad Company, Weehawken, N. J.
1. U. S. Engineer Dept. Great Lakes Div., Cleveland, Ohio.
1. The New York Central Railroad Co., New York, N. Y.
1. U. S. Engineer Dept., North Pacific Division, Portland, Oregon.
1. Mystic Steamship Company, Boston, Mass.
1. U. S. Engineer Dept., South Atlantic Div., Richmond, Va.,

## Metals Section

Sixteen out of 202 steel plants and units entered in the Metals Section Safety Contest completed the year ending June 30 with a perfect no-accident record.

Bronze plaques were awarded to first place winners and certificates to second and third.

The groups were as follows: Steel Mills Division, Group A (over 200,000 average monthly man-hour exposure); Steel Mills Division, Group B & C, (under 200,000 average monthly man-hour exposure); Rolling, Finishing & Fabricating Division, Group A (over 100,000 average monthly man-hour exposure); Rolling, Finishing & Fabricating Division, Group B (under 100,000 average monthly man-hour exposure); Foundries

Division; Heavy Machine Shops Division, Group A (over 100,000 average monthly man-hour exposure); Heavy Machine Shop Division, Group B (under 100,000 average monthly man-hour exposure); and Light Machine Shops Division.

During the 12-months' period 267,792 employees worked 561,788,579 man-hours.

The average frequency rate was 8.030.

The three winners in each Division, or those with perfect records, are as follows:

### STEEL MILLS DIVISION, GROUP A

1. Continental Steel Corporation, Kokomo Div., Kokomo, Ind.
2. Republic Steel Corporation, South Chicago Works, Chicago.
3. Great Lakes Steel Corp., Ecorse, Mich.

### STEEL MILLS DIVISION, GROUP B & C

1. The Youngstown Sheet & Tube Co., South Chicago Works, Chicago.
2. Great Lakes Steel Corp., Hanna Furnace Division, Ecorse, Mich.
3. Republic Steel Corporation, Niles Plant Warren, Ohio.

### ROLLING, FINISHING & FABRICATING DIVISION, GROUP A

1. The Chase Brass & Copper Co., Cleveland Ohio.
2. Berger Manufacturing Co., Canton, Ohio.
3. Pullman Standard Car Mfg. Co., Butler, Pa.

### ROLLING, FINISHING & FABRICATING DIVISION, GROUP B

1. Revere Copper & Brass Inc., Baltimore, Md. Div., Baltimore, Md.
1. Central Tube Company, Ambridge, Pa.
1. Continental Steel Corp., Chapman Price Div., Indianapolis, Ind.

1. Republic Steel Corp., Grand Crossing Plant Chicago.

1. Union Drawn Steel Co., Beaver Falls, Pa.
1. Lehigh Structural Steel Co., Allentown, Pa.

### FOUNDRIES DIVISION

1. Lycoming Mfg. Co., Plant No. 2 & No. 3 Williamsport, Pa.
1. Haynes Stellite Company, Kokomo, Indiana
1. American Rolling Mill Co., Sixth St Foundry, Ashland, Ky.

### HEAVY MACHINE SHOPS DIVISION, GROUP A

1. Lycoming Mfg. Co., Plant No. 1, Williamsport, Pa.
2. United Shoe Machinery Corp., Beverly Mass.
3. General Electric Co., Philadelphia, Pa.

### HEAVY MACHINE SHOPS DIVISION, GROUP B

1. C. Hager & Sons Hinge Mfg. Co., St. Louis Mo.

1. D & B Pump & Supply Co., Los Angeles Calif.

1. Noera Manufacturing Co., Waterbury Conn.

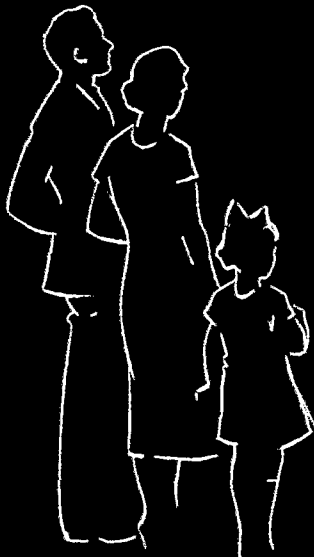
### LIGHT MACHINE SHOPS DIVISION

1. Western Clock Company, LaSalle, Ill.
1. Ilg Electric Ventilating Co., Chicago.
1. Titeflex Metal Hose Company, Newark N. J.

## Paper and Pulp Section

Fourteen of 130 mills entered in the Paper Industry Contest had perfect no-accident records.

First place plaques for winners in Divisions I and II, together with certificates




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Pay for each printer. See how far each year may vary.

# LUCKY FAMILY

Because Some Thoughtful Employer Gave Them a

## 1937 SAFETY CALENDAR

Published and Sold by the  
**NATIONAL SAFETY COUNCIL, Inc.**

for second and third places, were presented by C. B. Auel, of Pittsburgh, a past president of the National Safety Council.

The contest was open to all mills and units having an average monthly exposure of 6,000 man-hours or more. The first division was limited to Pulp and Paper mills; the second to Paper and Board re-manufacturing units.

Nearly 46,000 employees worked 100,491,110 man-hours in the 130 mills entered. There were in all 1,517 disabling injuries with an average frequency rate of 15.096. Seventy-one mills maintained frequency rates below the average.

The first, second and third places in the various divisions were as follows:

**DIVISION I, GROUP A (100,001 average monthly man-hour exposure and over):**

1. Hollingsworth & Whitney Co., Algonquin & Taconnet Mills, Waterville, Me.
2. Bryant Paper Company, Kalamazoo, Mich.
3. Anglo-Newfoundland Development Co., Ltd., Grand Falls, Newfoundland.

**GROUP B, (60,001 to 100,000 average monthly man-hour exposure):**

1. Kimberly-Clark Corp., Badger-Globe Mill, Neenah, Wis.
2. St. Croix Paper Company, Woodland, Me.
3. Fraser Paper Limited, Madawaska, Me.

**GROUP C (30,001 to 60,000 average monthly man-hour exposure):**

1. International Paper Co., Little Island, N. Tonawanda, N. Y.
2. Continental Paper & Bag Corp., York Haven, Pa.
3. Finch Pruyn & Company, Glens Falls, N. Y.

**GROUP D (6,000 to 30,000 average monthly man-hour exposure):**

1. The Harriman Company, Harriman, Tenn.
1. International Paper Co., Webster Mill, Orono, Me.

**DIVISION II**

1. Bird & Son, Inc., Phillipsdale, R. I.
1. Hollingsworth & Whitney Co., Arwostook & Cobbesee Mills, Gardiner, Me.
1. United States Gypsum Co., North Kansas City, Mo.
1. Central Fibre Products Co., Inc., Vincennes, Ind.
1. Spaulding Fibre Company, Inc., Milton, N. H.
1. Hollingsworth & Whitney Co., Abenakis Mill, Madison, Me.

**DIVISION III**

1. Union Bag & Paper Corp., Growers Mill, Hudson Falls, N. Y.
1. Kimberly-Clark Corp., Atlas Mill, Appleton, Wis.
1. Texas Corrugated Box Co., Dallas, Texas.

## Petroleum Section

Twenty-four oil company units out of 219 entered in the Petroleum Section Safety Contest went through the six months' period from January 1 to June 30 without a single lost-time accident.

First prize plaques and second and third place certificates were presented to winners in seven general divisions: Manufacturing; Marketing; Drilling;

Producing; Natural Gasoline; Pipe Lines and Tankers.

The average frequency rate for the 219 units entered was 14.091.

In the six months' period 222,714 employees of the various entries worked 239,434,543 man-hours. The list of plaque and certificate winners follows:

**MANUFACTURING DEPARTMENT, GROUP A (Over 1,000,000 man-hours).**

1. Standard Oil Co. of Louisiana, Baton Rouge.
2. Union Oil Co. of California, Los Angeles.
3. Standard Oil Co. (Indiana), Chicago.

**MANUFACTURING DEPARTMENT, GROUP B (50,000 to 1,000,000 man-hours).**

1. The Globe Oil & Refining Co., Blackwell, Okla., McPherson, Kans., Lemont, Ill.
1. The Barber Asphalt Company, Maurer, N. J.
1. Ashland Refining Co., Catlettsburg, Ky.
1. General Petroleum Corp. of California, Los Angeles, Calif.
1. Lago Petroleum Corp., Maracaibo, Venezuela, S. A.

**MARKETING - WHOLESALE DEPARTMENT, GROUP A (Over 1,000,000 man-hours).**

1. Continental Oil Company, Ponca City, Okla.
2. Standard Oil Company (Indiana), Chicago.
3. Magnolia Petroleum Co., Dallas, Texas.

**MARKETING - WHOLESALE DEPARTMENT, GROUP B (50,000 to 1,000,000 man-hours).**

1. The Derby Oil Company, Wichita, Kans.
2. Pan American Southern Corp. & Subs., New York City.
3. Texas Pacific Coal & Oil Company, Fort Worth, Texas.

**MARKETING-RETAIL DEPARTMENT, GROUP A (Over 1,000,000 man-hours).**

1. Humble Oil & Refining Company, Houston, Tex.
2. General Petroleum Corp. of Calif., Los Angeles, Calif.
3. Union Oil Co. of California, Los Angeles.

**MARKETING-RETAIL DEPARTMENT, GROUP B (50,000 to 1,000,000 man-hours).**

1. Shell Petroleum Corporation, St. Louis, Mo.
1. Mid-Continent Petroleum Corporation, Tulsa, Okla.
1. Standard Oil Co. of Louisiana, New Orleans, La.
1. Cities Service Oil Company, Chicago.
1. Texas Pacific Coal & Oil Co., Fort Worth, Tex.
1. Marathon Oil Company, Tulsa, Okla.

**DRILLING DEPARTMENT**

1. Union Oil Co. of California, Los Angeles.
2. Humble Oil & Refining Co., Houston, Tex.
3. General Petroleum Corp. of Calif., Los Angeles.

**PRODUCING DEPARTMENT, GROUP A (Over 1,000,000 man-hours).**

1. Continental Oil Company, Ponca City, Okla.
2. The Ohio Oil Company, Findlay, Ohio.
3. Stanolind Oil & Gas Company, Tulsa, Okla.

**PRODUCING DEPARTMENT, GROUP B (50,000 to 1,000,000 man-hours).**

1. Hope Construction & Refining Co., Pittsburgh, Pa.
1. Panhandle Refining Company, Wichita Falls, Texas.
3. Texas Pacific Coal and Oil Company, Fort Worth, Texas.

**NATURAL GASOLINE DEPARTMENT**

1. The Carter Oil Company, Tulsa, Okla.

1. General Petroleum Corp. of California, Los Angeles, Calif.

1. Shell Oil Company, San Francisco, Calif.
1. Hope Construction & Refining Co., Pittsburgh, Pa.

1. Gulf Companies, Houston, Tex.
1. Marathon Oil Company, Tulsa, Okla.

**PIPE LINE DEPARTMENT, GROUP A (Over 500,000 man-hours).**

1. Stanolind Pipe Line Company, Tulsa, Okla.
2. Illinois Pipe Line Company, Findlay, Ohio.
3. Standard Pipe Line Company, Inc., Shreveport, La.

**PIPE LINE DEPARTMENT, GROUP B (50,000 to 500,000 man-hours).**

1. Oklahoma Pipe Line Company, Tulsa, Okla.
1. General Petroleum Corp. of California, Los Angeles, Calif.

1. Tide Water Oil Company, Bradford, Pa.
1. Ajax Pipe Line Company, Tulsa, Okla.

**TANKERS DEPARTMENT**

1. Lago Shipping Company, Ltd., Aruba, N. W. I.
2. The Atlantic Refining Company, Philadelphia, Pa.
3. Venezuela Gulf Oil Company, Maracaibo, Venezuela, S. A.

## Public Utilities

Eleven out of 139 Public Utility companies and units entered in the Public Utilities Annual Safety Contest completed the year ending June 30 with perfect no-accident records.

During the Contest 144,812 employees worked 309,356,844 man-hours. The average frequency for the entire group was 9.355.

There were three major divisions entered, Power and Light, Gas Division, and Combination Gas and Electric Division. Each of these was divided into two groups based on man-hour exposure:

**COMBINATION GAS & ELECTRIC DIVISION, GROUP A**

1. Central Illinois Light Co., Peoria, Ill.
2. Virginia Electric & Power Co., Richmond, Va.
3. Georgia Power Company, Atlanta, Ga.

**COMBINATION GAS & ELECTRIC DIVISION, GROUP B**

1. Suburban Gas & Electric Co., Revere, Mass.
1. Michigan Gas & Electric Co., Ashland, Wis.
1. Moncton Electricity & Gas Co., Ltd., Moncton, N. B., Canada.

**ELECTRIC DIVISION, GROUP A**

1. The Toledo Edison Co., Toledo, Ohio.
2. The Ohio Public Service Co., Cleveland, Ohio.
3. Ohio Edison Co., Akron, Ohio.

**ELECTRIC DIVISION, GROUP B**

1. Fall River Electric Light Co., Fall River, Mass.
1. Quincy Electric Light & Power Co., Quincy, Mass.
1. Worcester Suburban Electric Co., Uxbridge, Mass.
1. Gloucester Electric Co., Gloucester, Mass.
1. Newport Electric Corp., Newport, R. I.
1. Canada Electric Co., Ltd., Amherst, N. S.
1. Fremont City Dept. of Utilities, Fremont, Neb.

**GAS DIVISION, GROUP A**

1. Hope Natural Gas Co., Pittsburgh, Pa.

(Please turn to page 58)

NATIONAL SAFETY NEWS

NO matter what the hazard, there's a Stonehouse Sign to cover it. Thousands in stock for immediate delivery . . . or we'll make them for you.

## STONEHOUSE SIGNS FOR ACCIDENT PREVENTION

Made on steel, in standard Accident Prevention colors and designs.  
Send for new catalog No. 4 . . . FREE.

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## "SAFETY EXTENSION TRESTLES"

for General Overhead Maintenance and Repairs.

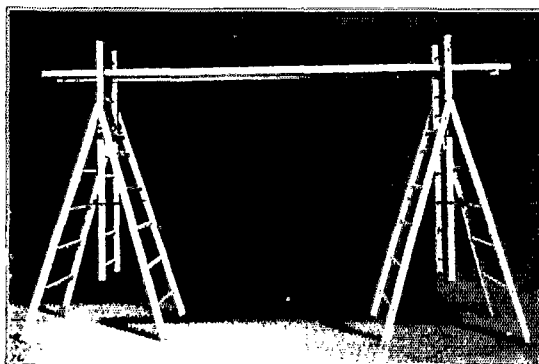
These Safety Extension Ladder Trestles are hinged on a plate by two bolts, and when opened for use, lock on the projecting sleeves, forming a firm trestle independent of the extension, which can be used or removed without affecting trestle parts.

The extension is easily and quickly operated, moving up and down within flanges on the plate, with utmost safety assured at all heights by means of the locking device.

Made of select scaffold stock throughout. All hardware cadmium plated.

When folded, little storage space is required. One size will do the work of four sizes of ordinary trestles.

Sizes range from 6 feet extending to 10 feet—to 20 feet extending to 36 feet.



Showing two Safety Extension Trestles with Reinforced Toothpick Stage as working platform.

THE JOHN S. TILLEY LADDERS CO., INC.

WATERVLIET—N. Y.

CHICAGO REPRESENTATIVES—PROTECTIVE EQUIPMENT, INC.

634 Orleans St.—Chicago, Illinois

## Sectional Officers, N. S. C. 1936-1937

**F**OLLOWING are the officers elected by sections of the National Safety Council for the year 1936-37. At the time of going to press a few sections had not completed their elections. Those will be published in a later issue. Complete lists of sub-committees, omitted here because of space limitations, will be found in the sectional news-letters.

The portraits of the general chairman published herewith are those available at press time. Others will be published in a later issue.

### ASSE-Engineering

General Chairman—D. L. Royer, Ocean Accident and Guarantee Corp., New York City.

Vice-Chairman—C. B. Boulet, Wisconsin Public Service Corp., Milwaukee, Wis.

Vice-Chairman—R. E. Donovan, Standard Oil Company of California, San Francisco, Calif.

Secretary—W. Dean Keefer, National Safety Council, Chicago.

### Automotive and Machine Shop

General Chairman—M. A. Clark, U. S. Rubber Products, Inc., Detroit, Mich.

Vice-Chairman—H. W. Boulton, Murray Corp. of America, Detroit, Mich.

Secretary—W. H. Frater, Cadillac Motor Car Co., Detroit, Mich.

News Letter Editor—W. W. Janzer, Seaman Body Corp., Milwaukee, Wis.

### Chemical Section

General Chairman—H. L. Miner, E. I. du Pont de Nemours & Co., Wilmington, Del.

Vice-Chairman in Charge of Program—Ralph L. Rogers, Jr., Tennessee Eastman Corp., Kingsport, Tenn.

Vice-Chairman in Charge of Engineering—J. J. B. Fullenwider, Hercules Powder Co., Parlin, N. J.

Secretary—Ralph O. Keefer, Aluminum Co. of America, Pittsburgh, Pa.

News-Letter Editor—F. W. Dennis, Hooker Electrochemical Co., Niagara Falls, N. Y.

### Construction

General Chairman—W. A. Snow, Associated General Contractors of America, Inc., Washington, D. C.

Vice-Chairman for Heavy Construction—R. J. Reigeluth, C. W. Blakeslee & Sons, New Haven, Conn.

