

vehicle accidents (and others — of whom 150,000 will be killed) presents a most serious challenge to all who believe in society and the sanctity of human life; and

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

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

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

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

National Safety Council

By *B.H. Watson* President

By *W.H. Johnson* Managing Director

Executive Committee of the National Safety Council
Chicago, Illinois, November 18, 1935.

PLAINTIFF'S EXHIBIT

NSC-144

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JANUARY, 1936

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IN
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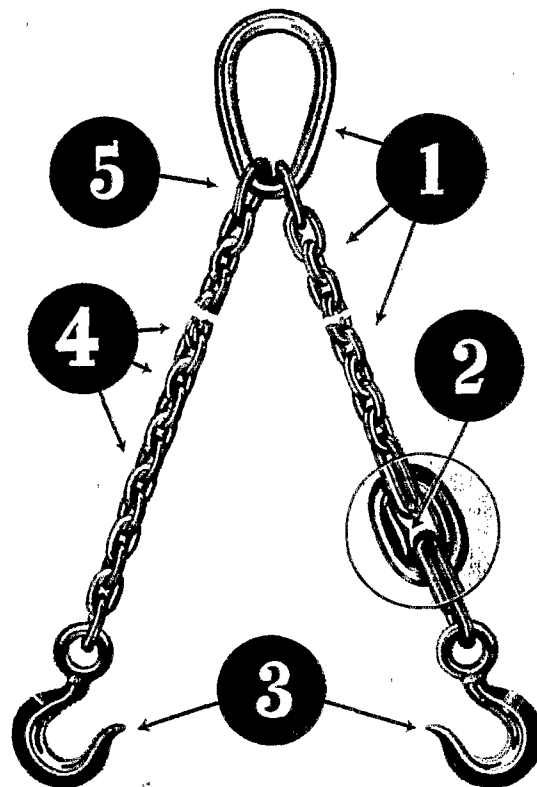
One of the most important chain achievements in industrial history! Tested under severe conditions for over 3 years, the new HERC-ALLOY Heat Treated Steel Sling Chain has proved itself a "double duty" chain in both strength and endurance. And, best of all, it cuts sling chain maintenance to a *new low*. Check thru these HERC-ALLOY superiorities:

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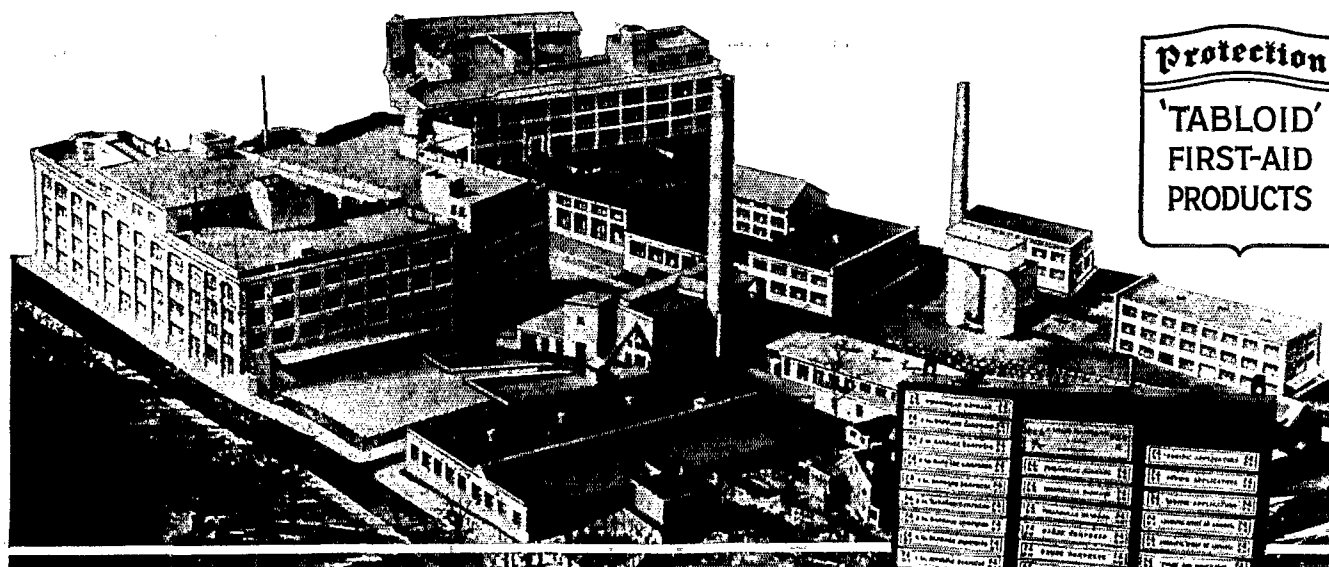
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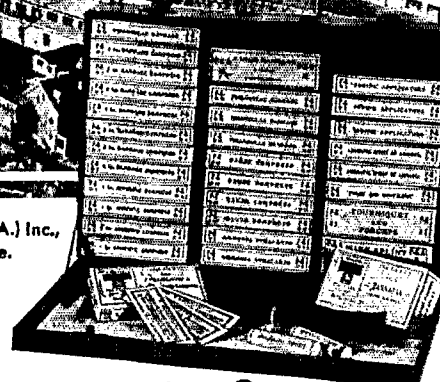
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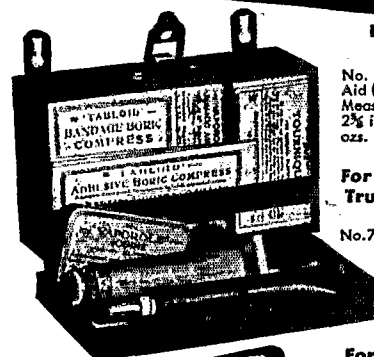
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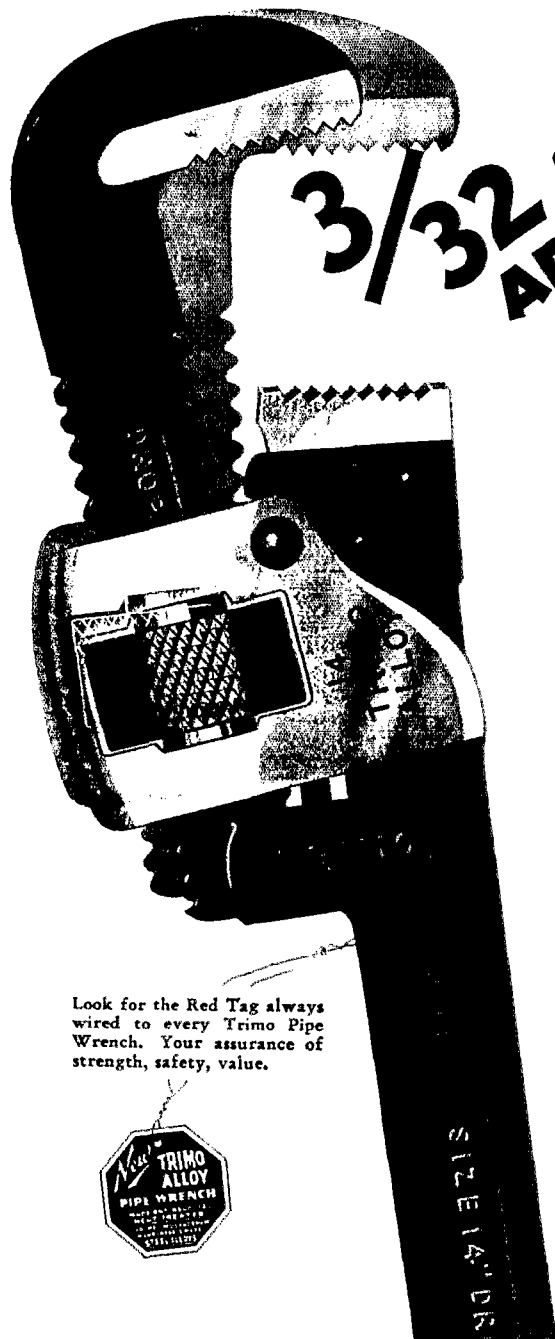
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TRIMONT MFG. CO., INC.
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NATIONAL SAFETY NEWS



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ALL-AROUND

JANUARY, 1936

NATIONAL SAFETY NEWS

Published monthly in the interest of accident prevention and industrial health

Volume 33

JANUARY, 1936

Number 1

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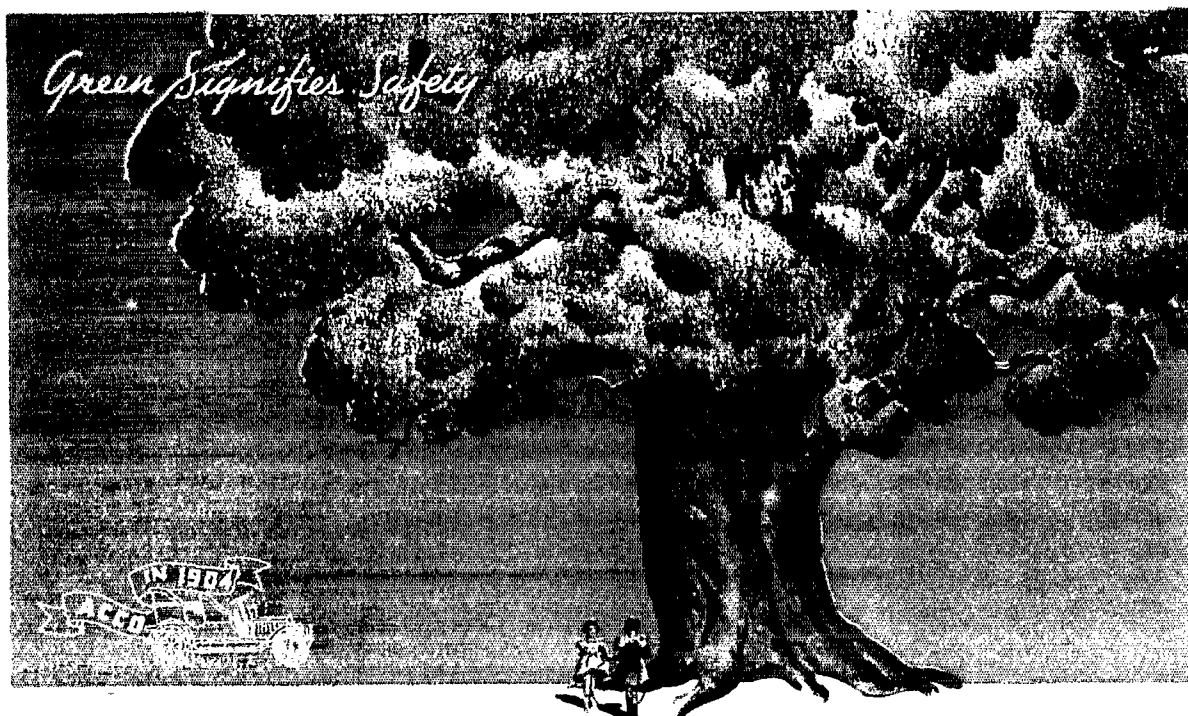
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Its influence can be noted everywhere.

Acco Welded and Weldless Chains safely and economically perform a multitude of tasks—where "Strength and Dependability mean Safety"—in industry, in the home and on the farm.

Tru-Lay Brake Control Cables are on millions of automobiles, safeguarding human lives everywhere.

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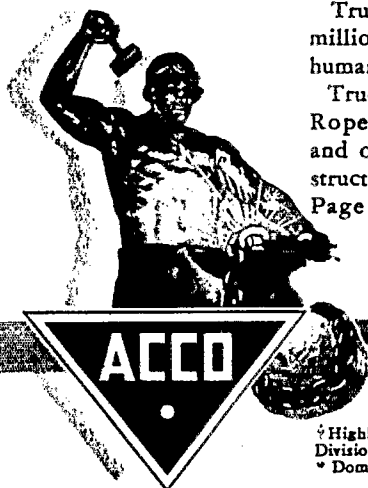
industrial plants, estates, farms and playgrounds.

Wright Hoists move material quickly, safely, economically.

And Reading, Pratt & Cady Valves safely control steam, oil, water and searing acids.

All of these, (and many others) are products of the American Chain Company or one of its divisions or associate companies—all adhere to the traditional policy of building safety into products that bear the Acco trademark.

So, as the twig *was* bent, the tree *has* grown. The ideals of this company have become an integral part of every product and a potent factor in safeguarding human, as well as mechanical life, in industry, in the home and on the farm.



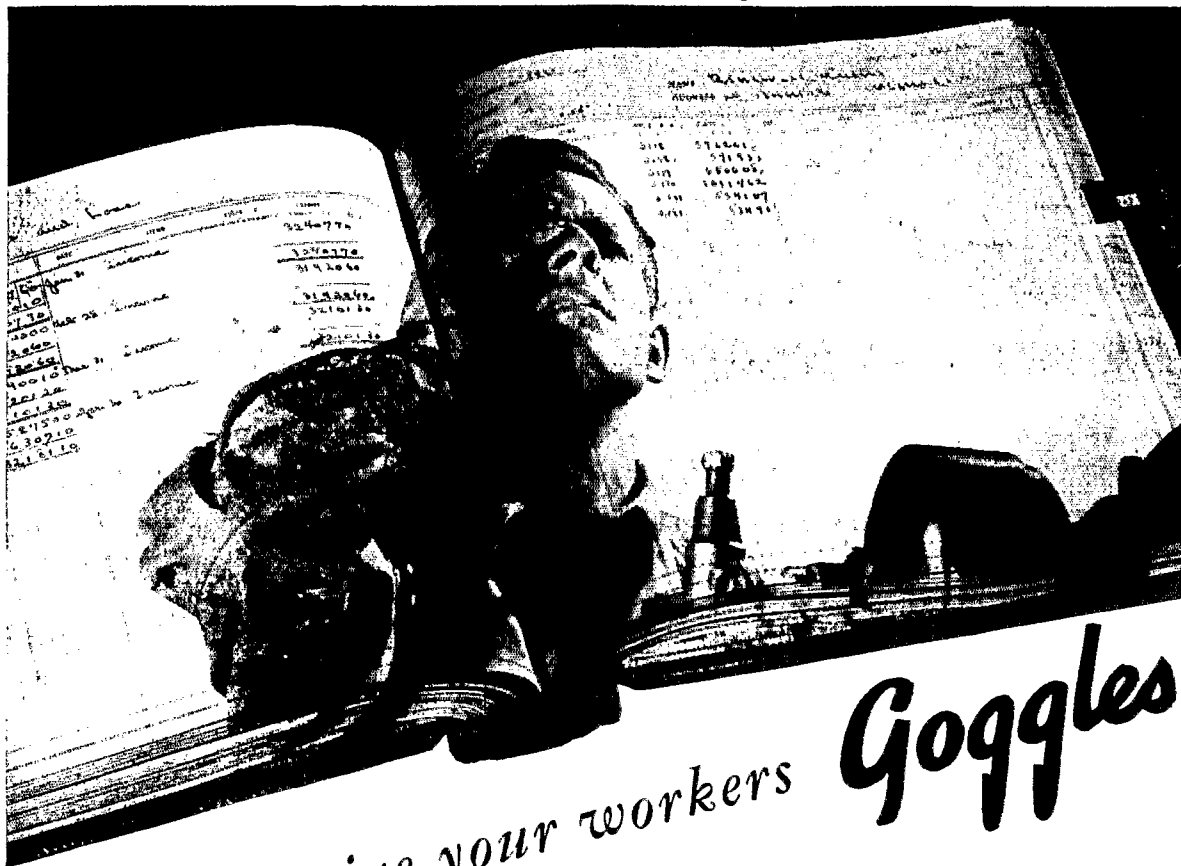
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JANUARY, 1936

COUNT THE COST of Eye Accidents . . .



and you'll give your workers **Goggles**

WHAT a worker's eye is worth to him—only he can say. But if he loses it it may cost \$2,000 in compensation. Two thousand dollars in direct compensation alone—the price of a new piece of production equipment—the price of a good worker's services for a year.

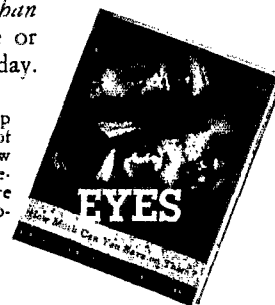
Even minor eye injuries are expensive. One company counted up the cost, found eye-cases averaged \$225

apiece. And for men in the metal-working industries there are 26 eye accidents per 1000 men per year.

Dig into your eye-accident cost records. Then ask the American Optical Company industrial representative stationed near you for an estimate of the cost of efficient eye protection. In the complete American Optical Company line there is a goggle for every eye-hazardous job . . . a goggle that men can wear in complete comfort . . . a strong goggle that will save their eyes.

One sightless eye costs more than goggles for 1000 men. Write or call our nearest office today.

This new book will help you count the cost of eye-injuries—show how others have stopped eye-injuries—help you figure your profits on eye-protection. Write for it.



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2081

NATIONAL SAFETY NEWS

JANUARY, 1936

NATIONAL SAFETY NEWS

Published by National Safety Council, Inc.

Outward Bound

NEVER before has the Safety Movement approached the New Year with more difficult problems confronting it. The nation is facing a situation scarcely less grave than war; in fact, there is indisputable statistical evidence that the United States has suffered more casualties from the motor vehicles on its highways than from the guns of its external enemies.

Thirty-six thousand traffic deaths a year cannot be regarded complacently. Add to this list several hundred thousand victims of more or less serious injuries and we have an appalling picture.

Our humane instincts are shocked, of course, but we seldom stop to analyze the significance of these figures. The loss to a family when a breadwinner is killed or crippled is obvious, but the loss does not stop with the immediate family.

Even a comparatively minor accident will put a serious crimp in the average family budget. The far-reaching effects of all these accidents constitute a depressing total of misery and discouragement. It is an economic drain that the country cannot afford.

The Safety Movement is starting the year 1936 with a clear-cut objective. It has proposed to the nation a reduction of 35 per cent in traffic fatalities by the end of 1940. Public officials, the press, and other molders of public opinion have endorsed this campaign and offered their fullest cooperation.

A reduction of 35 per cent in traffic fatalities during the next five years would mean a saving of 38,000 lives and a quarter of a million serious injuries.

In setting this quota, the National Safety Council realized the difficulties involved. Motor vehicle mileage is increasing steadily and highway speeds are higher. There has been little or no strengthening of methods of training and controlling drivers.

The encouraging side of the picture is the interest being shown in accident prevention by governmental bodies, civic organizations, and by the general public. Newspapers in many communities have rendered splendid service in arousing safety consciousness and their support in the five-year campaign will be invaluable.

A realization of individual responsibility for safety is beginning to filter into the public mind. Communities are organizing for safety and there is a tremendous amount of energy awaiting competent leadership to direct it along useful lines.

Good Citizens

ON the way to the train these winter mornings we cannot help sizing up the householders along the route. The criterion is their activity in using the snow shovel.

There are several homes where this implement is seldom used. There are able-bodied males in most of these households where the snow on the sidewalk remains until a thaw removes it. Some of these homes have boys of football age

who are not receiving some much-needed training. Too many of them will also take the wheel of an automobile some day without an adequate sense of the responsibility involved.

One of our neighbors has our unqualified respect. His house is rented but his care of the premises would be an example to many an owner.

And the snow never remains long on his front sidewalk.

In This Issue

HIRING a man sounds like an every day affair, but hiring the right man to act as safety director is a job of major importance, says N. M. Argabrite in the leading article. The executive who is looking for the ideal safety man described by Mr. Argabrite may have to compromise but if management expected more from the safety man, the accident rates would show a decided drop. The title of this article may sound forbidding but its author displays a sympathetic appreciation of the safety man's job. (Page 10).

And on the facing page, J. L. Vandegrift tells us what the safety man has a right to expect of management. Since safety concerns the fundamentals of operation, management has a very definite interest in the work. Management has a right to set high standards for safety performance and the safety department in turn must have the backing of the management.

No sign is more welcome these days than "Help Wanted." While men are not returning to work as rapidly as we could wish, some of the problems of recovery have begun to appear. The men who have been unemployed for long periods have suffered in mind and body. Those who have been on the job carrying extra burdens have depleted their physical and mental reserves. Young people just out of school have faced disillusionment. These are some of the problems facing the safety and personnel workers. (Page 12).

Too often the serenity of life on the farm is marred by accident. More than half of the occupational fatalities in Kansas occur on the farms, although the state has a wide variety of industries, such as coal mining, salt mining, rock quarrying, oil drilling, and other enterprises considered more or less hazardous. Realizing that the prevention of accidents is no less important than the improvement of farm products, the State Board of Agriculture has inaugurated a year-round safety program. (Page 15).

Between 500 and 700 deaths occur in the United States each year from carbon monoxide poisoning. Most of these are caused by a running motor in a closed garage. Certain defects in an automobile, however, may make it a lethal chamber. Even concentrations too small to cause collapse or death may cause accidents by impairing the driver's alertness and judgment. (Page 19).

Not long ago we visited a plant that had established an outstanding safety record. At that time we couldn't help feeling that safety had a good break because practically all of the plant was on one floor. Stairways are a problem but many companies keep down the accident rate in spite of them. (Page 29).

JANUARY, 1936

AN ACCIDENT, as many of us viewed it some twenty-five or thirty years ago, was something that could not be avoided, something that just happened. Those were the days of small properties. We had small power houses, each manned by an engineer, a fireman, and an oiler—in many instances working twelve hours per day. We had three or four so-called electricians and linemen who did all sorts of work from unloading coal to stringing wire and wiring houses. Our machine units were small and our business was smaller, and I suppose that with organizations of that size every man was more or less of an individualist. He was often his own foreman and he looked out for himself.

As I look back over those days, I can recall accidents in sufficient numbers to convince me that our accident rates must have been terrific. I cannot help but compare one of the first properties with which I was concerned with one of the large properties in which I am now interested. On the old property of 35 years ago we had not to exceed 22 employees and on the present property we have practically 2,200 employees, or about one hundred times the number that we had in earlier days.

DURING 1934, there were two deaths on the present property and the fatalities therefore amounted to a little less than one for each 1,000 employees. If we applied that rate to the small property with 22 men, then we would have had only one fatality on the small property in about fifty years. We all know that the record of the small property was much worse than that. I can recall quite a number of fatalities during my experience on the small properties. My guess is that our accident rate in those days must have been terrific, and yet we paid little attention to it.

This leads me to the conclusion that we became accident conscious as our properties grew, and as the executive began to look through a magnifying glass, so to speak, he saw a picture magnified to one hundred times the picture that he was looking at in the earlier days.

First and foremost, we should view accidents from a humanitarian standpoint. The executive should feel that he has no right to run a business that kills off a number of men each year and leaves a trail of widows and orphans behind when it is within his power to reduce that record so appreciably. Not only has he no right to do this thing but he has no stomach for it. He worries about it primarily from the humanitarian standpoint. His heart aches for the

loss of an old faithful assistant and for the family that has been deprived of its bread-winner.

Then there is the question of public opinion. A heavy accident rate will undoubtedly cause very unfavorable reaction in the community. People do not look kindly upon any company that is continually creating cripples and causing deaths in their midst. The local press cannot afford to let such things go unnoticed.

Let us, however, face this question more from the financial standpoint. There is liability insurance, both employee and public, and this is no small item. There is the loss of capable trained men, and I doubt if there is another asset on the property which is of more value to the property than its trained employees.

The executive, as his property grows, comes to the conclusion that these accidents must be stopped, or rather that they must be reduced to the irreducible minimum. He realizes that he, himself, cannot take time to rush here and there to caution his employees and guide them as he would if he were handling a small organization. He therefore comes to the conclusion that he must place in his organization a man who can give his entire time to this work. Once he has come to this conclusion he has only started. It is not as simple as it seems. Hiring a man sounds like an every day affair, but hiring the right man to act as a safety director is a job of major importance.

What kind of man is this man whom you want to guide and train your organization? This man must go among the members of your organization; he must get their interest; he must obtain their confidence; he must win their respect, and he must be of such a turn of mind as to be able to unravel the answer as to what caused the accident, and how to prevent its recurrence.

IT seems to me that the first qualification is that the man must be mature. I do not believe that you can do as good a job by sending a youngster among seasoned linemen and power plant men, and I do not believe that you can get them to pay as much attention to what he has to say, as they would to an older and more experienced man.

If I were selecting a man to head a safety organization on a large property, I should look around for some well rounded superintendent who during his career had personally done all the things that are now being done by those with

(Please turn to page 32)

We Expect a Lot from the Safety Man



Hiring the right man to
act as safety director is
a job of major importance

But the Safety Man Can't do it Alone



How can he obtain support from management in maintaining sound policies?

THE safety man may expect many things of his management. He may expect a large, well-equipped office, with push-buttons to summon messengers, clerks and secretary. He may expect a fat salary; experienced assistants to relieve him of arduous details; he may expect the dignity of an executive job and other luxurious appointments. But how a safety man is to get these things I cannot tell you, for I have tried to waggle them out of my management for years without success.

What is vastly more important is to determine how a safety man may obtain the moral support of the management in initiating an effective policy and in installing suitable practices with respect to the safety of the personnel.

I am personally suspicious of the title of "safety man." It awakens a fear that he may be a "negative" man running around admonishing the workers with a series of Don'ts. A "Don't do that or you might get hurt," etc. I am afraid too that he may be constantly concerned with the superficial things of operations—and therefore not really an important adjunct to the job. The safety man may be responsible for these lines of approach when they exist, but more likely it is a fault of the management that he is permitted to exist as such a safety man. A quick and merciful exit is to be expected and desired in such cases.

Safety, to my mind, has to do with the very fundamentals of production and all of its operations. Accidents are a form of industrial waste, just like a product defective in quality, and therefore are indications of wrong methods, wrong engineering, faulty supervision or general inefficiency. Arising as they do from production failures, the same corrective action must be taken as in the more conventional industrial failures.

THERE are three principal factors to be considered and directed in guiding accident prevention activities in any industry—the management, the men, and the machines.

By the management is meant all those who have any supervisory or management responsibilities. By the men is meant the general forces, the people who actually do the craft work. By the machines is meant the appliances and materials with which the work is done. Production losses, such as accidents, arise from the failure of any one or from a combination of these factors.

It is necessary that the machines and appliances be built and operated accord-

ing to approved standards which include necessary safety factors. In a public utility, for instance, it is essential that pole lines be built in accordance with recognized standards, and that they be maintained in a condition favorable to the safety of the men who work on them. It is essential that so-called unsafe plant conditions be kept at an absolute minimum. With respect to tools, these shall be constructed according to approved standards and maintained in satisfactory workable condition. The materials shall conform definitely to quality specifications. Perhaps there are fewer accidents that happen through the inherent fault of the machine or materials than is generally appreciated.

WE must have standards for our workers in industry if we are to have the work efficiently performed, and, of course, it cannot be efficiently performed if there are accidents. The workers should be selected with regard to their physical and mental fitness for the job and with due regard to the potentialities of the individual for progress in the organization. After his selection, the employee should be trained properly in the work that he will be required to do, and adequately supervised. He should have inculcated in him the proper attitude towards the job with respect to its correct performance. While these factors affect the man, it is easily evident that they are in fact responsibilities not of the man but of the management.

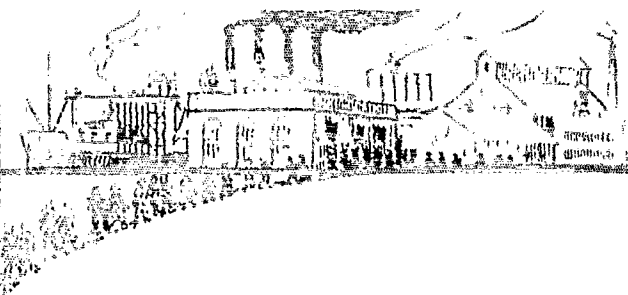
We may all agree that a few of the classifications of accident causes which apply to the individual are recklessness, carelessness and ignorance. I have never seen a reckless person in the telephone business. I have heard the term careless applied to many accident causes during the last fifteen years and I have seen many accident reports which indicate ignorance of the employee, but I submit that the so-called ignorance and careless factors are management responsibilities. They indicate lack of training, or of overseeing, or of selection standards, or possibly of discipline, all of which are faults of supervision. The accident-prone employee is also a sad commentary on effective supervision.

Management is the absolute answer to the accident prevention question in industry, I am convinced, and the starting point of management's interest in this subject lies in the management's philosophy of safety and its attitude toward this objective.

(Please turn to page 50)



BACK to WORK



By

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

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

Men returning to work after long periods of unemployment have undergone decided changes in mind and body. Those things which seemed sufficient for successful employee relations will not fit the changed conditions before us

UNLESS we profit by past emergencies and make preparations for the resumption of normal times, I am afraid that the new order of things will prove costly to management in both man-power and money. Those things which seemed sufficient for successful employee and public relations in the past will not quite fit the changed conditions before us. We must realize that those millions returning to gainful occupation after a long period of unemployment with its attendant sacrifices and worries will have undergone decided changes in mind and body.

Those who are concerned with accident prevention in industry will have a man-size job on their hands. Where in the past the story of safety has been carried to the employee through mass education, in the future we must individualize the worker and convey our instruction by personal contact. Each man differs from his brother and a different method of approach is essential.

What types of employees will be available to industry on the resumption of normal activity? What is the nature of the material that the safety engineer and his staff will have to deal with?

Those employees who have been retained during the depression to maintain a skeleton force constitute the first group. These men will be advanced in years but they are the backbone of the company. Around them we must build up the new personnel. During the years of depression they have had employment but their work has been increased by taking over added duties. Their responsibilities have become greater and this has taken a toll of their mental and physical reserves. With business recovery



we will need these men more than ever. Will we find them able to carry on? Recently some

of my good friends have passed on from causes traceable, I believe, to the pressure under which they were working.

Are we directing our attention now toward safeguarding these employees by helping them to conserve their efforts? Perhaps a well devised vacation would help to restore some of their reserves.

The second class includes those formerly employed by the company. They have been unemployed from one to six years. They have become older and at the same time their skill has suffered from lack of daily application. Their spirits have been dampened by economic insecurity. Will they be as safe workers as before? Mentally and physically, they have developed defects that are likely to show up under stress. Their sense of discipline has suffered and this will be reflected in the early months of reemployment. They may have built up a fear complex, and fear does not make for orderly work performance. Many believe that industry is responsible for their unemployment and this belief has been strengthened by the continuous attacks on industry by political theorists.

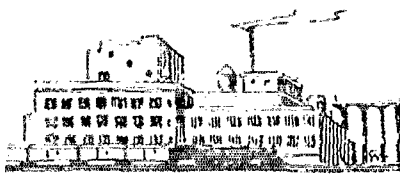
In the third group we find the potential workers—those who never before have had steady occupation. These young men and women have left school or college since the onset of the depression. It is to this group that we look

for new blood and spirit for the future. These young people, numbering hundreds of thousands, want to work. They emerge from school with ambitions high but enforced idleness has dampened their spirits and convinced them that education is a mockery. It will be difficult to adjust them to the routine and discipline of industrial life. These youngsters, who should be the backbone of business, have been handicapped.

One daily hears the statement that "the good old days are gone, never to return; life will be different in the future." Such statements come from middle age and old age. Young people bring youth into the nation's affairs. Their ambitions and hopes, if not blunt-



NATIONAL SAFETY NEWS



ed, will soon restore confidence. They will make their own "good times."

The fourth group of prospective employees is made up of the chronically unemployed. Their numbers have increased greatly during the depression. These people work as little as possible. They believe that the world owes them a living. In this group we find many of radical tendencies. They are easily led by trouble-makers and incited to mischief. They are not capable of thinking for themselves. Not all are radicals, of course; many desire only moderate contentment without responsibility. Some rove from place to place.

To these chronically unemployed we must add a new class which, prior to the depression, wanted gainful occupation. But long years of idleness have killed their will to work. They would rather remain on government dole than accept remunerative work. In this group the alien part of our population outnumbers the native born.

The sixth group of applicants comprises the old age group. They represent many years of useful occupation and will be a real asset to industry if they are given a chance to apply themselves.

Some may say that many in this group have become too old and have physical defects that will be hazardous in employment. But by proper placement, job analysis and medical supervision they can be maintained at useful work for many more years. I am talking not from theory but from 23 years of contact with transportation employees.

There is one group of willing employees that is practically barred from industry through fear of the compensation laws. I refer to those who are crippled or have one or more defects. Placement of this group in work that will fit their condition will return to the industry many a loyal and efficient employee. Many can be trained to new

tasks within their powers. In all my experience I have never known an unfair award by the compensation boards to an employee with a deformity who had received an injury.

What will be the physical condition and mental caliber of these groups? All of them have undergone varying degrees of hardship during the past six years. Their troubled minds have received constant shocks. When men can see no relief for an economic situation, their hopes become deadened. Repeated disappointments lead to disillusionment and loss of confidence in those in authority. A suspicion complex is developed, and when you add to their confused state of mind the propaganda of self-seeking leaders, they look to anyone for relief as long as some action is forthcoming.

Thwarted ambitions and suppressed desires are especially unfortunate for the young people because they are in the formative period. They will carry these emotional build-ups for a long time, and in many cases the effect will be permanent.

Suspicion and resentment must be allayed and an honest effort directed toward building up confidence in the working personnel. Some will be loath to accept the practices and plans formerly called welfare or industrial relations. Industry must lay its cards on the table, for industrial strife can be avoided and good employee relations can be built up by no other procedure.

DURING the past six years we have been remarkably free from epidemic diseases, but when the reaction sets in we may find individual vitality and reserve forces so depleted that disease may assume serious proportions. Many diseases and physical defects will be traced back to the depression years.

