

NATIONAL SAFETY NEWS

PLAINTIFF'S EXHIBIT

NSC-133

APRIL

1934



J. H. JOHNSON
President
National Safety Council



R. B. C. JOHNSON
President
National Safety Council



J. B. GURNEY
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



L. E. PALMER
President
National Safety Council



J. H. PALMER
President
National Safety Council



W. S. JOHNSON
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



W. C. H. JOHNSON
President
National Safety Council



J. H. PALMER
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



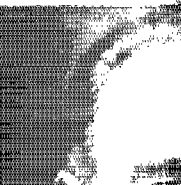
J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



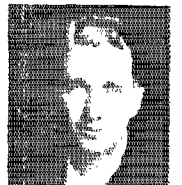
J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



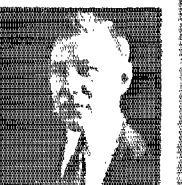
J. H. MALMUTH
President
National Safety Council



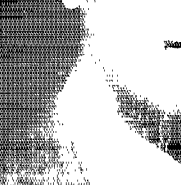
J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



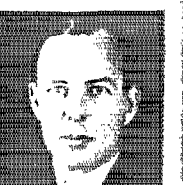
J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



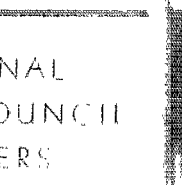
J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



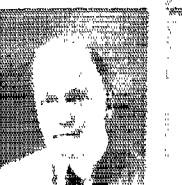
J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



JOHN E. LONG - President



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



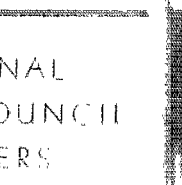
J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



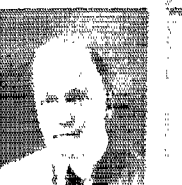
J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council



J. H. MALMUTH
President
National Safety Council

NATIONAL
SAFETY COUNCIL
OFFICERS

1933 - 1934



129.583

For Employee Distribution

★ ★ ★

"Safeguarding Women in Industry"

Women workers are subject to all common accident hazards, plus many that are peculiar to them alone. This 24-page booklet (Size 4 $\frac{1}{2}$ x5 $\frac{7}{8}$ "") discusses these feminine problems. High heels, long hair, jewelry, dysmenorrhea, etc., are a few of the most important items covered!

Members who have already distributed copies to their women workers say that they respond heartily to its practical suggestions! You will find it an excellent supplement to your other safety educational activities!



Sample Copy and Prices Sent on Request

"First Aid Reminders"

Do your workers know what to do or what not to do in an emergency should one of their fellow workers be injured? The purpose of this instructive 32-page booklet (size 4 $\frac{1}{2}$ x5 $\frac{7}{8}$ "") is to give simple suggestions to every person who has not had the opportunity to study first aid manuals or textbooks. In addition, it points out to workers the absolute necessity of getting first aid treatment no matter how slight the injury!

Distribute "First Aid Reminders" to your workers to stimulate interest in your first aid program and to make them "first aid" conscious!

Sample copy and prices sent on request

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

WILLSON RESPIRATORY DEVICES

WITH accurate knowledge of the true danger of any dusty job or operation, it is only necessary to select a respiratory device that has been correctly designed for the type of protection needed and whose merit and good construction have been conclusively demonstrated. . . . It is not possible to gauge the protective ability of respirators by appearance; let us lend you our experience in recommending for unsafe conditions—we have very likely helped solve safety problems similar to yours.

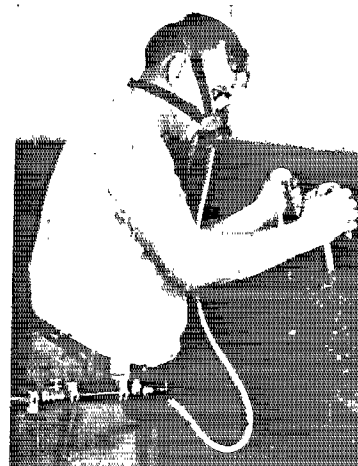


Willson Bag Respirator No. 3, scientifically developed and made to pass a series of difficult shop and laboratory tests, is a proved respirator of high efficiency in concentrations of silica, asbestos, lead and other poisonous dusts. Used widely to protect workers' health and to combat compensation losses by large companies in such trades as foundries, quarries, potteries, mining, stone cutting, crushing, polishing and grinding, ceramic and dry mixing plants, brick, clay, glass products, paint, and by workers mixing or applying silicate products such as frit, japan, lacquer, powdered glass, plaster, etc. No heavier than necessary, can be worn for long periods with comfort. The filter of this respirator is readily cleaned by a burst or two of compressed air applied to the bag interior—effecting worthwhile economy.



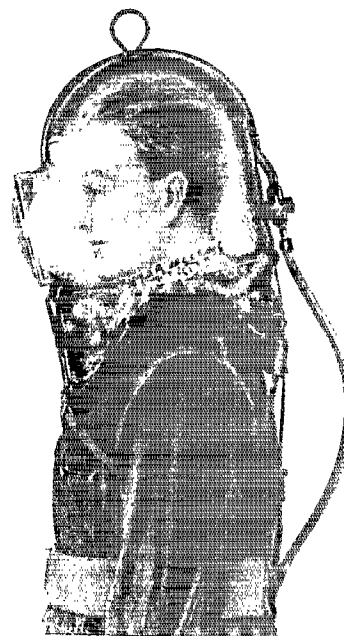
Willson Dustite Respirator No. 55 is light in weight, comfortable and efficient. A preferred type for use in damp operations, this filter does not readily clog in moist atmosphere. Correctly placed intake and exhaust valves permit free passage of clean air to face and a ready exit of exhaled air.

The **Willson Fume and Smoke Mask** furnishes protection against light fumes and smoke; ready-to-use cartridges of different chemical character, thru which air must pass to reach the face, are available for various industrial requirements. A well placed release valve permits easy exhalation. Only slight tension is needed on the double headbands to obtain comfortable, air tight face contact.



Willson Air Line Respirators Nos. 3H (high) and 3L (low), made for use on high or low pressure air lines, are recommended where hazards are extreme and a source of air is available. They afford greatest possible protection and are equally efficient in fumes as well as dangerous dust conditions. Light in weight and comfortable, they may be worn for long periods and have a wide use in many branches of industry: mining, lead mixing, metallizing, welding galvanized plates, extremely hazardous grinding and dusty rock drilling operations and in heavy concentrations of toxic or non-toxic fumes.

Willson Abrasive Blasting Helmet No. 31 embodies several exclusive features long strived for by many manufacturers of this type of equipment. Helmet weight rests entirely on operator's shoulders, his head is free and there is no neck strain to sap away his energy. Rubber-coated, woven-wire helmet frame is resilient and yields to absorb shock of abrasives, reducing wear to a minimum. Air needs to be fed to the helmet only in sufficient quantity to permit comfortable breathing as there are no structural openings in the helmet, breathed air escaping between the wearer's neck and close fitting dust collar.



WILLSON PRODUCTS, Inc. :: Reading, Pa.

Member of THE INDUSTRIAL SAFETY EQUIPMENT MANUFACTURERS' ASSOCIATION

Represented in 13 western states by E. D. Bullard Co., 275 Fifth Street, San Francisco, with convenient branches

Represented in Canada by Safety Supply Company—Toronto, Montreal and Branches

THE NATIONAL SAFETY NEWS is published monthly by the National Safety Council, 20 North Wacker Drive, Chicago, Ill. Yearly subscription Price \$3.00, Volume XXIX, Number 1. Entered as second class matter June 1, 1921, at the postoffice at Chicago, Illinois, under no. 1002. Additional entry at St. Joseph, Michigan.

APRIL 1934

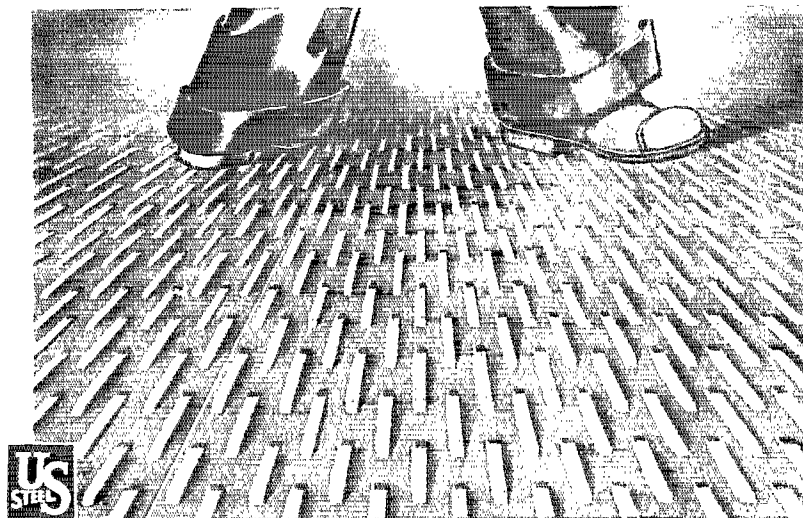




HIS MIND IS ON HIS WORK •• *not on his* FOOTING

A safe footing is necessary to good workmanship. Where floors are hazardous, the spectre of possible accident and loss of income robs the workman of efficiency—slows his speed, renders his movements less sure, makes impossible his undivided attention to his task. Statistics of the National Safety Council indicate that approximately one-sixth of industrial accidents are caused by falls, a large percentage

of which could be prevented by proper floor protection. Carnegie Floor Plate provides an excellent safeguard for industrial flooring, stair treads, elevated platforms and many other places where a safe footing is necessary. Carnegie Floor Plate drains and cleans easily. It is rolled in a variety of widths and thicknesses. Its use is an investment which pays high dividends in efficiency and safety. Inquiries are invited.



CARNEGIE FLOOR PLATE

C A R N E G I E S T E E L C O M P A N Y

Subsidiary of United States Steel Corporation

P I T T S B U R G H • P E N N S Y L V A N I A

AMERICAN OPTICAL SERVICE

Assures the
Success of



10 Eye Protection in a General Electric Co. Grinding Room

Your EYE SAFETY Program



Duralite "50"
Comfortable, Efficient Eye
Protection

Our business is manufacturing eye protection equipment exactly suited to the service demands of every branch of industry. Besides providing sturdy, well-made goggles we believe that our responsibility to our customers includes putting the right goggle in the right place... To us that means helping you select for each particular job the one goggle which will give the greatest all-around eye protection, comfortable and efficient vision on that job. And, in addition, it means helping you keep those goggles in front of your men's eyes—where they belong. Only by helping you carry out these two requisites to effective eye protection, can we—or any other safety goggle manufacturer—help you and your organization make the maximum cut in production costs possible through the use of safety goggles... American Optical Company eye protection experience and broad engineering service are immediately available to help you make your eye accident prevention program profitably effective in all its phases.



AMERICAN OPTICAL COMPANY

NATIONWIDE SERVICE Branches in All Principal Industrial Centers

Represented in Canada by Consolidated Optical Co., Ltd.

National Safety News

Published monthly in the interest of accident
prevention and the health of industrial workers

VOL. XXIX, No. 4

CONTENTS for APRIL, 1934

How Valuable Is a Human Being?— <i>Frank L. Jones</i>	9
How Wyomissing Industries Keep Clean— <i>J. Earl Ruthardt</i>	11
Accident Prevention in the Recovery Program— <i>Ordway Tead</i>	13
Evanston Again Leads in Traffic Safety	14
Why They Drive That Way— <i>Alvhh R. Lauer, Ph. D.</i>	15
Streamlines and Safety	19
Shall We Stop These Eye Losses?— <i>G. M. Briggs</i>	20
Westclox Makes Safety History— <i>Carman T. Fish</i>	23
Why Not Modernize Your Drinking Water System?	25
New York Conference Continues to Grow— <i>Cyril Ainsworth</i>	26
Cross-Cut Saw Guards— <i>Industrial Data Sheet D-W2</i>	27
What Is a Dusty Factory?— <i>E. G. Meiter, M. D.</i>	34
The Rocking Method of Resuscitation— <i>H. W. Gentles, M.B., C.M.</i>	38
President Approves Code for Safety Equipment Industry	50

Regular Departments

Editorial	32
The Managing Director's Page	8
The Safety Exchange	28
Safety Instruction Cards	30
Industrial Health	38
The Bulletin Board	40
Posters of the Month	41
Personals	52
The Safety Library	56
The Honor Roll	58
Coming Events	64
With the Manufacturer	66
The Buyers Service	70
The Accident Barometer	72

CARMAN T. FISH, Editor
G. M. BRIGGS, Associate Editor

STANLEY H. KERSHAW, Poster Editor
C. H. MILLER, Advertising Manager

Copyright 1934 by National Safety Council, Inc. Printed in U.S.A. Published monthly.
Entered as second-class matter June 1, 1921, at the Post Office at Chicago, Ill., under the
act of March 3, 1879. Additional entry at St. Joseph, Mich.

The subscription price to members for extra copies of the NATIONAL SAFETY NEWS
is \$4.00 per year. Single copies, 10 cents. Reduced quantity prices for yearly subscrip-
tions and single copies on request.

Subscriptions are available only to members of the National Safety Council.

Member Audit Bureau of Circulation

This magazine is indexed in the Industrial Arts Index.

Statements and opinions advanced in signed articles are to be understood as individual
expressions of their authors, not those of the National Safety Council.

National Safety Council, Inc.

Cooperative—Non-Commercial—Non-Political—Non-Sectarian

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

New York Office, 9 East 41st Street

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

National Safety Council Officers, 1933-1934

JOHN E. LONG, President
ROBERT I. CATLIN, Vice President for
Public Safety
J. E. CULLINEY, Vice President for Engi-
neering
G. T. HELLMUTH, Vice-President for Fi-
nance
C. W. SAUTH, Vice-President for Admin-
istration
LEW R. PALMER, Vice-President for Safe-
ty Councils
R. T. SOLENSTEN, Vice-President for
Membership
GEORGE H. WARFEL, Vice-President for
Industrial Safety
DR. CASSIUS H. WATSON, Vice-President
for Health
ALBERT W. WHITNEY, Vice-President for
Education
WILLIAM E. WORTH, Treasurer
W. H. CAMERON, Secretary and Managing
Director.

Executive Committee

Members at Large

THE OFFICERS AND:
HOWARD B. FONDA, Burroughs-Wellcome
& Co., (U.S.A.), Inc.
OTTO M. GRAVES, General Crushed Stone
Corp.
HARRY A. SCHULIZ, U. S. Steel Corp.
HARRY GUILBERT, The Pullman Co.
W. D. JAMES, James Manufacturing Co.
ALBERT S. REGINA, Industrial Relations
Counsellors, Inc.
GEORGE E. SANFORD, General Electric Co.
LESTER D. SLYMOOR, American Airways,
Inc.
ARTHUR M. TOOR, Consulting Marine En-
gineer

Representing Safety Councils

CLIFFORD DAVIS, Memphis, Tenn.
D. D. FENNELL, Chicago, Ill.
DONALD A. FINKELNER, Toledo, O.
FRANKLIN M. KRIEM, Evanston, Ill.
HENRY J. MINER, Elizabeth, N. J.
JOHN RUSSELL, Jr., Newark, N. J.
E. L. SIMMONS, New Haven, Conn.

Representing Sections

EARL E. BLANK, Metals
HAROLD G. HOFFMAN, Street and Highway
Traffic
M. J. MCCARTHY, Automotive and Ma-
chine Shop
BELL W. NUTT, Accident Prevention
Equipment Manufacturers
F. M. PEPPER, Public Utilities
MAJOR CHARLES R. RUTH, Delivery Tax-
i-cab & Bus
N. E. WHITING, ANSL-Engineering

Past Presidents

ROBERT W. CAMPBELL
ARTHUR F. MOORE
LEW R. PALMER
DAVID VAN SCHACK*
RALPH C. RICHARDS*
CHARLES D. TOIMAN
ARTHUR H. VOISSE
MARGUS A. DOW
LEWIS A. DELBORS
CARL B. AVEL
CHARLES B. SCOTT
WALTER G. KING
HOMER E. NISSE*
LEON HENRY A. BENTINGER
C. EUGENE PETHIBERT
CARL W. BERGQUIST
JAMES L. HANASH

*Deceased

Honorary Members

ROBERT W. CAMPBELL
ASSOCIATION OF IRON & STEEL ELECTRICAL
ENGINEERS
ARTHUR WILLIAMS



CHANGE HANDS

with one of your workers

... and show yourself why LAVA SOAP helps prevent infections

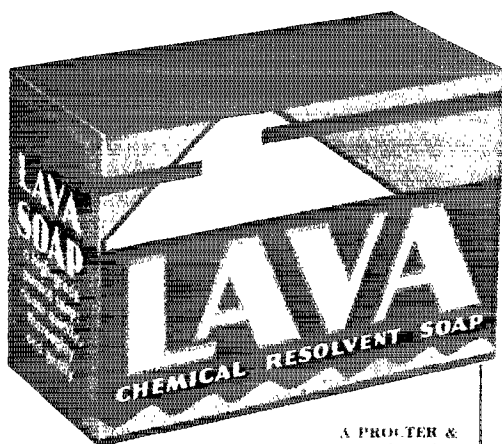
You know that in the average plant, industrial dermatoses head the list of industrial diseases. You know also that most types of dermatoses are caused by dirt in various forms. When you find some way to get workers' hands clean quickly, completely and gently, authorities agree, you've gone a long way towards solving this serious problem.

We invite you to prove for yourself that Lava Soap gets the grimmest hands clean in less than a minute and, at the same time, actually protects the skin. The test we suggest is this: Go into your plant and get your own hands grimy in the same way . . . *with the same dirt* . . . that your workers do. Then wash your hands with Lava Soap. See for yourself how Lava's thick, heavy lather takes the surface dirt. Then watch how quickly its pumice

. . . so fine and powdery that it cannot injure the skin, gets all the ground-in dirt. Notice, if you will, how soft and smooth Lava leaves your skin. That is because Lava contains a generous supply of glycerine and other soothing oils which protect the skin, help heal up little nicks and scratches, keep hands from getting chapped and raw.

And Lava possesses definite germicidal qualities. Tests prove that as a preventive against most common bacteria, *Lava is 5 to 10 times as effective as carbolic acid.*

We will be glad to send you free . . . with no obligations . . . a full-sized cake of Lava so that you can prove for yourself that Lava is a safe, efficient, economical method of reducing your rate of preventable infections.



A PROCTER & GAMBLE PRODUCT

TAKES THE DIRT . . . PROTECTS THE SKIN

FREE . . . LAVA SAFETY POSTERS

Safety Directors of leading industrial plants in all parts of the country have requested these posters and are now on our mailing list. A new set of posters is mailed out every two months. They are yours merely by filling out and mailing this coupon to Procter & Gamble Co., Dept. LNS-44, Box 1801, Cincinnati, Ohio.

Name _____

Position _____ Company _____

City _____ State _____

Number Posters Wanted _____

☐ Please send me free full-sized sample of Lava for my own use.

Think of YOUR FAMILY



STOP

THE LAW OF



COMMON SENSE DEMANDS

Safety Glass

ALL-AROUND

IN ALL NEW AUTOMOBILES

Common sense decreed four-wheel brakes for increased safety . . . created bumpers for greater protection . . . devised traffic signals as a safeguard. Common sense now demands that the one great remaining danger in motoring . . . broken, flying glass . . . be lessened as far as it is humanly practicable to do so. The means are at hand. Safety Glass *ALL-AROUND* can be provided in any new car at a cost that adds less than \$1.50 to each of 12 payments. Many agencies are doing all that they can to impress this upon the car-buying public and to emphasize the importance of **TELLING THE DEALER** that the new car is to be delivered with Safety Glass *in all the windows*. Anything that can be done to help spread this information is surely in the interest of greater public safety.

LIBBEY • OWENS • FORD • GLASS COMPANY, TOLEDO, OHIO
For information and prices on Safety Glass call any Libbey • Owens • Ford dealer listed in the "Where-to-Buy-It" section of your local telephone book.



LIBBEY • OWENS • FORD

SAFETY GLASS



NATIONAL SAFETY NEWS

NATIONAL SAFETY NEWS

Published by National Safety Council, Inc.

APRIL, 1934

Vol. XXIX, No. 4

Sanitation and Saintliness

OUTSIDE cleanliness has come to be regarded as evidence of spiritual grace. Well scrubbed sinners and unwashed saints are merely exceptions to the rule which applies to communities as well as to individuals. Higher standards of cleanliness are among the great accomplishments of the twentieth century.

If we were to be suddenly transported into one of the previous centuries our nostrils would receive a severe shock. Bathing remained a lost art for centuries after the fall of the Roman empire. The hardy barbarians from the north had no use for such effeminate customs, and the early Christian fathers associated personal cleanliness with the lasciviousness of their oppressors. Municipal sanitation likewise reached a low ebb.

In an age when the minds of men were concentrated on dogmas, filth in the streets and pollution of food and water were of minor interest to the leaders of church and state. Some of the more enlightened did have the temerity to suggest that cleaning up might help to prevent the recurring plagues. But their ideas were regarded as visionary, if not blasphemous, and people continued to put their trust in incantations. We can imagine what would have happened in the days of Copernicus and Galileo to any one who had dared to assert that accidents could be prevented.

Some of the elementary principles of sanitation were known even to the ancients. Aristotle, for example, warned the troops of Alexander the Great to "boil their water and bury their dung." But the wisdom of the past was forgotten, and European cities of the middle ages, according to contemporary writers, were vast cesspools.

Industry has its part in community cleanliness. The standards set in the shop will be reflected throughout the town. The factory owes it to the community to make every effort to avoid polluting the air and streams. By maintaining safe and hygienic working conditions and facilities for personal cleanliness industry is maintaining both the health and the self-respect of employees.

Indifference

"MY EXPERIENCE with labor gangs convinces me that few employers ever lick passive resistance," said Whiting Williams in a recent issue of *Nation's Business*. Few men understand the worker better than Mr. Williams.

This coincides with a remark by the pastor of our suburban church that among groups of non-churchgoers he had found few people who were hostile to religion. There were, however, large numbers who were neither hot nor cold but just lukewarm.

The problem for both the employer and the church, which is shared by the safety movement, is that of arousing interest. It has been years since we have heard anybody denouncing

the safety movement for trying to undermine the virility of the human race but the great mentally inert mass known as the public is still unresponsive, except to large scale tragedy.

"The whole safety movement would be easier to carry forward if we could convince the responsible people of the country that they are placing at great hazard the most important values they have—namely human values," says Frank L. Jones in the leading article.

It used to be considered sordid to place a cash value on a human being. Now we realize that it dignifies a man to be conscious of his value. When people realize these values they will cease to be indifferent.

In This Issue

"I'M WORTH more dead than alive." Every life insurance agent has heard that story many times. It is often made seriously but without full realization of the values involved. A man's life insurance estate may exceed the value of his other tangible assets but he usually ignores the most important item—his potential future earnings. A lump sum settlement of a life insurance or compensation claim may look large but very rarely will it replace the income that has been lost. Frank L. Jones, a prominent life insurance executive, presents a somewhat new conception of human values and shows us that many of the arguments used in selling life insurance can be used equally well in selling safety. (Page 9)

Here is the story of a housekeeping program that has few equals for thoroughness. It is of timely interest at this season. (Page 10)

Congratulations to Evanston, and to the other cities in their respective groups, which proved by their showing in the Second National Safety Contest that traffic accidents could be checked. (Page 14)

More men at work means at least a temporary increase in accident rates, according to the general experience. Ordway Tead, lecturer on personnel administration at Columbia University and editor of technical books for Harper & Bros., points out the four major issues in the problem which require fresh thought and an extension of effective methods. (Page 13)

Dr. Alvhh R. Lauer, who makes psychology understandable and even entertaining, is back in this issue with another article on the mental and emotional factors which are responsible for erratic driving. (Page 15)

Eye losses still rank high among the accident costs because industry is slow to adopt the methods which have proved resultful. (Page 20)

Nearly ten years ago the editor visited a plant which, according to the standards of those days, had made remarkable progress in safety. Actually, they hadn't even started then. At the time of going to press the unbroken record of safe man-hours had passed 7,200,000. (Page 23)

The Managing Director's Page

A Sacrifice to Unpreparedness

THIS morning's papers carried headlines stating that President Roosevelt had suspended the air mail service until a safety program could be devised for the protection of pilots. It would seem that the realization of the need for safety comes a trifle late. Ten pilots have been killed during the first three weeks that the army has carried the air mail—a terrific casualty list for a peace time occupation.

I realize that any comment on this situation may be attributed to partisan motives. Criticism of the government may be interpreted by some as hostility toward the present Administration, while silence in so serious a situation may be regarded by others as pussyfooting.

I am not in sympathy with those who are looking for every opportunity to embarrass the Administration. The party system of government, it must be admitted, has certain inevitable weaknesses, and these defects are fostered by the fatalistic cynicism of those who feel that all governments are inevitably corrupt and inefficient, and that all we can do about it is to clean house every few years.

President Roosevelt has tackled the tremendous problems of the age with courage and frankness. Unfortunately

governments are no more infallible than those who elect them. And those of us who have been engaged in association work can appreciate the utter impossibility of pleasing everybody.

Amid all the conflicting statements it is difficult to form any clear opinions, and it is hardly safe to venture any dogmatic statements based merely upon newspaper comment. Concerning the events leading up to the cancellation of the air mail contracts we have only the haziest knowledge. So far we have seen no statements which seemed unbiased and dispassionate. But whether the cancellation of the contracts was justified or not, the assignment of carrying the air mail to army pilots was carried out with a distressing lack of understanding of the nature of the work.

First of all, there is a fundamental difference between military and civilian attitudes, which is reflected in the training of the pilots. The pilot of a combat or bombing plane has for his objective the infliction of the greatest possible damage to the enemy; on the civilian air lines the safety of the mail and passengers is the first consideration. To be sure, even the army has outgrown the old worship of valorous stupidity which sacrificed men in forlorn hopes like the charge of the Light Brigade, but the ideals of the services are inevitably different.

The failure of experiment reflects no discredit upon the army flyers. They did their best under the handicaps of inadequate training and unsuitable equipment. Whatever may be said about the air contracts from the standpoint of fairness to all parties concerned, it cannot be denied that the air lines devoted much attention to the training of personnel, and the development of equipment for the express purpose of attaining safety and reliability. The transportation of both mail and passengers by air represents a forward step and it would be regrettable indeed if it should suffer any setback because of needless casualties.

At present writing air mail service has been suspended pending the development of a safety "program," and the equipping of planes with safety devices. Apparently some government officials share the delusion held by many industrialists that installing a few safeguards and starting a program are sufficient to prevent accidents. The industries which today are showing real results in accident prevention have spent years in training their personnel in the ways of safety and developing a real safety consciousness.

The National Safety Council is deeply appreciative of the Administration's attitude toward safety as shown in the program of the CWA, both for the protection of the workers or its projects and the help rendered in making traffic studies. But the death of ten flyers and injuries to many more in the air mail service cannot be overlooked, and a friendly, cooperative attitude toward the government does not require silence. Public convenience requires the air mail, but public conscience demands that it be conducted without needless loss of life.

INTERESTING ITEMS

THE complete story of the 1933 street and highway accident experience—a full sized newspaper sheet—was prepared for the leading newspapers of the country and was generally accepted for its human interest and dramatic value.

Other publicity events of the month: Eddie Cantor made a five-minute talk on Safety, Sunday evening, March 4; the *Saturday Evening Post* on pages 72 and 73 of the March 17 issue has given significant publicity to safety; *Liberty* magazine has started a new series relating to safe driving.

The announcements have been made of the winners of the 1933 National Traffic Safety Contest and all preparations are being made for the Ceremonial Luncheons to be held in the winning cities about noon time March 28. Tune in at 2:00 to 2:30 p.m., eastern standard time, March 28, or at the other hours in different parts of the country for the special radio program to be broadcast over the NBC network.

The 1935 Safety Calendar is now in the printer's hands. Twelve beautiful paintings produce an idea on safety never before presented to our membership and their families—*Around the World with Safety*. We will recognize the everyday problems in the factories and in the homes on the reverse side of each of the twelve sheets.

The 1933 Congress Transactions were mailed to all members; the Greater New York and other Regional Safety Conferences are bringing out larger audiences; our membership is increasing; interest is being stimulated to reinstitute its old-time safety program.

M. J. Amerio

NATIONAL SAFETY NEWS



How Valuable Is a Human Being?

By FRANK L. JONES

Vice-President, The Equitable Life Assurance Society of the U. S.

A larger support for safety work could be secured if the public could be made to realize the economic loss that occurs when a human being is killed or maimed

YOU are safety men. You understand that there is no important reason why anything should be made safe unless it is valuable.

Human life is the most economically valuable thing we have. It has taken generations of the development of property and of life to realize that important values attach to anything other than property. From the beginning of social organizations down to the present, there has been traffic in human beings as property. The condition of widespread slavery was eliminated in our own enlightened country only within the lifetime of thousands of our people who are yet living. Citizens of this country, now living, were formerly owned as slaves. In the exchange of people for money or commodities there was no sense of important value attached to the human being other than that attached to any other units of animal power, such as horses and oxen. In some parts of the world there is yet the condition of enslavement of the human being. Within the present generation only have we seen the rapid evolution of the idea that a human being is valuable quite aside from his being merely property.

When I was a lad, my father took me to the County Court House to witness the conduct of a trial so that I might have practical observation of the processes of civil government which subject was taught in public schools. The issue in court was raised by a widow whose husband had been killed on a railroad in the County. She claimed damages of \$7,000. The richest man in our township was worth less than that amount. Accordingly, it seemed to me that the widow's estimate of the value of her husband was excessive; in fact, I had heard it said that there were many

women in the vicinity who would willingly give their husbands away. It is important to note that in the trial of this issue the railroad did not contest the facts. The evidence was clear that extreme negligence was involved. There was not a compensation law in that state or in any other state at that time. There were no rules by which human values could be ascertained. The railroad's contention was that it was just another accident and that people should protect themselves against the danger of accidents. The verdict of the court was an assessment of damages in the amount of \$1,500.

Incidents of that kind were numerous in early damage suits in which human life was impaired or destroyed. Out of such cases grew damages for the loss of limb or sight or other injuries which did not result in death. Later, there was developed the theory of total and permanent disability and the attempt to define it in terms of the loss of two limbs or of sight or of hearing. The damages even in partial disabilities began to mount into large figures.

The Evolution of Compensation

Out of the merely haphazard determination of damages which certainly rested upon human values, there was the great need to develop orderly procedure in such chaotic conditions. The result was the evolution of the civil laws of compensation. Here was a fast moving development from the consideration of the human being as property, to one of an individual of responsibility and, therefore, of human value.

Life insurance companies had been insuring lives for many years prior to the abolition of slavery and the determination of human values. It seems strange that life insurance developed along lines of social protection rather than that of life values. The early arguments given for the purchase of life insurance were based upon the uses to which the proceeds of the policy were to be put—not upon the fact that a valu-

able human life was to become obliterated. Even today, the presentation and the purchase of life insurance has not reached anything like the conception it should have of supplying the continuing values to dependents which would have been supplied if the valuable human being had continued to live and earn.

A momentous step in this connection was taken by the United States Government upon our entry into the World War. Millions of young men—some mere boys—were brought into the service of their country. A value upon their lives was enacted into law. Ten thousand dollars was considered to be the human value at risk, whether the young man were a common laborer, a clerk, a professional man or a student. Large numbers of these young men had not yet engaged in occupational life. Their earning capacity was nil. However, the conception of human value had so grown among us that with practical unanimity we provided by law for a common denominator of human value. All over this country the men and women of maturer years and of great occupational responsibility made quiet comparison of the value of their own lives with those of untrained youth. The deductions were made that adult life is vastly more valuable in dollars and cents than most people had previously thought. Outstanding in importance, however, was the conception of human life as having such great individual monetary value.

Here and there the leaders of industry had developed conceptions of human values as distinguished from property values. An illustration of this is given in a reported statement made by Andrew Carnegie. His statement seems to have been essentially this: "You may take from me the buildings and machinery and transportation lines which I own, and I will rebuild, if you will leave my men with me; but if you take my men and leave only my material equipment, I cannot rebuild."

Individual lives are insured for

(Please turn to page 48)

How Wyomissing Industries Keep Clean

By J. EARL RUTHARDT

Editor, "The Yarn Carrier,"

Wyomissing Industries



WHEN the first unit of the Wyomissing Industries was started forty-two years ago the management recognized the subject of plant housekeeping as a major operating problem. The rule which has stood the test of generations, "have everything in order and order in everything," was observed then as it is today. Cleanliness and orderliness have always been matters of prime importance in the growth of the industries from a small machine shop with a handful of men to a group of plants covering 60 acres and employing nearly 7,000 men and women.

The Wyomissing Industries, known the world over for their products, consist of three separate and independent units:

The Textile Machine Works, manufacturers of full-fashioned knitting machines.

The Berkshire Knitting Mills, manufacturers of full fashioned hosiery.

The Narrow Fabric Company, manufacturers of notions.

Located in the beautiful town of Wyomissing, near Reading, the industries as well as the town are well known to those visiting that part of Pennsylvania.

Years ago, before it was generally being considered in industry, the Textile Machine Works, then still in its infancy, scrapped its overhead power transmission equipment and installed motor drives. This improvement was undertaken at a heavy cost to eliminate the shadows and let more sunlight into the shop. Poor light has a direct and unfavorable effect upon work. The very environment of a clean, bright plant exercises a powerful influence on the workman, putting him in the spirit of producing more and better work.

Sunlight shows up dirt. It is the best inspector imaginable. If there is one thing that a dirty wall or a grimy floor can't stand it is a straight shot of sunlight. What may pass with an OK in a dim light often looks mighty bad when exposed to sunlight.

Good light serves many ends. It is especially important in these industries where fine, close work, accuracy and precision are absolutely essential. It also reduces the chances of work being spoiled, lessens the possibility of eye-strain, and aids in accident prevention. It costs little beyond the effort involved in permitting it to enter.

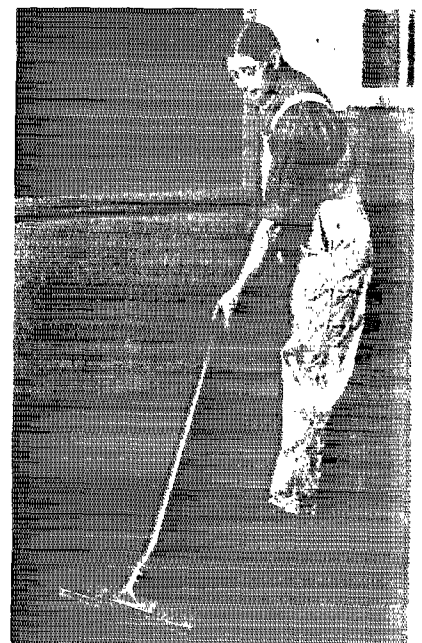
The windows of the buildings of these industries if joined together would cover

a total surface of some 11½ acres. Every one of these windows is washed, inside and out, on an average of once a month.

An army of approximately 200 men is engaged in this war against dirt. This force, including 30 painters and 20 gardeners, is engaged continuously in the work of keeping the buildings, equipment and grounds clean and in order.

It is only for convenience in designation that these men are called cleaners, sweepers, window washers, painters, pick-up men, gardeners, etc. They are far more than cleaners. By their constant attention to the job given them, they increase the efficiency of the men and women who work at machines or are directly concerned in other ways with the manufacture of the products.

If there is any truth in the old saying that one may judge a farmer's products by merely looking at his fences then one may estimate the quality of a plant's products by observing the windows.



Sweeping and other methods of cleaning by hand have been replaced largely by the vacuum process. Buildings are equipped with a vacuum cleaning system with inlet valves conveniently located.

NATIONAL SAFETY NEWS

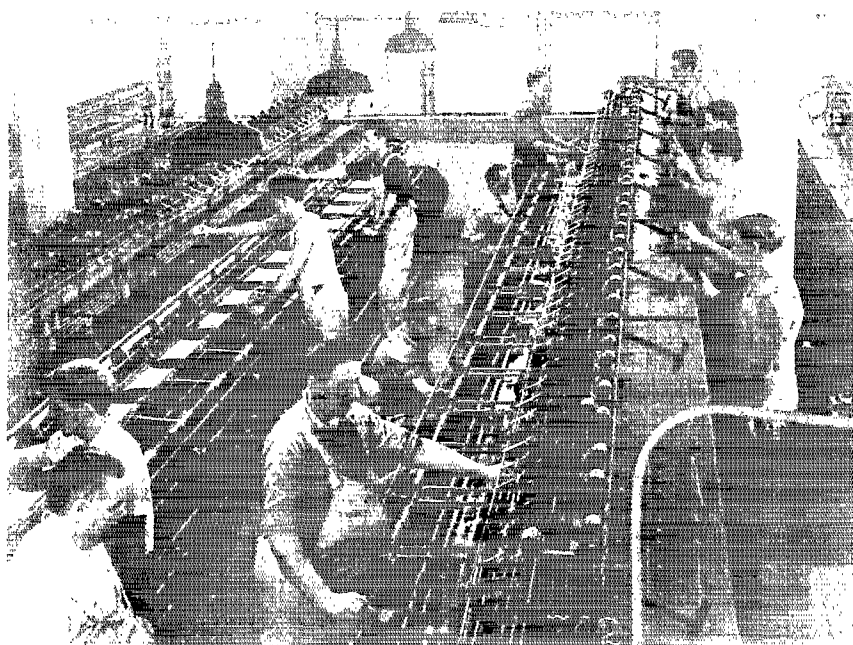
Painting, like window cleaning, goes on continuously. Always some building, interior or exterior, is being painted. Ceilings and walls covered with glossy white paint reflect the maximum amount of sunlight. In the Berkshire Knitting Mills especially, many departments suggest enormous surgical wards, for wherever possible work tables are topped with lustrous white vitrified ware. The washers of the 11½ acres of windows let in the sunlight, and the painters see that what the sunlight falls upon is good to look at. Between the visits of the painters the washing squad keeps the walls free from dirt.

Every square foot of floor space in the entire industries is swept daily—in some places twice a day. The composition of the floors in the various buildings determines the method of cleaning. Sweeping and similar methods of cleaning by hand have been replaced largely by the vacuum process. Most of the buildings are equipped with the vacuum cleaning system with inlet valves, conveniently located, to which the cleaning implements are attached. All office furniture and other equipment throughout the mills, such as cabinets, closets, lockers, etc., stand on bases not less than six inches from the floor so that a sweeper can get under very easily.

Cleaning all the buildings represents quite a job as there are 2,280,505 square feet of floor space in the various buildings. True, a certain portion of it is occupied by machinery but more than half of it is accessible to the cleaners. To supplement the daily cleaning, all except the creosote block floors are washed by machine once a month. The



Daily cleaning of floors is supplemented by regular washing by machine.



Special crews clean the knitting machines at the Berkshire Knitting Mills every day.



Pick-up men keep the grounds free from litter.

two large garages for employees' cars are washed once a week.