Vice-Chairman for Highway Construction—W. L. Johnson Construction Co., Hicksville, Ohio.

Vice-Chairman for U. S. Engineering Department—Major Elliott Vandevanter, Office of the Chief of Engineers, Washington, D. C.

Vice-Chairman for Building Construction—Chester W. Wright, Wright & Kreemmers, Inc., Niagara Falls, N. Y.

Secretary—Roberts McKinley, General Accident, Fire and Life Assurance Corp., Detroit, Mich.

News-Letter Editor—G. O. Griffin, Dravo Corp., Neville Island, Pittsburgh, Pa.

### Food

General Chairman—C. W. Dempsey, Liquid Carbonic Corp., Chicago.

Vice-Chairman in Charge of Program—S. B. Horrell, The Carey Salt Co., Hutchinson, Kans.

Secretary—D. M. Clark, Society of Grain

Elevator Superintendents of North America, Chicago.

News-Letter Editor—C. W. Turning, Goddard & Heinselman, Minneapolis, Minn.

### Employees Publication

General Chairman—E. M. Miller, The Philadelphia Gas Works Co., Philadelphia, Pa.

Vice-Chairman in Charge of Program—Miss Laura G. Jackson, Bylesby Engineering and Management Corp., Chicago.

Vice-Chairman in Charge of Membership—Miss Ruth E. Cade, A. E. Staley Manufacturing Co., Decatur, Ill.

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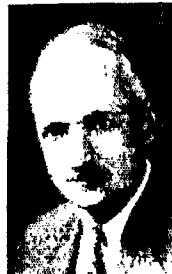
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(Please turn to page 81)

## Protection Comfort Style

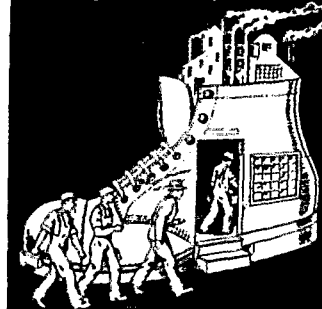
The value of safety shoes is recognized in all industries where foot hazards exist. But—in order to make your workers want to wear them—safety shoes must be comfortable and of good appearance as well as safe.

Lehigh Safety Shoes have always stressed comfort and style in addition to protection. The Improved Steel Box Safety Toe, high grade leather soles and uppers, plus good appearance, make up a safety shoe your workers will want to wear.

Foot injuries and compensation costs are kept at a minimum with Lehigh Safety Shoes.



### Industry Works in Lehigh Safety Shoes



Registered U. S. Patent Office

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#### Two Full Oak Soles

803—Black Elk Blucher, Two Full Oak Soles, Bar Grid Heel, Brass Rivets in Shank. D5-12, E5-12.

911—Same as 803, except Black Grid Sole and Bar Grid Heel, D 5-12, E 5-12, EEE 5-12.

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WRITE FOR ILLUSTRATED CATALOG

LET US HELP YOU TO PROMOTE A MORE SPIRITUAL PROGRESSIVE CONTEST BY USING OUR MAKE

EMBLEMS, SILVER CUPS, BRONZE PLACQUES - INDIVIDUAL - MERITORIOUS AWARDS FOR ALL PURPOSES

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TROPHIES

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By MARY M. WELLS

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## BOOKS AND PAMPHLETS

### Toxic Gases

SOME METHODS FOR THE DETECTION AND ESTIMATION OF POISONOUS GASES AND VAPORS IN THE AIR. By A. S. Zhitkova. Translated under the direction of Joseph B. Ficklen, Chemical Engineer, Travelers Insurance Company, Hartford, Connecticut. Printed by "Service to Industry," P. O. Box 133, West Hartford, Connecticut. 83 a copy.

The detection and estimation of poisonous substances in air breathed by industrial workers is a relatively new field of applied chemistry. Progress has been hindered frequently by a lack of accurate knowledge as to dangerous exposures and safe limits of gas and vapor concentrations that may be allowed. Industrial hygiene has received extensive development in the Soviet Union. Probably the first effort to present detailed methods of quantitative estimation of noxious substances systematically was made by A. S. Zhitkova, Supervisor of the Moscow Workers Chemical Laboratory, U. S. S. R., in his book, "Some Methods for the Detection and Estimation of Poisonous Gases and Vapors in the Air."

Mr. Ficklen, who for many years has been engaged in the development of methods applicable to this field, sensed the need in this country of data as presented by the Russian chemist. Zhitkova's book has been carefully translated and a limited edition made available for American industrial hygienists.

The translation contains 33 chapters, an appendix, a bibliography, significant tables, and a well arranged subject index. An introduction was prepared by Professor S. I. Kaplun, Supervisor of the Central Executive Institute of Work Sanitation.

An excellent chapter has been written on air sampling and methods used in analysis. The other 32 chapters are devoted to the more important vapors and gases common in industry. Pertinent analytical data are presented, and the more common exposures are named. Safe limits of concentration are given, and the results obtained by laboratory

investigations of air samples, taken at strategic points near common operations, are presented. The book contains also a brief description of the properties and physiological effects of each chemical, together with their more common industrial uses.

It will prove of interest to chemical engineers, health officers, compensation commissioners, professors of chemistry and persons in the field of industrial hygiene.

Diagrams have been drawn by Herbert C. Johnson; photo-micrographs are by Warren A. Hough. Both are engineers of Travelers Insurance Company.

E. R. GRANNISS.

### Public Safety

FOR SAFETY. By Ralph Henry Barbour. Illustrations by E. C. Caswell. Published by D. Appleton-Century Co., New York City, 1936. Price \$1.50. (Book)

If it is better to write a nation's songs than its laws, then the appearance of this highly readable story, by the author of a popular series of books for boys—books that boys actually buy and read because they like them—is even more significant to the safety movement than the growing number of school safety manuals and text books.

This reviewer, who stopped reading boys' books longer ago than he cares to confess, started skimming the pages of this one as a matter of business and found himself continuing to the end of the last chapter to find out just what these very real young people, Herb and Grace and Joe and the rest of them, were going to do about traffic accidents in Brentfield.

The book contributes little to the technique of safety organization and education—sometimes one wishes that the author had read a little more deeply in the literature of safety before writing it—but perhaps the book would have suffered if he had.

The safety man or woman with adolescents in the family will make no mistake in putting a copy of "For Safety!" quietly on the library table and waiting to see what happens to it; and it also

deserves a place in the high school library.

SIDNEY J. WILLIAMS

## PERIODICALS

### Commercial Fleets

THIS FLEET REDUCED ACCIDENTS 90 PERCENT IN SEVEN YEARS. In *Power Wagon*, September, 1936, p. 10-11.

How the South End Express Co., operating 40 trucks in newspaper delivery, has made a notable record in accident reduction.

### Health Hazards

ACUTE RESPONSE OF GUINEA PIGS TO VAPORS OF SOME NEW COMMERCIAL ORGANIC COMPOUNDS. XII: NORMAL BUTYL ACETATE. By R. R. Sayers and others. In *U. S. Public Health Service, Public Health Reports*, September 4, 1936, p. 1229-1236.

Among the conclusions: Normal butyl acetate produces narcosis, terminating in death in the higher concentrations. The symptoms are principally those of eye and nasal irritation and narcosis. Animals that did not die during exposure recovered.

CARBON MONOXIDE POISONING FROM COMPRESSED AIR. By N. R. Bernz and Philip Drinker. In *Journal of Industrial Hygiene and Toxicology*, September, 1936, p. 461.

ETIOLOGICAL STUDIES ON THE FORMATION OF SKIN BLISTERS IN VISCOSE WORKERS. By W. C. Hueper. In *Journal of Industrial Hygiene and Toxicology*, September, 1936, p. 432-447.

"The experiments performed with various agents as to their protective qualities showed that emulsions of fats (eucerin), paraffin, and "cellophane," moisture-proofed by a wax coating, when placed between the rubber glove and the skin of rabbits afford some protection against the blister-inciting action of carbon disulfide. The observations recorded indicate that the occurrence of blisters of viscose workers may probably be entirely avoided by the use of any one of the three protective agents listed in combination with several changes of

NATIONAL SAFETY NEWS

rubber gloves during a single

**LEAD BURNING: A REPORT UPON AN "EXHAUSTED BLOW PIPE".** By Ronald E. Lane. In *Journal of Industrial Hygiene and Toxicology*, September, 1936, p. 391-400.

**Summary:**

"1. A type of "exhausted blow pipe" is described.

2. Experiments are reported which have been carried out to determine the relative contamination of surrounding general atmosphere when using an ordinary blow pipe and the new form of blow pipe.

3. The practical application of this form of blow pipe is discussed."

**POISONING BY VAPORS OF BERYLLIUM OXYFLUORIDE.** By I. Gelman. In *Journal of Industrial Hygiene and Toxicology*, September, 1936, p. 371-379.

It is necessary to prevent the liberation of vapors and when this is impossible, to protect the workers with gas masks. Such measures have already led to decided reduction of poisoning from cause."

**TOXICITY OF DIOXAN.** By H. H. Schrenk and W. P. Vant. In *Journal of Industrial Hygiene and Toxicology*, September, 1936, p. 448-460.

"This report gives a detailed resumé of the results of studies made by several investigators with the addition of a description of supplementary work done by the Bureau of Mines. Animal experiments made by several investigators have shown that the toxicity of dioxan when inhaled, ingested, or given by subcutaneous or intravenous administration is of a comparatively low order, but serious harm can be produced by large dosages. The primary pathological changes are damage to the kidneys and liver. Injury to the kidneys and liver of animals has been produced by repeated exposure to 0.1 per cent vapor by volume, and by absorption through the skin. Absorption through the skin has been studied and although neither symptoms nor microscopic pathology were observed, the microscopic pathology showed changes in the liver and kidneys. The industrial hazard from skin absorption is not established."

**Accidents at Service Stations**

Accidents at Service Stations. In *Travelers Standard*, September, 1936, p. 172-180.

NOVEMBER, 1936



## SPECIFY WHEELER and be SAFE

### YOU CAN'T REPLACE A HEAD —BUT YOU CAN PROTECT ONE



McDonald Safety Hat not affected by weather.  
Permanently retains its exact size and shape.

### Safety Hat of DURALUMIN Lessens Head Injuries

For the first time, Davis can offer complete head protection to men working even under the most hazardous conditions. Where a severe blow would puncture an ordinary, rigid hat, the new McDonald Safety Hat of tough, blow-resisting Duralumin metal withstands and cushions severe shocks.

You can save painful injuries as well as lives formerly lost. Minimize your compensation with this new safety helmet. Allow your men to work more confidently, skilfully, knowing that when they wear a McDonald Safety Hat they are completely protected.

Six distinct features of this new Safety Hat bearing on comfort, "wearability", etc., will interest you. Send now for a copy of the bulletin completely describing them. The coupon is for your convenience.

**DAVIS PRODUCTS:** First Aid Supplies (Tannoid for burns, Isodine—the newer antiseptic) . . . Gas Masks . . . Lineman's Safety Equipment . . . Gas Indicators . . . Protective Clothing . . . Goggles.

Davis Emergency Equipment Co., Inc.  
55 Van Dam Street, New York City

Please send my copy of your Bulletin on McDonald Safety Hat to

Name \_\_\_\_\_

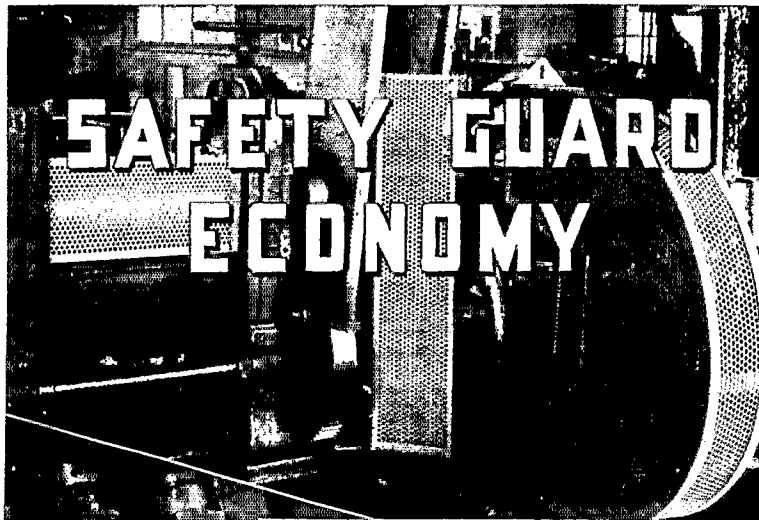
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City \_\_\_\_\_

**DAVIS EMERGENCY EQUIPMENT CO., INC.**

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NH1



### "Guardology"

A guard must afford maximum protection. It must not interfere with the operation of the machine or other equipment being guarded.

It should be simple in design and construction, and the enclosed parts should be easily accessible for lubrication, repairs or other routine changes.

It must be durable: strong enough to withstand not only natural wear and tear, but also abuse.

In conformity with the above standards the H&K accessories were designed, and after years of use under different conditions and by many lines of manufacture, they have proved their merit and have provided an economical method of guard construction with safety as the dominant factor.

*All above under inspection service of Underwriters' Laboratories, Inc.*

**The Harrington & King Co.**  
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114 Liberty St. NEW YORK, N. Y. 3645 Fillmore St. CHICAGO, ILL.



## Asked and Answered

### STIGMATIZATION

**QUESTION:** Can you give me information on stigmatization of careless drivers or attempt to mark cars of reckless drivers with stickers or tickets?

**ANSWER:** Two police departments, within the past year, have used windshield stickers to mark cars of reckless drivers. In one of these cases stickers were used instead of fines for certain violations.

Many other methods have been proposed among them the painting of distinguishing marks on fenders or automobile doors, the possible use of a tri-colored driver's license displayed in one corner of the windshield or the use of a special license tag.

This type of campaign for marking the cars of the careless driver may be valuable as a temporary measure, but it is apparently not successful as a continuous program. One of the major difficulties is that there are often several drivers for the same car, and the mark will point out the car rather than the reckless driver. Also, the offender resents being publicly branded, and he will quickly remove the brand or mark. If the community is sufficiently well policed to force the offenders to keep the marks on their cars, then there is generally no need for this type of special enforcement program.

Some communities have used a method of privately reprimanding careless drivers. This method, which involves the action of a group of private citizens to aid the police department is described in Public Safety Memo No. 6, available upon request at the National Safety Council Bureau of Information.

The present trend is toward making awards for meritorious driving rather than stigmatizing the careless driver.

### SAFEGUARDING DRILLERS

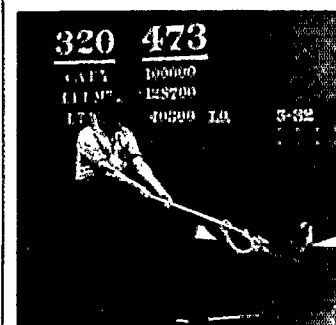
**QUESTION:** When our maintenance crew was drilling through a floor and a wall of a old power plant to install some new cables, the point of the drill, which was being held by one employee and struck with a sledge hammer by another, suddenly penetrated a cable which we had believed to be several inches above the actual point of contact. The employee holding the bar was burned and shocked, the injury proving fatal.

Where such drilling must be done, what precautions should be used?

**ANSWER:** If men must drill through concrete where electrical conduits may be laid, the best precaution is to equip them with adequate drawings or building plans so that they may anticipate any unsafe conditions. Often, of course, such drawings are not available, and in some cases they may be incomplete.

When no knowledge is at hand concerning buried conduits, suitable insulation may be applied to the handles of the drilling equipment, or rubber gloves may be worn by exposed persons. It is advisable, also, to insulate the workmen from possible grounds or contacts.

NATIONAL SAFETY NEWS



### Eliminating a DANGER SPOT

for those who close hopper-bottom car doors.

### THE PRESCOTT SAFETY TOOL

prevents smashed fingers, strained backs, ruptures and other injuries caused by using hands, feet or bars. Saves time safely on any car with latch-type door lock. Write for details and prices.

THE TRUMBULL MFG. CO., Warren, Ohio

## etroit's Drive for Safe Driving

(Continued from page 26)

to the plant with the best record. Recognition will also be accorded the leading plants as the contest year progresses. A safety banner which passes from hand to hand as the contest leadership changes will be awarded on a quarterly basis. Suitable press announcements will be issued at these times.

The Detroit Council itself provides each member company only with the statistical report on the number of the company's employees involved in accidents. There is no paternalism.

No pressure is placed on any member company. Each must work out its own program from this point. The Detroit Council merely correlates the activity. With the official accident reports being public records, however, interested companies will be able to obtain, through police sources, complete lists of their offending employees. Some of the companies which have a well-balanced program of industrial relations have indicated that they will make use of such

The Council will, however, send letters to plant managers when the contest is well under way, stressing the importance of following through on the public safety work and suggesting that they in turn solicit the cooperation of employees, either by sending letters to their homes or by addressing them at safety meetings.

The Council's letter will point out that accidents, whether they occur within the plant or outside the plant, involve an economic loss; that such accidents increase production costs and in this manner materially affect the employment and welfare of the worker.

To create and sustain interest in the contest the sponsoring committee has developed a five-point educational program.

The first feature of this program, involving the fire truck and the police car, was a comparative driving test over the principal routes used by employees going to and from work. It illustrated the futility and danger of attempting to save any appreciable amount of time through speed and traffic violations. In connection with this, a series of routes has been worked out from various residential to industrial districts. A city time table or speed limit for safe driving has been publicized for each of these routes, indicating the amount of time

NOVEMBER, 1936



### EAST

NEW YORK  
W. S. Wilson Corp.  
123 Varick St.