Twenty-three years of experience have convinced me that accidents are due to the following factors, and what is said for the transportation industry applies also to other industries:

1. *Mental limitation*—the lack of capacity for orderly thought. As the brain directs our actions, it will be seen that, should the mind be limited, the functions performed by our responsive actions may be incomplete or disrupted, and so precipitate an accident. Training and experience usually broaden mental capacity for orderly thought and performance. Should the individual's capacity be limited he will be unable to understand fully the safety plan. Lack of training makes doubly for accident proneness.

2. *Inability to visualize a potential accident hazard.* The poor safety records of some companies may be traced to this lack of visualization on the part of safety engineers and super-

visors. They wait for accident occurrence before instituting safety measures. If the safety man cannot foresee accident potentialities, how can we expect the workers to exercise caution?

3. *Lack of ability to judge speed and distance.* This occurs within our ocular mechanism. We may have monocular or one-eyed vision instead of the normal binocular or stereoscopic vision. This condition may be unknown to the worker and to the medical examiner.

4. *Limitation of the normal fields of vision.* These persons may have narrowed fields of vision, or telescopic sight. Acuity of vision may be normal but the individual will be unable to see objects at right angle to the eye. Many do not know they have this condition which is conducive to accidents in operating motor vehicles and working around moving machinery.

5. *Reaction time.* A person may see or hear an accident possibility and before he can bring his muscular forces into performance the accident has caught up with him. There are three forms of stimulation—visual, auditory and tactile. The period it takes for a person to react after stimulation is called reaction time. If this reaction time is delayed, either through normally slow performance or through distraction or illness, the hesitation may produce an accident. The methods used for measuring reaction time are standardized.

6. *Physical defects.* Defects and diseases cannot always be detected by superficial medical inspection. Their detection can be made only through clinical examination, including X-ray, laboratory tests of blood and urine, the Wasserman test, cardiographic records, metabolism tests, and blood pressure examination. A less thorough examination fails to detect the accident prone and gives a false sense of security to both the worker and his employer.

Should defects be found that make a man a hazard at his work, he should be placed at work within his limitations. Do not junk human material, conserve it. With a little patience and effort, the defective man can be fitted into the organization, and he will be able to carry on for many years in useful activity.

Let me refer again to the hazard of mental distraction which has received scant attention in industry. The safest and most efficient work is produced in an environment where disturbing elements are absent. Distracting noises may cause a work error or precipitate an accident. Scenes through open windows tend to distract attention. Hurry and fault-finding foremen are distractions.

Then we have the element of climate. When the worker is too hot or too cold he is in danger. These conditions distract the mind, sap vitality and induce fatigue.

Disturbing thoughts caused by anger, grief, worry, envy, hate, greed, jealousy, disappointment and the like may be

(Please turn to page 74)



The Managing Director's Page

The Severest Accident

THE most severe industrial accidents are invariably traceable to faulty equipment, the absence of reliable safety devices (and under this classification belongs protection that the worker must wear), or to unsafe working conditions. More often than not, there are several contributing factors.

This startling discovery was made only after years of patient research. It started industry on a new train of thought. Industry progressed to the point where it was willing to educate and protect the workers, to guard machinery, and improve its housekeeping.

The old theory which blamed the employee for whatever misfortune might befall him has been discredited, but it still persists in unenlightened establishments. This attitude has never been so aptly illustrated as in the classic accident report of a worker who had lost the fingers of both hands.

This "unfortunate wretch" (the report stated) was absent-minded, careless, heedless, and deserving of his terrible wounds Had not hundreds of other workers passed over the same spot during that summer morning? . . . They did not slip; they had their minds on safety They were watching every step, and regardless of the condition of the floor, they did not slip; they did not fall into the nearby machine and have their fingers amputated."

INTERESTING ITEMS

When we announced the Five Year Highway Safety Campaign to reduce accidents by 35 per cent by 1940, we naturally expected responses from state and city officials, officially endorsing our objective. But the enthusiastic, whole-hearted telegrams and letters that were flashed back almost immediately made us gasp. Within a few days no less than 42 states (through 31 governors and 27 other officials) and a great number of municipalities pledged full cooperation. Many industrial members had written to governors and mayors! These sincere cooperators not only expressed their willingness to help, but wanted full details for a local campaign program to begin at once.

To say that we are *encouraged* by this display of interest is hardly enough. *Inspired* to reach our goal of at least 38,000 lives saved in the next five years is a much better description of the action to be taken. The Campaign will be closely tied-in with the National Traffic Safety Contest, which, in 1935, drew 800 cities and 33 states in this nation-wide competition to reduce traffic accidents.

It now appears that 1935 will go down in history as another all-time high for traffic fatalities equaling 1934. What a pity! What needless sacrifice of human lives. It is difficult to explain why big financial support is not available when we can so conclusively demonstrate that it will save thousands of lives.

Less than one month ago the new home safety booklet, "Safe At Home," was released for membership consideration. Its success is indicated by the second large edition now being distributed. One industrial executive wrote, "We believe that safety in the home is something which should be brought to the attention of all employees and their families, and we believe your booklet will be well worth while."

But it happened that in this company there was a fair-minded and conscientious safety committee. The committee decided to make more than the usual superficial study in this case. The members finally determined that the floor was oily; that the worker fell headlong into the open gears of a nearby machine; that it was fair to both the employer and the injured worker to classify this accident as due to lack of safeguards, since the gears were uncovered. A most elementary principle of safeguarding had been ignored.

In addition, these careful investigators reported a secondary cause for this terrible mutilation—slippery floors. The report added:

"The floor at this point was more than usually dangerous. It is fair to assume that the injured employee would not have fallen if the floor surface had been cleaned up." In conclusion, the committee said the worker was not as careful as he might have been.

A hundred years from now, I am confident that the universal verdict on accident causation will be something like this: Most accidents, and certainly the serious accidents which result in crippling injuries, are due to unsafe physical conditions. Such conditions must be corrected, or if that is not entirely practicable, some means must be provided for the employee's protection. Perhaps the safety program will involve both elements. Common sense tells us that it is dangerous to tolerate stairways so perpendicular that only an acrobat could use them safely, or to allow an employee near a grinding wheel without goggles.

The National Safety Council has repeatedly urged its employer members to give more attention to physical protection. Admiral Byrd studied the conditions which would confront his crew in the Antarctic regions and made his plans accordingly. He equipped his men with safe masks which would defy a temperature of 70 degrees below zero. With similar foresight, all machines, equipment and physical conditions of the workplace should be checked and rechecked.

In publishing information and accepting advertising, the National Safety Council endeavors to include only safety devices and equipment from reputable manufacturers whose products meet definite standards. Because of the demands for ready information on sources of safety equipment, a "Buyer's Service" is included in each issue of the NATIONAL SAFETY NEWS. This section of the News is carefully supervised, checked and revised each month. Members can assist their fellow members by writing about their experiences with the various types of protective equipment.

The employer always pays the bill for accidents, and it is a big bill. Even well-designed, well-made safety equipment is relatively inexpensive. Its cost is small in comparison to that of a serious injury.

M. J. Amerio

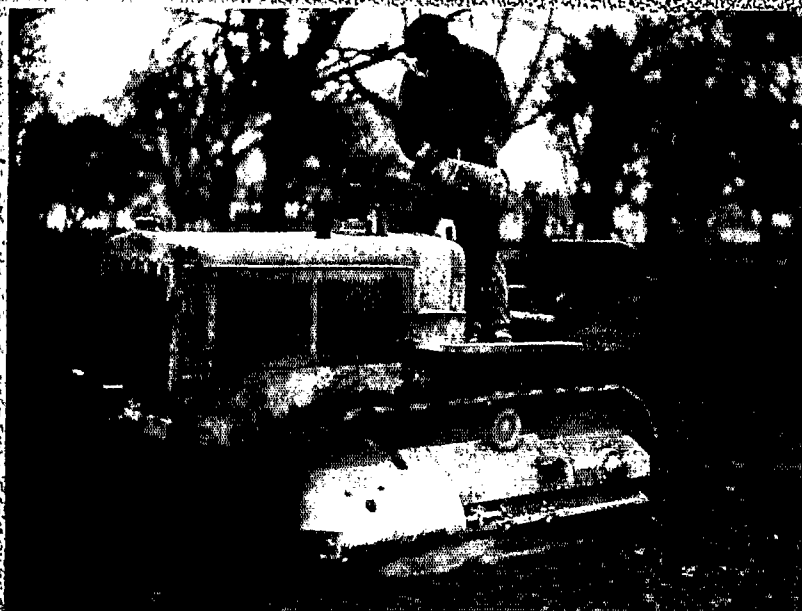
NATIONAL SAFETY NEWS

The Most Hazardous Occupation

in KANSAS

By
J. C. MOHLER

*Secretary, Kansas State Board
of Agriculture*



Caterpillar Tractor Co.

Neither the lantern nor the cigarette was lighted when this picture was posed, but it illustrates a common cause of farm accidents. Often the operator also forgets to shut off the motor before filling the gas tank.

OUT on the farm they call them accidents. So do they everywhere, in the belief that such events just happen.

A farmer pours gasoline into a running combine motor; the can explodes and the farmer dies of his injuries within twenty-four hours.

Another farmer is cutting his winter wood supply with a buzz-saw. The saw, breaking loose from its frame, strikes and kills him instantly.

A load of hay topples over and the farmer riding on it is mortally wounded when his body is pierced by the tines of a pitch-fork.

Happenings like these are not rare in Kansas. About every third day a Kansas farmer is killed in a work accident. One hundred twelve such deaths in the state last year, 503 in the past five years. And that is not the whole story. Thirty, forty, or fifty times as many non-fatally injured, many with permanent disabilities.

The Kansas Board of Agriculture is expected to promote the welfare of Kansas farmers and the prosperity of the state's agricultural industry. We develop methods of improving the quality of farm products. We study seeds, soils and fertilizers. In short, it is our business to help the farmer create for

himself a comfortable, secure mode of living.

That being our job, we obviously must include farm safety in our program. How inconsistent it would be for us to recommend an improved variety of corn to a farmer and then to be unconcerned about the possibility of an accident on the machine he is using to cultivate that corn.

The above figures on farm accident deaths are supplied by Dr. Earle G. Brown, Secretary of the Kansas State Board of Health. The Health Department reports show that farming is the most hazardous occupation in the state, accounting for more than 50 per cent of all occupational fatalities in 1934. And don't forget that Kansas has its coal mining, salt mining, rock quarrying, oil drilling, etc., all considered more or less risky endeavors.

Our attack on the farm accident problem is taking two forms. First, an educational program based on what we already know; second, a more detailed sur-

vey of the accident situation, to include non-fatal as well as fatal injuries.

We have begun the educational program in several directions. One of our first jobs was to print a four-page leaflet in colors, on stiff paper, giving the known facts concerning farm accidents, listing the precautionary measures necessary to avoid them, and recommending first-aid treatment for accidents that might occur. This leaflet was arranged for hanging in the kitchen, the barn, or the garage, as a constant safety reminder. Wide distribution was secured through co-operation with the Grange, the Farmers' Union, the Farm Bureau, the Extension Division of the Kansas State College, and the Vocational Agriculture and 4-H Clubs. Altogether, about 40,000 copies of this leaflet were placed in the hands of individual farmers of the state. This action was supplemented by radio addresses, special articles in the Board's own publications, and numerous press notices.

It became evident, how-



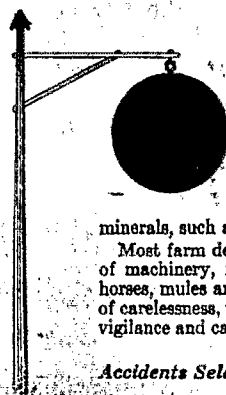
J. C. Mohler

JANUARY, 1936

ever, that to deal intelligently with the farm accident problem in Kansas, we needed more information. It was decided, therefore, to take a state-wide census of farm accidents, which was done in the spring of 1935, probably the first

cultural industries. The figures have a special significance because most of these casualties were males in the prime of their powers, trained for farm production and management under Kansas conditions.

PREVENT FARM ACCIDENTS



Each year a hundred farm people in Kansas lose their lives by accidents on the home farm, and many others are permanently crippled.

Farming is the second most hazardous occupation of all persons gainfully employed in the state, being exceeded only by the extraction of minerals, such as coal mining, rock quarrying or oil drilling.

Most farm deaths and injuries from accidents come through the use of machinery, followed in the number caused by live stock, chiefly horses, mules and dairy cattle. Most of such accidents are the results of carelessness, thoughtlessness or recklessness and can be prevented by vigilance and care.

* * *

Accidents Seldom Just Happen — They Are Mostly Committed

First page of a booklet distributed by the Kansas State Board of Agriculture in a campaign for safer farms.

of its kind on such a comprehensive scale. The county and township assessors, who are required by law to gather facts needed by the Board of Agriculture, were provided with proper schedules and called upon to gather data as to the number, circumstances, and results of farm accidents. Of the 105 counties in the state, reports were received from 104, showing a total of 3,255 farm accidents in 1934, or one accident for each 50 farms, with an average of 4.7 persons injured for each 1,000 inhabitants.

An exceedingly important fact developed by this report of the assessors, and one on which information had not been previously available, was the loss of time due to accidents. When the records were compiled in the office of the Board, it was shown that persons injured in farm accidents had been disabled for the amazing total of 132,934 days, or the equivalent of 350 years of lost labor on the farms of Kansas within a single twelvemonth, with an average of more than 40 days for each accident.

These losses represent a tax on the capacity of Kansas that this state can ill afford. But that is not the whole story. There were 127 persons permanently disabled, and as Dr. Brown had reported, 112 who were killed, making a total of 239 persons who will never resume their places in the state's agri-

The larger number of accidents occurred in the central and eastern parts of the state, with 19 counties in this section accounting for more than 50 accidents each. Marshall County led with 94 accidents and was followed by Sedgwick with 91, and Dickinson with 83, while 25 other counties in these areas reported from 30 to 49 accidents each. The information in hand does not justify conclusions as to the possible relation of accidents to types of farming, to local conditions or to the number of farms in a given county, but added information and further study may develop such information.

ASSESSOR'S returns show that 33 per cent of accidents occurred in the use of machinery, of which 8 per cent were attributed to tractors. Twenty-three per cent were credited to horses, 6 per cent to automobiles and trucks, 2 per cent to cattle and 2 per cent to falls of various kinds, while the type of accident was not given on 34 per cent of the reports. From these reports, it appears that a large majority of all farm accidents are attributed to two principal causes—farm machinery and live stock.

As the information supplied by the assessors was of necessity very limited, more details were sought by mail from each family reporting accidents, and al-

though the number of replies was disappointingly small, together they serve to give a cross-section of the farm accident situation in Kansas. From the 3,255 requests mailed out, replies were received covering 744 individual cases. These replies came from all parts of the state and may be considered typical, we believe, of Kansas conditions.

Summary of 744 Individual Cases Kinds and Number of Accidents

Farm Equipment	266
Tractors	57
Threshers	14
Binders	11
Rakes	2
Wagons	22
Silage cutters	11
Stationary engines	13
Wood cutting	64
Other farm equipment	72
Animals	198
Horses	167
Cattle	25
Other farm animals	6
Other Classifications	280
Autos and trucks	95
Falls	85
Gasoline	8
Other explosions	8
Guns	12
Cave-ins	5
Play	9
Other accidents	58

744

Much has been done by the manufacturers of industrial and farm machinery to safeguard their products. Our accident analysis, however, emphasizes the importance of continued guarding for farm equipment and machinery. This question was brought to the attention of the Farm Equipment Institute and the National Federation of Implement Dealers. The latter organization, at its annual meeting in October, 1935, adopted the following resolution:

Realizing our responsibility and that of the manufacturer to our customer, the American Farmer, and that the use of more power-driven equipment has greatly increased the hazards of its operation, we most strongly urge upon the manufacturer the need for providing proper safety devices for the protection of the operator of such equipment.

In the same month, the Farm Equipment Institute, the National organization of the manufacturers, also went on record, as follows:

WHEREAS, Every manufacturer of farm operating equipment realizes fully his responsibility to safeguard adequately his products and

WHEREAS, Farm machines are now so designed and built as to minimize the possibility of accident to the careful operator, therefore be it

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RESOLVED, That we commend the efforts which have been and are being made to safeguard all farm machines. We suggest that all manufacturers and dealers use their best efforts to educate the users in the proper handling of farm equipment so that the farmer himself by exercising due action and diligence may avoid unnecessary and unfortunate accidents which are the direct result of carelessness or negligence.

We do not overlook the fact that the operator of a most carefully guarded piece of farm equipment can get hurt in its use, by removing guards, or by ignoring the most common sense rules of operation. We expect to devote considerable effort to educating Kansas farmers toward safe operation of their equipment. At the same time we appeal to manufacturers that their products for the farm be safeguarded to the utmost.

What about other farm hazards, such as accidents with animals? Every farmer knows that domestic animals are potentially dangerous under unusual conditions, no matter how gentle and well trained they may be ordinarily. Excessive heat, insect pests, deranged digestion or other causes may make even a well trained animal fractious, or even vicious, and there is no protection against such outbreaks except continuous caution on the part of those who handle them, and the safeguarding of children. In the course of our study many excellent suggestions were made by farmers with respect to preventing such accidents, but space prohibits listing them here. They will be printed in the official report of the census.

As a part of our study we attempted to find out not only the types of acci-



Animals rank next to machinery in the accident reports from Kansas farms. Even normally gentle animals become fractions at times.

dents, but their causes, realizing that in such information we would have the key to prevention. Here is what the analysis showed:

Reasons Given for Accidents

Carelessness	212	29%
"Unavoidable"	230	31%
Defective farm equipment	96	
Vicious animals	78	
Sleepiness from exhaustion	9	
Drunkenness	4	
Not reported	119	

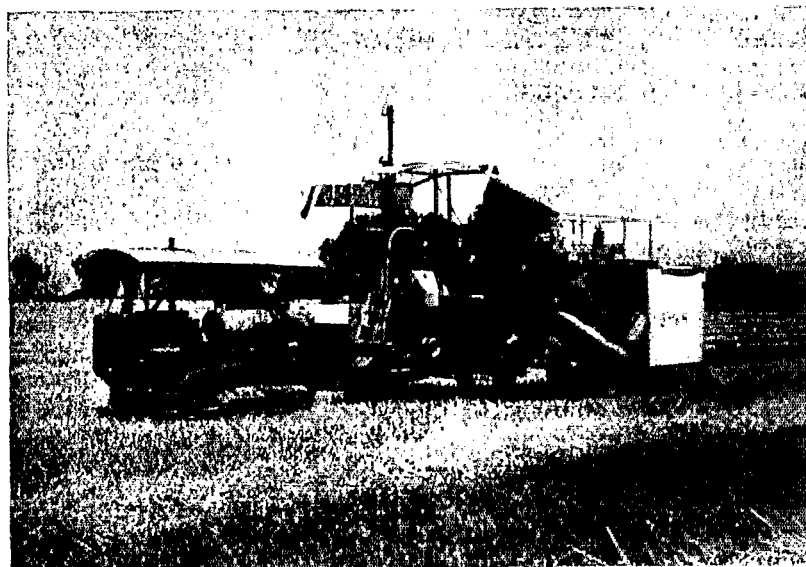
This table, we realize, is not satisfactory. "Carelessness" is too general a

term on which to base much safety effort. The item "Unavoidable" is, to our minds, subject to amendment and debate. More adequate information concerning accidents under this classification would undoubtedly have shown that a very considerable number were really avoidable. Hence, the number in this class, as shown in the preceding table, is not to be accepted as the truth of the matter, but rather as a part of the problem that remains to be solved.

We also found that approximately 85 per cent of the victims of farm accidents were males in their most useful years, those on whom the farm operations primarily depend. While the loss of any member of a farm family is to be deplored, the sudden taking away of the bread-winner is a calamity of far-reaching consequence, whether it be for the limited time of recovery from injury, or the eternity of death. In the one case, it means a disruption of farm operations with the consequent expense and loss of time that cannot be afforded, while in the other it means a complete reorganization of the farm program and personnel that may change the life course of the remaining dependents.

Our survey has convinced us of three things:

1. Kansas farm accidents are more numerous than those occurring in any other of the state's industries.
2. The fundamental causes of farm accidents are the same as those in other industries—unsafe equipment and unsafe workers.
3. A year-round safety program must be a regular job for the Kansas State Department of Agriculture.



Farming has become a highly mechanized industry. Farm machinery is one of the two principal sources of farm accidents.

The Nation Responds

State officials commend the National Safety Council's campaign for a 35 per cent reduction in traffic accidents by 1940

AS NEWS of the National Safety Council's five-year traffic safety campaign flashes over the wires and leaps into print on the pages of hundreds of newspapers, a realization of the individual responsibility for safety is beginning to filter into the American mind.

The campaign was announced late in November by the Executive Committee of the Council as an answer to Governor Harold G. Hoffman's challenge delivered at the Louisville Congress. The New Jersey executive urged a coordinated, sustained drive for safety, suggesting for every state and municipality a definite accident reduction quota of seven per cent a year for five years, starting January 1, 1936.

Already 41 states and the District of Columbia have volunteered their services in the great war on the needless slaughter on the highways. As the commendatory messages of governors and mayors appear in the press, it suddenly becomes apparent to the individual that the preservation of his life and the lives of others is his very own problem. And, perhaps unconsciously, he realizes:

"My state, my city—I myself—may be represented in the 38,000 lives which will be destroyed by the end of 1940 if this campaign does not succeed."

What is perhaps equally important is the fact that executives have been inoculated with the same thought. In industry, where safety has been established on a working basis, it has often been said that all safety activity should "start at the top." Unless the plant executive is "sold" on safety, those under him cannot be expected to be sold.

The governors of 41 states are in accord with the campaign. Some have already put into motion a definite program for the accomplishment of the 35 per cent reduction in accidents. Others are undertaking the organization of state safety councils where these are not already in existence. Similarly, many mayors of cities have announced their readiness not merely to enlist in the drive against death but to carry out their pledges with action.

The states enrolled in the campaign, in addition to the District of Columbia,

include Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Maryland, Massachusetts, Michigan, Missouri, Minnesota, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin and Wyoming.

Said Governor B. B. Moeur, of Arizona, in promising the support of his state, "No greater work than this can be undertaken for humanity's sake."

"Our state is taking steps to promote safe driving," wrote Governor Olin D. Johnston, of South Carolina. "I wish the National Safety Council good luck and Godspeed in this important movement."

Immediate action has been promised by Governor Paul V. McNutt, of Indiana, who declared that "Indiana has a state-wide program planned and will be glad to cooperate."

Governor Harold G. Hoffman, of New Jersey, assured the Safety Council that "there will undoubtedly be formed in a short time a state safety council cooperating with official groups in safety activities."

Why Not 50 Per Cent?

Although the Council's goal has been announced as "at least 35 per cent by the end of 1940," Governor Clyde Tingley, of New Mexico, expressed the optimistic belief "that as much as 50 per cent reduction in accidents may be attained as a result of such a campaign." He promised the cooperation of all state departments of New Mexico.

"Oklahoma has enlisted for the duration of the war on traffic accidents. We are already organized to cooperate in this gigantic but necessary effort to reduce traffic deaths and casualties. We will be disappointed if we cannot achieve this objective before 1940." That was the response of Governor E. W. Marland, of Oklahoma.

Governor Hill McAlister, of Tennessee, wired: "Tennessee through its high-

way patrol and all other agencies, promises you 100 per cent cooperation in the effort to reduce motor vehicle deaths and casualties 35 per cent. It is a great movement and will have the support of Tennessee citizens."

From Governor Henry H. Blood, of Utah, came this message: "Intelligently directed efforts for the reduction of the terrific loss of life and other disastrous effects of traffic accidents must have the support of all thinking citizens. You have the earnest cooperation of Utah citizens in bringing the appalling condition home to the consciousness of each individual highway user."

These are only a few of the encouraging executives' messages which greeted the announcement of the campaign.

Editorial Commendation

Until the National Safety Council can crystallize a more elaborate program for waging the five-year war, individual cooperation must be solicited through safety media now at hand. One of the most powerful of these is the press. A typical reaction of that group is reflected in a communication from the South Bend, Ind., Tribune, announcing a "Safe Driving Pledge" campaign similar to that conducted by newspapers in other parts of the country. After congratulating the Council, *The Tribune* very practically says:

"It is obvious that to accomplish lasting results, such a campaign must be sustained. If you are able to suggest additional means by which this newspaper can assist the program in its territory, the suggestions will be put into effect immediately."

A powerful Safety editorial in the *New York American* began in this manner:

"The movement launched by the National Safety Council to save 38,000 lives by 1941 is one of the most praiseworthy movements ever undertaken in this country."

The outlook for the campaign is further brightened by the fact that industrial members of the Council are stepping into the battle, carrying the safety principles of the plant onto the street and highway.

NATIONAL SAFETY NEWS



Murderous Monoxide

By F. M. VAN DEVENTER

Mechanical Engineer, Cities Service Oil Group

If you have frequent headaches while driving, have the car examined before buying headache tablets

random from the highways by state police for examination contained sufficient quantities of carbon monoxide in the passenger compartment to impair the judgment and alertness of the operator after an exposure of from one to two hours.

Absorbing small concentrations of carbon monoxide over a sufficient period of time results in drowsiness. This may or may not be accompanied by such warnings as headache, dizziness, or nausea.

A person breathing air containing 16 parts of carbon monoxide per 10,000

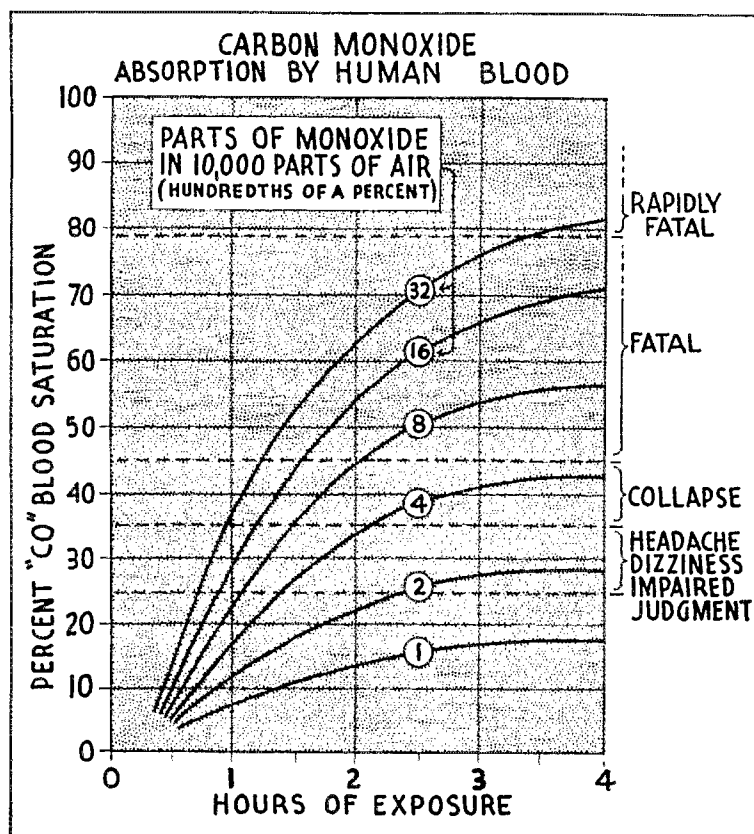
THERE are, perhaps, half a million or more cars in operation on American highways which are definite hazards to public safety. And their owners seldom realize it.

This does not refer merely to such obvious hazards as defective brakes, horns, steering gear, although these shortcomings may also be present. The menace under consideration is the leakage of carbon monoxide into passenger compartments of moving vehicles.

That carbon monoxide, even in minute quantities, is dangerous, is quite widely known. Between 500 and 700 deaths occur in the United States each year from carbon monoxide poisoning, usually because an automobile is operated in a closed garage. In the case of moving motor vehicles the hazard is not merely that of asphyxiation. Smaller quantities of the deadly gas may impair the driver's judgment and dull his senses, with tragic results.

The present article is based upon the results of a highway investigation which justifies the conclusions presented here and points to methods of reducing materially this hazard to the motoring public. This investigation led to the astounding revelation that approximately five per cent of the cars picked at

JANUARY, 1936





This hay-wire repair of a gasket cost a life. It stopped the noise but not the deadly carbon monoxide.

parts of air would be in the zone of impaired judgment after an exposure of approximately three quarters of an hour; in the zone of collapse after an hour, and in the zone of probable death after 1½ hours. These effects are on an average adult in good physical condition. Anemia and other forms of illness accentuate the effect. Children and adults of small stature are more rapidly affected.

Small concentrations breathed over a period of three hours can also produce a state of impaired judgment. Three parts of carbon monoxide in 10,000 parts of air may result in impaired judgment in about 1½ hours, although it is questionable whether a person breathing this concentration would ever collapse. This concentration is equivalent to a glassful of CO mixed with the air in the body of a coupe. This quantity of monoxide is contained in a hatful of exhaust gases from a motor only slightly out of adjustment.

Prior to the winter of 1933, Cities Service Power Prover operators tested the exhaust gases of nearly 300,000 cars. They observed that the majority of vehicles were being operated at a sufficiently low percentage of combustion efficiency to produce excessive quantities of monoxide in their exhausts. At the time this was considered merely a waste of fuel, but when the National Safety Council issued a public warning that there was an alarming increase in the number of drivers going to sleep behind the wheel, and when the Travelers Insurance Company issued a bulletin indicating that there were nearly 500,000 "unexplainable" highway accidents each year, carbon monoxide assumed a new significance.

With the cooperation of the state police and motor vehicle authorities in seven Eastern states, several hundred cars were picked at random from state highways and examined.

The examination consisted first of driving the car on the highway and measuring the concentration of monoxide in the passenger compartment with a continuous carbon monoxide indicator. This was followed by a determination of combustion efficiency and percentage of monoxide in the exhaust using the power prover.

An examination was also made of the exhaust system to determine leaking gaskets or flanges, split mufflers, or other defects which might result in the discharge of exhaust gases under the hood or floor boards of the car and an examination for openings through which vitiated air might enter the car body. The operator was also asked whether he or other occupants of the car suffered headache, dizziness, nausea, drowsiness or similar symptoms while riding.

At the invitation of an association of fleet owners in New York City, representative units from each of several fleets were tested. Similarly, at the invitation of a highway official of a central state, more than 200 school buses were tested. The following conclusions are based upon these various tests.

1. Between 5 and 6 per cent of the units tested were found to contain dangerous quantities of carbon monoxide in the passenger compartment.
2. Fifty-seven per cent contained traces of monoxide. Although these cars did not constitute a hazard at the time, conditions would become worse with continued use of the car.
3. Detectable exhaust leaks at some point ahead of the normal tail pipe discharge point were observed in more than 40 per cent of the units. The majority of these leaks were not evidenced by the sound of escaping gases or by soot stains.
4. Low combustion efficiency which results in excessive quantities of monoxide in the exhaust gases was observed in 66 per cent of the units.

It was found that there were five forms



A ripped muffler and a motor out of adjustment made a lethal chamber out of an automobile.

of infiltration to account for the presence of carbon monoxide within cars:

1. Trailing eddy currents.
2. Pick-up following another car.
3. Exhaust leaks.
4. Exhaust manifold heaters.
5. Crank case breather pipes.

It was found that all dangerous concentrations of monoxide could be attributed to a concentration of two or more of the following three factors:

1. Low combustion efficiency, with an excessive proportion of carbon monoxide in the exhaust.
2. A leak in the exhaust system.
3. Openings in the floor board or other part of the body shell.

Regardless of the form of infiltration responsible for the presence of carbon monoxide in the car, the concentration is always in direct proportion to the percentage of monoxide in the exhaust gases of the motor. The concentration within the car is also dependent upon the extent of the leak in the exhaust system and the extent of the opening in the car body.

When new cars are delivered from the factory, they are, or should be, adjusted to operate at a high combustion efficiency. However, a periodical checking of the ignition and carburetion systems is required to maintain combustion efficiency during the life of the motor. If all motors were thus maintained and if exhaust systems and car bodies were kept tight, the carbon monoxide dangers would be minimized, if not eliminated.

Asphyxiations and Accidents

The following cases will illustrate how low combustion efficiency and leaks result in tragedy.

The operator of a truck was found dead at the wheel. While dead men tell no tales, a half-empty box of headache tablets and footprints in the snow around the car bore mute evidence that the driver had suffered headaches. Apparently his truck struck a guard rail. The driver, realizing that he was groggy, had pulled off the pavement to take a nap. He was found later seated at the wheel with the engine still running.

When the carbon monoxide detector was placed in the cab and the engine started, it showed a concentration that would kill any normal person after only a brief exposure. It was not feasible to test the car on the highway, but there is little doubt that the concentration then would have been sufficient to result in drowsiness, if not complete col-

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NATIONAL SAFETY NEWS

Enemies of Eyesight

By J. M. SMITH

*Illuminating Engineer, Nela Park Engineering
Department, General Electric Company,
Cleveland, Ohio*

THE change from an outdoor existence to a life lived predominantly indoors is perhaps the most outstanding transition which the human race has undergone within our knowledge.

We moderns, forgetting that our eyes have been in the progress of development for hundreds of thousands of years, have created all sorts of jobs for them under vastly different conditions from those nature intended.

Instead of distant vision, we have close vision—15 to 30 inches. Instead of broad daylight we have extremely low levels of indoor natural and artificial light, and, not content with all this, we have, on the average, lengthened the working day that our eyes must serve us.

The ideal distance for seeing is 20 feet or more—no doubt because so far as our ancestors were concerned objects seldom required close scrutiny. The major task which the primitive man had was to see ferocious animals so he might protect himself or to kill for food.