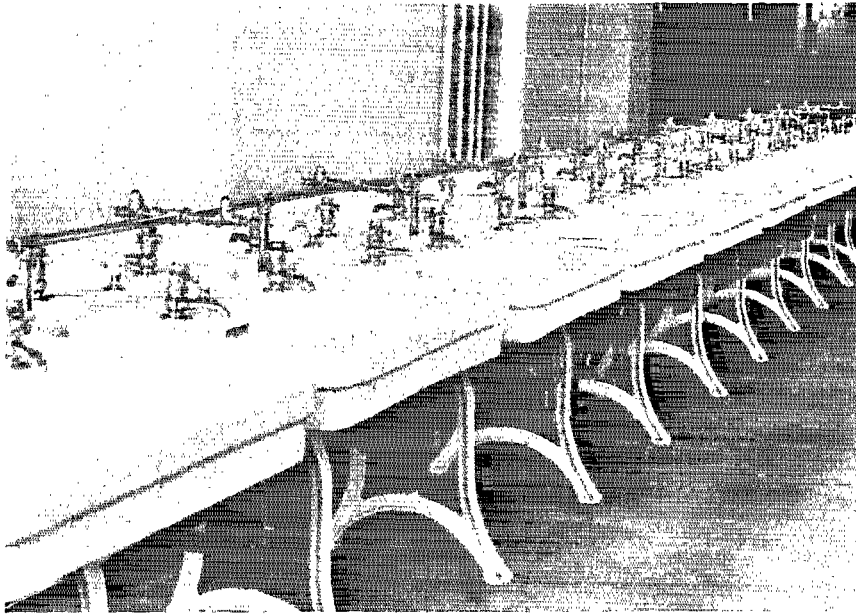
Tables, benches and all non-mechanical equipment are also cleaned every day. Lavatories, wash basins, locker rooms, lockers, etc., likewise are rendered sanitary and spotless daily. Every bit of metal that will take a polish gets it regularly.

In the Berkshire Knitting Mills and the Narrow Fabric Company special crews are at work every day cleaning the knitting and braiding machines.

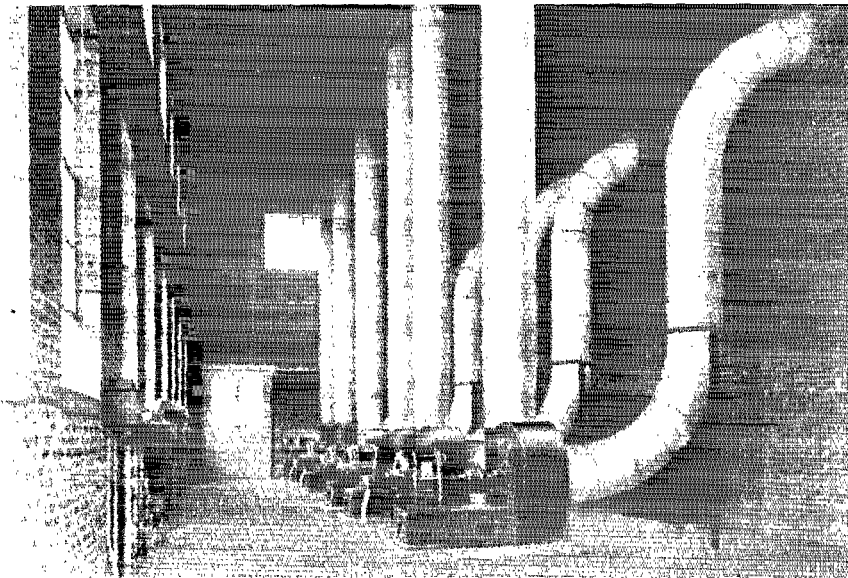
The use of these trained cleaners on the knitting machine makes it unnecessary for knitters to stop their machines during working hours for cleaning purposes, as the cleaning squad goes on duty after regular working hours.

At the Textile Machine Works the last hour of the week is reserved for the cleaning of all machines by those who operate them.

The gardening department, of course, maintains the well-groomed appearance of the landscaped grounds. Pick-up



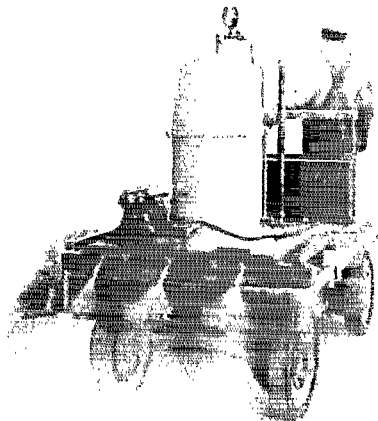
Hundreds of wash basins throughout the plants are kept spotless.



Dust arrestors operated by six powerful motors reduce to a minimum the dust in foundry of the Textile Machine Works.

men armed with pointed sticks patrol the walks and driveways surrounding the buildings, picking up paper and litter. Because the industries are located in park surroundings there is plenty to keep the gardening department busy, for the close-cropped green lawns stretch out around the buildings, and the walls of all but the newest buildings are covered with ivy and screened with shrubbery at the base.

Once a week the floors in the Textile Machine Works are sprayed with disinfectant.



Even the foundry, which we believe to be the largest foundry under one roof in the world, is an example of orderliness and cleanliness. Its 53,000 window panes provide ample sunshine. There was a time when the idea of keeping a foundry clean seemed ridiculous, yet this foundry is swept, scoured and scrubbed with the same thoroughness as the other plants. Cleanliness in industry is relative, of course. A clean foundry would not be considered clean from the point of view of a food factory.

Connected with all grinding equipment both in the Textile Machine Works and the foundry are the powerful suction pipes of the dust arrestors. As soon as any particle of fiber or metal drops from the wheels that produce it, it is drawn into the pipes to be shot into the collector bins. This operation has much to do with the cleanliness of the industries, and serves as an illustration of the emphasis laid on cleanliness and healthful working conditions in the Wyomissing Industries.

Murray Drivers Operate Million Safe Miles

ONE MILLION miles without an accident during 1933 is the record of a group of commercial drivers for the Murray Corporation of America and the Jenks & Muir Manufacturing Company, of Detroit, who were recently given a banquet and commended for their achievements.

These Murray groups have won the Class "B" P.W.A. Fitzsimmons Trophy, which is awarded by the Detroit Industrial Safety Council. This was presented at the banquet, at the Lee-Plaza Hotel, after which the drivers were taken to the Olympia to witness a hockey game. Speakers at the banquet were J. Wesley Brown, of the Detroit Police Safety Bureau, and L. C. Hill, general manager, W. J. McMichael, superintendent of transportation, and R. A. Shaw, safety director, all of the Murray Corporation.

The achievement of these drivers is all the more remarkable when we recall that the pedestrian in these unsettling days, instead of watching his step and trying to keep an eye out for the increasing hazards of the streets and highways, seems to have become even more careless than usual, due perhaps to the prevailing mental fog resulting from the recent depression.

Mr. Edwards, who has driven the Murray mail truck for the past five years believes that too much speed is unnecessary as well as unsafe.

Accident Prevention in the Recovery Program

By ORDWAY TEAD

Lecturer in Personnel Administration,
Columbia University

Four major issues require fresh thought and an extension of effective methods if accident rates are to be held at the lowest point

GENERAL JOHNSON is responsible for the statement that the NRA has put nearly three million men back to work. The problem of new hiring today includes, of course, the taking on of some new workers who have never before been in industry. It is not surprising, therefore, that industry should be especially concerned about the accident problem at the present moment. For we are all familiar with the fact that any period of new hiring means at least a temporary increase in accident rates.

I have been asked to consider the newer aspects of the accident problem under present day conditions, and I would like to suggest that there are at least four major issues which require fresh thought and a new extension of effective methods if accident rates are to be held at the lowest possible point.

It is an axiom with safety men that "accidents do not happen, they are caused." And it is upon this assumption that I should like to refer briefly to four important accident causes.

The first is the need for careful selection of workers with special reference to questions raised by the initial physical examination. The second has to do with the technique of rank and file training. The third has to do with more effective safety training for supervisors. And the fourth with the importance of an early identification of those who are prone to accidents—the accident addicts.

The Conference Committee on Industrial Medicine and Traumatic Surgery of the American College of Surgeons recently completed a three year study of problems of physical examination in industry. Of the plants studied, only 35 per cent had initial physical examinations. Only 3 per cent had periodic reexaminations. They pointed out, for example, that in one tannery of 1800 workers where there were no physical examinations they discovered 25 unprotected hernias and 25 serious defects of vision.

Dr. M. E. Fulk of Ohio has in recent years been paying special attention to

the limitations in the value of physical examinations as now given. He has found both an astonishing variation from company to company in the thoroughness of the examination and a serious failure to relate specific defects to possible accident hazards.

In the Journal of Aviation Medical Review in 1930, he has offered a remarkably effective standardization of the physical examination which provides a really full check list of the necessary items and suggests really suitable standards if accident and other hazards are going to be minimized in subsequent employment.

Dr. Fulk seems to have established usefully the point that where workers are markedly below par physically they may constitute a real accident hazard both to themselves and other workers. Such familiar items as defective hearing, sight and teeth, low physical resistance, a predisposition to tuberculosis, may create dangerous predisposition to accident which it is only common decency to anticipate. Indeed, Dr. Fulk's work with this type of thorough physical examination in several companies has yielded over a period of years both a marked reduction in accident rate and an increase in individual working efficiency.

Better Methods of Selection

It is for these reasons that I would like to leave with you the thought that as we start to attack the accident problem afresh, we must tie into our program with better methods of introductory and periodic physical examination.

It should further be mentioned in relation to this, and as one of the newer trends, that the general employment interview has unquestionably to be improved and broadened in its scope from now on. The employment offices of our corporations have increasingly to be made to see that they must look for something more than immediate job fitness in applicants.

Already a few progressive department

stores are giving us a hint of a method which must gradually be extended,—even though its application to industry may require modifications. These stores are building up their initial interview around what they call a *total personality approach*. This means briefly that they are trying to get the facts about such matters as the following: family history, health history, educational history, work history, social history. They are concerned to make some estimate of emotional stability, of temperamental factors, of energy, intelligence, interests and aptitudes.

You can readily see that if industry will take its initial interview more seriously, there will be less danger that people with a family history of epileptic fits or of morbid melancholia or of weak lungs will be put at work where such limitations may create accident hazards.

My second point is that we have not yet convinced enough managers and training directors of the truth of the slogan that the most efficient worker is the safest worker. A job training program presupposes an organized correct standard practice for each job. And the right way of doing any job is the safe way. If job instruction is thoroughly done and right mental and motor habits are really built up, a great gain will have been made.

Until our whole job training program is conducted as a program of training in safe and efficient methods, it will be weak in a crucial link.

Personally, I believe we have now to go further than this. We have to consider the worker's total attitude and relation to the company. It seems to me that today such questions as the following inevitably arise: Is the new worker made to feel that he belongs? Is he introduced into his department and to his associates in a sympathetic way? Is his presumed long-time relation to the company stressed and helped to be reinforced? How does he come to know that the company is interested in him

(Please turn to page 62.)

Evanston Again Leads in Traffic Safety

**Wins Grand Prize in National Traffic Safety
Contest for the second consecutive year**

THE leading cities of the United States once more showed their interest in traffic safety by competing during 1933 in the Second National Traffic Safety Contest sponsored by the National Safety Council. A complete list of cities honored for their accomplishments among the 287 contestants is shown in the accompanying table.

With but few exceptions the task of selecting the winner was extremely difficult, and a corps of workers has been at work since the first of the year studying the available evidence submitted by the cities.

The accompanying table contains a complete list of the honored cities. While it is fairly large, including as it does those cited for Honorable Mention, it should be remembered that they were selected from a list of 287 contestants. With but few exceptions the task of selecting the winner was extremely difficult and a corps of workers has been winnowing and sifting all available evidence since the first of the year.

Had it been simply a question of selecting those cities with the lowest motor vehicle death rates for 1933 or even one of selecting those which have made the greatest reduction over previous years, the job would have been relatively simple. The terms of the contest, however, stipulated that awards would be made for "the greatest traffic safety progress in 1933," not only based on the reduction in traffic accidents but also upon the enactment of regulations, the setting up of administrative machinery, and the conduct of organized educational activities which, according to general experience, are certain to bring eventual accident decreases. Thus, no city could win either on a lucky traffic death record alone, or upon a paper program which did not actually produce results. Also, the standard of judging was elastic enough so that small cities would not be judged by metropolitan standards, or vice versa.

The grading schedule, on the basis of

110 points for a perfect score, was as follows:

1. Accident Record. This included both the motor-vehicle death rate and the percentage of reduction in such death rate as compared with the average of the three preceding years. A maximum of 50 points was allowed under this item.

2. Accident reporting, 5 points.

3. Traffic engineering, 10 points.

4. Traffic law enforcement, 15 points.

5. Child safety, 10 points.

6. Public education, 10 points.

7. Community safety organization, 10 points.

This scoring system, calculated to give every city in the country an equal chance to win regardless of its previous record or previous accident prevention work, required an immense amount of labor before the actual leaders could be decided.

All cities entered in the contest were required to make regular reports on their fatal and non-fatal accidents throughout the year and also to make occasional reports of their engineering, enforcement, and educational activities. As these were made, progress was judged on the basis of how closely the city was holding to the methods which, because they were tried and proven, would bring accident reduction in a city of its size. At the end of the year, each city was asked to submit a final report of its work along each of the lines mentioned in the grading schedule.

Following several weeks spent in grading these final reports by statisticians, engineers, and educational experts on the National Safety Council staff, the reports were turned over to a competent and impartial Committee of Judges. Thomas H. MacDonald, Chief, U. S. Bureau of Roads, Washington, D. C., served as chairman of this committee. He was assisted by Dr. Miller McClintock, Director, Erskine Bureau for Street Traffic Research, Harvard University, and Robert L. Catlin, Vice-President for Public Safety, National Safety Council. This committee made the final decision in all cases.

It was because the rate was so close in several of the groups, and because the final report on the whole was so excellent that the judges designated from two to eleven cities for Honorable Mention.

According to the original plan, the judges named one city for the grand prize. Whereas a year ago the records of Evanston and Pittsburgh were both so excellent that it was impossible to decide between the two, this year Evanston led the field by such a wide margin that it was declared sole winner. During 1933 only five persons lost their lives through traffic accidents, a record made the more

(Please turn to page 50.)

Winners of 1933

National Traffic Safety Contest GRAND PRIZE Evanston, Ill.

GROUP I

(Over 500,000 Population)

1. Milwaukee, Wis.
2. Pittsburgh, Pa.
3. Boston, Mass.

Honorable Mention: Cleveland, Ohio; Detroit, Mich.

GROUP II

(250,000 to 500,000 Population)

1. Providence, R. I.
2. Rochester, N. Y.
3. Oakland, Calif.

Honorable Mention: Dallas, Texas; Houston, Texas; Washington, D. C.; Newark, N. J.

GROUP III

(100,000 to 250,000 Population)

1. Grand Rapids, Mich.
2. New Bedford, Mass.
3. Springfield, Mass.

Honorable Mention: Syracuse, N. Y.; Elizabeth, N. J.; Wilmington, Del.; Reading, Pa.; Fort Wayne, Ind.; Flint, Mich.; Chattanooga, Tenn.; Duluth, Minn.; Wichita, Kan.; Erie, Pa.; Camden, N. J.

GROUP IV

(50,000 to 100,000 Population)

1. Evanston, Ill.
2. Montgomery, Ala.
3. Lakewood, Ohio

Honorable Mention: Berkeley, Calif.; Saginaw, Mich.; Oak Park, Ill.; Greensboro, N. C.; Austin, Texas; Madison, Wis.; Davenport, Iowa; Union City, N. J.

GROUP V

(25,000 to 50,000 Population)

1. Fond du Lac, Wis.
2. Dubuque, Iowa
3. Chelsea, Mass.

Honorable Mention: Great Falls, Mont.; St. Petersburg, Fla.; Lynchburg, Va.; Beverly, Mass.

GROUP VI

(10,000 to 25,000 Population)

1. LaGrange, Ill.
2. Pampa, Texas
3. Massena, N. Y.

Honorable Mention: Mankato, Minn.; Leavenworth, N. J.; Gardner, Mass.; Parma, Ohio; Albert Lea, Minn.; Saugus, Mass.; Fairmont, W. Va.; Owsosso, Mich.; Xenia, Ohio.

Special Certificate of Merit: LaGrange Park, Ill.

Why They Drive That Way

By ALVIN R. LAUER, Ph. D.

*Associate Professor of Psychology,
Iowa State College*

Accident proneness may be defined as "the mind at mischief," intentionally or unintentionally

IN A SERIES of previous articles the author set forth certain psychological factors of accident-proneness. This article goes into the more detailed aspects of those traits which seem to be related to safety. Often the human element in safety is under-emphasized. The safety director frequently lacks training in these matters. It is difficult for a person trained in one field to cover the intricacies of all others. Even in more or less strict academic lines the spread of technical fields is large. A recent statement that one would have to spend 803 years in Yale to complete all the courses offered is not exaggerated. In the various commercial and technical fields this vast expanse of known facts is much greater. Many of the problems of present day society must be solved by the physical, biological, mental and social sciences combining forces. It is such division of labor that makes for greater progress. No one person is able to cover the entire field.

Therefore we interpret psychological factors of safety to mean those things that people do in everyday life which are studied by psychologists and which constitute this science. Such actions, or reactions as they are technically called, involve the person's general behavior, including: (a) that which he has inherited, (b) what he has learned from his environment, and (c) his potential learning power. The field of psychology is too complex to be mastered by reading a few books or through casual association with others.

In this article we shall go back a decade in terminology and speak of things which are more or less common knowledge to the laymen. In the next article several cases will be anonymously presented which may illustrate some of the types mentioned.

A book which might appeal to those interested in the psychology of safety was written by Dr. William S. Sadler, M. C., F. A. C. S., called "The Mind at Mischief." Accident-proneness is the human mind at mischief, even if not intended to be so. When I say we shall go back a decade in terminology, the statement is made from the point of

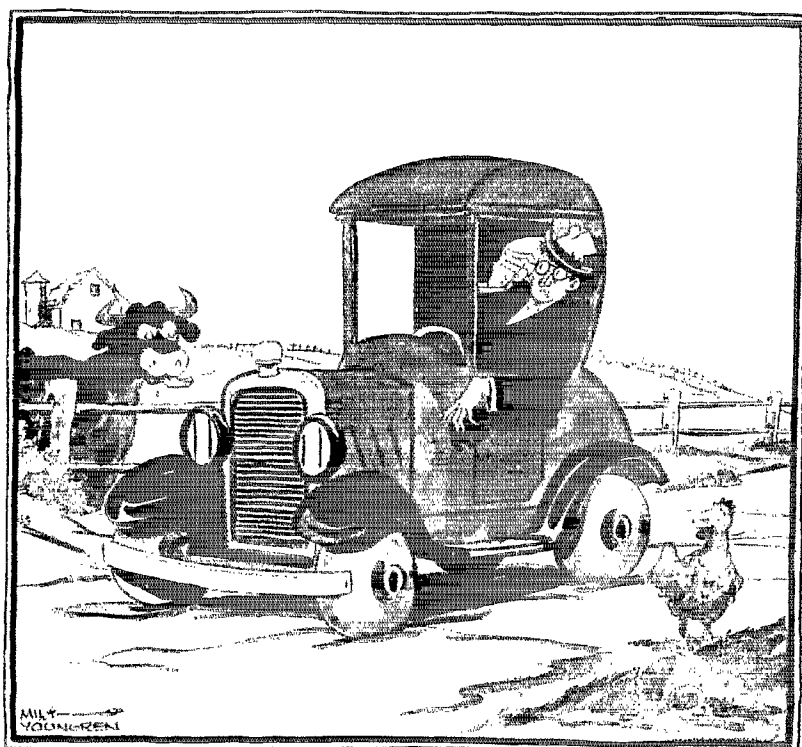
view of exponents of the left wing in modern psychological theory. Such terms as "subconscious mind," "instincts," "consciousness" and similar concepts are in quite bad repute among certain leading psychologists. From the standpoint of an experimentalist, however, one may use these terms with suitable warnings as to their limitations and discuss certain relationships to accident-proneness.

The Nature of Attention

First and foremost must be considered the matter of attention. Persons differ in respect to their ability to direct the receptors or to localize the sense organs on specific objects. The terms "bright" and "dull" have described this condition by man through the ages. One may be aware of something in this environment but not know much about it. As I write this sentence I am vaguely aware of the Westminster chimes of the electric clock, but whether the hour

is one-quarter or three-quarters gone is not at all definite in my memory. We are all familiar with the differential awareness of objects in our environment. Only a few can be held in mind at once. It seems that persons differ with respect to the actualities of life. Some experience everything in sort of an out-of-focus fashion. We think of them as "muddle-heads."

These people have trouble attending to any one thing for a period of time. Working in a printing office an employee may hold the paper in a listless manner while the knife drops down and severs one hand. In the machine shop another may run an arm in the belt while oiling the mechanism. On the highway a driver may stop suddenly, turn across the street to an alley without signalling or otherwise show lack of attention to the work at hand. The foreman is too likely to term such employees as careless without assigning any definite reason for being so. But this is in error. Our researches



He finds himself twenty miles off the main highway and cannot explain how he got there.

have revealed numerous instances where all the physical, mental and other measurable qualifications are high yet the person still gets into trouble. Every event must have a cause or some condition which precedes it.

First let us return to the matter of attention. If one attends to a thing closely he is highly conscious of it. The most highly developed patterns, pathways or neurograms of the brain are at work on it. The most sensitive part of the retina—if the sense of vision is involved—is occupied with the stimulus in question. Now suppose we consider other objects not being immediately scrutinized. They may be said to be in the margin of attention.

The "Subconscious Mind"

The so-called focus of attention may vary from maximum alertness, through an indifferent awareness of the chimes of a clock to what is called the "subconscious mind." The latter no doubt plays a highly influential part in determining one's behavior or actions but is least conspicuous of one's awareness possibilities. For example a person may have a fear of certain situations without an immediate reason for being so afraid. An intelligent man confessed to me that any approaching car bearing the license plate of an eastern central state threw him into a panic when driving. It developed that he had been struck by a car while driving in that state. His car was demolished and he narrowly escaped serious injury. The resulting fear was effected by his "subconscious mind" over which he could exercise only indirect control.

The names "conscious" and "subconscious" are only terms to indicate the neural patterns which predominate behavior at a given time. They are not separate entities but degrees of complexity. The reasons for variability in the degree of attention or the relative dominance of higher or lower centers will be partly explained by the following paragraphs. The terms used are common knowledge to the psychologist and psychiatrist. They describe certain conditions which are more or less characterized by identical symptoms when occurring in different people.

An automobile does not simply fail to run without a reason. It must have something specifically wrong with it. To say it has no power is of little value to the expert mechanic who wishes to improve its performance. He looks at the condition of the timing, compression, coils, spark plugs, carburetor mixture,

valves and such parts which can be worn or out of adjustment. Even to say a motor is out of time is inadequate. It may be timed a half degree too early or a degree too late. Specificity in diagnosis is the keynote of successful corrective measures.

In a similar way one may be inattentive for one of several reasons of a psychological nature. The number of those which can be discussed here will be limited by space but they represent a fair sampling of types which seem most closely related to driving ability. For purposes of clarity these traits may be divided up according to the scheme outlined in Table I. Those listed as intellectual and emotional are everyday experiences with adult persons in routine life. Those given under abnormal are conditions which may be included in I and II but are present in a more marked

degree. Pathological traits are those which are quite definitely associated with diseased or toxic conditions.

No doubt general health may induce or affect any of the separate factors but may not be directly associated with them.

Intellectual Factors

It is commonly known that persons differ in intelligence. The latter is most commonly defined as the capacity to learn, as is ordinarily expressed in terms of the average person's performance under given conditions. With growing children the mental age is used as criterion. It represents what the average child of a given age will do. The average number of words, which ten year old children in the United States can spell, might be used as a standard. Suppose Willie Smith is eight years old but spells equal to the average ten year old. Then he is 25 per cent above average. If this is true of his ability in a series of intelligence tests he is said to have an I. Q. or intelligence quotient of 125. This remains relatively constant during his life time unless disease or other exceptional conditions should affect him.

If we were to characterize the intelligent person in a few words it would be best done by saying that he observes well and interprets accurately what he observes. He is alert mentally and guards against impending danger by rapid fire decisions. Yet an intelligent person may be absent-minded. This is because he attends to some one thing so intently that other things escape his notice. You get interested in reading an interesting story and forget your hunger. Day-dreaming produces the same general effect but has less purpose or organization.

Again one may attend well but his interpretation may be wrong, due to no fault of his. Many accidents are to be explained by the presence of illusions. On a local stretch of cross country highway the pavement bends in a slow curve immediately after passing through a small village. The new highway swerves off from the old roadway which carries a certain amount of rural traffic. Several accidents have occurred at this point. Analysis of the location shows that lights above the highway throw shadows across the road in such a way as to give the appearance of the pavement leading straight ahead. Lights from cars approaching at a distance on the old road complete the illusion.

Faulty reasoning is another cause of trouble. A common type is known as the "logic tight compartment." Persons

TABLE I

Classification of psychological conditions which affect or limit attention

- I. Intellectual.
 - a. General Alertness.
 1. Absent-mindedness and hyper-concentration.
 2. Day-dreaming.
 3. Wool-gathering.
 - b. Illusions.
 - c. Faulty reasoning.
 - d. Chronic indecision.
 1. Logic tight compartments.
- II. Emotional.
 - a. Anger.
 1. Upsets.
 2. Defense reactions.
 - b. Fear.
 1. Anxiety neuroses. Mild.
 2. Stage fright.
 3. Worry.
 4. Complexes.
 5. Manias.
 - c. Introvert and extrovert types.
- III. Abnormal.
 - a. Hysterical fugues.
 - b. Paranoia. Mild.
 - c. Neurasthenia. Mild.
 - d. Excessive ego.
 - e. Partial sleep.
 - f. Hysterical temperament.
 - g. Professional complexes.
- IV. Pathological.
 - a. Illusions of grandeur.
 - b. Hysteria defects.
 1. Blindness, (hysterical)
 2. Deafness, (hysterical)
 3. Pains, (hysterical)
 - c. Amnesia.
 - d. Neurasthenia.
 - e. Dual personality.
 - f. Psychasthenia.
 - g. Sadistic tendencies.
 - h. Hallucinations.

so afflicted never scratch their tickets at the election. The casual observer pronounces it stubbornness. This is not always true. The individual may have insufficient facts to insure straight thinking. He is satisfied with status quo. The lack of facts may be due to lack of intellectual penetration or to lack of interest in the issues at hand. Overly certain of himself, the victim drives on into danger.

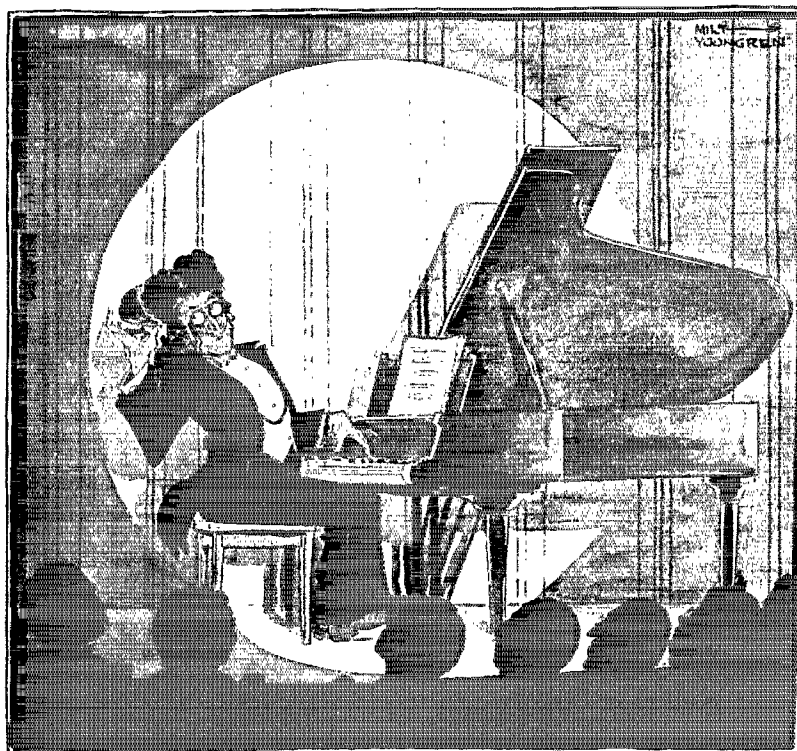
Such intellectual anesthetics are responsible for many accidents. Drivers simply do not realize danger or they are so certain of the outcome of certain manipulations that to them it is "a cinch."

Closely related to this trait is chronic indecision. A volitional trait, it still comes under the heading of intellectual activity. A driver comes up behind a slow moving car. He looks ahead, starts around and decides not to attempt it at this point. Without considering the person behind he pulls back into line only to go round at a particularly dangerous point. Changing one's mind when in a tight place is a good asset if not carried to extreme. A more common form of chronic indecision is the driving of the person who decides to go slow, then fast and constantly menaces traffic. Likewise the driver who decides to drive in the middle of the roadway then at the side and zig zags back and forth in a characteristic manner seems to be afflicted with indecision.

Emotional Factors

Emotion has been defined as a stirred up state of the organism. It might better be described as the unbalanced state of the organism. There is disturbed function of digestion, heart, breathing and glands of the body. The emotions which are most closely associated with accident-proneness are anger and fear. Anger may take the form of temporary upsets which lead to careless outbursts of speed or daring. It may take the form of a defense reaction to compensate for some real or imagined defect. In general it may be said that anger clouds the intellect and a reasonable procedure may not always be followed by the person upset by this vicious emotion.

Fear is also a genuine source of danger and has many complications ranging from immediate cringing from real danger to anxiety neuroses. The timid person is a menace on the highway as he misleads others by his conduct. Usually an overly cautious individual, he creates danger for others. "Stage fright" may seize the person with limited ex-



He would stop in the middle of a composition and tell the audience it had never been played as well as he was playing it.

perience at a very inopportune time. Instead of pressing down the brake he may press on the accelerator. Thousands of accidents have occurred from this cause alone.

Indirectly fears may cause trouble through worry. The person so annoyed cannot maintain a high level of attention on what he is doing at the moment. When the physical symptoms become acute and the person is in a more or less constant state of false alarm the condition is known as an anxiety neuroses. In extreme cases it becomes a pathological condition and materially lowers efficiency by causing rapid shifts in attention.

A general social reaction due to inherent emotional tendencies may incline the person toward directing his attention inwardly or outwardly. The individual who dwells on his own thoughts is said to be introverted while the one who directs his attention outwardly is known as an extrovert. The introvert fails to note external stimuli accurately. An unpublished experiment shows this type of person becomes disoriented in his directions more frequently than the extrovert. This would indicate a tendency toward dangerous habits of observation. The extrovert, of course, must not be overly optimistic, which might also cause trouble.

An abnormal condition is any deviation from the most frequent or charac-

teristic mode of behavior. For example it is normal for one to hiccup occasionally. A day or so of continued hiccups arouses the national interest of physicians. To sleep is normal but "partial sleep" is abnormal. A fatigued driver may be partly aware of what he is doing yet be partly asleep. The writer has found himself writing on a familiar subject late at night when a sentence would trail off without meaning. It was impossible to distinguish that which was in the focus of attention from other levels of reaction on mental activity. Similar conditions have been experienced while driving.

Excessive ego or the superiority complex is abnormal. In one form it is sometimes known as the Jehovah complex. The person so afflicted considers all his behavior above average. His singing is superb, his business is unexcelled and his driving habits are beyond reproach. An outstanding example of this condition is the late Vladimir de Pachmann, the great Polish pianist. He would stop in the middle of a composition and tell the audience that no one had ever played the number in such an admirable fashion as he, de Pachmann, was now playing it. He was good but was too willing to admit it. We have many such automobile drivers on the highways.

The list of abnormal tendencies is much too long to discuss in detail here.

but we may be able to cite and explain some of the most common. Hysterical fugues are instances of temporary dissociation. A driver who travels for a commercial house was recently reported to me. This man finds himself off the main highway twenty miles or so and cannot account for how he got there.

Professional complexes sometimes develop. A doctor becomes so absorbed in his patients that each becomes a personal ward until strain breaks the man. Paranoia is a form of attitude in which the individual believes that others are trying to "get the best of him." It may take several forms of expression.

Neurasthenia is characterized by exaggerated suggestibility, oversensitiveness, increased emotionalism, and extraordinary fatigue. It is easy to see how such conditions might lead to danger. Psychasthenia or chronic brain fag, is another condition which will tend to lower attention. The psychasthene tends to be introspective and lowers his efficiency by watching how he does it.

Pathological Conditions

This classification includes those psychological conditions which are extreme or which otherwise may be listed as pathological. They are more or less common among persons who are normal in other respects and may not be recognized by the laymen or even by the average practicing physician who does not specialize in nervous and mental disorders. Queer actions of the individual may be excused as a bit of eccentricity.

The causes in general may be described as physical in their origin, due to lesions in the nervous system or to toxic conditions. So-called functional diseases are open to serious doubt. A functional disease is said to be the result of some failure to function rather than to any underlying physical lesion. It may be compared to a loose connection in an electrical system. The circuit acts as though it were open. One pathway in the brain is blocked while another may function in its place. No doubt these defects can be traced to physical conditions if methods of detection are adequately refined. Whatever the explanation, there are certain specific diseases which are of pathological character and which will materially lower the degree of attention and efficiency.

Perhaps some of the most common types are extreme forms of neurasthenia and psychasthenia. The symptoms and effects are given in the previous section. In more extreme cases they may take the form of delusions and obsessions.

In the worst forms, paranoia will take on similar characteristics. The attention may become highly focalized on some supposed enemy or unessential detail thus placing the important elements of performance in the margin of attention. In delusions of grandeur the person may develop a pathological attitude toward himself. He may think he is Napoleon, Christ or some magnificent, divine, or great personage. His views may lead to very bold and flagrant conduct. Mild instances of this type are commonly experienced on the highways.

Amnesia or loss of memory is similar to the hysterical fugues, but is likely to remain for longer periods of time. Cases of dual or multiple personality, of mild nature, are perhaps more common than even psychiatrists might recognize. The practical effect of all these disturbances is about the same. A driver may have periods during which he is not responsible for his actions.

Hysteria is a common nervous disease which may take various forms. The general symptoms are given by authorities as "retraction of the field of personal consciousness and a tendency to the dissociation and emancipation of the systems of ideas and functions that constitute personality." There is lack of emotional control, certain physical acts are hesitant, there is the presence of a morbid self consciousness, perversion of sensory impressions and ability of the subconscious to simulate various mental and physical diseases. The principal handicaps are absent-mindedness and temporary sensory and motor defects. These conditions introduce natural physical and mental handicaps which may be more or less permanent.

Sadistic tendencies are exemplified in normal life by teasing, torture of animals by children and the resort to various initiation ceremonies in the form of hazing, "riding the goat" and what not of fraternities and adult societies. A case in question is that of a driver who tried to catch doves and birds in his radiator while moving along the highway. He will pick up speed, swoop down on the victims, and often take unnecessary chances by sudden swerves in the roadway to accomplish this. Another common symptom of this tendency is exhibited when a driver idles along and then speeds up to keep another car from going around.

A last psychological condition of accidents to be mentioned in this article is that of hallucinations. The latter is an experience that occurs to an individual but which has no sensory basis. An illustration may suffice to make this

clear. Four boys of my acquaintance were driving along the roadway. They were sober and were driving at a moderate rate of speed. Suddenly one of them looked ahead and saw a car turned over across the road. He cried to the driver who also saw it and brought the car to a sudden stop. They got out to investigate and found no car in sight. Three of the boys definitely saw it while the fourth did not. No doubt one had the hallucination which the others got by suggestion. Everyone has known of older persons who declare they have had premonitions and visions at one time or another. When there is no stimulus to be misinterpreted the only explanation is hallucination. Usually such experiences may take place when the individual is overly fatigued, ill or otherwise physically unfit. False perceptions are responsible for many accidents. Statistics show that a large per cent of railway crossing accidents occur when the car driver actually runs into a train. This may be due to illusions of various sorts. It is remotely related to hallucinations which may otherwise disturb person at the wheel and cause him to do unusual things.

An Unexplored Field

There are numerous instances of accidents occurring which are not explainable by ordinary defects or conditions. Careful surveillance of above traits, attitudes and diseases will no doubt be to make behavior of drivers more comprehensible. The field of mental cause of accidents has barely been started as yet. The conditions cited are as important in general safety as in highway and traffic safety. They are more of a problem to licensing bureaus since the person is not known to the examiner for sufficient length of time to determine the presence of conditions. They are often transitory. Commercial companies could do a great deal in diagnosing accident-proneness by going into these factors. Several representative tests are available for ascertaining the presence of some of these conditions. An experienced psychologist or psychiatrist can get a fair idea of the examinee's condition by an interview. To be certain all would take several meetings and complete case history.

The ultimate objective of examinations must be decreasing highway hazards. There is scant hope for elimination of all dangers within any reasonable period of time. Progress can be made only by repeated attempts to get at the source of the trouble.

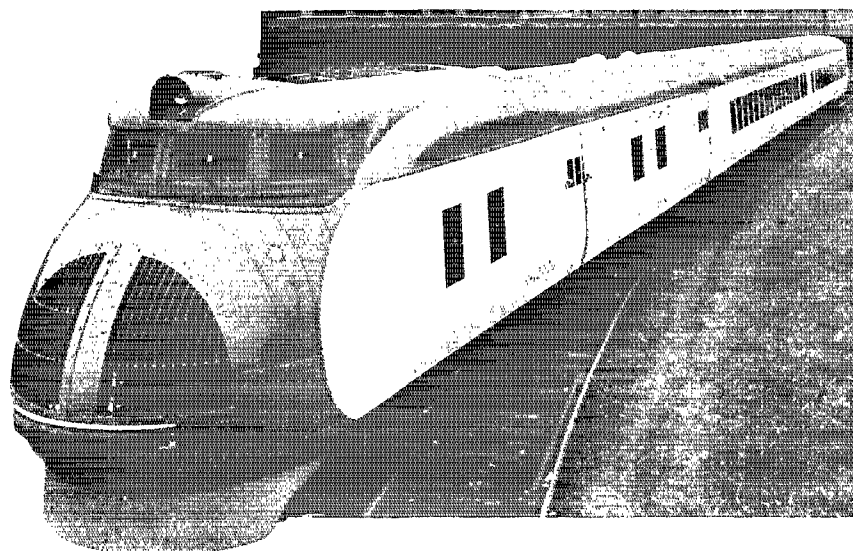
Streamlines and Safety

JUST about one hundred years ago Lord Brougham, a famous Englishman, wrote that "the folly of seven hundred people wanting to ride fifteen miles an hour in trains of six carriages exceeds belief." But today we see the startling new train of the Union Pacific Railroad designed to glide in rocking chair comfort and safety at a speed of 90 to 110 miles.

To outward appearance the new train is a single elongated and squatty coach, with the lines of a giant yellow caterpillar; in reality it consists of three units, or coaches, closely joined. Built of duralumin, a copper-aluminum alloy much lighter than steel and amazingly strong, the three units weigh no more than a single standard sleeping car. Whereas the usual transcontinental train is compelled to move ten to twenty tons of weight to each passenger, the new train moves less than one ton per passenger.