PITTSBURGH  
Safety First Supply Co.  
Brady Building

PHILADELPHIA  
J. A. Hunt Co.  
2036 Sansome St.

BRAINTREE, MASS.  
Direct Sales Co.  
108 President Road

### SOUTH

CHATTANOOGA  
G. D. Genter Company  
2109 Broad St.

### MID-WEST

DETROIT  
C. H. Deckson Company  
2835 E. Grand Blvd.

CHICAGO  
E. D. Bullard Company  
215 South Leavitt St.

GREEN BAY, WIS.  
Safety Service Company  
104 No. Quincy St.

DULUTH  
W. P. & R. S. Mars Co.  
324 W. Michigan St.

HOUSTON  
E. D. Bullard Company  
1 Main Street

### WEST

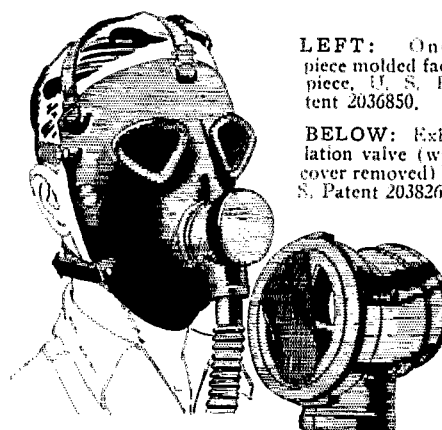
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E. D. Bullard Company  
275 Eighth Street

LOS ANGELES  
E. D. Bullard Company  
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in Safety



LEFT: One-piece molded facepiece, U. S. Patent 2036850.

BELOW: Exhalation valve (with cover removed) U. S. Patent 2038267.

We've patented  
"COMFORT"

in this new Bullard gas mask!

BEFORE you buy any more gas masks, mister, try on one of these new one-piece, face-molded BULLARD masks with the new, extra-large exhalation valve.

YOU'LL find the molded facepiece not only fits snugly to any shape head but that it leaves plenty of room for full face comfort. That old fashioned feeling of tension is gone. NEW, extra-large, easy-breathing, exhalation valve is fastened at the center, allowing exhalation (and speech) thru the entire 1 1/4" circumference, a tremendous improvement.

FOR your next gas masks, get in touch with BULLARD!

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## AT ANY PRICE

only DAVENPORT WOOD SOLE SHOES

Have all of these Protection Features!

UPPERS are stitched to select Maple Wood Soles, wire and staple stitching (not nails) Full Gusset that keeps out dust... All seams sewed tightly with Wax Thread of High Tensile strength... Soft Pliable Sole Leather Counters (not hard irritating composition) High Quality Soft Felt Insole Steel or Composite on Safety Toe on all styles at slight extra cost.

Write for our low quantity prices!

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Shoes having RAW-CORD soles and heels are comfortable. Notwithstanding the rugged construction and long wearing qualities built into RAW-CORDS, they are pliable and easy on the feet. Workers, no matter what their occupation may be have found that RAW-CORDS provide comfort and long wear under ordinary conditions, and that they provide NON-SLIP Safety in case of emergency when sure footing is essential. Be sure—Be safe, wear RAW-CORDS. Shoe dealers have them in stock—ask for them by name.



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

Fully Protected by Patents—Any Infringements Will Be Prosecuted

**GRO-CORD**

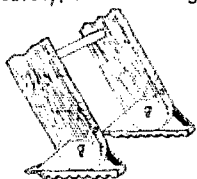
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... for thorough trial under your own actual working conditions.

Use them on dry floors, wet floors, greasy, oily floors, on gravel, or on snow and ice—for a full 30 days, without obligation.

Then—YOU decide the value of Safe-Hi Ladder Shoes, as a factor of ladder-safety, to YOUR organization. You may either return the trial pair or include it in an order for an additional quantity at \$2.50 per pair. Write TODAY for your trial pair, or for complete details!



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needed to cover the distance safely.

The comparative driving tests will be followed by a series of stopping distance tests, in terms of car-lengths. These tests will demonstrate the need for speed regulation and traffic ordinances.

The third phase of the program will attack the pedestrian problem. It will illustrate that everyone, at some time, is a pedestrian, and that the individual's greatest opportunity to reduce motor accidents is on foot.

The fourth set of demonstrations will show the hazard of being drawn into a contest of speed on busy streets and highways and the danger of trying to jockey into what is believed a more favorable position in traffic. It will lay stress on the opportunity to reduce accidents through greater consideration for others.

The final phase of the educational program will consist of contests of driving skill over marked courses, involving sharp turns, unexpected stops, parallel parking and other situations which demand skillful maneuvering. The contests will be conducted in open areas which are free of traffic, thus demonstrating that under actual driving conditions there is need for even greater caution.

The program is being promoted not only through the regular publicity media, but also through posters, radio announcements, pay envelope inserts, public address systems set up in plant yards, and letters sent by the heads of participating plants to their employees' homes.

In a study of this unusual public safety program one question naturally arises:

"Have the Council or attending officers encountered any difficulty in obtaining the names of employers from accident victims?"

The answer is "No."

The Police Departments of Detroit and surrounding suburbs have been more than willing to cooperate, even to the extent of altering their present accident report forms. Officers have had no difficulty in obtaining the desired information.

One of the interesting things proved during the "experience test" prior to the actual opening of the contest was the significance to be attached to the "accident prone driver." Statistics to date have shown that there is a definite class of "repeaters," or "accident prone drivers." It is with this group that much of the employer influence will be exerted.

For example, it was found that there are in Detroit 103 drivers who have been involved in a total of 210 accidents in a little more than two months. One of

NATIONAL SAFETY NEWS

th as had four accidents—two of which involved personal injury—in less than two months time.

The figures also show, however, that this group constitutes a very small proportion of the accident drivers in Detroit. These 103 were the only repeaters in a list of nearly 16,000 drivers involved in accidents during the study period. Thus, while they are important individually, they are of little importance in relation to the entire accident picture.

## Less Handling Means Fewer Injuries

(Continued from page 29)

They must understand the traffic laws, carry the necessary lights, flares, etc., and must know their trucks. They have all passed the regular examinations for eyesight and general physical fitness. Their principal rule of conduct is to use just good common sense.

Trucks are inspected every night and morning by experienced men and no vehicle is allowed to go out unless it is in good condition. The men are on their honor and we feel that we should keep so. I believe that the majority of drivers are careful men and should be praised for their efforts. Wherever drivers have the confidence and good will of their foreman, you will find a good record. The point that has impressed me most is that our drivers respect their foreman and are not afraid of him.

I have tried to show here that it is not necessary to spend huge sums of money to have a safe place. Those who represent large industry where many thousands are employed do not encounter all the problems of the shop employing only a few hundred. The large company has more money to spend for safety and can have better equipment. I can appreciate the position of the small plant that is doing its best to improve working equipment with a limited amount of money. I have been through that experience. Do not get discouraged when you hear talks and read articles about equipment you never expect to have. If you have the determination to do your best with what you have to work with, you will go a long way in safety.

ctor: Your husband will never be work again.

essus: I'll go and tell'im. It will cheer him up.

NOVEMBER, 1936

# DERMA-SAN

D I S I N F E C T A N T



## OIL DERMATITIS often starts like this . .

- FINE metal chips, dropping into cutting lubricant, are often carried by the oil to the worker's skin. Wiping the hands and arms with waste, rubs the chips into the skin, leaves little cuts, through which enter Oil Dermatitis germs. By adding 1 pint of Derma-San to 35 gallons of cutting lubricant you kill pus-forming germs . . . sterilize the oil before it splashes on the skin. Give your men real security against Oil Dermatitis. Order a drum of Derma-San today.

Derma-San is ideal for all general plant sanitation

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DENVER

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TORONTO



Spray your burns

Vio Gen  
New Instant Treatment  
for Burns and Surface  
Injuries

A City Fire Chief says, "We recently received a sample of your product and were very much impressed with its merits both from your recommendation and from personal experience with that sample." A Fire Chief ought to know the best treatment for a burn. Nearly two hundred municipal fire departments in Massachusetts alone use Vio Gen. MAIL FOR COUPON NOW.

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## Are Your WASHROOM Facilities WASTEFUL and UNSANITARY?



Installation of Bradley Washfountains and 5-Unit Showers

### BRADLEYS Improve Morale . . . Save Water . . . Prevent Disease

**Y**OU appreciate the economy of modern high production machinery—but do you realize that you can help overall efficiency, cut down water costs, prevent spread of skin diseases, greatly improve employee morale with modern sanitary washroom facilities?

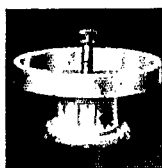
Leaders in industry—large plants and small—the country over have testified to the merits of Bradley Washfountains—many having reordered from a dozen to over 50 times.

Bradleys serve ten people at one time with clean, sanitary running water—and use but little

more than one person at an ordinary wash basin. They set low so that it is easy to wash even to the waist without water dripping on the floor. They are easy to clean, cut down piping and piping connections—they are easily installed, and last as long as the building.

In our new catalog 435, you will find complete data on this modern high efficiency washing equipment—let us mail you

a copy. **BRADLEY WASHFOUNTAIN CO., 2237 W. Michigan Street, Milwaukee, Wisconsin.**



## BRADLEY

WASHFOUNTAINS and SHOWERS

## FERALUN

Anti-Slip Treads

(Also Bronzalun, Alumalun  
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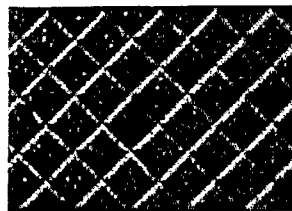
**PREVENT ACCIDENTS  
ON STAIRS and FLOORS**

A hard metal matrix into which is cast an abrasive next in hardness to the diamond, assuring durability and anti-slip efficiency.

*Specify Feralun and Be Sure*

**American Abrasive Metals Co.**

IRVINGTON, NEW JERSEY



## The President's Address

(Continued from page 12)

comes through the sudden violence of accident and that which is caused by the slower action of a toxic material? From the humane standpoint there is no essential difference, and I can see none in the economic sense. We know the public prejudice against industry which produces cripples, and the same feeling is sure to develop against the factory which turns out invalids.

The burden of the disabled workers must be borne by somebody, whether by compensation insurance or by public funds, which as we all know, are collected through taxes. In either case, the bill will come back to industry and it will then be spread over the cost of product or service which the public buys. In the end the ultimate consumer pays the bill, so no one escapes a vital interest in this part of the safety problem.

Medical supervision of workers is indispensable in the control of both accidents and occupational diseases. In no other way can the employer be protected against claims for disability arising out of previous employment. The employee can be safeguarded against possible health hazards, and if disabled, provided with adequate diagnosis, care and final rehabilitation.

### Public Safety

In the field of Public Safety we have been encouraged by certain significant developments during the past year.

Never before has the public as a whole been so genuinely concerned with the accident problem. Public officials also have been realizing the gravity of the situation and their responsibility for its correction. From all parts of the country we are being asked for help in organizing to cope with the problem. Daily newspapers and national magazines are giving increasing space to safety, and several writers of national reputation have presented the subject to millions of readers. Thousands of newspapers are now using the Council's press services regularly. Well known radio announcers have voluntarily given of their time and enthusiasm.

The problem of safety on the highways has several disturbing factors. The driver of today has at his control greatly increased speeds as compared with a few years ago. The present accessibility of alcoholic liquors to those who drive is a source of serious concern to enforce-

NATIONAL SAFETY NEWS

agencies, although the proportion of accidents involving the drunken driver is sometimes over-estimated. And, to add to our difficulties in safeguarding the highways we have a steadily mounting mileage of vehicle travel, with corresponding increase of exposure to accident. Among ourselves we may find comfort in a death rate reduced on the basis of travel as indicated by gasoline consumption, but the public is not impressed by rates; it wants to see a reduction in the actual number of deaths.

When the National Safety Council set a goal of a 35 per cent reduction in traffic fatalities by the end of 1940, its leaders were fully aware of these details. To many the plan seemed utterly impossible. But we are already realizing the value of setting a high mark for our endeavors. This goal of a 35 per cent reduction is making a strong appeal to the whole nation, and it is proving a remarkable stimulant to the forces of safety.

Our field force, which has been made possible through the generous support of the automotive industry, is now visiting the leading centers of population, helping in the organization of state and community programs. Never before have any divisions of federal, state and municipal governments been so earnestly concerned with accident prevention.

One shrewd commentator on human affairs, whose name I cannot recall, observed that if the general intelligence rate rises even a fraction of one per cent, such a rise constitutes a revolution in social conditions.

In our pessimistic moods we are inclined to think of the public as mass-minded—held in the grip of prejudice and superstition and swayed only too often by spell-binders and demagogues. Yet when we compare the general intelligence level of today with that of a few hundred years ago, we can note unmistakable signs of progress.

Until comparatively recent times our cities were reeking with filth. Scarcely more than a century ago cholera was a menace, even in our own country, and many of us can remember the ravages of malaria and yellow fever. For centuries little attempt was made to clean up. Sanitation was sacrilege to the superstitious. Is it too much to believe that future generations will look back on our accident-infested era in much the same attitude as we look back on the plague-ridden years?

Intelligence and knowledge are not identical, but both can be cultivated in the individual. Any system of educa-

NOVEMBER, 1936



## LET ME HELP YOU with your floor problems!

I'm the FINNELL floor maintenance engineer. The company that makes FINNELL waxes, fillers, soaps, and the famous FINNELL electric floor polishing-scrubbing machines knows that cleaning and beautifying floors, and keeping them clean and beautiful, isn't just a one-time job. It isn't a once-a-year, or once-a-month, or even a once-a-week job. It's an everyday job! So it keeps me, and nearly a hundred other specially trained men, on the job all the time, each in a given territory, ready to give you service whether or not you are a user of FINNELL machines or materials.

Whatever the type of your buildings, kind of floor, their size or area, I have access to facts that may be just what you need to solve your problem. Whether you are the superintendent, responsible for the care of floors, or the chief executive responsible for economy and efficiency of operation, you will find a chat vastly worth while.

Remember, when you call on me, you are drawing upon not just one man's skill and ability but upon a vast reservoir of practical, keep-down-the-cost floor knowledge accumulated during a third of a century specialized experience. A call to talk things over won't cost you a cent nor obligate you in any way. Drop a line today to FINNELL SYSTEM, INC., 2211 East Street, Elkhart, Indiana.

## FINNELL SYSTEM EST. 1906 OF FLOOR MAINTENANCE

## Announcing the All Aluminum Step Ladder

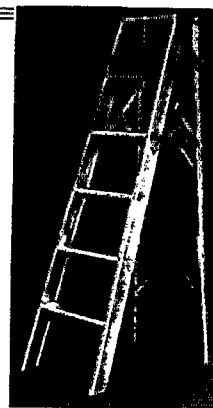
We are pleased to offer a noteworthy achievement in step-ladder construction. This new development makes possible a ladder that is light in weight, rigid, durable, free from splintering or splinters and strong enough to withstand the hardest wear. In addition, it is sanitary, non-combustible, non-sparking and impervious to all weather conditions. A trial will convince.

Write for  
Details

## ALUMINUM LADDER COMPANY

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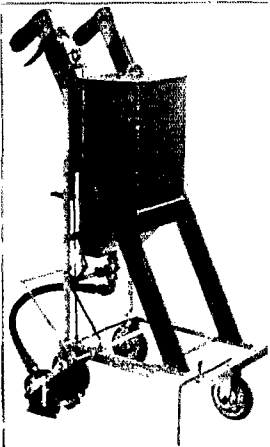




## INSURE DEPENDABLE DUST CONTROL

● PANGBORN DUST COLLECTORS operate day and night . . . protecting millions of dollars worth of property from the DESTRUCTIVENESS OF DUST. Are you *sure* your equipment is safe from this costly menace? You can be assured of real Dust Control if you turn your dust problems over to Pangborn engineers. For over 30 years we have been successfully collecting dust in both large and small plants. Let us tell you more about our service. Write today.

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WORLD'S LARGEST MANUFACTURERS OF BLAST CLEANING AND DUST COLLECTING EQUIPMENT  
PANGBORN CORPORATION . . . . . HAGERSTOWN, MARYLAND



## NISSLY FLOOR LINER



One of the most important phases of a good housekeeping program for an industrial plant is the maintaining of clear passageways. All aisles should be kept clear for the safety of pedestrian, hand truck and power truck traffic. Well defined avenues of safety can be easily maintained when you use the Nissly Floor Liner. This machine will paint a line as rapidly as one can walk. It is easy to operate and handle and can readily be used in restricted places. Low in first cost and economical to use.

*Write for complete details.*

**WALTER S. NISSLY**

43 N. Clinton Street

**YORK, PA.**

tion which merely imparts information has failed in its most important essentials. In training for life, it must encourage clear thinking and discrimination between the worthy and the unworthy.

Our part in raising the general level of intelligence may seem a minor one. We are a professional, advisory group, but we can make a valuable contribution. The Safety Movement teaches the importance of self preservation—that often-ignored first law of nature.

This involves far more than merely clinging to life for its own sake, which our critics have sometimes believed was the beginning and the end of the Safety Movement.

Had our cause been inspired by no loftier motive, it could not have reached its present respected position. No, the basis of our philosophy is the far reaching importance of the individual, and his responsibility to the group for the protection of himself and others.