The eye is provided with muscles for converging the eyeball into position for near vision, but nature intended these to be used for short periods and not to be under strain for many hours each day. Therefore, it is just as logical that fatigue should result from this continuous

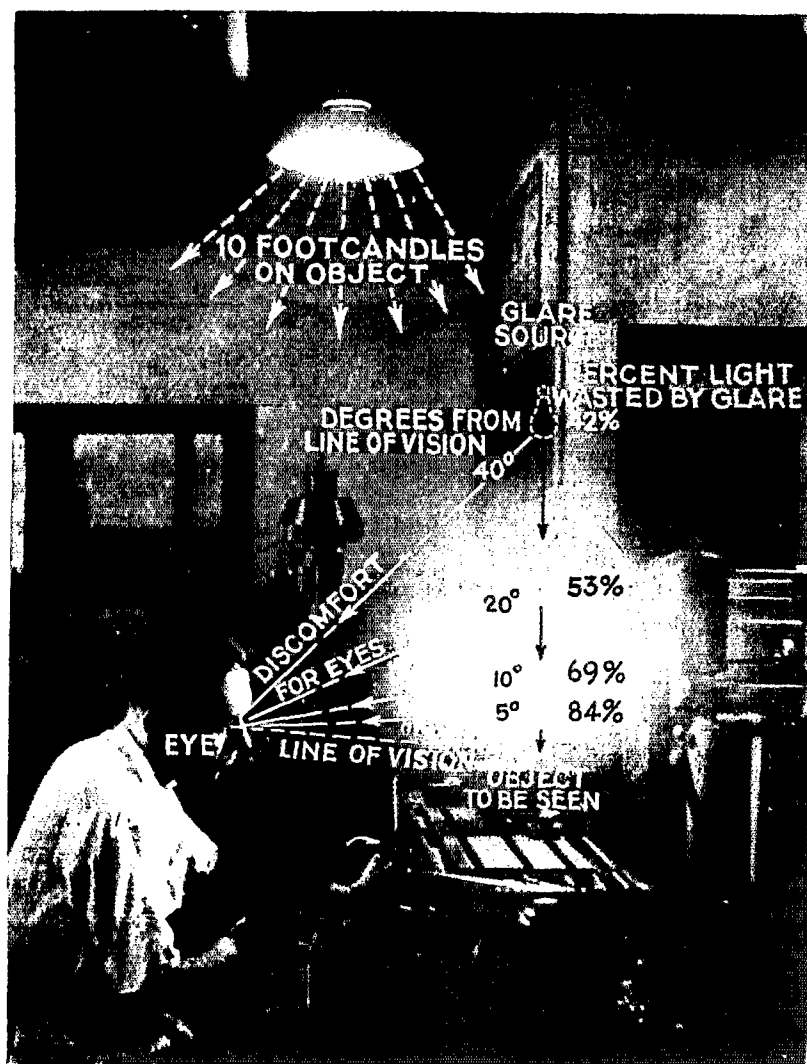
concentration as from holding your hand at arm's length for more than a few minute's time. It made little difference to the Indian skinning a buffalo whether substantial bits of flesh were left on the hide. The modern leather worker has to split a hide into many layers and match and grade the leathers so that milady may have a faultless pair of shoes, or so that the old masters may be bound in a perfectly matched leather binding. Today the craftsman must be able to withstand continuous visual concentration.

Nature planned for the eye to cease functioning at nightfall and have a period of rest. We have steadily increased the hours of hard labor for the eyes to about 16 hours a day. Even 100 years ago very few people knew how to

read or write: there were no movies, no automobiles, no basement machine shops—all of which afford mental relaxation but increase the burden on the eyes.

What are the elements which go into the process of seeing? They are three: The eye, the seeing task, and light. We can do very little for the eyes themselves, beyond sharpening them with the aid of glass. We can do very little about the seeing task itself. If we are working on a lathe, we must continually keep our eyes on the task. We cannot change the type or the color of a newspaper. The one variable is the light, and that we can control. How important, therefore, to study the effects of this factor and to know how much light we are actually getting.

Nature on a bright summer day gives

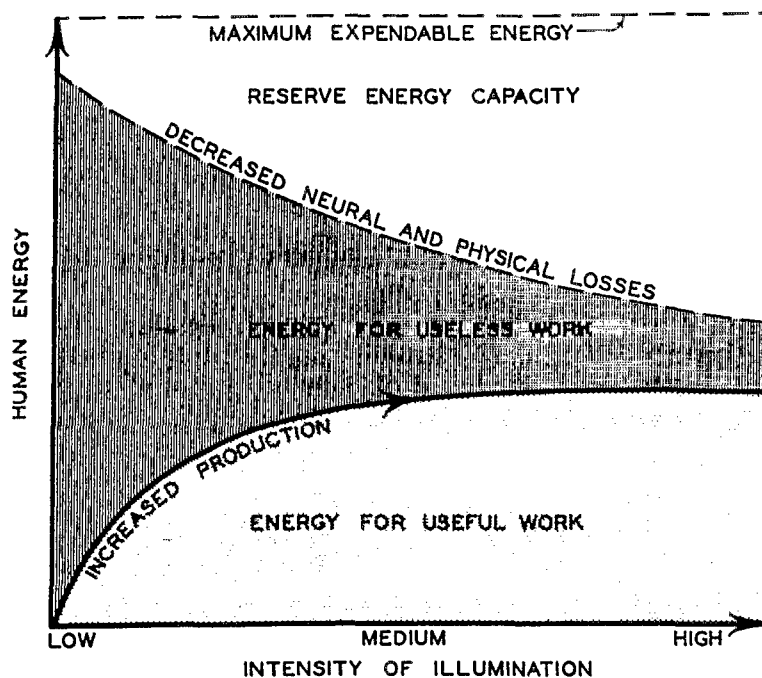


Inadequate intensities of illumination, plus glare, place a serious burden on the eyes

us upwards of 10,000 footcandles of illumination. We find no discomfort as we play tennis or golf. Even on a rainy day there are several hundred footcandles outdoors. The fellow reading under a tree or tinkering with his automobile in

to furnish satisfactory illumination.

With the knowledge which the science of seeing gives us today we recognize the fact that higher levels of illumination should be employed. In order to meet the seeing requirements, the task must



Better illumination releases energy for useful work.

the shade has illumination of perhaps 500 footcandles.

In the modern factory building, with large windows covering most of one side, on a bright day there are about 100 footcandles near the window sill. On a cloudy day the value would be much less. And the light value decreases very rapidly as the distance from the window increases. Even on bright days, there is inadequate illumination except at the windows.

You can perceive that artificial lighting is necessary for the plant even though it operates only during daylight hours. In Cleveland an analysis of the weather bureau records for the past thirty years revealed that the average day consists of six hours of sunshine, six hours of cloudiness, and twelve hours of darkness. This, of course, varies with the season of the year and shows that artificial lighting is more necessary in the winter months.

There are also continual variations in natural illumination indoors which result from clouds, smoke, change in the sun's position, and so forth. Natural light cannot, therefore, be relied upon

to be studied, determining the detail required, what contrast conditions exist, and how much time is allowable. After these factors are ascertained the lighting may be prescribed.

The levels of illumination which are recommended for various tasks are based on researches in vision, on observations of results in actual installations, and on the adequacy of present equipment and methods to provide satisfactory illumination with safety and economy.

In average manufacturing areas it is desirable to provide levels of illumination of the order of 20 to 50 footcandles. This may be provided from a general lighting system which will provide an even distribution of light over the entire area.

For tasks which demand greater attention to detail and must be seen accurately and quickly it is desirable to provide illumination of the order of 100 to 200 footcandles. These higher levels of illumination in general may be most economically provided by the use of a reasonable amount of general illumination augmented by individual or supplementary lighting.

It should be remembered that it is essential to have good general lighting as a basis on which to build these higher levels of illumination. The general lighting should provide at least one-tenth as many footcandles as is provided from the supplementary lighting equipment. For example, with 15 footcandles of general lighting, 150 footcandles would be the maximum that should be provided by supplementary lighting.

In the great majority of instances, improving seeing demands higher levels of illumination. But this is just one factor that is controllable. Other elements such as quality, control, direction, and surroundings, enter into the problem and require an intelligent selection of reflecting and diffusing equipments and their proper location.

Probably the most apparent and at the same time the most vicious factor of quality is that of glare. Glaring lights are hazardous to eyesight and positively wasteful because they reduce visibility. The pupil of the eye functions to protect the retina from sudden exposure to extreme brightnesses. Everyone has experienced this reduction when driving at night against the beams of an oncoming automobile.

Glare is an undesirable and usually unnecessary by-product of poor lighting. When glaring light sources are in the line of vision the pupils of the eye narrow down automatically, thus restricting the opening for "seeing" light to enter. From 40 to 60 per cent of the useful light is often wasted, counteracting the effect of glare.

Similarly, reflected glare -- that is, brightness reflected from shiny work surfaces, glass-topped desks, store counters, and the like -- may prove even more annoying and interfere with vision to an even greater extent than direct glare. This calls for an intelligent analysis of the seeing task and dictates the choice of equipment and its location so as to insure both adequate diffusion and proper direction of the light on the work. The illumination of the surroundings, that is, reduction of severe contrast between the immediate visual field and the rest of the room, is of extraordinary importance in relieving eye muscles and obviating the necessity for frequent adaptation of the pupils of the eyes.

Let us now consider the economic side of good lighting. While statistics have been lacking regarding the relation of lighting to industrial accidents, a recent estimate indicated that faulty illumination is the direct cause of about 5 per cent of all industrial accidents and is a

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NATIONAL SAFETY NEWS

How to Detect Combustible Gases

By P. S. WILLIAMS

Chemical Engineer, Standard Oil Company of California



DESIGNATION of gas as "combustible" or "explosive" points out that the primary hazard involved is a fire hazard. The familiar fire hazards, however, are those involving such substantial objects as buildings, combustible liquids, fuels, rags, paper, hay, or even finely suspended dusts and mists. These substances can be seen and recognized as possible fire hazards.

Where gas is the combustible, a very different problem of detection and protection appears. Simple visual observation no longer suffices to indicate the presence of danger. The sense of smell cannot be relied upon, as its accuracy toward any one odor varies in the greatest possible extreme with individuals. Even an experienced person becomes confused when any variety of odors is offered. For instance, it has been demonstrated that experienced oil operators mistake oily odors unaccompanied by appreciable vapor for alarming vapor concentrations, and vice versa. Furthermore, many highly refined volatile com-

bustibles, natural gas, and even the light vapors of some "sweet" crude petroleum are so nearly odorless that even explosive concentrations may fail to arouse concern.

The need for accurate and rapid detection of combustible gas or vapor is vital for many reasons. A small spark will ignite mixtures of vapors and air, while it ordinarily requires the application of a flame to ignite those combustibles which are not accompanied by vapor at ordinary temperature.

Gas or vapor may travel wherever there is space, up or down, through pipes or passage-ways, out of vents, hatches, or holes. It is present wherever the surface of a volatile combustible is exposed, whether the amount of liquid or other parent material be large or small, confined or unconfined. When its visible source is removed, the gas or vapor often remains. A space cleared of vapor cannot be assumed to remain so as long as the volatile material is present or is being handled within reasonable proximity.

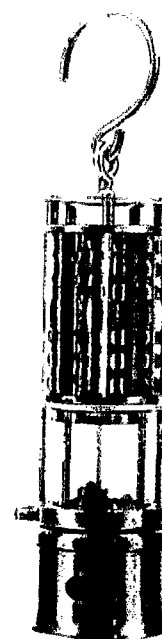
Added to its mobility and ease of igni-

tion, combustible gas or vapor forms highly explosive mixtures with air. The explosion not only results in immediate damage from its own violence, but instantly spreads flame to all combustible material within its reach. It bursts containers and bulk-heads, and allows the spread of burning liquid.

When we hear of a gasoline tank exploding, it should be emphasized that neither the liquid gasoline, nor its vapor alone is the explosive. The explosive is formed when the gasoline vapor unites

with air. When ignited, the oxygen in the mixture rapidly reacts with the gasoline vapor, thus causing a sudden release of energy constituting an explosion.

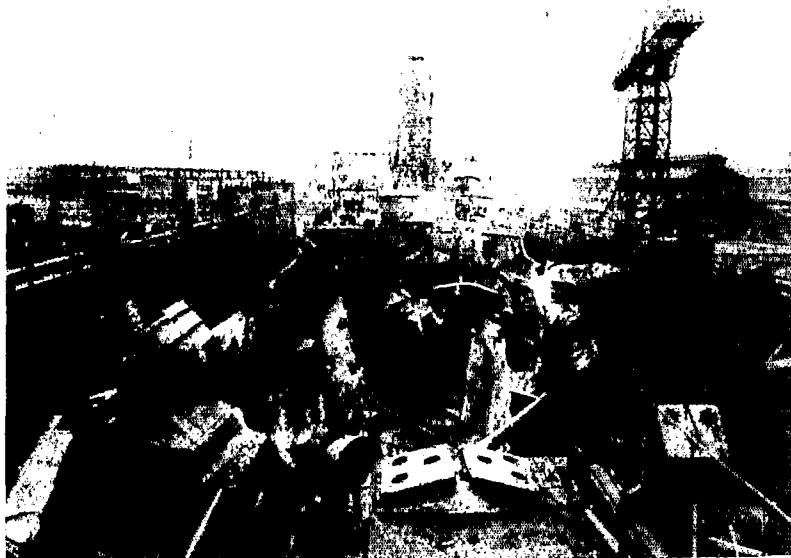
Not all combustible gas mixtures are explosive. A flammable mixture of gases, such as methane and air, may be diluted with one or another of its constituents until it is no longer flammable. The dilution limit of flammability, or simply



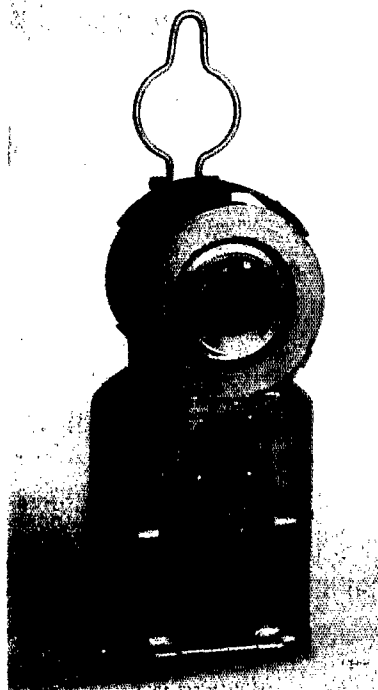
A modern flame safety lamp.

the limit of flammability, is the borderline composition; a slight change in one direction produces a flammable mixture, in the other direction a non-flammable mixture.

There are clearly two limits of flammability, a lower and a higher, for each pair of combustible gas and air. The lower limit corresponds to the minimum amount of combustible gas, the higher or upper limit to the maximum amount of gas capable of conferring flammability on the mixture.



Results of a gas explosion on board ship.



Gas detector of the visual type.

These border-line compositions are usually referred to as the "lower explosive limit", and the "upper explosive limit." Vented into the air, mixtures below the lower explosive limit do not constitute a fire hazard, but mixtures richer than the upper explosive limit will burn, or may form explosive mixtures.

In looking through the annals of the detection of combustible gases, it is apparent that the most spectacular and widely celebrated method is to look for the leak with an open flame. This method is based on the operator's elementary knowledge that gas burns, and the fundamental accuracy of his assumption is usually quite amply demonstrated. Aside from these tragically stupid episodes brought to us through newspaper reports, the practice of soberly throwing a lighted torch into a confined space as a final check of its safety, has persisted in some quarters until quite recently. This was done, of course, after cleaning and before entry of men to use welding torches or other sources of ignition.

Vagrant and unreliable as the sense of smell may be, the advantage of its constant readiness for service cannot be denied. The great value of its protection against gas hazards is quickly recognized where the supply of domestic gas is changed from manufactured to natural gas. Natural gas has practically no odor. To provide a warning of its presence,

it may be "odorized" for distribution by the addition of some stinking material, the smell of which may be easily identified as characteristic.

Great credit is due the gas distributors for this effective step in the direction of safety. Like all safety measures, it is not infallible, and its shortcomings must be kept in mind. The concentration of odorant is limited for various reasons to that amount distinctly obvious to a normal nose in a gas and air mixture still well below the lower limit of flammability. A bad cold, however, will deaden the olfactory sense to the extent that a dangerous concentration of gas is sometimes not recognized, or a dull sense of smell may miss it. Damp earth has a distinct tendency to absorb some of the smelly constituents of gases.

Acknowledging the shortcomings of these primitive methods, apparatus of many descriptions has been devised, and at present there are available a number of very reliable instruments.

Methods and apparatus for the detection of combustible gases have naturally grown up in the coal mines. When the exhaustion of surface diggings first led to underground mining, and confined spaces were formed which accumulated gas, the open lights used in those days started the long list of coal mine disasters. As early as the seventeenth century, examinations of coal mines were made by lowering a dog down the mine shaft in a basket. When the dog encountered considerable methane, or "fire damp," in the air, he howled. An echo of this practice persists in Staffordshire, where a deputy is still a "doggie." A little later, the sensitivity of an open flame to fire damp was observed, and a class of workers called "candle watchers" developed, who became expert in detecting the approach of explosive concentrations by the elongation of the candle flames. From this beginning, through years of sad experiences, the first flame safety lamp appeared early in the nineteenth century. Clanney, Stevenson, and Davy, working contemporarily toward an identical end, brought out almost simultaneously, devices embodying the fundamental principles which are used in our modern flame safety lamps.

The primary consideration in developing flame safety lamps was to keep the main body of flammable gas from being ignited, and at the same time permit free circulation of the atmosphere past the flame.

Mixtures of gas and air between the explosive limits burn because enough heat energy is liberated upon combus-

tion of any one layer of gas mixture to ignite the neighboring unburned layer, and such mixtures are thus capable of self-propagation of flame. Hence a flame arrestor must be some device which will absorb enough of the heat liberated by a flame on one side of itself that a layer of flammable mixture on the other side will not be ignited.

It was found by the investigators mentioned above that fine screens woven of wire would cool the flame of burning methane sufficiently that it would not pass through them, and at the same time would not too seriously obstruct the circulation of air to the flame. Modern flame safety lamps are still protected against flash-back and consequent ignition of the gas mixture being tested by a system of screens. While this arrangement gives satisfactory protection in methane mixtures, and other gases of relatively high spontaneous ignition temperatures and low flame propagation rates, there are other gases encountered industrially which will flash through the screens. The application of flame safety lamps or any other device so protected is limited accordingly.

In the modern instruments designed specifically for combustible gas detection, free natural circulation of the atmosphere is not essential; therefore mechanical means may be employed to draw the sample for examination through such a device. For this reason more efficient flame arresting equipment can be built into the sampling system, some of these being so well perfected that flame will not pass through them



Continuous indicator of the thermocouple type.

even in the most violently explosive mixtures of acetylene and air or hydrogen and air.

As a source of light, the flame safety lamp has given way to the electric cap lamp. It is still used to considerable extent, however, both in mines and in industry as a detector for combustible gas, especially methane. Briefly, esti-

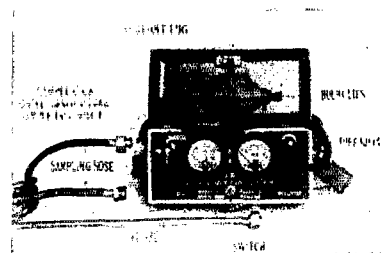
mation of the concentration of gas is made by measuring the elongation of the flame of the lamp and comparing it with a standard of flame heights. Such lamps are not regarded as entirely safe equipment under all conditions, and to be a useful gas detector must be in the hands of an expert. Improper maintenance or other causes may make the lamp a source of an ignition.

As the sciences of physics and chemistry developed, effort was turned toward providing a non-flame-type detector. Variations of the gas analysis apparatus found in laboratories have served a useful purpose. Such devices take an isolated sample and make a test under what might be called "batch" conditions. Where conditions are subject to change, as is usually the case in dealing with gases, the considerable time consumed between taking the sample and arriving at the result becomes a serious fault. The Burrell detector is one of the most successful examples of the "batch" sampling indicators, and it makes itself useful in certain specific applications. The Burrell detector is essentially a U-Tube, one end of which terminates in a gas reservoir or combustion chamber, and the other end in a gage glass having

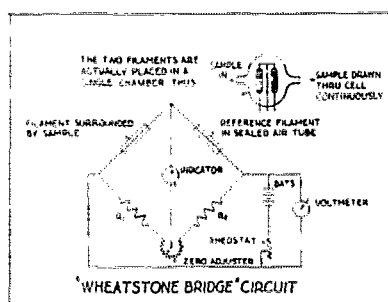
a calibrated scale. A sample is drawn into the chamber and the combustible burned from it by means of an electrically heated filament. The contraction in volume due to burning is then read off the gage glass to arrive at the proportion of combustible originally in the sample. Temperature changes materially influence the indications, so that this detector requires a skilled operator for dependable results.

During comparatively recent years, there has evolved a group of combustible gas indicators which are designated as the "catalytic type." The fundamental principle involved is the same for all of this group; namely, that metals of the platinum group may be arranged to promote the oxidation of combustible gases mixed with air, even though the gas may not be present in sufficient concentration to form a flame. The heat liberated

developed with mine service in view, and are protected against flash-back by a system of screens similar to those used in the flame safety lamp. The indicator is carried into the atmosphere to be tested, and the gas mixture reaches the sensitive element by diffusion through the screens. General application of this type of indicator is limited by essentially the same factors as considered under flame safety lamps. It should also be pointed out that indicators depending on diffusion from the surrounding atmosphere to bring in the gas mixture, (in-



Face of combustible gas indicator.



Method used to measure gas concentration by change in resistance of sensitive element.

by this oxidation reaction at the surface of the metal varies with the concentration of the gas, and the consequent rise in temperature of the metal is then estimated as an index of the gas concentration. This group of indicators has proven to be most flexible in its application, and includes the majority of devices which are considered adapted to general use.

The fundamental difference between the various catalytic detectors from the standpoint of adaptability is in the method employed for estimating the temperature of the sensitive element. The simplest method of estimation is to observe visually the change in color of the element with change in temperature, and compare it to a standard to arrive at the gas concentration. This has somewhat the same primary disadvantage of relying on the skill of the operator for its accuracy as is inherent in the flame safety lamp.

Detectors using this method have been

cluding flame safety lamps), lack the feature of remote sampling essential to many industrial uses.

Another method of estimation is the measurement of the temperature of the sensitive element by means of a thermocouple. This idea has been developed into a commercially useful instrument, particularly well adapted to semi-fixed installations. It has been developed around processes, such as lacquering, japanning, etc., chiefly for the purpose of ventilation control. Consuming considerable power, it is usually operated from an electric lighting circuit, and could hardly be termed portable in the sense applied to a general testing device. The sample is drawn continuously from its source through a flash-back arrestor and a set of heating coils on into the detector unit. The detector unit, in which is located the warm junction of the thermocouple, is an externally heated platinized mass. As most of its applications have required handling high boiling point vapors, heating means is provided on the sampling line near the detector unit to avoid condensation. Sample is drawn by an electric motor-driven fan.

The most adaptable method of indication utilizing the catalytic principle is undoubtedly that of measuring the change in resistance of a platinum wire brought about by an increase in its temperature. The Ralph detector, devised



A mine model electrical methane detector in use.



Testing a manhole for gas by drawing a sample through a hole in the manhole cover.

for use in coal mines, was one of the first of this type. It measured the change in resistance of the platinum filament by the galvanometer of a Wheatstone Bridge. As its successful performance was quite limited, it was not commercialized. About 1927, however, a detector primarily for use in coal mines was successfully evolved along the lines of the Ralph indicator. This indicator is built to operate on the storage battery carried by the miner to supply current to his electric cap lamp. It is a neat and substantial piece of equipment, particularly well adapted to mine use. The filament is encased in a screen protected chamber similar to the flame safety lamp or visual type catalytic detector, with an electric cable connecting this chamber, or "head", to the balance of the apparatus. The "head" is held in the operator's hand and thrust into the space to be examined. Indications of the gas concentration are read from a meter or "galvanometer" suspended on the operator's chest.

The indicators developed against the coal mining background were too specific to be transplanted far afield. The need for a combustible gas indicator which could be applied generally to industrial

gas hazards was made acute by the rapid expansion of the use of gasoline and other volatile combustibles handled away from the control of expert supervision. The problem was worked out, and in a paper given before the American Petroleum Institute in 1928, Mr. H. H. Hall described a catalytic type indicator developed by the Standard Oil Company of California, and commercialized as the J-W Combustible Gas Indicator, which incorporated the essential requirements of a portable indicator for general industrial use. Since then other indicators of similar pattern have become available. The requirements for such a device include:

1. *Safe Operation.* The indicator itself shall not become a potential source of ignition, either through flame originating at the sensitive element, or on account of mechanical or electrical defects.

2. *Simplicity.* Both the physical operations involved and the reading of the indicator shall be such that the instrument may be placed in the hands of non-technical operators with the assurance that satisfactory results will be obtained.

3. *Wide Application.* The readings shall not change materially in meaning over a wide variety of gases and vapors, so that personal judgment or auxiliary information will not be required to interpret results.

4. *Sensitivity.* A positive, unmistakable, reading shall be given at a concentration at or lower than that which represents a liberal factor of safety.

5. *Accuracy.* Readings shall be accurate enough over the range of conditions in which the operator is interested that his procedure may be guided unerringly.

6. *Reliability.* Provision shall be made to warn the operator adequately of any defect or misadjustment likely to impair the reliability of indication.

7. *Remote Sampling.* It must be possible to obtain indications from points inaccessible to the person of the operator, and from toxic or otherwise unsafe locations.

8. *Portability.* The indicator must be an independent portable unit, light and convenient to handle, and provided with means of suspension such that the operator's activities are not hampered.

9. *Speed.* Indications must be continuous during operation of the device, and completed without delay.

10. *Continuity of Service.* A simple, rugged, construction insuring economical continuity of service under adverse conditions is essential.

The Wheatstone bridge arrangement used in the Standard Oil development may be taken as typical of the circuit employed in measuring the change in temperature of the sensitive element of a catalytic type indicator by change in conductivity.

To form the bridge circuit, the battery current is split, part of it going through two fixed resistances in series, and part through two filaments. The "bridge"

is a connection from a point between the filaments, through a sensitive meter, and to a point between the fixed resistances. The battery current heats the filaments to a temperature at which the oxidation of combustible gas will go on without interference. The circuit is balanced by the zero adjuster so that when there is no gas present, there is no current flowing across the bridge.

Both filaments are mounted as a unit within the reaction chamber. One is open to contact with the sample, while the other is sealed tightly into a glass tube. This arrangement compensates for temperature fluctuations in the chamber. As oxidation takes place on the surface of the exposed filament, its temperature is raised and its resistance rises correspondingly. Such a rise in resistance causes a flow of current through the indicator meter in the bridge. This meter is calibrated to show the concentration of combustible present as a proportion of the lower explosive limit mixture.

The operation of the indicator is very simple. The current is turned on by means of the switch, and if necessary, the voltage and zero setting is adjusted by turning the knobs located below the respective meters. Sample is then drawn through the indicator by working the aspirator bulb. If combustible gas is



Continuous combustible gas indicator and alarm.

present, its concentration is registered immediately on the indicator meter.

Should remote sampling be necessary or desirable, sections of sampling hose of appropriate length may be attached to the sample cock, which is the point of intake on the indicator. A section of rigid tubing, called a probe, on the end of a short piece of hose makes it easy to reach inaccessible points or definitely localize the source of sample.

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NATIONAL SAFETY NEWS



He Has Saved Thousands of Fingers

By CURTIS BILLINGS

PROBABLY no other man has prevented the accidental amputation of as many fingers and hands as the hero of this article—August Kaems. And Gus is both proud and modest of his achievements.

A power press is, at best, a brilliant example of industrial ingenuity and efficiency. At worst, however, it is an infernal "double tripping" finger chopper accredited with the mutilation of more hands than any other machine used in industry.

Kaems has conquered the power press. He has pulled its teeth or trimmed its claws, according to your preference in metaphors. To be trite but honest, he is an unsung hero, a man whose good works will be forgotten, and yet long remembered. For thousands of press operators the world over will have all their fingers when they retire, because Gus got in his good work in the first decades of the twentieth century.

It has often been that the greatest inventions are the simplest. The lever and the wheel are examples. While not

so fundamental as these, Gus's inventions are simple too, and effective. He is the father of the now famous slide feeds for power presses.

A power press is a big, tough machine. It doesn't coax or wheedle anything. It insists. The steel reinforcements on the corners of your trunk were pressed into shape cold and the holes in them were punched on a power press. The casters on your bed were similarly made, and tens of thousands of other small but essential parts used everywhere. It takes tremendous force to bend and punch cold metal.

Punch presses consist of a die of the proper shape on which the piece of metal is placed. Then a huge ram with the force of a ton of steel which, actuated by a powerful electric motor, is forced down on the metal.

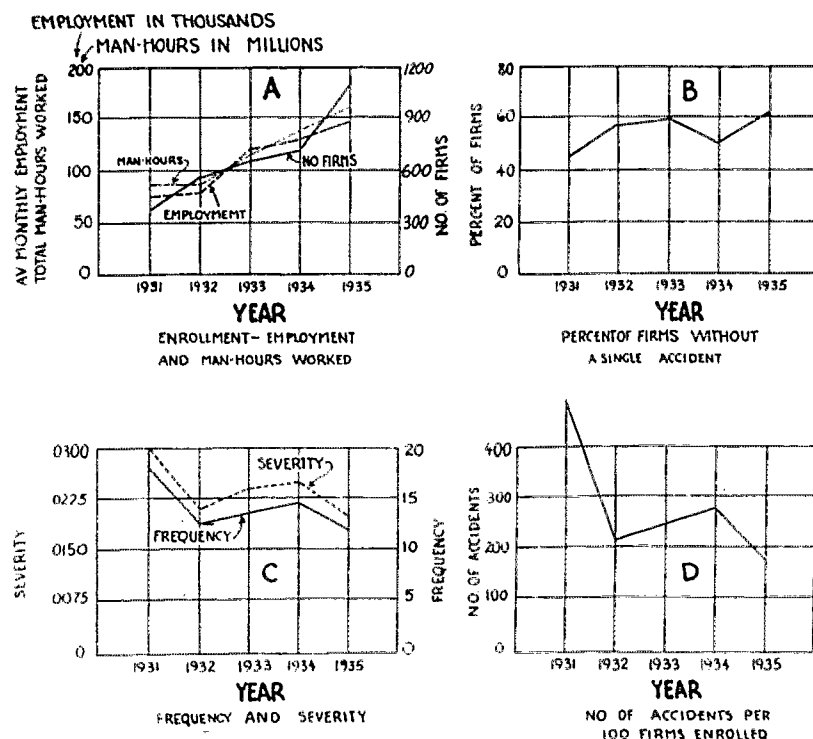
From the time these machines were invented operators have got their fingers under the rams at the wrong time—and a quick, clean amputation invariably resulted. The metal is placed on the die, a treadle is touched with the foot, and

August L. Kaems, safety engineer for the Employers Mutuals, Wausau, Wis., has probably prevented the accidental amputation of more fingers and hands in punch presses than any other man. He is shown here standing behind models of his devices in the exhibit of the Power Press Section at the Louisville Congress.

down comes the ram. Woe unto the operator whose timing fails, or whose mind is momentarily distracted, or whose machine for some unfathomable reason "double trips" when the treadle has been touched only once. Training the operator is important but instruction alone is insufficient protection where a punch press is involved.

Gus's invention was a simple one or, to be more accurate, his scores of inventions were simple. He merely devised little slides down which the pieces of metal can be dropped. The operator's hands need never come near the danger zone. Each slide must be especially designed for the work at hand, for it is necessary that the metal land on the die in the one, exactly right position. Here is where Kaems used his ingenuity.

Some years ago the fame of these chutes was so great that Kaems was sent all through the east exhibiting them. And for years he has brought them with him to the Safety Congresses of the National Safety Council. He is glad to talk about them, to explain them, to help delegates (or anybody) devise suitable slides for any job.



A graphic summary of Cleveland's five industrial safety campaigns.

The grand prize for 1935 was awarded to the National Carbon Company, Inc. (Edgewater Division) at the Annual Banquet held in Cleveland December 13. This company had an average monthly employment of 1,626 workers and worked a total of 1,307,535 man-hours without a disabling injury. Following close behind the winner was the Cleveland Plant Department of the Ohio Bell Telephone Company with 1,027,519 safe man-hours. In third place was the Stone Knitting Mills Company; fourth, the Glidden Company, and fifth, Westinghouse Electric & Manufacturing Company, all with more than 500,000 man-hours free from disabling injuries.

The following basis of rating the contestants was established by the first advisory committee in 1931:

TABLE II

Type of Accident	Points Charged per Accident
From 1 to 7 days lost time	1
Over 7 days	2
Permanent Partial Disability	5
Death or Permanent Total Disability	10

The severity rating is determined by multiplying the number of points charged by 1,000 and dividing this total by the number of man-hours worked.

The 1,821 lost-time injuries reported in the present campaign were distributed as follows: 911 causing less than seven days' lost time; 843 causing loss of more than seven days; 55 causing loss of member or permanent impairment, and 12 deaths.

Safety engineers furnished through the Division of Safety and Hygiene made more than 150 plant surveys. This resulted in reestablishing old safety organizations and starting several new ones. Safety meetings were held in many plants and increased attention was given

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Cleveland Industries Hold Fifth Campaign

By H. M. SCHNERER

Electrical and Safety Engineer, Division of Safety and Hygiene,
The Industrial Commission of Ohio

THE Fifth Annual Greater Cleveland Industrial Safety Campaign, April 1 to September 30, 1935, was probably the greatest community industrial safety campaign yet conducted. It exceeded the most optimistic hopes of its sponsors, the Division of Safety and Hygiene of the Industrial Commission of Ohio, and the Cleveland Safety Council.

The first of these campaigns in Cleveland was launched April 1, 1931, with an enrollment of 370 firms. The popularity of the contest has grown steadily, reaching a total of 1,117 establishments, divided into 63 groups, in 1935.