It was built by the Pullman Car and Manufacturing Corporation, of Chicago, at a cost of \$200,000. The same company is building another similar train, consisting of six coaches, and two others of nine coaches each; and in the plant of the Budd Manufacturing Corporation, in Philadelphia, a somewhat similar train is being constructed for the Chicago, Burlington and Quincy Railroad.

The new train's revolutionary reduction in weight is accompanied by an equally revolutionary reduction in power necessary to attain the new record speeds. In the front of the forward coach, modeled somewhat like the radiator of the latest style automobile, is the power plant, a 12-cylinder, 600-horsepower motor, operating on distillate, a low volatile fuel. Power is transmitted to a dynamo, which in turn creates electricity to drive motors mounted directly over the forward axles. The entire train weighs only eighty tons, and fully half of that weight is in the power plant and fuel tanks in the forward



end. A standard steam locomotive alone weighs approximately 150 tons.

In 1869 a railroad journey from Chicago to the Pacific Coast required 110½ hours. In 1932 the average running time was 62 hours. Now comes the new streamlined train of the Union Pacific which could make the trip in about 30 hours. The railroad, however, will use this tremendous potential speed cautiously. Comfort and safety will not be sacrificed.

ward end. A standard steam locomotive alone weighs approximately 150 tons.

The train measures 204 feet from tip to tip, and is designed to carry 116 passengers, with compartments for both mail and baggage. In the rear of the third coach is a buffet kitchen, in which light meals are prepared to serve the passengers in their seats. The train is completely air-conditioned, and its windows, of shatter-proof glass, are sealed against noise and dust. The exterior finish is a canary yellow with brown trim, calculated to make the coaches visible at the greatest possible distance.

High speed is possible both because of the lightness of the train as compared with its power and because of its streamlining. It has a bullet-like nose and a tapered tail that eliminates air back-drag, and the clearance between coaches and rails is only 9½ inches. Thus the center of gravity is very low as the train shoots along the rails.

The cab of the engineer is placed at the extreme forward end of the train, just under the coach roof, where he has an unobstructed outlook not only forward but also on both sides. An instrument board before him shows the conditions of every part of his power plant at all times. There are oil, water, air, fuel, electric gauges and a speedometer. Electric signals afford communication between him and the train crew. A duplicate device is installed to require the engineer to keep either foot or hand

constantly on a control. Releasing the pressure of hand or foot automatically closes the throttle and applies the brakes.

The super-brakes are of a new design, a dual system, each coordinated part of which is capable of safe operation in event of failure of the other. A newly developed appliance called a decelerometer has been perfected and is installed, its function being to equalize brake pressure on every wheel, admit maximum pressure but prevent locked wheels. The train cannot be started unless the brakes are in perfect working condition.

A powerful fog-piercing headlight is supplemented by a light which throws a 10-inch vertical beam, for added safety. Warning signals are given by a powerful siren and an electric gong.

Provide Highway Sidewalks at Rural Schools

TWENTY-EIGHT schools in Allegheny County, Pennsylvania, are being provided with safety sidewalks under CWA projects. Each walk is about 1000 feet long and made of slag. The sidewalks are not merely a continuation of the highways but are separated by wire fences and several feet of intervening road shoulder. This will prevent automobiles running over on the sidewalks in emergencies and will protect the pedestrians using the walks. About 200 men have been assigned to work on this project.



Courtesy, The Lander Air Products Co.

AS I BEGAN to plan this further discussion* of eye protection problems, four questions presented themselves for answer. They are simple questions—almost too simple, it may be thought. Yet they lie at the very foundation of any serious consideration of the industrial eye accident situation.

1. How costly are industrial eye accidents?
2. How can industrial eyes be saved?
3. Do we want to prevent eye injuries?
4. What plan, then, shall we follow?

We are indebted to others for many striking figures on the costliness of eye accidents. We know that there are some 15,000 "industrially blind" persons and a much larger number of partially blind as a result of eye injuries. Annually some 2,000 workers lose the sight of one or both eyes in industrial accidents, and a serious eye injury occurs almost every minute of every day and night throughout every week of the year in our country.

Early in 1932, Dr. Louis Schwartz, senior surgeon of the U. S. Public Health Service, completed a study of industrial eye injuries, the results of which he presented at the Greater New York Safety Conference that year. He reported that there is an estimated total of 300,000 industrial eye accidents involving one or more days of lost time each year in the United States, and that

*See a previous article "Pioneering in Eye Protection", in *The NATIONAL SAFETY NEWS*, January, 1934.

Shall We Stop These Eye Losses?

By G. M. BRIGGS

an estimated 70,000 of these are compensable cases. The total annual cost of such injuries is at least fifty millions of dollars.

In the state of New York alone there were 7,690 compensated eye injuries during 1930, '31 and '32, for which \$4,548,887 was paid in compensation. The average compensation was \$591.

In Pennsylvania, from 1916 to 1932, inclusive, compensated permanent eye injuries numbered 10,629, for which a total

of \$5,800,000 was paid. Replies were received from 588 plants showing that 7,411 men and women had been saved from loss of vision in one or both eyes during the two-year period.

The survey embraced a total of 578,396 employees, and deductions were made through a series of questions to each plant covering how many employees had one or both goggles lenses shattered or pierced by flying particles of metal while in use, how many had one or both lenses splattered with molten metal, and how many had one or both lenses pierced or shattered by flying tools or objects other than fragments of steel. It was fairly assumed that any object which hit a goggle lens with such force as to pierce or shatter the glass would have so damaged an unprotected eye as to cause complete or nearly complete loss of vision. A similar assumption was made in the case of lenses splattered with molten metal.

On the basis of \$1,800 average compensation for the loss of one eye and of \$3,500 for loss of both eyes, the compensation saved to employers in these



Courtesy, Wilson Products, Inc.

A light weight goggle with anatomically shaped cups, and showing one method of ventilating the cups with many miniature perforations.

compensation bill of \$14,000,860 was paid. The average compensation here was \$1,317.

More money is paid out by employers each year as compensation for eye injuries than for injuries to any other part of the body.

Now let us look at the other side of the picture. For the most accurate data on eyes saved in industry we are still indebted to the joint efforts of the National Society for the Prevention of Blindness and the National Safety Council, made in 1928, covering the two previous years. By means of a questionnaire sent to 1,800 representative industrial plants, they sought to trace how many authentic cases there might be of workmen's eyes saved through the use of protective goggles and head



Courtesy, A. H. H. Co.

Molten iron splashed into this man's face when it exploded on striking cold concrete, but the goggles saved his eyes from injury.

NATIONAL SAFETY NEWS

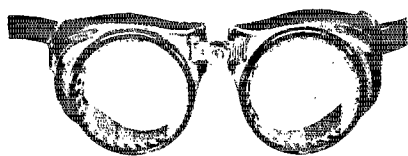
Eye losses may or may not be rare in the plant. But the penalties, when they do occur, are so heavy to industry, to the worker, and to society that a vacillating attitude toward them is unthinkable

583 plants by the use of protective equipment amounted during the period to approximately \$18,000,000. Assuming that these 7,411 employees when injured were receiving an average weekly wage of \$30, it is possible to estimate that their aggregate net loss in wages (after receiving compensation) was another \$10,600,000. Moreover, these direct losses do not take into consideration the four-fold additional indirect losses which H. W. Heinrich, of the Travelers Insurance Company, has clearly proved also exist in every accident.

It has been pointed out by G. A. Kuechenmeister, of the Dominion Forge and Stamping Company, that the cost of equipping those 578,396 employees with suitable goggles probably did not exceed one million dollars; and thus, by a simple problem of economy, it is plain that for each dollar spent for eye protection those employers saved \$28.

The figures seem clear enough. But do we really want to stop these eye losses?

A strange question? Yes, but let us face the facts. We know how costly eye accidents are. We have the experience of many plants showing that by adequate safety organization eyes can be saved. It is one of the few problems over which management can have absolute control. There are more than one hundred types of goggles and other eye protective equipment to choose from, the results of twenty years of scientific safety planning. Tests can easily be made of their efficiency and protection, and reams of material are available outlining the best and tried methods of employee education and procedure. Yet



Courtesy American Optical Co.
For the employee who must wear correction spectacles, this goggle is provided which fits snugly over his individual glasses.

eye accidents still cause about 20 per cent of the country's total accident toll, while we continue to debate the same time-worn questions that men were asking two decades ago.

I dare say there is not an industrial plant operating today that does not have some kind of rule relating to the use of eye protective equipment. But there are almost as many types of rules as there are plants in operation, and the two extremes are as wide apart as the poles.

Here, for example, is one plant, representative of a very large class, in which certain operations and processes have been singled out as particularly hazardous. (They are known to be hazardous because eyes have been lost there: it is



Courtesy American Optical Co.
For arc welding operations this helmet, fitted with shaded lenses of definite opacity, completely blocks all ultra-violet and infra-red rays.

called the "trial and error" method.) In the rules it is provided that certain eye protective equipment may, or should, or (sometimes) must, be used while men are at work at those occupations. The attitude may be called a hopeful one, but willing to let someone else decide the issue, and plainly unconvinced that accidents can be stopped at all. Usually they are right, for eye losses continue to take place in those plants.

In another plant we find a far more aggressive attitude, but representative, unfortunately, of a much smaller group. Here the rules name every operation and process throughout the plant where there is apparent danger of an eye injury, and they state unequivocally that adequate eye protective equipment must be worn while the worker is employed on those jobs. In each case the specific protection is named, and sometimes it is decreed that all persons working in the department must wear goggles *all the time*.



Courtesy The Delaware & Hudson R.R.
Nineteen pairs of goggles which saved the eyes of railroad workers. A typical bulletin board display calculated to make the worker think.

Persons passing near the more dangerous points are also protected from flying particles by permanent or portable screens. In short, the full extent of the plant hazards is realized and vigorous measures have been adopted to nullify them. In these plants today we find accurate records of numerous eyes saved and of few eye injuries.

At the very apex of achievement in this fight to stop eye losses there are at least two plants whose records are often quoted. The Pullman Company, in its six repair shops scattered about the country, and the Dominion Forge and Stamping Company, at Walkerville, Ontario, Canada, have a mandatory rule that all employees shall wear goggles all the time.

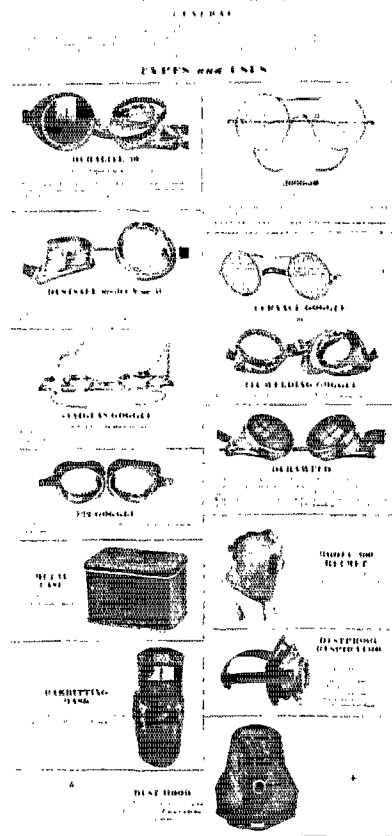
During the seven and one-half years since this rule has been in force in The Pullman Company shops, no eye injuries have occurred; and during six of those years 122 eyes of workers were saved as well as about \$250,000 in compensation and medical expenses. The Dominion Forge and Stamping Company reports that for five and one-half years before their mandatory rule became effective the cost of eye injuries totaled \$9,178, an average of \$1,668 per year; but that for the four and one-half years since the rule has been in force the average cost has been \$88; and now it does not exceed \$10.

We are familiar with the chorus of objections and difficulties that is always raised when mention is made of mandatory rules that are really capable of governing the eye accident situation.

CONSOLIDATED WATER POWER & PAPER CO.

INDUSTRY RADIANT ENERGY SAFETY EQUIPMENT AND CONSTRUCTION
DEPARTMENT OF INDUSTRIAL SAFETY

HEAD AND EYE PROTECTION STANDARDS



Typical example of an illustrated guide provided for the individual industry or company by the safety equipment manufacturer. Twelve outstanding types of eye protection are included, with instructions covering jobs where each should be used.

Employees object to wearing goggles—it is absurd to require all employees to wear them—no eye accidents occur on many jobs, or at least very few—if the employee himself were more efficient and careful—and so on indefinitely.

But to a candid mind, the absurdity of the situation does not lie in the adoption of so-called "drastic" rules to protect eyes. We do agree, of course, that the enforcement of adequate rules is not always easy. In a later article we shall deal at length with the problem of getting the worker to wear his goggles. But fundamentally, this is a management problem, and must be dealt with like any other which concerns production, costs, wages or hours of labor. Eye injuries may or may not be rare in the plant, but the penalties when they do occur are so heavy to industry, the individual worker and to society that a vacillating attitude is unthinkable.

Safety leaders are agreed that when

management definitely makes up its mind to stop eye accidents, they will be stopped. It is a conviction based upon the hard-won experience of numerous plants where half-way measures were first tried out without success. When, however, adequate rules were promulgated, specific equipment provided covering every job where the least danger of an eye injury existed, and when these measures were backed up by firm discipline, eye losses ceased.

What plan, then, shall we follow in our plant campaign?

We have, first, the recommendations of the National Safety Code for the Protection of the Heads and Eyes of Industrial Workers. Here are the results of twenty years of study of eye injuries, covering nine general groups of processes and operations:

Group A—Processes where protection from relatively large flying objects is required. *Examples:* Chipping, calking, and some riveting operations.

Group B—Processes where protection from dust and small flying particles is required. *Examples:* Scaling and grinding of metals, stone dressing, and some woodworking operations.

Group C—Operations where protection from dust and wind is required. *Examples:* Automobile driving, locomotive driving and firing, and electric spot and butt welding, where there is no exposure to radiant energy.

Group D—Processes where protection from splashing metal is required. *Examples:* Babbitting, pouring of lead joints for casting iron pipes, casting of hot metal if there is a possibility that water is present; and dipping in hot metal baths.

Group E—Processes where protection from gases, fumes, and liquids is required. *Example:* Handling of acids and caustics, dipping in galvanizing tanks and some tanning operations.

Group F—Processes where protection from an excess amount of dust and small flying particles is required. *Example:* Sand-blasting.

Group G—Operations where protection is required from reflected light or glare.

Examples: Long exposure to snow-covered ground, exposure to reflected sunlight from roofs, roadbeds, etc.

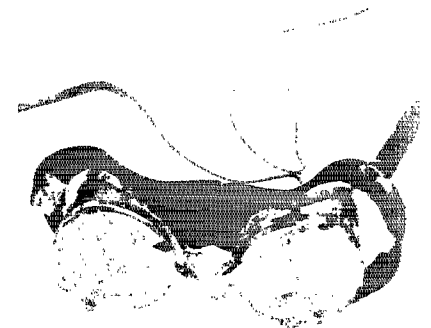
Group H—Processes where protection from injurious radiant energy with a moderate reduction in intensity of the visible radiant energy is required. *Examples:* Oxy-acetylene and oxy-hydrogen welding and cutting; open-hearth, Bessemer, and crucible steel making; furnace work, electric resistance welding, brazing, and testing of lamps, involving exposure to excessive brightness.

Group I—Processes where protection from injurious radiant energy with a large reduction of the visible radiant energy is required. *Examples:* Electric arc welding and cutting.

The examples given in the foregoing list are, of course, for illustration only and are not intended to be all-inclusive. The Code is careful to point out that goggles alone will not furnish adequate protection for all occupations listed. For cutting rivets, for example, a suitable face mask is needed, and in babbitting, a mask is desirable to protect both face and eyes. For sandblasting, helmets of special design are needed, and the handling of acids, caustics and other corrosive substances usually calls for masks or respirators.

In short, the Code should be considered as a minimum standard in plant.

(Please turn to page 65)



Both lenses completely covered by molten metal, but the worker's eyes suffered no injury.

WHERE EYES HAVE BEEN SAVED IN INDUSTRY

Nature of the Industry	Number of Plts.	Total Employees	Eyes Saved in Two Years
Steel and Other Metals	60	109,577	1,143
Miscellaneous Manufacturing	149	87,864	1,143
Mining, Quarrying and Smelting	42	21,617	78
Railroads and Allied Industries	35	191,609	1
Lumber, Cement and Building Materials	53	7,463	69
Chemicals and Allied Industries	66	24,607	269
Auto and Allied Industries	23	22,878	1
Paper and Allied Industries	7	3,421	26
Rubber, Batteries and Allied Industries	4	3,169	3
Foundry and Machine Works	10	1,685	24
Paint and Oil Industries	8	7,896	43
Packing and Food Products	1	2,000	1
Locomotive and Car Building	6	43,667	127
Glass and Allied Industries	8	6,886	2
Building and Structural Industries	2	1,116	1

*From the Joint Survey of the National Society for the Prevention of Blindness and the National Safety Council (1928).

Westclox Makes Safety History

By CARMAN T. FISH

By operating 7,280,604 man-hours without a disabling injury the Western Clock Company wins a place among the leaders in safety achievement

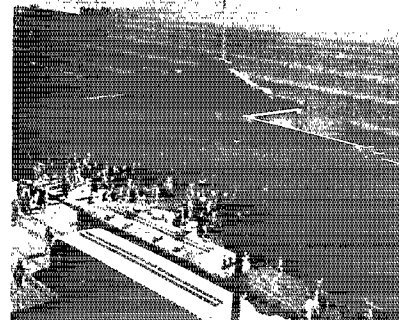


TEN years ago the Western Clock Company enjoyed an enviable reputation as a safe place to work. It ranked high among industrial plants, even though the 2,600 employees suffered 75 lost-time accidents that year. The severity rate, was low—less than 1.00 days lost per thousand man-hours worked—and not one of the 140 power presses had caused a mutilation in more than four years. Those were the days, we must remember, when even a hundred thousand safe man-hours was something to broadcast.

These figures, however, are interesting merely for comparison. The real story is that Westclox suffered no disabling injuries in either 1932 or 1933, with

3,101,780 and 3,253,585 man-hours worked in these years respectively. They almost had a no-accident year in 1931. The record was clear up till the middle of December when two accidents within a few days of each other postponed the company's admission to Safety's hall of fame. But the employees were not to be discouraged. They went ahead and made safety history in 1932 and 1933. By March 1, 1934, the exposure reached 7,280,604 man-hours.

Back in 1924 this writer visited the plant at LaSalle, Illinois. He found a clean, well-guarded plant, an efficient safety organization, and a management which was solidly behind the safety program. Revisiting the plant nearly ten years later revealed little in the way of external change. Most of the equipment looked the same, many of the old foremen were still active in the cause of



The main factory entrance at the Western Clock Company. Motor traffic is detoured at closing time.

safety. But there was a change under the surface, comparable to the trend which added a modern decorative touch to Big Ben and his brethren. I couldn't help feeling that safety held an even more important place than it had a few years ago.

Safety at Westclox antedates the national movement in the United States by several years. It is difficult to trace back the threads of this movement to their source, and to point out definitely any one occasion as being the start of safety work in this plant.

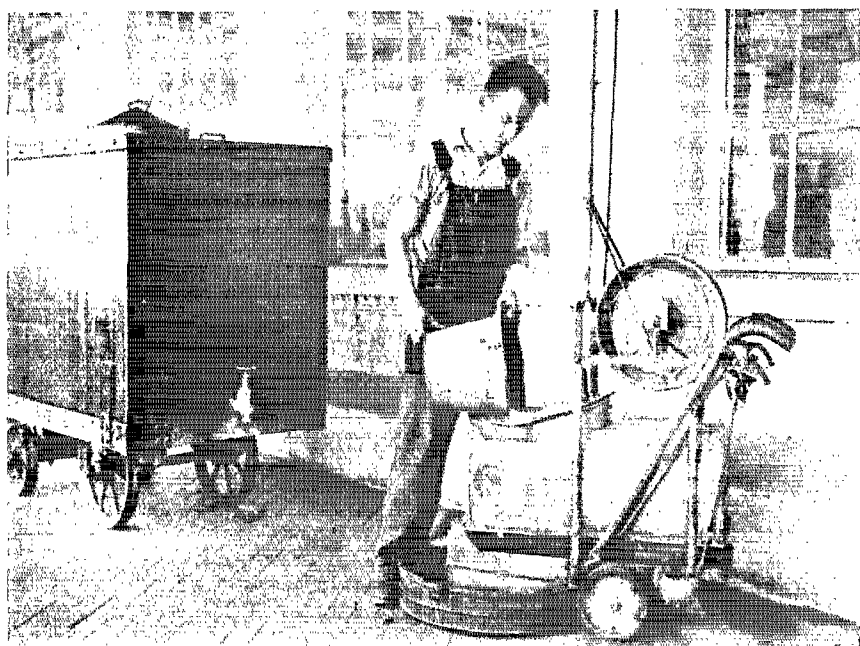
It may be somewhat of a blow to those who consider modern accident prevention work as something distinctly American to learn that this company received its inspiration in Germany. About 1900, before there was any national effort for accident prevention in this country, F. W. Matthiessen, then owner of practically all the stock in the company, visited Germany and observed with interest the safety work that was being done in certain industries there. He brought the idea back to his own plant.

The germ was planted, but it was decided in those early days that if safety was to have a healthy growth, it must not be imposed from without, but must grow and develop naturally from within. That course, it was felt, would not produce results quickly, but the results when they did come would be thorough and lasting.

The Westclox safety program has been based upon equitable industrial relationships, personal and environmental cleanliness, constant study of physical condi-



Assembling Big Ben's parts. Skylights provide well distributed light for delicate operations.



Machines keep the floor cleaner than human muscles could do it.

tions to detect possible accident sources, and competent instruction and supervision of employees. The company was on the right track many years ago and a steady year by year reduction in accidents has been the logical consequence.

"We couldn't have done it without our foremen," I was told in the front office. "The employees themselves deserve the credit," was what the supervisors said. At any rate, the results seem to prove the old saying that a lot can be accomplished if nobody worries too much about who gets the credit.

Westclox management has had for its constant ideal a place where men and women could earn a comfortable living at congenial work in a safe and healthful working environment. From the beginning, safety methods fitted into the picture.

With the constant encouragement of a safety-minded management, we find a group of foremen elated at their company having won a place in safety's hall of fame but quite aware that a record of more than two years may crash because of a moment's inattention.

A few minutes with Bill Kemper, foreman of the power press department, will impress the visitor with the enthusiasm behind the Westclox safety program. Kemper seems to have an extra sense that enables him to spot an unsafe practice before an accident occurs. The power press department hasn't lost a finger in more than seven years; in fact, the whole plant hasn't had an injury in that time which involved any degree of

permanent disability, which is a source of justifiable pride to everybody. Kemper knows only too well that all humans are subject to mental lapses and he tries to be one jump ahead of the most forgetful man. When a press operator proves hopeless, he requests his transfer to some department where at least he won't stick his fingers in the danger zone of a press.

Bill Kemper's attitude seems to be typical of Westclox foremen. Ever since

the plant began safety work, the foremen have given their enthusiastic support.

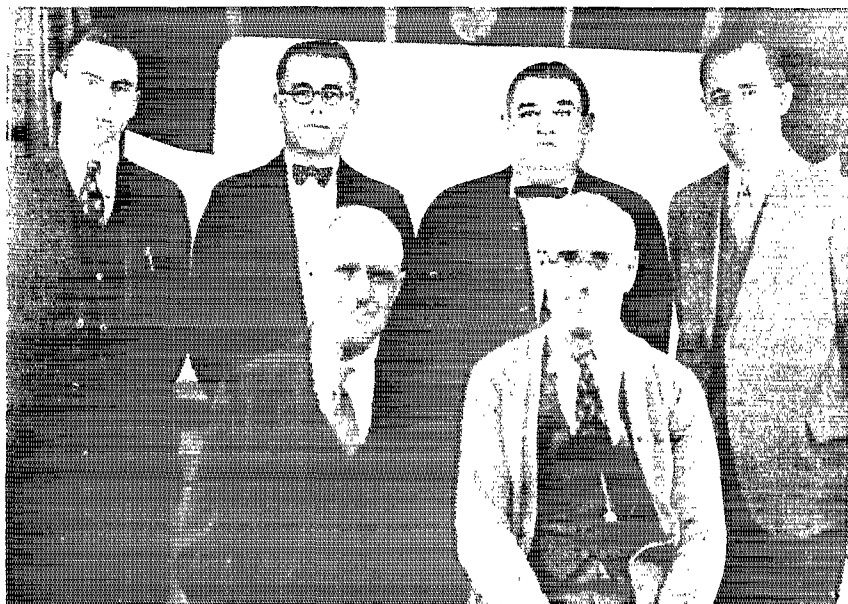
Safety committees were an early part of the Westclox plan. The central committee, composed of foremen and a representative of the employees service department, furnishes a large part of the motive power for the work in addition to its function as a clearing house for the suggestions turned in by the departmental safety representatives.

As for the employees to whom the foremen generously pass the credit, there are at present about 2,300 on the payroll. Approximately half of them are women and some two-thirds might be classified as skilled workers. There are few occupations in the plant which might be filled by an individual with a strong back and a weak mind. Stamping and assembling the innards of an alarm clock is precision work which requires mental alertness and manual dexterity.

Most of them are young, the average age being about 29 years. They have to start young to train minds and fingers to work with the speed and accuracy demanded by the job. Another reason for the low average age is that most of the girls graduate from the work shop to the kitchen after about four years' service. Romance has proved to be the only serious cause of labor turnover.

Next in importance to the human element is the plant itself. It is exception-

Please turn to page 60



The central safety committee. Left to right: Wayne Hocking, employees service department, and acting secretary of the committee; Adam Currie, superintendent's office; William Kemper, foreman, power press department; Dudley Diggs, foreman, maintenance department; Robert Paton, foreman, tool department; Arthur Smith, foreman, automatic screw machine department.

Why Not Modernize Your Drinking Water System?

HOW many of the millions of drinking fountains that serve the needs of thirsty workers, customers and the general public could be classed as "modern?"

In the absence of any authentic figures, the best we can do is make a mental summary of those observed or used in factories, offices, department stores, railroad stations, parks and other public places.

The public has become germ-conscious to the extent that it avoids the public drinking cup wherever possible but it is still too ready to accept any bubbler as sanitary. If snowy porcelain and lustrous chromium plate could reveal the germs they often carry, people would pass by many of the fountains now in use. Visible dirt is the only kind that repels.

What is a modern fountain? Probably the best list of requirements is that formulated by a committee of the American Public Health Association and adopted in 1930. Those who drink from fountains and those who are responsible for installing them will find these standards interesting:

1. The fountain should be constructed of impervious material, such as vitreous china, porcelain, enameled iron, other metals or stoneware.

2. The jet of the fountain should issue from a nozzle of non-oxidizing, impervious material and should be set at an angle from the vertical. The nozzle and every other opening in the water pipe or conductor leading to the nozzle should be above the edge of the bowl so that the nozzle or opening will not be flooded if a drain from the bowl of the fountain becomes clogged.

3. The end of the nozzle should be protected by a non-oxidizing guard to prevent the drinker from coming in contact with the nozzle.

4. The inclined jet of water issuing from the nozzle should not touch the guard because splattering will result.

5. The bowl of the fountain should be so designed and proportioned as to be free from corners which will be difficult to clean.

6. The bowl should be so proportioned as to prevent unnecessary splashing at the point where the jet falls in the bowl.

7. The drain from the fountain should not have a direct physical connection to a waste pipe unless the drain is trapped.

8. The water supply pipes should be provided with an adjustable valve fitted with a loose key or an automatic valve permitting the regulation of the rate of flow of water to the fountain so that the valve manipulated by the users of the fountain will serve merely to turn the water on or off.

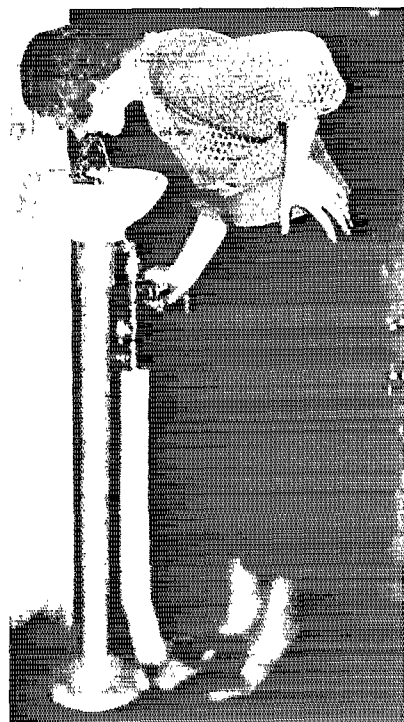
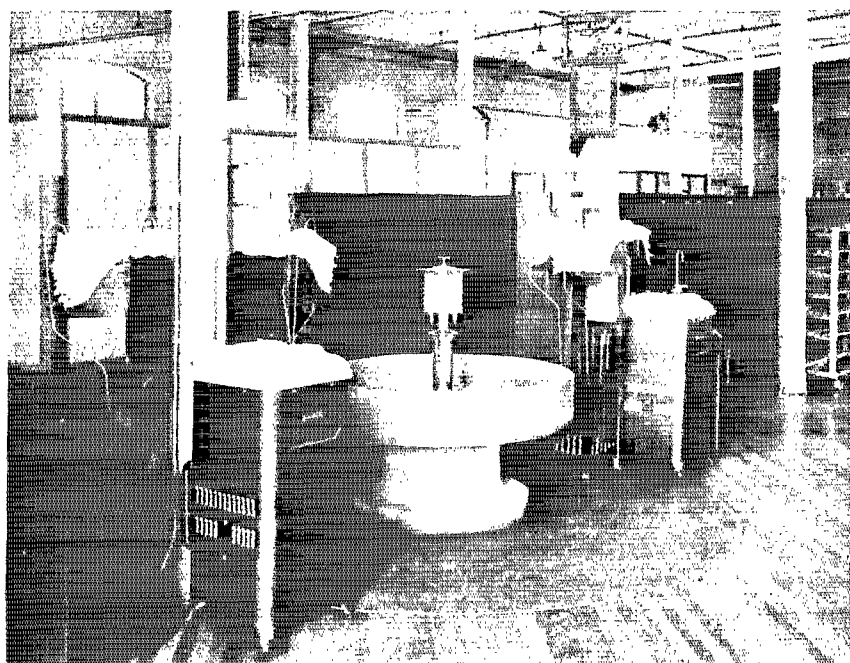


Figure 10

This fountain is part of a system cooled by a central refrigerating plant. Water flows at an angle and a guard keeps lips away from the nozzle.



General Electric Co.

Exceptional facilities for drinking water and for external personal cleanliness are found in the locker room of this cigar factory.

9. The height of the fountain at the drinking level should be such as to be most convenient to persons who use it. The provision of several step-like elevations to the door at the fountain will permit children of various ages to drink.

10. The waste opening and pipe should be of sufficient size to carry off the water promptly. The opening should be provided with a strainer.

Any installation which fails to measure up to these standards can hardly be called modern. Many a department store has remodeled its elevators, but left the old vertical jet fountains for customers and many an industrial plant has modernized almost everything except the drinking water system. Very little effort has been put forth by the manufacturers to educate the public to recognize hygienic design.

An alternative for the fountain is the provision of paper cups. This is frequently done in offices where there are comparatively few employees to be

(Please turn to page 53)



International News Photo

New York Conference Continues to Grow

By CYRIL AINSWORTH

General Chairman, Fifth Annual Greater New York Safety Conference

BUILT around new aspects of the accident problem under the national industrial recovery program, the Fifth Annual Greater New York Safety Conference netted an attendance of 2,715 delegates at its two-day sessions at the Pennsylvania hotel. The Conference, sponsored by the Metropolitan Chapter of the American Society of Safety Engineers, the Engineering Section of the National Safety Council, and 50 cooperating organizations, for the fourth time in its history materially gained in size and in interest.

Some idea of the wide scope of interest in the material presented to the delegates, and of the prominent place the New York Conference has made for itself in the thoughts of safety workers throughout the country, may be gained from a perusal of the registrations. Delegates came from the metropolitan area, Up-State New York, New Jersey, Pennsylvania, Chicago, New England and as far south as New Orleans. The net attendance shows a gain of four per cent over last year.

As in previous years, elaborate plans were made for advance registration by the Committee headed by Dr. W. R. Redden, New York Chapter, the American Red Cross. Through the use of keyed registration blanks it was possible to check the registration to its source through the 50 cooperating organizations, the 75 insurance companies and through the 35 contact men representing various businesses.

Each of these three groups worked

under a vice-chairman, these being J. L. Ballieson, of Brooklyn Chamber of Commerce, for the cooperating agencies group of the Attendance Committee; Harold Segrave, of Mine Safety Appliances Company, contact; and L. L. Spencer, Travelers Insurance Company, insurance.

Much of the success of the Conference may be attributed to the Attendance, Program and Publicity Committees, as well as the Arrangements, Exhibit, Finance, Banquet and General Committees.

Taking the timely subject of accident prevention in relation to the industrial recovery program as the keynote of the Conference and the first session, the Program Committee then offered discussions of specific accident problems, such as "Falls of Persons," and of other questions important to specific types of industry, for the other 14 sessions. During the Conference 47 addresses were made.

The Arrangements Committee, under Harold N. Gainer, N. Y. & Queens Electric Light & Power Company, using 120 workers, attended to all details for a smoothly functioning meeting. The use of changeable placards at the door of each session room to show what speaker was delivering his speech at the time was continued this year. As the sessions were largely "paralleled," this permitted delegates to go from one session to another with the least inconvenience.

The Publicity Committee—Ernest F. Hartford, of the American Society of Mechanical Engineers, chairman—work-

Safety leaders at the New York Conference. Left to right, Julien H. Harvey, manager, New York Office, NSC; Cyril Ainsworth, American Standards Association; John E. Long, president, NSC; W. H. Cameron, managing director, NSC.

ing with a press representative, sent approximately 1,200 releases, special letters, etc., to editors of newspapers, trade journals, press wire bureaus and trade journal syndicates. Also, six 15-minute radio programs—four over WNYC and two over a national network—were devoted to the conference.

John E. Long, president of the National Safety Council, delivered one of the talks over a nation-wide hook-up from WEA, through the courtesy of NBC, his talk being delivered on the first afternoon. W. Graham Cole, safety consultant to the N. Y. State CWA, delivered the other on February 28, over WABC and network.

During the Industry and Public Safety session, the delegates passed a resolution recommending a study of the effects of training in prevention of accidents other than occupational among industrial employees, the training to be given by industrial plants. The resolution, addressed to the General Committee, urges that group to appoint a committee to develop a concrete program, canvass industries in the Conference area and obtain 100 to make the experiment. The results of the study are to determine what effect safety instruction on subjects such as home, public, motor ve-

(Please turn to page 68.)



International News Photo

Cinderella examines a seven-league boot at an exhibit of safety shoes.

NATIONAL SAFETY NEWS

Cross-Cut Saw Guards

Industrial Data Sheet D-W2

A. Problem:

How to prevent injuries to workers who operate cross-cut saws.

B. Hazards:

When a cross-cut saw is operated without a suitable guard there is a possibility of severe injury by accidental contact with the saw.

C. Discussion:

The following specifications for cross-cut saw guards have been approved by a special committee of the American Society of Safety Engineers—Engineering Section, National Safety Council.

(a) General:

1. The term cross-cut saw as used in these specifications includes those saws employed for cutting off or cross-cutting on stationary, sliding, rolling, and tilting tables, and on tilting and double arbors used in lumber remanufacturing operations.

2. Each cross-cut saw should be provided with a hood guard.

3. Every cross-cut saw should be so guarded that there is no possibility of contact with the saw underneath or at the end of the saw table.

4. Every cross-cut saw, except overhead swing saws, railroad saws, and inverted swing saws, should, as an added protection to the operator, be provided with a splitter.

5. Every overhead swing saw should be provided with a limiting chain or other positive device which will prevent the front edge of the saw from advancing beyond the front edge of the saw table.

6. Every overhead swing saw should be provided with a counterweight device which will return the front edge of the saw at least one inch behind the back edge of the saw table. Such a device should not depend for its proper functioning upon a rope, cord, or spring.

7. Every overhead swing saw should be provided with a positive locking device which will prevent the saw from rebounding when the saw is released by the operator.

(b) Hood:

8. The hood should be substantially constructed and such as will afford the maximum protection to the operator against cuts by accidental contact with the saw, and at the same time protect him against flying splinters and broken saw teeth.

9. The hood should be made of aluminum, wood, or other suitable material so that the saw will not be broken should it accidentally come in contact with the hood.

10. The hood should permit a clear view of the saw at the point of operation.

11. The hood should cover every portion of the saw above the table, at least to the depth of the teeth—and it should be so supported that it will automatically adjust itself to the thickness of and remain in contact with the material being cut.

12. On a tilting table cross-cut saw, the hood should be so designed that both sides of the hood will rest on the table or material being cut.

13. On a tilting arbor saw the hood should be so supported that it will be in alignment with the saw at all times.

14. On overhead swing saws, the hood should cover the nut and end of the saw arbor.

(c) Splitter:

15. A splitter should be made of stiff material, such as saw steel, and should be ground to a smooth finish.

16. The splitter should be slightly thinner than the saw kerf and slightly thicker than the saw blade.

17. The splitter should be at least two inches wide at the top of the table.

18. The splitter should be securely fastened at the back of the saw in such manner that the clearance between the splitter and the saw does not exceed one-half inch.

19. On a tilting arbor saw, the splitter should be so supported that it is in alignment with the saw at all times.

Note (X). It is claimed by some authorities while a splitter is not so essential on a cross-cut saw as on a rip saw, it should be used on such saws because in many instances it adds to the safety of the operation. On cross-cut saws with a stationary table and a sliding gage, a splitter may be provided which can be adjusted close to the saw. The splitter is made with a slot at one end through which a screw passes to hold the splitter to the table. A pin which projects about three-sixteenths of an inch is provided at the other end of the splitter. This pin is forced into the wood throat piece to hold it in alignment with the saw. This splitter prevents the piece which has been cut off from coming in contact with the back of the saw. It will also help keep the operator's fingers away from the saw blade when he is pushing waste pieces from the back of the saw. This practice is, of course, an unsafe one and should not be permitted.

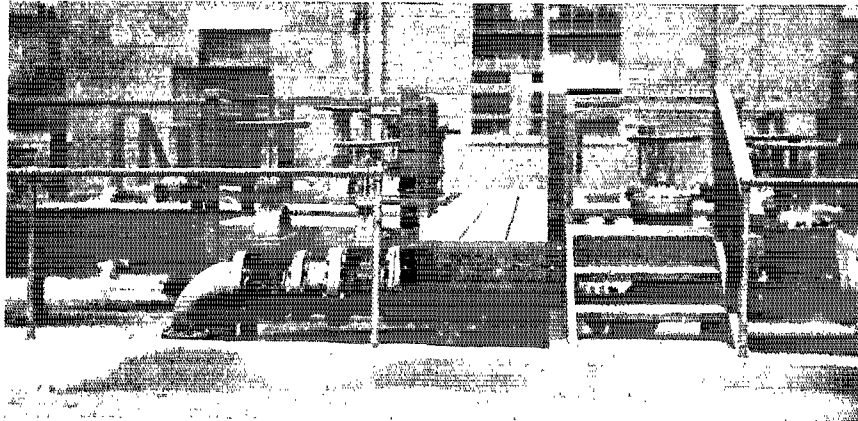
Note (Y). Additional information on cross-cut saw guards will be found in Safe Practices Pamphlet No. 20, "Woodworking Machinery and Equipment."