Our greatest enemy is not hostility, not error, but inertia. There will always be those in positions of responsibility who will give lip service to safety but will neglect their duties. There will be many within our ranks who will become discouraged if our plan falls behind its schedule. Many will lose interest when the first enthusiasm wears off and the crusade seems to fall to the level of a routine job. And, as in every great movement, there will never be a surplus of inspiring leadership.

In saying this I am not forgetting the loyal and devoted membership of the National Safety Council. It has been a great privilege to have been associated with you in this work which calls into being that noblest of instincts, the consideration of others. I feel, and I know you all feel, the vastness of the task before us, and how few of us there are to perform it.

Those of you who have undertaken the extension of safety in your communities can appreciate this problem, this lack of leadership. We need money, to be sure, but we also need men and women who are willing to contribute their time, energy and ability to the cause.

Safety is not a passive, negative thing. Any endeavor whose purpose is to enable human beings to fulfill their destinies unhindered by preventable mishaps and disasters is one that we can present to the world with pride and confidence.

**NATIONAL SAFETY NEWS**

## ersonals

ROGER WILLIAMS, chairman of the Metropolitan Chapter, American Society of Safety Engineers—Engineering Section, National Safety Council, and formerly vice-president in charge of production of Richardson & Boynton Company, has been appointed director of safety service for the New York State Insurance Fund. He succeeds the late M. H. Christopherson.

Mr. Williams has been active in accident prevention work in New York City during the past five years. He was a member of the committee which drafted the original plans for the Greater New York Safety Council, of which he is now serving as a member of the Executive Committee and the Operating Division Committee.

ETHELBERT STEWART, Commissioner of Labor Statistics from 1920 to 1932, died in Washington, D. C., on October 13. Death was due to a heart ailment.



Mr. Stewart was born in Chicago, April 22, 1857. He was engaged in newspaper work until 1887 when he became associated with the United States Bureau of Labor which later became a Department. In 1912 he became chief statistician for the Children's Bureau and a year later was transferred to a similar position in the Bureau of Labor Statistics.

Almost from the organization of the National Safety Council, Mr. Stewart took an active interest in its work and for many years he served on the Executive Committee. Until his retirement from the Bureau of Labor Statistics in 1932 he was a regular attendant at the National Safety Congresses. Mr. Stewart was widely known for his resemblance to Mark Twain and for his ready fund of humor.

Mr. Stewart was a member of the National Research Council, secretary treasurer of the International Association of Industrial Accident Boards, a fellow of the American Statistical Association, and a member of the Government Permanent Safety Council. Seven children survive.

NOVEMBER, 1936



SPECIFY  
**WHEELER**  
and be **SAFE**

## NEW Chlorine Germicide Particularly Suitable for Industrial Use



**Azochloramid**  
TRADE MARK  
**N-N-DICHLOROAZODICARBONAMIDINE**

Azochloramid, a new and improved chlorine germicide, is extremely stable, non-selective in bactericidal action and non-irritating to unprotected skin. Thus Azochloramid offers definite advantages to the Doctor engaged in the Industrial Field.

Doctors will appreciate these **THREE** outstanding advantages:

1. Azochloramid solutions are effective against all types of organisms found in infected wounds
2. Dressings rarely need changing more than once in 24 hours due to the unusual stability and prolonged effectiveness of the solution even in the presence of pus, serum or other organic matter.
3. The oily nature of Azochloramid in Triacetin 1:500 prevents dressings from adhering to a wound. In this way, when using Azochloramid you minimize trauma and bleeding when the dressing is changed

Use the coupon below for complete information and clinical data on Azochloramid.

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Please send complete information on Azochloramid and clinical data to

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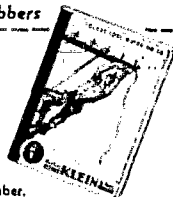
## SAFETY

Here's a job that calls for nerves of steel—working on a fifty foot pole—pulling up on a heavy line. In equipment, too, there can be no compromise with quality. Linemen, and those responsible for the safety of linemen, know that the Klein circle on their safety straps and belts, come-alongs, spurs and pliers, sleeve twistors, furnaces and torches, is more than just a trademark it spells SAFETY! Only Klein equipment possesses Klein quality.

### Distributed through jobbers

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.



**Mathias KLEIN & Sons**  
Established 1859 Chicago, Ill. U.S.A.  
3200 Belmont Avenue, Chicago, Illinois

## Wins Attendance Prize at Congress Exhibit

DELEGATES to the National Safety Congress were punching time clocks this year, but it wasn't regimentation.

It was a pleasure—with comely young ladies on hand to see that the time cards were properly stamped, and with a handsome award, a new 1937 Studebaker Dictator sedan, waiting for some lucky clockpuncher.

The plan originated with the Congress exhibitors, who this year sought to outdo all previous records in providing a lavish reward for attendance at the great exhibit of safety and first aid equipment. The clocks were used to indicate whether delegates had spent the required total of two hours or more viewing the exposition.

The fortunate delegate was Charles A. Demmy, 239 Locust Street, Steelton, Pa., who, when he arrived home from the Congress, found a telegram waiting to inform him of the good news. He wired back immediately, expressing his surprise and happiness.

Mr. Demmy, an employee of the Bethlehem Steel Company, is just short of 45 years of age. For nearly 19 years he has been connected with the mechanical department of the Steelton Plant of

Bethlehem, working successively as a machine operator, floor hand, general machine repairman, shop inspector and draftsman. He served for a number of years as department safety committee-man and also assisted in first aid instruction. Since last February he has been with the industrial relations department as safety inspector.

Knowing that a safety man never depends on luck, Mr. Demmy played safe so that he would be eligible for the award—just in case. . . . He registered to obtain his official badge and exhibit time card; he spent two hours in the exhibit hall and found the time well spent; he was careful to have his card stamped each time he entered and left the exhibit.

### Saving Life When Fire Strikes

FIRE strikes with such speed that people lose their heads. Their clothing catches fire and they run; they see the flames and immediately jump.

1. When clothing becomes ignited, drop to the floor and roll into a rug or blanket to smother the fire, keeping the



Charles A. Demmy and the prize he won at the Exposition.

NATIONAL SAFETY NEWS

right about the neck to protect the head hair. Remember this for your sake and it may even enable you some day to save the life of another.

2. When the alarm of fire sounds in a public building, *walk*, never run, to the nearest exit. Running starts a panic. In *any* building, upon discovery of fire, first call the fire department, then warn other occupants, and finally fight the flames with whatever equipment is available.

3. If you awaken at night and smell smoke, don't open the door and let in super-heated air and fumes to cause your death. Place your hand on the door and if it feels hot, keep it closed. If it isn't hot, place your foot against it, avert your face and open it a little. If there is pressure from fire outside, you can then slam the door shut and seek another means of exit.

If you value your life, keep calm; don't get excited.

—Safeguarding America Against Fire.

### Most Drivers Conservative; Says Kettering

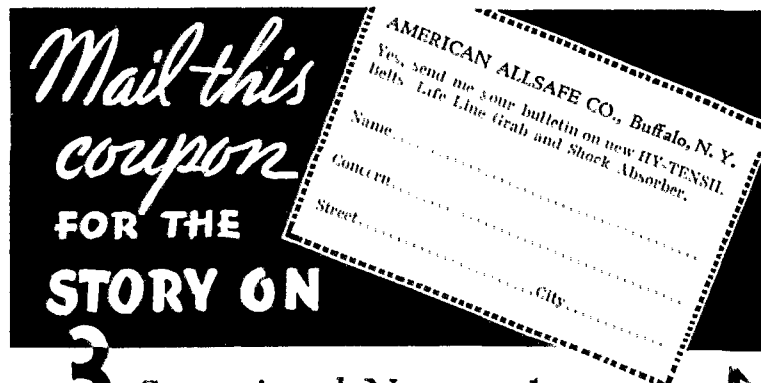
"The first thing most drivers want in an automobile is safety, then economy, and then durability," in the opinion of Charles F. Kettering, vice-president of General Motors corporation. "Most Americans want to own fast cars," he said, "but they don't want to drive them that way."

"Most people aren't so enthusiastic about speed. They want a car that will go fast so they can tell their neighbors, but the average driver today is a pretty conservative fellow."

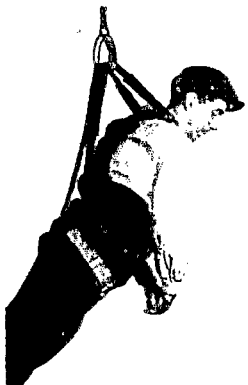
"Continued highway development will do much to cut down accidents," he said. "The elimination of road hazards is as important as increasing the safety of the automobiles themselves."



NOVEMBER, 1936



## 3 Sensational New and Exclusive Developments in Safety Belts and the use of Life Lines

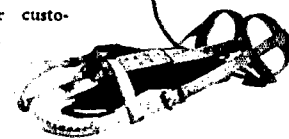


1. Safety Belts made from a new HY-TENSIL gum-impregnated, laminated material far superior to any leather or webbing. They are moisture-proof, rot-proof, have a high dielectric factor, resist snagging or cutting and have uniform and exceptional strength.

2. A specially designed and tested life line Shock Absorber Spring which prevents breaking of life line, eliminates jar on the workman's body and reduces strain on life line.

3. A Life Line Grab that makes possible the use of essential independent Life Lines without their customary inconvenience.

Send above coupon for complete information.



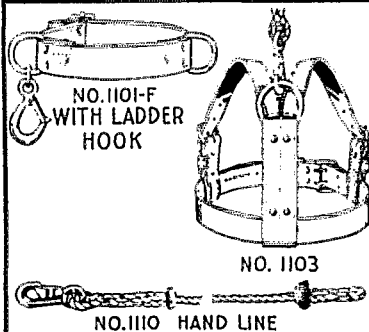
### AMERICAN ALLSAFE COMPANY INC.

210 FRANKLIN ST.

Exclusive Manufacturers

BUFFALO, N. Y.

## BUHRKE Safety Industrial Harness



There are many industrial operations where Safety Belts or Harness should be worn. Buhrke equipment is made of selected steer hide harness leather or a variety of fabrics as may be required for the particular job. Equipped with forged steel hardware, but where conditions require non-sparking equipment, forged brass will be furnished. Our experience is available to assist you in designing special equipment, if necessary, for your requirements.

R. H. BUHRKE CO.

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*No need  
to work  
in dust*

*If you have dust  
problems like —*

**Abrasives  
Alkali  
Carbon  
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Lime  
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Zinc Oxides**

**PUT YOUR DUST  
SUPPRESSION  
UP TO US .....**

**THE AMERICAN FOUNDRY  
EQUIPMENT COMPANY**

637 BYRKIT ST.  
MISHAWAKA, INDIANA

*Investigate*  
**DUSTUBE  
COLLECTORS**

## Homemakers Detect the Home Hazards

**I**F CONTEST fans are as zealous in correcting hazards about their homes as they are in pointing them out on paper, then those who participated in the September Safety Calendar Contests of the National Safety Council have a right to feel safe at home.

As was expected, the preponderance of entries came from women—an indication that the Safety Calendar has found a place in many homes throughout the country and that women, whose husbands have become safety-conscious in the plant, are themselves becoming safety-conscious in their workaday world.

Women carried off two of the first three prizes, just as they did in the August contest. A winner of third prize in the August competition, Leon Longmire, took one of the dollar prizes in the September activity.

More than half of the entries received listed all the hazards portrayed in the contest picture. Thus the judges were forced to base their decisions primarily on the statement on "How to Prevent Home Accidents," which contestants were required to submit together with their "What's Wrong Here" list.

Unanimous choice as first prize winner was Mrs. Harry E. Hartzell, 1008 Pecan Avenue, Hopewell, Va. Mrs. Hartzell, who received \$20 for her efforts, obtained her calendar from the Hercules Powder Co., Inc., Hopewell.

Second prize of \$10 went to Bradford H. Gibson, 1306 Nipomo St., San Luis Obispo, Calif., who received his calendar from the Union Oil Co. of California.

Mrs. R. O. McCarville, 5706 Lake Street, Chicago, who obtained her calendar from the Illinois Bell Telephone Co., won the third prize of \$5.

Winners of the 15 one-dollar prizes were:

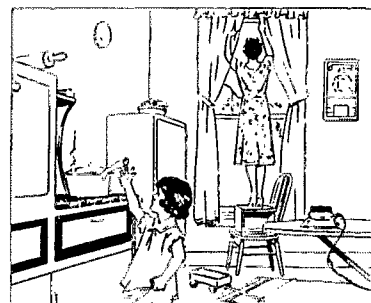
R. B. Wood, 312 Fulton Street, Keokuk, Iowa. Calendar from the Mid-West Carbide Corporation.

George Nugent, R. 2, Henryetta, Okla. Calendar from the Pittsburgh Plate Glass Co.

Byron K. Enyart, 5111 First Road, N. Arlington, Va. Calendar from the Accident Securities Bureau of Statistics, Interstate Commerce Commission, Washington, D. C.

Mrs. Marie W. Boettger, Holtwood, Pa. Calendar from the Pennsylvania Water & Power Co.

James E. West, 12750 Monica, Detroit, Mich. Calendar from the Fisher Body Detroit Division Die & Machine Unit, Plant 37, Division General Motors Corp.



Mrs. Aileen E. Near, 3915 Broad Rock Road, Richmond, Va. Calendar from the Dupont Rayon Co.

Carrol J. Risser, 1016 Morgan St., Keokuk, Iowa. Calendar from the Midwest Carbide Corp.

Mrs. Charles E. Anderson, 1604 Olive Avenue, Chicago, Ill. Calendar from the E. I. du Pont de Nemours & Co.

Leon Longmire, 518 Bryan Street, Peoria, Ill. Calendar from the Central Illinois Light Co.

J. E. Riker, Box 320, Casper, Wyo. Calendar from The Texas Co.

William Hagat, R.F.D. 1, Cuyahoga Falls, Ohio. Calendar from the Goodyear Tire & Rubber Co., Akron, Ohio.

Mrs. Joe Cook 301 Arago Street, Peoria, Ill. Calendar from the Bell and Zoller Coal & Mining Co.

Earl Ewald, 5116—11th Ave., So., Minneapolis, Minn. Calendar from the Northern States Power Co.

Mrs. May E. Seery, 279 Highland Ave., Stratford, Conn. Calendar from Cornwall & Stevens, Insurance Brokers, 70 Pine St., New York City.

Mrs. E. A. Stirling, 219 Delores Street, San Francisco, Calif. Calendar from the National Safety Council.

Judges of the September Contest were Dr. C. H. Watson, president, National Safety Council; Harry Guilbert, director, Bureau of Safety and Compensation, The Pullman Co.; and Raymond G. Ross, secretary, National Safety Council Home Safety Committee.

The statement on the prevention of home accidents, which helped Mrs. Hartzell win first prize, is as follows:

"Good order, good system and good maintenance, which, after all, simply mean 'good housekeeping,' automatically eliminate most home hazards. I prescribe as an ounce of prevention—own and use a step-ladder; teach children to put away toys; securely anchor scatter rugs; use a rubber mat in the bath tub; have lighting fixtures properly located; keep screw plugs in floor outlets; replace frayed electric cord; turn in pot

NATIONAL SAFETY NEWS

... on stove; teach children the danger of playing with fire and matches; never use combustible cleaning fluids.

"Survey your home; anticipate the risk; remove the hazard."

Since women, theoretically at least, spend more time in the home than men, they enjoyed the advantage of the September Contest. The November competition, now beginning, gives the advantage to the men. It is also a "point out the hazards" type of contest, picturing a scene in a factory with several obvious hazards in evidence. In addition to listing the hazards contestants are asked to send in a statement of 75 to 100 words on "How to Work Safely," based on their own experience.

## Coming Events

Of Interest to Safety Men

### Nov. 12-13, Pittsburgh, Pa.

Thirteenth Annual Safety Engineering Conference. (William Penn Hotel.) G. E. Clarkson, manager, Western Pennsylvania Safety Council, 2409 First National Bank Building, Pittsburgh, Pa.

### Nov. 18-20, Washington, D. C.

National Research Council, Highway Research Board, Sixteenth Annual Meeting. Roy W. Crum, director, 2101 Constitution Ave., Washington, D. C.

### Nov. 12-15, Hot Springs, Ark.

American Association of Motor Vehicle Administrators, Annual Convention. Executive secretary, A. W. Koehler, 1523 E. Street Northwest, Washington, D. C.

### April 13-15, New York City

Eighth Annual Greater New York Safety Conference. (Hotel Astor). Julien H. Harvey, executive vice-president, Greater New York Safety Council, 60 East 42nd Street, New York City.

### Nov. 3-Dec. 4, New York City

American Society of Mechanical Engineers, Annual Convention. Secretary, C. E. Davies, 29 W. 39th Street, New York City.

### Nov. 11-15, Kansas City, Mo.

National Safety Council, Twenty-sixth National Safety Congress. W. H. Cameron, managing director, 20 North Wacker Drive, Chicago.

NOVEMBER, 1936



**TO BE ON THE SAFE SIDE,  
MR. SAFETY ENGINEER.**

Tell your employees about  
Brownbilt Safetoe Shoes



E-2 Black calf,  
Goodyear Welt,  
Oak leather sole



H-100 Brown calf,  
Goodyear Welt,  
Oak leather sole

You can recommend Brownbilt Safetoe Shoes with safety, because of these six reasons:

1. Fully tested—steel toecaps passed Rockwell Impact and Compression Tests.
2. Rugged Dependability—3 kinds of soles, Oak Bend Leather, Cord, long-wearing composition.
3. Utmost comfort—ample toe clearance—inside smooth . . . no chafing or rubbing.
4. Finest construction—leather where leather ought to be.
5. Puncture-proof sole. Model H-100 has flexible spring steel plate between insole and outsole.
6. 26 types and patterns—oxfords and high shoes—to meet every industrial demand.