Early in 1930, when the depression was just getting a good start, the Commission heard of a number of firms dispensing with their safety departments. This brought the realization that if industrial plants economized in this direction, city, state and semi-public organi-

zations would have to increase their efforts to protect the factory worker.

Fortunately we were able to secure the invaluable help of the Cleveland Safety Council and *The Cleveland News*. The Council turned over its office for the campaign headquarters and the *News* has presented annually a beautiful bronze plaque as the grand prize.

TABLE I

	1931	1932	1933*	1934	1935
Total Firms Enrolled	370	582	630	713	1,117
Average Monthly Employment	31,766	35,312	107,604	127,530	148,436
Total Man-hour Exposure	91,086,816	90,941,217	71,905,035	132,572,508	153,236,681
Percent of Firms without Accidents	44.32	58.59	59.34	50.9	60.19
Man-hour Exposure per Accident	56,037	77,265	73,000	68,800	84,060
Total Number of Accidents	1,655	1,177	985	1,924	1,821
Accident Frequency per Million Man-hours	18.09	12.93	13.69	14.45	11.89
Total Number of Points Charged for Accidents	2,697	1,953	1,674	3,187	2,992
Severity Rating (See Table II)	.02965	.02151	.02331	.02406	.01947

*—4 month campaign—all others were of 6 months duration.

NATIONAL SAFETY NEWS

ANY means of getting from one level to another is more or less attended by hazards. Stairs and ladders are chronic accident-makers. Elevators have a much better record, for several reasons.

An elevator has a rather complicated mechanism, and it represents a considerable investment. Insurance companies offer thorough inspection service, and maintenance of both freight and passenger elevators is generally competent.

The elevator is usually in charge of an experienced operator, exercising a certain amount of supervision over those who use his car. Employees using stairways are seldom subject to supervision or restraint.

Having no moving parts, a stairway is supposed to be a more or less permanent installation which is practically free from wear and deterioration. But stairs receive a lot of punishment from human feet, and their condition is too often overlooked until an accident finds its way into the records.

Interesting use of ramps was made at the Century of Progress in Chicago during 1933 and 1934. Large crowds of people had to be handled quickly and safely. Stairways would have created dangerous bottle necks with attendant congestion and falling hazards.

Ramps are hardly practical for universal use in factories, but their substitution for stairways in permanent locations is not as general as it might be. The principal objection to their use is the amount of floor space necessary to construct them with the proper gradient.

Many ramps have too steep a gradient for safety. When used as a walkway solely, not for trucking, a ramp should be of the same standard width required for stairways. It should not be so steep as to cause a strain on the feet or leg muscles or cause a person to slip when descending. According to the New York State Labor Law, the gradient should not be more than one foot in six. Applying this ratio to a ramp between ten-foot floor levels, the ramp would be 60 feet long.

On construction projects, temporary ramps or runways are in more general use. Whether permanent or temporary, they are less hazardous than the littered stairways so often found.

Since stairways seem to be a necessary evil, the utmost care should be expended in their installation and maintenance. At best, the human being is a clumsy animal in comparison to any of



Trouble Lurks on STAIRS

Many a fine safety record has crashed when some employee slipped on the steps. Often the trouble is with stairways, but not always

the quadrupeds. Walking on two legs is an acquired art, and man has a high center of gravity. He has a sense of balance which is easily disturbed by indigestion, high blood pressure, and many obscure ailments known to the medical profession, not to mention the use of certain stimulants. Mental aberrations, day dreaming, and the feeling that using the hand-rail is an admission of old age also play a part in the total of injuries incurred on stairways.

Too many stairways in homes, public places and factories have been improperly constructed. Sufficient space has not been allowed to construct a stairway of the right pitch and without winders. Many stairs have treads far too narrow.

Authorities on the subject recommend risers not less than 6½ inches nor more than 7¼ inches wide, a width which will permit persons to ascend or descend with the least physical effort.

A standard for stairs has been established by the New York State Labor Law. Section 270 provides that all exit stairs in factory buildings constructed since 1913 "shall be not more than 12½ feet in height between successive landings. Treads shall be not less than ten inches wide and the rise shall be not more than 7¾ inches. No stairway with 'winders' shall be permitted as a required exit. The treads shall be constructed and maintained so as to prevent persons from slipping thereon."

Treads and risers built according to these specifications will provide a stairway about 37 degrees from the horizontal. Every stair tread should have a nosing extending not less than ¾ of an inch beyond the face of the riser. This is an added factor of safety in providing heel clearance when descending the stairs. This feature of stairway construction is often ignored by architects, engineers and builders.

Hand rails and adequate lighting are also important. So is housekeeping. Allowing litter or slippery substances to accumulate on the steps is just looking for trouble. Of course, the employee is not watching his step when he slips or skids, but every safety program should be planned to avoid the coincidence of a physical hazard and an inattentive employee.

Safety treads in a variety of materials and patterns are available. The selection of any particular type is largely a matter of individual preference and the requirements of the location. There is one point to remember, however. If the tread has grooves running parallel with the face of the riser, the grooves should not be too close to the edge of the tread.

But even with stairways that fulfill all the requirements of safety, supervision is needed. Some employees are inclined to indulge their weakness for horse play on the stairs, and a ticklish fellow worker may be a strong temptation. Some are in a hurry to catch the bus on the way home, and others hurry merely on general principles.

Female employees present special problems. While they rarely indulge in boxing and the grosser forms of horseplay on the stairways, they frequently indulge in facial makeup and examine their pocketbooks. These tendencies, aggravated by the type of footwear indulged in by their sex, present a real safety problem.

Not long ago one company attacked
(Please turn to page 65)

THE SAFETY EXCHANGE

"A ROUND TABLE IN PRINT"



This Stretcher Box Won't Be Overlooked

This stretcher box is made of $\frac{3}{4}$ -inch wood, painted white, and lettered a contrasting color. One side of the box

is hinged to open from the top; this prevents moisture getting in the box. These boxes are secured to the walls of the sheds in the yards of the Chicago and North Western Railway. They are kept fastened, but never locked.

Band Saw Guard

This band saw guard used in the Car Department of the Chicago and North Western Railway, is made of 16-gage steel, and welded throughout. The inner frame, equipped with $\frac{1}{4}$ -inch plate glass 4 inches wide, slides in the fixed outer

frame. A set screw threaded to the boss on the right side, controls the $\frac{1}{4}$ to 15-inch vertical adjustment. The distance between the glass and the saw blade is $1\frac{1}{2}$ inches. This guard is especially valuable when cutting sheet metal pieces which cannot be clamped to the table.



Questionnaire for Watchmen

The watchman may have been given sufficient instruction as to his duties, but he should not be expected to remember all of this information. A member suggests that he be questioned from time to time as to the conditions applying at the location of his employment.

The job is one of responsibility and it is of utmost importance that he should use his head as well as his hands.

This set of questions was devised to keep up the interest of and to instruct the watchman in his job. Perhaps you can add to the list.

1. If on your rounds you discover oily waste or cloths what would you do?
2. What action would you take if, tracing the smell of smoke, you found a smoldering fire, or a small fire actually burning, that was accessible?
3. What is your practice about fire doors?
4. Suppose that from the sound of running water, or water dripping through

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

floors, you suspect that a sprinkler head has opened or a pipe or fitting is broken, what would you do?

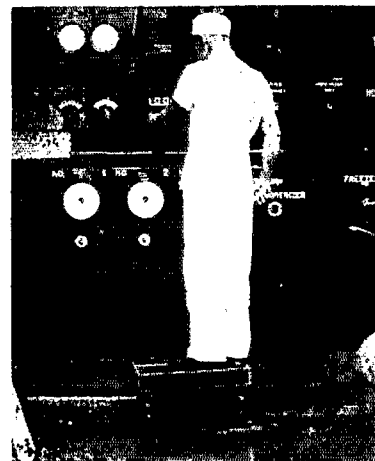
5. If you discover a fire in an adjoining property what would you do?

6. If, say on Sunday morning, your relief did not come at the regular time, what would you do?

7. If, after giving the alarm for a fire and the firemen or fire brigade has responded and has been directed to the fire by you, what then would be your duty?

Insulated Platform Prevents Shocks

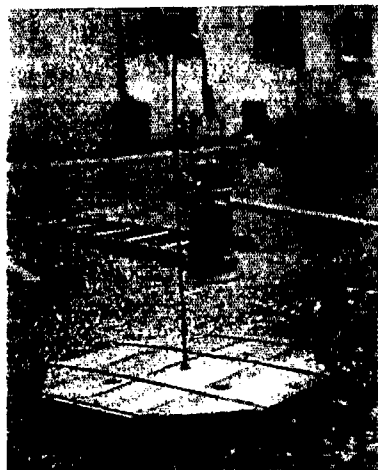
To insulate the man working on the switchboard at Hage's Ltd., ice cream and dairy products plant, San Diego, Calif., this wooden platform mounted on four glass insulators is used. The protection is needed especially in a dairy because of the wet floors and the wet shoes of the men.



NATIONAL SAFETY NEWS

This Pole Hole Cover Has Many Advantages

This photograph of a safety pole hole cover, was sent in by D. C. Duncan, of the Appalachian Electric Power Company, Bluefield, W. Va. This pole hole cover was designed to take the place of make-shifts used to cover pole holes left open when it was necessary to call off a

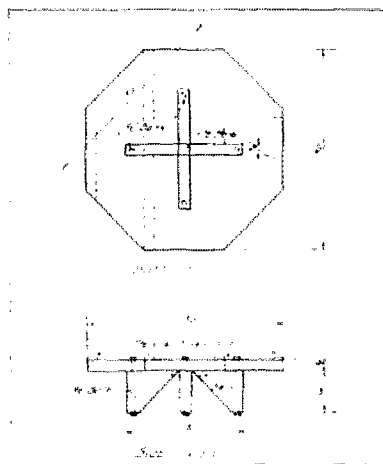


crew for emergency repair work, or when a digging crew gets ahead of the pole setting operation.

This pole hole cover has the advantage of being simple and inexpensive to make, can be made up locally and satisfies the following safety requirements:

1. Will remain in place; any lateral movement prevented by projections on bottom of cover which extend downward into the excavation.

2. Provision of $\frac{1}{2}$ inch iron rod bent into a hook at one end and threaded at the other for attachment to cover furnishes a substantial support for danger lantern. Locating lantern on the cover



JANUARY, 1936

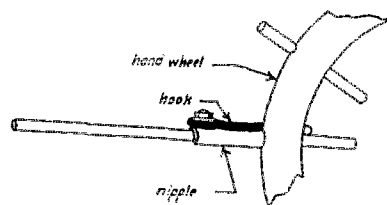
prevents accidents due to persons stumbling over device at night which might occur if lantern were placed a few feet away.

3. Covers can be painted any standard company color to attract attention during the day and prevent accidents due to stumbling over the device during the daylight hours.

4. By using 2 inch dressed oak timber, re-inforced with $1\frac{1}{2}$ inch x $\frac{1}{4}$ inch strap iron, sufficient strength is obtained for heavy loading.

Safety Wrench for Hot Blast Valves

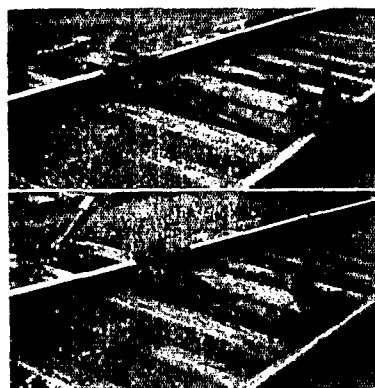
Since short lengths of pipe are often used to obtain more leverage in operating hand wheels on hot blast valves, the safety hook illustrated here is recom-



mended. Held fast to the nipple on the end of the pipe with a bolt, it locks against the rim of the wheel so that the pipe cannot slip.

Device for Retarding Runaway Cars

Protection of men working on tracks from runaway cars is the purpose of this device designed by the Hudson Coal

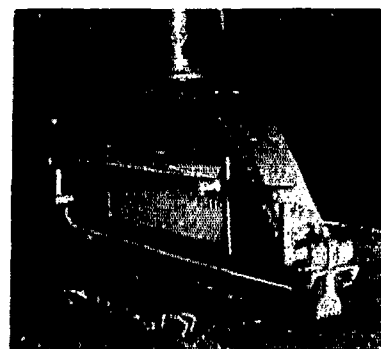


Company. It consists of a pair of sliding shoes mounted in such a way that they can be swung quickly into position by a lever. Should a runaway occur, it would strike the shoes, shear off the light pins holding them to the frame-

work, and automatically be retarded on both rails. After use the retarders are reassembled, returned to the retarding position and kept in this position except when it is necessary for cars to pass. Blueprints of this device for standard gage track are in the Library of the National Safety Council.

Rip Saw Guard Prevents Kick-Backs

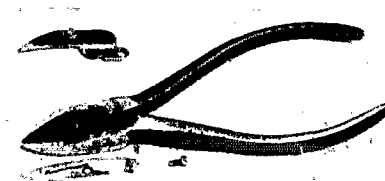
This photograph of a guard for a hand-fed rip saw was taken in the shops of the Chicago and North Western Rail-



way. It is made of wrought and sheet iron and steel netting with a supporting frame of angle iron. The up-and-down adjustment, about 20 inches, is set by a lock screw. The front and rear kick-back dogs work together. When material is to be run through the saw the dogs are pointed ahead at an angle of about 45 degrees. Should the material start to kick back, they wedge it against the table top. A spring returns them to the position shown.

Tension Jaws on Pliers Hold Wire Securely

Tension jaws for Swedish side-cutting pliers to prevent bits of wire from flying have been devised by the Western Electric Company. The jaws are formed by two pieces of steel held in place by screws and actuated by a spring tension. These jaws hold the short end of the wire with sufficient pressure to prevent it flying and injuring the workman or passersby.



We Expect a Lot

(Continued from page 10)

whom he is to come in contact. I should want a man whom every man in the organization would have to respect. I should want them to say, "This man has had a world of experience. He has seen men die; he has seen the cost of carelessness; he has seen the price that has to be paid for the little things which cause most of our accidents." I should want a man who could convince every man in the organization that he is their friend, but who is not afraid to stand up to Bill Jones or to Tom Smith, should the occasion arise, and say, "You were the cause of the death of your fellow worker and I shall recommend that your services be no longer required by this company."

The man I am talking about (should I find him) must go forth into the organization, not as a representative of some straw-boss, or of some superintendent, but as a representative of the executive head of the organization. I should expect him to speak with authority. I should expect him to so train his mind as to be able to act as a teacher to the entire organization from the executive down to the lowest laborer. I do not mean that he should drive home his lessons and educate those under him by the methods of the classroom, but he should feel that he has a message to get over to these foremen and to these men and that some way, somehow, by co-operative methods, he must get the proper line of thought into their minds. I should expect him to stand up to the executive, himself, should occasion arise, and say that this or that must be done, and with it all I must expect him to use that authority with great care, with consideration of the feelings of the department heads in the organization.

A big job? Yes, and yet it is the necessary qualification for a successful safety man.

I should not expect this man to take in detail the responsibility for the prevention of accidents. He should train the organization in such a way that the "non-commissioned" officers would continue to feel that the safety of the men working under them was in their keeping. Hand in hand with this idea of responsibility I should expect him to openly pass on the credit for all that is accomplished to those "non-commissioned" officers and the men under them. As occasion may present itself. I should

expect this safety man to study and learn from the best authorities the best methods of first aid, of resuscitation, and of matters of that kind. I should expect him to pass on this knowledge group by group down through the "non-commissioned" officers of the organization to the men. I should expect him to formulate, with the assistance of the engineering department and others, such guides and rules as might be devised to fit the mind of the man he is dealing with.

I should expect him to teach these "non-commissioned" officers how to study the root and the source of accidents. Bill Jones fell from the top of a forty foot pole. Why did he fall? What went wrong? Something certainly went wrong. Was his safety belt worn? Was there a cross-arm brace that gave way? Was there a snapping of a pin? Did he come in contact with something hot, not properly shielded, which caused him to jerk back and lose his balance? What was it? Why did it happen and what must we do to prevent it from ever recurring?

I EXPECT this safety man to pick from the organization, as he begins to Jones was purely careless. If there was no contributory cause to his having fallen from the pole, either get rid of Bill Jones or keep him under observation and learn whether Bill Jones is the right man in the right place. The very fact that a man carelessly commits suicide does not exonerate the boss or the safety man for having kept this man in their employ, providing they knew of this tendency in his make-up.

I should expect this safety man to pick from the organization, as he begins to see development along safety lines, certain men to act as lieutenants, certain men that he could send to do as he would do, certain men who, if the organization is large enough, might be assigned to permanent duty with him or, if the organization is not sufficiently large to justify permanent time, then part time, as occasion may require. I expect this safety man with his lieutenants to study the organization from top to bottom and to slowly but surely take all of the square pegs out of the round holes and fit them in where they belong.

I do not mean that the safety man should go to the foreman or the superintendent and say this man or that man

must be taken off of this kind of work and put on some other kind of work. We must always guard against opening the way for the safety man to usurp the duties of the superintendent or the foreman. I should expect him through his contacts with the foremen or superintendent to develop to a point where he can say: "Mr. Foreman, your man so and so seems to have a lot of trouble holding down the job he is on," and then, if possible, bring out of the foreman a suggestion that he, the foreman, is thinking of changing this man to another job, or even of getting rid of him in order to save his life. I expect him to train that foreman through his contact with him to think along lines that he, the safety director, is thinking. I expect him to train that foreman through his assistance and his contact to recognize a square peg in a round hole when he sees it and to build gradually and carefully an organization that will be safe, efficient, and productive.

THERE are men climbing poles who have absolutely no business to ever go up a pole because of some physical defect of which they, themselves, may not even be aware. There are many men today driving cars and trucks who are not qualified to drive, perhaps on account of eyesight, perhaps on account of some nervous affliction, or for other causes. These men must be relocated or, if necessary, be removed.

We talk a great deal about teaching our men, our foremen and our superintendents to guard against accidents, and yet we leave accident traps lying around. These accident traps have a considerable bearing on the question of safety to the general public. If you have a large organization, you have your property scattered out over a large number of counties, perhaps states. Accidents are occurring daily to the public, caused by something wrong, or something misplaced, on your property. I believe that on a large property your safety director should have under him a full-time lieutenant whose whole job is the constant inspecting of the property from end to end looking for danger spots.

When we go before a public service commission or before a court trying to establish the value of our property for rate-making purposes, after having listed and priced everything on the property, we then say to the court or the commission: "Your Honor, that is not all. We claim a very considerable value in

(Please turn to page 54)

INDUSTRIAL HEALTH

A Non-Technical Symposium for Physicians and Laymen

First Aid Treatment of Burns

By J. J. WITTMER, M.D.

Medical Director, Consolidated Gas Co. of New York, New York City

THE treatment of burns can be conveniently divided into two parts; treatment of the local lesion and treatment for the prevention of systemic reaction.

Shock

Treatment must be instituted in the early stages of burns, *i. e.*, before the end of eight hours, before toxic absorption has yet occurred, when the gravity of the patient's condition is largely dependent upon the degree of shock. The condition of shock occurs especially in those burns of a more severe nature, and unless the condition is recognized and accorded successful preliminary treatment, the patient's chances of recovery may at least be jeopardized, and in extreme cases the oversight may actually prove fatal.

There is real danger that the general condition of the patient will quite escape the attention of the medical attendant in his zeal to do something locally; particularly so, if he possesses the information that the local wound is the source of toxemia and is attracted to this area by the silent or expressed entreaties of both the patient and his friends. No undue anxiety need be felt, however, in the usual case of thermal burns, to hasten local treatment, since a number of hours of grace are allowed by nature before the beginning of the onset of the other main factor in mortality, "toxemia."

Treatment directed toward the relief of local conditions is contraindicated in the presence of shock. The truth of this is too rarely appreciated, and it is a common sight in some hospitals to observe the medical attendant laboring

with the removal of clothing, and cutting away blebs, and washing away contaminating debris, while the patient's systolic blood pressure is less than 70, 60 or even 50 m.m. of mercury, and the exposure incident to the manipulation is constantly aiding in the further dissipation of heat from a body which already manifests a subnormal temperature. Therefore, the shock of hasty and unwise local treatment, added to the shock of the original burn, will undoubtedly precipitate a needless death.

The treatment of burn shock differs in no essential particulars from the treatment of shock otherwise induced, essential features being the administration of large doses of morphine, the maintenance of body warmth by the application of external heat in a light tent or by hot water bottles and internal heat in the form of warm drinks or intravenous infusion, the lowering of the head to combat cerebral anemia, and the assurance of quiet and rest under the watchful eye of a competent attendant. During this period, local treatment may be completely disregarded except for the prevention, as far as is feasible, of local contamination. For this purpose the wounds may be simply covered with a sterile sheet or towels.

Two important exceptions must be mentioned:

1. In those cases in which the patient's clothing has caught fire the utmost care must be exercised immediately to make sure that no smoldering material has been overlooked in the excitement of transporting the patient to the medical advisor.
2. In attending cases of chemical burns one peculiarity of the traumatizing agent must be remembered; a prolongation of action is maintained until neutralization of the active agent is accomplished, either by natural or artificial

means. Patients burned by chemicals should be quickly treated locally to assure complete neutralization of the chemical reagent before anything else is done.

In addition to the shock caused by an extensive burn, a condition of anhydremia also results. If a burn involves one-sixth of the surface area of the skin the loss of fluid in 24 hours may equal 70 per cent of the total blood volume. Rubner has shown that in starvation an animal can live after loss of nearly all its glycogen and fat, one-half of its protein and nearly one-half of its body weight, but that it dies from loss of one-fifth of its water. The fatal influence therefore, of the great loss of fluids in burns is apparent. With such depletion the blood becomes concentrated, the circulation slowed and the blood loses oxygen. Partial asphyxiation results, metabolic processes become altered, the heat regulating mechanism becomes impaired, the temperature falls, and vital activities are suspended.

Here again I must emphasize the fact that the burn itself is relatively unimportant at first. Therefore, attention to the systemic effects of the injury should embrace, besides the usual measures against pain and fall in temperature, immediate intravenous administration of 1,000 cc. of normal saline solution at a rate not greater than 25 cc. a minute, and thereafter fluid, particularly normal saline solution, should be introduced by every available channel in the amount of from 4 to 8 liters in each 24 hours, until the capillaries have lost their abnormal permeability, fluids are retained, and the concentration of hemoglobin and of chlorides in the blood approach normal. Usually the critical period has passed in from 24 to 48 hours.

Local Therapy

Granted that chemical agents have been successfully neutralized and shock has been found absent or has been successfully combated, the attention is now focused on the local lesion. The first act is complete debridement in an effort to convert a contaminated wound into a clean one. If the contamination is superficial and does not involve a

large area, the application of a paste of sodium bicarbonate made with cold water will frequently cleanse the area in addition to relieving the pain. This treatment is always applicable to a first degree burn where debridement is not necessary.

The contamination may be such, however, as to make necessary the administration of a general anesthetic, following which the burned area is either thoroughly scrubbed with a sterile scrubbing brush and sterile water or saline solution until the area is completely clean, or resort is made to instrumental removal of contaminated tissue. This form of treatment is generally applied where there is charring of the tissue or in other deep burns of limited extent.

Blebs are punctured and cut away with scissors and the entire area finally thoroughly cleansed with some non-irritating fluid like normal saline solution. After the area has been thoroughly debrided and all vesicles removed, we prepare for the next step.

Fixation with Tannic Acid

The use of tannic acid was introduced by E. C. Davidson in 1925. The latest modification of Davidson's treatment is to spray the denuded area with a freshly prepared solution of five per cent tannic acid, until a coagulum of fair thickness has been established. Loose dressings are then applied and kept saturated with the tannic acid solution for 24 hours, or until the burned area is tanned a mahogany brown. When the burned area is sufficiently tanned, all dressings are removed and the patient is placed in a tent to avoid pressure of the bed clothes.

In cold weather the inside of the tent is warmed by means of electric lamps. Sterile pads or sheets are always kept beneath the burned areas that rest on the bed.

Infection can and often does occur beneath the tanned area, but the careful cleaning of the burned area prior to the application of the tannic acid will tend to reduce the incidence of infection. Infection in these instances is treated either by an incision through the membrane or, when more extensive areas are involved, by excision of the entire membrane.

If the burn is superficial, epithelization (formation of new skin) will proceed under the dried coagulum; and if the burn is deeper the tannic acid crust that separates, between the fourteenth and twentieth day will leave a clean granulating surface, which in time will result in epithelization.

Davidson bases his treatment on the theory that the toxin present in the red cells is due to the absorption of the products of protein autolysis at the site of the burn. In order to limit this absorption he produces a coagulum of the devitalized tissue only by the application of tannic acid. The dry crust thus produced prevents the loss of tissue fluids which leads to a lowering of the sodium chloride of the blood.

In addition, the tannic acid applications produce a definite analgesia and do not affect the normal skin. Sepsis is avoided by the dry coagulum which forms an unfavorable medium for bacterial growth.

Up to this time we have dealt only with the tannic acid treatment of second and third degree burns. Some authors have employed a two per cent solution of the gentian violet, spraying it on in the same manner in which the tannic acid is applied. This solution also forms a membrane over the burned surfaces, much like tannic acid, and it is claimed that the incidence of infection is lowered due to the antiseptic action of the gentian violet. Other writers have employed a mixture of tannic acid and gentian violet.

Ointments containing any form of medication are contra-indicated in the treatment of large second or third degree burned surfaces. They tend to cause maceration about the skin margins and prevent the formation of epithelium. When the wound has become cleansed it is far better to leave it exposed to the air without any covering, applying a liberal coating of stearate of zinc, which, being a mild astringent, has the property of drying up any of the areas where epithelization has begun.

When the burned areas involve the region of the joints it is well to apply traction during the process of healing. More important however, is skin grafting in the region of the joints.

Treatment of Electric Burns

Electric burns differ from all other types. The degree of heat is far more intense and the general aspect is radically different from the pathological picture of any other type. The intense heat observed in the electric contact burns, is not found in the so-called flash burns.

A flash burn is produced when an electric arc is formed close to the body but the current does not go through the part. The severity of the burn depends upon the proximity of the tissues to the arc and the length of time that the arc is maintained. These superficial burns

do not differ in any material way from the ordinary burn or scald.

By contrast, in the case of an electric contact burn, the surface of the body forms one of the poles of the electric arc. The electric current passes through the body and the degree of heat attained at the point of the surface of the body when the contact is made, is the temperature of an electric arc. If a burn is produced, no matter how small, an electric arc must have been formed. If the contact is so perfect that sufficient resistance is not introduced to develop an electric arc, the body simply sustains an electric shock which might produce anything from a slight tingle to instant death.

The temperature of an electric arc varies from 5,500 to 7,000 degrees, whereas the temperature of the acetylene torch is 4,500 degrees. This intense heat presents a characteristic picture.

Examination of a victim of an electric contact burn may simply present a single small innocent appearing blister, but if the superficial blister is carefully cut away there is noted a central area of white necrosis surrounded by a narrow ring of hyoeremia or edema. The size of the central area of necrosis is naturally dependent upon the size of the contacting electrode. The area involved is usually pyramidal with the top of the pyramid at the surface of the skin.

As a rule, in from 36 to 48 hours an electric burn loses its dry, crisp, circumscribed appearance and becomes a serum saturated area with disintegrating walls and floor, progressing to profuse purulent secretion, large sloughs bathed in pus, exuberant granulations uncontrollable to the most radical antiseptics. This disorganization may include muscle, tendon, joint capsule, even bone itself.

After a varying period of the treatment mentioned before, apparently unduly tedious and prolonged, firm granulation ultimately ensues and the final result will be the same as that ordinarily secured in other comparable burns. The period of disability will be greatly shortened and the certain extensive scar formation will be decreased by the application of the surgical principle of complete resection of the burn area before the stage of serum formation begins.

The application of the principle of complete resection and immediate closure by suture or skin graft to third degree electrical burns, produces uniformly satisfactory results. The method has its limitations; the line of demarcation may not be sufficiently clear in tendons,

(Please turn to page 48)

The Aftermath of Sudden Death

By A. J. BRACKEN

TWO o'clock in the morning. Is that the phone? There it goes again. I grope my way sleepily to it. Hello . . . yes, I understand . . . a wreck on the highway two miles east . . . We'll be right out . . .

What a sight! One car, a new one, now a tangled heap of scrap off on one side of the road, shattered glass everywhere. The crowd has gathered and they have dug one body out and it lies a bloody, grotesque, twisted thing under the pale light of the moon. Another lies groaning and mumbling, "My back is broken I think." We lift him as gently as possible to the ambulance cot and hurry to the hospital. He dies two hours later calling for "Edith."

How did it happen? The report is they were trying to pass a car against a too close oncoming car. What does it matter! We go back for the dead body and in the operating room under the strong light we find that we have a job on hand trying to embalm this poor thing, to put it back together as best we can in an attempt to relieve the terrible heartache of those loved ones who will hasten to see him. What a mess! Ragged bones sticking out through torn coat sleeves, head crushed to a pulp. Can we make it look like a human being and resemble the fine strong young man that it was only an hour ago? It is just our job and we're getting used to it.

Does it make us gun-shy of this fast driving? Well, we wish all the speeders could spend a night with us, occasionally, in the mortuary.

Old Barleycorn

Three little kiddies, poor little tykes, the oldest only seven. They hardly know what it is all about. This time it is a young mother returning home, with her husband and children, from a happy visit. Kiddies are playing in the back seat of the car. *Bang! Crash!* a sickening twisting and tearing and it is all over.

Just two drunks in an old car coming over the top of the hill on the wrong side of the road, but what slaughter!

JANUARY, 1936

We work feverishly all night attempting to place a new nose and one side of the face on this mangled body which has been the loving mother of these three small helpless children, now in the hospital, two not expected to live.

We secure a recent picture of this mother and by long hours of patching and filling those mutilated features and showing the body under indirect light we keep from the loved ones the horrible picture of this mutilation.

Such a freak. We found his arm, hanging on the latch of the car door, torn completely from the socket at the elbow. The mangled body lay doubled up in the ditch nearby.

Just an old man walking along in the dark on the wrong side of the road, the car coming over the brow of the hill, headlights shooting up. Not a chance of escaping it.

Endurance vs. Death

Just three happy boys on their way across the country to Detroit. Constant driving, day and night, with a change at the wheel every four hours, but endurance lost and we pick them up on the side of the road where they have crashed a telephone pole and overturned. Not an easy thing to telephone the poor father out on the Coast and inform him that the body of his boy lies in our mortuary.

A wig that matches his hair, plastic art and dermasurgery restore the body to almost lifelike appearance, but we cannot bring back that youthful smile

FOLLOWING the publication of the sensational article—"And Sudden Death," The Reader's Digest was besieged by authors with follow-ups. But the editors thought that enough had been said. Then from an embalmer in the village of Chappel, Nebraska, came this poignant story. It is reprinted by permission of The Reader's Digest.

or happy laugh which he carried when he left home. These are only memories to his loved ones.

* * *

We natives all knew that was a mean corner, properly marked with a turn sign, but such a sharp turn. To take it at more than 20 miles was unsafe. He must have been going 50 at least. No one saw it happen. They found him with the car overturned, the sharp edge of the runningboard, where it joins the rear fender, resting on his head. Why do they always have their heads mashed up so? I wonder if this isn't the hope of every embalmer when he receives an auto accident call: "I hope the head is all right." They usually are not.

Such a great big fine fellow in the pink of health and prime of life. And his poor young wife. . . . We put her to bed when she arrives and try to make her comfortable until we can finish our work, so she will never know what he looked like when we found him.

A babe to come soon, who will never know a father except by tales which are told.

Dense Fog

The lunch for school was in the back seat, the case of eggs for the grocer intact, but the beautiful life of a little schoolgirl was gone forever.

A foggy morning, a narrow bridge. The sharp, splintered end of the bridge rail drove through the windshield and tore away one side of her face.

Poor little brother, who had been driving, how heartbroken and sorrowful. It was hard to see, and how was he to know that he should have pulled to the side of the road and stopped until the fog lifted, even though they were late for school?

* * *

Not much to do this time. The whole thing was on fire when we arrived. We could see his tracks where he had come over the top of the hill and hit the loose gravel.

The warning sign was up so the Highway Department had fulfilled its duty, but there it lay where it had skidded and turned completely around and over. A twisted mass of hot iron, that fetid smell of burning flesh and a few bones to tell the tale.

How will we prepare *these* remains for burial? Well, how would you?

And so it goes, on and on, in this small town of not quite 3,000. Add what befalls us here to the tragic toll in metropolitan cities and the countless towns larger than ours, and we have a very faint idea of what is happening on our highways.

The Driver's Reaction Time

How important is it in safe operation?

REACTION time is the term used by psychologists to indicate the time between the instant when a person sees, hears, or feels something and the moment he can start to do something about it. It is the time required for an impulse to travel along the nerves from the eye, the ear, or the skin up to the brain, through it and back down to the muscles to put them in motion. Whatever starts this impulse is spoken of as the "stimulus," and what the muscles of the body do is called the "response" or "reaction." The driver's reactions are obviously very important in controlling vehicles which may travel several times their own length while the driver is reacting to a traffic situation.