National Safety Council, Inc.

20 No. Wacker Drive, Chicago, Illinois

THE SAFETY EXCHANGE

"A ROUND TABLE IN PRINT"



Safe Walkway and Railings Over Pit

Here is a walkway constructed over a pipe pit in an oil company premises that deserves commendation. It is plainly of good stout construction and offers a safe and efficient means of reaching the valves. Note also the stout railings that close in the pit on all sides and surround the great valves.

Equalizer Prevents Rupture of Water Tank

Plant water tanks sometimes freeze and burst, causing damage to property and necessitating hazardous repair work. Charles Labbe, Death Valley Junction, Calif., sends this simple and inexpensive device to relieve the pressure due to expansion by freezing. It consists of an old range boiler with a flange welded to bottom and weighted so it floats with the top about one inch out of water. It has a $\frac{3}{4}$ inch hole in the center of the bottom flange. The first cold spell the whole surface of the water freezes over

and any further freezing will cause an expansion of the water, compressing the air in the tank. The water going into air chamber reduces the pressure on the water tank walls. If any water is taken out of the tank, the pressure is relieved and the equalizer is back to normal. If any water is added, being warmer than the water in the tank, the equalizer will rise above the ice.



Here Is a Safe Roller and Also a Rollway

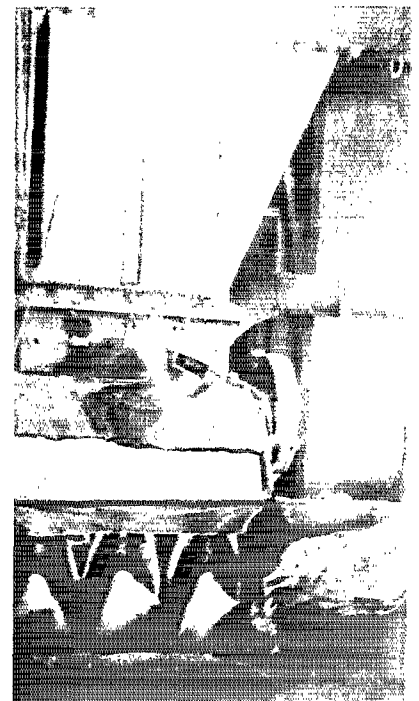
This convenient barrel roller not only saves back injuries and mashed hands and feet but permits a safe speed and promotes ease in unloading. It is constructed of strap iron and standard pipe fittings. The clamp springs onto the head of the barrel and holds it rigid. Another notable feature is the adjustable steel platform arranged to cover safely spaces of different width between cars and platforms. The platform has holes along either edge, into which bolts are dropped at suitable intervals to hold

THE IDEAS presented here have proved helpful. If you have developed a useful device or method send in a description, illustrated with a sketch, blueprint or photograph, if possible

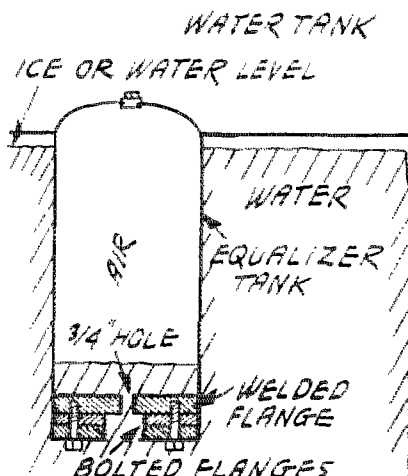
the platform securely in place. The picture is supplied by the Oscar Maye & Company plant.

Glass Shield Protects Sacking Machine Operator

In the cement plant, one hazard to operators engaged in filling the cement bags is to have a partly filled bag slit off of the filling tube, with the result that the cement dust spurts out into the face of the operator. This hazard has been effectually met at the plant of the Superior Portland Cement Company, Concrete, Wash., by rigging up a plain glass shield in front of the tubes. This presents no obstacle or hindrance to the filling operation, yet affords ample protection to the workman. The illustration is from *Rock Products Magazine*.



NATIONAL SAFETY NEW



Cutter Bar Holder Helps Prevent Accidents

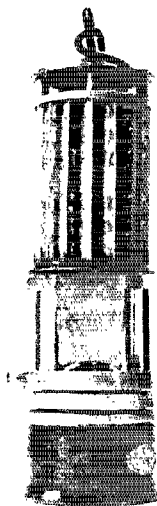
Below is an interesting picture of a cutter bar holder that has proved very satisfactory in the plant of the East Ohio Gas Company, Cleveland. Used where pavements or other hard surfaces have to be opened, it has saved many injured and broken hands and arms. The probable cost of making the grip is



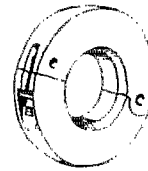
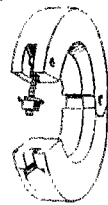
about one dollar, or even less in quantity. The handle is of one in. pipe, 20% in. long. Complete details are contained in a blueprint, impracticable to publish here, but available for reference in the Council library.

Safety Lamp Is Now Fitted With Reflector

When testing a manhole for the presence of gases, it has been customary to lower the lamp by means of a rope, then withdraw it to see if the flame still burned. But this test was not always satisfactory, as the effect of the gas on the flame could not be seen easily

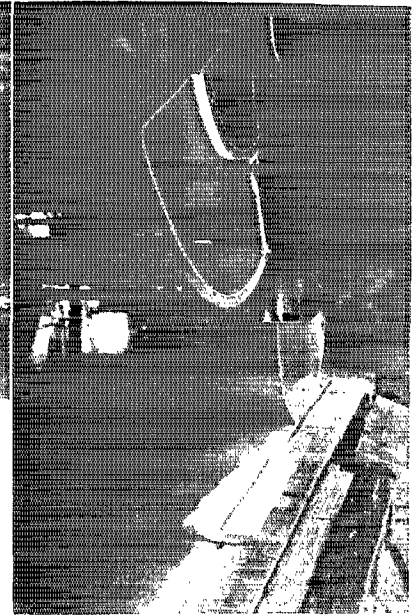
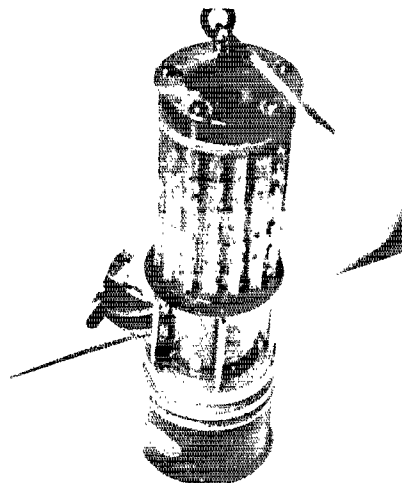


from above. The reflector, shown in the accompanying photographs of a safety lamp, was devised at The Philadelphia Company plant to enable the test man to observe the flame while the lamp was being lowered. The small reflector is constructed of chromium plated metal, and is so designed that it can be easily attached to the studs of a safety lamp at the correct angle to reflect the flame, as shown in the first picture; and also to allow the reflector to be fastened in a vertical position against the lamp when not in use, as shown in the second picture.



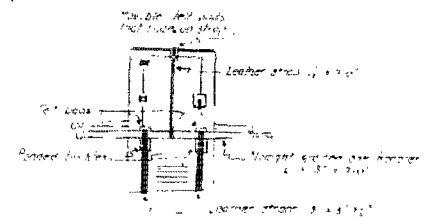
A Good Type of Split Safety Collar

Here is a split safety collar that presents a smooth overall surface. It was designed by the Great Northern Paper Company, Millinocket, Maine, for use on paper machine winder shafts. However, there are many other places where such a collar could be used to good advantage.



Clever Device Uses Shadow Line in Cutting

This "shadow line" cutter on a meat cutting machine could be applied to other industries, such as woodworking, textile, etc. It consists of an enclosed lamp in a slotted reflector, the beam coming from the slot being intersected by a strip of strap-iron which casts a thin shadow on the work, thus providing a guide line to follow in sawing, cutting, or any other operation that must be controlled manually. The shadow line permits the operator to stand back at a safe distance and also makes for accuracy, thus saving material and time. The pictures are from the plant of Oscar Mayer & Company, packers.



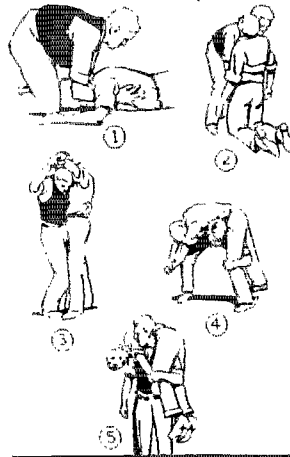
Merchandise Carrying Device Adds to Safety

The modern automatic refrigerator is a wonderfully convenient device, but it is necessarily built with great solidity and is very heavy to handle. The accompanying diagram shows in detail the construction of a merchandise carrying device that is valuable in handling such heavy packages. It has saved many serious strains and back injuries. The details of this device are furnished by J. W. Ankemann of the Northwestern Public Service Co., Huron, South Dakota, but the device was originated by the Northern States Power Co.

PRACTICAL FIRST AID

Transporting an Injured Person

Fireman's Carry



SAFETY INSTRUCTION CARD No. 173

FILES

- 1 NEVER USE A FILE WITHOUT A HANDLE. Many men who have violated this precaution have had the sharp pointed tines driven far into their hands. If you use files regularly, keep enough good file handle on hand so there will be no good reason to do without one. In any event always see that there is a good fitting substantial handle on each file you use.
- 2 If any of the files you have in your tool kit have particularly sharp pointed tines it will pay you to round them off a bit to prevent snagging your hand when reaching into the kit.
- 3 When filing work close to the chuck in a lathe, file left handed so your arm will not be snagged or your clothing become caught on the chuck jaws or dog.
- 4 Never hit a file with a hammer. Flaws of the hardened steel are almost sure to fly.
- 5 Never make a center punch or chisel out of an old file. The tempering of the metal makes it too brittle for this purpose.
- 6 Do not use a file as a pry. It may break and in breaking cause pieces to fly.
- 7 Be particularly careful not to carry a file in your pocket without a handle on the file. Otherwise the file may be driven into your body if you slip and fall.
- 8 The cleaner and sharper the file, the less chance there is for slipping and skinning a knuckle.

SAFETY INSTRUCTION CARD No. 174

TO AVOID DOG BITES



Approach Dog—Face Him—Call Him By Name (if known)

If He Attacks, Face Him As You Retreat Hold Your Hand Palm Up Toward Him. Ask Customer To Tie Him



If Bitten See a Physician At Once

Make Statement Book "Bad Dog" and Name of Dog



SAFETY INSTRUCTION CARD No. 175

PICKS

- 1 Handles of picks should be smooth and securely fastened to the heads cannot slide down. The head should have sharp points preferably chisel shaped.
- 2 When using a pick, always make sure there is no one in back or in front of you close enough to be struck by it.
- 3 To use the pick, spread your legs and get a firm footing then avoid swinging it either too close to your feet or too far away.
- 4 Every time you lay a pick down stop to think whether or not it is in a place where someone might run into it or fall over it or where it might fall on someone.
- 5 On completing a job or when through with the day's work, put your pick away where it can do no harm.



SAFETY INSTRUCTION CARD No. 176

INATTENTION

EVER stop to think when driving an automobile at forty-five or fifty miles an hour how far it travels in as little as five seconds, and what might happen if you took your hands off the wheel and closed your eyes for that length of time?

Many a serious accident has occurred not because the injured person closed his eyes or took his hands off the wheel of the job he was doing, but because he closed his mind for a moment by thinking of other things. Some people call it daydreaming, some call it thoughtlessness; actually it is inattention to the job in hand.

Always remember that most accidents require instant awareness for safety. You must always be pick like and alert by letting your mind wander when you are in the midst of hazardous work.

It is necessary to be so someone to cause the interruption will not cause you to get hurt. If you are depending on to go out on a job party or are making plans for a week and find out if you've had trouble at home or if you've had an argument, try to do your thinking about it outside of working hours.

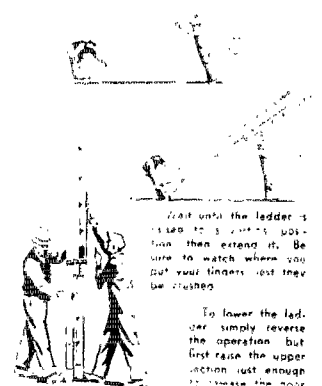
In other words, WATCH WHAT YOU'RE DOING WHILE YOU'RE DOING IT.

SAFETY INSTRUCTION CARD No. 177

EXTENSION LADDERS

How to raise and extend

THERE is plenty of chance for injury in the handling of extension ladders. Raising and extending one of any appreciable length is a two-man job and even so it requires extreme care. Here's how to raise the ladder—two good methods are shown:



SAFETY INSTRUCTION CARD No. 178

HOUSEKEEPING

Salvaging Materials

SOME men have the habit of collecting odds and ends and storing them away so that they are there when needed. This is a commendable thing to do when it is done with good judgment. Some fellows, however, surround themselves with a lot of junk and keep it in such a disorderly manner that it becomes a real fire and accident danger.

Good housekeeping is well worth while. It not only saves waste but a lot has a lot to do with good housekeeping and good housekeeping has a lot to do with the prevention of accidents.

Whether it is a matter of housekeeping or a matter of housekeeping, unless you have been employed for the express purpose of doing salvage work it is not to be expected that you will spend much time salvaging materials that might otherwise go to waste or create cluttered and hazardous conditions. But everyone in the company can do his share by being on the lookout for opportunities to save materials and for ways of improving operations and practices to prevent unnecessary waste.

SAFETY INSTRUCTION CARD No. 179

GAS LEAKS

What to Do

- 1 Keep all flames, sparks, or open cigarettes, lighters, and pipes away.
- 2 If there is a gas leak, shut off the gas at the source. If the leak is in a pipe, it is dangerous to open doors and windows.
- 3 Do not take any chance of being startled.
- 4 Do not touch any pipes or valves of gas and water to the exterior of the pipes and fittings with a match. When you come to the gas, the pipes may be from a furnace, and these will not fire, so turn off the gas at the source.
- 5 If you see a gas leak, shut off the gas at the source. If the leak is in a pipe, it is dangerous to open doors and windows.
- 6 If you see a gas leak, shut off the gas at the source. If the leak is in a pipe, it is dangerous to open doors and windows.



SAFETY INSTRUCTION CARD No. 180

PERSONAL SAFETY CHECK LIST

IT has been found in studying the causes of accidents over a long period of time that the following gives an important part.

Check over the list and see how you think you stack up.

- 1 Reading safety as a part of each day.
- 2 Wearing safety glasses.
- 3 Wearing safety shoes.
- 4 Wearing safety harness when working high.
- 5 Wearing safety helmet when working high.
- 6 Back of knees in the job.
- 7 Quick temper.
- 8 Wearing safety harness when working high.
- 9 Wearing safety harness when working high.
- 10 Wearing safety harness when working high.
- 11 Wearing safety harness when working high.
- 12 Wearing safety harness when working high.
- 13 Wearing safety harness when working high.
- 14 Wearing safety harness when working high.

SAFETY INSTRUCTION CARD No. 181

MATCHES

1 At the moment of lighting a match, the temperature of the flame at the head is nearly 1,000° Fahrenheit. This is capable of giving a nasty burn or setting clothes alight instantly. Therefore, when striking a match strike it away from you and never toward anyone who might be nearby.



- 2 It is particularly dangerous to strike matches close to the face as so many people do when lighting pipe, cigarette or cigar in the wind.
- 3 Make sure the box is closed before striking a match. If the heads of the others are exposed they may catch fire and ignite with a flash like a miniature explosion.
- 4 When striking paper matches, always close the flap before striking to guard the heads of the remaining matches. Always make sure the flap is closed before putting them in your pocket.
- 5 When putting matches in a match holder, always put the heads down. Never leave them exposed so they may catch fire easily.
- 6 Some matches carry what is known as an after-draw when the flame is extinguished. This often causes fires when the matches are discarded close to flammable materials. Get the habit of breaking matches in two before throwing them away.
- 7 Keep matches out of reach of little children.



SAFETY INSTRUCTION CARD No. 182

DRIVING VEHICLES

What To Do in Case of an Automobile Accident

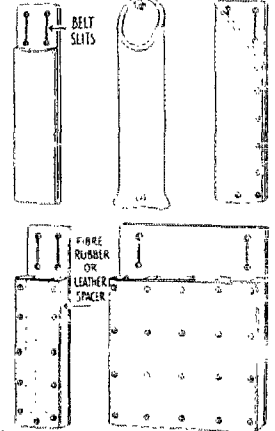
- 1 If anyone is injured, remove him from the wreckage as quickly as possible. Then see that he is taken to a hospital or put in the care of a doctor.
- 2 Prevent smoking near the vehicle if any gasoline has been spilled. In case of a fire use an extinguisher on the base of the flame or throw dirt on it.
- 3 Secure the name, address, and driver's license number of any other drivers involved. Get the registration-plate numbers of other vehicles involved and the name of the companies if any which insure them.
- 4 Get the names and addresses of injured persons and passengers of the other cars.
- 5 Get names and addresses of any bystanders or other witnesses. [Write these down at once. Do not trust to memory.]
- 6 If damaged vehicles are blocking traffic but can be driven or pushed, move them to one side.
- 7 Cooperate fully with any police who may be present. Answer all their questions briefly and truthfully. Do not argue.
- 8 Do not discuss the blame for the accident with other drivers. Get the facts and let it go at that.
- 9 If your car is seriously damaged or if anyone is injured, telephone this information to headquarters.
- 10 Make out required reports on the accident.



SAFETY INSTRUCTION CARD No. 183

SHEATHES FOR SHARP POINTED TOOLS

THE illustrations on this card suggest simple ways of making sheathes of such materials as old leather and canvas belting, rubber hose, etc.



SAFETY INSTRUCTION CARD No. 184

"One Thing at a Time" Makes Program Successful

THE shot-gun variety of safety program still predominates in most industries. The worker has grown used to the steady ballyhoo about general safety and it no longer sinks in. Swallowing the whole subject of accident prevention in a single dose has been too much for the patient; he has become only partially immune.

These were the conclusions of John N. Dick, writing in the August, 1933, number of *The Personnel Journal*. In his article Mr. Dick describes the details of an eastern company's change from a general to a specific program, specializing on one phase of safety at a time. The launching of such a program involved three things:

1. The presentation of each safety idea in such a way that each person could easily understand and digest it.

2. The full cooperation of the management (the body through which safety ideas must be sold to superintendents, supervisors, foremen, and finally to the workers).

3. Some test by which the success of the program could be judged.

The campaign contemplated presenting one idea at a time with such force that every man would be impressed.

All accidents occurring at the plant during the preceding year were analyzed for causes. The causes were then grouped in the order of their seriousness,

taking into consideration both frequency and severity. This yielded the following list: foot injuries, handling materials, falls, harmful substances, eye injuries, and machinery injuries. All available information on these subjects was collected from safety committees, the National Safety Council, safety equipment companies, state labor departments, safety magazines and handbooks, and the company's inspection reports and records of accidents.

A month or more was scheduled for each of the safety subjects listed. Each week a poster stressing some specific phase of the subject was placed on the bulletin boards. Most of these were prepared at the plant, photostatic copies being used for posting. They were simple in design and carried very little lettering. Employees who did not read English could understand them. Below each poster three or four pertinent safety hints were listed.

Just before a new poster was to be displayed, a letter was sent to each foreman acquainting him with the nature of the poster for the week and with the facts, causes, and costs relative to the specific accident subject. An illustrated article on the current safety topic appeared each month in the plant magazine. Pertinent leaflets, as well as safety magazines, were distributed to all foremen and safety committee men. Special talks were

developed for safety committee meetings. Displays made from local materials were arranged in various parts of the plant; at one time a collection of unsafe tools that had been picked up in the machine shop, at another a display of types of goggles and their proper uses. All employees were invited to see safety motion pictures.

When an accident did occur the matter was laid before the superintendent of the division after investigation by the safety engineer. The superintendent was led to feel that he was responsible for this accident. He in turn took it up with the supervisor of the department in which it occurred. The supervisor saw the foreman about it, and finally the foreman discussed the various angles of the case with the injured man himself, explaining what had caused the accident and how it could have been avoided.

The success of the new program was evident from the start. "Foot injuries" was chosen as the initial subject of the campaign. As a result, more safety shoes were sold to the plant during the month than had been sold during the entire previous year. Even after the campaign was finished with this subject and had taken up the next one, the monthly sales of safety shoes remained above the total for the previous year.

Since the campaign has been in progress, accidents due to the causes stressed have been reduced 60 per cent. The cost of such accidents has been reduced 70 per cent. The author estimates that at least 50 per cent of the reduction has been due to the specialized safety campaigns.



HEAD INJURIES



FOOT INJURIES



**SERIOUS DEVELOPMENTS
ARISING FROM
INJURY NEGLIGENCE**



**M·S·A
SKULLGARDS**
comfortable protection



**M·S·A
SAFETY SHOES**
with steel reinforced toes



**M·S·A
FIRST AID
EQUIPMENT**
to meet every requirement

Look on the Right side

There IS a right side in this matter of accident prevention, you know. ¶ MSA Skullgards will avert all manner of head injuries, yet they're light, cool, and comfortable to wear. ¶ MSA Safety Shoes will resist a crushing weight, although they're just as easy to wear as ordinary shoes. ¶ Thousands of minor injuries will never become serious if MSA First-Aid Equipment is ready at hand when they occur.

MSA Skullgards, Safety Shoes and First-Aid Kits; they're available in a range of sizes and types to meet the needs of every industry. Eye Protectors, too, and other MSA Safety Clothing of every description. ¶ It doesn't involve a heavy expenditure to provide your men with MSA TANGIBLE accident insurance. You'll see your reward on the RIGHT SIDE of your ledger, in materially reduced compensation costs.

MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Streets, Pittsburgh, Pa.

MSA Equipment includes Breathing Apparatus . . . Inhalators . . . Masks of all Types . . . Gas Indicators . . . First Aid Equipment



District Representatives in Principal Cities

Eye and Head Protectors . . . Safety Clothing . . . Edison Electric Cap Lamps . . . Descriptive Bulletins will be sent upon request.

What Is a Dusty Factory?

By E. G. MEITER, M.D.

Director, Industrial Hygiene Laboratory,
Employers Mutual Liability Insurance Co.

Quantity of dust, size of particles, and
mineral composition must all be considered

THE importance of atmospheric dust as an agent in the causation of respiratory diseases has long been known. However, it is only within the last few years that this subject has achieved medical and legal importance in dusty industries. Because of the extension of compensation laws to include occupational diseases, and through an ever increasing number of legal suits against industrial concerns by employees claiming disability due to dust inhalation, there is need for an intensive attack on the problem.

To control the dustiness of the air intelligently, the amount of dust present must be determined. With a given dust, two factors are usually considered: (1) the number of dust particles in a given quantity of air; (2) particle size, usually expressed in a size frequency distribution curve, that is, the percentage less than stated size is plotted against the size of particles.

Instruments for Dust Counts

Many instruments have been devised for determining the dust concentration in air, and it may be well to give a brief historical review of the subject. The South African investigators began using the sugar tube method for sampling atmospheric dust in 1911; the same method was used by the U. S. Bureau of Mines¹ as early as 1914. By this method a measured volume of dusty air is passed through a tube containing granulated sugar which filters out the suspended dust. At the laboratory, the sugar is dissolved in water and the number of dust particles is determined by counting those in a small volume of the sugar solution under a microscope.

This method of dust sampling had certain disadvantages, the chief of which was the fact that the purest commercial sugar contained a certain quantity of dust, which introduced considerable

errors, especially in those samples containing a low dust concentration. To overcome the limitations of the sugar tube method various other devices were developed, one of which was the Palmer apparatus². This apparatus consisted essentially of a pear-shaped glass bulb, the lower end of which terminated in a U-tube or trap. Suction was applied to the glass bulb by means of an electric exhaust fan and the volume of air measured by means of a Petot tube. Dust-free distilled water was put into the U-tube. The air drawn through the water in the trap broke it up into a spray within the larger portion of the sampling bulb, which washed out and retained the dust. The dust so obtained was analyzed by the usual methods.

The Palmer apparatus also had certain disadvantages, the chief of which was that its efficiency as a dust catcher was low. In the search for a more portable type of instrument, which at the same time would yield rapid results, the South African investigators introduced in 1916 a new instrument known as the Kotzé konimeter³. The konimeter samples dust by impinging a small volume of air against the surface of a vasoline-coated glass plate, the vasoline serving to catch the dust particles. The dust retained on the glass plate was then counted under the microscope at a suitable magnification. The chief disadvantages of the konimeter are that in atmospheres containing a high concentration of dust, the spots are too dense to allow counting the individual particles and the method can, therefore, not be used in such cases, also many samples had to be taken to secure a correct average determination in places where the dust concentration was variable.

As a result of the different methods of dust determination being used by the different governmental bureaus and others, it was soon found that the various dust-sampling methods did not yield absolute results, consequently some confusion arose in interpreting the various dust studies. In order to arrive at some

basis of comparison the U. S. Bureau of Mines conducted a laboratory study of dust-sampling instruments. The results of this study were published in Public Health Bulletin No. 144 entitled "Comparative Tests of Instruments for Determining Atmospheric Dusts." (1925). During the course of this study two of the investigators, Dr. L. Greenburg and G. W. Smith, devised a new apparatus called the impinger. In the comparative study the dust collecting efficiency of the impinger was found to be high, and in addition the method offered several advantages over previous methods. After several modifications to meet special requirements, this instrument was adopted by the Federal Public Health Service and Bureau of Mines as the standard technique for the sampling of dust in air. The instrument has been used in the study of a number of dust trades, and is the accepted method in use today.

Size of Inhaled Particles

It has been observed from a study of silicotic lungs that most of the dust particles that have penetrated into the air sacs are less than 10 microns in longest dimension (1 micron is 1/1000 millimeter, or 1/25000 inch). It is generally agreed, therefore, that we need not bother with particles larger than 10 microns in measuring the concentration of a dangerous dust.

So that you may visualize the size of these small particles, consider a 28 mesh screen in which the screen openings are 50 microns. In the absence of a beam of light, an atmosphere containing these tiny particles will appear clear to the naked eye, and therefore is extremely deceptive. Only a powerful microscope can make such particles directly visible.

It is necessary, therefore, to make microscopical examination of the atmosphere to learn how badly polluted it may be. Larger particles such as are visible to the naked eye are essentially harmless in the causation of silicosis, as these are caught by the membranes provided in nature in the nasal and other respiratory passages and are eventually coughed up or eliminated before any damage is done.

(1) Lanza, A. J., and Higgins, Edwin, "Pulmonary Disease among Miners in the Joplin District, Missouri," Bureau of Mines Technical Paper No. 165 (1915).

(2) Fieldner, A. C., Katz, S. H., and Longfellow, E. S., "The Sugar Tube Method of Determining Rock Dust in the Air," Bureau of Mines Technical Paper No. 273 (1921).

(3) "Comparative Tests of Instruments for Determining Atmospheric Dusts," U. S. Public Health Bulletin No. 144 (1925).

PREVENT INFECTION



FACTS *about* MERCUROCHROME

H. W. & D.

- It is an effective germicide
- It is not irritating in wounds
- It is not toxic in wounds
- It has been in medical use for 14 years
- It is controlled chemically, bacteriologically and pharmacologically
- It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.



Scratches, abrasions and minor wounds may become infected. The use of Mercurochrome is an important preventive measure.

HYNSON, WESTCOTT & DUNNING, Inc.
BALTIMORE, MARYLAND

When small dust particles are dispersed in air, they are carried about like smoke and settle out very slowly. How long such particles will remain suspended in quiet air can be roughly determined from Stoke's law¹. Assuming a round particle to be one micron in diameter, it can be calculated by means of this law that such a particle will fall only 20.3 feet in 24 hours. It can be seen, therefore, that any fine dust dispersed into the air is not only a momentary hazard but remains in the air for an indefinite period. This fact is often overlooked by workmen, as it is usually assumed that as soon as the dust cloud is no longer visible all dust has settled out.

What Is a Dusty Factory?

The term "dusty working place" is only a relative one. Most air, both inside and outside of factories, contains some dust. It is, therefore, necessary to adopt a standard content for the dividing line between slightly dusty and dusty working places. The Wisconsin dust code² prescribes a "tentative figure of 15 million countable dust particles under 10 microns in longest dimension with free silica content of 35 per cent in a cubic foot of air as determined by Public Health Service technique. Variations in free silica content will make proportional inverse changes in this standard." In accordance with this standard the permissible count for practically pure silica would be 5,250,000 particles.

How Samples are Collected

As mentioned previously, the instrument used in collecting the dust samples is that known as the impinger.^{3,4} With this instrument the air to be sampled is drawn through a glass tube and impinged at a high velocity on a glass plate which is immersed beneath a suitable liquid contained in the collecting flask.

The impinger, therefore, combines the principle of collecting dust by impingement with a water washing or bubbling method and so possesses the advantages of both principles. The dust is thus trapped and remains in the collecting liquid. Suction is applied to the impinger by means of a steam ejector operated by compressed air. Where compressed air is not available, a small elec-

trically-operated vacuum pump may be used. The rate of air flow is measured either by means of a small vacuum gage or an orifice-type flow meter.

The entire apparatus is calibrated before use against a standard gas meter, so that a known volume of air may be sampled. The rate of sampling is approximately one cubic foot of air per minute. The dust-collecting device is placed in close proximity to the breathing level of the workmen involved while performing their respective duties, so that air samples representing actual working conditions may be obtained. After a sufficient volume of dust-laden air has been sampled, the collecting liquid is placed in a suitable container and removed to the laboratory for the necessary analysis.

How Samples are Counted

When the dust sample reaches the laboratory, the entire sample is filtered into a clean graduated flask through a 280-mesh screen so that only particles smaller than 50 microns are permitted to pass; particles larger than 50 microns are not considered injurious and are, therefore, removed from the sample. After proper dilution, the contents of the graduated flask are thoroughly shaken so that a uniform suspension is obtained, and two portions of about one cubic centimeter are removed with a pipette to just fill two Sedgwick-Rafter counting cells. The cells are allowed to stand at least 20 minutes and the dust particles are then counted by means of a microscope.

The microscope with an Abbe condenser is provided with an eyepiece micrometer, a 16-millimeter objective and a 7.X eyepiece. The eyepiece micrometer has a large square engraved on it, and this square is divided into 100 squares, one of which is further divided into 25 smaller squares. The proper tube length of the microscope is determined by calibration with a stage micrometer, so that a side of the large square of the eyepiece covers 1 millimeter (1000 microns).

The large square of the eyepiece micrometer, therefore, encloses the dust in an area of one square millimeter, and since the counting cell is one millimeter deep, all the dust suspended in one cubic millimeter of the sample is under the ruled field. All particles visually less than 10 microns in longest diameter in one quarter of the field are counted at five points on the cell, namely, near the four corners and the center.

Two cells of each dust sample are counted and the average of 10 counts

is obtained. Control counts are subtracted from the average sample counts, giving finally, average net counts of the number of particles which are then calculated in terms of particles per cubic foot of air sampled.

Mineral Composition of Dust

Having determined the concentration of dust particles less than 10 microns in diameter in a given atmosphere, it is also necessary to obtain information regarding the mineral composition of the dust before any evaluation of the health hazard can be made.

In general it may be said that the harmfulness of a quartz containing dust is usually in direct proportion to its free-silica (SiO_2) content. It is, therefore, necessary to distinguish between "free silica," the silica that occurs as quartz, and "combined silica," or the silica that is combined with other elements in the various silicate minerals. It should be borne in mind, therefore, that the total silica reported in the customary chemical analysis is no measure of the amount of free silica.

The quartz content of fine dusts is usually determined by a combination of petrographic and chemical methods. Each dust presents individual problems and no individual technique applies to all dusts. Those interested in this problem should consult Reprint No. 1560 of the Public Health Reports, February 24, 1933, entitled "The Quantitative Determination of quartz (free silica) in Dusts" by Adolph Knopf, professor of physical geology, Yale University, and consultant, United States Public Health Service.

Company Honors 510 Safe Drivers

NOT even a broken fender or a smashed tail light marred the perfect driving records of 510 drivers of trucks and automobiles for Continental Oil Company during 1933. In recognition of this commendable performance each driver has received a safe driver's certificate which is issued annually by the Hartford Accident and Indemnity Company. Accident prevention and fire prevention activities for the Continental Oil Company are administered by J. S. Boylan, director of safety.

"How did you hurt your hand?"
 "Reckless driving."
 "Of your auto?"
 "No, a nail."

¹Lanza, A. J. and Higgins, Edwin, "Pulmonary Disease Among Miners in the Joplin District, Missouri," Bureau of Mines Tech. Paper No. 195, 1915, p. 29.

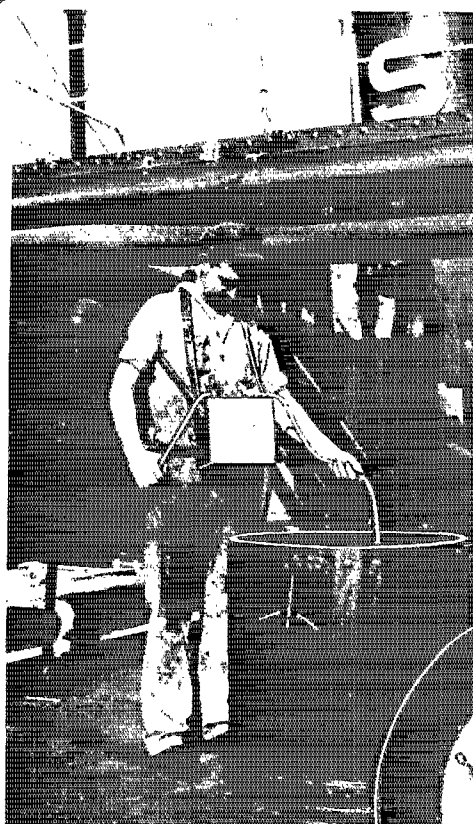
²General Orders on Dusts, Fumes, Vapors and Gases. Issued by Industrial Commission of Wisconsin, March 18, 1932.

³Greenberg, Leonard and Bloomfield, J. L., "Construction and Use of Impinger Dust-Sampling Apparatus," U. S. Public Health Reports Mar. 18, 1932, V. 47.

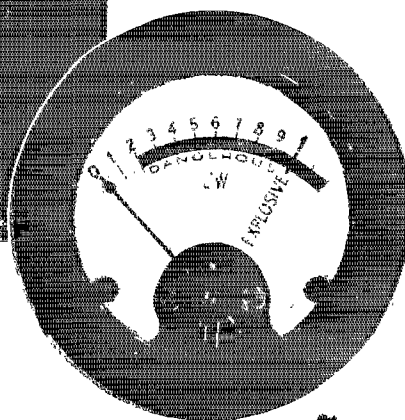


SAFETY SERVICE

THE J-W INDICATOR



Uses ordinary No. 6 dry cells, readily obtainable—no storage batteries to charge or maintain. Send for your copy of Bulletin No. 1105.

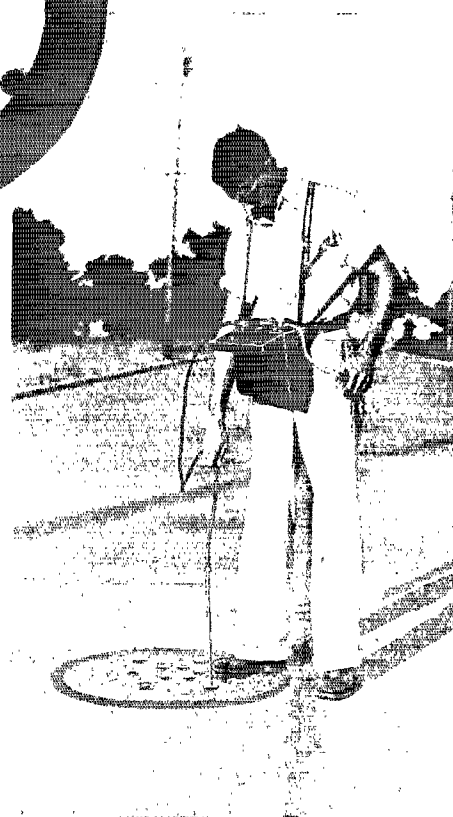


for the detection of inflammable or explosive gas-air mixtures.

the J-W indicator was designed by the engineers of one of the major oil companies, especially for use in the oil industry.

Can be easily handled by non-technical operators as readings are direct in terms of explosibility. Note simple layout of explosibility meter, at left.

it is equally adapted for use by gas and chemical companies—in fact, wherever inflammable or explosive gas-air mixtures may exist.



DAVIS EMERGENCY EQUIPMENT CO., INC.

CHICAGO, ILL. • NEW YORK CITY • HOUSTON, TEX.

DAVIS EMERGENCY EQUIPMENT CO., LTD., San Francisco and Los Angeles, Cal.

INDUSTRIAL HEALTH

A Non-Technical Symposium for Physicians and Laymen

The Rocking Method of Artificial Respiration

By HARRY W. GENTLES, M.B., C.M.*

NUMEROUS inquiries have been received regarding a method of artificial respiration recently developed in England.

In 1932 Dr. Eve reported a case of paralysis of the diaphragm following diphtheria in which the life of the patient was saved by the rocking method. In many cases where artificial respiration must be kept up for a long time, the prolonged period of respiration is not only fatiguing to the relays of operators, but the pressure may also have a bad effect upon the patient. Dr. Eve sought a method in which inspiration and expiration could be carried on without this external pressure.

In 1933 he with another reported again his investigation of the rocking method of artificial respiration. Among other things brought out was the lung ventilation by the various methods of artificial respiration. Following is the amount of tidal air shown by each method:

Silvester—about 200 c.c.m.

Schafer—350-500 c.c.m.

Rocking—450-600 c.c.m.

The Riley litter which has since been put out consists of a stretcher with a padded groove at the head end. At the other end the canvas is cut out to make four compartments into which the feet of the patient will fit, according to his size. This litter is balanced on a metal or wooden horse which allows it to be swung up and down over a 50 degree range either way.

The timing recommended is from 10 to 15 times a minute. If increased above that, the content of CO_2 falls so low that there may be no tendency on the part of the patient to initiate breath-

ing by his own respiration center. This would be a disadvantage unless the oxygen-carbonic acid mixture is used with an inhalator.