Write or wire for complete details on our special Industrial Plant Sales Plan. No obligation to you.

**Brown Shoe Company**

and associate

**CENTRAL SHOE CO.**

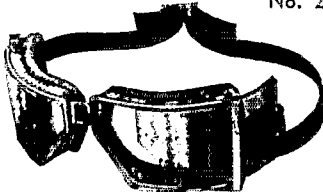
Manufacturers

St. Louis, Mo.

**To be sure!**

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**CHIPPING GOGGLES**

They're mighty friendly to Mr. Worker's eyes! They're protection from eyestrain as well as from industrial hazards. Style 220, for instance, allows the widest possible vision—a feature that makes for comfort, and for added safety at times when a little of that means a lot. There's a style that's just right for every man and for every job.

**CHICAGO EYE SHIELD COMPANY**  
2325 Warren Blvd. CHICAGO, ILL.

# SAFER MORE FLEXIBLE EASIER TO HANDLE

...because Macwhyte Braided Slings have a special patented construction

A great improvement over ordinary wire rope slings!

Factory foremen agree they speed up materials handling!

Safety engineers praise their high safety factor!

Instead of being single part, Macwhyte ATLAS and DREW Slings are multiple part — of wire rope spliced endless and then braided.

This patented construction gives unmatched flexibility. Slings straighten out quickly when released from the load. They resist kinking.

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WISCONSIN**



No. 225

**MACWHYTE  
WIRE ROPE  
Slings**  
ATLAS • DREW • MONARCH

## Safety for Tomorrow's Railroads

(Continued from page 15)

increased superelevation. These refinements make for smoother riding of all trains.

Some other things which are being done are the bettering of sub grade drainage, improvement in quality of rail, ties, joints, and other track parts, and testing rails to locate invisible flaws, so that the rails may be removed before they fail under traffic. Also, constant progress in steel manufacture aims at production of rail which will be free from latent defects. The fact that with all of the high speed operation which has taken place in the last two and a half years there has not been a single derailment due to track conditions, is evidence that the problem not only is well understood, but is being capably handled.

### Signals

Another feature to which Mr. Patterson called attention is the signal system. Here again there is no new principle of engineering involved, but the signals must be so located that the highest speed trains can be stopped in the distances available, having, of course, due regard for grades, allowable braking ratio, and, more particularly, what it is known can be done in actual practice in the way of retardation of the particular train involved. Discussion by signal engineers of the problems which arise from high-speed train operation indicates their appreciation of these problems and the solutions they have devised.

The practice on the Burlington Railroad, with which I am, naturally, most familiar, is based upon the lightweight Diesel-powered streamline Zephyrs, one of which was thoroughly tested in October, 1934, in collaboration with the Westinghouse Air Brake Company. I understand that brake tests were also made with other new trains.

Signals have been moved where necessary, and, in addition, two entirely new types of wayside signals have been introduced which I feel constitute a great adjunct to safety. These are concrete zone signs, triangular in shape, six feet high, which carry the letter "Z" and underneath it a number indicating the allowable speed beginning 4,000 feet ahead. Supplementing these zone signs are similar banjo-shaped signs with the letter "C" and a number indicating speed on the curve 4,000 feet distant.

These signs are large enough to be read at 1,000 feet, and are studded with reflector white crystal buttons so as to stand out brilliantly in the glare of a headlight at night.

### Brakes

Mr. Patterson emphasized the importance of being able to decelerate rapidly. There is no doubt that proper deceleration is vital in the operation of high-speed trains. The subject has not been overlooked by management in the inauguration of the new service. Success here, as in the case of signals and track, depends upon full knowledge of the capabilities of the trains and locomotives, both on the part of management in setting up the schedules and on the part of employees in actual handling of the trains. The results of the brake tests referred to have been well reported in the *Railway Age* of March 23, 1935 and May 2, 1936 by Mr. Joseph C. McCune, assistant director of engineering, Westinghouse Air Brake Company. These tests furnished the basis for further engineering development of the brake art.

I repeat, that with any equipment, safety depends upon a proper understanding of the characteristics of the particular train at various speeds and also upon skillful handling of the train. That management and men have this understanding and skill is evidenced by several million miles of safe, high-speed train operation.

### Equipment

The fourth question raised by Mr. Patterson is the inherent strength of the trains themselves. There have been marked innovations in the materials used, as well as in design and manufacture, and the problem has been approached from several different directions. Three classes of high-speed trains are:

1. Those which consist of rebuilt or reconditioned conventional equipment, pulled at speeds up to 100 miles an hour or more either by steam or Diesel locomotives.
2. Semi-light weight cars built of carbon steel or special steel and weighing approximately one-third less than conventional equipment, pulled at similar speeds by steam or Diesel locomotives.
3. Lightweight trains built of aluminum or stainless steel, weighing less than half as much as conventional trains and powered by Diesel engines capable of more than 100 miles an hour.

NATIONAL SAFETY NEWS

ing as sound engineering and high quality of construction are used in the building of these trains, there does not seem to be any reason why they should not all be safe. As pointed out by Mr. Patterson, the conventional steel passenger car has given an excellent account of itself. Obviously, his question as to strength is directed to the new types. I am confident that all of the railroads which have built these new trains have had in mind the points he mentioned.

I believe it is generally known that the Burlington Zephyrs are stainless steel. We were influenced to choose this material for structural purposes because of its great strength, resiliency, resistance to corrosion, and ability to withstand high temperatures without loss of strength or danger of melting.

The speed capabilities of the new trains, both for short and long distances, have been demonstrated by numerous test runs. The fact that they have set new railroad records, of course, is news, and the test performances spectacular. However, in actual service it is surprising how little increase in maximum speed has been required to maintain the old schedules. The old schedules call for high speed for short distances, but because of loss of time stopping and starting, doing station work, and taking fuel and water, the curves of their performance are successions of peaks and deep valleys, resulting in an average speed about midway between maximum and zero. On the other hand, performance curves of the new train schedules show fewer valleys and smaller ones, and the average speed is more than two thirds of the maximum. Frequently maximum speed of the new trains is only 10 or 12 miles an hour faster than that of the old, but the average speed between terminals is increased by 25 miles an hour.

### III

Although less than five per cent of motor accidents occur at railroad crossings, the railroads, like the rest of the general public, suffer from the careless motorist. Trains have been derailed and wrecked and railroad employees injured and killed, as the result of failure of motor drivers to exercise care for their own safety. Nearly one half of crossing accidents are caused by vehicles running into the sides of trains. Not infrequently the reckless driver runs down a crossing watchman who is endeavoring to protect him.

NOVEMBER, 1936

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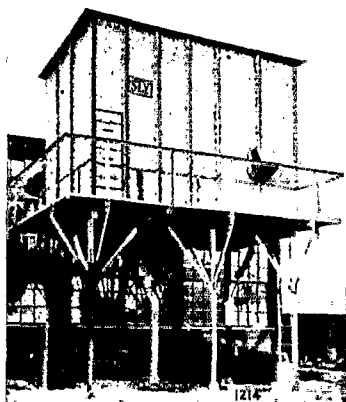


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Of course, it would be an ideal situation if all grade crossings in the country could be eliminated. Enormous sums have been spent, by the railroads and by the state and federal governments, in grade separation projects, and in protection devices at crossings. I know of no more beneficial use of funds for unemployment relief. However, separation of all grade crossings in the country cannot be accomplished for many years, and the problem must be dealt with like other practical problems, that is, utilizing existing facilities in the safest possible manner. This requires co-operation of the public, and particularly, those operating motor vehicles.

As an example, two tragic accidents occurred this summer, because gasoline trucks failed to stop at railroad crossings as required by state law. In one, a passenger train engineer and fireman were seriously burned and the truck driver killed; in the other, the engineer and fireman, as well as another man, were burned to death, and a brakeman injured. Investigating the latter accident, the Bureau of Safety of the Interstate Commerce Commission found that the driver of the truck made no effort to stop at the crossing, did not know that the law required him to stop, and that his employer, owner of the truck, did not know the law.

A check of motor traffic passing over this crossing showed 220 trucks in 24 hours, of which only 14 per cent came to a stop, as required by law.

There has been much legislation designed to protect the public against the ever-mounting toll of death and injury in our motor vehicle accidents, but such laws are not self-enforcing and prove futile unless there is adequate provision for vigilant policing of the highways. Studies indicate that responsibility for highway accidents is ascribable to the carelessness of a relatively small proportion of drivers. Good citizens obey the law, but reckless drivers, like other lawless elements of society, respect only authority represented by a uniformed officer. Highway patrol organizations are functioning admirably in some localities, but in many places sufficient funds are not available to provide for patrol of the highways.

It would seem that if the general public is to be protected from the menace of the reckless driver, adequate provision will have to be made for such policing.

Every collision of a train with a highway vehicle involves the danger of derailling the train and injuring passengers

and employees. This danger is no greater for the lightweight, high-speed trains than for conventional trains drawn by steam locomotives, because the front ends of the lightweight trains are over the power trucks, which carry heavier axle loads than the forward trucks of steam locomotives. Also, the design of front ends of the lightweight trains are particularly adapted for lifting and throwing obstacles from the track.

For many years public opinion accepted accidental injury and death as necessary evils which could not be avoided. The old idea that railroad work was dangerous and that it was a display of bravery to scorn safety precautions, has given way to sensible co-operation between management and employees to avoid preventable accident. The safety record of the railroads has demonstrated that progress is not inconsistent with, or handicapped, by safety.

Prevention of loss of life and limb in industry is not only sound economics, but is one of the outstanding humanitarian movements of our time. I am happy to speak for the railroads, which have taken such a creditable part in Safety Work.

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## Sectional Officers

(Continued from page 63)

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"Oh, very well," the other replied. "There is safety in numbers, you know?"

"Indeed," was the reply. "I only found it in Exodus."

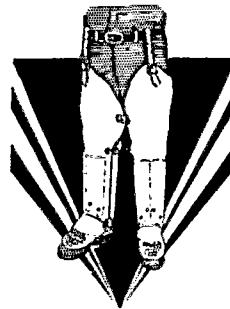
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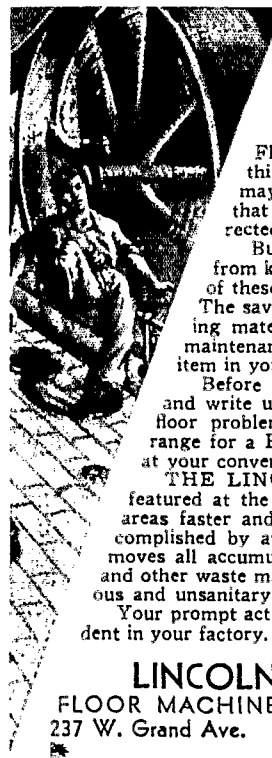
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## New Rules

(Continued from page 13)

We do this through the least admirable of human vices—stupidity, carelessness and recklessness. Some of us misuse what is probably the greatest and most valuable of mechanical additions to human life, the automobile, so that it becomes more deadly to our fellowmen and ourselves than is the machine-gun of the gangster.

Others fill our homes with devices to lighten and brighten the lives of our families—and then let carelessness turn these benefits into disaster.

Combating these dangers is more difficult than was the fight against the dangers of the wilderness. Here is no separate enemy who can be identified and destroyed or overcome with physical weapons. Our real enemies in this war lie hidden in ambush in the dark recesses of the mind of every man and woman.

Thoughtless and impatient people often take the position that all human evils can be cured by the enactment of corrective and punitive legislation. They forget that governments are merely delegated representatives of the individual, that they have no authority beyond what the collected individuals give to them and that they cannot coerce their creators beyond the willingness of the latter to be coerced.

Safety cannot be enforced by threat. It must be developed by education and illustration.

That is the function to which we have dedicated this organization. That is the function which we must find ways to perform. To this task we must bring certain equipment, both mental and physical. Since this is a mental war, the weapons of the mind are of first importance.

We must bring patience; we must be able to work and see our work defeated and keep on working. We must bring humility; we must never let our minds assume a feeling of superiority over those whom we might think too stupid or too inferior to absorb the purport of our message. We must bring the understanding that many a man takes a chance because the reward of his labor is needed immediately and bitterly by the hostages he has given to fortune.

We must make allowance for the hot blood of youth and for the slow hands of age. We must be able to stand up under misunderstanding and misrepresentation and prejudice.

This is a long war for which we have signed up. It cannot be won in any one day—nor will it be lost in any one day. No victory or defeat will be final.

In this age of mechanics and speed we live among forces which have tremendous potentialities for both good and evil. Human intelligence is the influence that determines which potentiality shall be uppermost. Constructive intelligence develops the potentialities for good. Carelessness, indifference and stupidity incite the potentialities of evil.

For any one to be careless or indifferent or stupid in the driving of an automobile, the operation of a machine, or even the handling of a thing normally so insignificant as a cake of soap, is an admission that that person is not competent to deal with the ordinary equipment of life.

Such incompetence is the chief cause of failures of the safety element. It is due more often to lack of understanding than to ignorance—an inability to foresee consequences.

That state of mind is today the greatest and most dangerous enemy of the human race. In individual affairs it causes accidents destructive to life, limb and property. In public affairs it causes war and waste and economic disasters.

It is the opponent of those who seek to promote the interest of safety. It is the enemy against which this organization fights and must continue to fight.

The only forces we can use against the people who suffer from this mental "blind spot" are the forces of education and example. We must endure the consequences of their weakness while we try to teach them to be strong.

The natural law of the survival of the fittest is grim and inexorable. Its modern expression might be phrased in these words—that the benefits of modern life will be enjoyed by those who can deal safely with modern forces.

Here is our battlefield. We must prove to many thousands of indifferent minds that fire is a good giant who produces heat and power, who cooks food and propels ships and trains—but also burns human flesh. We must prove that electricity spans seas and continents in the wink of an eye, that it spins the wheels of a thousand human occupations, that it provides the spark of life that activates the cold steel and fuel of millions of automobiles, that it cooks or

NATIONAL SAFETY NEWS

chills our food, that it lights our homes and relieves human muscles of age-old burdens—but it can also kill as quickly as it can serve.

We must prove that the automobile can open new roads and new lives, that it can annihilate distance and time, that it can destroy isolation and promote knowledge—but also that it can kill quickly and horribly.

And so with the whole catalogue of modern life. It is the function of the National Safety Council to help the whole race in its march to greater utility and greater safety and more useful life. I say "help" advisedly. That is the limit of our possible accomplishment.

The attainment of safety in modern life is a task for the millions of individuals who compose our society. We can help bring them information and experience—but the individual must take what is offered and use it himself or else it will do no one any good.

The task we have set ourselves is a great one. It is a task that should stimulate the best that is in every one of us. It is a task that makes the world richer by its accomplishment in any degree.

It is our boast that this is the richest nation in the world. It is a fact that we are also the most wasteful nation in the world. We hold our riches with loose fingers; our treasures slip away from us.

If the huge financial waste of the world war and the era of speculation which followed it had been saved, there would have been no depression.

This tendency to waste is an inheritance from our pioneer days. The gambling strain is in our blood. We gamble with fortune. We gamble with Fate. We gamble with life—and with death.

We take risks as a matter of habit. We regard it as our traditional duty to scorn caution. Most times we win, if it be a victory merely to escape penalty. Too often we lose, not merely a casual stake, but all of life for the loser, most of life for those he leaves behind him.

Our daring, our willingness to face Fate with a smile and a joke—these will, I hope, always be the mainsprings of American character, the sign manual by which the world can recognize an American—but we must learn to avoid the useless chance, the losing gamble, the hazard where the odds against us are so hopeless that there is no chance to win and no reward worth the risk if we do win.

Here is the objective of you soldiers of safety—to write new and sane rules for the game of life in America.

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## Motion Study

(Continued from page 24)

cent of all accidents. The hands should be used to transport the object and a vise or clamp to hold it. For example, on one of our drill press operations, in the old method, the operator held one piece in an open jig. This often caused injury when the piece spun around in the jig. In the new method, the jig was redesigned so that two articles are held tightly by the jig during drilling, leaving both hands free to move the pieces. Production doubled and injuries dropped.

In another case, an operator poked a wire through small drilled holes to dislodge drill chips too tight for air cleaning. The piece was held in one hand and a sharp pointed wire in the other. Sometimes the wire forced through suddenly into the operator's hand. After a motion study, we mounted two wires in a fixture and pushed the pieces, one in each hand, over the wires. This gave not only better production but a safer job.

One of our supervisors, on vacation, had the relation of motion study and safety brought home to him in a dramatic way. He was making some repairs to an electrical switch box. He held the box in position in one hand and used the screw-driver in the other. The screw-driver slipped and went right through the palm of his hand. A holding device in place of his hand would have avoided this accident.

### Pre-Positioning

In a motion economy layout, the operator moves the pieces from fixed work station to the point of use. The pieces are usually pre-positioned so that they can be grasped easily. This might be important from a safety viewpoint if there are sharp edges that might cause injury if grasped the wrong way. Likewise, the tools are prepositioned so that the handle is grasped, rather than the point of the tool. Pre-positioning also reduces eye fatigue and many of the layouts could be operated even with the eyes closed.