Kinds of Reaction Time

For purposes of considering reaction time in connection with automobile driving, reaction time may be divided into four general types, each of which may be subdivided in many different ways.

a. *Reflex* reaction time is the shortest because the response follows the stimulus automatically and involuntarily. The brain does not enter into it at all. The "knee-kick" reaction used in physical examinations is of this type and requires only .03 of a second. Winking the eye is another of this type and requires but slightly longer, about .05 of a second. Judgment has nothing to do with reflex reaction. It is what makes a chicken flop after its head has been cut off.

b. *Simple* reaction is that which occurs when a person expects a stimulus and is all set to do one simple thing when he receives it. This is the most common type of reaction and occurs when a driver starts to let his foot off the clutch as the green light comes on. It is much longer than reflex reaction, but the length of time depends upon which sense receives the stimulus and what muscles give the response. From feeling something with one hand to moving the hand will require in the neighborhood of a tenth of a second. The ears work a little more slowly, but the eyes are still slower, and from the time one sees something until he can move a finger is about .20 of a second. It takes a little longer to move a foot or leg, partly because the nerve-path is longer, and partly because the larger limbs with their heavier muscles are a little slower in starting to act.

c. *Complex* reaction time is more complicated and therefore longer. In this kind of a reaction, the person may receive any one of several stimuli to which he must make the correct one of several responses. He knows definitely which response to make for each stimulus, and he is more or less expecting the stimulus. Examples: the football player receiving "signals"—if he gets one he jumps to the right, if he gets another, he jumps to the left; the signals of a driver ahead, indicating which way he is to turn, thus causing the following driver to turn right or left or slow down; the signals of an officer at an intersection upon which the motorist must either stop or move or turn in a familiar way. The length of time required for a complex reaction depends upon how complex the reaction must be.

d. *Discriminative* reaction takes place when a person is required to make a quick choice between alternatives, for example, to decide whether to take the ditch or risk a crash from a vehicle cutting in ahead. The time required to make this judgment makes discriminative reaction time much longer than any of the others. It may be a matter of several seconds, but no exact average figures can be given because the time differs for each different situation. Situations requiring discriminative reaction time are rather rare in traffic, but they are usually emergency situations.

How Reaction Times Vary

All forms of reaction time vary from one individual to another, and from one time to another in the same person. The more complicated reaction times, such as complex and discriminative, vary more than the reflex and simple reaction times do, both between individuals and in the same person at different times.

Reaction time varies slowly with age, very old and very young people being sluggish in their responses. For all people taken together, simple reaction time is least at about the age of 23 years. Women are usually a trifle quicker on simple reaction than men.

People usually react more quickly to a very strong stimulus than to a light one. A shout gets a quicker response than a whisper; a bright signal a more sudden application of the brakes than a dim one. More complex situations take longer for a person to react to than simple ones, very much longer.

Physical condition may change reaction time. Fatigue, for example, lengthens reaction time, at least of the more complicated types. Sickness may do the same thing. Alcohol slightly speeds up the reactions, at least for a little while (although some investigators claim that afterwards the reaction time is lengthened).

Distractions seriously increase simple reaction time and the more complicated types still more. Such distractions may include conversations with companions, listening to exciting radio broadcasts, worry about one thing or another, or even day dreaming.

Reaction Time in Driving

Automobile driving is almost a continual series of reactions. On a straight, smooth, unoccupied highway, the driver may go as much as 30 or 40 seconds without reacting, but in city traffic or in any complicated maneuvering of the car, such as in parking, driver reactions occur so frequently that one is started before another is finished. In fact, two or three may be "in process" at the same time.

In a new driver, most of these will be discriminative or complex reactions, but as the driver becomes experienced, more and more of his reactions become fixed habits so that a seasoned motor vehicle operator will drive largely by simple reactions and the less complicated forms of complex reactions. For him, responses which a novice would have to think about come quickly and automatically. He may deal with an emergency situation by a couple of simple reactions, such as putting on the brakes and blowing the horn, while at the same time a complex reaction is started by which he swerves to the right or left, and also a discriminative reaction which is a decision about how he will brace himself for the collision. If the accident occurs quickly, the longer discriminative reaction may never be completed, particularly if the man is a "slow thinker."

Reflex reactions probably do not occur very frequently in automobile driving. Most of them are "instinctive" but when they do occur it is probably in emergencies. Thus, when the stimulus of an emergency situation is violent enough, some people (and perhaps all people) break down, and instead of a considered and controlled reaction appropriate to the situation, their muscles leap into action without waiting for instructions from the brain. They may throw up

(Please turn to page 70)

NATIONAL SAFETY NEWS

Mercurochrome in Industry



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



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

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

JANUARY, 1936

METHANOL

Industrial Data Sheet D-Chem. 18

A. Problem

1. What hazards are encountered in using methanol and what precautions are necessary?

B. Hazards

2. The principal hazards are the toxic effects when: —

- a. Swallowed.
- b. Inhaled through the lungs.
- c. Absorbed through the skin.

C. Discussion

3. Methanol is a colorless, volatile, flammable liquid with a taste and odor resembling that of ethyl (grain) alcohol. It is also known as methyl alcohol, wood alcohol, wood spirits, Columbian spirits, wood naphtha, methyl hydrate and carbinol. It is obtained principally by the destructive distillation of hard woods, although the production of synthetic methanol has increased considerably in recent years. It is the most flammable and the most toxic of all the alcohols. Methanol has a flash point of 30 degrees Fahrenheit and burns with a non-luminous flame, at which time it gives off the odor of formaldehyde. It is shipped in iron drums bearing red labels. It mixes readily with other alcohols, water, ether and chloroform. It is used extensively in the arts and crafts; in the manufacture of varnishes, shellacs, paint removers, lacquers, essences, perfumes, and denatured alcohol; as a solvent of gums, dyes and resins; as a cleaner of type and as an anti freeze in automobile radiators. It is also employed in many industries where shellac, varnish and lacquers are used, such as in making picture frames, varnishing the interior of beer vats, shellacing knots in boards, and in varnishing and lacquering furniture, pencils, musical instruments, toys and wooden patterns.

Symptoms

4. Methanol has a cumulative effect on the body, and individuals show remarkable variations in their susceptibility to it. The immediate symptoms somewhat resemble those of ethyl (grain) alcohol. The results from swal-

lowing the liquid or inhaling the fumes include headache, nausea, vomiting, violent abdominal pains, muscular incoordination, weak and rapid pulse, labored and difficult breathing, restlessness, dilated pupils, low body temperature, cold moist skin, sometimes delirium and blindness, generally coma, infrequently convulsions and death from respiratory failure. Eye effects are usually manifested within 48 hours by pain around the eyes, tenderness on pressure of the eye balls, pupil dilation, blurring of vision and finally blindness. Total blindness may be sudden. At times complete or nearly complete vision is regained, but frequently the vision is again suddenly and permanently lost, especially if the optic nerve has been severely injured. In general, death may occur within 36 hours after swallowing one to two ounces of methanol, although it may occur in an hour or be delayed for three or four days. Blindness or disturbances of the vision have been reported after swallowing a quantity as small as one-half ounce.

5. Direct action of methanol liquid or fumes on the skin is not as disastrous as when swallowed or inhaled. However, it so irritates the skin of the hands and arms that they become inflamed and often lesions form and eczema or dermatitis may follow. It severely irritates the membranes of the eyes and eyelids, causing them to become so badly inflamed and swollen that they may become infected and often affection of the retina, and either temporary or permanent impairment of sight follows.

Treatment

6. Methanol coming in contact with the skin should be immediately washed off with plenty of clean, fresh water.

7. If methanol has been swallowed, an emetic such as warm water and salt should be given to induce vomiting, and the services of a physician secured without delay.

8. In case methanol fumes have been inhaled, some recommend that the patient inhale the fumes of diluted amyl nitrate or ammonia and obtain the services of a physician at once.

Precautions

In any workroom where methanol is in the atmosphere in excess of one part per 10,000 volumes of air, adequate means of forced ventilation should be provided to remove the vapors. (See Note W).

10. When it is necessary for an employee to work in an enclosure where methanol fumes are present, and adequate forced ventilation is not provided, he should be provided with and required to wear a fresh air hose mask. (See Note X).

11. In processes which require the hands and other parts of the body to come in contact with methanol, employees should be provided with and required to wear rubber frame goggles, rubber aprons, boots and gloves. (See Note Y).

12. As a precaution against possible absorption through the skin, clothes wet with methanol should be changed for dry garments at once.

13. Where methanol is spilled in a room, the area should be flushed with water, if possible, to prevent vaporization of the methanol.

14. All jugs, bottles, cans, barrels or other receptacles in which methanol is stored should be kept tightly closed and labeled "METHANOL (WOOD ALCOHOL)—POISON" with skull and crossbones.

15. All motors and their fittings used in workrooms where methanol vapor is present should be of the explosion-proof type. Artificial lighting of workrooms should be by explosion-proof electric incandescent lamps. No open flames should be permitted in such a room.

NOTE W: Detailed information on adequate ventilation and exhaust systems will be found in Safe Practices Pamphlets No. 37, "Industrial Ventilation," and No. 32, "Exhaust Systems."

NOTE X: For detailed information on suitable fresh air hose masks, see Safe Practices Pamphlet No. 61, "Respirators, Gas Masks, Hose Masks and Breathing Apparatus."

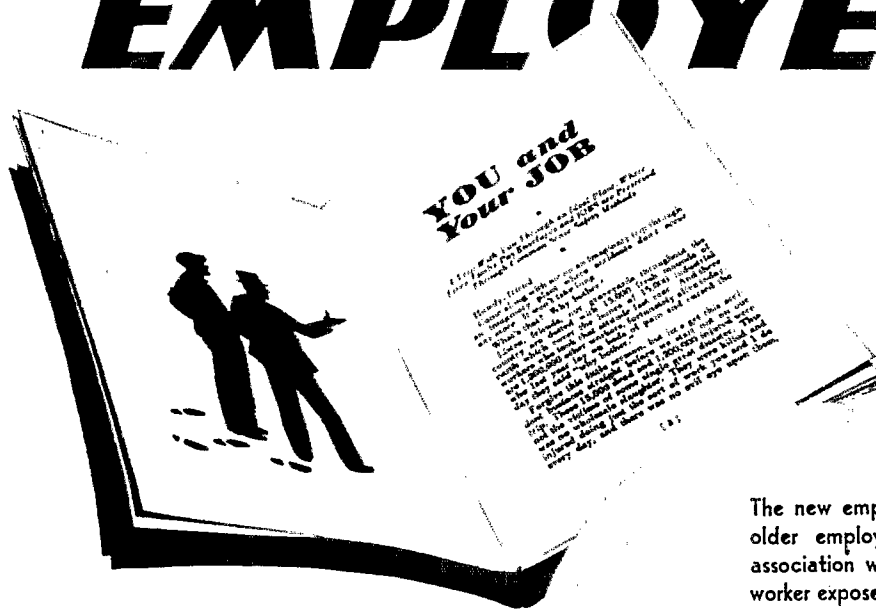
NOTE Y: For detailed information on goggles, aprons, boots and gloves, see Safe Practices Pamphlets No. 11, "Goggles," and No. 16, "Protective Clothing."

NOTE Z: For detailed information on explosion hazards of flammable liquids, see Safe Practices Pamphlet No. 34, "Industrial Explosion Hazards."

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

NATIONAL SAFETY NEWS

INTRODUCING *Safety* to the **NEW EMPLOYEE**



The new employee, green at his work; the older employee grown careless by long association with the same job; the trusted worker exposed to new hazards because of a promotion or a shift to another department — each is a vital problem in efficient, safe production. Each needs safety stimulation and knowledge.

"You and Your Job," a 40-page pocket-size booklet, will provide it. It backs up your own safety instructions, and augments your own safety rule book. And it is interesting, appealing — something they will want to read and study.

A sample copy, including quantity prices, will gladly be sent on request.

National Safety Council, Inc.

JANUARY, 1936

Chicago, Illinois

THE BULLETIN BOARD

A page for those who maintain the Show Windows of Safety

Conducted by STAN KERSHAW

A Challenge

SOME time ago I heard a tale of a native prince who purchased an expensive American car—custom-built to give him the utmost in luxury and speed. Although he could have built fine roads in his primitive land, he chose instead to ride in his magnificent vehicle over tangled trails—the high-powered car drawn by an elephant!

I have often thought of that story when I have observed the half-hearted efforts with which safety posters are sometimes used. Each poster is intended to perform a definite function. This fact was kept in mind every minute of the time that the poster was being designed.

Yet instead of helping the poster fulfill its mission by placing it in striking, attractive surroundings, some plants hinder it.

Of course this doesn't apply to all plants. However, I have seen enough to lead me to believe that in all the years safety posters have been in use justice has not been done to this phase of safety work.

Manufacturers of commodities put tremendous thought and effort into advertising their products. Retailers likewise spend enormous sums of money and employ technical experts to develop attractive ways of enticing the public to purchase their wares. They know from experience that good-looking window displays, flashing electric signs, attractively-worded well-laid-out advertisements in magazines and newspapers, and attention-compelling posters on well-located billboards produce results.

Safety, too, is a commodity—perhaps a little harder to sell than automobiles, jewelry, or clothing, but it is definitely a salable commodity, the more in need of a good advertising program because of the sales resistance encountered.

Never has it been so easy to produce fine-looking displays. The market abounds with all sorts of materials and gadgets which, with a little ingenuity, can be utilized to good advantage. There are almost innumerable materials of which bulletin boards may be fabricated; there are countless types of material to provide decoration, ranging

from inexpensive water color show card paints to highly-refined oil paints and lacquers, and from crepe paper to beautiful metal-foil covered corrugated paper.

The means of illumination extend from the ordinary electric light bulb to brilliant vari-colored neon tubes which can be twisted into a variety of shapes. There are also innumerable gadgets such as small motors, electric kickers, pulleys, belts, spindles and what-not to produce outstanding motion displays.

Many of these things may be procured at a very small cost. In fact, the average well-equipped dime store is almost a supply house for the man who wants to make really attractive bulletin board displays.

HERE we are in an age when the importance of advertising display methods is fully understood and the means of utilizing them are within the reach of practically every safety man; and yet it is still possible to visit many a plant in which safety posters and bulletin boards are slighted into ineffectiveness.

Why is it that in a period of such great progress there should be so little advance in this important branch of safety work?

And suppose a safety man prefers not to build his own bulletin boards, where can he find someone who will supply him with a variety of boards of modern design and built to meet the special requirements of plant poster display work? Where can he find someone who will, if the need arises, undertake to prepare his displays for him?

There are now hundreds of concerns which specialize in making advertising displays, and yet I know of none which has attempted to capitalize on the safety poster display idea.

Think of it! Over three million copies of the National Safety Council posters alone are used each year, and no doubt many hundreds of thousands of these are stuck up on bare walls or on decrepit, unprepossessing bulletin boards that would make a sheriff's office notice board look beautiful by comparison.

Suppose some wide-awake concern should enter the field with a complete

line of bulletin boards for indoor and outdoor use; stationary and portable boards; fine large boards for plant entrances and post and pedestal types for special locations and purposes; boards with interior and exterior illumination and with neon lighting and signs; a large line of display materials such as background boards, colored papers, show card colors and the various tools and implements with which to use them; and an assortment of inexpensive mechanical contrivances for use in making up motion displays; perhaps even a bulletin board caretaking service in some of the larger manufacturing centers.

Suppose such a concern were able to put into the field a large group of efficient salesmen schooled in the science of safety poster display work and acquainted with the problems of safety men in various industries?

Would such an enterprise meet with success in raising safety bulletin board work to the level where it should be? My guess is that it could be done and that it would be a mighty big factor in putting many a plant's safety job "over the top", besides making money for the man willing to attempt it.

And how about displays of posters to sell the idea of safety to the public?

We are about to witness a nation-wide drive to reduce motor vehicle accidents, 35 per cent by the end of 1940. Hundreds of communities will make organized efforts to do their part and will seek ways of carrying out poster display programs.

What facilities will these communities have for displaying posters? Will they print them on cards and tie them to lamp posts where the weather can play havoc with them? Will they ask the merchants to stick them on their display windows with untidy stickers?

There must be better ways, and what a fine thing it would be if some progressive manufacturer would come along with the right kind of bulletin board for street and window displays.

I believe these few paragraphs have pointed out one of the crying needs of the safety movement today, and they have at least partly suggested the answer.

Will someone meet this challenge?

NATIONAL SAFETY NEWS



THEY FOUGHT • THAT WE
MIGHT LIVE IN PEACE AND
SECURITY • WHY DO WE LET
ACCIDENTS MAIM AND KILL

NATIONAL SAFETY COUNCIL



SIGNS AND SIGNALS
ARE FOR YOUR PROTECTION
HEED THEM

NATIONAL SAFETY COUNCIL



NATIONAL SAFETY COUNCIL

**TO-DAY'S
THE
DAY
FOR
SAFETY**

NATIONAL SAFETY COUNCIL

**STAY
ALERT**
Driving
is a
Full-Time
Job

NATIONAL SAFETY COUNCIL

BE
**SAFE
OR
you'll be
SORRY**

NATIONAL SAFETY COUNCIL

Use Common Sense
Precautions
When Using Electricity



Keep the cords of electrical
appliances in good condition.



Never use an electric appliance
while in the bath tub.



Be sure there is an insulator
in all pull chains near stoves
and radiators.



Avoid pulling plugs out by
means of the cord—it pulls
the wires loose.



Keep extension lamp globes
guarded.



Call in an experienced elec-
trician to make needed repairs.

NATIONAL SAFETY COUNCIL

**WHAT IF
NO ONE
PRACTICED
SAFETY**



NATIONAL SAFETY COUNCIL

**THE END OF A
PERFECT DAY**



NO ACCIDENTS—Everyone
home safe and sound

NATIONAL SAFETY COUNCIL

KEEP FIT



SAFETY
REQUIRES CLEAR THINKING
REQUIRES GOOD HEALTH

NATIONAL SAFETY COUNCIL

GET FIRST-AID

for cuts and scratches

not
sometimes-
EVERY
TIME!



"I've Learned MY Lesson"

NATIONAL SAFETY COUNCIL

Safety

ON LAND AND SEA
A NATIONAL IDEAL



NATIONAL SAFETY COUNCIL

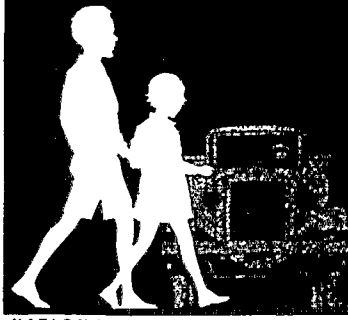
RECKLESS DRIVING IS UNSAFE

*and mighty
poor*
ADVERTISING
for the
COMPANY

NATIONAL SAFETY COUNCIL

DRIVE

AS IF THEY WERE
YOUR OWN



NATIONAL SAFETY COUNCIL

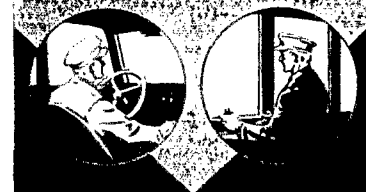
be a
LIFE SAVER



teach others
TO BE CAREFUL

NATIONAL SAFETY COUNCIL

Keep Your Passengers SAFE and FRIENDLY



**By Starting
and Stopping
SLOWLY**

NATIONAL SAFETY COUNCIL

USE YOUR HEAD

and SAVE YOUR BACK

THE WRONG WAY!



THIS WAY THE
WEAK MUSCLES
ARE STRAINED



LET YOUR LEG
MUSCLES BEAR THE
STRAIN



THE RIGHT
WAY!



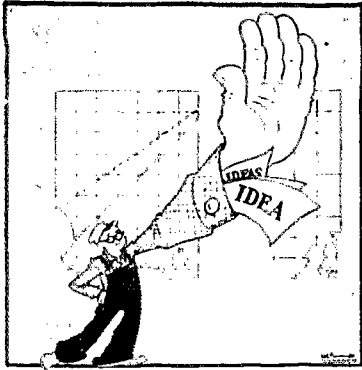
NATIONAL SAFETY COUNCIL

WHY RISK

your own neck

when you
can learn
from the
experiences
of others

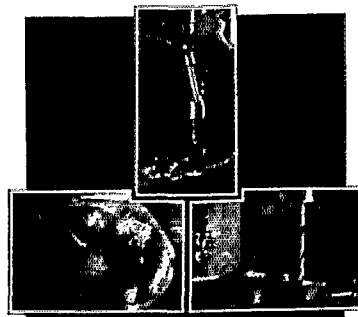
NATIONAL SAFETY COUNCIL



**HAVE YOU ANY
SAFETY IDEAS
UP YOUR SLEEVE? IF SO
LET'S HAVE 'EM**

NATIONAL SAFETY COUNCIL

**A GRIPPING STORY
IN THREE PICTURES
AND THREE WORDS:**



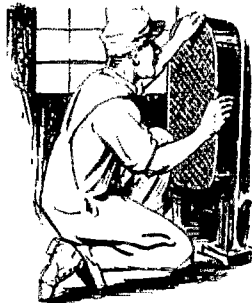
USE A CLAMP!

NATIONAL SAFETY COUNCIL

**IT'S EASY TO SEE
THE CHANCES THE
OTHER FELLOW
TAKES — But — — —**

*How about
yourself?
Are you
doing all
you can
to prevent
accidents?*

NATIONAL SAFETY COUNCIL



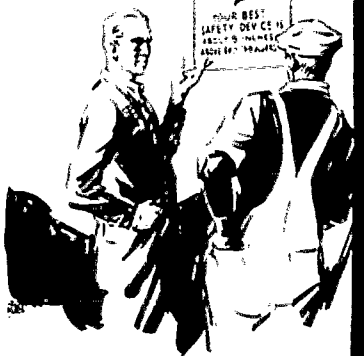
YOU are expected to use all safeguards and safety appliances that have been provided for your protection.

GUARDS must not be removed except for necessary repairs, oiling or adjustments.

GUARDS must be replaced immediately after the repairs, oiling or adjustments have been completed and before the machinery is started.

NATIONAL SAFETY COUNCIL

**"SAFETY
IS JUST
COMMON
SENSE"**



NATIONAL SAFETY COUNCIL

**Never
depend
on the other
fellow —**



**DRIVE
SAFELY
YOURSELF**

NATIONAL SAFETY COUNCIL

**A SLAP
on the Back
may cost
A Finger.**



**Be Friendly
but
USE GOOD
Judgment
about it**

NATIONAL SAFETY COUNCIL



**Keep oily rags and waste
in the proper cans and
they'll do no harm if
they ignite spontaneously**

NATIONAL SAFETY COUNCIL

**PROPS
ARE FOR
YOUR
PROTECTION
USE
THEM**

NATIONAL SAFETY COUNCIL

NEVER FLY KITES NEAR ELECTRIC WIRES

and
NEVER USE WIRE
OR TINSEL CORD
FOR KITE STRING



NATIONAL SAFETY COUNCIL

-Home Trou-
-Accidents-
-Worry-

-Personal Injury-
-Arguments-
-Grudges-

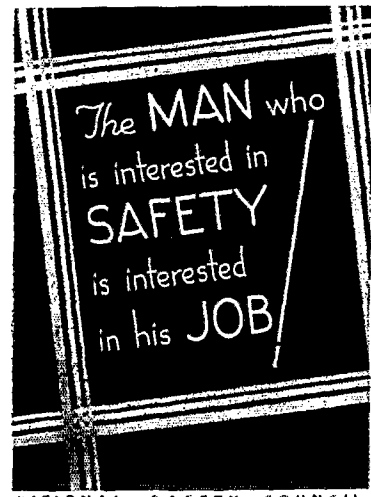
WORRY NEVER HELPED ANYONE

When things go wrong, worry never helps. It just
hurts you and the answer to your trouble. There are
several good rules. Remember them:

1. Be realistic. Making and keeping trouble helps
you to forget your trouble.
2. Don't let things get you down. The trouble
may be a lot worse than it seems at first.
3. Concentrate on your work while you are work-
ing. Concentrate on your work while you are
working.
4. If you are worried, the trouble is not that you
are in trouble.
5. Don't let things get you down. The trouble
may be a lot worse than it seems at first.
6. Don't let things get you down. The trouble
may be a lot worse than it seems at first.
7. Don't let things get you down. The trouble
may be a lot worse than it seems at first.
8. Don't let things get you down. The trouble
may be a lot worse than it seems at first.
9. Don't let things get you down. The trouble
may be a lot worse than it seems at first.
10. Don't let things get you down. The trouble
may be a lot worse than it seems at first.

REMEMBER: Worry is not
the answer to your trouble.

NATIONAL SAFETY COUNCIL



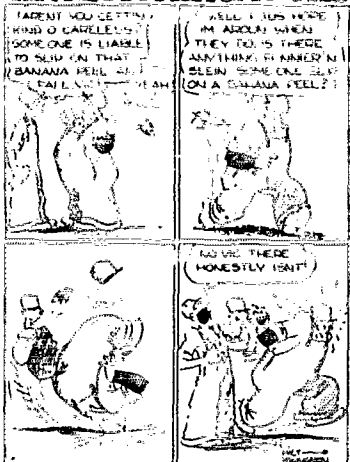
NATIONAL SAFETY COUNCIL



UNSAFE TOOLS
HAVE PUT MANY
A STRONG MAN
FLAT ON HIS
BACK

NATIONAL SAFETY COUNCIL

THERE'S A MORAL TO THIS



NATIONAL SAFETY COUNCIL



Colds are
Contagious

Cover
your Sneezes
and Coughs



If he keeps it
on his work

NATIONAL SAFETY COUNCIL



WEAR
SAFE CLOTHING

NATIONAL SAFETY COUNCIL

AIR

your

ROOMS.

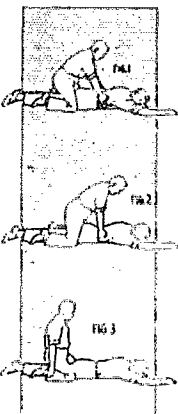
NOT

your

TROUBLES

NATIONAL SAFETY COUNCIL

ARTIFICIAL RESPIRATION-Reminder



1. Lay patient on belly, not on forehead, and head on other. Turn face and head resting on hand or forearm.
2. Kneel, straddling patient's thighs (Fig. 1).
3. Place the palm of hands on small of back, little fingers just touching the lowest ribs.
4. With arms straight, swing forward your body, bringing weight of your body to bear upon patient. (Fig. 2) Take a count two seconds for this operation.
5. Immediately swing back and no contact pressure. (Fig. 3).
6. After two seconds, swing forward again. Repeat twice to blow once a minute.
7. While artificial respiration is being practiced have someone else loosen your clothing. Keep patient warm and lying down. Do not give liquid; but moisten lips and face a little.
8. If you are upon those breathing, repeat artificial respiration. It may be necessary to continue four hours or more.

NATIONAL SAFETY COUNCIL

If you must



please use a cuspidor

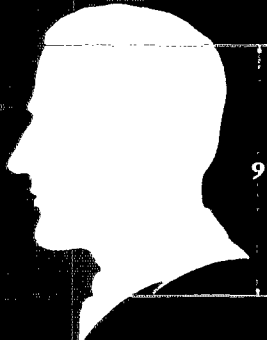
NATIONAL SAFETY COUNCIL

WE WOULD RATHER



-HAVE YOUR SUGGESTION FOR PREVENTING AN ACCIDENT THAN AN ACCIDENT REPORT

NATIONAL SAFETY COUNCIL



YOUR BEST SAFETY DEVICE is about nine inches above your shoulders

NATIONAL SAFETY COUNCIL

WHATEVER YOUR JOB



USE EVERY SAFEGUARD

NATIONAL SAFETY COUNCIL



YOU MIGHT BE THE MAN Below

So never leave tools where they may fall

NATIONAL SAFETY COUNCIL

ANGER



When you get 'sore' at your neighbor your job or yourself-Look Out / you'll be ripe for an accident

NATIONAL SAFETY COUNCIL

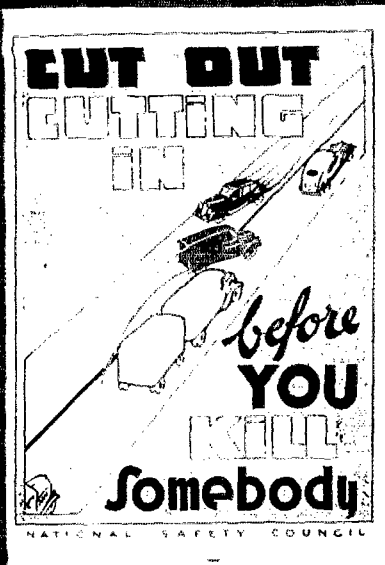
CARBON MONOXIDE KILLS without warning



The exhaust from all gasoline engines contains this deadly gas—Look out for it particularly in closed garages or closed cars

PROTECT YOURSELF WITH PLENTY OF FRESH AIR

NATIONAL SAFETY COUNCIL



SON-YKNOW THE
SMART ALECK WHO
THINKS HE KNOWS
IT ALL - USUALLY
DOESNT KNOW MUCH
ABOUT SAFETY



NATIONAL SAFETY COUNCIL

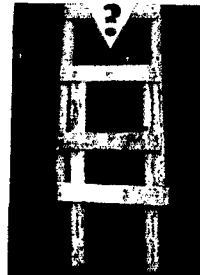
WINTER
tests your
driving ability



Can You drive thru it
WITHOUT
An Accident

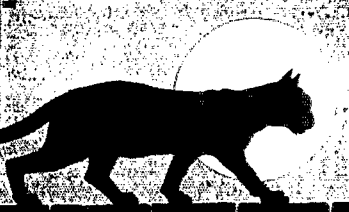
NATIONAL SAFETY COUNCIL

**HAVE YOU ANY
LADDERS LIKE
THIS ON YOUR
JOB**



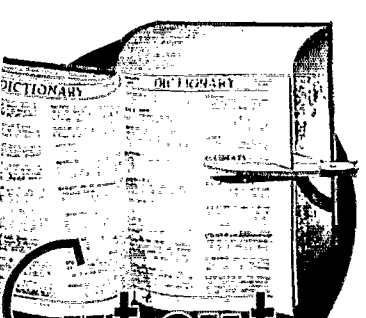
**DESTROY
THEM**

NATIONAL SAFETY COUNCIL



Watch your step
As I watch mine
You've only one life
I've got nine!

NATIONAL SAFETY COUNCIL



**cut out
accidents
FOR ALL TIME**

NATIONAL SAFETY COUNCIL



**GOOD
HOUSEKEEPING**
The **FOUNDATION
of SAFE AND
PLEASANT WORK**

NATIONAL SAFETY COUNCIL

**YOU'LL
ADMIT**
THERE'S NOTHING
FUNNY ABOUT
INJURING A
FELLOW WORKER
THEN
LET'S STOP
HORSE PLAY

NATIONAL SAFETY COUNCIL



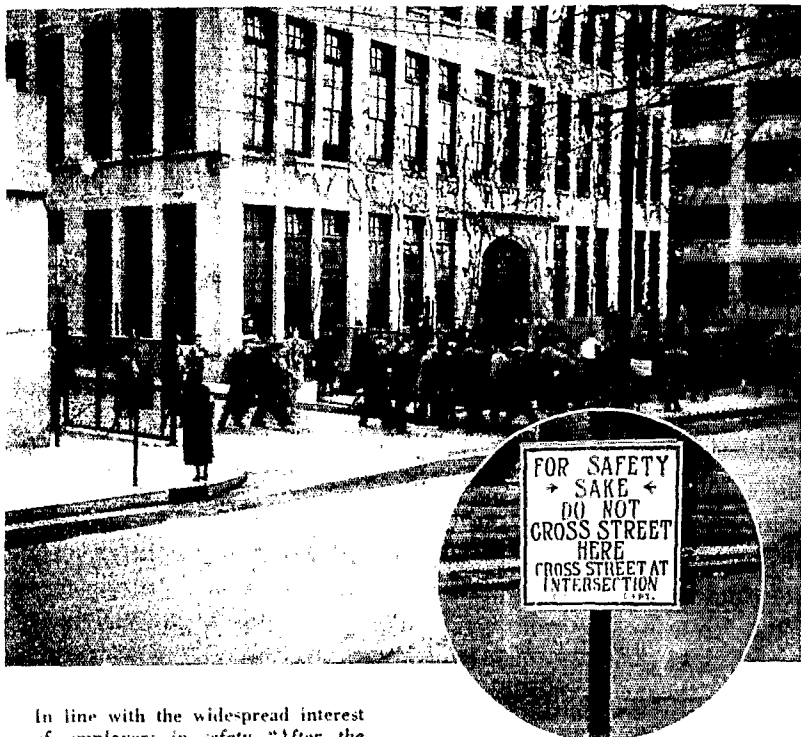
**HOW SAFE
are YOUR
SHOES**

NATIONAL SAFETY COUNCIL

**YOU ARE
NOT
REQUIRED
TO TAKE
CHANCES
OF
INJURY**

NATIONAL SAFETY COUNCIL

Safety Isn't Forgotten When the Whistle Blows



In line with the widespread interest of employers in safety "After the Whistle Blows," the Westinghouse Lamp Company is encouraging employees to stay on the sidewalks after they leave the plant. Inset: signs erected on either side of the main entrance to remind employees to cross at the designated crosswalks.

A SAFETY drive was started November 20 by the Westinghouse Lamp Company, Bloomfield, N. J., to remind its employees of the danger in jaywalking when leaving the factory at quitting time and lunch periods. The drive is sponsored to establish a regular safety procedure for crossing the street when leaving or entering the main gate which is in the middle of the block.

When the whistle blows for the six lunch periods and quitting times during the day and evening at the local plant, several thousand employees swarm into the street from the main gate. In an attempt to minimize this hazard, safety circulars were distributed to all employees using this entrance. These circulars show a map of the street around the main entrance and indicate where employees should not cross the street.

Through the cooperation of local police, near-by streets have been marked with cross-walks. All the employees are

being encouraged to use the cross-walks upon leaving and returning to the factory. Signs erected near the main entrance by local police are a constant reminder to cross the street only at the cross-walks.

Monitors, one man and one woman, were selected to guide the crowd for the three-day period, which inaugurated the permanent safety plan. They were identified by green arm bands, marked "safety."