At the regular rate the ventilation of the lung considerably exceeds that of natural breathing and a conscious patient is quite aware of the forcible rise and descent of his diaphragm. Effect on the pulse: where the patient was kept with head down, either breathing naturally or by the rocking method, the pulse was slowed. In the feet down or horizontal position, the pulse was practically unchanged. The blood pressure was unaltered in the head down position. The deductions drawn were:

1. The tidal air by rocking is at least as effective as by the Schafer method.

2. The rocking method requires less effort.

3. It can be kept up over a longer period.

4. It can be done by untrained men.

5. Warmth can be applied easily during the process.

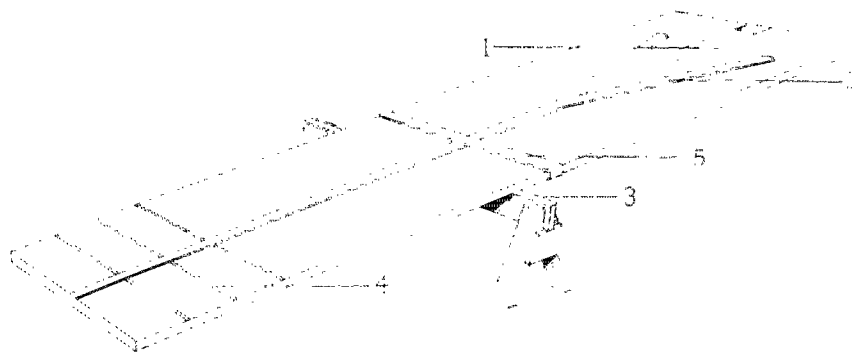
6. There is no great circulatory disturbance.

7. More than 15 rocks a minute has a tendency to wash out too much CO_2 and delay spontaneous breathing.

8. Ten rocks ventilate sufficiently in the normal; therefore the best rate lies between 10 and 15.

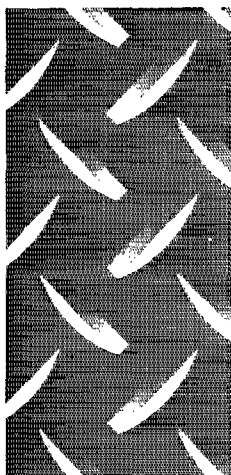
9. When artificial respiration is necessary begin the Schafer method until a stretcher with blanket, hot water bottles, etc., can be made ready. The stretcher may be improvised from a plank, padded ladder, etc., laid across a fence or a wooden horse. The patient should be tied over the shoulders toward the feet with a band just above the hips to keep him in position.

Public utility companies and other large corporations are receiving more and more requests for assistance in emergencies and even in cases of illness. Often groups of men have carried on artificial respiration for several days at considerable expense. Here is a method that may be just as efficient and can be handled by a comparatively small number of people, apparently without undue fatigue to them and to the advantage of the patient.

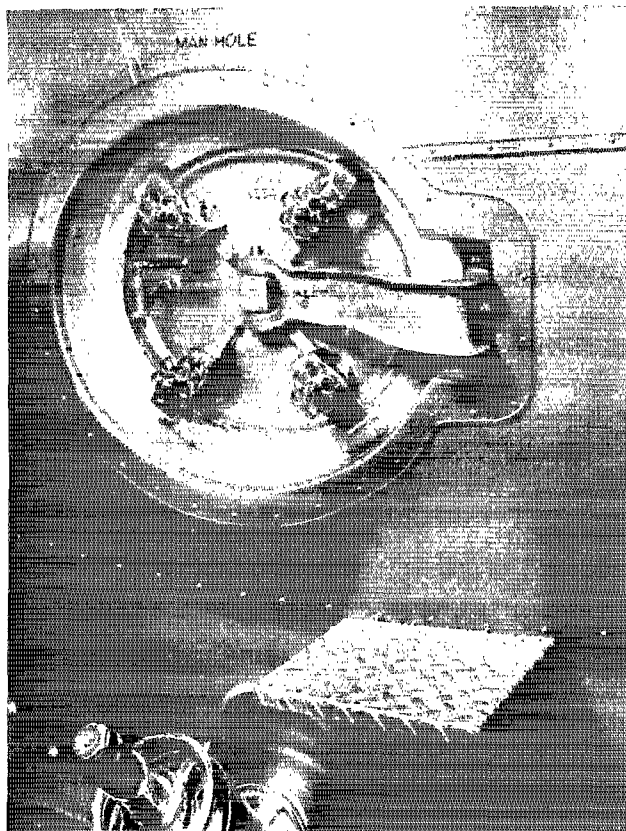


Sketch of stretcher used for the Rocking Method of resuscitation. Patient is laid head down in slot (1) allowing escape of fluids, free breathing; tongue stays in position. (2) V-shaped straps for shoulders attached to foot of stretcher. (3) Bar across which stretcher is rocked. (4) Partitions for feet. (5) Strap over hips.

*Director, First Aid and Life Saving, Chicago Chapter, American Red Cross.



Feet Cling to Inland 4-WAY Floor Plate



● Interior of General American Milk Car built by General American-Pfaunder Corp. For the safety of attendants, Inland 4-Way Floor Plate is used for the step—a small but dangerous spot.

**4-Way
Safety**

STUDY the pattern of Inland 4-Way Floor Plate shown above. No matter at what angle a foot strikes this pattern, it meets friction. But note also that projections are separated and placed at an angle so that a heel will not catch. Feet cling to the 4-Way pattern, but the pattern will not trap the feet.

**4-Way
Matching**

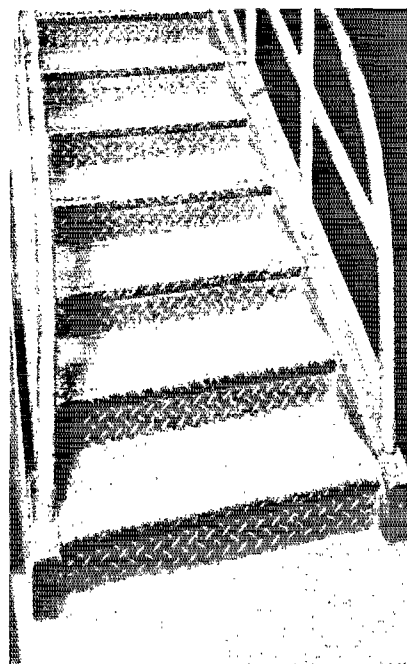
In safety, the most important factor in choosing floor plate, Inland 4-Way has a distinct advantage. There are other advantages. 4-Way matching minimizes waste. 4-Way drainage makes the safety of cleanliness easy to maintain. Extra stiffness (projections overlap, reinforce one another both lengthwise and crosswise) assures adequate strength for any application.

**4-Way
Drainage**

Since no other material offers such a list of advantages, Inland 4-Way Floor Plate deserves thorough consideration for covering dangerous spots in your plant and on equipment you use or sell, for stairways and landings . . . wherever danger lurks.

**Extra
Stiffness**

Write for new descriptive literature. INLAND STEEL COMPANY, 38 So. Dearborn St., Chicago, Ill.



● For stairs, both interior and exterior, Inland 4-Way Floor Plate has enjoyed a remarkably quick acceptance by architects and builders throughout the country.



INLAND

ABLE SERVANT OF THE CENTRAL WEST

STEEL

Sheets Strip Tin Plate
Plates Structural Piling

Rails Track Accessories
Bars Rivets Billets

THE BULLETIN BOARD

A page for those who maintain the Show Windows of Safety

Conducted by STAN KERSHAW

The Super-Modern Bulletin Board

LAST month we dared to guess what the future might hold in store in the way of safety bulletin boards. Although we did not intend to offer any further description of this super-modern bulletin board for the time being, we have received so many requests for construction details that we feel duty bound to include on this page a cross-sectional view of it showing one suggested arrangement of the internal mechanism.

It is to be expected that anyone undertaking to build a home-made structure of this sort will want to hold down the cost and that he will therefore want to adjust the design to suit the material and appliances he may happen to have on hand. For this reason we give no dimensions except to say that the bulletin board window openings should be at, or only a little above, eye level.

It is likely that plywood or a hard pressed wallboard may be found useful in building the main part of the structure. However, if the entire structure is to be exposed to the weather much care will be needed in choosing and applying the necessary protective coating of paint. It is suggested that this be done in about the same manner as an automobile body is finished to insure not only good protection from weather but also to give it the appearance of a well done job. An advantage of such a finish is that it can be easily cleaned, waxed and polished as needed.

There may be a little difficulty in getting the revolving bulletin board operating at the right speed to allow sufficient time to read the posters as they go by the windows. It should be possible to control this very nicely with suitable resistances in the motor circuit.

In the original drawing we pictured the use of a neon type of sign at the top of the structure. On further investigation we find that if much wording is to

be used, such a sign is not practical because the letters would be too small to form with the glass tubing. However, signs of vitrified or etched glass would be almost as effective and not so costly. We are told that some of these signs are made to resemble neon signs.

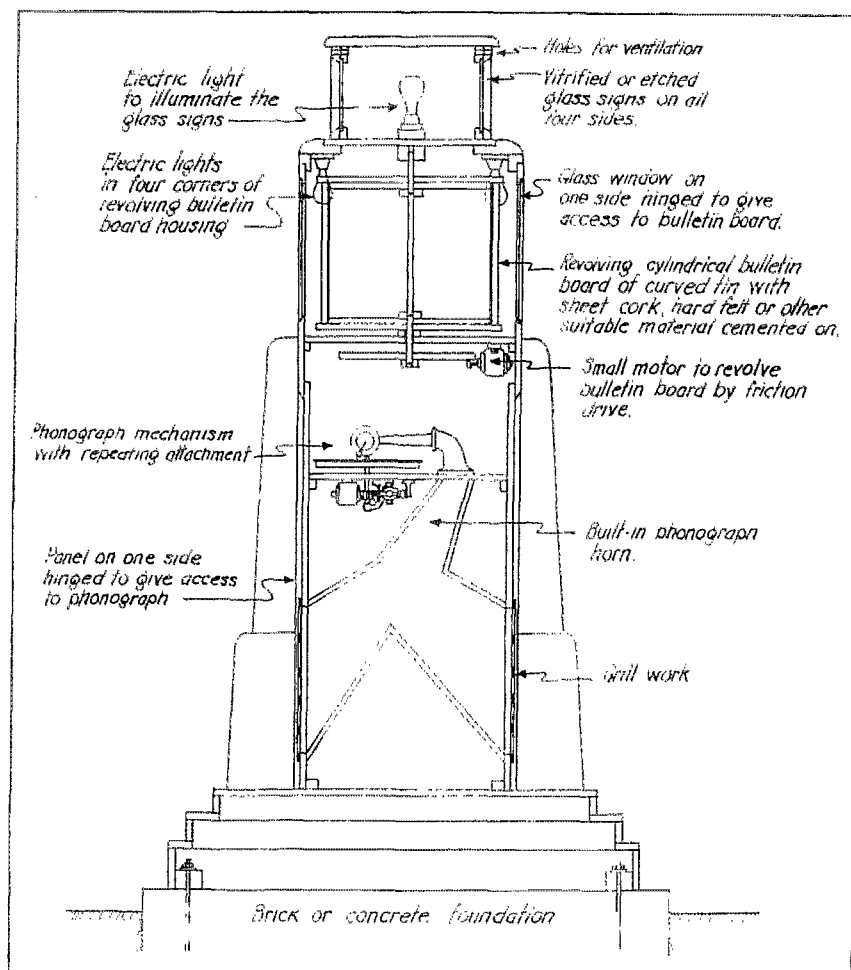
The electric wiring should be in conduit in so far as possible, and in accordance with the best practice. The switch that controls all the lights and mechanism could be located either inside the structure or at some remote location as, for instance, in the safety man's office.

In the drawing we have shown a repeating phonograph to provide the sound. If this is used, another phono-

graph with a recording attachment in the safety man's office would enable the preparation of special records at any time.

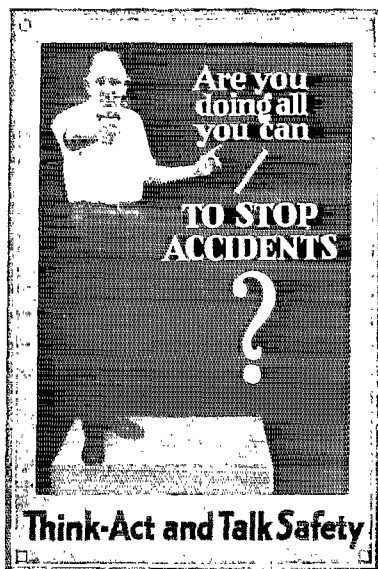
A somewhat more advanced idea would be to install a modified public address system with the loud speaker in the bulletin board structure and the microphone in the safety man's office where both music and safety talks could be broadcast at noon hour and other appropriate times.

Many safety men who have been successful in their efforts are asking for new stunts to maintain interest. Perhaps this advanced idea in safety bulletin boards will help to fill this need.

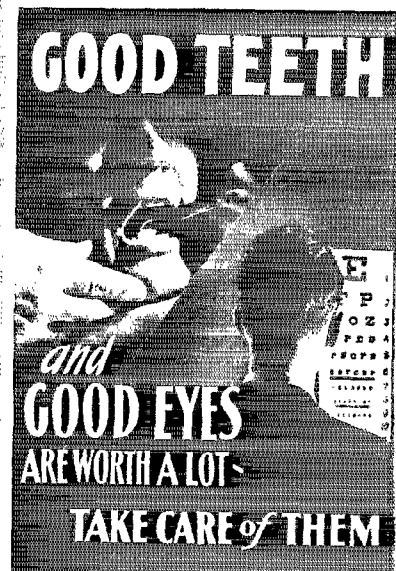




5085-B 17x23 inches 4 units



5178-B 17x23 inches 4 units



4915-B 17x23 inches 4 units



5092-B 17x23 inches 4 units

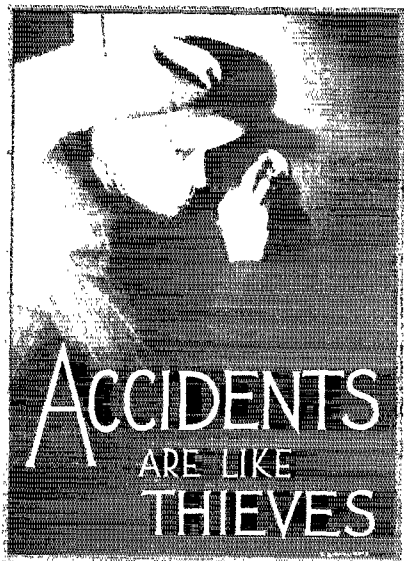


If you but realized the anxious moments and the heartaches that accidents bring to wives and mothers everywhere, I am sure you would try to be more careful for the sake of that particular "some one" whose life is unselfishly devoted to your welfare.

5090-B 17x23 inches 4 units



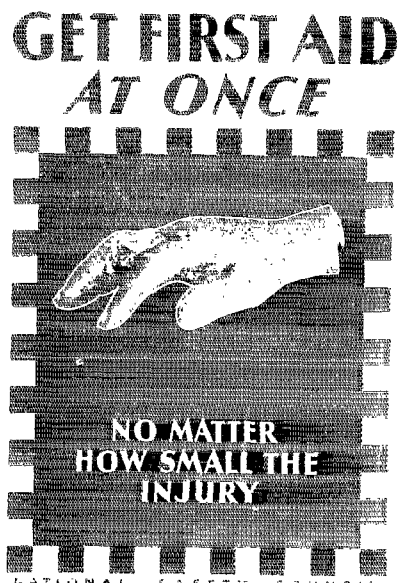
5093-B 17x23 inches 4 units
5094-C 25x38 inches 8 units



4188-B 17x23 inches 4 units



2531-B 17x23 inches 4 units



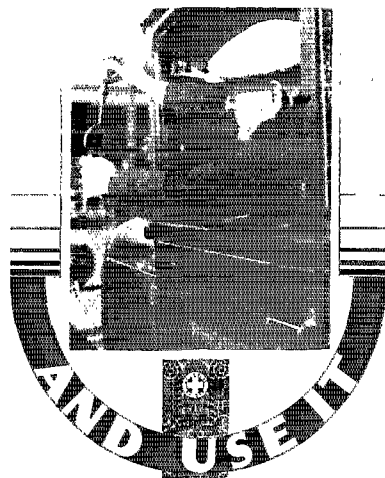
4279-B 17x23 inches 4 units

Beware of the INTERSECTION
that LOOKS SAFE
YOU MAY NOT SEE the DANGER

NATIONAL SAFETY COUNCIL

4673-B 17x23 inches 4 units

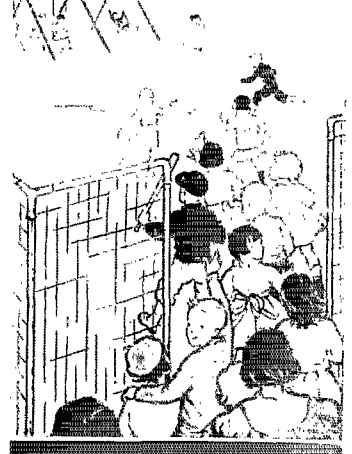
KEEP MIRROR ADJUSTED



NATIONAL SAFETY COUNCIL

4141-B 17x23 inches 4 units

PLAY SAFELY on the PLAYGROUND



NATIONAL SAFETY COUNCIL

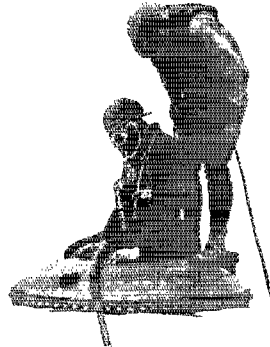
4924-D 12x18 inches 2 units

STAMP them OUT

DO THAT WITH EVERY
BUTT SO YOU WON'T
LEAVE THE START OF
A FIRE BEHIND YOU



5696 9x12 inches 1 unit



It is *unsafe* to enter tanks or
tank cars *without* gas mask and
life line unless the tank has been
tested with accurate indicator
and found "gas free."

NATIONAL SAFETY COUNCIL

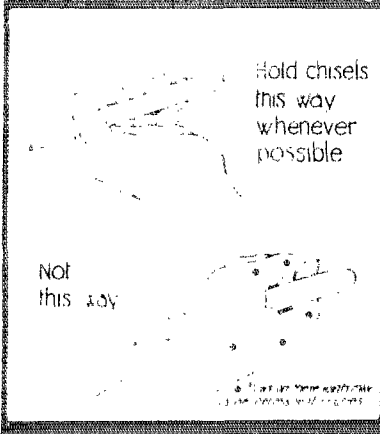
4657 9x12 inches 1 unit

THINK IT OVER
LOOK AHEAD
YOU CAN'T
WAIT UNTIL
THE LAST
SECOND TO
PREVENT AN
ACCIDENT
THINK IT OVER

NATIONAL SAFETY COUNCIL

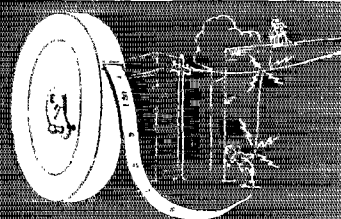
2988 9x12 inches 1 unit

ONE OF THE THINGS GOOD MECHANICS DO



NATIONAL SAFETY COUNCIL

4659 9x12 inches 1 unit



ANY MEASURING TAPE
may become a
DEADLY LIVE WIRE
if it touches electric wires
Most cloth tapes contain fine
copper wires for strength
**KEEP ALL TAPES AWAY
FROM WIRES AND LIVE
LONGER**

5084 9x12 inches 1 unit



OTTO NOBETTER

1803 9x12 inches 1 unit

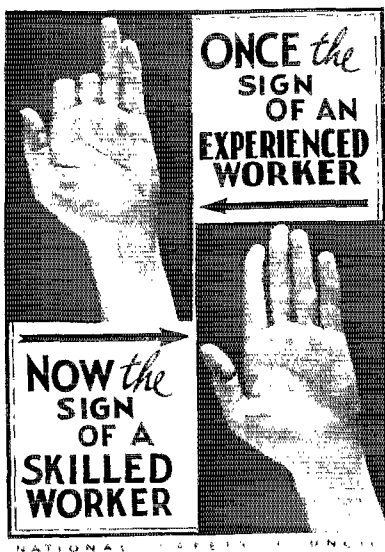
Electotypes may be purchased from the National Safety Council for \$2 each

NATIONAL SAFETY COUNCIL



**You Can Generally Tell
How Much a Fellow
USES HIS HEAD**
By the
**CHANCES HE
TAKES**
Watson Bill

5101 9x12 inches 1 unit

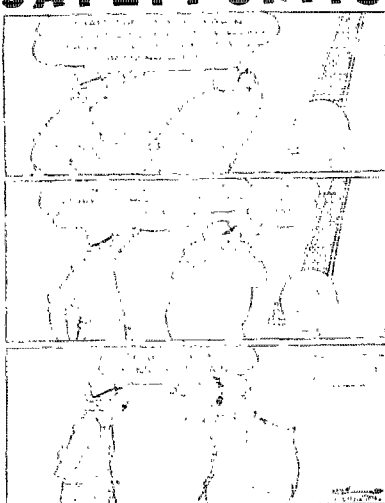


**ONCE the
SIGN
OF AN
EXPERIENCED
WORKER**

**NOW the
SIGN
OF A
SKILLED
WORKER**

5109 9x12 inches 1 unit

SAFETY SKITS



5108 9x12 inches 1 unit



**STEP
SLIP
TRIP**

5104 9x12 inches 1 unit



**What if the
clutch trips?**

**NEVER THROW
IT OVER
WITH THE
POWER ON**

5098 9x12 inches 1 unit

**A BREAK IN YOUR TOE MAY
MEAN A BREAK IN YOUR PAY**

Mr. McGinn dropped a piece of angle iron weighing about 50 pounds. It fell on his foot and broke a toe.

Immediately after the accident he purchased a pair of Safety Shoes with reinforced toe caps.

Recently he was moving a heavy steel partition and a protruding angle iron came down on his foot. But his toe was protected from injury.

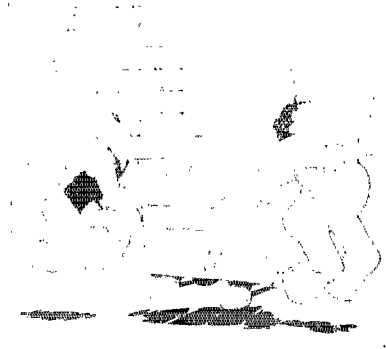
Here is the shoe—the leather is red but the reinforcement still stands guard like a piece of armor plate.



**ANOTHER GOOD ARGUMENT
FOR SAFETY SHOES**

5110 9x12 inches 1 unit

DON'T RUSH!



**OTHERS
MAY SUFFER**

5087 9x12 inches 1 unit
APRIL, 1934

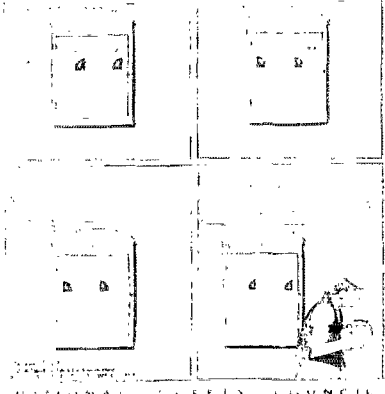
This MAY BE FUN But-



**IT WON'T BE FUN
PICKING UP WHAT'S
LEFT OF HIM FROM
UNDER THE WHEELS**

5095 9x12 inches 1 unit
Electrotypes may be purchased from the National Safety Council for \$2 each

**WONDER WHAT A
BULLETIN BOARD
WOULD SAY?**



5111 9x12 inches 1 unit

LEARN FROM THE EXPERIENCES OF OTHERS

Two carpenters were working on a scaffold helping to swing a heavy cap into place on top of sawed off piling. Both men stood in the center of the plank. When they assisted in lifting the cap they added enough to their own weight to break the plank and both of them fell to the ground. Fortunately no limbs were broken, but one of the men was severely bruised.

PART OF THE JOB OF
PREVENTING ACCIDENTS
IS TO BE ALWAYS THINK-
ING AHEAD OF DANGER

NATIONAL SAFETY COUNCIL



If you have not been authorized to do electrical work it is not your business to tamper with any of the electrical equipment. You risk serious injury if you do. Report all equipment that is out of order.

NATIONAL SAFETY COUNCIL

**A MAN IS JUDGED
BY THE COMPANY
HE KEEPS, AND THE
COMPANY IS
JUDGED BY THE
MEN IT KEEPS—
SO WORK
SAFELY!!**



NATIONAL SAFETY COUNCIL

5100 9x12 inches 1 unit

5103 9x12 inches 1 unit

5106 9x12 inches 1 unit

DID YOU EVER STOP TO CONSIDER



ALL THE THINGS
IN LIFE YOU
WOULD MISS
IF YOU LOST
YOUR EYES ?



WEAR YOUR
GOGGLES



NATIONAL SAFETY COUNCIL

4350 9x12 inches 1 unit

4677 9x12 inches 1 unit

4355 9x12 inches 1 unit

SAFETY PAYS

NATIONAL SAFETY COUNCIL

PLAYING SAFE



**BEATS
PLAYING A
HARP!**

NATIONAL SAFETY COUNCIL

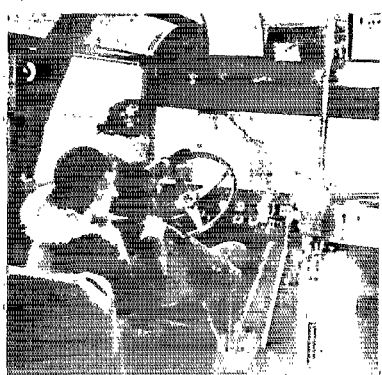


**DON'T LEAVE
TRUCKS IN
PASSAGEWAYS**

NATIONAL SAFETY COUNCIL

5088 9x12 inches 1 unit

MAN'S LAUGHTER



**MAY MEAN
MANSLAUGHTER**

NATIONAL SAFETY COUNCIL

5114 9x12 inches 1 unit

BE ORDERLY

SLOPPY HABITS
result in
POOR WORK
and
ACCIDENTS

NATIONAL SAFETY COUNCIL

4652 9x12 inches 1 unit

Electrotype may be purchased from the National Safety Council for \$2 each

NATIONAL SAFETY NEWS



5107 9x12 inches 1 unit



4662 9x12 inches 1 unit



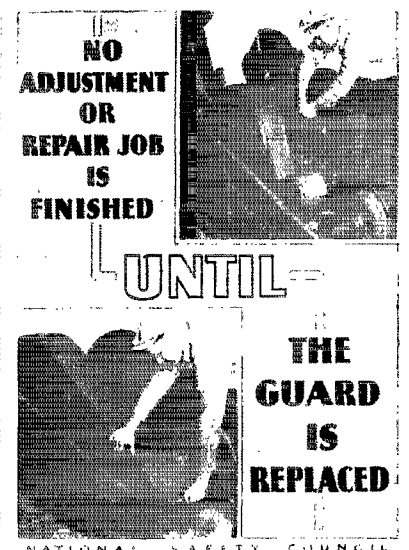
4663 9x12 inches 1 unit



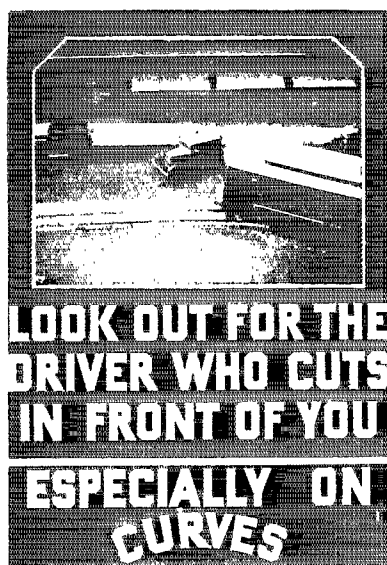
5112 9x12 inches 1 unit



4656 9x12 inches 1 unit



4660 9x12 inches 1 unit



3065 9x12 inches 1 unit

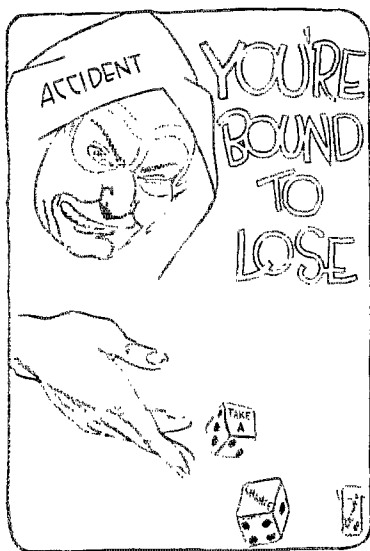


4853 9x12 inches 1 unit



4494 9x12 inches 1 unit

Posters may be purchased from the National Safety Council, 1111 North Dearborn Street, Chicago, Ill. 60610.

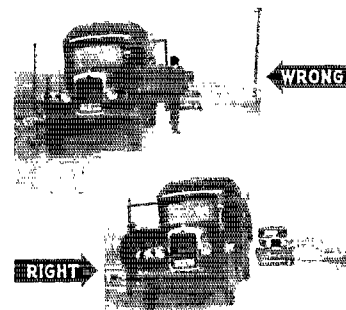


2112 9x12 inches 1 unit



5086 9x12 inches 1 unit

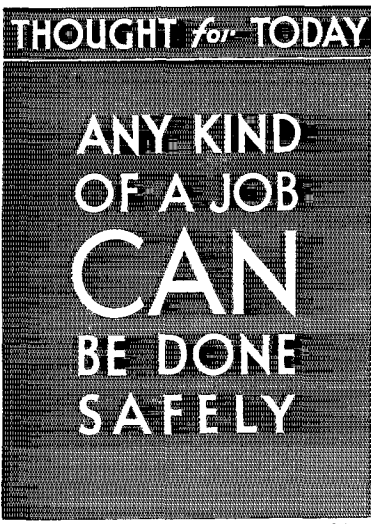
MODERN TRAFFIC
requires
EXTRA CAUTION



4133 9x12 inches 1 unit



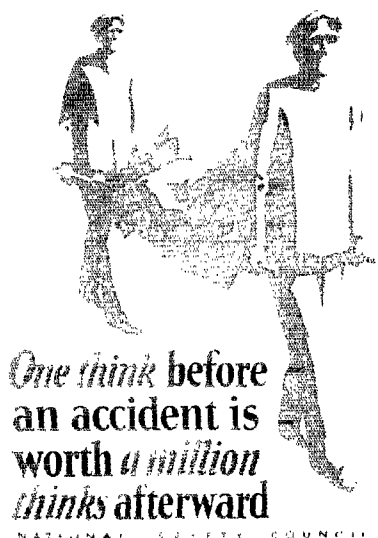
4655 9x12 inches 1 unit



5102 9x12 inches 1 unit



2652 9x12 inches 1 unit



4671 9x12 inches 1 unit



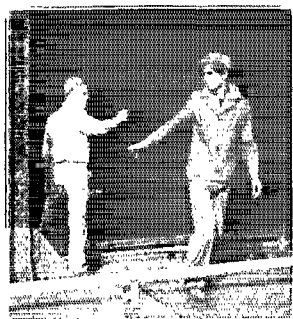
5089 9x12 inches 1 unit



4680 9x12 inches 1 unit

Electrotypes may be purchased from the National Safety Council for \$2 each

NATIONAL SAFETY NEWS



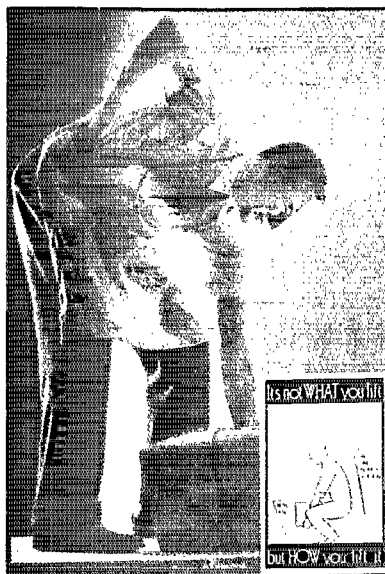
WHAT MAY HAPPEN WHEN YOU DON'T WATCH YOUR STEP

NATIONAL SAFETY COUNCIL

5097

9x12 inches

1 unit

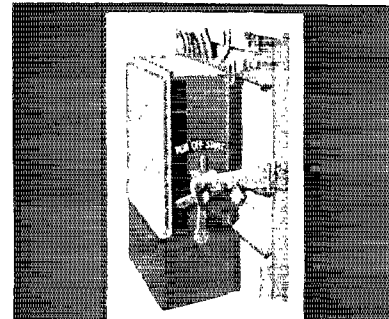


NATIONAL SAFETY COUNCIL

4351

9x12 inches

1 unit



SAFETY

Three men working on repairs
Three padlocks on the switch

Do You Get the Idea?

NATIONAL SAFETY COUNCIL

4664

9x12 inches

1 unit

SAFE DRIVING STRUCK YOU

NATIONAL SAFETY COUNCIL

5091

9x12 inches

1 unit

It's nice
the victim thought
To have a pal
so kind
But in taking off
the bandage
He found he'd gone
stone blind



NATIONAL SAFETY COUNCIL

5099

9x12 inches

1 unit



NATIONAL SAFETY COUNCIL

4354

9x12 inches

1 unit



SAFE MINER
IS KNOWN
BY THE _____
CONDITION _____
OF HIS _____
WORKING _____
PLACE _____

NATIONAL SAFETY COUNCIL

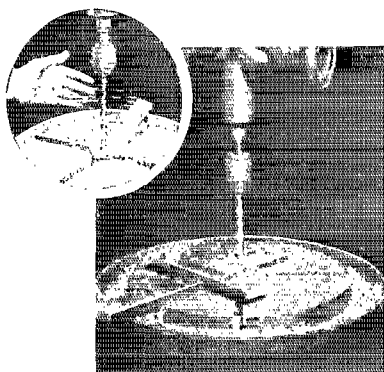
2804

9x12 inches

1 unit

(PRINT 1934)

Better Use A Clamp



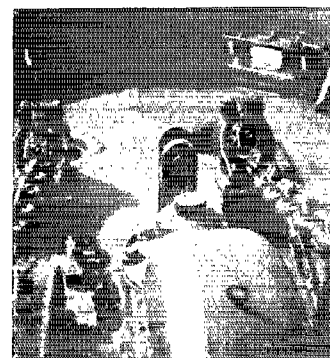
NATIONAL SAFETY COUNCIL

4660

9x12 inches

1 unit

Electrolytes may be purchased from the National Safety Council for \$2 each



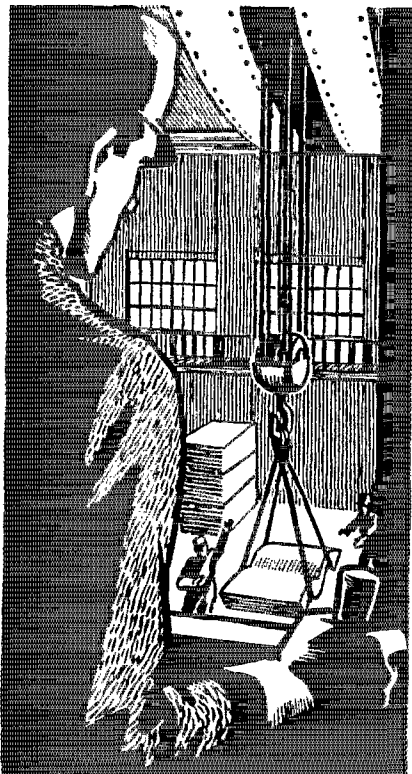
IN DRYDOCK
KEEP ANCHOR PAWLS SET
AVOID ACCIDENTS

NATIONAL SAFETY COUNCIL

5105

9x12 inches

1 unit



CRANE OPERATORS SAY:

**"Atlas slings
handle loads safer
... easier ... faster"**

● Macwhyte Atlas Braided Slings are quickly applied and hug the load, preventing slippage.

Because they have a flexible non-linking body made of multiple parts of wire rope, Atlas Slings are easier to handle and are unusually safe. Macwhyte Atlas (patented) Braided Slings are made exclusively by the makers of Macwhyte Wire Rope. Write for performance records, complete data and catalog.

Macwhyte Company - Kenosha, Wisconsin

MACWHYTE
ATLAS Slings

How Valuable Is a Human Being?

(Continued from page 9)

amounts which run high into the thousands and even into the millions. Those are multiplied incidents of the recognition of great human values.

A concurrent development of human values has been shown in the field of taxation. Neither state constitutions nor state statutes gave important consideration to the bases of taxation except those of property and commodity trade, the latter manifesting itself in tariffs. The rapid development of income taxes in the states and the nation, and in foreign countries, was not due wholly to the fact that it constituted a new source of revenue. It included a concept of a human being as a unit of economic value. This method of taxing would not have had such a ready acceptance if it had not been for the common recognition of human values.

However, a different phase of estimating value was developed in the income tax process which did not appear with any great definiteness in the war risk enactments. That principle was the one of variations in human values as measured by both personal and investment income. The statements in the Declaration of Independence about equality certainly are not now considered to be true with reference to human values; and thus economic distinctions are created by law that are at great variance from the old idea of a simple poll tax.

Let us now compute the economic values of men:

1. We know a man whose income from personal services is \$10,000. No one would deny that he is an economic unit of importance. A conception of that value may be had by considering that the soundest non-taxable bonds which are owned today would need to be accumulated in the amount of \$250,000 to give a comparable income. Computed as tax free bonds, at 4 per cent interest, the income on the quarter of a million of bonds would be \$10,000. With what care we would lock in the safety box a group of bonds of such denomination! We would protect them from fire, and theft or other loss. On the other hand, a personal service income of \$10,000 makes of the man a quarter of a million dollar asset as measured by his income of \$10,000 for supposedly the period of his expectation of life, and that might be for forty years. Such a man is subject to the hazards of accidents of

every kind. When we consider the number of fatal accidents in automobiles and in homes, and the large number of permanent and partial disabilities, we may readily see how serious a matter it is to destroy, or even to maim, a human economic unit.

2. A man who has an income from personal services of \$4,000 a year, is likewise the equivalent of a tax free bond asset of \$100,000.

3. A man who labors with only a little more than merely his physical power, has a value sufficient to give him an income of, say, \$1,000 a year. Even the professions have architects, teachers, lawyers, doctors, dentists and ministers whose incomes may be as low as \$1,000 a year. An income factor as low as that must be related to a bond ownership of \$25,000.

The principle is the same regardless of the income. Get the point that as going and earning individual his asset value is great so long as he is going and earning. Most men must travel the road of earning from youth on up to the end of life, and thus their economic value travel with them.

An interesting approach to this same estimate of value may be noted in the conception of potential values. Let us suppose that a man lives to the age of 70, and that at 30 his earnings are sufficient to enable him to set aside one thousand dollars a year. He would accumulate in the period from age 30 to age 70 a capital of \$40,000, to which should be added interest. That achievement would assume no losses in his investment of these funds, but, as an offset, it likewise takes no account of his increased ability from year to year to set aside more than a thousand dollars annually. Determined from either point of view—that of the income basis or that of the savings basis—it must be admitted that a human being is economically valuable.

It is noteworthy that in countries which have developed racial strains of great length and enjoy the best in sanitation, pure food and wholesome living, there is a much greater average length of life than in countries and races which have not thus developed and protected themselves. The span of life is not the same as the average length of life, but certainly the averages do reveal conditions of great variation. For example, the average length of life in the United

States is about 58 years. In India, where there are nearly three times as many people as in the United States, the average length of life is probably not more than 24 years. A consideration of the averages only, would mean that an American, starting at age 20, has an economic life ahead of him of 38 years. On the other hand, a Hindu who would start his labors at as early an age as 14, would have only ten years of economic life. A computation based upon the span of life would not show such great variations but it would show at least important differences. The principal created as capital is very much greater with the American than with the Hindu, even if we considered all other factors as being equal—of course, they are not equal.