By pre-positioning pieces close to the point of use, all work movements are directly in front of the operator. This avoids reaching to one side of the machine for the next piece, possibly turning the eyes away from the operating part of the machine. There is always danger of injuring the idle hand while looking in the other direction.

On many of our machines, supply racks are fastened to the machine close to the point of use. The operator does

not have to figure the best layout for himself, nor adopt an unsafe makeshift. The layout itself forces him to follow "The One Best Way," and consequently, the safe way.

### Drop Delivery

Wherever possible, drop delivery chutes are provided to carry the piece away from the machine and directly into the tote box. This eliminates the so-called "clean up." In the old way, pieces often slip off the bench and roll underneath shafts or belting, which means an accident hazard. An analysis of the detailed causes of accidents would show a number of cases where the operator's clothing caught in moving belts.

At one plant an operator removed the wire belt guard from her machine and tried to retrieve a fallen piece. She succeeded in entangling her hair in the belt and lost part of her scalp. A drop delivery chute might have prevented this. Even if the empty tote box is set upon a chair next to the operator, it might be pushed over and fall on someone's feet. Properly designed drop delivery chutes promote safety.

### Work Habits

The late Elbert Hubbard once said, "Habits rule our lives." We had a good illustration of this in our factory office. A water cooler was located at the left hand side of the office doorway. The only available space for the used paper cup waste basket was at the right hand side of the doorway. This situation existed until our safety man noticed the danger of an accident if someone interrupted the drinker by opening the door suddenly. He rearranged some of the office equipment and put the waste basket on the other side of the water cooler. For the next week, it was funny to watch everyone try to drop the used paper cups in the old location. It seemed almost impossible to break the old habit. Compare this routine, which may occur six times a day, with a factory operation repeated 600 times a day and you appreciate what habit can do.

Motion study capitalizes this habit tendency in training "The One Best Way." The motion path is plotted out so that both hands move simultaneously in opposite and symmetrical directions. Repeated hundreds of times, this becomes a fixed habit. Because safety is taken into account in designing the mo-

NATIONAL SAFETY NEWS

tion path, the correct work habits must mean a reduction in accidents. Keep in mind that 33 per cent of all accidents involve the fingers and hands.

The Gilbreths teach that "The One Best Way" is almost always a sequence of the fewest motions. Now mechanical safeguards have reached a high state of efficiency. Many punch press jobs are laid out with two handed controls to prevent accidents. The operator places the material with the right hand, then each hand must operate a control so that both hands are away from the die. Eager for an increase in earnings, the operator sometimes blocks up one of the controls so that he can feed the material with the right hand and operate the other control with the left hand.

Now suppose we apply a little motion economy. A two-cavity die is provided with feed hoppers close to point of use and duplicate hand controls close by the feed hoppers. A definite motion path is laid out, involving the use of both hands throughout the entire cycle, instead of only for the controls. This builds up fixed work habits using two hands continuously in simultaneous and opposite directions. There is no incentive for the operator to block up one control and operate with the other. Here again, work habits reinforce mechanical guards instead of cheating them. The production almost doubles and safety once more goes hand-in-hand with motion study.

### Tool Kits

Tool kits are often used when a job is laid out in the motion study way. With the tools arranged for easy grasp, there is less danger of the operator grasping the sharp end instead of the handle. Pre-positioning also avoids fumbling, which may cause dropping tools to a lower level. Since 8.7 per cent of all accidents are caused by falling objects, this should improve safety. Tool kits prevent leaving tools on the floor where someone may fall over them. Stepping on objects cause 5.6 per cent of all accidents. Tool kits eliminate walking around to borrow tools from neighboring workmen.

The operator away from his own workplace is likely to be off guard and an easy prey to the accident menace. The visitor distracts the other operator and that is when accidents happen. Another point in favor of using tool kits is that the operator won't use a make-shift tool but will have a proper tool available for each task. We have all watched men use a hammer in place of a wrench and vice-versa, sometimes with disastrous

## A NATIONAL SERVICE for PRODUCTION—SAFETY

Members of and Distributors of ASSOCIATED GUARD MANUFACTURERS pool their products and facilities to the end of giving a national service:

- A** { (1) on standard approved safety equipment for mechanical hazards; (2) removal of industrial health hazards from dust or fumes, and (3) supplying safety apparel from head to foot.
- B** { EVERY POINT of OPERATION guard is placed on the proposition of being the BEST for its particular purpose without affecting output.
- C** { Refund of money paid will be made on written disapproval of any state or insurance inspector.
- D** { ALL EXHAUSTS for collecting dust or fumes at source and pneumatic cleaning equipments are guaranteed to be in full compliance with all codes of the state, requirements of compensation carrier, also specifications of the American Standards Association.
- E** { All apparel is guaranteed of best quality.

*Inquiries are solicited. Information freely given without obligation.*

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Frontier Meter Works  
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**HOLLISTON, MASS.**  
Safety First Shoe Co.

**NEW YORK, N. Y.**  
Allen Billmyre Corp.  
220 East 42nd St.

**PHILADELPHIA, PA.**  
Surreyway Mfg. Co.  
Fox & Clearfield Sts.

**SEATTLE, WASH.**  
C. H. Bacon  
815 E. Prospect

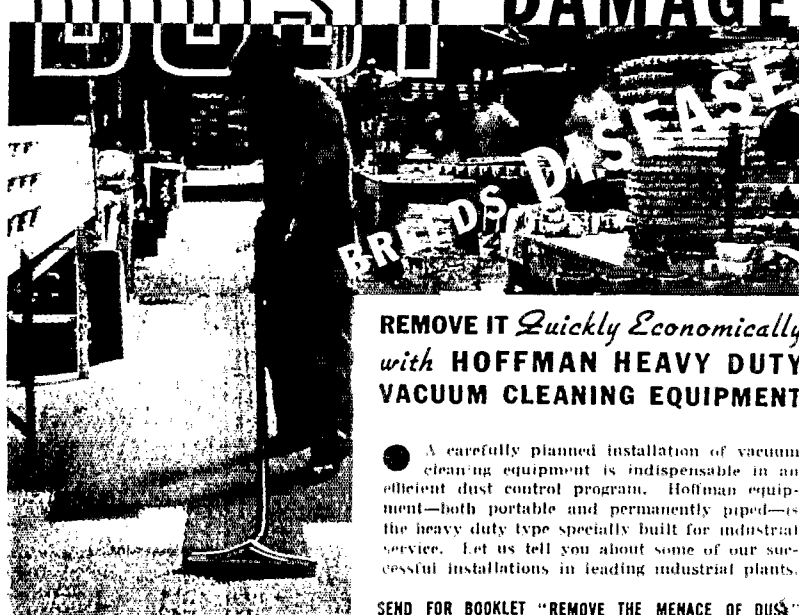
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1948 North 9th St.

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Newton Eng. Works

IN SAFETY THE BEST IS NONE TOO GOOD

# DUST

## brings DAMAGE



BREEDS DISEASE

REMOVE IT *Quickly Economically*  
with **HOFFMAN HEAVY DUTY**  
**VACUUM CLEANING EQUIPMENT**

● A carefully planned installation of vacuum cleaning equipment is indispensable in an efficient dust control program. Hoffman equipment—both portable and permanently piped—is the heavy duty type specially built for industrial service. Let us tell you about some of our successful installations in leading industrial plants.

SEND FOR BOOKLET "REMOVE THE MENACE OF DUST"

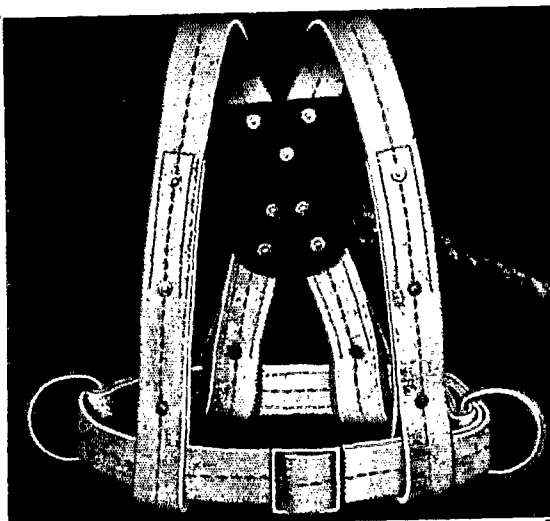
U.S. HOFFMAN MACHINERY CORPORATION

AIR APPLIANCE DIVISION, 111 FOURTH AVE., NEW YORK

## Diamond Stripe Linen Web Safety Belts

have a known strength of 175 pounds dropped 15 feet.

PLUS  
a Safety Factor of 2 to 1 in all material used.



No. 657

Belt No. 657 as illustrated above is especially designed for men working on sloping roofs or other hazardous occupations requiring a front tie as well as a back tie. The two dee rings at the sides and the one in the back, as well as the buckle and webbing, all test 5000 pounds.

No. 657 . . . . . \$12.50 each  
No. 657WP—Webbing treated with special waxes to resist destructive effects of dampness and paint . . . \$13.50 each

**THE STRAUSS CO.**

Brady  
Bldg.

**PITTSBURGH, PA.**

Manufacturers of Safety Belts for every industrial hazard where men work above the ground.  
Write for our catalog No. 36.

## INSURANCE

### FOR THE FEET!

## IRON AGE SAFETY SHOES Steel Toe

Provide Maximum Toe Protection with Comfort.  
Best of materials used throughout.  
OVER TWENTY STYLES  
THREE DIFFERENT TOE SHAPES  
Write for Circular.

**H. CHILDS & CO. INC.**

ESTABLISHED 1817 - PITTSBURGH, PA.

results. If each operator has his own kit of tools, he will take great pride in keeping them in proper condition. This will improve his earnings. He is not likely to keep community tools in condition for someone else to use the next time. From a motion study viewpoint, tool kits mean fewer motions, but from a safety viewpoint, they also mean less accidents.

All your knowledge of safety means nothing if you can't sell your ideas to the foreman. The average foreman thinks "That safety man is a pest. His mechanical guards slow up my operators. It's a daily battle to keep guards on the machines and the men try to 'beat' them when I'm not watching. The safety man doesn't realize I have to cut production cost, not increase it. He just doesn't talk my language."

What a different picture with motion study! The foreman can show big time savings while you show big accident savings. You are his best friend. Safety is everybody's job not one man's job. The operators find that the "One Best Way" fills the pay envelope instead of the hospital. The superintendent notices fewer tired faces going out of the factory gate at night. The vice-president watches cost reduction keep pace with accident reduction. All safety men should urge their companies to adopt motion study. They will benefit from Safety's silent partner.

### Plumber Wanted

ONE day we were motoring through a beautiful old village and as we passed a mid-Victorian house, set well back on a large lawn graced by handsome elm trees, a woman companion said:

"That's where the two Smith girls lived. I remember them well. Their father built that house sixty years ago. He was rich, but stingy. After he had built the house he refused to spend a cent for modernization. Plumbing seemed as useless to him as ballooning. The girls went to college, but their arguments for a bathroom, though stoutly supported by their mother, left the old man cold.

"Eventually the old fellow died, leaving a large fortune in excellent securities. The widow and daughters put on their blackest robes and went through the formality of the funeral and burial. On the way back to the house the mother broke a long silence in the carriage with these words: 'Well, girls, we'll start work on the plumbing tomorrow.'"

—Midvale Safety Bulletin.

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## At the Exhibit

(Continued from page 56)

cables without the use of heat or any outside source of power, also received considerable attention. Other new items of safety were the recently developed combustible gas alarm, air velocity indicator, and an improved methane detector. This exhibit embraced equipment of all kinds for mine and industrial safety.

Safety ladders and scaffolds are always an important part of every exhibit of safety equipment. The Patent Scaffolding Company made a workable demonstration of their well-known "Gold Medal Products." The John F. Tilley Ladder Company showed a recent improvement—a new type steel rod with patented deep thread steel nuts embodied in the Gaffers light duty safety platform ladder. This ladder is made up to ten feet heights only and is intended for light overhead duty. Where greater heights are to be reached, the heavy-duty type is recommended.

Rose Manufacturing Company displayed the Safe-Hi ladder shoe which is available in different constructions to suit conditions: rubber for dry surfaces; cord for wet surfaces; and ridges to cut through oil and gravel, also the self-sharpening spike for snow and ice. This exhibitor also made actual demonstrations of the Safe-Hi stirrup belt for window cleaners, which can be used where there are no anchor bolts or previous arrangements made for the cleaners.

Interesting motion pictures were employed by the Protectoseal Company to emphasize the application of their various products as used in the control of hazardous liquids. Their exhibit included carburetor backfire arrestors; combination fill and vents; conservation units; direct connection fills; muffler flame deflectors; safety fuel tank sumps; safety transfer pumps, and many other products for handling hazardous liquids.

The Pulmosan Safety Equipment Corporation exhibited their various types of respirators and a general line of industrial safety equipment such as leggings, ladder shoes, goggles, etc. They showed for the first time the new Pulmosan carboy carrier and carboy tilter.

One of the special features of the Willson Products, Inc., exhibit was their new dust impinger apparatus, which is lighter in weight and more compact in design than other impinger outfits available at the present time. This exhibitor showed their improved line of composition cup goggles, together with improved air line respirators, also their newer designs of

welding helmets and handshields.

In the Liquid Carbonic Corporation exhibit, Proxate, the safe fumigating gas, was demonstrated. This type of fumigating gas has many properties which make it desirable as a fumigant from the safety standpoint.

Milburn Company of Detroit brought out the need of protection against occupational skin diseases through photographic illustrations of industrial cases and statistical charts. Ply protective products were the central feature of this exhibit on skin affections.

Products for the promotion of sanitation, which included deodorants, floor finishes, liquid soaps, insecticides, kotex, disinfectants and paper towels were attractively presented by the West Disinfecting Company.

At the Strauss Company's booth safety belts for every industrial hazard where men are in danger of falling were presented for inspection. Foot and head protection products were also included in this display.

An exhibit of safety controls and devices operated through the use of Ever-Ready batteries and Ever-Ready Neon-control units was presented by the National Carbon Company.

The Safety Equipment Service Company displayed its usual line of safety equipment, featuring their Super-Drednaut goggles. Respirators and protective clothing were also shown.

Linemen's rubber protective equipment, consisting of rubber line hose, connector end line hose, insulator hoods, linemen's blankets, snap-on jackets, gloves, glove protectors, line coats, insulating stools and accessory articles were displayed for the inspection of those interested in this equipment by W. H. Salisbury & Company.

Delegates were told of non-slip floor maintenance materials which clean and polish in one operation by Walter G. Legge Company. Rigid floors, such as marble, tile, terrazzo, cement and composition can be given a beautiful appearance by using a small quantity of this product in the water used for cleaning. Resilient floors, such as linoleum, rubber, mastic, magnesite, wood and composition may also be treated by the washing method with this product.

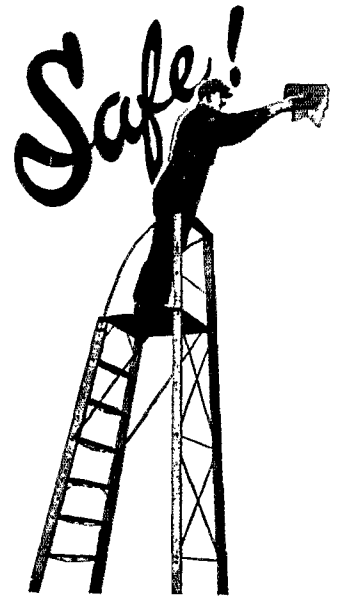
The National Bureau of Casualty and Surety Underwriters, made an attractive exhibit of safety educational material for schools, industry, and the public.

Railway and Industrial Engineers showed their protective devices for electrical equipment. One of the most in-

(Please turn to page 92)

## SAVE MONEY with DAYTONS

(Made in Cincinnati)



Dayton Safety Ladders are an investment in economy. You save on labor time; you save on accident costs. Workmen do their work faster, better from safe, non-wabbling, non-tipping Dayton's. They find Dayton's light and easy to carry. Sizes 3 to 16 feet. Highest quality at moderate price.

Write Dept. NSX-11 for details

THE DAYTON SAFETY  
LADDER COMPANY  
121-123 West Third St.  
CINCINNATI, OHIO

# DAYTON Safety Ladder

(Patented)

Stock carried on Pacific Coast by E. D. Bullard Co., Los Angeles and San Francisco, and by 160 other distributors from coast to coast. Made and distributed in Canada by Safety Supply Co., Toronto.

Style  
"A"Price  
\$15.00

Fits any rail from 40 to 110 lbs.

## Good Practice— Plus Safety . . . .

Bracing car wheels with wood blocks is dangerous and often costly.

### M & M Rail Clamps

the safest and surest possible stop for car wheels—they provide safe conditions and guard against accident and property damage.

### M & M Rail Clamps

are recommended for use on runways in repairing cranes, on loading platforms, temporary sidings, etc.

### Industrial Products Company

Accident Prevention Equipment  
800 W. Somerset St., Philadelphia, Pa.



Complete Unit Type First Aid Service for all plants, public utilities, contractors, etc. Refills according to individual specifications — 20 gauge steel container — convenient, economical units for individual use, insuring sterilization — note open kit for contents.