First Aid Treatment of Burns

(Continued from page 36)

cartilage or bone to warrant immediate resection of the eschar. Essential structures, such as large vessels, nerves and joints, should certainly be spared, if there is any doubt in the operator's mind as to their possible viability. Welles states, however, that experience has taught that the great majority of electric burn cases are far more successfully handled by complete resection and immediate closure by suturing and skin grafts, than by any other method.

I have purposely detailed and empha-

sized the physician's treatment of burns because in this manner the immediate treatment by the first aider should be logical and apparent. The procedure initiated by him should be such that it not only takes care of the immediate emergency but can be maintained and continued by the doctor.

The first step, of course, should be the removal or neutralization of the causative agent.

The second step is the application of a material that will exclude the wound from the oxygen, thus putting out the fire in the tissue, and abort the exudation of fluid. If tannic acid is to be used by the surgeon, this then can be applied by the first aider. A ready five per cent solution of tannic acid can be available by having a quart jar of sterile water and 1.6 ounces of tannic acid crystals each in separate containers. Adding the crystals to the water just previous to application establishes a fresh solution. I personally prefer to have a second top which has been perforated, for the jar, which is screwed on after the crystals are added to the water. The inversion and shaking of the jar forms a sprinkler. The burned parts, including those areas which have parts of clothing adhered to them, are thoroughly saturated even into all bends and crevices. The part may then be covered with a sterile dressing and this dressing soaked with the solution. In the case of small burns and those in proximity to the eyes, an ointment containing five per cent of tannic acid may be applied.

Third, if the patient is conscious, insist that he drink two glasses of water immediately and another glass each half hour until he comes under the doctor's care.

Fourth, get the patient to the hospital as soon as possible so that further fluid intake measures may be instituted and shock combated.

Many lives can be saved, prolonged invalidism can be shortened and deformities averted if burns are treated on a well planned procedure. This effort must be initiated by the first aider and carried on through the doctor, both having the same basic thought in mind—"That what I do now, immediately after the accident has occurred, and what I do throughout the entire case, have all been with the constructive idea of saving the building from toppling, of shoring up the parts so that they can stand repair, then repairing the parts in such a manner that the splices and flows are least evident, and the integral sections will work in harmony, and function as before the catastrophe."

NATIONAL SAFETY NEWS

Safeguarding Your Service



Skilled maintenance men guard your telephone service day and night. As a result of their vigilance, both local and long distance calls go through more quickly and accurately.

IT IS easy to telephone, but there is nothing easy about giving you good telephone service. It takes many thousands of trained employees to do that.

A considerable part of this work is handled by the Central Office men. Their job is to safeguard service — to prevent trouble from getting a start.

They are constantly testing lines, circuits, switchboards and other equipment — working with outside repair men — performing the thousand and one tasks that keep things running right and prevent

their going wrong. This work goes on twenty-four hours a day — every day in the year.

The “trouble shooters” of the Bell System work quickly, effectively because of careful training and long experience. Their loyalty, skill and resourcefulness are a priceless tradition of the telephone business.

It is no accident that your telephone goes along for so many months without trouble of any kind. The Bell System gives this country the most efficient, reliable telephone service in the world.

Bell Telephone System



The Safety Man Can't Do It Alone

(Continued from page 11)

If it is management's attitude that accidents are bound to happen, then certainly accidents will happen. If on the other hand their philosophy is that accidents are indications of inefficiency, that they interfere with production, that they cost money, that they are a waste which can be controlled and that they are a bad personnel influence, that is to say, that if the management views its accidents as a disgrace to the industry and an indication of *management* inefficiency, then we have a correct and reasonable preamble to the safety movement. This attitude is one which the so-called safety man has a right to expect of his management.

Let us view some of the factors involved in safety activity, and please remember that these several factors are common to both safety and effective production, that is, their application to safety is merely incidental to efficient operation. These factors are all items which concern the management, but, of course, they are not all of the items which apply to safety with which management is concerned.

These factors are: Selection, which includes assignment of men; Training; and Supervision of Operations.

I. SELECTION

1. *Selection of Employees.* As indicated previously, it is necessary that great care be exercised in the selection of the men who are to do the work of an organization, because these are the people with whom supervision has to deal. Besides the mental and physical qualifications determined by the nature of the work to be done, it seems to me that there is to be considered another quality which is quite important not only from an accident prevention standpoint, but also from an all around performance standpoint. It may be called the *moral* quality and it includes consideration of the individual's conduct on the job, his ability to fit in with the other members of the group, his reaction to discipline and his obedience to instructions.

2. *New Men.* The reception and treatment of a new man on the job very often determines his future with the Company. He should be impressed with

the importance of efficient performance, including safe workmanship. He should be carefully directed and observed, especially during the early period of his employment. Before assignment to any task, his foreman should see that he is thoroughly trained in the correct method of performing the task; after which he should be guided until he becomes proficient. It is important that the new employee form correct habits of work under the immediate direction of his foreman or of an assigned capable, experienced employee.

3. *Assigning Men.* Consideration shall be given by the foreman to the employee's particular fitness for the work to which he is assigned. A difficult job calls for an experienced man. A job on which there is greater than ordinary possibility of accident should be assigned to an experienced, dependable man. Several important items are to be considered before assigning men to difficult jobs. These include physical, as well as mental, and particular ability.

II. TRAINING

1. *Training of Men.* Probably the most important responsibility of a foreman or supervisor is that of training. Workmen should be trained in the approved methods of performing the work and should be directed in order to see that these methods and no others are used.

2. *The Supervisor's Knowledge of the Job.* The supervisor or foreman being the director and trainer of men, it is necessary that he be more familiar than anyone with the job requirements. He must know the correct work methods otherwise how can he teach them. He must be taught how to supervise and how to teach.

III. SUPERVISION

1. *Planning the Work.* Supervisors should appreciate the necessity for planning each job so as to insure its safe and efficient accomplishment. The job should be surveyed to ascertain the conditions to be met and to determine the methods to be used. If there are dangers involved, plans should be immediately and defi-

nately made, in order that accidents shall not happen.

2. *Definite Instructions.* In situations involving more than ordinary accident possibilities, definite and exact instructions should be given regarding things to be done and methods to be used. Statements should be concise and understandable, so that there may be no chance of misunderstanding.

3. *Personal Supervision at Danger Points.* In crew operations, if the preliminary survey discloses greater than ordinary accident possibilities, the work should be planned so that the foreman will be present to direct it at the danger points.

4. *Discipline.* This means training men to act in accordance with established rules. The supervisor is concerned with having his men conform to the rules of the company. The foreman is the company as far as his employees are concerned. He should speak with authority and insist that his instructions be fully and completely carried out.

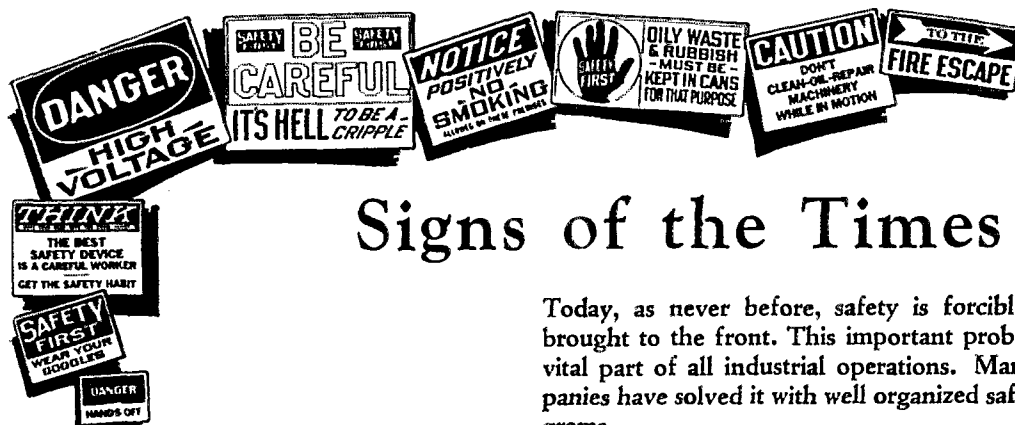
5. *Inspection of Work.* Good work welcomes critical inspection. Frequent inspection of work in progress and of completed work is necessary to insure that standards are being met.

6. *Set Good Example.* The foreman who takes chances, who violates safety rules himself, or who overlooks infractions by his men, stands a poor chance of obtaining the cooperation of his workers in safety. If he is sincere in his safety endeavors and strictly follows and enforces the rules, he earns the respect of his men. A good example is necessary to obtain discipline.

* * *

However, as was stated initially, we believe that safety is incidental to efficient performance. If the job is done right, with regard to quality and quantity performance, then safety must be included as one of the factors entering into this accomplishment. We plan our engineering and it is just as necessary to plan safe performance of a job. We must keep in mind that accidents are a measure of the ability of our people to manage and to supervise.

The title asks the question "What does the safety man expect of management?" My answer is that he expects the management to take unto itself the responsibility for the safe performance of the work. That it does not blame men and machines for accidents to men or for production failures. He expects man-



Signs of the Times

Today, as never before, safety is forcibly being brought to the front. This important problem is a vital part of all industrial operations. Many companies have solved it with well organized safety programs.

Attention getting and durable signs will do much to back up your safety program and rules. Stonehouse Steel Signs are made in standard colors and designs for your safety work—hundreds in stock for immediate shipment.

Have you received your copy of the complete Stonehouse Sign Catalog No. 4? If not, copies are available for the asking.



"Signs Since 1863"

 **Stonehouse**
SIGNS, INC.

Ninth at Larimer
DENVER COLORADO



Better Safer...

RESPIRATORS

with the Original

DOUBLE FILTER CHAMBER

DUPOR

REG. U.S. PATENT OFF.



BULB VALVE TYPE NO. 4

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

Price \$18.00 per doz.

Sample postpaid \$1.50

CHIPPEWA-A

DUPOR is really two ordinary respirators in one because of its double filter arrangement. It provides greater filter area thus enabling slower passage of air through the filter pads. This not only enables easier breathing but provides better filtering because more dust and spray is caught. Order your DUPOR today. Once you try it you will never be satisfied with any other.

THOUSANDS OF DUPOR RESPIRATORS NOW IN USE

Used for all kinds of dusts, smoke, light fumes, vapors and paint spray that is free from harmful gases.

BASIC PATENT NO. 2,000,064
DETAIL PATENTS PENDING AND ALLOWED

MANUFACTURED ONLY BY
H.S. COVER

BULB VALVE TYPE NO. 5

This DUPOR has enlarged adjustable filter chambers of screw cap type and the very large aperture of 11½ sq. in. Extra ½" thick pads 3c each. The exhalation valve takes care of moisture and enables easier breathing. Made of soft, high grade rubber with face cloth. Foldable and reversible.

Price \$24.00 per doz.

Sample postpaid \$2.00

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

agement to have a reasonable and sound philosophy concerning the safety of their personnel and to treat the safety work, not as a thing apart, but as part and parcel of sound operations. He expects the management to have a plan for the training of foremen and men; and to permit him, the safety man, to direct the methods and practices to be used in production; and to direct the supervision of work in order that failures will be kept at a minimum.

How does he get these things? He gets them by going after them. First, by setting himself straight as to the real relation of safety to operations—that accidents are operating failures, then by selling his management on these princi-

ples. This, it seems to me, can be advanced by the analysis of accidents that have happened, tracing their causes to management failure. Then he must inculcate in every management person an appreciation of this viewpoint that "the successful promotion of accident prevention work is largely a matter of executive interest, and unless management takes the lead and unless the employees generally recognize that management is leading, no plan of safety can hope to function."

If the safety man does his job well he may get his reward from the management or he may get it in heaven. If he fails, he can expect to catch hell in large, unadulterated doses.

Reaction Time

(Continued from page 36)

their hands, close their eyes, or grow practically rigid all over.

In the case of a driver, the reflex reaction is almost always wrong. There is good reason to suspect that the loud report and sudden lurch of a tire blowing out stimulates the driver's senses so violently that reflex reaction ensues. It is the driver, not the car, which is out of control.

Other things being equal, a short reaction time makes a better driver. But reaction time alone is a most unreliable index of driving ability. For example, if the eyes cannot see accurately enough, or if the ears are dull, situations on the highway which should stimulate the driver may not do so at all. Hence, no reaction may follow, or the stimulus may be wrong, as in the case of a driver with a "phoria" which causes temporary double vision. Nor is reaction time any more important than the ability of the muscles to respond.

Equally important with time of reaction is its accuracy. There is no benefit from a quick reaction if it is the wrong one. Most drivers react correctly to traffic signals. They stop on the red and go on the green, but if these were switched the danger would be greater if he reacted quickly than if he acted slowly.

A driver cannot do much to improve his simple reaction time. He can, particularly with instruction, improve the accuracy of his reactions. By practice he can also shift actions which require discriminatory reaction time into the

category of simple or complex reactions. He can also adjust his driving to his reaction time so that he does not get into difficult situations.

Measuring Reaction Time

Accurate measurements of reaction time require rather complicated equipment, usually split-second electric clocks which are started when the stimulus is given and stopped by the reaction. The average of a large number of readings must be used, because the reaction will not always be exactly the same, and the tests must be given in a room where there are no distractions.

There are many ways, however, of making simple demonstrations of reaction time. These measure only simple reaction time and under such varied circumstances that their results are not always comparable.

a. The human chain method is easily demonstrated. Let 10 to 100 persons take hold of each others' hands so as to form a long chain. Instruct them that when one hand is pressed to grasp with the other hand; then when the second hand of a watch passes 60, to squeeze the hand of the first man in the chain who passes it to the second, and so on, the last man raising his hand to signal that he has received the "message." Note the time and divide the number of seconds elapsed by the number of people in the chain, which will give the average simple reaction time. This will usually be between $\frac{3}{4}$ of a second and one second. Two or three trials may be necessary before everybody gets the idea.

b. Coin dropping is another method. Hold a coin four feet above the floor so that it will drop upon an indicated spot near the right foot

of the person being tested. Then ask him to move his foot so as to intercept the coin when you drop it. The coin will take almost exactly half a second to fall four feet, therefore, if he intercepts the coin his reaction time is less than half a second. The difficulties with this method are that many people apparently show long reaction time because they have to glance down from watching the coin to watching their foot, and because it is difficult to hold the coin in such a way that it will fall upon the exact spot indicated.

c. Reactometers have been prepared which measure roughly reaction time for use in automobile shows and elsewhere by insurance companies, etc. As a rule these measure reaction time only to within half a second, often operate under very distracting conditions, and measure not only the actual reaction time, but also the time required to move the foot from an accelerator to a "brake." They are valuable as an educational medium if properly tied in with safety, but are not suitable for scientific uses, nor for the selection of drivers.

d. Pavement paint marks left by guns which fire cartridges filled with pigment when the driver is given a signal to apply the brake, and again when he begins to do so, are sometimes used to measure reaction time. The distance between the paint marks and the speed of the car permits the calculation to indicate the elapse of time. It is a spectacular demonstration, but the equipment is expensive to construct and operate. The speedometer must be carefully calibrated, the tires maintained at the proper inflation, and the signal given when the speed is exactly controlled, all of which makes this a crude method, even when the possible distractions are not taken into account.

e. Differential pendulums may be used to measure reaction time quite accurately. Two of these are hung by strings or sticks side by side, but one is a bit shorter than the other. By releasing the two together and counting the number of swings until they are in step again and measuring the time, the difference in time between the two per swing may be calculated by simple division. Then, if the person being tested is asked to release one pendulum as soon as he sees the experimenter release the other, the swings may be counted until they are in step, and this number multiplied by the differential time gives the reaction time of the individual.

Any test must be repeated at least a dozen times to get a good reading on the individual. There are other tests, some extremely complicated and some intended to measure various kinds of complex reaction.

Selecting Drivers

Reaction time is useful in weeding out the good drivers from the bad ones only when accompanied by other tests such as those for vision, strength, motor control, knowledge of rules, driving habits, etc. There are only a few psychologicals in the country with the training and equipment to give such tests. A single test for reaction time is no better for predicting a man's driving ability than a test for blood pressure is

NATIONAL SAFETY NEWS

for determining his health. Blood pressure tests must be supplemented by other tests and observations.

Demonstrations of reaction time are valuable in arousing interest at safety meetings. They are sufficiently new to be entertaining. Two things must be emphasized, however. One is the distance which a car will travel at different speeds during the reaction time, in addition to the stopping distance of the vehicle, (See Public Safety Memo No. 22) and the other is the fact that other drivers may have longer or shorter reaction times, and thus do not act as quickly or as slowly as one might expect.

The reaction time of drivers is an important factor in certain traffic engineering problems. In determining the spacing of vehicles at various speeds, and thus the capacity of the roadways, it is a factor in how close to the car ahead drivers will or ought to drive.

In calculating the length of yellow warning signals, it is important that reaction time, as well as stopping distances be taken into consideration.

Reaction time is one of the things which determines the number of vehicles which can pass during a certain period, particularly at isolated signals. For these purposes, average reaction times are not as useful as those which are nearer the extremes, because the equipment must be designed to take care of even those having slow reactions.

Film Makes Strong Appeal for Safe Driving

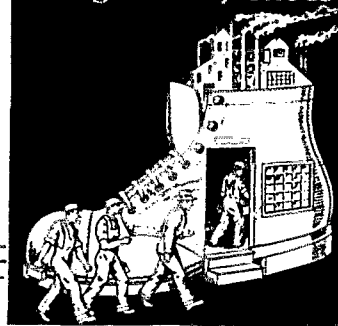
"WHEN you are tempted to take a chance or step on the gas, just remember Jimmy, and for the children's sake, drive carefully."

This is the appeal of the new talking picture, "Remember Jimmy," produced by the Fireman's Fund Insurance Company. The picture shows the effects of an automobile accident on a typical American family. The family is in reduced circumstances and crippled Jimmy helps by selling papers. His hopes of a football career blasted by his injuries, he wistfully scans pictures and headlines of the game. Then scenes in a crippled children's hospital are shown, with the startling admonition that one out of three children is destined to be killed or injured by automobile accident before reaching maturity.

Sound films are available in 35 mm. and 16 mm. sizes, and silent films in 16 mm. Showings can be arranged by writing to the Fireman's Fund Insurance Company, San Francisco, or through a local agent.

JANUARY, 1936

Industry Works in Lehigh Safety Shoes



Registered U. S. Patent Office

The well planned safety program includes a study of the safety equipment needed to protect workers from accidental injuries.

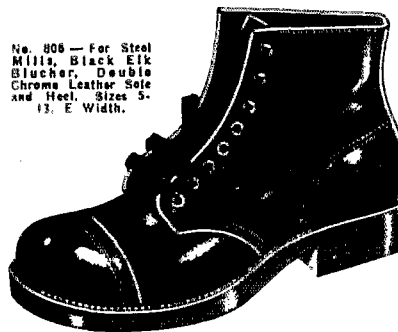
There isn't any industrial operation where some type of safety shoe shouldn't be worn to protect against possible foot injuries.

Approximately one-fourth of all compensable occupational injuries involve the legs and feet.

This clearly shows the need for the foot protection that safety shoes provide.

There is a Lehigh Safety Shoe with the improved steel box toe to meet practically any requirement. Work-

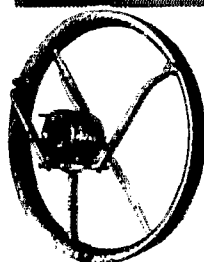
ers like to wear them, too, because they are comfortable, good looking and durable. Let Lehigh Safety Shoes help reduce the foot injuries in your plant.



No. 806 — For Steel Mills, Black Elk Blucher, Double Chrome Leather Sole and Heel. Sizes 5-13. E Width.

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

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Fully Guaranteed. All PROPELLAIR Ratings Are Certified Ratings

Write PROPELLAIR, INC. Springfield, Ohio

Solvents a Hazard in Soybean Oil Extraction

MEASURES for reducing the danger of explosion should be included in plans for building soybean oil extracting plants on farms and in rural communities, says the Bureau of Chemistry and Soils of the U. S. Department of Agriculture. Vapors produced in using hexane and similar flammable solvents used in extracted oil from soybeans may be easily ignited and cause disastrous explosions.

The 1935 soybean crop was almost twice as large as that of the previous year and the building of extracting plants is being considered in many rural communities. A number of rural plants in the Middle West extract the oil from the beans and produce meal for livestock. The oil is sold to manufacturers of paint, varnish, and other commercial products.

"As the soybean industry is rather new in the United States, the explosion problem requires further study for the development of safety measures and devices," says Dr. David J. Price, in charge of the Chemical Engineering Division of the Bureau. Investigations now in progress have shown that the danger of explosions in soybean processing plants can be reduced if certain precautions are taken. The following measures are recommended:

Storage tanks for flammable solvents should be placed underground and outside of the extracting plant. All pipe connections should be made tight to prevent the escape of explosive vapors. Each plant should have adequate ventilating equipment for removing the solvent fumes and vapors which might accumulate and form dangerous mixtures during the extracting process.

If steam is used in generating power for the plant, the boiler room should be located at a safe distance from the extracting room. Hexane vapor, which is almost three times as heavy as air, settles toward the floor and can be readily ignited by flames in the firebox of the boiler.

The plant should also be equipped with self-opening windows which prevent severe damage by venting the force of the explosion.

Chemical engineers of the department also point out that dust explosion hazards may be created during the grinding and processing of soybeans. Soybean dust when mixed with air in proper pro-

portions ignites easily and under certain conditions may cause a disastrous explosion. Samples tested by the Bureau of Chemistry and Soils indicate that dust from soybeans is just as explosive as dust from grain.

Dust explosions are likely to follow the installation of new types of mechanical and electrical equipment. New manufacturing operations should be examined carefully for possible dust explosion hazards. Foreign materials should be removed from the products being processed, closed storage bins provided, electrical equipment (including incandescent lamps) properly protected, static electricity controlled, and loose dust collected and removed.

All possible precaution should be taken to prevent ignition of explosive dusts by lighted matches, open flames, and electric or metallic sparks.

We Expect a Lot

(Continued from page 32)

addition to these values enumerated. We claim a *going concern* value." One of the principal things that we place in our argument for going concern value (and this has been recognized by the Supreme Court of the United States), is the fact that we have a well trained and efficient organization built up over a long period of years. We may claim that this one element has a value of a million dollars, and yet we may be letting this organization be shot to pieces by accidents. We hesitate to hire a safety man who is big enough to do a real safety job purely because we don't want to pay the price for a mature, capable man.

Take a look at your operating sheets and see what your employees' liability and public liability insurance policies are costing you, and see what your lost time is costing you.

When I look back over what has taken place on some of the jobs with which I have had contact, I am astounded to think that we did not have enough business judgment to get going years before we did. In glancing over a record of a property employing some 2,200 men and just gaging a five-year period, 1929 to 1934, I find that on this property in 1929 we had seven fatalities, and five years later, after an intensive campaign on safety, we had only 2 fatalities. I do not mean that the 2 were justified,

but we did bring the figure down from 7 to 2 over a period of five years. I find that in 1929, we had 2 permanent disability cases and five years later in 1934, we had only 1. I find that in 1929, we had 208 temporary disability cases and five years later, in 1934, we had only 24 such cases. In 1929, we lost through disability 3,191 days, and in 1934, we lost only 197 days. I find in 1929, a frequency rate of 22.12 and in 1934, a rate of 6.95. In 1929, we had a severity rate of 5.52 and in 1934, only 3.72.

Looking at this record from a purely mercenary standpoint, I find that in 1929, we were paying on our operating payroll 2.13 per cent, and in 1935, we were paying only 1.14 per cent. In 1929, we were paying on our construction payroll 2.75 per cent and in 1935, we are paying only 1.63 per cent. These figures show that it pays to study your accidents, and to work against them. These figures alone represent between one and two per cent on your payroll, and yet if you were trying to appraise into dollars the full value of this reduction in accidents, you would have to add many other figures to these figures in order to get at the true picture. I do not mean to infer that the records are all that they should be. I quote them simply as a basis of comparison.

What do we executives expect of a safety man? We expect a great deal. We expect him, through his processes and his efforts, to give us a happy, healthy and efficient organization. We expect him to give us tremendous savings on our balance sheet; we expect him to deliver to us a strong endorsement of public opinion, and we expect as a by-product of all these things that he shall relieve us of many sleepless nights.

There is just one more thought which I want to leave, and that is, that the best safety man on earth is not going to get anywhere unless he has the solid backing of the chief executive. This leads to the thought that we expect the safety man to bring to us any troubles which he alone is not able to untangle. We expect him to report to us any lack of interest on the part of the "higher-ups" in the organization, and we expect him to demand of us that we attend some of his meetings and help him to encourage the organization. In our quest for dividends for stockholders I know of no place where you can, without any financial outlay, place one man and bring back more profit to your company than you can by obtaining the right safety director.

PERSONALS

CURTIS R. WELBORN has been elected secretary of Underwriters' Laboratories, Chicago, succeeding David Burn Anderson who retired November 30 after serving 19 years in that office.

Mr. Welborn came to Underwriters' Laboratories in 1920 as assistant engineer in the Gases and Oils Department. His original investigations aided greatly in the development of safety standards for the construction and installation of oil burners. In 1924 he was appointed superintendent of the Label Service Department and in that capacity he directed the supervision of the production of approved products by Underwriters' Laboratories engineers at factories throughout the United States and Canada and the labeling of products manufactured in conformance with the Laboratories safety standards.

Mr. Welborn was born at Ellisville, Miss., in 1894. He received the degree of Bachelor of Science in Electrical Engineering from Mississippi State College in 1920.

G. E. MANNING, who has been with the Laboratories since 1922, succeeds Mr. Welborn as Superintendent of Label service.

J. RUSSELL CRAIG has resigned from the engineering department of the Pennsylvania Indemnity Corporations to become safety director for J. A. Montgomery, Inc., Insurance, with offices in the du Pont Building, Wilmington, Del.

DANIEL J. MURPHY, president of the stevedoring firm of Murphy, Cook & Co., Philadelphia, died suddenly of heart disease December 10. He was 68 years old. Surviving are his widow, a son and a daughter.

For years Mr. Murphy had been a leader in the development of the port of Philadelphia and had been active in the promotion of accident prevention work. When the NRA was established, he was chairman of the Code Committee of the National Stevedores' Association. He had been elected president of that organization shortly before his death.

Mr. Murphy was widely known for his many charitable activities and he had been honored by Pope Pius XI.

JANUARY, 1936

Insurance Against Slipping

Wear RAW-CORD NON-SLIP Soles AND Heels

1 OUT OF 5 ACCIDENTS ARE CAUSED BY SLIPPING

A recent survey shows that more than one out of every five accidents are caused by slipping. Hundreds of thousands of dollars are lost annually; production schedules are disrupted and many valuable employees lose their lives or are permanently disabled due to accidents caused by slipping.

Shoes equipped with Raw-Cord Non-Slip Soles and Heels are effective means of greatly reducing slipping accidents. The Cord-on-End construction used in Raw-Cord Soles and Heels, provide an extra Safety Guard for the men in your plant, because thousands of Cords-on-End firmly grip smooth and slippery surfaces. Shoes having Raw-Cord Soles and Heels can be secured from your local shoe dealer.

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

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

Fully Protected by Patents—Any Infringements Will Be Prosecuted

GRO-CORD

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FERALUN
Anti-Slip Treads

*Also Bronzalun,
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**PREVENT ACCIDENTS
ON STAIRS and FLOORS**

A hard metal matrix into which is cast an abrasive next in hardness to the diamond assures durability and anti-slip efficiency.

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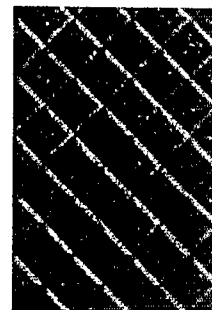
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Irvington, New Jersey



Wandering Minds

By B. L. JONES

Assistant Division Superintendent, Alabama Power Company, Birmingham

Personal mental discipline is our most effective safeguard against accidents

SAFETY is a big general subject. It is a part of every day life. Promotion of safe practices can be approached through almost any subject. Eating, sleeping, walking, talking and thinking—all of these and many other things can be involved in accident causes.

For the time being, let's forget the phrase "Safety First," but not the subject. Suppose we say, "good management," or "carefulness." These may sound fresher, but are you particularly interested in either of them?

But let's put it this way: If I should be killed or injured tomorrow, next week, or any time, what will be the probable causes? And what can I do to prevent these causes?

Of course, we are not expecting accidents. We have high hopes that we will get through life without serious mishaps. But our less fortunate friends have thought the same thing. If they had been expecting injury, they would have taken steps to avoid it.

Now remember this, too, we are not through with accidents. In our company we have reduced the number of accidents, but we haven't yet eliminated them. Who will be the next employee to suffer? Will it be you, or me, or the other fellow? When the accident occurs, what will be the causes?

If we only knew the answer! We would go to work at once. We would be so busy surrounding ourselves with safeguards that we would have little time for other activities.

Today, in all lines of industry, accident prevention is receiving constant thought, effort and money. Our company is spending a great deal of money, and will continue to spend it, in an effort to protect you and me and every other employee from accidental injury. Surely no one would say that the company has failed to put forth every reasonable effort to make safe the equipment and the tools that we work with. If any one of you

men knew right now of some unsafe piece of equipment or tool, I am sure you would report it and would expect the company to correct the condition. This has been done many times and many times corrections have been made. I don't think we can say that our past accidents are the result of faulty equipment or tools. Our experience on past accidents will not support such a claim.

What then is the principal cause of our accidents? Suppose we answer the question by saying: It is the way we do a thing, the methods we use, that causes the accident. Well, that is a reasonable answer. If a better method had been used, the accident would probably not have happened. But why do we sometimes do things in a way that will cause accidents? *We just don't do enough good, sound thinking about the work we are doing.*

BUT let's not trust my answer; let's get an answer from men who have long experience. Thinking about this subject the other day, I decided to ask several successful foremen a question. I picked three foremen, whose combined experience will total some 40 years. I asked each of them to state briefly, what, in his opinion, was the principal cause of accidents. Here are their answers:

One said: "Failure to plan or improper planning of work."

The next said: "Mismanagement on the part of the foreman, sub-foreman, or superintendent."

The third said: "Thoughtlessness by one or more men connected with the work."

Here we have (1) improper planning; (2) mismanagement; (3) thoughtlessness. In other words, somebody didn't think or somebody didn't think correctly. That's the whole thing in a nut shell and it substantiates the claim that we need more good sound thinking about our job before we start it.

We are practical men. Most of us can go through with our daily activities

without doing much thinking. A skilled workman can do a big part of his daily work while thinking about something else. Of course, I don't say that you men go about your work every day while thinking about something else, but this sometimes happens with all of us. And I say to you that when this happens, you are liable to have an accident.

Did any of you ever have your wife or your mother say to you when you leave your home going to work—did you ever hear her say: "Be careful today. Don't take any risks. You are all we have to provide for our future." If that mother or wife knew the history of our past accidents, she would say to you, "Keep your mind constantly on your work today. You can think of other things when you come home, but think what you are doing while working."

Some of you may say, "Oh, I don't let my mind wander while I'm working, especially in a dangerous place. I give proper attention to what I do."

All right, let me ask this question. Did you ever drive over a traffic "Stop" sign or into a red traffic light? If you haven't you are an exception, or you don't drive much. I dare say that the majority of experienced drivers have, at one time or other, driven into a red light. We don't do it intentionally. We are not thinking or we're thinking about something else at the time.

There are, of course, many things that can happen to draw our attention away from the job at hand. It is somewhat like driving a car over the highway at high speed. You know that you should keep your eyes on the road and your mind on driving, but there are many things that draw your attention away from the road, and when you do you are flirting with a wreck. There are so many things that might divert our minds that a complete discussion would be endless. My remarks, therefore, are confined to those things which seem most likely to affect us in our daily activities as employees of our company. These things I divide in three general classes:

1. Inattention due to indifference or lack of interest in the work at hand.
2. Inattention due to fatigue.
3. Inattention due to some condition that so vitally concerns us that we unwillingly and perhaps unknowingly allow our minds to dwell on that subject.

Taking these three general classes we can dispose of No. 1 without much discussion. In fact, about the only question here is just how soon can we get the indifferent or uninterested man off the

NATIONAL SAFETY NEWS

Excerpts from a talk before a meeting of employees of the Alabama Power Company.

job. The wife of an indifferent and, therefore, careless man may well give thought to a cemetery plot and plans for her future after he is put away. Look out for the fellow who is full of cocksureness and horseplay. He is not interested in his work and is a danger to himself and to you.

Take No. 2, Fatigue. Surely everybody will agree that it is dangerous for a man who is fatigued to attempt work that requires mental or physical alertness. Nowadays, we don't have many occasions to ask a healthy employee to work until he is tired out or exhausted. It is quite possible though that an employee would come on the job physically unfit and become fatigued before the day is well started. I repeat that what and how you eat, how you sleep, etc., has a direct bearing on safety and well-being. This is a matter of direct concern with a foreman. A capable and successful foreman is always interested in how his men conduct their affairs off the job as well as on the job.

Now take No. 3. Let me mention a few of the things that would most probably cause a normally careful employee to get his mind off his work. Some say that it's what you do that matters. That's O.K., but what you think makes a great difference—what's in your mind directly affects the work of your hands—what you believe alters what you see and hear. Discontent, grief, anger, financial worries, sickness in the family, bills that we can't meet, any or all of these things and others take our minds off our work. Not only that, they affect our health. We cannot doubt the direct connection between what takes place in thought and what takes place in the body. For instance, thoughts can cause blood to rush to the face; we blush. Another thought and we turn pale; the blood leaves the face. Another thought comes to the mind and the stomach is affected; lost appetite, nausea, and so on. I mention these things merely to show how easy it is to let our minds affect our work.

Self control of mind is an interesting subject. Some men are outwardly affected a great deal more than others. I have known men to become terribly upset over trivial matters and I have known others to carry on unaffected by troubles of greater importance.