The attitude which most of us have with reference to human values as compared with property values may be illustrated by the incident of an automobile and its owner. Out on the highway, the owner takes his \$3,000 car. Even though he may be most careful and cautious, he is subject to the hazards which grow out of both reckless people and poor machinery. The crash comes and the automobile and the man are both destroyed. Suppose you should ask the assembled people who rush to the scene of the accident just what they thought the loss would be. Their reply would be almost unanimous in figures which represent only the value of the car. The owner of a car of that value could not afford to operate it on an income of less than \$10,000 yearly. We have, therefore, a development in the accident which shows a property loss of \$3,000 and a human loss of \$250,000. The latter value is not absolute but it is the actual amount of loss for a period of time coincident with a man's ability to earn that much income annually from personal services.

The workers in the cause of safety are entitled to continuing public thanks. They try to make safe conditions in the factory, in the home, on the highways and on the railroads. Important results have been achieved. We must continue to think of the individual as having emotional value. He may be a husband, a father or a son. In those relationships there are tremendous sentimental values. Despite all of that, it is my opinion that a larger support for safety work could be had, and larger personal responsibilities for safety could be developed, if all of us would recognize the economic loss that occurs when we maim or kill a human being.

APRIL, 1934

SURGICAL BAY'S DRESSINGS

.....To cover
**NEEDLE
PUNCTURES**



.....THERE IS
**NOTHING LIKE
A BAY'S
READI-BANDAGE**

**A few seconds and the job is done. Neatly, effectively,
with a professional finish that is pleasing to the patient.**

**The new crinoline fold protects the gauze pad until the
instant of application. The cost is little—less than a
two-cent stamp.**

**100 Strips 1 in. wide. Each in glassine envelope,
box \$1.00 • 6 Strips 6 in. wide in cardboard
box, per dozen boxes \$4.90 • Samples are
yours for the asking.**

THE BAY COMPANY
BRIDGEPORT, CONNECTICUT
A. S. VESTER, M.D.
PARKE, DAVIS & CO.

THE BAY COMPANY, BRIDGEPORT, CONN.

NSN4

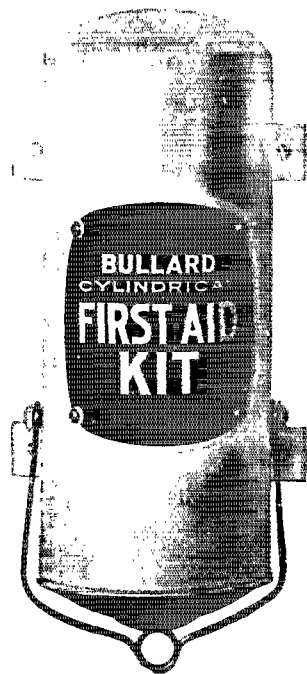
Gentlemen: Kindly send me a free sample of Bay's Read-Bandage.

Company.....

Person requesting.....

Address.....

BULLARD



CYLINDRICAL FIRST AID KIT

INDUSTRY recognizes efficient first aid as the lowest-cost insurance against loss of man-power and compensation costs.

But that first aid must be practical . . . it must be *used* by the men on the job!

The Bullard Cylindrical First Aid Kit is aluminum—waterproof and weather-proof. It is attached to any convenient wall (or to a vehicle, if you wish). Then, by simply flipping the clip at the bottom, a canvas roll-up is released, containing a full assortment of unit dressings and treatments.

Any office listed below will gladly show you this improved kit, or send you a circular with complete data.

E. D. BULLARD COMPANY

275 Eighth Street, San Francisco
1229 South Olive Street, Los Angeles
1620 Yalecrest Avenue, Salt Lake City
1 Main Street, Houston
215 S. Leavitt Street, Chicago

Bullard products are distributed by

Safety First Supply Company, Brady Bldg., Pittsburgh
W. S. Wilson Corporation, 124 Varick Street, New York
W. E. & B. S. Mays Company, 101 West First Street, Duluth
Safety Clothing Company, 7501 Payne Avenue, Cleveland
C. H. Dickson Company, 10 West Milwaukee Avenue, Detroit
Safety Service Company, 212 Pine Street, Green Bay, Wis.
Direct Sales Company, 569 Washington Street, Braintree, Mass.

President Approves Code for Safety Equipment Industry

THE code of fair competition for the industrial safety equipment industry, devised in cooperation with the NRA, has been signed by the President and became effective as of March 12. This action has been hailed generally as of particular advantage and significance to the industry.

The members of the industry feel that they have achieved a real accomplishment in obtaining a separate code for so small an industry. It has not been customary to allow industries of such small size to form a code, but rather to direct them to operate under codes of the larger industries already formed. This would have been a real hardship, since the selling of safety equipment would have had to be conducted under a great variety of codes.

Realizing this, leading members of the industry early made application for the privilege of forming a separate code, and were advised to perfect an organization. Some 125 companies were invited to join in the establishment of such an organization. The result was the Industrial Safety Equipment Association, with J. T. Ryan, Mine Safety Appliances Co., chairman; T. A. Willson, Willson Products, Inc., vice-chairman; I. W. Millard, Industrial Gloves Corp. and Buell W. Nutt, The Safety Equipment Service Co., executive committee; and A. C. Carruthers, *Safety Engineering*, secretary.

The resulting Code is entitled, "Code of Fair Competition for the Industrial Safety Equipment Industry and Industrial Safety Equipment Trade." The Code provides for a normal working day which shall not exceed eight hours and a normal working week not to exceed forty hours, with certain exceptions.

Persons employed in accounting, clerical, office service, or office sales shall not be permitted to work more than 40 hours per week on a monthly average, nor more than 48 hours in any one week. Those engaged in executive, supervisory, or managerial capacities (not including production foremen) and technical engineers, are also excepted; and also outside salesmen, watchmen (provided that watchmen shall not work more than 56 hours in any one week), and firemen (provided that firemen shall not work more than 44 hours in any one week). Outside service employees may be worked a maximum of

48 hours in any one week. Also, those employed in emergency are exempted when restriction of hours might handicap or impede rescue or recovery work or orders placed on account of disaster.

The minimum wage to any employee in the industry engaged in labor operations shall be 37 cents per hour for men, and 32 cents for women; minimum wages shall not be reduced, except that learners may be paid not less than 80 per cent of the minimum rate. The minimum wage for all other employees shall be at the rate of \$15 per week, provided, however, that office boys, girls and learners may be paid not less than 80 per cent of such minimum wage. Also a person whose earning capacity is limited because of age or physical or mental handicap may be employed on light work at a wage not less than 80 per cent of the minimum wage. Female employees performing the same work as male employees shall receive the same rate of pay.

No person under 16 years of age shall be employed in the industry or trade. No person under 18 shall be employed in operations or occupations which are hazardous or dangerous to health. The Code also contains the usual provisions upon organization and collective bargaining by employees, and relative to unions, which have become distinctive of all NRA Codes.

The paragraph on Standards of Safety and Health recites: "Every employer shall provide for the safety and health of his employees at the place and during the hours of their employment. Standards for safety and health shall be submitted by the Code Authority to the Administration within six months after the effective date of this Code."

The Code provides that the Code Authority shall consist of not less than five nor more than six members of the industry. Five members shall be appointed by the executive committee of the Industrial Safety Equipment Association, two of whom shall be members whose business is predominantly manufacturing safety products, two shall manufacture safety products and also distribute such products to others, and one shall distribute the products to others. Each trade or industrial association participating in the selection or activities of the Code Authority shall impose no inequitable restrictions on mem-

bership, and submit to the Administration true copies of its articles of association, by-laws, regulations, and such other information as to membership, organization and activities as the Administration may deem necessary.

Any member of the industry or trade is and shall be eligible for membership in the trade association of the Industrial Safety Equipment Industry and Trade and there shall be no inequitable restrictions on such membership; all members of the industry or trade shall be entitled to participate and share in the benefits of the activities of the Code Authority; and all such members shall bear a reasonable share of the expenses of administering and enforcing the Code and of making amendments or additions thereto. Such reasonable share of the expenses shall be determined by the Code Authority.

Of particular interest under Article VIII, "Trade Practice Rules," is Rule 14, on "Quality Maintenance of Parts." It says: "No member of the industry or trade shall offer for sale or sell a part of any industrial safety equipment, approved by the Bureau of Mines, the Bureau of Standards, the American Medical Association, or the American Gas Association, or any other Bureau or Association approved by the Code Authority, with the consent of the Administrator, for substitution or for replacement of a part of such approved equipment except such be a part manufactured by the manufacturer of the original approved equipment, or such be a part of equal or superior merit approved for substitution or replacement by the original approving Bureau or Association."

Cut Accidents in Half in Six Years

EMPLOYEE accident statistics in the Philadelphia Electric Company, show consistent reductions of a little more than 50 per cent over the last six years. While number of employees fell slowly from 8,817 in 1928 to 6,614 in 1933, lost-time accidents declined as follows: 1928, 1,596; 1929, 1,307; 1930, 1,393; 1931, 954; 1932, 729; and 1933, 747. Meantime number of days lost fell from 8,121 in 1928 to 1,256 in 1933. Only two fatalities were suffered in 1932 and in 1933, while the number was 13 in 1929.

During the same six-year period accidents among the company automobiles, for which employees were responsible or at least partly responsible, declined from 610 in 1928 to 144 in 1933.

APRIL, 1934

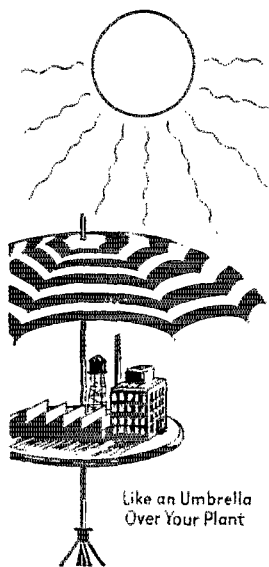


Buy Your Window Shades in Cans at ½c Per Square Foot!

SOLVE the expensive problem of eliminating glare and heat from factory windows and skylights thru the use of SKYCO NO-GLARE, the sky-blue liquid which when painted over glass filters the fierce rays of the sun—shutting out *all* of the glare and a *lot* of the heat, yet it admits 94% of the light. The cost is only about ½c per square foot of glass covered.

For ten years No-Glare has served many of our largest industries, saving them hundreds of thousands of dollars in expensive window shades. No-Glare has never been successfully imitated. If you have tried substitutes and been disappointed—try the *genuine*. If it does not live up to our claims you may return it at our expense.

The action of No-Glare is simple. It filters out the infra-red sun rays—that part of sunlight which produces heat but not light—and allows 94% of the natural light to flow through with restful diffusion.



Like an Umbrella
Over Your Plant

No-Glare is easy to apply either to the inside or outside of the glass and will stay on until removed with brush and warm water. Let this economical and effective product solve *your* problem. Use the coupon or write for a 1-gallon trial can on a money-back basis.

Try NO-GLARE at our Risk Write or Use Coupon

The SKYBRYTE Co.,
1919 E. 19th St., Cleveland, Ohio.

Gentlemen:

Enclosed find trial order of 1-gallon of SKYCO NO-GLARE at \$3.50. It is understood that if we are not satisfied we can ship it back collect and our money will be refunded.

Name of Company.....

Address.....

the first

99+ % EFFICIENT

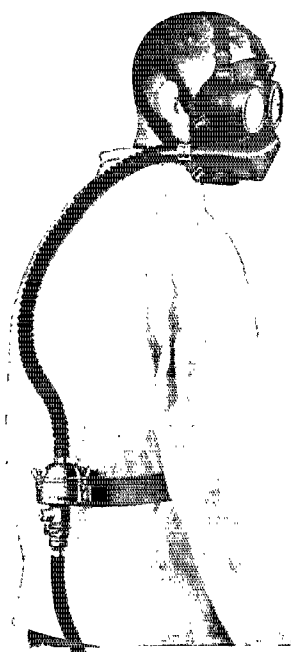
★ healthguard ★

Sand Blast Mask

This new Cesco HEALTHGUARD SAND BLAST MASK has a laboratory safety rating of "99+-% efficient" as a barrier to dusts—regardless of density and length of exposure.

Meaning that this mask is a man and money saver and that the wearer is breathing air having a dust count far lower than he normally breathes on a city street. It gives protection from harmful silica dusts and consequent troubles. Also, the wearer will find it comfortable, easy to remove and adjust, affording good vision and not interfering with his movements. Weight—50 ounces complete.

Have your men use this mask to insure protection from silica and other industrial dust hazards. Order on approval.



When sand blasting, a hood is worn over mask which can be removed for other operations. Air for breathing and ventilation comes from compressed air supply.

Chicago Eye Shield Company

2323 Warren Blvd.

Chicago, Ill.

SOLVATAR

SOMETHING
NEW
FOR AN
OLD NEED

SOLVENT FOR HOT TAR AND SIMILAR PRODUCTS
PROMPT APPLICATION MITIGATES SEVERE BURNS FROM HOT TAR
A SAFETY MATERIAL OF FIRST IMPORTANCE

ENGINEERING PRODUCTS CORPN., 39 Cortlant St., New York City

PERSONALS

HENRY A. PARISH, for several years assistant to the general manager of the Chicago & North Western Railway, has been promoted to the position of division superintendent for the Iowa division of the company, with headquarters at Boone, Ia. Mr. Parish has long been active in the work of the National Safety Council and the Safety Section of the American Railway Association and was elected first vice-chairman of the merged organizations for the current year. He was placed in charge of safety work for the North Western when the present safety organization was adopted in July, 1929.

CHARLES H. LONGMAN, formerly a supervisor of safety for the company, has been named to succeed Mr. Parish. He has been associated with safety work for several years and more recently has been trainmaster for the Wisconsin division.

ROBERT H. FERGUSON, for the past five years safety engineer on the headquarters staff of the National Safety Council, has resigned to become manager of accident prevention for the Republic Steel Corporation at Youngstown, Ohio. Before coming to the National Safety Council staff Mr. Ferguson was with the Bureau of Safety, Inc., for five years as field representative and later as manager of the claim department. Previously he was with the Illinois Steel Company at the Gary Works.



JAMES E. JORDAN, superintendent of distribution for El Paso Electric Company, El Paso, Tex., died February 21. He had been with the company fifteen years and under his direction exceptional progress in accident prevention had been made in the Light and Power department. The department was looking forward to the completion of three years without a disabling injury on April 24. In 1931-32 this department won first place in its group in the accident prevention contest conducted by the Public Utilities Section of the National Safety Council.

NATIONAL SAFETY NEWS

Why Not Modernize Your Drinking Water System?

(Continued from page 25)

served but in large organizations the cost of even the cheapest folding cups is a serious objection. Another objection sometimes raised is the litter of paper cups around the tap. Cups, however, have certain undeniable advantages since they permit drinking in a more normal position.

Practically no action has been taken by state health departments or departments of labor requiring that fountains be of the angle jet type but nineteen states have recommended the use of fountains of this type.

Most manufacturers can furnish equipment with either type of nozzle and the demand for health protection must come from the purchaser. In most cases a nozzle of the approved type can be attached to the existing fixture in place of the old one with little or no other change and at a moderate cost.

Many large and some medium-size plants now favor the use of a water system which includes filtration and refrigeration. One of the conspicuous advantages of mechanical refrigeration is the control over temperature which is not possible with any other method. It is now quite generally agreed that drinking water below 50 degrees is not desirable for either factory or office employees. For restaurants and hospitals it may be served at a temperature of 45 degrees because it is less likely to be drunk hastily and because the water may become warmer before it is drunk.

Letting water run from the tap is the simplest method of cooling water but it may cost considerably more than the cost of the mechanical equipment (which has an estimated life of from 15 to 25 years) and the cost of electric current.

Perhaps the most efficient system of water cooling is the individual cooler containing its own refrigerating unit. There is little thermal loss except that inherent in the cooler and compressor. Some buildings, however, may be better adapted to a circulating system with a central refrigerating unit. If such a system is installed, outlets are more likely to be placed at frequent intervals since the cost of this type of fountain is considerably less than that of the cooler with individual motor and compressor. Such outlets have the additional advantage of occupying less space, whether of the wall or pedestal type. It is important to have all pipes well insulated to avoid heavy thermal losses.

APRIL, 1934

STRAUSS SAFETY BELTS

For Every Industrial Hazard



No. 41-DE—FLOATING TOOL BELT . . . Completely Dielectric . . . No Metal Contact with Body . . . Saddle Rests the Back . . . Hips Protected against Irritation of Dees . . . Tools Ride Free of Body . . . Tested NELA Hardware

No. 171-DE—SAFETY STRAP . . . Made of Best Grade High Test Oak Harness Leather . . . High Quality Workmanship . . . NELA Tested Snaps

WHEN IN NEED OF SAFETY BELTS
Consult the Strauss Catalog

THE STRAUSS COMPANY, INC.
BRADY BLDG. • PITTSBURGH, PA.

REPRESENTATIVES WANTED FOR OUR COMPLETE LINE OF SAFETY BELTS

DUPOR

Reg. U. S. Pat. Off.

RUBBER RESPIRATOR

Comfortable, Double Capacity, Better Vision, Reversible and Foldable, Highly efficient in all Quats, Paint Spray and the lighter Fumes and Gases.

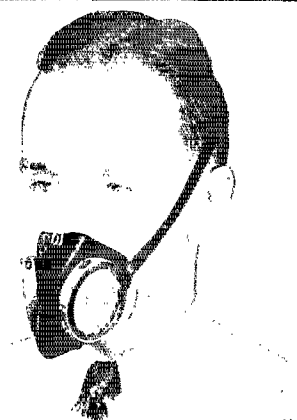
Price per doz., \$18.00

\$1.50

Upon receipt of \$1.50 one will be forwarded as a sample. It has only to be tried to be appreciated. Extra felt pads, 4c each.

H. S. COVER

CHIPPEWA-A SOUTH BEND, IND.



Patents Applied For

DEPENDABLE PROTECTION



Frank

Knee Leggings
Hip Leggings
Spat

Accepted, used and approved by hundreds of plants employing many thousands of workmen.

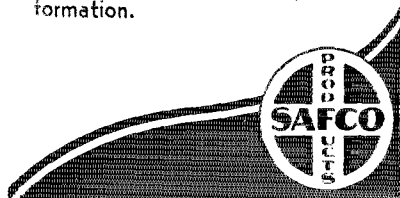
Their approval is our best advertisement and your guarantee of satisfaction.

"SAFCO" Clothing

"Everything from a finger cot to a complete asbestos suit and helmet."

Carefully made from high quality materials, "Safco" Clothing will give you highest value for every dollar's worth purchased.

Mail the coupon for complete information.



THE SAFETY CLOTHING CO.
Manufacturers
3804 Payne Ave., Cleveland, Ohio

THE SAFETY CLOTHING CO., INC.
3804 Payne Ave., Cleveland, Ohio
Gentlemen:

Please send information on

- ☐ Helmets
- ☐ Mittens
- ☐ Suits
- ☐ Blankets
- ☐ Aprons
- ☐ Leggings
- ☐ Spats
- ☐ Welding Protection

Name Title

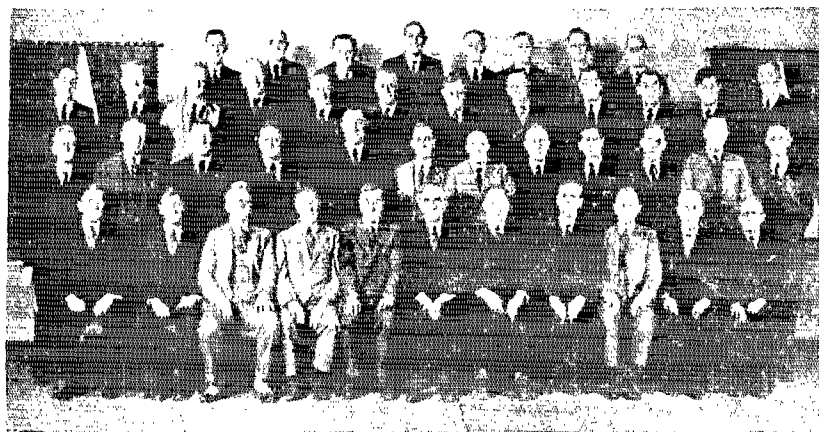
Company

Address

City State

MAIL THIS COUPON

Fifteen Centuries of Safety



FIFTEEN centuries without a disabling injury is the enviable record of a group of 45 service veterans at the Western Electric Hawthorne plant in Chicago.

These men are not selected from the offices where the possibilities of an accident are minimized by the lack of shop hazards but represent an actual cross-section of manufacturing departments portraying the various operating hazards found in all large plants.

Each one of them has spent all or a great part of his Western Electric life in direct contact with some of these hazards and at a period when machinery hazards were greater than present day conditions. Some of these men are electricians doing all kinds of electrical work, some are in the storerooms handling the great volume of supplies needed to keep the wheels moving, and others are operators or in constant

proximity to punch presses, drill presses, milling machines, screw machines, coil winding machines, planers, saws or any of the other machines making up a great industrial plant.

The group has an average of over 33 years of service for each man. The veteran of the outfit will round out his forty-third year in July, and two others will soon complete their forty-first. The shortest individual service record in the group is 32 years.

That the same safety consciousness is reflected in the entire body of Hawthorne workers is evidenced by their repeated successes in recent interplant contests conducted by the Chicago Safety Council. The frequency rate per million hours exposure during 1933 was 10.24 for the entire group of plants entered in the contest, while the rate for the Western Electric Hawthorne Works was only 2.56.

Barleycorn

OLDER personnel managers will not have forgotten Blue Monday with its greater absenteeism, higher accident rate, attributed to John Barleycorn, king of Saturday nights.

There are those who say that prohibition took away the low-priced hard drink that once made the big Saturday nights predict that with repeal we may expect a recurrence of Monday annoyances and disasters.

The situation is one to watch. If it turns out that Monday gives trouble, there is a job to be done. Having proved that forced abstinence will not work, we may decide that there is something in the right kind of educational process. Perhaps the best thing to do is to turn the job over to the safety departments,

which have a habit of getting good results. *Factory Management and Maintenance.*

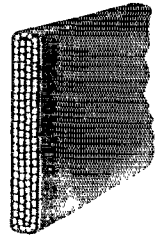
Escaping Gas May Endanger Airplanes

AS A result of the findings of the Bureau of Standards, government engineers consider it hazardous to fly over oil fields, according to a news release of the American Petroleum Institute. The tests, pioneered with navy flying equipment, showed that columns of natural gas mount more than a mile into the sky above wells before they are dissipated. It was found that a spark from the exhaust could ignite a column as much as a mile high with sufficient explosive force to wreck an airplane.

"KLEIN-KORD"

a new fabric for linemen's safety straps

Here is the new material for linemen's safety straps. To the man on the pole its many features possess the greatest interest. It is a rubberized fabric which is stronger than leather and when tested as in use will take a load of 2400 lbs. before ripping at the tongue. It is extremely tough and contact with creosote, paint, acid or oil will not affect its strength. It is water proof, flexible, has low conductivity and a special construction permits the use of the regular tongue buckle. Linemen and those interested in safety of linemen should investigate the new "Klein-Kord." A folder giving complete description will be sent on request.



"Klein-Kord" is made of four plus of heavy, closely woven long fibre cotton laid in rubber and vulcanized, producing a strong, flexible strap.

MANUFACTURERS OF TOOLS FOR
ELECTRICIANS, LINEMEN AND
MECHANICS



Mathias KLEIN & Sons
Established 1857 Chicago Ill. U.S.A.

3200 BELMONT AVENUE, CHICAGO

This Hy-Test Shoe saved 5 Toes ... withstood 3,000 lb. blow from steam hammer!

Read what this Safety Director says—

"We are returning a shoe which saved us and an employee a five toe loss. The shoe was damaged as follows. The wearer was helping repair a steam powered doubling hammer in our sheet mill when the hammer was accidentally tripped, the hammer striking his foot with over 3,000 lb. force. Without the safety shoe protection he would have lost five toes but no injury was suffered."

This incident is just one of the many remarkable safety records being made by Hy-Test Safety Shoes wherever danger lurks in industry. It is this kind of performance that gives Hy-Test Safety Shoes the exclusive job of meeting the safety shoe requirements of so many leading industrial concerns.

Safety directors find men who once try Hy-Test shoes *remain sold* on them—because of Hy-Test's *extra safety*—genuine comfort—more reasonable price and longer service qualities.

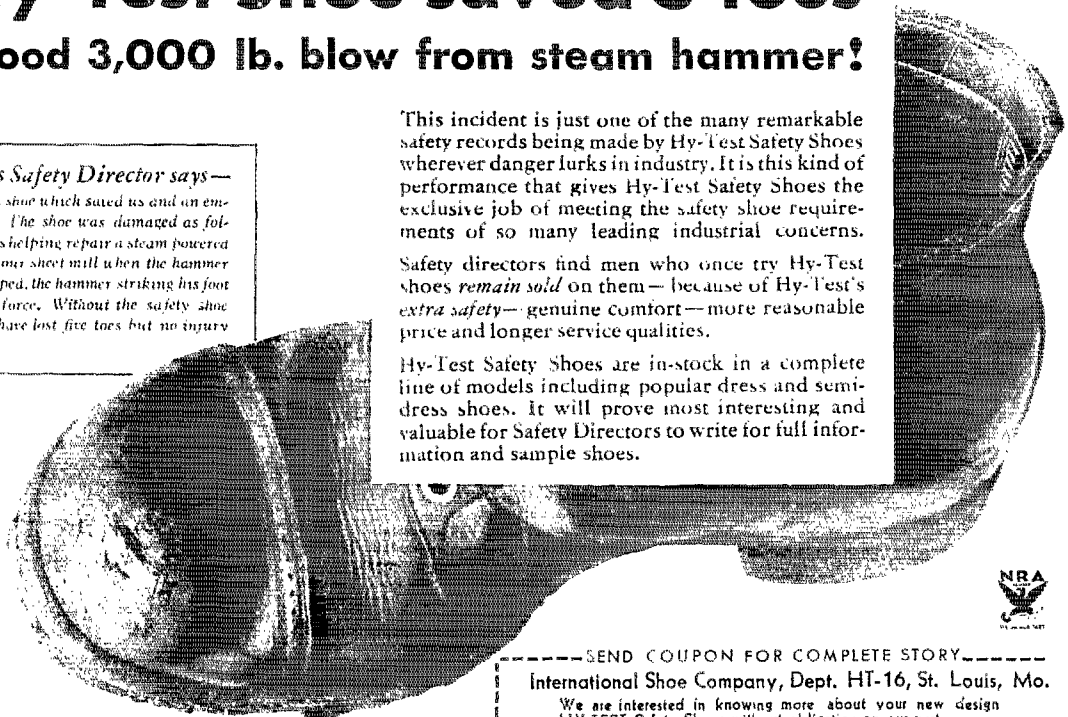
Hy-Test Safety Shoes are in-stock in a complete line of models including popular dress and semi-dress shoes. It will prove most interesting and valuable for Safety Directors to write for full information and sample shoes.



HY-TEST SAFETY SHOES

Designed and Manufactured Exclusively by
INTERNATIONAL SHOE COMPANY, ST. LOUIS, MO.
The World's Largest Shoe Manufacturer

APRIL, 1934



SEND COUPON FOR COMPLETE STORY—
International Shoe Company, Dept. HT-16, St. Louis, Mo.
We are interested in knowing more about your new design
HY-TEST Safety Shoes without obligation on our part.

Safety Director's Name.....
Purchasing Agent's Name.....
Firm Name.....
Address.....

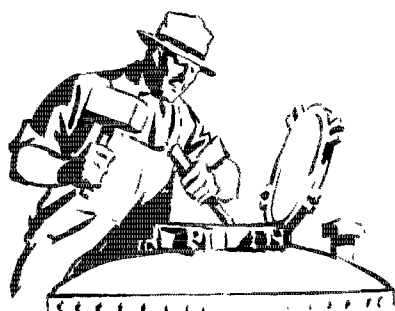
YOU NEED

AMPCO METAL

Non-Sparking

* TOOLS *

for this Job



ONLY non-sparking tools should be used in working around the manhole of tank cars handling flammable liquids. It takes only a tiny spark to cause a serious explosion where volatile gases and vapors are present.

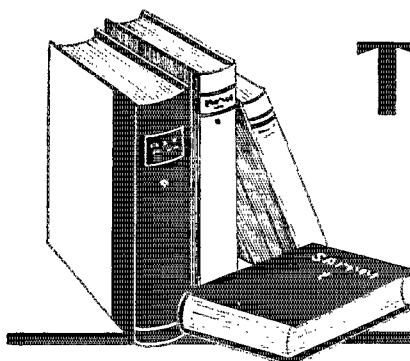
Keep a kit of Ampco Metal non-sparking tools handy for maintenance and repair work for every job where fire and explosion hazards exist.

Chisels, scrapers, Stillson wrenches, pliers, forks, shovels, and special tools for every industrial need are available of non-sparking Ampco Metal.

Write us for price list of Ampco Metal and Beryllium Copper non-sparking safety tools.

Sole Manufacturers

AMPCO METAL, Inc.
3830 WEST BURNHAM ST.
MILWAUKEE



The Safety Library

by
MARY M. WELLS
Librarian N.S.C.

Further information regarding publications listed here can be obtained from the National Safety Council Library

BOOKS AND PAMPHLETS

Cooperage:

Cooperage. Published by Retail Credit Co., Atlanta, Ga., 1934. (Pamphlet) (Industry report)

Fire Prevention and Protection:

Key to state fire prevention laws and regulations. Rev. to Dec. 1, 1935. Published by National Fire Protection Association, 60 Batterymarch St., Boston, Mass., 1934. Price \$1.00. (Pamphlet)

Nolting, DeWayne E., fire prevention practices in New York State Municipalities. Published by New York State Conference of Mayors and other Municipal Officials, Bureau of Training and Research, Albany, N. Y., 1933. (Pamphlet) (Publication No. 27)

Mines and Mining:

Harrington, D. and Fene, W. J., operating coal mines without accidents. Published by the U. S. Bureau of Mines, Washington, D. C., 1934. Free. (Pamphlet) (I. C. 6762)

Mine explosions and fires in the United States during the fiscal year ended June 30, 1934. Published by the U. S. Bureau of Mines, Washington, D. C., 1934. (Pamphlet) (I. C. 6761)

Oil Industry:

Precautions for workers on construction and maintenance of refinery equipment. Published by the American Petroleum Institute, Depart-

ment of Accident Prevention, Dallas, Texas. Price 25c. (Pamphlet) (Accident Prevention Manual No. 7)

PERIODICAL ARTICLES

Carbon Monoxide:

Carbon monoxide in automobiles. In *Travelers Standard*, March, 1934, p. 41-52.

Electricity:

Conrad, A. G. and Haggard, H. W., Experiments in fatal electric shock. In *Electrical Engineering*, March, 1934, p. 399-402.

Industrial Health:

Davis, Dr., N. S., Cardiovascular disease and industry. V: The heart in thyroid disease and VI: Effort syndrome. In *Industrial Medicine*, January, 1934, p. 14-16.

Kelly, R. W., Group medical service plans—recent developments on the Pacific Coast. *Industrial Medicine*, January, 1934, p. 17-21

Marine Industry:

Kain, W. P., Accidents from falls aboard ships and on piers. In *Marine Progress*, March, 1934, p. 54-55, 65.

Women In Industry:

Mills, R. G., Two-shift employment women—a discussion of certain hygienic and moral questions where the two shifts do not cover midnight to morning. In *Industrial Medicine*, January, 1934, p. 25-30.

HONOR ROLL

Details of no-accident records in excess of 400,000 man-hours, or 200 working days, are invited for this department.

Emsco Derrick & Equipment Co.

The D & B Pump and Supply Company division of the Emsco Derrick & Equipment Company, located in Los Angeles, with 70 employees, has operated since May 14, 1931, without a disabling injury. The record totals 325,708 man-hours. Effective safety work under the direction of an employee safety committee is credited with these results.

Hope Construction & Refining Co.

Two divisions of the Hope Construction & Refining Company, operating in Ohio and West

Virginia, have accumulated recent safety records. The oil division of the company had no lost-time accidents since September, 1931, and had rolled up, to January 1 of this year, 1,815,584 safe man-hours. The gasoline division has not had a lost-time accident since June 29, 1931, the record to January 1 of this year being 593,701 safe man-hours.

Oklahoma Power and Water Co.

On February 1, 1934, the employees of the Oklahoma Power and Water Company, Sand Springs, Okla., had worked 790 days without a disabling injury. The accident-free period dates back to December 2, 1931, and the record totals 693,971 man-hours, and is still unbroken.

Raytheon Production Corp.

Four years of operation without a disabling injury were recently completed by the Raytheon Production Corporation, of Newton, Mass., manufacturers of radio tubes. During this time an average of 520 employees worked a total of 4,163,374 man-hours.



*Cost Little to Install in Old or
New Building*

Only three plumbing connections are needed
for Bradley Washfountains and Showers.

* * *

3, 6 or 10 Wash at One Fountain

Use no more water than one person at a
faucet.

* * *

3 or 5 Men in Shower Unit

The group idea again saves water and space.

* * *

*Lifetime Drinking Fountains and Street Showers
complete the Bradley Line.*

**PROPER WASHING AND BATHING
PREVENT DERMATOSES***

*(Skin Affections)

Dr. W. R. Redden, of the American Red Cross, in a recent issue of National Safety News says Dermatoses head the list of industrial diseases and, in many cases, the best preventive is proper washing and bathing. He also cites Dr. A. S. Gray to the same effect.

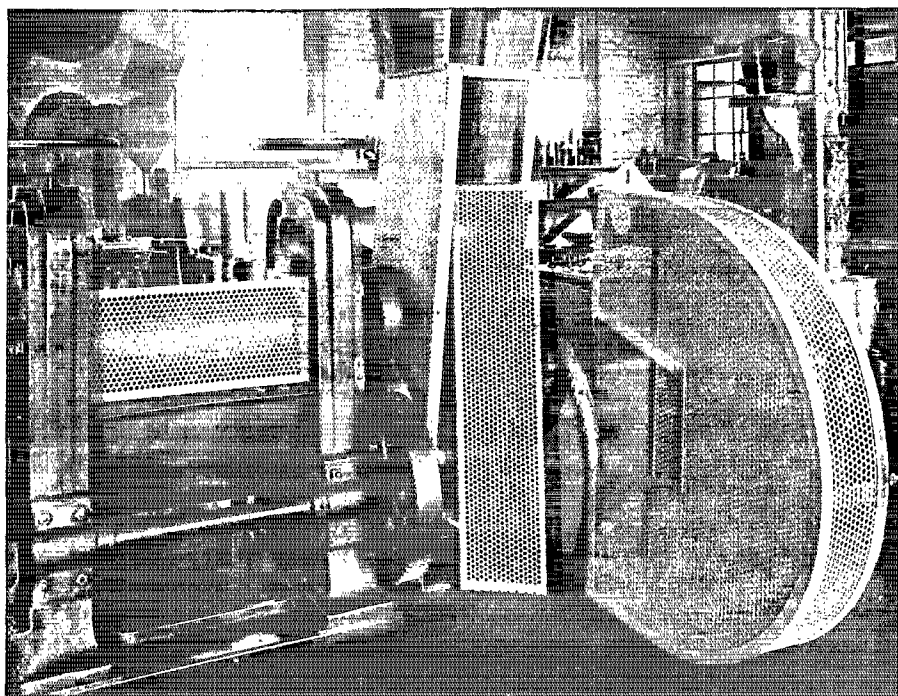
Bradley Group Washfountains and Group Shower units provide the sanitary wash fixtures favored by hundreds of thousands of factory employees. Water saving, 70%. Their installation is a very obvious improvement in any plant. Let us mail you Pamphlet B66. BRADLEY WASHFOUNTAIN CO., 2237 W. Michigan St., Milwaukee, Wis.

BRADLEY
WASHFOUNTAINS and SHOWERS

BRING YOUR GUARD PROBLEMS TO US

GUARD material is
our business. Our
plan is so simplified any
handy man on the job
can erect your guards
with the standardized
parts we furnish.
They're better and cost
less.

Write us today for a
copy of "Machine and
Belt Guards."



The Harrington & King Perforating Co.

114 LIBERTY ST., NEW YORK

5645 FILLMORE ST., CHICAGO, U. S. A.

APRIL, 1934

The Honor Roll

(Continued from page 56)

Texas Electric Service Co.

The Wichita Falls transmission division of the Texas Electric Service Company has rolled up a record of five years without a lost-time accident. During this period the employees worked a total of 233,489 man-hours. Recently a bronze plaque was presented to the division in recognition of their achievement.

Union Carbide and Carbon Corp.

The following list of plants and laboratories, units of the Union Carbides and Carbon Corporation, have continuous safety records totaling either at least twelve months or a minimum of 1,500,000 man-hours without a disabling injury. Records shown below as ending December 31, 1933, were still unbroken on February 9, and labor hours indicated are as of that date. The date given is that of the beginning of the record.

National Carbon Co., Inc., Port Richmond, Philadelphia; 10 employees, 126,276 man-hours, (June 13, 1929).

National Carbon Co., Inc., Fremont, O.; 291 employees, 1,609,800 labor hours. (November 1, 1930).

National Carbon Co., Inc., research laboratories, Edgewater, Cleveland, O.; 45 employees, 1,103,330 labor hours. (May 24, 1927).

National Carbon Co., Inc., Division "L", Long Island City, N. Y.; 17 employees, 289,478 labor hours. (May 1, 1928).

National Carbon Co., Inc., factory "A", Cleveland, O.; 129 employees, 673,609 labor hours. (July 5, 1931).

National Carbon Co., Inc., warehouse, Jersey City, N. J.; 34 employees, 560,414 labor

hours. (December 5, 1928).

National Carbon Co., Inc., warehouse, San Francisco; 19 employees, 48,655 labor hours. (August 26, 1932).

National Carbon Co., Inc., new products division, Cleveland, O.; 14 employees, 28,540 labor hours. (January 1, 1933).

National Carbon Eveready—S. A., Monterey, N. L., Mexico; 21 employees, 85,187 labor hours. (September 3, 1931).

Canadian National Carbon Co., Ltd., Toronto, Ontario, Canada; 187 employees, 503,451 labor hours. (November 15, 1931).

The Linde Air Products Co., Chicago; 312 employees, 4,109,101 labor hours. (April 4, 1929).

Union Carbide Co., general offices, New York City; 1500 employees, 2,118,657 labor hours. (January 1, 1933).

Union Carbide Co., Sault Ste. Marie, Mich.; 201 employees, 1,548,929 labor hours. (April 6, 1931).

Electro Metallurgical Co., Alloy, W. Va.; 22 employees, 615,299 labor hours. (February 20, 1932).

Electro Metallurgical Co., Holcomb Rock, Va.; 22 employees, 5,8,604 labor hours (August 4, 1927).

Electro Metallurgical Co. of Canada, Ltd., Welland, Ontario, Canada; 252 employees, 692,799 labor hours. (October 3, 1932).

New Kanawha Power Co., Glen Ferris, W. Va.; 57 employees, 141,680 labor hours (November 1, 1932).