*A handy nurse on the job always!*



For  
Safety Sake  
WRITE FOR SAMPLES  
ON APPROVAL  
and  
PRICES

**E. HALPERIN CO. Inc.**  
Home of Halco Safety Products  
267 ATLANTIC AVE. BOSTON, MASS.

## Trophy Winners

(Continued from page 60)

2. Peoples & Columbia Natural Gas Cos., Pittsburgh, Pa.
3. Columbia Gas & Electric Corp., Columbus, Ohio.

### GAS DIVISION, GROUP B

1. Northwest Cities Gas Co., Walla Walla, Wash.
2. St. Louis County Gas Co., St. Louis, Mo.
3. New Haven Gas Light Co., New Haven, Conn.

The Honorable Mention Certificates were also awarded to those units having the greatest continuous man-hour exposure without any disabling injury during the period of the Contest. Winners of Honorable Mention were:

- Iowa-Nebraska Light & Power Co., Lincoln, Neb., 1,166,774 man-hours.  
Laclede Gas Light Company, St. Louis, Mo., 1,131,495 man-hours.  
Oklahoma Gas & Electric Company, Oklahoma City, Okla., 993,620 man-hours.  
Rockland Light & Power Company, Nyack, N. Y., 900,021 man-hours.  
The Philadelphia Gas Works Company, Philadelphia, Pa., 478,420 man-hours.  
Atlantic City Electric Company, Atlantic City, N. J., 452,270 man-hours.  
Lone Star Gas Co., Fort Worth Div., Fort Worth, Tex., 350,887 man-hours.  
South County Public Service Company, West-  
erly, R. I., 275,000 man-hours.

## Rubber Section

Thirty-five rubber companies and units, representing 49,652,116 man-hours worked by 53,646 employees, participated in the Rubber Section Contest.

The average frequency rate was 6.465, a three per cent increase over the 1935 Contest rate. Twenty of the units completed the Contest with a frequency rate below the average, and seven units went through the half year contest, from January 1 to June 30, 1936, without a single lost-time accident.

There were two groups in the Contest. Winners in the first "Rubber Products," group, with more than 125,000 average monthly man-hour exposure, were:

1. U. S. Rubber Products, Inc., Providence Plant, Providence, R. I.
2. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ont.
3. Samson Tire & Rubber Corp., Los Angeles, Calif.

The second group was confined to those companies having under 125,000 average monthly man-hour exposure. Six companies, with perfect records, tied for first place:

1. Dominion Rubber Co., Ltd., Papineau Factory, Montreal, Que.
1. Van Cleef Brothers, Chicago.
1. U. S. Rubber Products, Inc., Dev. Dept., Passaic, N. J.
1. The Lobl Manufacturing Co., Middleboro, Mass.
1. Fabric Fire Hose Co., Sandy Hook, Conn.

1. U. S. Rubber Products, Inc., Mechanical Fabric Div., Providence, R. I.

## Vehicle Fleet Section

Five hundred and ninety fleets with 38,760 commercial vehicles competed for low accident honors in the contest conducted by the Vehicle Fleet Section between July 1, 1935, and June 30, 1936. Competing fleets traveled 664,702,000 miles during the 12-months' period. In all they experienced a total of 14,578 accidents, or 2,119 accidents per 100,000 vehicle miles.

The contestants lowered their previous year's rates two per cent in the 1935-36 competition. The bus drivers reduced their accident rates 12 per cent and passenger car operators cut their rates six per cent. On the other hand, truck drivers increased their rate two per cent. The list of first place winners follows:

### Inter-City Bus Operations

Large Fleets—Greyhound Lines, Indianapolis, Ind.

Small Fleets—Greyhound Lines, Cincinnati, Ohio.

### City Bus Operations

Reading Coach Company, Lebanon, Pa.

### Passenger Cars

Group I—Shell Petroleum Corporation, Mid-Continent Area

Group II—Gulf Oil Corporation of Pennsylvania, Shreveport, La.

Group III—Cities Service Oil Company, Western Ave., Chicago.

Group IV—Shell Pipe Line Corporation, Colorado, Texas Division.

*Perfect Records - Honorable Mention:* Standard Oil Company of California, Honolulu, T. H.; Cities Service Oil Company, East Chicago, Ind.; Mutual Telephone Company, Honolulu, T. H.; The Bruckmann Company, Cincinnati, Ohio; Charleston Oil Company, Charleston, S. C.; Northwest Cities Gas Co., Walla Walla, Wash.; Shell Petroleum Corp., Arkansas City Refinery; C. & C. Bureau of Plans, Honolulu, T. H.

### Inter-City Trucking

Large Fleets—Morgan Packing Company, Austin, Ind.

Small Fleets—U. S. Engineer Department, Gulf of Mexico Division.

### Coal and Ice

Central California Ice Company, Selma, Reedley & Dinuba.

### Bakeries

Junge Baking Company, Joplin, Mo.

### Public Utilities

Large Fleets—Mountain States Power Co., Albany, Oregon

Small Fleets—C. & C. Electric Light Department, Honolulu, T. H.

*Perfect Record - Honorable Mention:* Amarillo Gas Co., Amarillo, Texas.

### Miscellaneous Manufacturing Plants

Pittsburgh Steel Company, Monessen, Pa.

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**Dairies**

Hind Clark Dairy, Honolulu, T. H.

**Newspapers**

Journal Garage Company, Portland, Ore.

**Petroleum**

Large Fleets—Shell Petroleum Corporation, Mid-Continent Area.

Small Fleets—Texas Pacific Coal & Oil Co., Fort Worth, Tex.

*Perfect Records - Honorable Mention:* L. D. Fox, Grants Pass, Ore.; Shell Petroleum Corporation, Houston Refinery; Shell Petroleum Corporation, East Chicago Refinery; Shell Petroleum Corporation, Norco Refinery; Shell Petroleum Corporation, Arkansas City Refinery.

**City Trucking**

Large Fleets—Walgreen Drug Company, Chicago.

Small Fleets—J. E. Bejin Cartage Company, Detroit, Mich.

**Beverages**

Coca-Cola Bottling Company of New York, Valley Stream Division.

**Department Stores**

Large Fleets—United Parcel Service Co., Pasadena, Calif.

Small Fleets—United Parcel Service Co., San Mateo, Calif.

**Laundries**

Oregon Dye House, New Bedford, Mass.

## The Honor Roll

Details of no-accident records in excess of 400,000 man-hours, or 300 working days, are invited for this department

**Aetna Portland Cement Co.**

Since July 31, 1935 the Bay City, Mich., plant of the Aetna Portland Cement Company has operated without a disabling injury. For the year ending July 31, 1936, the exposure totaled 294,079 man-hours. The record was still intact at the time of reporting, September 30. An average force of 142 workers is employed.

**Hollingsworth & Whitney Co.**

An injury on June 7 terminated a no-accident record of 3,543,623 man-hours established by the Algonquin and Taconnet Mills of Hollingsworth & Whitney Company at Winslow, Me. The mills, which employ some 1,200 workers, manufacture sulphite pulp and paper specialties. For several years the company has competed in the state and national safety contests.

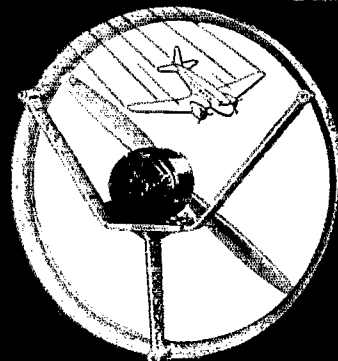
**Republic Steel Corp.**

A splendid record was broken on July 26, when an injury occurred at the Grand Crossing, Chicago, plant of the Republic Steel Corp. This plant had operated 3 years and 26 days, or 1,573,802 man-hours, without a disabling injury. It has twice won awards in Group B of the Metals Section contest of the National Safety Council.

NOVEMBER, 1936

**EXHAUST HEAT, DUST, FUMES,  
with PROPELLAIR FANS!**

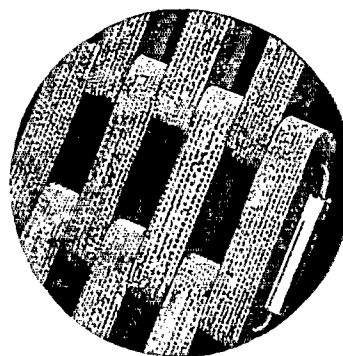
**BUILT on ADVANCED  
*Aero-dynamic*  
PRINCIPLES**



**PROPELLAIR FANS**

for Ventilating and Exhausting are GUARANTEED to move more air at smaller cost than any other fans of equal size. Write for facts.

**PROPELLAIR, INC.** SPRINGFIELD, OHIO



**Wherever You Have  
DANGEROUS FLOORS  
Use Safety-Cushion  
AKROMATS**

The design of Akromats is unique and effective. Rubber impregnated fabric links, woven edgewise to the worker's feet provide a comfortable, flexible foundation that insures against slipping regardless of the condition of floors. Your request on your letterhead will bring complete information and

FREE TEST SAMPLE

**THE BUXBAUM CO.**  
Akron, Ohio

**Bring the TORCH  
to the JOB  
SAVE TIME — SAVE MONEY**

*Ball-bearing*  
**Clements**  
*Cadillac*

**PORTABLE GAS TORCHES**

**FOR** Preheating  
Annealing  
Brazing  
Soldering  
Bending  
etc.

COMES  
COMPLETE  
AS ILLUSTRATED



- No installation costs—no expensive extra equipment required.
- Maintains steady temperature of from 1600 to 2300 degrees as desired.
- Operates independent of gas line pressure—produces a constant supply of gas at even pressure by suction.

**CLEMENTS**  
MFG. CO.  
6638 N. Narragansett  
CHICAGO, ILL.

# 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

## New Goggle

The American Optical Company, Southbridge, Mass., announce an addition to its

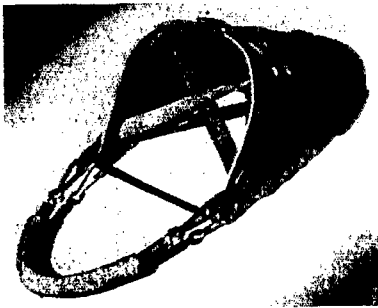


line of eye protection equipment, the F-3105 Ful-Vue goggle. This goggle, according to the manufacturer, has all the comfort and safety features of the regular Ful-Vue goggle, high-up endpieces, self-adjusting nose pads, 6-curve super armor-plate lenses, plus side shields that provide extra protection against particles striking from any direction.

The wire mesh screens are non-corrosive and easily cleaned. The mesh is sufficiently fine to prevent the passage of flying particles but does not hinder air circulation. The metal frame is also non-corrosive.

## Sankey Foot Guard

This new foot guard, it is stated, is a departure from conventional methods and has proved effective in industries with serious foot hazards. It is easy to put on and take off, it fits any shoe and cannot be



kicked off. The three point contact gives a perfect balance, snug fit and eliminates vibration. It is fitted with silent tread and adjustable cowhide strap with quick spring fastener. This guard is made either of strong aluminum-alloy or galvanized steel, corrugated for resistance to impact. A guillotine test proved the new guard of either construction effective under a 300-foot-pound impact, meaning that a 100-pound weight dropped vertically from a three-foot elevation will not cause injury to a foot so protected. It is made by The Ellwood Safety Appliance Company, 211 Fountain Avenue, Ellwood City, Pa.

## Dupor Plate Respirator

This improved respirator, manufactured by I. S. Cover, South Bend, Ind., features a greatly enlarged area in its double filter chambers. The filter pads are 4 1/2 inches in diameter and have a clear entrance filter aperture for both pads of more than 24

square inches. Dead air space has been cut to a minimum. It is called bulb valve type No. 24 and has been approved by the U. S. Bureau of Mines, No. BM.2111, for use in type "A" or pneumoconiosis producing dusts.

The face piece is of standard (patented) Dupor construction with large off-set filter plates attached. The screw cap lid has been eliminated and the filtered air passes easily between the plate extrusions



to the protected opening and into the respirator interior. The marginal edge of the plate has inwardly curved edge to anchor filter pads securely and prevent leakage. The manufacturer further states this new construction principle assures a large filter area for easier breathing and greater comfort to the wearer because of unobstructed vision and light weight.

## Hy-Tensil Safety Belts

The American Allsafe Company, 210 Franklin Street, Buffalo, N. Y., announce a new line of safety belts of gum-impregnated laminated fabric which, they state, is moisture proof, resistant to acids, alkalis, snagging, fraying, cutting, abrasion and has a uniform tensile strength of 6,500 pounds per square inch. This new line of safety belts is built for the use of line-



men, tank workers, window washers, construction workers in industrial plants, public utilities and service companies.

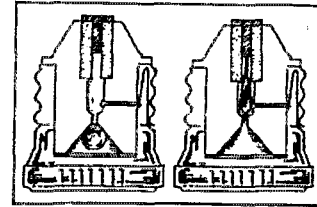
These belts were tested by a Bureau of Standard listed testing laboratory and showed the tensile strength of this impregnated fabric to be 6,500 pounds per square inch. The belt fittings are tested for strength. The method of attachment

of fittings is novel in that they encompass the material so that dependence is not put on rivet heads or thread sewing. They cannot pull away from belt when subjected to sudden strains.

The manufacturers further state the belts are easily adjusted to fit a man of any size that they are comfortable and do not hamper the worker.

## Renewable Fuse

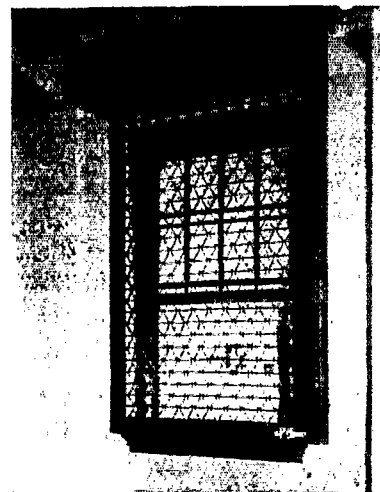
The Perma-Fuse Corporation, Louisville, Ky., announce a new type of fuse plug which can be renewed and used again and again. Known as Perma-Fuse, it is designed to end replacements. This new fuse utilizes a simple scientific principle long known to electrical engineers, i. e., the tremendous expansion power of mercury when heated. Mercury is used as the current conductor. When a short circuit or overload occurs it generates heat which



expands the mercury and breaks the circuit. To renew, all that is necessary is to unscrew the plug and swing it, contact end down, like a thermometer. This action returns the mercury to the two contact points within the fuse and it is then ready for reuse.

## The Wilson Rolling Steel Grille

For all openings where protection against intrusion is wanted, yet air and light are needed, this new grille offers a solution of the problem. It may be used for concessions, gate ways, transformer rooms, store entrances, display windows, corridor openings, in all sorts of buildings, industrial, commercial, and residential. It rolls up overhead out of the way when not



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in use and may be operated by hand, chain, crank or motor. The above illustration shows its application on the inside of a window opening in a War Memorial Building, protecting valuable trophies, war memorial exhibits, etc., at the same time permitting a free flow of air and light. It is manufactured by the J. G. Wilson Corporation, 1841 Broadway, New York.

#### Automatic Space Heater for Sprinkler Valve Houses

Freeze-ups in valves on dry pipe sprinkler systems can be prevented by the installation of an automatic electric space heater in each valve house. This new heater, made by Rockwood Sprinkler Co., Worcester, Mass., is the first automatic space heater that has been designed to meet the unusual requirements of sprinkler valve house heating. The standard model of this heater is rated at 500 watts, 110 volts A.C. or D.C. It can also be supplied in other special models to operate on 220 or 440 volts A.C. or D.C.

This heater consists of heating element, control thermostat, thermometer, pilot light and a three-inch outlet box mounted on a rigid pressed metal frame. The heating element is protected by a sturdy perforated pressed metal guard that does not interfere with the circulation of heat. The entire unit is carefully insulated. Installation can be made quickly and economically. Only four screws are required to fasten it to the wall of the valve house. Since the unit is completely wired, it requires only one wiring connection when being installed, a two-wire lead in single  $\frac{1}{2}$  inch conductor of BX or rigid conduit carrying the power supply to the 3-inch outlet box on the back of the mounting frame. Overall length of the heater is 27 $\frac{1}{4}$  inches, width 5 inches and depth 5 $\frac{1}{4}$  inches. Net weight is eight pounds.

This new heater, the manufacturers say, can also be used for wall boxes containing soda and acid extinguishers, electric pump houses, isolated pipe enclosures, watchmen's gate houses and the base of tank risers.

#### NEWS ITEM

The Bristol Company, Waterbury Conn., announce the appointment of four graduate engineers to its field service organization. The newly appointed men are: E. M. Hart, service engineer, assigned to the Boston office, J. N. Swarr, service engineer, assigned to the New York office, K. J. Platt, service engineer, assigned to the Philadelphia office and R. A. Barnes, service engineer, assigned to the company's St. Louis office.

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.

NOVEMBER, 1936

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for your

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### A Service For Our Readers

Now is the time to devote more study to all types of equipment and products which can lower production costs through factors of safety. Find out now what the market offers. The publications listed below will be sent free and without obligation to readers of National Safety News. Indicate on coupon the publication you desire.

#### 1. Modern Washroom Equipment:

This attractive folder illustrates washfountains and group showers for industrial service. Several types shown to meet various requirements. Bradley Washfountain Corporation.

#### 2. Ladders and Scaffolding: Catalog

A-2. A complete covering of a line of ladders and scaffolding to meet practically any industrial need. The John S. Tilley Ladders Company, Inc.

#### 3. Niagara Sleeve Clutch: An inter-

esting folder that deals with a new 14-point engagement sleeve clutch for power presses. Developed to provide utmost safety. Niagara Machine & Tool Works.