Let me say too that contentment is only a relation between two things; that is, the relation between what we have and what we think we should have. Many men will become miserable

(Please turn to page 63)

JANUARY, 1936

DERMA-SAN

D I S I N F E C T A N T

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THE SAFETY LIBRARY

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

Sportsmanlike Driving

SPORTSMANLIKE DRIVING, a teacher's outline for a course in traffic safety and driving for high schools, published by the American Automobile Association, Pennsylvania Avenue at 17th Street, Washington, D. C., 51 page pamphlet, illustrated. Free.

Perhaps it is the success of safety instruction in primary grades which has focused attention on the possibility of similar accident prevention activities in the secondary schools. In any event, much advice is being given in these schools on how to conduct such activities, and at least a few schools have initiated some form of such instruction.

Very similar in purpose and content to "Good Driving", issued a year and a half ago by the National Safety Council, **SPORTSMANLIKE DRIVING** discusses in the first 15 pages the traffic accident problem, the necessity for its solution, and the general procedures adapted to secondary schools which wish to work in this field.

The remainder of this publication in 13 sections, covers such subjects as The Highway, The Pedestrian, Traffic Laws, Accident Factors and Circumstances, Driver Responsibility, and Tests for Operator's License. Unlike "Good Driving", some of these sections are expanded to include informational material in the outline which would be of help to teachers or pupils, but the expansion is not uniform. For example, the social and economic value of the automobile is covered in five lines, whereas driver responsibility occupies nine pages.

Each section is concluded by special suggestions to the instructor, and at the end is a proposed research project on traffic and driving knowledge with questions which survey this subject.

—J. S. BAKER

Course of Study in Highway Safety

COURSE OF STUDY IN HIGHWAY SAFETY, issued jointly by the Department of Public Instruction and the Division of Safety of the Department of Revenue of the Commonwealth of Pennsylvania, Harrisburg, Pennsylvania, 16 pages, illustrated. Free.

This is an outline of a course of study

in 12 "units" intended primarily for high school students. It does not supply the text book material to be put into the hands of the children or teachers, but rather outlines the subjects for discussion, and gives the approximate time recommended for each.

In general plan it follows the suggestions made in "Good Driving", a similar pamphlet issued by the National Safety Council, but suggests the discussion under each unit in the form of questions which should be answered through the classroom work and gives notes to the teacher regarding the conduct of the course with particular reference to material which should be used by the pupils in studying the subject. Most of these are particularly adapted to Pennsylvania conditions and motor vehicle laws. At the end of each section are lists of references.

The booklet cannot be expected to be used by one who is learning to drive, because practice exercises in the handling of an automobile are not suggested, and the discussions on the "skills of the road" do not cover details of driving practices which must be developed in learning successfully to manipulate a car.

Headings of the units: 1. The Causes of Automobile Accidents; 2. The Mechanism of the Automobile; 3. The State Motor Vehicle Regulations; 4. Selection, Inspection and Maintenance of Motor Vehicles; 5. Skills of the Road; 6. State and Local Traffic Violations and Traffic Courts; 7. The Economic and Social Effects of the Automobile; 8. The Safety Activities of Federal, State and Local Enforcement and Promotion Agencies; 9. School Examination; 10. Requirements for Driver's Licenses.

—J. S. BAKER

Dusts

ASBESTOSIS. Part 2. The nature and amount of dust encountered in asbestos fabricating plants. Part 3. The effects of exposure to dust encountered in asbestos fabricating plants on the health of a group of workers. Published by the Pennsylvania Department of Labor and Industry, Harrisburg, Pa., 1935. *Special Bulletin No. 42. Free. (35 page pamphlet)*

In Part 1 of this report the method of collecting and counting dusts encountered in this study is described and summarized. This investigation, while it does not establish the maximum safe concentration of asbestos dust in the air, shows the necessity of a reduction of the concentration in those operations where there is continuous exposure to high concentration.

Petroleum Industry

FUEL OIL, INDUSTRIAL STORAGE AND USE. Published by the Associated Factory Mutual Fire Insurance Companies, 184 High Street, Boston Mass., 1935. Price 35c. (82 page pamphlet)

Previous editions of this pamphlet have stressed the importance of safe storage. The excellent fire record, however, now permits some changes in previously recommended methods of storage, particularly in regard to the capacities and locations of tanks. With greater quantities of fuel oil stored above ground, close to, or inside buildings, more attention is given in this edition to proper vents, fittings and installation.

Headlights

HEADLIGHTS. Great Britain. Department of Scientific and Industrial Research. *The evaluation of glare from motor car headlights.* By W. S. Stiles and C. Dunbar. Published by H. M. Stationery Office, Adastral House, Kingsway, London W. C. 2, England, 1935. *Illumination research, technical paper No. 16. Price 50c. (88 page pamphlet)*

By using the method described in this paper, it is possible to obtain a "figure of merit" for any headlight whose distribution of light is known. This paper is not an attempt to lay down a certain distribution of light as the ideal, still less does it describe an actual "anti-glare" headlight. Its use is to aid designers of headlights and others interested in the same problem in estimating the merits of different possible distributions of light without necessarily going to the lengths of constructing headlights to produce those distributions.

Storage Batteries

STORAGE BATTERY MANUFACTURE. Published by Retail Credit Company,

NATIONAL SAFETY NEWS

Atlanta, Ga., 1935. *Industry Reports.* A description of factory processes and potential health hazards. (12 page pamphlet)

Tanks

TANKS. Great Britain. Home office. Report of committee appointed to consider the precautions for securing the safety of persons working in and about kiers used in print works and bleaching and dyeing works. Published by H. M. Stationery Office, Adastral House, Kingsway, London W. C. 2, England, 1935. Price 25c. (28 page pamphlet)

Recommendations of this report are of a highly technical character, but they specify in detail a large number of precautions, the adoption of which should remove the causes, not only of the accidents immediately concerned, but also of all other scalding accidents that have happened in the past, so that their recurrence would be impossible. Practical methods of compliance also are described.

Women Workers

THE HEALTH AND SAFETY OF WOMEN IN INDUSTRY. By Harriet A. Byrne. *Women's Bureau Bulletin No. 136.* For sale by the Superintendent of Documents, Washington, D. C. Price 5c. (23 page pamphlet)

Among facts presented in this report is the statement that approximately one in 50 industrial workers, on a full-time average, is unable to work because of illness, and each year more than one-eighth of all workers suffer one or more illnesses that disable them for a week.

PERIODICALS

Commercial Vehicles

DOCTOR PRESCRIBES PROPER WAY TO PLAY SAFE IN PICKING DRIVERS. *Swift, Dr. W. J. Thorough examination may stop costly suits. In Motor Transportation, November, 1935, page 26, 42.*

Dr. Swift is the official examiner of applicant drivers for the Greyhound Lines in Chicago. What he has found out in his job, as told here, will be valuable information for all fleet owners, both passenger and freight.

TWELVE - FEATURE PLAN CONTROLS ACCIDENTS IN OUR 3,000 - VEHICLE FLEET. *Faulkner, F. Teeth in plan found in review board and application of driver penalties for preventable accidents. In Power Wagon, November, 1935, pages 5 to 7.*

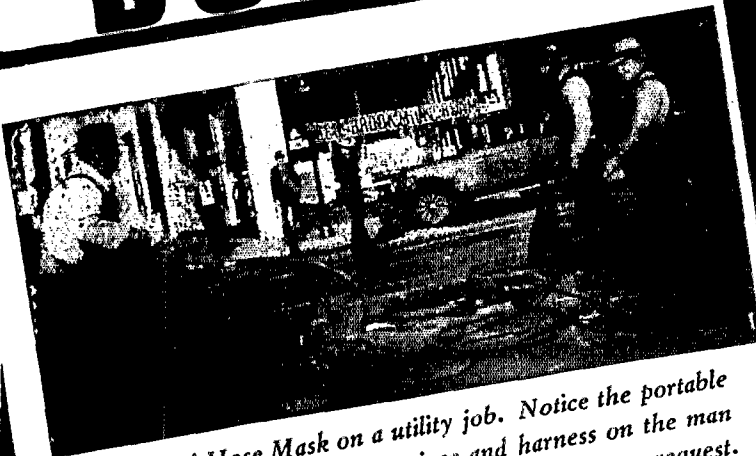
Occupational Diseases

ENGINEERING CONTROL OF OCCUPATIONAL DISEASES. *Bloomfield, J. J. In*

JANUARY, 1936

Everything
BULLARD
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Bullard Reel Hose Mask on a utility job. Notice the portable blower; the hose reel; the facepiece and harness on the man about to enter the manhole. Complete catalog on request.

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STEEL TOE • PLATER'S SHOE Wooden Sole • • •

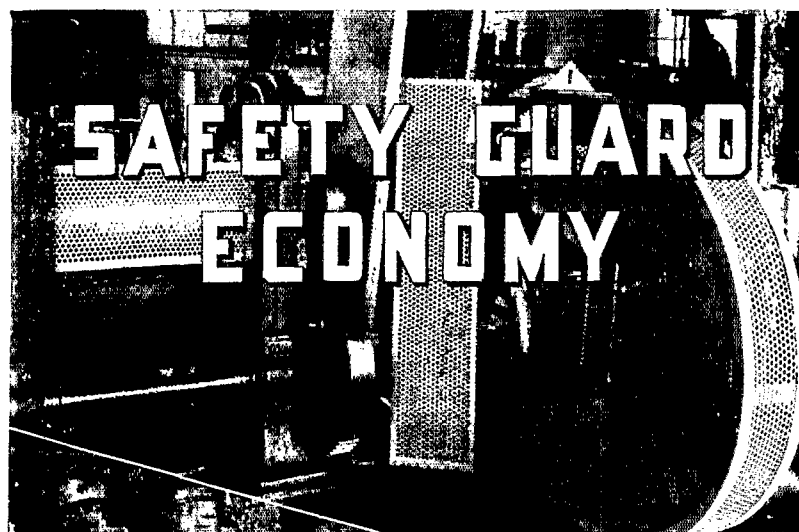
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Stock No. 5045



Safety Inventory

In making plant inventory why not check your machinery for safety guards? There may be some machines or belts without guard protection which should have attention.

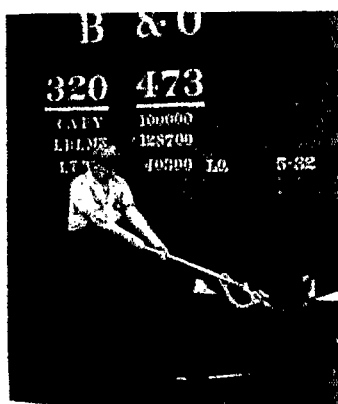
Safety guards, if properly made and installed, remove the fear of accidents and permit of stepping up production. Write us for guard information.

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

The Harrington & King Co.
PERFORATING

114 Liberty St.
NEW YORK, N. Y.

5645 Fillmore St.
CHICAGO, ILL.



Close Hopper-Bottom
Car Doors with
EASE and SAFETY

with the
Prescott Safety Tool

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

The Trumbull Mfg. Co.
Warren, Ohio

American Journal of Public Health, November, 1935, pages 1106 to 1204.

"In general, there are five methods which may be attempted to control an industrial poison: (1) Substitution of a non-toxic material; (2) isolation of the harmful processes; (3) set methods in the case of some dusty processes; (4) exhaust ventilation; (5) respiratory protection."

Traffic

ACCIDENTS CAN BE REDUCED. *Green, P. L. The Institute of Traffic Engineers asks "How?" and nine recognized experts answer. In American City, December, 1935, pages 69 to 71.*

Nineteen recommendations for reducing accidents on the open highway are presented. For example, seven of the nine participants in the symposium urge education of driver and public, whereas only two comment on the factor of speed.

Asked and Answered

CABLE FASTENINGS

QUESTION: We have adhered to the practice of using zinc in all cases of socketing steel cables. A few days ago our elevator needed new cables, and we employed a representative of a branch of the firm to make the replacement. He used babbitt instead of zinc, and when we questioned him about it, he said he had never used anything else and furthermore stated that this was acceptable to the underwriters. Will you please advise whether we should condemn the use of babbitt or say it is O.K.?

ANSWER: The American Standards safety code for elevators, dumb waiters, and escalators specifies that the car and counterweight ends of cables for freight and passenger elevators shall be fastened by spliced eyes, by return loops or by individual tapered babbitted sockets. The code also specifies that the fastening shall be capable of sustaining a load of not less than 80 per cent of the ultimate strength of the undisturbed portion of the cable. The code exempts the fastenings of compensating cables of elevators from these requirements.

The American Standards safety code for wire rope for mines, and Federal specifications (RR-R-571) for wire rope both specify that zinc shall be used for the socketing of wire rope cables.

Elevator ropes are moderate in strength and are generally used with a large safety factor (as high as 10 in many cases). These elevator ropes are usually inspected at frequent intervals by qualified inspectors and any defects found are corrected. Under such circumstances it may be permissible to use babbitt instead of zinc for socketing. However, in general rope practice other than elevator service, higher strength ropes with a lower factor of safety are used, and such ropes are not always inspected as often as they should be. Therefore, if a socket

NATIONAL SAFETY NEWS

attachment is used for such a rope, it should be made with zinc, not babbitt. Detailed information on socketing of wire ropes will be found in paragraphs 69 and 71 of our Safe Practices Pamphlet No. 26.

If the elevator cables to which you refer are exposed to sulphuric acid mists and fumes, it is recommended they be socketed with zinc.

SHOWER AND WASH ROOMS

QUESTION: We are contemplating installation of a wash room and shower room for our factory employees. It is our intention to have either a tile or a cement floor in the shower room and either rubber matting or a wooden runway in the aisles leading to and from the showers. We would like to have your opinion regarding the best materials for such an arrangement, as we are particularly interested in guarding against athlete's foot and any other common infection that might be traced to a shower and wash room.

ANSWER: Whether you use tile or cement is a matter of personal choice. While tile is a great deal easier to keep clean, it does tend to increase the slipping hazard. On the other hand, it is possible to install a concrete flooring with a very fine top dressing which will give practically the same surface as tile but will be a great deal less hazardous.

Individual companies use different types of solutions for combating ringworm and "athlete's foot." For instance, some companies use a 0.5 per cent solution of sodium hypochlorite in large rubber pans, the inside dimensions of which are approximately two feet square. Employees entering and leaving the shower rooms are required to walk through the solution.

Another company reports remarkable success with a 10 per cent solution of sodium theosulphate. This is also placed in large rubber pans and with the 10 per cent solution it is found necessary to provide a new quantity only once a week. An attendant is present during the shower period to see that the pan is always filled, for some of the solution is bound to be lost by splashing as the employees walk through.

Still another company uses sodium hypsulphite. The firm also uses a powder composed of one part of sodium hyposulphite to two parts of powdered boric acid. This powder is dusted on the feet of the men before they put on their shoes and socks.

There are, of course, several manufacturers of disinfectant who produce various mixtures of the above-named chemicals under their own trade names.

Several recommendations to prevent wash and shower room infections have also been formulated by Dr. W. R. Redden, of New York City:

1. Always wear some kind of foot covering, except when actually in bed, in the bath or in swimming.
2. If you know you have skin lesions on the feet or toes, dry them in the tub instead of stepping first on a bath mat.
3. After bathing wash the tub with soap and water and scald it thoroughly.
4. Dry the body from head to foot. Never reverse this order or you may transfer the ringworm fungus from the feet or the floor to the other parts of the body.
5. Wash your feet carefully at least once a day, especially between the toes and under the

JANUARY, 1936

DUST CONTROL...*Suppression* ...*Collection...Disposal*

BE YOUR DUST PROBLEM
SMALL OR LARGE, IF IT
INVOLVES TEMPERATURE
CONSIDERATIONS OR
REQUIRES *Wet or Dry*
TREATMENT

Consult **BLAW-KNOX**
for a prompt economical solution



BLAW-KNOX COMPANY

2030 FARMERS BANK BUILDING

PITTSBURGH, PA.

Offices in Principal Cities

BUHRKE Edged Tool Guards



Unprotected sharp edges of tools may cause a serious injury.

We can furnish guards made of vulcanized hard fibre, genuine harness leather or hard wood, as may be required, for edged tools of any design.

Prices and suggestions gladly furnished on receipt of samples or specifications.

Edged guards in stock for such tools as saws, axes, bush hooks, tree trimmers, draw knives, chisels, shave hooks, etc.

R. H. BUHRKE COMPANY

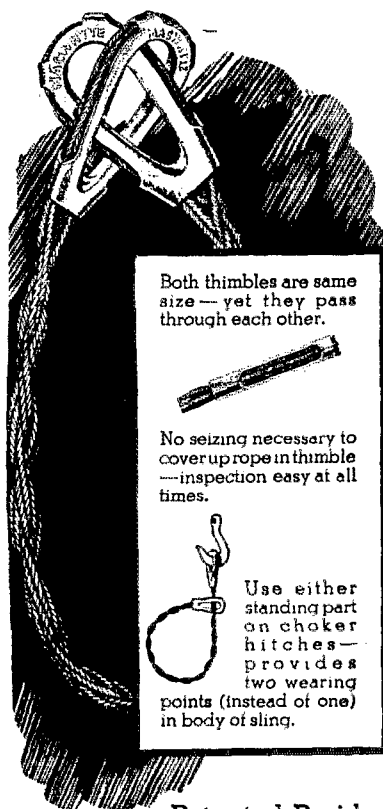
4538 Fullerton Avenue, Chicago, Ill.

SAFETY EQUIPMENT FOR CONSTRUCTION AND MAINTENANCE

NEW MACWHYTE THIMBLE

(Patent applied for)

on Macwhyte Wire
Rope Slings increases
utility...speeds loading
...easier to handle



Both thimbles are same size — yet they pass through each other.



No seizing necessary to cover up rope in thimble — inspection easy at all times.



Use either standing part on choker hitches — provides two wearing points (instead of one) in body of sling.

Patented Braided Construction Gives Greater Flexibility Macwhyte ATLAS and DREW Slings have a braided body — made from endless elements of wire rope. Extremely flexible. Unusually high safety factor. Write for descriptive folders and circulars.

Macwhyte Company, Kenosha, Wisconsin

MACWHYTE WIRE ROPE

Slings

ATLAS • DREW • MONARCH

toenails. Clean your toenails as thoroughly as your fingernails.

6. Keep your feet dry and well ventilated by wearing proper shoes. It is advisable to have at least two pairs and to wear them alternately.

Doctors in general agree that all towels used in bath houses, gymnasiums and other similar places should be strictly individual. Bath shoes of paper or other suitable material should be worn to prevent contact of the bare feet with floors that may be contaminated. Cotton socks are sometimes better than wool, because wool favors the growth of the fungus.

HONOR ROLL

Details of no-accident records in excess of 400,000 man-hours, or 300 working days, are invited for this department

American Rolling Mill Co.

The American Rolling Mill Company, Midletown Division, recently established a record of 753 days (936,000 man-hours) without a lost-time accident. The Blooming, Box and Strip Mill Departments were included in the record. A broken toe broke the safety span.

The Zanesville Hot Mill Turn No. 3 of the American Rolling Mill Co. completed, on November 4, eight years without a lost-time accident. The record, which represented 1,326,641 man-hours at the time of reporting, is still unbroken.

Associated Industries of New York State, Inc.

Three member plants of the Associated Industries of New York State, Inc., are establishing unusual safety records in the third "No-Accident Endurance Contest" conducted by the Association. In the lead is Dunn & McCarthy, Inc., Binghamton, with 1,748,364.75 man-hours without an accident. Two other plants have comparable records. The M. Wile & Co., Inc., Buffalo, has a record of 1,363,034 man-hours, and the Du Pont Cellophane Co., Buffalo, 1,137,667 man-hours. All records are as of November 30, 1935, at which time the contest had completed its fourteenth month.

The Brunswick Balke Collender Co.

A commendable record in the woodworking industries was established recently by employees in the Muskegon, Mich., plant of the Brunswick Balke Collender Co., manufacturers of billiard tables and similar sundries. The employees, averaging 750 in number, worked 680,403 man-hours without a lost-time accident. The record began January 1, 1935, and ended on August 2, 1935, when an empty acetylene tank fell, striking and injuring an employee's foot. The injured man was a careful worker, but the accident was caused by a new employee.

Compania Cubana de Electricidad

A record of five years without a single lost-time accident—684,000 safe man-hours—has been achieved by the Stores Department of the Compania Cubana de Electricidad. The 57 employees in this department perform diversified work, handling all kinds of material and equipment from small objects to ponderous transformers and machinery.

Socony-Vacuum Oil Co., Inc.

Cooperating with the safety program of the Massachusetts Safety Council, the Boston area of the Marketing Division, Socony-Vacuum Oil Company, Inc., had operated 840,776 man-hours without a disabling injury since August 29, 1935.

CORRESPONDENCE

ABRASIVE CLEANING

CHICAGO—I desire to protest against the misleading statements in an article by Mr. J. J. Bloomfield appearing in the December National Safety News.

The article says: "In the case of abrasive cleaning with steel instead of sand, we have the example of the substitution of a substance involving a lesser dust exposure as well as the use of a less toxic material. Not only is the dust concentration reduced from an average of 969 million to 155 million particles, but the potential exposure to quartz dust is diminished from 42.98 per cent to 3 per cent." The statement that the quartz or silica content is reduced to 3 per cent through the use of steel grit is erroneous, as a large percentage of the 155 million particles mentioned undoubtedly consists of burnt sand with a high silica content.

The subheading of the article reads: "A method cannot be considered efficient unless it brings the dust count below the danger line..." While Mr. Bloomfield does not say in this article what constitutes the danger line, he has gone on record in other papers, particularly *Public Health Bulletin No. 217*, stating that a concentration of over six million particles of dust, caused by the use of the steel abrasive, is a safe working atmosphere. As a producer of sandblasting sand, I must emphatically protest against the publication of such misleading information.

I can go along wholeheartedly with Mr. Bloomfield when he says it was found that the only practical safeguard for the worker inside the sandblast room was to provide him with a mask or helmet of the positive pressure type, and when he says: "Table I shows the results of such a study and clearly indicates that the positive supply of six cubic feet of free air per minute will protect a worker under the operating conditions now in practice in sandblasting rooms."

It has always been my contention that the abrasive medium used for cleaning castings was unimportant, but that good housekeeping and good engineering practice, with proper protection for the workers through the use of positive pressure helmets, would eliminate any danger of injury to health from dust inhalation.

A. WARSAW, President
Wedron Silica Company.

TURN OFF THE CURRENT

KENNEBUNK, ME.—With reference to the illustration of the procedure for removing broken light bulbs, depicted on page 30 of the November National Safety News, it occurs to us that the first step toward a safe method would be to turn off the electric current in the light socket.

We mention this merely to demonstrate how thoroughly we read the magazine.

ELLIOT FREEMAN
Rogers Fibre Co.

NATIONAL SAFETY NEWS

Wandering Minds

(Continued from page 56)

through allowing their desires to get out of reason—my house is not good enough, my wife is not good looking enough, my bank account is not big enough, my car is old and worn out, living expenses are too much and my neighbors are not neighborly. I'm miserable.

There are two ways to cure these mental ailments. Perhaps I can get me a finer house, a different wife, a larger bank account and other things that I desire, or I can change my notions about what I deserve. The first method is often attempted without success. The second is the method of the wise. You can always change your ideas about what you deserve but you cannot always get better things. If you begin to get more things you generally find that your opinion of your deserts rises along with them—in fact, usually keeps a few steps ahead so that your resultant state of dissatisfaction remains constantly about the same. The last thing that the average man will admit, however, is that the cause of his unhappiness usually lies within himself. Each man's problem is a thing for his own solution and we should all endeavor to so conduct our lives as to be happy and contented, with a mind free for well balanced thinking about our duties.

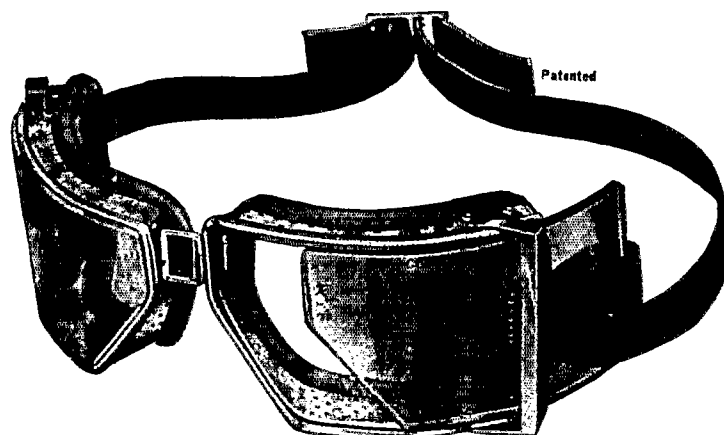
Any system of working, any safety practices, whether ours or some other company's, that tends to reduce the sense of personal responsibility also tends to increase accidents. Safe methods are not merely mechanical. To avoid accidents we must be trained to think and act properly at all times. Personal discipline is what we need most. If every man could and would discipline himself into a right mental attitude toward himself, his work, and his associates, we would not have nearly so many accidents. If all our actions were determined by sober and deliberate thought, there would be much less suffering and sorrow.

School Program Saves Lives in Toledo

SCHOOL safety programs are credited partly with a 55 per cent reduction in number of children's deaths from accidents in Toledo in the first 11 months of 1935. There have been only ten such deaths this year compared with 24 in the like period last year. Accidents took a toll of 108 Toledoans in 11 months contrasted with 132 accidental deaths in the same period last year. Auto accidents took 57 lives, home accidents 33, and industrial accidents only two.

JANUARY, 1936

Cut the Cost of Eye Injuries with this New Extra Wide-Vision Goggle



CESCO NO. 220 WIDE-VISION GOGGLE WITH *SUPER-SAFETY LENSES

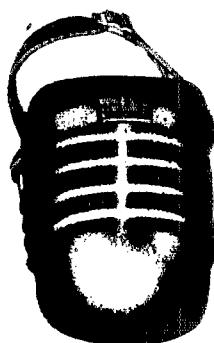
The new type lenses in this wide-vision goggle entirely eliminate eye strain—the optical center being located so that the line of vision of wearer suffers no deviation and the curved surfaces allow a greater angle of vision than is possible with conventional types. *SUPER-SAFETY LENSES are tough, strong and will withstand severe blows—they are guaranteed to meet the requirements of current Federal specifications. Therefore, the Cesco No. 220 Wide-Vision Goggle with Super-Safety Lenses is recommended for the most severe chipping, cutting and other dangerous impact hazard work.

You should inspect this goggle. Write for full details and prices.

CHICAGO EYE SHIELD COMPANY

2323 Warren Blvd.

Chicago, Ill.



SANKEY FOOT GUARDS

Smashed toes are costly. Avoid them. Protect your worker's feet with Sankey Foot Guards.

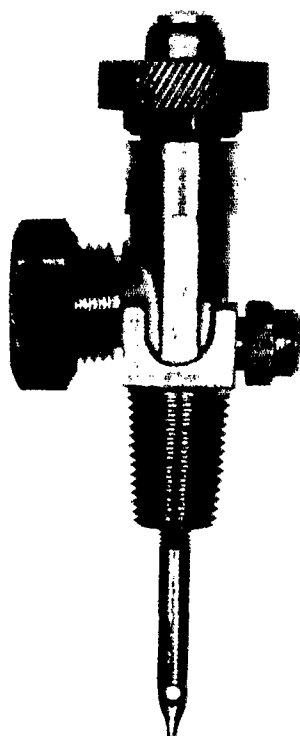
Made of 16-gauge steel, or Rigidlun, an aluminum alloy. Sankey Foot Guards are light in weight, comfortable to wear and permit free and easy movement of the feet.

Built for strength—will withstand an impact of 300 foot pounds. Designed so that the floor or ground takes the force of the impact in case of falling objects.

Write for Your Sample Today.

ELLWOOD SAFETY APPLIANCE CO.

Ellwood City, Pennsylvania



B-K High Pressure Closing Valve

B-K *high pressure* CLOSING VALVES

Solve The Problem Of
Binding, Leaky Valves

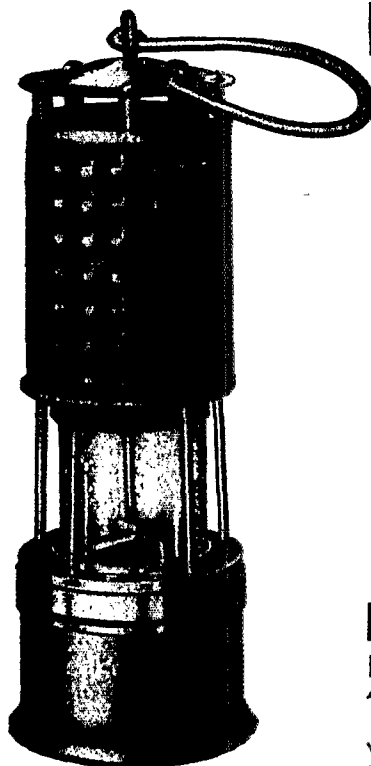
B-K High Pressure Closing Valves are being extensively used on oxygen apparatus and inhalator equipment because of the ease with which they can be manipulated and the fact that they won't leak . . . They can be fitted to any small cylinder. We welcome correspondence on oxygen equipment products and problems.

WRITE TODAY CONCERNING YOUR
HIGH PRESSURE VALVE
REQUIREMENTS

BISHINGER- KOEHLER

MANUFACTURING CO., INC.
7838 Kelly Street Pittsburgh, Pa.

Manufacturers
OXYGEN EQUIPMENT PRODUCTS



Bureau of Mines
Approval No. 201

KOEHLER Flame Safety Lamp

For twenty years, the KOEHLER FLAME SAFETY LAMP has been the standard gas detector for AMERICAN industry . . . Its widest use is in the mines for the detection of explosive methane gas and by public utilities, particularly natural gas companies, for the determination of natural gas leaks in manholes, sewers, pits, etc. KOEHLER FLAME SAFETY LAMPS are also used for the determination of oxygen deficiencies. Available in aluminum or steel construction, with flat or round wick, and with magnetic or key locks.

Prices on Request

P O R T A B L E LAMP & EQUIPMENT CO.

401 Penn Ave. Pittsburgh, Pa.

PORTABLE PRODUCTS INCLUDE
Wheat Electric Lamps . . . Cool Caps and Cool
Hats . . . Goggles . . . Safety Toed Shoes, etc.
"Personal Protection for the Miner"

Why Call It "Education?"

By D. H. McAnally

Safety Engineer, City of Dallas, Texas

FREQUENTLY we hear the term "educating the public." This term is extravagant. It has no place in an accident prevention program. The term as often used is also stupendous, impossible, insinuating and revolting.

Scholars will testify that one who has completed his college curriculum is not yet educated, but that he must continue to study and learn throughout life; and his education only begins after he leaves college. It is true that with his college training he is better equipped to cope with the battles of life, but, if it requires a life-time to acquire an education, then how can we hope to accomplish this with a brief "educational program"?

Someone has said that the modern automobile is built for an intelligence that is not possessed by the average driver. Perhaps someone will say that we do not possess sufficient intelligence to be "educated."

People may seek information, but it is certain they will rebel against "education," especially, when it is offered on a wholesale basis.

In a southern city there is a beautiful zoological and horticultural garden. In the rear of this institution there is an arena and the combatants are rattle snakes. Any guest who paid the admission fee to enter the horticultural gardens was privileged to witness the snake fight without additional cost. The manager soon found that the visitors, who were few in numbers, spent very little time viewing the horticultural exhibits but hurried to witness the snake fight. After due consideration he concluded that the public did not want "education", but rather it sought entertainment. He conceived the idea of making the "Battle of the Snakes" the feature attraction. The admission price remained unchanged, but the people came in throngs to view the fight, and many of them learned to appreciate the horticultural exhibits and would stroll through the gardens after the combat.

According to a standard dictionary the word "educate" has the following meanings: "To bring up a child physically or mentally, to educate; to lead forth, bring up (a child). To develop mentally or morally; to expand, strengthen, and discipline, as the mind, a faculty, etc.; to form and regulate the principles and character of; to prepare and fit for any calling or business by systematic instruction; to cultivate;

NATIONAL SAFETY NEWS

train, instruct; as, to educate a child; to educate the eye or the taste."

"To prepare and fit for any calling or business by systematic instruction"—Is this the task we undertake when we "educate the public"; or do we make a few feeble attempts and then declare it is a hopeless task?

Is our problem to "educate", or is it rather to "inform"? The latter mentioned word has this meaning: "To communicate knowledge to; make acquainted; to acquaint; advise, instruct, tell; notify; enlighten." Teaching is a part of the safety engineer's job, but "education" has no place in a well balanced accident prevention program.

Everything in an accident prevention program should be logical and feasible. It is neither logical nor possible to "educate the public" nor even the employees of a given organization (in the full meaning of the term).

If we provide "information" and "training" programs, the "educational" portion must follow, and there will develop a spirit of cooperation and understanding.

Trouble on Stairs

(Continued from page 29)

the problem with highly successful results. One thousand workers are employed in this three-story plant, and there are no passenger elevators in the building. There had been a period in which several bad tumbles on the stairways occurred, and an investigation showed that the stairways were in good condition. The old offender, the human element, was involved.

After an analysis of the accident, a set of rules was drawn up and a group of monitors appointed to secure their observance.

The monitors are placed during the closing period at strategic floor levels and landings so as not to retard the outgoing employees and yet be able to see their own areas. They open and hook back fire doors, remove any obstructions in their limited areas, and report violations.

An employee violating the rules is called to one side by the monitor. Her name is recorded with her department and payroll number. The foreman receives the report and confers with the worker.

Before this method of supervision was adopted it was not uncommon for several falls to occur in one week. Now falls are usually several weeks apart.

JANUARY, 1936



SPENCER

KEEPING PLANTS 100% OPERATIVE

Most industrial processes leave an aftermath of fine particles of material that interfere with production and, eventually, must be cleaned up.