West Virginia Hydro-Electric Co.; 10 employees, 60,024 labor hours. (November 27, 1931).

Kemet Laboratories Co., Inc., Cleveland, O.; 19 employees, 70,502 labor hours. (February 17, 1932).

Oxweld Railroad Service Co., repair shop, Chicago; 40 employees, 451,440 labor hours (November 8, 1928).

Oxweld Acetylene Co., (Purox factory), L. Angeles; 22 employees, 89,488 labor hours (November 20, 1931).

Oxweld Acetylene Co., warehouse, Chicago; 30 employees, 423,570 labor hours. (October 17, 1929).

The Prest-O-Lite Co., Inc., Indianapolis, Ind.; 226 employees, 1,012,575 labor hours (December 29, 1931).

Michigan Northern Power Co., Sault Ste. Marie, Mich.; 49 employees, 343,871 labor hours. (December 22, 1926).

American Carbolic Co., Duluth, Minn.; 1 employees, 594,089 labor hours. (September 23, 1928).

Havnes Stellite Co., Kokomo, Ind.; 1 employees, 2,720,489 labor hours. (October 24, 1926).

Union Carbide and Carbon Research Labs Inc., Long Island City, N. Y.; 80 employees, 496,483 labor hours. (August 29, 1931).

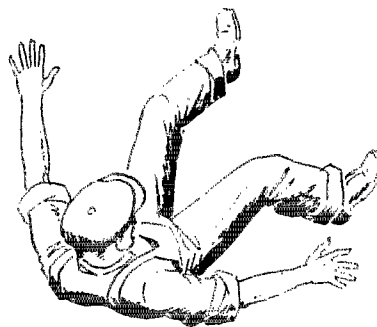
Carbide and Carbon Chemicals Corp Hastings, W. Va.; 47 employees, 151,277 labor hours. (October 12, 1932).

Carbide and Carbon Chemicals Corp Diamond, W. Va.; 41 employees, 177,377 labor hours. (December 27, 1931).

Dominion Mines and Quarries, Ltd., Little Current, Ont.; 38 employees, 287,462 labor hours. (September 2, 1929).

Universal Gypsum Co.
On February 11 the Universal Gypsum & Lime Company, Akron, N. Y., completed 1,647 calendar days without a lost-time accident, the total exposure being 705,990 man-hours. The company is entered in the safety contest sponsored by the Associated Industries of New York State, Inc.

**What Are YOU
Doing About The
Hazard Of—**



SLIPPERY SOLES?

Workmen are human. Any day, any minute, even the most careful man may slip. The result, perhaps—broken bones, strains, sprains, hernia. It's *your* responsibility to take every precaution for keeping him on his feet.

More and more safety engineers are taking the stand that the most dependable protection from falls due to slipping is *non-slip* soles and heels. For this purpose *Raw Cords* have no equal. Upright cords, solidly embedded in live rubber, provide safe footing. Even as sole wears, bare cord ends grip walking surface.

Write for samples and information. Attach Gro-Cords or Raw Cords to present shoes or specify them on all safety footwear.



The Lima Cord Sole & Heel Company

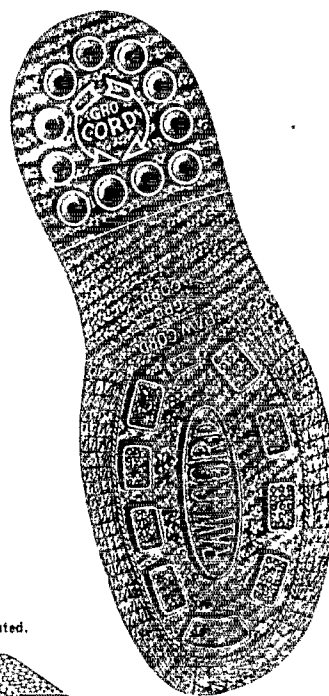
Dept. 4-F Lima, Ohio

Fully Protected by Patents. Any infringements will be prosecuted.



Non-Slip

SOLES and HEELS



Gro-Cords are widely used in Dairies, Iron and Steel Foundries, Railroad Shops, Auto Factories, Gas and Electric Plants, Ice and Fuel Stations, Stone Quarries, Mines.

Evanston Again Leads in Traffic Safety

(Continued from page 14)

remarkable by the heavy traffic between Chicago and the north shore suburbs and the greatly augmented travel because of A Century of Progress.

While it will be impossible for some weeks to tell accurately how the contest cities stood in comparison with the nation as a whole, it is interesting to note that a majority of the contestants reduced their motor vehicle death rates in 1933 despite a slight increase for the entire country. All of the group winners had sizeable reductions.

Because of the unusual popularity of this type of competition and its remarkable success in starting scores of cities toward a successful solution of their traffic problem, the National Traffic Safety Contest has become an annual affair. Results of the first two contests have proved definitely that the spur of competition actually means a saving of life. The third contest which will run throughout the present year, is now under way. Evidence of its popularity is seen in the fact that the total enrollment this year is 50 per cent greater than in 1933. Competition has been stimulated greatly during the present contest by adding to it a contest between states.

Details of the methods by which the victorious cities in the 1933 contest won their honors will be made available in other publications of the National Safety Council.

At the time of going to press arrangements had been made for a coast to coast broadcast at 2:00 p.m., Eastern Standard time, honoring these cities which had made the greatest progress in preventing traffic accidents during 1933. Secretary of Commerce Daniel C. Roper and Floyd Gibbons had accepted invitations to speak on this program.

Keep Blasting Caps Away from Children

IT IS necessary at this time of the year to stress again the importance of keeping blasting caps away from children, and of educating young people in the dangers of blasting caps as toys.

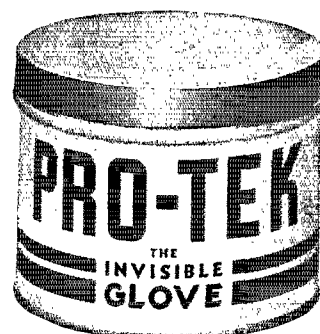
Hundreds of children are injured annually from detonating these small copper cylinders, which are about a quarter of an inch in diameter and an inch or two long, and which are loaded with fulminate of mercury, a very sensi-

tive and powerful explosive. Sometimes a cap will explode when carried in a pocket and bumped. Children throw them in bonfires, strike them with a hammer or rock, hold lighted matches under them, attempt to pick out the fulminate of mercury with a pin, nail or some instrument. Stamping caps with the feet or "shooting" them against a wall with a sling shot are among the many ways caps are detonated, with disastrous results to the offender.

Many children are now facing the

future with impaired eyesight. Some have been totally blinded. Fingers and even hands have been blown off, and many faces and bodies have been severely lacerated and disfigured. Records show that some children have been killed or have died as a result of their injuries.

Blasting caps are left by careless grown-ups in barns, under porches, on cupboard shelves, and in fields and along highways following blasting operations. Childish curiosity results in severe handicaps to the youngsters who find them.



Protects against industrial skin diseases

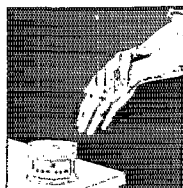
Occupational skin diseases caused by contact with irritating materials need no longer be a hazard to industrial workers.

DeVilbiss Pro-Tek, in keeping harmful materials out of the skin, prevents infections which result from the continued handling of many materials used in industry.

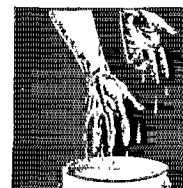
DeVilbiss Pro-Tek aids medical treatment of stubborn, long standing skin eruptions caused by working with poisonous materials. Pro-Tek guards the skin from the action of irritating materials during the treatment and progress of recovery. The patient may continue to work with the same materials which caused the infection without danger of re-infection. Transfer of the worker to some other operation is not required, saving the management this frequent and costly necessity.

When measured by the losses it prevents in many industrial occupations, DeVilbiss Pro-Tek is worth many times its cost. In plants or operations where industrial dermatitis is considered a necessary evil, a trial of Pro-Tek will soon demonstrate its value.

DeVilbiss Pro-Tek is available in convenient tubes or cans for personal use, and in one gallon and five gallon containers for industrial distribution. Sold by drug, paint, hardware, automotive, railway and mill supply houses, or may be obtained direct from The DeVilbiss Company, Toledo, Ohio.



Before starting work, Pro-Tek is rubbed thoroughly into the hands. It disappears, leaving no greasy or sticky feeling.



Forms a protective film which keeps harmful materials out of the skin, thus preventing disease.



Harmful solvents or abrasives not needed to clean dirty hands. Pro-Tek and adhering material wash off in water.

M^AN^DM

RAIL CLAMPS

PROVIDE SAFE CONDITIONS

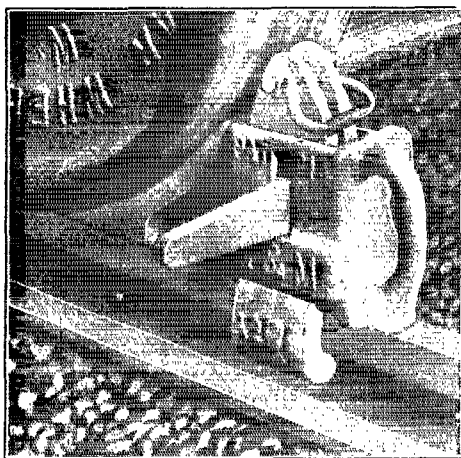
Eliminates the dangerous practice of placing blocks of wood under the car wheel for bracing.

Recommended as the surest and safest possible stop for use on runways in repairing a crane, on loading platforms, temporary sidings, car stops, on air ferries, under tipples, and for cars on grades.

Rigidly constructed of open hearth annealed cast steel, tool steel key. Made to fit any rail from 40 to 110 pounds.

*Easily and quickly removed.
Guaranteed against breakage.*

Used and recommended by leading steel companies, manufacturing plants, mines, grain elevators, cement plants, and quarries.



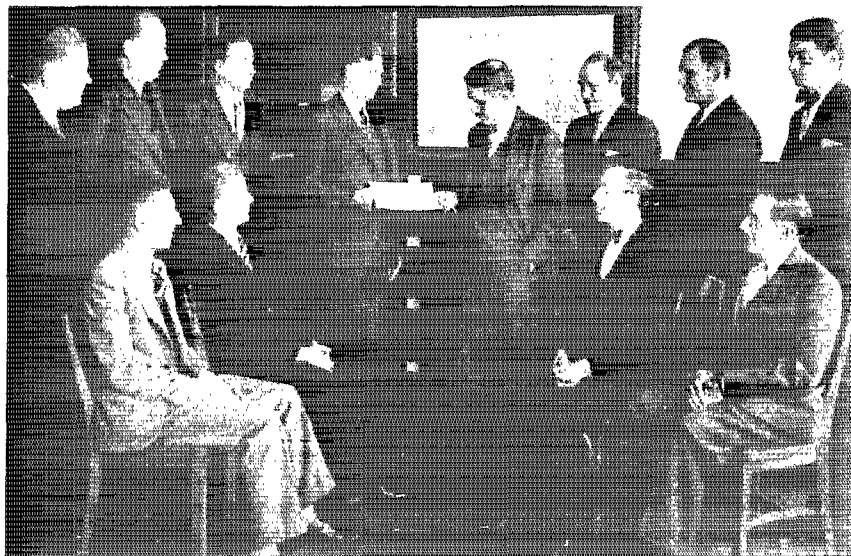
Style A—\$15.00 Each.

Our Engineering Department will design clamps to meet special track conditions. Let us have your operating problem and we will make recommendations.

INDUSTRIAL PRODUCTS COMPANY

Accident Prevention Equipment
800 W. Somerset St.
Philadelphia, Pa.

Westinghouse Workers Win Award



FROM April 18, 1931, to December 5, 1933, the Wire Products Division of Westinghouse Lamp Company at Bloomfield, N. J., operated without a disabling injury. The division has a payroll of approximately 400 workers and the exposure during this period was 1,366,455 man-hours. This record is the best yet made by the Wire Products

Division and one of the best at the Bloomfield plant.

In recognition of this achievement the division was presented with a certificate of merit by the Newark Safety Council. In the above illustration John Russell, Jr., (right), chairman of the Council Industrial Committee, is presenting the certificate to W. B. Gero, superintendent of the Wire Products Division.

Westclox Makes History

(Continued from page 24)

ally well planned and laid out from the standpoint of avoiding accident hazards. The buildings are of fire-resistant construction and all manufacturing departments are on the ground floor, thereby eliminating much of the hazard associated with stairways. Since a large proportion of female help cannot be induced by moral suasion to wear low heeled shoes, this safety feature is of real importance.

Saw tooth roof construction provides an abundance of glareless light on the work benches and machines. The main aisles are of ample width for the operation of electric trucks.

Personal and plant cleanliness have been encouraged in every possible way. Washrooms and locker rooms are maintained on a scale comparable to a country club. Showers are provided and their use is encouraged, although most of the plant operations are quite clean. In addition to the main washrooms, which are used at noon and at quitting time,

washbowls have been provided in each department. The electric driers which have been provided avoid the litter of paper towels or the loss of time for the employee going to his locker for the individual towel which is used at quitting time.

No effort has been spared to provide clean surroundings. Windows, doors and skylights and walls are cleaned on a regular schedule. Vacuum cleaners remove dust from the steel beams and automatic scrubbing machines keep the floors much cleaner than hand labor could do. Even in the automatic screw machine department, no accumulations of old oil will be found on the floor.

Keeping order throughout the plant is the responsibility of each department. There must be no obstruction of aisles.

In short, the safety program has been characterized by conscientious attention to the inconspicuous details of instruction, housekeeping, inspection and guarding. There have been some minor refinements during the past ten years but no radical changes. Westclox was on the right track many years ago, safety work has gathered momentum year after year.

Even during the past few months when several hundred new employees have been added to the payroll the foremen have been able to keep the situation in hand and the no-accident pace has been maintained. Employees new and old seem to have caught the spirit, and their attitude is "I don't want to be the one to spill the beans."

When the second no-accident year was completed the company thought some recognition for the employees efforts was due. A program with entertainment and prominent speakers was considered, but it was felt that each employee should be allowed to spend the time enjoying himself as he saw fit. So all other plans were discarded in favor of a half holiday with full pay. On Friday January 12 at noon the factory whistle blew intermittently for ten minutes, telling the adjoining cities of LaSalle and Peru of the West-clox celebration.

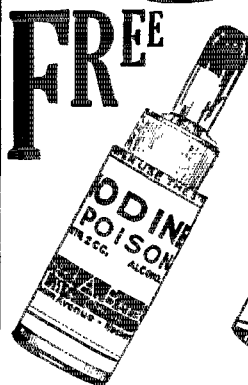
Tick-Talk, an interesting letter publication which has been an influential force in the plant's daily life for twenty years and an active ally of safety, celebrated the event with a special safety issue, giving details of the famous record, credit to those concerned, and messages of congratulation from Arnold J. Wilson, general manager of the plant; Mayor Charles Toellen, of Peru (himself a Westcloxer); Dr. H. M. Orr, mayor of LaSalle; and W. H. Cameron, managing director of the National Safety Council.

"There are thirty years of work behind those two years without an accident," said a plant official who, with the modesty typical of the organization, desired to remain anonymous. "A safety consciousness can't be built up over night, but it is a wonderful aid to morale. Now we must be on our guard to keep from taking safety for granted."

Pennsylvania Insists Upon Safe Grandstands

SPECTATORS at many football games in Pennsylvania during 1934 will view them from new or reinforced grandstands. Following the promulgation of safety regulations for grandstands by the State Industrial Board in August, 1933, numerous inspections were made. As a result, many stands were condemned and others were ordered strengthened. Lack of inspectors made it impossible for the department to check on all grandstands, and the cooperation of school authorities in this inspection has been enlisted.

APRIL 1934



SAF-T-TOP

Antiseptic Applicators are Mighty Convenient

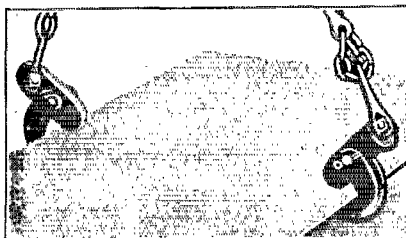
These pocket-size applicators take the cake for convenience. They are filled with your choice of most any standard antiseptic solution; they are shock-proof and they feed direct to the wound from a patented glass tip. This tip is a great economizer, since it does away with the usual cotton swab which soaks up and wastes the solution. When not in use, an airtight closure prevents evaporation. One Saf-T-Top may be used over 100 times.

FREE SAMPLE

to officials interested in safety.

Robert A. Bernhard
Mfg. Chemist

150 Anderson Avenue - Rochester, N.Y.



THE SAFE WAY

NEVER SLIP Safety Clamps for use in handling boiler plate either vertical or horizontal constitute the safe sure way to perform this operation. They have many advantages over old-fashioned hooks and chains because they do not have a tendency to slip, as the weight of the piece pulls the clamp tighter.

Boiler plates are easily damaged—don't tolerate clamps that encourage bent, chipped work. The safe way is the only profitable way.

Write for complete details

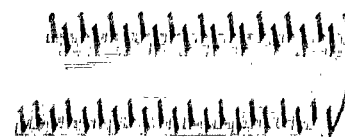
Never Slip Safety Clamp Co.

P. O. Box 448

Grand Central Annex, New York City

SAVE MONEY TIME STOP ACCIDENTS

BY USING THE
**TALCOTT SAFETY
BELT FASTENERS**

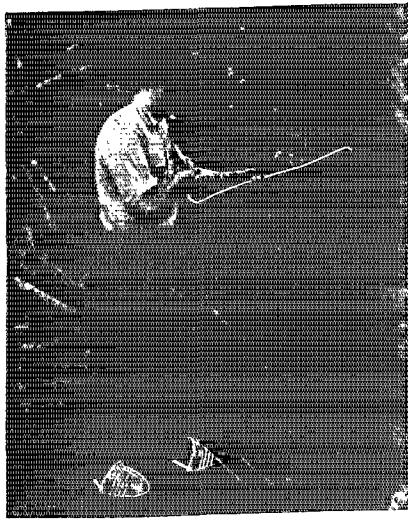


CAN BE USED OVER AND OVER AGAIN

Send for Free Samples

W.O. & M.W. TALCOTT, Inc.
92 Sabin Street
PROVIDENCE R. I.

Nothing Better In Handling Pigs



Than Sankey Foot GUARDS

Read what this company has to say
about Sankey Foot Guards:

"Prior to our procuring these foot guards we had five or six accidents a week, costing us \$90 to \$109, caused by a piece of pig iron dropping on the men's toes. We tried your foot guards and they worked successfully. We will not permit a man to work in the hold of a ship on this class of cargo without these guards. They have reduced our risk on this class of work 99 per cent."

Sankey Foot Guards are equally effective on all other work where the feet are in danger. They are made of light steel or aluminum alloy, are light in weight and fit loosely over the shoe so that the floor or ground takes the blow of impact in case of falling material.



Don't pay for
needless injuries.
Investigate the
Sankey Guard.

ELLWOOD
Safety Appliance Company
Ellwood City, Pa.

**Name of company furnished on request.*

Accident Prevention in the Recovery Program

(Continued from page 13)

as a person? What evidence does the company give that will lessen his anxiety about security of tenure at the job?

My point is that in the days to come we have got to supplement job training with *morale training* if we are to meet this problem of the worker's total mental attitude at work. This is definitely one of the almost unexplored territories that invite to constructive and beneficial experiment which will bear fruit indirectly in accident reduction.

My third point is already a commonplace among safety workers. Yet we must continue to emphasize the truth that the foreman who has constant supervisory relations with workers has a large responsibility for inculcating and preserving safety practices and habits. A personnel manager wrote me only recently about the increase in accidents in his company and said, "I believe firmly this is because someone is not out there among them regularly watching for careless practices and keeping them ever alive to the fact that the really worth while safety device is in a man's brain, rather than on his machine."

While we explore new territory let us not forget that the foreman is and will continue to be the major contact man with the individual worker. And no staff safety engineer can take his place.

In the fourth place, I believe we have made real progress in emphasizing the truth that there are individual workers who for a variety of reasons are more prone to accidents than many of their fellows. This fact has been established beyond any question by constructive work on the Boston Elevated Railway, the Cleveland Street Railways, in certain bus and taxi companies, in a variety of industrial plants and among individual automobile drivers.

Dr. Charles S. Slocumbe in the January, 1934, issue of the *Personnel Service Bulletin* tells us of his recent study in a plant of 6,600 men, for a period of a year. Nine hundred men with chronic accident records were found responsible for 60 per cent of the minor accidents and of the lost-time accidents. Of these, 48 men had 279 minor accidents and 30 lost-time accidents. In fact, their accident frequency was fifteen times the average,—which meant that one per cent of the workers was responsible for 10 per cent of the accidents.

In this plant the records of 625 men were intensively studied. Four hundred and forty had the relatively safe average

of 2.10 accidents apiece. There were 18.5 unsafe men who averaged nine and one-half accidents each which required over four visits to the dispensary; and meanwhile there were 3,600 workers who had no accident record.

If this were an isolated instance might have far less meaning for industry. But the fact seems established beyond question that there are in every organization a minority of identifiable workers who are accident addicts.

Fortunately experience has shown that in most cases corrective measure can be introduced that go a long way toward eliminating such accidents. Generally speaking, the program has to be one of a careful study of records to identify the accident addicts; a careful study of case histories to diagnose the causes; and individual reeducation in work in the light of the causes uncovered.

My own opinion is that this is probably one of the most fruitful lines of new attack upon the accident problem which has been called to the attention of industrial managers in the last decade.

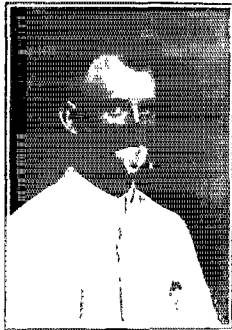
The conclusions which I reach as to the wise attack upon the accident problem today are therefore, as follows:

In the first place, it is unwise to separate safety work from other phases of industrial relations work. If it is thought of in too narrow and compartmentalized a way, the best results cannot be secured. Safety mindedness must pervade every relationship of company and employees.

In the second place, we must increasingly see to it that the work of interviewing, of physical examination, training, of morale building, are carefully devised in order to take full account of the safety factors in the process. And the discovery of accident addicts becomes a vital mandate for safety workers.

Finally, when all managerial and technical responsibilities have been assumed by superintendents, foremen and safety engineers up to the limit of their ability, we still have to realize the responsible role which the employees themselves play. Indeed employee organization—whether in company union or in labor union—is inevitably going to play a more important part in industrial relations work in the next few years. And it is of the utmost importance as employee organization becomes stronger and takes its responsibility more seriously that the safety problem should be brought before them as an integral part of their program of constructive thinking.

Look For The DIAMOND



(Patent Nos. 1,202,096 and 1,946,834)

DIAMOND Disc Respirators are universally popular because they are handy, efficient, and comfortable. Men will wear them because of these features. A large filtering area is provided in the Diamond Disc pocket arrangement where sponge is inserted for filtration purposes. Valve action produced by pressure at exhalation makes respiration easy. Leading industrial plants used the Diamond Disc.

Manufactured by

The Hygeia Respirator Co.

308 East 94th St. New York City

Sold by All Safety Supply Houses

PREVENT SLIPPING ACCIDENTS

on Stairs and Other
Walkways

- ◆ Feralun
- ◆ Bronzalun
- ◆ Alumalun
- ◆ Nicalun

**Abrasive Metal Treads
Are Fireproof
For New and Worn Steps**

Durability Proven in Severest
Service

Originators and Developers
for 22 Years

Illustrated Leaflets and
Samples on Request

American Abrasive Metals Co.
Irvington, New Jersey

COMING EVENTS Of Interest to Safety Men

Apr. 19, Pittsburgh, Pa.

Western Pennsylvania Safety Council, Annual Safety Engineering Conference. G. E. Clarkson, manager, 2409 First National Bank Bldg., Pittsburgh, Pa.

Apr. 26-27, Toronto, Ont.

Industrial Accident Prevention Associations, Annual Convention. General manager, R. B. Morley, 600 Bay Street, Toronto 2, Canada.

Apr. 30-May 1, Boston, Mass.

New England Safety Conference. Lewis E. MacBrayne, manager, Massachusetts Safety Conference, 6 Beacon Street, Boston, Mass.

May 9-10, Chicago

Twelfth Annual Midwest Safety Conference, George G. Traver, manager, Chicago Safety Council, 6 Beacon Street, Boston, Mass.

May 9-11, London, England

National "Safety First" Association, annual Congress. General secretary, Lt. Col. J. A. A. Pickard, 52 Grosvenor Gardens, London, S. W. 1, England.

May 14-18, Atlantic City, N. J.

Annual Meeting, National Fire Protection Association. Franklin H. Wentworth, managing director, N.F.P.A., 60 Batterymarch Street, Boston, Mass.

May 17-18, Los Angeles, Calif.

All California Accident Prevention Conference. General chairman, E. B. Letterts, Automobile Club of Southern California, Los Angeles, Calif.

May 18, Tulsa, Okla.

International Petroleum Exposition, Safety Day.

May 24, Beaver Dam, Wis.

Seventh Annual Rock River Safety Conference. General chairman, H. T. Burrow Malleable Iron Range Company, Beaver Dam, Wis.

June 4-7, Atlantic City, N. J.

Edison Electric Institute, Annual Convention, M. B. Woods, acting secretary, 420 Lexington Ave., New York City.

June 15, Rhinelander, Wis.

Fifth Wisconsin Valley Safety Conference. General chairman, G. H. Suhls, Rhinelander Paper Company, Rhinelander, Wis.

Sept. 3-6, Pasadena, Calif.

American Public Health Association, Sixty-third Annual Meeting. Executive secretary, Dr. Kendall Emerson, 450 Seventh Ave., New York City.

Sept. 24-28, Cleveland, O.

American Transit Association, Annual Convention. General secretary, Guy C. Hecker, 292 Madison Ave., New York City.

Oct. 1-5, Cleveland, O.

NATIONAL SAFETY COUNCIL, Twenty-third Annual Safety Congress. Managing director, W. H. Cameron, 20 South Wacker Drive, Chicago.

Oct. 29-Nov. 2, Atlantic City, N. J.

American Gas Association, Sixteenth Annual Convention. Alexander Forward, managing director, 420 Lexington Ave., New York City.

OLD

**EMPTY, WASH
AND RECHARGE
EVERY YEAR**



THE old gives way to the new! Gone is the day of soda and acid fire extinguishers that must be recharged every year! Gone too, is the yearly expense of keeping them in operating condition!

The new Kidde extinguisher, labeled by the Underwriters' Laboratories and the Factory Mutual Laboratories, does not require annual refilling. It is good until used . . . it contains no acid or damaging chemicals . . . it has all the effectiveness of soda and acid extinguishers . . . yet it costs no more.

Before you buy extinguishers, be sure to investigate the new Kidde unit. It gives better protection than soda and acid extinguishers at no higher initial price. And it saves up to a dollar a year, as well as untold trouble, in maintenance. Write to Walter Kidde & Company, Inc., West Street, Bloomfield, N. J., for descriptive literature.

NEW



**KIDDE PURE WATER
FIRE EXTINGUISHER**

•SAFE• HELMETS

THE Pangborn "DD-1" Air Fed Rubber Blast Helmet is a REAL SAFETY investment. ¶ It is fully approved by State Industrial Commissions and leading Insurance Companies. ¶ Air Washer and Filter attachment insure comfort to operator. ¶ Extra large vision window insures quality production in Blast Cleaning.

Write for free Bulletin No. 593

**PANGBORN
CORPORATION**
HAGERSTOWN MARYLAND



By W. W. WILLIAMS
Assistant to President, Employers'
Re-insurance Corporation

BILL, I just saw Big Mike leading you by the ear over to the bulletin board. Just good natured kidding. He wanted you to see that poster. "It takes an accident to teach some people safety."

Well, Mike's a good head. He takes his safety seriously, but he sure got a laugh out of that. Mike's got a big following and if he's for you, the gang will all kick in. I'd rather have them with me than the board of directors.

Shoulder lame? Oh, Mike's slap on the back was just a love pat. We've won them over. You're making good. For a time the boys didn't seem to approve of either of us. They drew a circle that just about shut us out. But we drew a circle that took them in.

Well, I've learned something. My mistake was too much *wishing* they would come across and not enough *work* in trying to get them to do it. Also, I've been a little short on patience. It takes time to get a new idea across.

The reason for our good record because the Old Man believes in safety. He really wants it, and when safety comes from the boss it gets somewhere. You see, Bill, the Old Man was my foreman when I came to work here. I tried to keep me out of trouble and he helped me when I got in trouble.

He wouldn't stand for "good enough" methods. Said men were creatures habit and we might as well learn to do things right automatically. He didn't drive; he led. The urge to do right came from inside somewhere, and his "don't" never made you sore. He built men as they built the job. I've tried hard to fit his shoes, but—

There he is now. See you later—seems to have something on his mind.

Well, Bill, the Old Man wants you in the office. No, I guess you haven't broken your pick. He won't bite you. Kinda rough sometimes, but he's fair. Bill. Maybe it's about the safety situation around here. He heard all about your wanting to quit, how you stuck out and how you have been performing lately. Good luck, Bill, see me when you come out.

Lessen Your Insurance Rates

Prevent Fire and Explosion

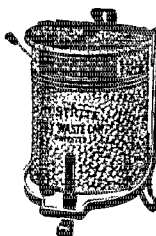
How about YOU?—Your plant?—Your employees? Are you taking the fullest safety precautions against fires, explosions, accidents and other danger risks? Are you using modern, convenient, efficient and approved safety appliances to store your waste, gasoline, benzene, kerosene, turpentine, naphtha, alcohol and other hazardous explosives and volatile liquids? *Play safe*—follow the example of thousands of cautious plant executives—install the latest, improved JUSTRITE Safety Appliances TODAY.

Insurance Companies Gladly Lower Rate Premiums

to plants who install approved, up-to-date safety appliances. JUSTRITE Safety Appliances are inspected and labeled by the Underwriters, Inc., and the Associated Factories Mutual Fire Insurance Companies. Protect your plant—your employees—install the latest improved JUSTRITE Safety Devices TODAY. See your dealers or write us for interesting prices and literature.



Justrite Safety Can
Sizes—1 pint to
5 gallons



Justrite Waste Can
Capacity—6, 8, 10,
14 gallons

Justrite
TRADE MARK

Justrite Mfg. Co. 2087 Southport Avenue
CHICAGO, ILLINOIS

Shall We Stop These Eye Losses?

(Continued from page 22)

ning the eye protection campaign. Too often a casual reading of its recommendations may have led men to shade these recommendations in one group or another. On the contrary, the Code is not meant to be taken literally, but should be expanded and amplified to meet every possible eye hazard in the individual plant.

Eye injuries may be caused in so many different ways that it is almost impossible to say with confidence when goggles may be discarded. A valuable insight into the more hazardous industries may be had by noting the record of eyes saved, as reported in that survey made by the National Society for the Prevention of Blindness and the National Safety Council. (See the accompanying table.) In steel and other metal trades, 2,394 eyes were saved among 109,577 employees in two years; in miscellaneous manufacturing, 511 eyes were saved among 83,864 employees etc. From The Pullman Company shops, in those lax days before their mandatory goggle rule became effective, they report that 42 per cent of the eye injuries were caused by hand tools, 30 per cent by machinery, 11 per cent had miscellaneous causes, 9 per cent arose from handling materials, and 8 per cent from explosions, fire and fire flashes.

It is plain, therefore, that the selection of proper and adequate protective equipment is of equal importance with any plan devised to make use of it. No one type of goggles, or other eye protection, can be used for all kinds of work. Goggles that are perfectly satisfactory for a machinist may not be at all adequate for a foundry worker, and vice versa. Some have stronger lenses than others, some have side shields to meet particular hazards and others do not, some have ear loops while others have adjustable head bands, etc. It has been pointed out that there are more than one hundred different types of goggles and other eye protective equipment to choose from, and they cover every known eye hazard.

The National Safety Council, some time ago, sent a questionnaire to one hundred representative industrial plants, asking, among other questions: "How do you determine the correct goggle type for a particular operation?" It is significant that only thirty replies were received to this question.

Fifteen companies replied that goggles

were selected according to a scientific job study. Types of goggles were then standardized for certain hazards; the result being a goggle giving the maximum amount of protection with the maximum comfort. Seven other companies reported that they depend largely upon the recommendations of goggle manufacturers, supported in many instances by a special goggle survey in their plant departments. Eight other companies stated that goggles are chosen largely by the trial and error method.

Not even a casual student of eye protection problems can fail to be impressed with the advantages of the first two methods. A careful plant survey (by any competent safety engineer) to determine every possible cause of an eye injury; a scientific job analysis to fit every individual worker with the maximum eye protection; the benefit of expert advice and cooperation from the makers of protective devices.

This cooperation by the equipment manufacturers has been carried to a very high point, recently including the publication of detailed suggestions for the individual industry or company with illustrated examples of the best equipment available.

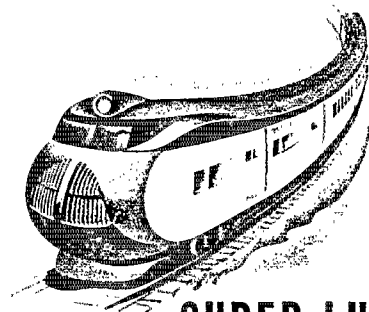
Finally, all industry has available the standard Safe Practices Pamphlets of the National Safety Council and its many other publications, giving both the experience of the leading plants of the country in stopping eye losses, and expert counsel upon the organization of campaigns to prevent all eye injuries.

Operate Long Period Without a Fatality

ON MARCH 1, 1934, the Commonwealth Edison Company, Chicago, completed three years and eight months without an employee fatality. The average number of employees for the period was 9,504 and the exposure totaled 76,404,081 man-hours. No electric light and power company of comparable size has yet reported to the National Safety Council a record of freedom from fatalities approaching that of the Commonwealth Edison Company.

There is one thing that never has and never will mix with liquor. Although it has been tried many times it has never been successful. The quality of the liquor or the manner of taking—straight, with soda water or by holding the nose—makes no difference. That one thing is the operation of any power-driven machine or vehicle. — *Marsh & McLannan, Inc., News-Letter.*

STREAMLINED TRAIN REVOLUTIONIZES TRANSPORTATION



SUPER-LUX FIRE EXTINGUISHER SETS NEW STANDARD OF PROTECTION

BETTER construction has produced a faster train without sacrificing safety. Better construction has also produced a new LUX fire extinguisher having 33% greater extinguishing agent capacity with no increase in height or weight.

If you will test the new Super-LUX extinguisher, you will find the following true. 1. It puts out more fire in oil, gasoline, or lacquer than any other device of comparable size. 2. It smothers fires in running oil or gasoline against which foam and carbon tetrachloride extinguishers fail. 3. It puts out fires in electrical apparatus safely.

Tests will also show that the Super-LUX extinguisher does no damage, leaves no mess or moisture to clean up, will not freeze, and needs recharging only when used.

What better extinguisher is there to protect your plant from production delays and fire loss? Write to Walter Kidde & Company, Inc., Dept. SX-5, Bloomfield, N. J.

**Smothers Many Fires in
Oil, Gasoline, or Lacquer
Where Other Types of
Extinguishers Fail**

Safe for Electrical Fires



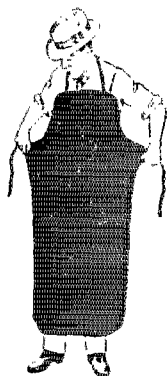
LUX CARBON DIOXIDE FIRE EXTINGUISHER

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

OIL APRON

Industrial Products Company, 800 West Somerset Street, Philadelphia, Penn., has placed on the market a new apron that is practical for men who are subjected to splashes of cutting oils, gasoline, etc. The material used in the manufacture is highly



resistant to the action of petroleum base products. It may be used for acid, and is waterproof. Light in weight and manufactured in standard size.

SOLVENT FOR HOT TAR

The Engineering Products Corporation, 39 Cortlandt Street, New York City, N. Y., announce that after extended laboratory research they have brought to commercial form a new product known as "Solvatar" which is a solvent for hot tar and similar substances. It is intended for application in cases of spatter or hot tar and if applied promptly will greatly mitigate the severity of the burn by cooling and acting as a solvent for the prompt removal of the tar. It is especially suitable for workmen in many construction and repair lines, such as, gas works, roofers, and pavement work where hot tar is used for sealing cracks, etc. The manufacturer claims that the solvent is non-poisonous, leaves no permanent injury of any kind and has a low freezing point. Also that it is non-flammable and its combustibility compares approximately with kerosene which makes it a comparatively safe fluid for storage under most conditions. It is offered in 2 oz. heavy glass bottles with stopper and connected swab,

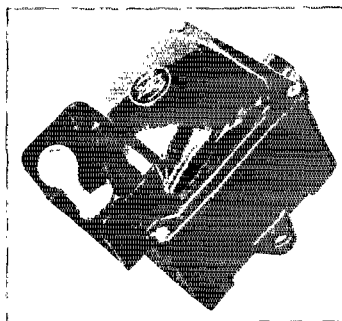
EC&M PUSH BUTTON

For use in connection with the remote control of automatic motor starters. The Electric Controller Co. Manufacturing, 2705 E. 70th St., Cleveland, Ohio, announce the new EC&M 270-A Type 1

Form C Vapor-proof and Dust-tight, Safety Lock-out Push Button.

This push button is for 3-wire low voltage protection installations where it is desired to start and stop a motor through its magnetically operated starter or controller from two or more push button control stations, at any one of which it may be desired to lock the push button in the "off" position to prevent operation of the motor-driven machine.

For example, in connection with grain elevator conveyors, coal, stone and other material handling systems, on large machine tools and similar applications, it is frequently necessary to be able to control the starting and stopping of a motor from any one of a number of push button stations and for safety reasons, to give preference to all "stop" buttons over any



"start" button by being able to lock the circuit "open" at any of the stations. In these cases, where the push button stations are located on different floors or the various push buttons are obscured from view or the main push button station is located adjacent to or on the motor-driven machine, the insertion of a padlock on the "stop" side of any of these push buttons will prevent operation of the motor-driven machine until the authorized person has removed the padlock and re-established the control circuit.

In addition, this push button has been enclosed in a dust-tight and vapor-proof enclosure, the manufacturer states making it especially suited for providing safe and dependable operation in dusty or gaseous locations.

WALLS CAN NOW BE MADE RAIN-RESISTIVE

A practical and economical way of treating walls to make them impervious to penetration by driving rain is announced by Stouhard Company, Philadelphia. Tests reported by this company show this material to be effective in brushing or spraying a liquid known as "Stouhard Rainshield" over the surface. This material

is transparent and can be applied without discoloring the surface treated. In this waterproofing liquid is a penetrating element which causes the material to penetrate the surface treated to a depth of 1/8 to 1/4 inch, depending on the porosity of the surface.

This treatment is particularly recommended by the manufacturers for brick, concrete and stucco walls, and in some instances it can be used on frame buildings.