#### 4. The Tri Pedal Unit System of

Iron Paving: This folder covers a system that embodies the fundamental principle of 3-point support in each iron unit forming the pavement. For use in industrial plants, power plants, streets, etc. Interlake Iron Corporation.

#### 5. Stonehouse Accident Preven-

tion Signs: Bulletin 2029 covers a variety of steel signs to meet various industrial needs. Stonehouse Signs, Inc.

#### 6. M. S. A. Methane Detector:

Bulletin describes improved detector designed to detect the presence of small quantities of methane content in mine air. Mine Safety Appliance Company.

#### 7. Industry's Most Important

Tools: This interesting booklet deals with hand infections and tells about a new soap formula that is soothing and healing to the skin. Sugar Beet Products Company.

#### 8. Protectoseal Products: Catalog

No. 6, covers a line of safety cans, operating cans and drum fittings for controlling, storing and dispensing of hazardous liquids. Protectoseal Company.

#### 9. Macwhyte Wire Rope Slings:

This interesting catalog on single and multipart wire rope slings presents a range of sling types which can be assembled in various ways to meet any sling requirement. Macwhyte Company.

#### 10. Sly Purair Helmets: Bulletin No.

5-81. This bulletin illustrates and describes a helmet designed to protect the wearer against inhalation of injurious dusts regardless of fineness or concentration. The W. W. Sly Manufacturing Company.

#### 11. Snap-On-Jackets: Folder describes

a small rubber blanket designed to cover up small equipment on pole tops. W. H. Salisbury & Company, Inc.

#### 12. Isolation of Machine Vibration:

An interesting study of the elementary considerations of vibration control. Describes methods of sound proofing and vibration elimination. The Korfund Company, Inc.

### NATIONAL SAFETY NEWS

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November, 1936

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## At the Exhibit

(Continued from page 87)

interesting features was a system of interlocking various parts of electric driven machine groups or electric-controlled systems. Devices for live line testing were also a part of this exhibit.

A new departure in industrial soaps, using corn meal as the abrasive was presented by Sugar Beet Products Company.

The Safeguard Electric Company attracted unusual attention with its line of shock-proof fibre and heavy-duty metal lamp guards. Their display consisted of a switchboard equipped with live bus bars in which the screwless shock-proof fibre lamp guards were demonstrated.

A general line of safety equipment was ready for inspection at the booth of the Standard Safety Equipment Company. This exhibitor featured the new Stasafe all metal salt tablet dispensing machine, also the Buckeye line of safety goggles, sandblasters masks and Biever respirators, and the Steel-Grip line of protective clothing.

Accident prevention signs will ever be an important adjunct to any safety program, and no matter what the sign may be you need, Stonehouse Signs, Inc., has it. Their display at the Congress included a colorful array of steel and enamel signs. This manufacturer has a half-million signs in stock with two thousand different wordings. Do you believe in signs?

All kinds of safety equipment for line-men and synthetic rubber industrial equipment were displayed by the Surety Rubber Company.

In addition to this illuminating display of industrial safety products, manufacturers of equipment for the promotion of public safety staged one of the most interesting exhibits in this field of safety development which has ever been shown at an annual Congress. The following manufacturers participated in this important part of the safety exposition:

Aetna Casualty & Surety Co.—automobile driving tests.

Arntzen, Inc.—auxiliary emergency stretcher and first aid equipment.

Arroway Traffic Signal Corp.—traffic signals.

The Beacon Corporation—directional and danger signals for motor transport vehicles.

Bendix Products Corp.—automotive equipment.

Blatchford Corporation—Neon flashing signals and traffic markers.

Cities Service Company—gas power-prover.

Crouse-Hinds Company—traffic signals and floodlights.

Dual Parking Meter Co.—parking meters.

Eagle Signal Corporation—traffic signals.

Donald F. Duncan, Inc.—parking meters.

General Electric Co.—highway lighting.

Harley-Davidson Motor Co.—policy motorcycles.

The Highway Safety Signal Company—double-filament traffic lamps.

Hoof Products Company—governors for motor vehicles.

Indian Motorcycle Company—motorcycles.

Liberty Mutual Insurance Company—automobile driving tests.

Martindale Electric Company—highway traffic signals.

Metropolitan Life Insurance Company—educational material.

Monarch Governor Company—automobile speed control.

Parkrite Corporation—parking meters.

United States Steel Corporation Subsidiaries—traffic markers and steel products.

Weaver Manufacturing Company—official inspection equipment.

Buff-Smith Headlights—vehicle headlights.

Traffic Boy, Inc.—traffic control signs for school zones.

**STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.**  
OF NATIONAL SAFETY NEWS, published monthly at Chicago, Ill., for October 1, 1936.

State of Illinois, County of Cook, ss.  
Before me a Notary in and for the State and county aforesaid, personally appeared W. H. Cameron, who, having been duly sworn according to law, deposes and says that he is the business manager of the NATIONAL SAFETY NEWS and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are:

Publisher—National Safety Council, Chicago.

Editor—C. T. Fish, Chicago.

Managing Editor—None.

Business Manager—W. H. Cameron, Chicago.

2. That the owner is:

National Safety Council, an association—Dr. C. H. Watson, president, New York City; Albert S. Regula, vice-president, New York City; A. V. Rohweder, vice-president, Duluth, Minn.; R. T. Solensten, vice-president, New York City; D. D. Fennell, vice-president, Chicago; Hon. Harold G. Hoffman, vice-president, Trenton, N. J.; John H. Gibson, vice-president, Chicago; Albert W. Whitney, vice-president, New York City; Dr. Hart E. Fisher, vice-president, Chicago; W. E. Worth, vice-president, Chicago; W. H. Cameron, managing director, Chicago.

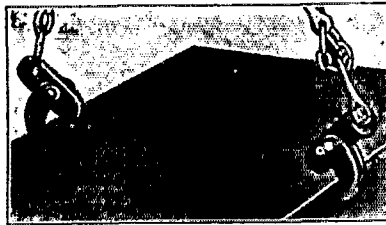
3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as a trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bonafide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

W. H. CAMERON,  
Managing Director,  
Sworn to and subscribed before me this 23rd day of September, 1936.

MYRTLE H. MOLLAN,  
Notary Public,  
My commission expires October 4, 1939.

NATIONAL SAFETY NEWS



### Save Time and Money In Handling Boiler Plate

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The use of Never Slip Safety Clamps will reduce these expenses, because these clamps do not slip. Two clamps and chains will do the work of four bent hooks and chains, and do it without harming the plate. Even at an angle, Never Slip Clamps will hold work without slipping. Made in two styles for lifting plates horizontally and vertically.

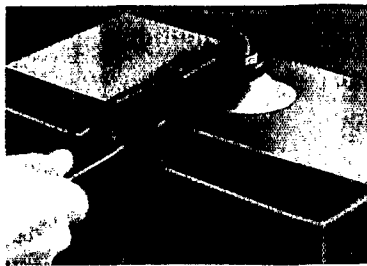
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A practical and durable device to prevent accidents to fingers and hands of operators.

For lifting, feeding and positioning sheet metal blanks in stamping machines and die presses, rapidly transferring metal, fibre and other non-porous materials from piles or stacks, especially when oily or greasy and difficult to grasp with the fingers.

Used with equal success on blanks of curved contour.

Lifts and holds parts securely, releasing instantly when vacuum is broken by operator.

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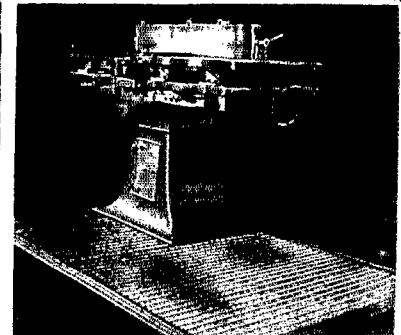
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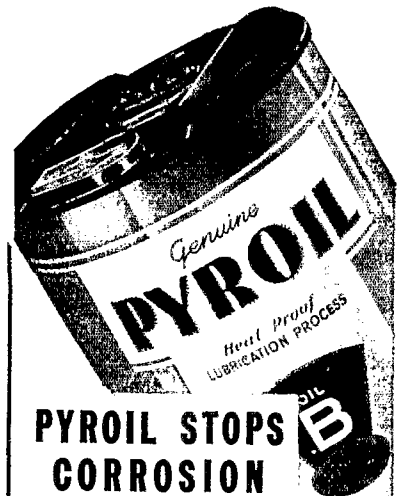
—eliminate slipping hazards. The 'U' grooves, formed by the rows of abrasive projecting above the base, catch sawdust, metal filings or chips thrown from the machinery. This insures the operators feet will rest securely on the non-slip abrasive. Available in sections, Mason Safety Treads can be fitted to any sized space.



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NOVEMBER, 1936

# The Accident Barometer

Prepared by the Statistical Bureau, National Safety Council

**A**CCIDENTAL DEATHS OF ALL TYPES rose approximately 9 per cent from a total of 9,440 in August, 1935 to 10,280 in August 1936. This increase was divided among motor vehicle, home, and occupational accidents. Public, not motor vehicle, accidental fatalities were the same in number as last year. More than half of the increase was classified as "home", and probably was made up chiefly of excessive heat fatalities, for the July "hot spell" continued into August in some states. This also applies in lesser degree to the advance in the occupational fatality total. With the addition of the August figures, the accidental death total for this year mounted to 74,880, or 15 per cent above last year's comparable total of 65,020.

OCCUPATIONAL ACCIDENTAL DEATHS numbered about 1,600 in August, or 23 per cent more than in August, 1935. Excessive heat continued to play a part in increasing the total, although the number of deaths from this cause was not so great as in July. The eight months' total of occupational fatalities is estimated at 11,700, or 7 per cent above last year's comparable total of 10,900. For the inter-plant contests of community safety councils the frequency rate per million man-hours for August was 13.48, compared with 12.09 for August, 1935. The severity rate per thousand man-hours, however, dropped from 1.13 to 0.93. The average frequency rate for the eight months of the contests was 12.14 (down 8 per cent from last year), and the average severity rate was 0.94 (up 4 per cent from 1935). In the three sectional contests conducted by the National Safety Council the August frequency rate was 11.65 or 30 per cent above August, 1935, and the eight months' rate was 10.02, or 15 per cent over last year. Industrial Commissions in 18 states received reports on 547 accidental deaths during September, or 11 per cent more than were reported in September, 1935.

AVIATION ACCIDENTS in scheduled air line operations numbered 42 during the first six months of this year, according to the U. S. Bureau of Air Commerce. These accidents resulted in the death of 35 persons (27 of them passengers), the severe injury of 11 others, and minor in-

## All Accidental Deaths

January-August

|            |        |
|------------|--------|
| 1936 ..... | 74,880 |
| 1935 ..... | 65,020 |
| 1934 ..... | 67,433 |

(U.S. Census Bureau total for 1934; National Safety Council estimates for 1935 and 1936.)

juries to 60 more. The total number of passenger-miles flown was 204,501,624, which indicates a death rate of 13.2 per 100,000,000 passenger-miles. During the first six months of 1935 there were only 4 passengers killed in scheduled air line operations, in a total of 162,858,746 passenger-miles flown. This represents a death rate of only 2.5.

MOTOR VEHICLE FATALITIES increased in August, compared with August, 1935. The advance amounted to 4 per cent. It was announced in the October issue of PUBLIC SAFETY that there had been a 2 per cent decrease in deaths in August, but since that time reports have been received from seven states that showed a large increase in total, which resulted in changing the national estimate from a decrease to an increase. Also, during the past three weeks additional state reports have been received that have resulted in increases to estimates for earlier months—particularly February, April and July. Considering these changes, it is necessary to set the estimate for the first eight months of 1936 at 22,430, or less than 1 per cent under last year's comparable total of 22,480. However, in considering this record it must be re-

membered that reports for the first seven months of this year show an increase in gasoline consumption of 10 per cent.

COMMERCIAL VEHICLE ACCIDENTS in August showed a marked upward trend. For all types of vehicles in the National Fleet Safety Contest the accident rate per 100,000 vehicle-miles was 1.93, or 10 per cent above the comparable rate for last year. For buses, the rate was 1.09, or 17 per cent over last year; for trucks, 2.78 or 6 per cent up; and for passenger cars, 1.47—an advance of 7 per cent. However, the rates for the preceding month were enough to offset these increases, and the averages for July and August (the first two months of the Contest) show the following improvements: All types, down from 1.82 to 1.78; buses, down from 1.03 to 0.97; trucks, down from 2.73 to 2.56; passenger cars, up only from 1.35 to 1.36.

PUBLIC (NOT MOTOR VEHICLE) DEATHS in August numbered approximately 2,100, or the same number as occurred in August, 1935. Drowning probably continued to be the outstanding type of fatal accident, although the peak of these fatalities was passed in July. The eight months' estimate of the "other public" deaths is 13,600, or 11 per cent above the 1935 comparable figure of 12,200.

HOME ACCIDENT DEATHS totaled about 3,200 in August, which is 14 per cent more than were estimated for August, 1935. Judging by the reports received, it seems likely that excessive heat played some part in this increase, although there was no such prolonged widespread "hot spell" as characterized the month of July. In each month this year there has been an increase in home fatalities and the eight months' estimate is 29,100 deaths compared with 21,300 for the same period of 1935.

## Looking ahead . . . .

November will probably be the peak of the year for motor vehicle fatalities—at least in comparison with the volume of traffic on the streets and highways. Deaths from burns, and from absorption of poisonous gases (particularly carbon monoxide) usually show some increase in November, although they may be more numerous during the colder months of the winter. Total accidental deaths will probably increase by a few hundred.

NATIONAL SAFETY NEWS

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DUSTS**



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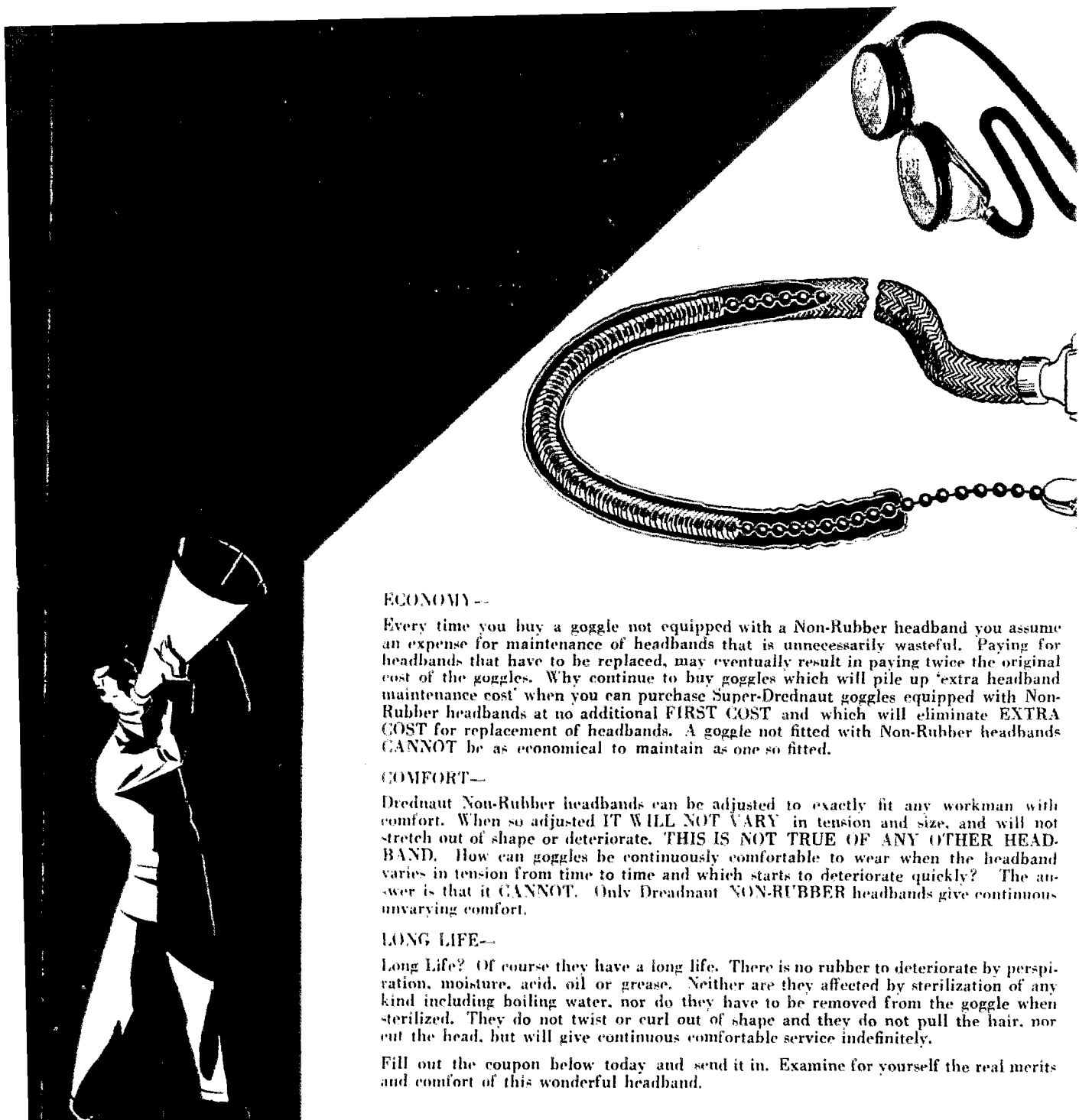
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