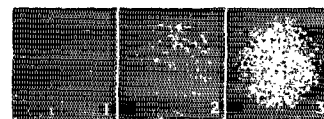
REPAIR MATERIAL FOR EVERY TYPE FLOOR

Concrete mix in asphalt base floor resurfacing materials is well known to maintenance men as a satisfactory floor repair and resurfacing material for floors of light manufacturing activity. In a material known as "Amolastic" recently put on the market by the Floor Treatment Division of American Oil & Disinfectant Company, 129 East 26th Street, New York City, it is claimed that a way has been found to break the asphalt up into billions of particles instead of millions as heretofore, with a resultant finer emulsion that makes it possible to mix larger quantities of cement, sand and gravel or trap rock. This gives a wearing surface hard enough to stand heavy loads on steel wheels.

The amount of aggregate mixed with the plastic determines the hardness to which it will set up. For foot traffic, the floor may be made as soft as rubber. By merely increasing the quantity of cement, sand and gravel or trap rock, a more durable wearing surface is produced for repairing and resurfacing trucking aisles, loading aprons in front of machines, platforms, boiler room floors, or wherever a smooth, skid-proof and durable surface is desired. This material will be used on all types of floors—concrete, or set, asphalt composition or brick.

RUST REMOVER

Interesting microscopic "motion picture" of rust removal is shown above. The tests and microphotographs were made by the research engineers of the Brush Laboratories of Cleveland.



View No. 1 shows the virgin rust. View No. 2 shows a tiny drop of Rust-1-Cide at work. Note the bubbles that are formed while the rust is being dissolved. View No. 3 shows the metal 10 minutes after the drop of Rust-1-Cide was applied. Note

that the metal is clean and shows no trace of rust.

Rust-I-Gide is used before repainting rusted metal and for cleaning up bright metal on which rust spots have formed. It is non-poisonous and harmless to the hands, the manufacturer claims. Rust-I-Gide is manufactured by The Rusticide Products Co., 1960 E. 19th Street, Cleveland, Ohio.

* * *

[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.]

Modern Appliances Need Up-to-Date Wiring

OLD electric wiring in connection with the diverse modern electric appliances found in most homes today is often the cause of fire disasters, according to Fred T. Whiting, Chicago Rotarian and northwestern district manager of the Westinghouse Electric and Manufacturing Co. The wiring in many homes is sometimes thirty or forty years old, but it has to support the use of an electric refrigerator, toaster, ironer, sweeper, washer, electric clocks and numerous other gadgets, in addition to all the regular house lights and special portable lamps.

The result is that too heavy an electric load is carried. Electric fuses work efficiently and give electric circuits complete protection, but the trouble begins when they burn out. Often there is no spare fuse in the house, and one must go out to buy one or send post haste for a service man. The greatest danger, however, is that the householder may resort to bridging the fuse with a penny or piece of wire. Then he has completely destroyed the protection.

Formerly there was no alternative to the use of fuses, but the Westinghouse company has now placed on the market a small circuit breaker for the protection of electrical circuits. It is called a "flipon," and makes use of the same principle that protects the giant electrical power lines. Anyone can restore service by simply flipping the breaker handle, just like an ordinary wall switch.

Mine Inspectors to Meet in Louisville

LOUISVILLE, Ky., is the city chosen for the Twenty-Fifth Annual Convention of the Mine Inspectors' Institute of America and the dates, May 1-9, following the Kentucky Derby which is run on the preceding Saturday, May 5. P. J. Friel, mine inspector, 27th Anthracite District of Pennsylvania, is president of this organization of coal-mine inspectors and safety men. J. T. Ryan, of Pittsburgh, has the program well in hand, which will embody features of safety not heretofore considered.

APRIL, 1934

Trade Publications

for your

SAFETY EQUIPMENT LIBRARY

Safety Information on File

A reference file of trade publications on safety equipment should be a part of every plant's ammunition for the battle of controlling accidents. A wealth of valuable data and information is yours at no charge and with no obligations. Every executive should avail himself of these publications—much help in the every day problems of efficiency, safety and profitable operation are found in them. Mail the coupon today!

1. Steel-Truss Safety Ladders.

Circular illustrates and describes complete line of extension ladders and step ladders with patented steel truss rod feature to provide added strength and safety. The J. R. Clark Company.

2. Holcomb Protection.

Circular describes foundry safety leggings of all standard materials and designs. Holcomb Safety Garment Company.

3. Explosion-Proof Fittings.

Bulletin No. 1003 describes complete line of electrical fittings for use in hazardous areas. Appleton Electric Company.

4. Pyroil Industrial Brochure.

Illustrates and describes how Pyroil lubrication reduces friction, fire hazards and cuts maintenance costs. Pyroil Company.

5. Washroom Economy and Sanitation.

Eight models of group wash-fountains are illustrated and described in this folder. Also "5-In-A-Group" showers and shower-dressing room combinations. All equipment necessary for an up-to-date sanitary washroom. Bradley Washfountain Company.

6. Safety Clothing.

Booklet describes fully complete line of safe wearing apparel. The Safety Clothing Company.

7. Squirrel Cage Motors.

Bulletin No. 505-C shows details of construction and completely illustrates and describes the characteristics and uses of a dozen different type of motors. The Louis Allis Company.

8. Safety Belt Fasteners.

Information on safety fasteners for power transmission belts, which have been designed to get away from the danger of projecting wire and loose lace ends. W. O. & M. W. Talcott, Inc.

9. Macwhyte Wire Rope Slings.

Twenty-seven-page catalog presents a range of sling types which can be assembled in various ways to get almost any sling requirement. Macwhyte Company.

10. Trumbull Ready-Reference.

Catalog No. 16-A is arranged in tabular form to facilitate price and feature comparisons of the various types of Trumbull switches which have corresponding ratings. The Trumbull Electric Mfg. Company.

11. Accidents Can Be Prevented.

Folder describes ten unique features of the U. C. C. All-Service Gas Indicator for detecting toxic and flammable gases and vapors. E. D. Bullard Company.

12. Safety Hand Tools.

Stamps, chisels, drifts, and punches made of non-mushrooming metal are described in this folder. M. E. Cunningham Company.

NATIONAL SAFETY NEWS

20 North Wacker Drive
Chicago, Ill.

April, 1934

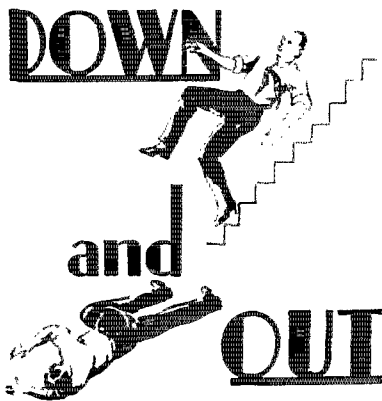
Please have sent to me the following publications, numbers:

Name.....

Title.....

Company.....

Address.....



Slippery walking surfaces daily take their toll. Falls on stairs alone kill 4500 persons yearly.

ANY walking surface can be made permanently safe with Plastic Fut-Sure. Applied quickly and easily to both new and old surfaces. Write for facts and prices.

GENERAL ABRASIVE CO., INC.
2044 College Ave.
Niagara Falls, N. Y.

**PLASTIC
FUT-SURE**
FOR SAFER WALKING SURFACES



PYROIL
(Simply Add to Regular Oil)

Minimizes
DAMAGE
DANGERS

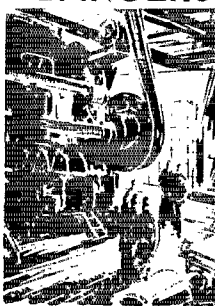
Just off the press is a new Pyroil brochure illustrating, classifying and tabulating many important Pyroil facts and uses.

Mail coupon below for a

**FREE
COPY**

Well worth your slight effort to obtain. No obligation. Send at once.

Genuine Pyroil is Manufactured, Patented and Guaranteed by Pyroil Company, W. V. Kilder, Pres., 341 LaFollette Ave., LaCrosse, Wis., U.S.A.



PYROIL
REG. U.S. PAT. OFF.

Pyroil Company, 341 LaFollette Ave.,
LaCrosse, Wis., U.S.A.
Please send a Free Copy of the new Pyroil Brochure,
as described
Name.....
Address.....
City..... State.....

New York Conference

(Continued from page 26)

hicle accident prevention can have on the worker when off duty—would be reported at the Conference in 1935. Roger Williams, vice-president, Richardson and Boynton, presided.

At the session on Building Maintenance, over which F. B. Rogers, vice-president, Chrysler Building Corp., presided, a proposal for the formation of a building maintenance safety body, similar to the Hotels and Restaurants Safety Committee which grew out of last year's meeting, was made by A. H. Morgan, chairman, Operating Forum, Real Estate Board of New York. Plans for the organization already have been laid, and will be submitted to building operation men at an early date.

Among the experts appearing before the various sessions were the Hon. Elmer F. Andrews, N. Y. State Industrial Commissioner; Ordway Tead, lecturer on personnel administration, Columbia University, and editor of books on economics, Harper & Bros.; the Hon. Harold G. Hoffman, Commissioner of Motor Vehicles, New Jersey; W. Graham Cole, safety consultant to the New York State CWA; Philip Drinker, of the Harvard School of Public Health, Harvard University, and author of several books on industrial health problems; and Frank C. Gregory, safety engineer, U. S. Employees' Compensation Commission, Washington, D. C.

Exhibits, conducted by a committee under Walter G. King, American Optical Co., increased materially. There were 40 exhibitors, as compared to 25 last year. The exhibits, placed in a spacious room opening just off the registration desks and opposite the Grand Ballroom, overflowed the original space allotted them.

A new conception of the value of human life was presented at the Conference banquet on March 6, by Frank L. Jones, vice-president, Equitable Life Assurance Society of U. S. Mr. Jones, addressing more than 700 persons, remarked that if a man were killed in an accident which destroyed a \$3,000 automobile, the common inclination would be to disregard the man's life as an economic factor in stating the monetary loss. Yet a man capable of owning a \$3,000 car usually has an income of at least \$10,000 a year. Such an earning capacity, he continued, is the equivalent of the income from a quarter of a million dollars of tax-free bonds at four per cent interest.

Dr. Riley M. Little, director, Re-

habilitation Division, New York State Education Department, who spoke after Mr. Jones, described the safety worker as an idealist and a realist—one who, having come from the ranks, knows the practical elements of accident prevention work, yet knowing the tragedies of accidents and stirred by them, is enough of a visionary and humanitarian to throw all the ardour of a compassionate spirit into the safety movement.

Mr. Long, as toastmaster, complimented the delegates on the success of the conference, remarking that it was "second only to the national congress."

Mr. Long also presented 12 President's Medals to persons who have saved lives by the prone pressure method of resuscitation, and two certificates to persons who assisted.

A. J. Passage of Associated Industries, presented trophy plaques to representatives of more than 30 concerns in the metropolitan area for safety records.

Special commendation is due Daniel L. Royer, of Ocean Accident and Guarantee Co., for his untiring efforts as chairman of the Finance Committee, and to Albert S. Regula, on whose shoulders rested the responsibility for the excellent program which his committee evolved.

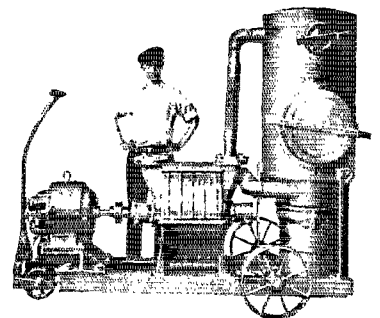
FOUNDRIES Remove

**DANGEROUS DUST
ECONOMICALLY**

WITH

EXIDUST

2 TO 10 H.P.



PORTABLE CLEANING SYSTEMS

Write for Information

ALLEN BILLMYRE CORP.

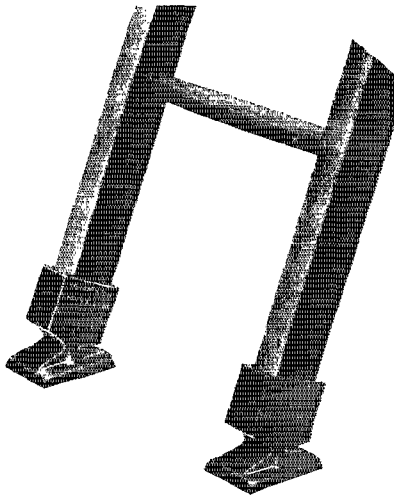
130 Water St.
SOUTH NORWALK, CONN.

Manufacturers

**BLOWERS, EXHAUSTERS
DUST REMOVING
EQUIPMENT**

You can do the job better
when you use these shoes.

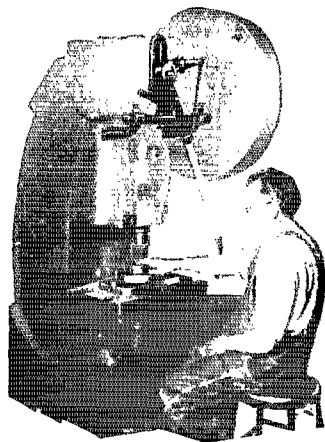
Give them a trial



They do not mar floors.

Straight ladders per pair \$1.50. Step Ladder Shoes, set of four 50c.

JOHNSON LADDER SHOE CO.
Eau Claire, Wisconsin



No More Accidents in This Shop!

—or in any other where WIESMAN SAFETY PRESS GUARDS are installed on the power presses. The operating principle ABSOLUTELY PROTECTS THE OPERATOR without interfering with his natural working movements.

Simple, easy to attach, for all types of presses. Made for right or left hand stroke. Details?

Wiesman Mfg. Co.
41 South St. Clair St.
DAYTON, OHIO, U.S.A.

INDEX TO ADVERTISERS

Allen Billmyre Corp.	68
American Abrasive Metals Co.	63
American Optical Co.	3
Ampco Metal, Inc.	56
Bay Company, The	49
Bernhard, Robert A.	61
Blaw-Knox Co.	69
Bradley Washfountain Co.	57
Bullard Company, E. D.	50
Carnegie Steel Company	2
Chicago Eye Shield Co.	52
Cover, H. S.	53
Davis Emergency Equipment Co., Inc.	37
DeVilbiss Company, The	59
Ellwood Safety Appliance Co.	62
Engineering Products Corp.	52
General Abrasive Co.	68
Harrington & King Perforating Co.	57
Hygeia Respirator Co.	63
Hynson, Westcott & Dunning, Inc.	35
Industrial Products Co.	60
Inland Steel Company	39
International Shoe Co.	55
Johnson Ladder Shoe Co.	69
Justrite Manufacturing Co.	64
Walter Kidde & Company, Inc.	63-65
Klein & Sons, Mathias	55
Libbey-Owens-Ford Glass Co.	6
Lima Cord Sole & Heel Co.	58
Macwhyte Company	48
Mine Safety Appliances Co.	33
National Safety Council	Inside Front Cover
Never Slip Safety Clamp Co.	61
Pangborn Corporation	64
Procter & Gamble Co.	5
Pulmosan Safety Equipment Corp.	Inside Back Cover
Pyroil Co.	68
Safety Clothing Company	54
Safety Equipment Service Co.	Back Cover
Skybryte Company, The	51
Spencer Turbine Co.	69
Strauss Company, Inc.	53
W. O. & M. W. Talcott, Inc.	61
Wiesman Mfg. Co., The	69
Willson Products, Inc.	1

New Jersey Dogs Make Delivery Hazardous

BAMBERGER'S 236 truck drivers and delivery men sustained 484 dog bites last year while delivering packages to New Jersey homes. The record score was piled up by Thomas McManus, who managed to get bitten 16 times. Fall and spring are the most perilous seasons, the dogs being more on their toes at that time than during the extreme months. Airdales are the most inhospitable and the shrewdest; they wait till the package has been delivered and get you on the way out.—*The New Yorker*.

GRATING



One Piece • Non-Slip
Maximum Ventilation
Easily Painted • No Rattles

BLAW-KNOX CO.

2030 Farmers Bank Bldg.
Pittsburgh, Pa.

BLAW-KNOX

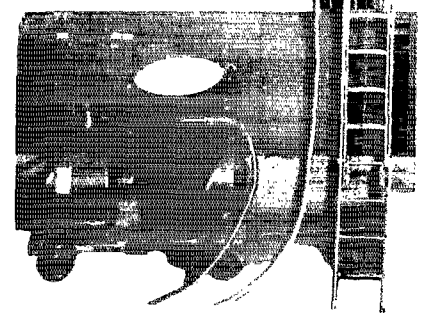
Remove that dangerous dust

SWEEPING, brushing and blowing aggravate dust conditions. Vacuum cleaning with the Spencer Portable removes the dust and dirt completely.

One man in his spare time can keep overhead dust conditions under control.

Easy to move, easy to operate.

Bulletin on request.



SPENCER
PORTABLE VACUUM CLEANING

SPENCER TURBINE CO., Hartford, Conn.

THE BUYERS' SERVICE

All firms listed below are advertisers in this issue—See Advertisers' Index Page 69.

A

Accident Prevention Service

National Safety Council

Anemometers

Mine Safety Appliances Co.

Aprons

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pangborn Corp.
Pulmonan Safety Equipment Corp.
The Safety Clothing Co.
Safety Equipment Service Co.
The Strauss Co., Inc.

Arm Protectors

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
The Safety Clothing Co.
Safety Equipment Service Co.
The Strauss Co., Inc.

Arresters, Dust

E. D. Bullard Company
Pangborn Corp.

B

Badges and Buttons

Mine Safety Appliances Co.

Belts—Linemen's

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mathias Klein & Sons
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
The Safety Clothing Co.
The Strauss Co., Inc.

Belts—Safety

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mathias Klein & Sons
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co.
The Safety Clothing Co.
The Strauss Co., Inc.

Belts—Tree Trimmers'

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.
The Strauss Co., Inc.

Belt Fastener

W. O. & M. W. Talcott, Inc.

Belts—Window Cleaners'

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.
The Strauss Co., Inc.

Blackboards

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
The Safety Clothing Co.
Safety Equipment Service Co.

Blankets—Fireproof

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
The Safety Clothing Co.
Safety Equipment Service Co.

Blowers

Allen Billmeyer Co.
E. D. Bullard Company
Blaw-Knox Co.
Pangborn Corp.

Blow Torches

Mathias Klein & Sons

Brakes—Vehicle, Power

Buckets—Hoisting

Davis Emergency Equipment Co., Inc.
Industrial Products Company

Bulletin Boards

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co.

C

Car Blockers

E. D. Bullard Company
Industrial Products Company
Safety Equipment Service Co.

Car Blockers—Mine

Industrial Products Company
Mine Safety Appliances Co.

Car Movers

E. D. Bullard Company
Industrial Products Company
Safety Equipment Service Co.

Car Step Treads—Safety

American Abrasive Metal Co.
E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Carnegie Steel Co.
Industrial Products Company
Inland Steel Co.

Carboy Incliner

E. D. Bullard Company
Industrial Products Company
Safety Equipment Service Co.

Carbon Monoxide Detectors, Indicators and Recorders

E. D. Bullard Company
Mine Safety Appliances Co.

Chain—Factory

Chairs—Safety

Boatswain
E. D. Bullard Company
Mine Safety Appliances Co.
The Strauss Co., Inc.

Chip and Spark Guards

Davis Emergency Equipment Co., Inc.
Chicago Eye Shield Co.
Industrial Products Company
The Safety Clothing Co.
Safety Equipment Service Co.

Clamps and Sockets

Never Slip Safety Clamp Co.

Cleaning Compounds

The Safety Clothing Co.

Cleaning Systems

Allen Billmeyer Co.
Spencer Turbine Co.

Clothing for Industrial Workers—See Aprons,

Caps, Gloves, Hand Leathers, Leggings, Overalls, Shoes.

Industrial Products Company

Clothing—Weatherproof

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.

Collectors—Dust

Pangborn Corp.

Cuspidors—Sanitary

Paper

D

Disinfectants and Deodorants

Drinking Fountains

Bradley Washbourn Co.

Dust Control Systems

Allen Billmeyer Co.
Blaw-Knox Co.
Pangborn Corp.

E

Elevator Safety Devices

Emblems

Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.

Eye Shades—Non-breakable

E. D. Bullard Company
Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.

Expanded Metal

Explosive Containers

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Justite Mfg. Co.
Mine Safety Appliances Co.
Safety Equipment Service Co.
The Strauss Co., Inc.

F

Fans—Exhaust

Blaw-Knox Co.
Pangborn Corp.

Films or Slides for Rent and Sale

National Safety Council

Finger Protectors

E. D. Bullard Company
Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
The Safety Clothing Co.
Safety Equipment Service Co.

Fire Alarms

Mine Safety Appliances Co.

Fire Detectors

Fire Extinguishers

E. D. Bullard Company
Industrial Products Company
Walter Riddle & Co., Inc.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.

Fireproof Clothing

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.
The Safety Clothing Co.
The Strauss Co., Inc.

First Aid Equipment

The Ray Co.
Robert A. Bernhard
E. D. Bullard Company
Davis Emergency Equipment Co., Inc.

Engineering Products Corp.
Hynson, Westcott & Dunnigan
Industrial Products Company
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co.

First Aid to Illness

Floor Machines

Flags—Danger

E. D. Bullard Company
Industrial Products Company
Safety Equipment Service Co.

Flammable Vapor Indicators

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.

Flooring Materials—Safety

American Abrasive Metals Co.
Blaw-Knox Company
Carnegie Steel Co.
General Abrasive Co.
Industrial Products Company
Inland Steel Co.

Flywheel Guards

Davis Emergency Equipment Co., Inc.
Harrington & King Perforating Co.
Industrial Products Company

Foot Guards

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Ellsworth Safety Appliances Co.
Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.
The Safety Clothing Co.
The Strauss Co., Inc.

Footwear—Rubber

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.

Fuse Pullers

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.

G

Gas Detectors

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.

Germicides

Germicide—Cutting Oil

Glasses—Safety

American Optical Co.
E. D. Bullard Company
Chicago Eye Shield Co.
Industrial Products Company
Libbey-Owens-Ford Glass Co.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
The Safety Clothing Co.
Safety Equipment Service Co.
Willson Products, Inc.

Gloves and Mittens

E. D. Bullard Company
Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pangborn Corp.
Pulmonan Safety Equipment Corp.
The Safety Clothing Co.
Safety Equipment Service Co.

Goggles

American Optical Co.
E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Chicago Eye Shield Co.
Industrial Products Company
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co.
The Safety Clothing Co.
Willson Products, Inc.

Gongs, Sirens, Horns and other Signaling Devices

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.

Guards—Safety

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Harrington & King Perforating Co.
Industrial Products Company
The Safety Clothing Co.
Safety Equipment Service Co.

H

Hand Cream

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
De Albes Co.
Industrial Products Company
Mine Safety Appliances Co.

Hand Leathers

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.
Pangborn Safety Equipment Corp.
Safety Equipment Service Co.
The Safety Clothing Co.
The Strauss Co., Inc.

Hats—Safety

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
The Safety Clothing Co.
The Strauss Co., Inc.

Helmets

American Optical Co.
E. D. Bullard Company
Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pangborn Corp.
Pulmonan Safety Equipment Corp.
The Safety Clothing Co.
Safety Equipment Service Co.
Willson Products, Inc.

Hooks—Linemen's Belt

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.
The Strauss Co., Inc.

Hooks—Safety Hoisting

Industrial Products Company

Hospital Equipment

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.

I

Inhalators

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.

Insurance

J

Jointer Guards

Davis Emergency Equipment Co., Inc.
Industrial Products Company
Safety Equipment Service Co.

L

Ladders—Safety

E. D. Bullard Company
Mine Safety Appliances Co.
The Safety Clothing Co.

Ladder Shoes

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.

Industrial Products Company
Mine Safety Appliances Co.
The Safety Clothing Co.
Safety Equipment Service Co.

Lamp Hangers

Lamp Locks

Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.

Lamps—Safety

Davis Emergency Equipment Co., Inc.

Lanterns—Carbide

E. D. Bullard Company

Lanterns—Electric

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.

Leggings

E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co.
The Safety Clothing Co.
The Strauss Co., Inc.

Lighting—Emergency**Linemen's Protectors**

E. D. Bullard Company
Davis Emergency Equipment
Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pulmosan Safety Equipment
Corp.
Safety Equipment Service Co.

Linemen's Tool Bags

E. D. Bullard Company
Davis Emergency Equipment
Co., Inc.
Industrial Products Company
Safety Equipment Service Co.
The Strauss Co., Inc.

**Lockers and Hangers
for clothing**

Industrial Products Company

Lubrication

Pyroll Co.

Lubrication Systems**M****Masks**

American Optical Co.
E. D. Bullard Company
Chicago Eye Shield Co.
Davis Emergency Equipment
Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.
Pangborn Corp.
Pulmosan Safety Equipment
Corp.
The Safety Clothing Co.
Safety Equipment Service Co.
Willson Products, Inc.

Masks—Navy Type

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.
Willson Products, Inc.

Mats—Standing, Safety

Davis Emergency Equipment
Co., Inc.
Industrial Products Company

O**Oil Cans**

E. D. Bullard Company
Industrial Products Company

Justite Mfg. Co.
Mine Safety Appliances Co.
Protectoseal Company
Safety Equipment Service Co.

Oxygen Breathing

Apparatus
Davis Emergency Equipment
Co., Inc.
Mine Safety Appliances Co.

P**Pads—Knee**

E. D. Bullard Company
Industrial Products Company
Mine Safety Appliances Co.
Safety Equipment Service Co.

Paint Remover

Perforated Metal
Harrington & King Perforating
Co.
Industrial Products Company

Pneumonia Tents

Mine Safety Appliances Co.

Poster Service

Power Press Guards
Chicago Eye Shield Co.
Davis Emergency Equipment
Co., Inc.
Industrial Products Company
Wiesman Mfg. Co.

Prize Awards

Mine Safety Appliances Co.

Pyrotannic Detector

Mine Safety Appliances Co.

R**Rail Clamps**

Industrial Products Company

Respirators

American Optical Co.
E. D. Bullard Company
Chicago Eye Shield Co.
H. S. Cover
Davis Emergency Equipment
Co., Inc.
Hygeia Respirator Co.
Industrial Products Company
Mine Safety Appliances Co.

Pangborn Corp.
Pulmosan Safety Equipment
Corp.
The Safety Clothing Co.
Safety Equipment Service Co.
Willson Products, Inc.

Resuscitation

Equipment
E. D. Bullard Company
Davis Emergency Equipment
Co., Inc.
Mine Safety Appliances Co.

Rock Dusters

Mine Safety Appliances Co.

Rope—Wire

MacWhyrte Company

S**Saw—Safety**

Davis Emergency Equipment
Co., Inc.
Mine Safety Appliances Co.

Saw Guards

E. D. Bullard Company
Industrial Products Company
Safety Equipment Service Co.

Scaffolding**Scrubbing Machines—
Electric****Shaper Guards**

Industrial Products Company

Shoe Soles—Non-Slip

Davis Emergency Equipment
Co., Inc.
Lima Cord Sole & Heel Co.

**Shoes—Factory and
Foundry**

E. D. Bullard Company
Davis Emergency Equipment
Co., Inc.
Industrial Products Company
International Shoe Co.
Mine Safety Appliances Co.
Safety Equipment Service Co.

Shoes—Wooden Sole

Industrial Products Company
The Safety Clothing Co.

Signs

Industrial Products Company
Mine Safety Appliances Co.
The Safety Clothing Co.
Safety Equipment Service Co.

Sirens and Signals

E. D. Bullard Company
Engineering Products Corp.
Industrial Products Company

Slides—Lantern—Also

see Films or Slides

Slings—Safety Wire

Rope
MacWhyrte Company

Soap

The Procter & Gamble Co.

Sterilizing Equipment**Straps—Safety**

E. D. Bullard Company
Industrial Products Company
Mathias Klein & Sons
The Strauss Co., Inc.

Surgical Dressings

The Bay Co.
E. D. Bullard Company
Davis Emergency Equipment
Co., Inc.
Industrial Products Company
Mine Safety Appliances Co.

T**Tools**

Davis Emergency Equipment
Co., Inc.

Tools—Linemen's

E. D. Bullard Company
Industrial Products Company
Mathias Klein & Sons

Tools—Non-sparking

Ampco Metal, Inc.
E. D. Bullard Company
Davis Emergency Equipment
Co., Inc.
Pulmosan Safety Equipment
Corp.

Towel Cabinets—Paper

Traffic Markers
Safety Equipment Service Co.

Treads—Safety

American Abrasive Metal Co.
Carbone Steel Co.
Davis Emergency Equipment
Co., Inc.
Industrial Products Company
Inland Steel Co.

**Trestles—Safety
Extension****Trophies****V****Vacuum Cleaners**

Allen Bilmeyer Co.

**Vending Machines—
Sanitary****Ventilating Equipment**

Blaw-Knox Co.
Pangborn Corp.

W**Washroom Equipment—
Industrial**

Bradley Washroom Co.

Washers—Safety, for

Grinding Wheels
Industrial Products Company

Waste Cans

E. D. Bullard Company
Davis Emergency Equipment
Co., Inc.
Industrial Products Company
Justite Mfg. Co.
Mine Safety Appliances Co.
Pulmosan Safety Equipment
Corp.
Safety Equipment Service Co.

Water Coolers**Welding Equipment****Window Cleaner****Window Preparation—
Non-Glare**

The Sibley Co.

Wrenches—Hopper Car

Industrial Products Company
Safety Equipment Service Co.

INDUSTRIAL SAFETY MARKET

AS a service to our readers, we endeavor to maintain a complete list of the source of supply of all types of safety and allied equipment.

If you do not find what you want in the advertising pages, send in the coupon below, and we will have forwarded to you without charge, or obligation, detailed information and catalogs on material to meet your requirements.

National Safety News,
20 N. Wacker Drive, Chicago

Please have forwarded to me from various manufacturers, without charge, prices, catalogs, etc., on the following material:

Specifications: (Be specific as to size, capacity, quantity, etc., when prices are wanted.)

.....
.....
.....
.....

Company

Address

Your Name

THE ACCIDENT BAROMETER

Prepared by the Statistical Bureau, National Safety Council

ACCIDENTAL DEATHS OF ALL TYPES in January were about 10 per cent above the January 1933 total. This is largely the result of a 17 per cent advance in motor vehicle deaths and one of 14 per cent in home deaths, although industrial deaths contributed slightly to the increase. The January total is also about 5 per cent above December. This is unusual; in most years the January figure will be as much as 10 per cent below December. Reports for February so far received indicate a decrease from January, which is more in line with the customary seasonal change.

ELECTRIC RAILWAY ACCIDENTS averaged 6.98 per 100,000 vehicle-miles in 1932, according to a report recently issued by the U. S. Bureau of the Census. This is 9 per cent above the 1927 rate of 6.39, and 34 per cent over the 1922 rate of 5.20. The data are secured as part of the quinquennial Census of Electrical Industries; hence there are no comparable figures for intervening years. The rapid increase in the rate is probably tied up with the increase in amount of automobile traffic. It is encouraging to find that the rate for fatalities alone has been decreasing—1922, 0.08; 1927, 0.07; 1932, 0.06. The report gives 1932 data for trolley buses separately. The rates for these vehicles are: deaths only, 0.02; all injuries, 2.39. No conclusive information is available on the reasons for the great difference in rates of trolley buses and street cars, but it seems likely that where buses are used to supplement street cars their runs usually do not include the more densely populated portions of the cities, where the hazard of collision is greatest.

OCCUPATIONAL DEATHS reported to Industrial Commissions in 17 states totaled 479 in February compared with 547 in January. The decrease is largely due to February being a short month, deaths reported per day averaging only 3 per cent less in February. Nearly all states showed decreases or only small increases, but two (Massachusetts and New Jersey) had substantial increases. Compared with February 1933, the current reports show an advance of 9 per cent in deaths. The trend is mixed, with five states reporting decreases, six no change or slight increases, and six

Note: This page contains only the high lights of the most recent accident experience. More detailed information on many types of accidents, including city, state, and industrial employee records, are available in other National Safety Council publications.

fairly large increases. January and February combined total 6 per cent more deaths than the first two months of 1933.

OCCUPATIONAL ACCIDENTS, in plants participating in inter-plant contests of community safety councils, averaged slightly higher in January than in December, the frequency rate per million man-hours advancing from 11.95 to 12.03. The severity rate, however, dropped 14 per cent from 1.10 to 0.95. A year ago the January frequency rate was 10.21 and the severity rate 0.60. It seems likely that these increases are due in part to the presence of "green men" in industry.

STEAM RAILROAD DEATHS continued to decrease in November, reaching a total of 402, or 8 per cent below the October total of 437. Injuries increased, but only 1 per cent. The death rate per million locomotive-miles went up from 4.25 in November 1932 to 4.33 in November 1933, and the injury rate advanced from 15.90 to 18.43. Most of the increase in the death rate comes under the heading "trespassers," while for the injury rate the majority is found under "passengers on trains."

MOTOR VEHICLE DEATHS for January are estimated to total 2,310, an increase of 17 per cent over January 1933. This January figure was surpassed only in 1931 and 1932. Present records of gas consumption indicate that it is now as high as it has ever been, so 1934 deaths may equal or surpass the peak record of 1931 unless safety measures, such as strong drivers' license laws, are more widely used and more firmly enforced. However, the January total does represent a decrease of 29 per cent from the December 1933 total, which is a somewhat larger drop than usually occurs in January.

COMMERCIAL VEHICLE ACCIDENTS in the National Fleet Safety Contest decreased from a rate of 3.14 per 100,000 vehicle-miles in December to 2.61 in January, a reduction of 17 per cent. The reduction appears to be seasonal in nature, for a sizeable decrease came in January in the two preceding years. Moreover, the current drop is not as large as occurred last year, and the rate is considerably above last January's. The best January 1934 records are as follows: inter-city buses, 7,435,108 vehicle-miles and 60 accidents—a rate of 0.81; inter-city trucking, 1,178,395 vehicle-miles and 17 accidents—a rate of 1.44; and dairy fleets, 840,974 vehicle-miles and 15 accidents—a rate of 1.78.

HOME ACCIDENTAL DEATHS in January were about 14 per cent higher than in January 1933, according to reports of cities and states with a population of 32,000,000. If this is representative of the record for the entire United States, it may be estimated that there were about 3,300 deaths in total. This indicates that they were far more numerous than January motor vehicle deaths, which totaled only 2,310. However, the year's low figures for motor vehicle deaths come in the first three or four months so it may be expected that they will be at least equalled by home deaths during these months.

STUDENT ACCIDENTS decreased 10 per cent in January, the rate per 100,000 student-days dropping from 11.6 to 10.4. The change appears to be seasonal. Even with this reduction, however, the January rate is still considerably above those recorded in earlier years. Days lost from school averaged 3.2 per accident which, also, is above the average for other Januarys. Accident rates so far this school year have been consistently higher than in earlier years.

APRIL EXPECTATIONS. About one out of every three April accidental deaths will involve motor vehicles. Fatal falls will continue to make up about 25 per cent of the total, but they may not be quite as numerous as in the winter months. Deaths from burns will decline substantially, but drownings will increase to about 400.

FLASH!

Watch PULMOSAN next month!

The finest dust respirators in all safety history will be introduced on this page next month!

The New PULMOSAN Dust RESPIRATORS

will out-perform even the present Pulmosan Dustpruf Respirators . . . themselves rated as the outstanding respirators by leading industrial plants.

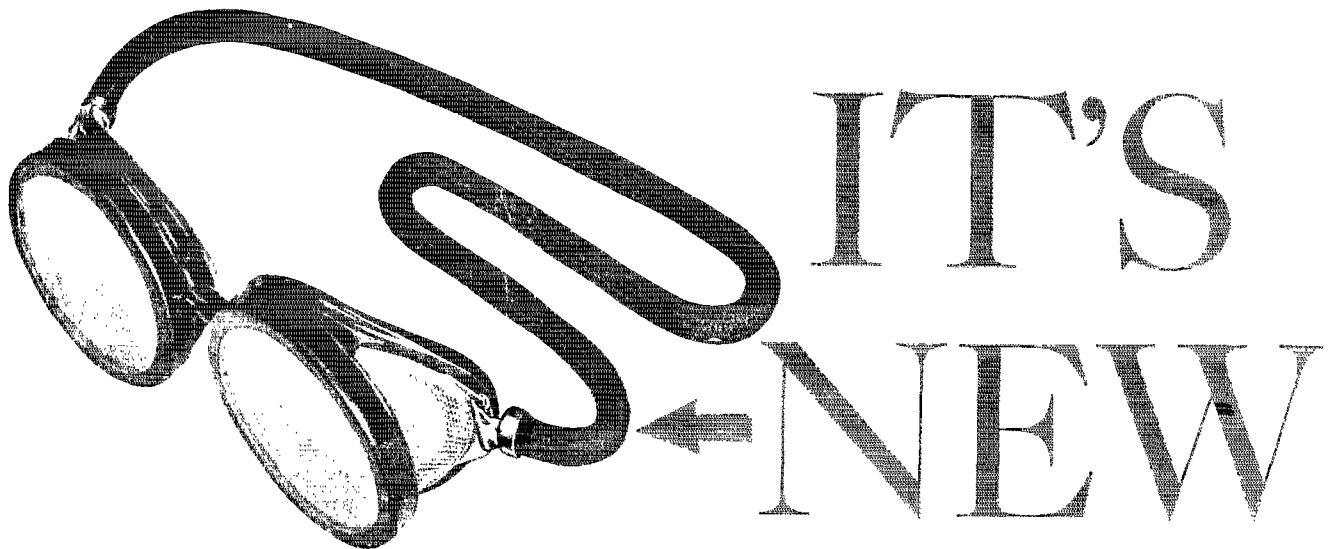
Many refinements and improvements have been added, to increase safety — comfort — breathing ease — and working efficiency.

Michigan Distributor:
THE BOYER-CAMPBELL CO.
Detroit

PULMOSAN SAFETY
EQUIPMENT CORPORATION
176 Johnson St., Brooklyn, N. Y.
Member: Industrial Safety Equipment Mfrs. Ass'n.

Lake Superior District Distributors:
W. P. & R. S. MARS
Duluth

to be announced NEXT MONTH!



The Drednaut NON RUBBER HEADBAND

(PATENT APPLIED FOR)

For years there has been an insistent demand for a headband for Goggles and Respirators, made of material other than elastic, rubber, or leather. At best the service of an elastic headband is of comparatively short duration and from the first time it is put into use its effectiveness gradually decreases until it is utterly useless and has to be replaced.

It is to be expected that the manufacturer of the Drednaut Goggles who has been responsible for most of the innovations in industrial goggles, should be the first to solve this problem. The Drednaut Non-rubber Headband not only eliminates the use of rubber entirely but for the first time provides a headband which may be adjusted to various sizes and one which *will maintain a uniform tension indefinitely*. All buckles and catches are done away with and a smooth, easily worn headband which provides just the right tension for the individual needs is provided.

Not only does the new Drednaut Non-rubber Headband provide the greatest comfort and permit a most satisfactory adjustment of the goggle but it will also prove to be the most economical type to use because it will give a much longer service than any elastic headband and does away with the necessity of frequent replacement. When you see this new headband you will agree with us that once again Drednaut has maintained its place at the head of the procession.

Drednaut Goggles with the new Non-rubber Headbands are ready for delivery. They will be known as "Drednaut 50-s," and this specification on your order will secure for you the best possible eye protection available. We will gladly forward a sample at your request.

THE SAFETY EQUIPMENT SERVICE COMPANY

1228 St. Clair Ave.

BUELL W. NUTT, PRES.

CLEVELAND, OHIO