Spencer Vacuum Cleaning Systems have been developed in a wide range of types and sizes with a large variety of vacuum tools that effectively eliminate the most obstinate industrial dirt and dust conditions.

These units remove all kinds of material, from heavy sand to the finest soap-stone and molding dust, and do the daily house-cleaning job quicker and better than men can do it by hand methods.

If dirt or dust interfere with production in your plant, send us a plan of your buildings and an outline of your problem. Our engineers will suggest methods and show you how little it would cost.

CENTRAL AND PORTABLE
VACUUM CLEANING SYSTEMS

THE SPENCER TURBINE COMPANY :: HARTFORD, CONN.

S-23.



*He couldn't
figure out
where the
Fire
went to*

● Fire blazed up in the inking rolls of the big newspaper press. The workman pulled a LUX Extinguisher from its bracket and blanketed the flames with LUX gas. The fire was out before he realized it.

(Condensed from the official report.)

Anyone who first sees a LUX extinguisher in action marvels at its speed in killing serious blazes . . . especially electrical and flammable liquid fires. Experience has taught plant managers that these two are foremost among all fire hazards. LUX extinguishers get these fires out with a maximum of speed, a minimum of trouble and an entire absence of damage or mess.

LUX's extinguishing principle is

simple. LUX carbon-dioxide gas expands 450 times, penetrating the entire fire area, even into hidden or remote crevices. Fire cannot live in this atmosphere.

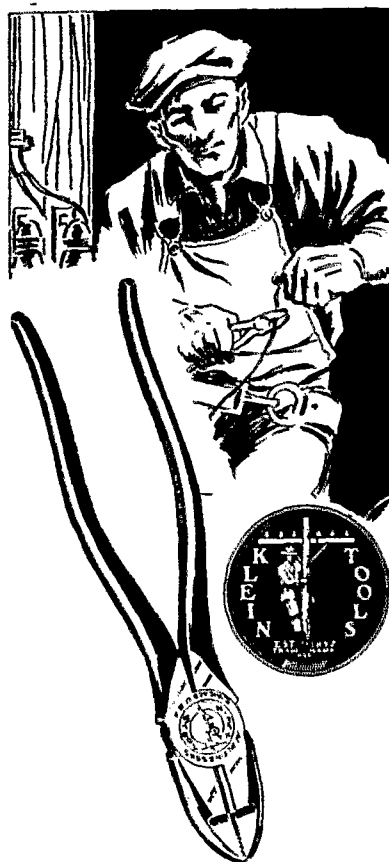
Protect your electrical and flammable liquid hazards with LUX extinguishers. You'll cut fire losses and avoid costly shutdowns. LUX gas is harmless to man or materials. Prices start at \$14. For complete information write



Walter Kidde & Company

11 West Street, Bloomfield, N. J.





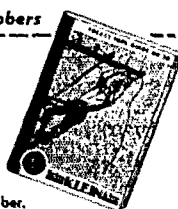
SAFETY

Good equipment is good economy. Klein equipment on the hazardous job is the accepted standard of public utilities and linemen everywhere. Klein Pliers and tools are safe pliers and tools. When you are perched on a cross arm among "hot" wires on a fifty foot stick a slip may be fatal. It is good then to have equipment you can rely on—that's why linemen demand Kleins. "Since 1857."

Distributed through jobbers

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

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



Mathias KLEIN & Sons
 Established 1857 Chicago, Ill. USA
 3200 Belmont Avenue, Chicago, Illinois

Combustible Gases

(Continued from page 26)

In most testing with a combustible gas indicator, the lower explosive limit is the maximum concentration in which the operator is interested. This can be taken advantage of in the type of indicator just described to make the readings independent of the composition of the combustible over a wide variety of gases. Hydrocarbons, alcohols, ethers, etc., in their lower explosive limit mixtures have nearly the same heating value, which means that the heat liberated per unit volume of those mixtures upon reaction between the combustible and the oxygen of the air is, for instance, practically the same for methane as it is for gasoline vapor, even though the percentages of gas present are widely different. Hence to mark off the indicator meter scale in proportion of the lower explosive limit allows the operator to see how near the mixture is to being explosive even though he might not know the specific composition of the combustible present.

There often arises the necessity for a continuously operating detector or indicator which will automatically give some warning signal at the approach of danger, operate equipment, or make a record of gas concentrations. The electrically measuring type of catalytic indicator is easily adapted to such service. Plants handling propane, butane, ether, or other volatile solvents, hydrogenation plants, underground gas substations, ship's pump rooms, or any location where combustible gas may accumulate unnoticed, can be equipped with such a device to warn against danger or to operate protective devices.

These continuous devices may be arranged to rest themselves upon subsidence of the alarm concentration. Preferably, however, they are manually reset by the operator in charge who must go to the indicator case and there determine the seriousness of the trouble by a glance at the indicator dial. The indicator cases are equipped with signal lights so that in case of a multiple installation, the operator can locate the source of the alarm at once.

Motor driven blowers are usually employed to suck the sample through small pipe lines to the continuous indicator, but any convenient source of vacuum may be used. Either alternating or direct current may be used to operate the entire device, the lighting circuit ordinarily furnishing the power.

Several other methods of gas detection embodying such principles as diffusion through membranes, differential refrac-

tion of polarized light, heat conductivity of the gas mixture, etc., are available, but their application is quite limited.

Enemies of Eyesight

(Continued from page 22)

contributing cause of about 20 per cent. If by improved lighting the cause of the majority of these accidents is removed, a great service will be rendered to the workers of this country. The cost of this relighting is usually far less than the accident cost.

It is an accepted fact that improved lighting increases efficiency. Fast work, more accurate work, and improved inspection, result from better illumination. Tests show production increases all the way from 10 to 35 per cent with improved lighting.

Even where automatic machines are used, excellent seeing conditions are of particular importance, for the machines must be attended and supervised. These machines produce material at a high rate of speed and any time lost in setting up, adjusting, supplying material or detecting faulty operation, will result in a large loss in production or spoilage.

Better illumination reduces the possibility of spoiling materials and ruining tools and machines.

Better lighting makes it possible for the foreman to see all his operators and machines quickly and easily. He can detect any faulty conditions which might be accident hazards or make for inefficient or difficult work.

Good lighting offers a satisfactory and economical way of advertising the fact that your plant is a desirable place in which to work. In the well lighted plant labor turnover is less.

Reduction of eyestrain means fewer headaches and minor ailments which are responsible for lost time and discontentment. Cheerful and comfortable surroundings have much to do with a worker's attitude toward his job and his employer. Since poor lighting may cause annoyance and an unfavorable reaction, it is quite likely that the cost of good lighting can be justified in many cases by the psychological benefits alone.

Twenty-four hour operation of industrial plants is rapidly becoming a necessity for lowering production costs. Increases in demands for products may soon force manufacturers to choose between adding more space and machinery for daytime operation or using the same plant and equipment continuously. In the majority of cases, a well lighted plant can make a change of this nature without alterations.

NATIONAL SAFETY NEWS

Safety Council Organized In Havana

A HELPING hand was stretched from Chicago to Havana, Cuba, in December to consolidate the organization of an affiliate of the National Safety Council—the Consejo Nacional para la Prevencion de Accidentes (Cuban Safety Council.) Sidney J. Williams, Director of Public Safety of the National Safety Council, flew to the Cuban capital to help with the organization and to assist officers and members of the new council in laying the groundwork for safety in industry and in government activities.

Dwelling on the scope of the safety movement in the United States and primarily stressing industrial safety, he addressed a group of more than 80 Cuban business men and public officials.

Officers of the Cuban Council, with whom Mr. Williams conferred during his two-day visit, include Antonio G. Mendoza, president; Lightly S. Simpson, vice president; Juan Sabates, vice president; Guillermo Arguedas, treasurer; Alfredo O. Ceberio, secretary; Julio E. Fuentes, G. E. Knight, George W. Magalhaes, C. F. Munroe, Scott Thompson, and T. M. Victory, members of the board; and P. K. Stiles, director.

COMING EVENTS

Of Interest to Safety Men

Jan. 9-11, Washington, D. C.

American Engineering Council. Annual Meeting. Executive secretary, Frederick M. Feiker, 744 Jackson Place, Washington, D. C.

Jan. 20-24, Cleveland, O.

American Road Builders' Association. Annual Convention. Engineer-Director, Charles M. Upham, National Press Bldg., Washington, D. C.

Jan. 27-31, Chicago

American Society of Heating and Ventilating Engineers. Annual Meeting. (Palmer House) Secretary, A. V. Hutchinson, 51 Madison Ave., New York City.

Feb. 18-20, Ann Arbor, Mich.

Conference on Highway Engineering—University of Michigan. Annual Convention. Secretary, R. E. Morrison, University of Michigan, Ann Arbor, Mich.

March 3-5, New York

Seventh Annual Greater New York Safety Conference. (Hotel Astor). Julien H. Harvey, Manager, New York Office, National Safety Council, 9 East 41st Street, New York City.

May 6-7, Chicago

Fourteenth Annual Midwest Safety Conference. (Stevens Hotel). George G. Traver, manager, Chicago Safety Council, 222 North Bank Drive, Chicago.

JANUARY, 1936



The Improved Lincoln Twin Disc Combination Scrubbing and Polishing Machine



The Lincoln Industrial Special for Dry Cleaning Factory Floors

CLEAN floors go hand in hand, with good safety records. They also increase your workers' morale causing greater pride in their work and surroundings. Increased efficiency and production naturally follow. Many companies have used Lincoln Twin Disc Floor Machines to their complete satisfaction for years. You, too, can keep your floors clean, economically and efficiently with these machines. Twelve models available to meet all requirements. A trial can be arranged without any obligation.

LINCOLN-SCHLUETER
Floor Machinery Co., Inc.
237 W. Grand Ave. Chicago, Ill.

The LINCOLN Twin Disc
SCRUBS - WAXES - POLISHES



SUDDEN DEATH
HURKS IN THE DUSTY PLANT

End Dust Hazards with a HOFFMAN Cleaning System

This U. S. Dept. of Agriculture photo shows what happens when long-standing accumulations of dust, dislodged by a primary flash, ignite and explode. Since serious explosions cannot occur where the dust is not allowed to accumulate, Hoffman vacuum

cleaning systems are an important safety aid in industries having explosive dusts.

We manufacture both portable and permanently piped systems. Plants surveyed, recommendations furnished without obligation.

Send for New Illustrated Booklet "REMOVE the MENACE of DUST"

U.S. HOFFMAN MACHINERY CORPORATION
AIR APPLIANCE DIVISION, 111 FOURTH AVE., NEW YORK



THE HANDIEST AND BEST AMPOULE ON THE MARKET

With handy rubber screw cap, which prevents evaporation, leakage and deterioration.

Mult-Aply AMPOULE
MULTIPLE APPLICATION

FILLED

With your choice of any of the following—

OIL of SALT
Iodine
Mercurochrome (H.W.D.)
Methaphen
Ferric Chloride
Merthiolate
Packed
2 cc in wood container
10 cc in cardboard sleeves

ECONOMICAL

SAFE—CONVENIENT

These applicators are not only convenient and safe but are also economical. The solution feeds direct to the wound through the smooth glass tip, thus avoiding the usual use of cotton that absorbs the solution causing considerable waste.

A profitable item for Jobbers and First Aid Supply Houses.

Write for Samples and Quotations

C. A. MOSSO Laboratories, 215 So. Leavitt St., Chicago, Ill.

PRESENTING New Justrite Safety Cans!



Waste! Can!

JUSTRITE'S Automatic oily Waste Cans give you safety, economy, efficiency. Opens with foot, closes automatically. Leaves both hands free—a great feature! Reduces insurance rate. Capacity: 5, 8, 10, 14 gallons.

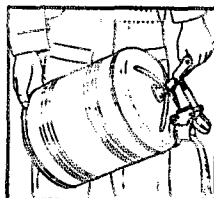
Opens with Foot
Closes automatically

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

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

LESSENS' INSURANCE RATES

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



SIZES
1 pint to
5 Gallons

Justrite
TRADE MARK

Justrite Mfg. Co.

2087 Southport Avenue
CHICAGO, ILLINOIS

Government Departments to Extend Safety Program

REPRESENTATIVES of twenty Government departments and agencies have passed a resolution calling upon Secretary of Labor Frances Perkins to appoint an interdepartmental committee on the promotion of safety and health to consider and effect measures which will reduce the human and economic cost of accidents and occupational diseases in Federal employment.

They discussed, at a meeting on December 12 called by Secretary Perkins, the problem of prevention of accidents and occupational diseases in the solution of which President Roosevelt has expressed great interest, and concluded that the incidence of accidents in Federal employment is higher than this class of exposure warrants.

The Government group also found that occupational diseases are becoming increasingly important as a known cause of disability in industrial employment and that the Federal government should strive for an exemplary record regarding the accident and health experience of Federal workers. It was pointed out that as certain governmental divisions have demonstrated the effectiveness of organized safety programs in producing unusual reductions of accident rates that a committee named by Secretary Perkins should be able to help solve the problem for all departments and agencies of government.

The Division of Labor Standards of the Department of Labor is now assisting state labor departments in the improvement of standards of safety and health, Secretary Perkins said in stressing the need for such a program in the Federal service. She will announce the names of the interdepartmental committee at an early date.

Honolulu Drivers Honored for Safe Operation

SIX Honolulu truck drivers, employees of the City Transfer Company, have been awarded four-year honor medals by the National Safety Council for having driven a combined distance equal to seven times around the world without accident.

The City Transfer Company is one of a dozen large transportation and hauling concerns in Honolulu which compete each year in the national safety contests, setting records comparable with the best reported in other sections of the United States.

NATIONAL SAFETY NEWS

The six truck drivers and their non-accident mileage for the past four years are as follows: Haruo Yasunaga, 49,173 miles; Manuel de Mello, 40,979 miles; Charles McAngus, 28,583 miles; Norman Reid; 31,400 miles; Tony Medeiros, 19,620 miles; and Edward Houghtailing, 12,439 miles.

This record is especially commendable in view of traffic conditions in Honolulu where many streets are narrow and winding. The city is so located between the mountains and the sea as to make traffic unusually congested in the wholesale, retail and waterfront districts where the truck drivers normally operate.

All transportation companies in Honolulu hold a local safety contest in connection with the national event. A beautiful plaque is presented to the company having the best record each year.

How a Bridge Worker's Job Looks to a Photographer

EDDIE MURPHY, photographer for the *San Francisco News*, was the first non-bridge worker to walk across the Golden Gate Bridge catwalk. In describing his experiences, Murphy said: "Scares and thrills—I got them both walking across the Golden Gate on the great bridge catwalk that stretches from the San Francisco side to Marin County.

"Scares aplenty that made me catch my breath in the ascent to the dizzy top of the 746 foot tower at Fort Point. But I was a lot more shaky when I got out on the catwalk and came to gaps where I looked straight down a seventh of a mile to the water of the Golden Gate.

"The biggest thrill came in bouncing along the catwalk. The long walk springs up and down like a bedspring and at that height you get a kick out of the bouncing sensation that even stunt flying can't quite touch.

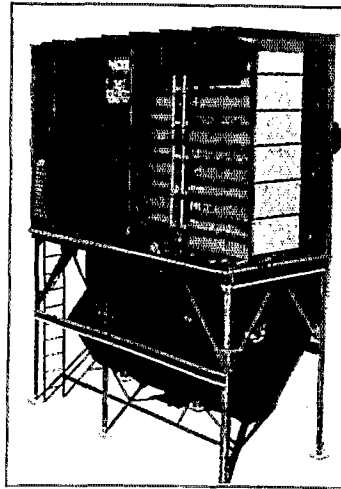
"I started from a platform perched up near the top of that sky-reaching tower at Fort Point. I took a deep breath as I looked down on the 17 foot wide catwalk of redwood planking and wire mesh. From more than 700 feet this catwalk sweeps down in steep descent to about 450 feet in the center. It looks mighty steep, but it looked even steeper when I came back up.

"Then, what made me shakiest, out on the catwalk were open spaces between sections of redwood planking. There is nothing between these gaps but a cable wire and though the openings are not more than about a foot across, they looked much wider than that."

JANUARY, 1936

GET RID OF DUST

For SAFETY FIRST Make 1936 a Dustless Year



PANGBORN Dust Collectors have protected men and equipment from the destructive forces of Demon Dust for over thirty years.

Dust is a profit-eater! Day and night, month after month, year after year, this demon is ruthlessly, savagely, destroying YOUR machinery . . . YOUR buildings . . . sapping the health of YOUR employees.

BUT . . . this menace SHOULD and CAN BE easily and profitably CONTROLLED . . . by PANGBORN all metal, cloth screen, DUST COLLECTORS. Write for information.

Bulletin just reprinted . . . ask for a free copy.

PANGBORN CORPORATION

World's Largest Manufacturer of Dust Collecting
and Blast Cleaning Equipment

HAGERSTOWN

MARYLAND

ANNOUNCING A New Strauss Catalog

On Strauss
Safety Belts
Protective Helmets
Foot Guards
Protective Heat
Clothing

Mr. Safety Director:

This new catalog illustrates and describes practically every safety belt now in use in the large industrial plants of the United States. The protective helmets, known as "Cool" Hats and "Cool" Caps, are in use throughout the world. You will find this catalog of value to you in your safety equipment file. Send for your copy now.

The Strauss Company, Inc.
Brady Building Pittsburgh, Pa.

A SAFE HAPPY and PROSPEROUS NEW YEAR



Our Resolution!

To maintain our quality and service so that old customers will continue to specify STEEL-GRIP on their purchase orders with the full assurance they will receive an article of as satisfactory performance as they received last time—and all of the times before.

(This is paramount when the equipment that is used must perform 100% when called upon to save a life.)

A Suggested Resolution For You!

To determine to buy only the highest quality safety equipment for the preservation of the lives of your employees.

(A well-designed, high-quality article of safety equipment is never as expensive as a serious injury.)

**SPECIFY STEEL-GRIP and GET
QUALITY, DESIGN and SERVICE!**



INDUSTRIAL GLOVES CORPORATION

725 GARFIELD BLVD.
DANVILLE, ILL.

Chicago

Philadelphia

Detroit

Murderous Monoxide

(Continued from page 20)

lapse. The power prover showed that less than 50 per cent of the fuel was being burned within the engine and that the exhaust gases contained more than 15 per cent of carbon monoxide by volume. The exhaust system contained several leaks, the worst of which was a leak in the seam of the muffler.

The floor boards were loosely fitted and without the protection of a mat. Exhaust gases from the split muffler had impinged upon the under side with sufficient force to char the wood.

In another case, the two occupants of the car were asphyxiated while the car was parked. The detector was placed in the car and observed through the window. A lethal atmosphere was indicated within five minutes after the motor was started. The power prover indicated a combustion efficiency of less than 50 per cent. The car was equipped with an exhaust manifold heater and when this was removed an exhaust gasket leak was discovered.

The windshield of this car bore a sticker indicating that it had passed the state compulsory examination only a few weeks prior to the tragedy.

In the third case, the driver drove into a ditch where he was found several hours later slumped over the wheel. To determine the concentration of monoxide the car was operated over the road. The detectors were placed on the front seat and the investigator wore an all-service gas mask. On the highway concentrations reached 10 parts monoxide in 10,000 parts of air. With the motor idling, as it was when found, the concentration reached 30 parts, which would account for the operator's death.

Here again a combustion efficiency of less than 50 per cent was found, and the exhaust was excessively rich in carbon monoxide. The exhaust leak occurred at the flange between the manifold and the exhaust pipe, although the owner had performed a "hay wire" repair. The floor boards were loosely fitted and not covered with a mat.

The moral of this case is, "a gasket is cheaper than a casket."

If the motors in these three cases had been properly tuned to a combustion efficiency of 85 per cent, the monoxide within the passenger compartments would have been reduced to at least one-fourth of the observed concentrations.

In each case there was a leak in the

exhaust system and an opening in the car body through which the vitiated air could enter.

It is seldom feasible to examine cars in which carbon monoxide has caused an accident. Such cars are usually damaged beyond all possibility of driving them on the highway. Two examples, however, are typical of thousands in which carbon monoxide was a contributing if not a direct cause.

The driver of a truck, after having been on the highway between two and three hours, drove at moderate speed into the rear end of another parked truck. The vehicle was damaged beyond the possibility of determining the source of carbon monoxide, but an examination of the dead driver's blood indicated a monoxide saturation which would seem to account for his poor judgment and lack of alertness.

The owner of a private vehicle, after driving about two hours, drove into a street car loading zone. One person was killed and two others would have been if they had not dodged quickly. The operator was at first held for "driving while intoxicated" as well as for manslaughter and reckless driving, because he was observed to stagger while alighting from the car. Medical examination, however, failed to indicate the presence of alcohol in the driver's blood but revealed the presence of carbon monoxide.

Recommendations

1. A system of periodical inspection should be established, whereby all cars will be tested for combustion efficiency and examined for maintenance of exhaust systems and bodies. This could be accomplished by adding those



NATIONAL SAFETY NEWS

examinations to the compulsory inspections provided for in some states.

2. The public should be familiarized with the symptoms and dangers of carbon monoxide so that they will have their cars examined when they experience headaches.

3. The army marching custom of resting five minutes out of each hour is a good one. This would make the journey more pleasant as well as safer. Such rest periods, with fresh air and exercise, would prevent muscular and mental fatigue and help to replace with oxygen any carbon monoxide which the blood had accumulated.

Cleveland Campaigns

(Continued from page 28)

to safeguarding machines and improving physical conditions generally.

The Division of Safety and Hygiene also furnished 25,000 National Safety Council posters for display on bulletin boards, also 60,000 pamphlets prepared specially for the Cleveland campaign. In addition, the Division supplied 20,000 regular monthly posters and 20,000 copies of the *O. I. C. Monitor*, a monthly magazine, and other types of safety literature for distribution to supervisors, foremen, superintendents and executives. These aids to safety programs are available without charge to all employers in Ohio.

The success of our Greater Cleveland Industrial Safety Campaigns has been due in large measure to the splendid safety spirit of the community, and the many participating organizations, and to the leadership of Thomas P. Kearns, campaign chairman and superintendent of the Division of Safety and Hygiene, and Carl L. Smith, managing director of the Cleveland Safety Council. These two organizations sponsored the campaign and paid the expenses of conducting them. No charge was made to participants.

The community type of safety campaign is spreading throughout Ohio. Similar campaigns are now in progress in Cincinnati, Toledo, and Lorain County.

Treatment in Poisons Producing Methemoglobin

WHEN methemoglobin is present in the blood it means that a certain per cent of the blood is not available for respiration. Methemoglobin is a stable compound produced by the oxidation of hemoglobin. If a sufficient per cent of the hemoglobin is in the form of methemoglobin, asphyxiation occurs, because oxygen cannot be transferred by methemoglobin.

Certain substances oxidize hemoglobin

to methemoglobin, notably among these are acetanilid, some aniline dyes, nitrates, nitroglycerine, and a variety of other substances.

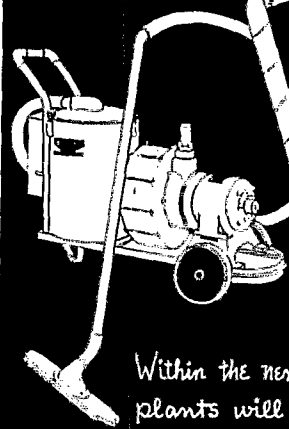
It has been shown in experiments with animals which have received NaNO_2 in order to produce methemoglobin in the blood stream, that injections of glucose immediately reduce methemoglobin to hemoglobin which can then be oxygenated to oxyhemoglobin and the normal process of respiration continued. If glucose is injected before NaNO_2 , methemoglobin formation is prevented. In other words, in the blood stream glucose tends to produce an oxidation-reduction potential too negative to permit of the existence of methemoglobin.

It is therefore suggested that in cases of poisoning by substances such as those mentioned above, which produce methemoglobin, injections of glucose be administered. Headaches caused by dynamite blasting which produces methemoglobin, would also be relieved by ingesting glucose.

Matilda Moldenhauer Brooks, Ph. D.
University of California, Berkeley,
Cal.

1. Preliminary, M. M. Brooks, Proc. Soc. Exp. Biol. & Med. 37: 1144 (1934); California and Western Medicine, Nov., 43: No. 5, (1935).

Simple mathematics:



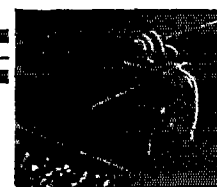
VACUUM CLEANING = ORDERLINESS
AND
ORDERLINESS = GREATER SAFETY
THEREFORE
VACUUM CLEANING = GREATER SAFETY
(and costs less than broom cleaning)

Within the next ten years, vacuum cleaning of industrial plants will be universally recognized as the logical starting-point of every safety program... And what is equally important, it cuts your cleaning costs 30 to 50 %

MAY WE TELL YOU MORE?

INVINCIBLE VACUUM CLEANER MFG. CO.
2301 DAVIS ST. EST. 1905 DOVER-OHIO

Style
"A"



Price
\$15.00

Fits any rail from 40 to 110 lbs.

Good Practice— Plus Safety

Bracing car wheels with wood blocks is dangerous and often costly.

M & M Rail Clamps

the safest and surest possible stop for car wheels—they provide safe conditions and guard against accident and property damage.

M & M Rail Clamps

are recommended for use on runways in repairing cranes, on loading platforms, temporary sidings, etc.

Industrial Products Company

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

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

Wire Rope Thimbles

Macwhyte Company, Kenosha, Wis., announce a new type of thimble for wire rope slings. The same size thimble is used on both ends of the sling and yet either thimble passes through the other, making it possible to use the same sling for both choker and basket hitches. It is claimed



that this new thimble design steps up production by making loads easier to handle, and also gives longer life to slings used on choker hitches. Either end of the sling may be attached to the crane hook and using first one end and then the other, two wearing points in the body of the sling are provided.

Another special feature of these new thimbles is the fact that there is no seizing to cover up the rope in the thimble. Inspection is made easy at all times. This special type of thimble is supplied on braided body slings made from endless wire ropes.

G-E Fire-Proof Elevator Control Cable

A new, fire-resisting, multi-conductor elevator control cable which, being of the Deltabeston line, is also resistant to moisture, oil, and corrosive vapors, is announced by the General Electric Company's Merchandise Department, Bridgeport, Conn. The cable is furnished in any required length and with any number of conductors up to and including 37.

A number of tests, recently conducted, indicate its effectiveness for applications where elimination of fire hazards is of particular importance. The manufacturers report the dielectric strength of the individual conductors tested to better than



25,000 volts breakdown. Immersion in water for one hour had no effect on the dielectric strength. After 24 hours' immersion in water, the dielectric strength was 18,000 volts. The single conductors were then subjected to the standard Underwriters' flame test, and exceeded the requirements. The insulation did not support combustion, and the dielectric strength after the test was more than 1,500 volts to ground. When the complete cable was subjected to the same Underwriters' flame test, it showed no signs of burning or of supporting combustion, and the dielectric strength between the con-

ductors after the test was more than 3,000 volts.

It is further claimed the amount of organic or flammable materials incorporated in the cable has been kept at the minimum. In manufacturing it, flame-resisting and water-proof rubber is first used to insulate the flexible copper strands. A wall of purified, felted asbestos is then applied over the rubber insulation by the Deltabeston process. Each conductor is color-marked and the individual conductors are cabled together with fire-resisting fillers. The cable is bound together with a single-faced rubberized tape, and is finished with a purified, reinforced asbestos-yarn braid which is thoroughly saturated with a flame-proof and moisture-resisting compound.

Improved Oxygen-Breathing Apparatus

Mine Safety Appliances Company, Pittsburgh, Pa., has added a new, light-weight half-hour oxygen breathing apparatus to its line of respiratory protective equipment. The new unit is a development of the MSA Research Laboratories, and was officially tested and approved by the U. S. Bureau of Mines prior to its introduction to the trade. Among the advantages of the design are one-third less



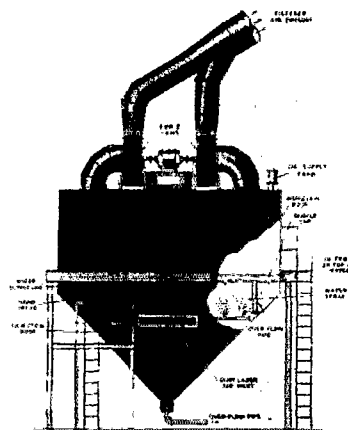
weight, greater wearing comfort, easier maintenance, and generally improved efficiency of control and operation.

Mouthpiece type is furnished complete with a skull cap that will fit any size head. Both the nose-clip and mouthpiece are speedily adjusted. A pair of gas-tight, non-fogging goggles are included. The facepiece type is equipped with Kops-type facepiece, where complete protection of the face is desired, as in fire-fighting service, etc. Facepiece and connecting tubes are made of high-grade black rubber. The facepiece is easy to adjust, and fits any face. It permits natural breathing, hearing and speech.

Froth Flotation Dust Collectors

The C. O. Bartlett & Snow Company, 6500 Harvard Avenue, Cleveland, Ohio, announce a new dust collector designed on the "froth flotation" principle. To obtain this effect the equipment is provided

with collecting hoods, air ducts and an equalizing chamber, the top of which is pierced with six-inch openings. Bubble caps are placed over these openings, so that in passing, the air bubbles successfully through water and the frothing agent. The manufacturers further state in operation the dust-laden air is drawn through

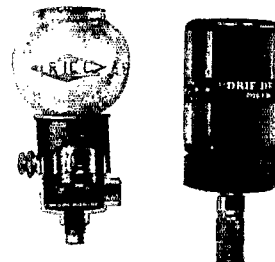


ducts to the equalizing chambers and then passed upward through "bubble caps" into a water bath which is covered with an oil carpet and discharged from the upper chamber with a fan. The larger dust particles are removed in the water. The fines are trapped in the oil carpet. Standard sizes range from 1,000 cubic foot machines to those capable of handling 35,000 cubic feet a minute.

New Visible Lubricators

The Trico Fuse Manufacturing Company, 1011 McKinley Avenue, Milwaukee, Wis., announce a new addition to its line of Opto-matic constant level lubricators. The new model known as number 3 size, greatly increases the number of applications for maintaining constant level lubrication on ring or ball bearing shafts.

Simultaneously the firm is presenting a

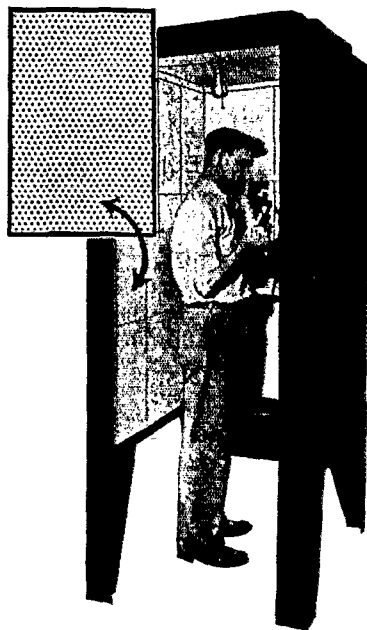


new bottle type oiler known as the Drip-Drop for solid, wick or waste-packed bearings. This new oiler drops oil on the bearing from the top exactly as the bearing needs it and eliminates daily oiling by the hand method. The manufacturers state it is designed to fit 95 per cent of the installations without drilling or tapping. It is made in three sizes.

NATIONAL SAFETY NEWS

Burgess Acoustic Communication Booth

A new type of telephone booth, built on the principle of absorbing extraneous sounds has been designed by the Acoustic Division of the Burgess Battery Company, Madison, Wis. The interior of this new booth is faced with a perforated metal sheet backed with balsam wool. The perforated metal facing may be washed easily, and its construction discourages defacement by pencil scribbles. One of the new



features is the absence of the door, which is made possible by the fact that the lining deadens extraneous noise and the speaker's voice is not transmitted beyond the booth. The manufacturers state that noises such as originate in steel mills, forging plants, punch press rooms, and other noisy factories, are instantly absorbed, producing within the booth a space of comparative silence.

The booth is open around the base, permitting adequate ventilation and easy cleaning. A shelf supports the telephone instrument, and illumination is provided by an electric light in the ceiling of the booth and also by light which enters the unobstructed front opening.

NEWS ITEM

Keith J. Evans has been appointed Manager of the Sales Promotion Division of Inland Steel Company, according to an announcement made. Mr. Evans will be in charge of the company's advertising, sales statistics and commercial research. He has served in a similar capacity with Joseph T. Ryerson, Inc., since 1917, and will continue to do so in addition to his new position. He will have offices at both establishments.

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.

JANUARY, 1936

Trade Publications

for your

SAFETY EQUIPMENT LIBRARY

A Service For Our Readers

Now is the time to devote more study to all types of equipment and products which can lower production costs through factors of safety. Find out now what the market offers. The publications listed below will be sent free and without obligation to readers of National Safety News. Indicate on coupon the publication you desire.

- 1. First Aid Kits and Refills.** This interesting folder illustrates and describes several types of first aid kits and refills and gives suggestions for assortments of dressings and treatments. E. D. Bullard Company.
- 2. Lux Makes the Difference.** A splendid pamphlet dealing with fire extinguishing equipment. Gives details on the Lux System and tells how it operates. Walter Kidde and Company, Inc.
- 3. M. S. A. Hose Masks.** This attractive folder presents the 1936 line of M. S. A. hose masks. Illustrates and describes five types to meet the demands for this kind of equipment. Mine Safety Appliances Company.
- 4. Brown Air Operated Controllers.** A well illustrated folder on equipment designed for the measurement and control of temperature, pressure, flows and liquid levels, for specific process requirements. Brown Instrument Company.
- 5. Weed Chains and Accessories.** Catalog No. 4. A complete catalog of Weed tire chains for passenger cars, trucks, buses and tractors. Arranged to make it easy to specify the size of chain desired. Also contains accessories of value. American Chain Company.
- 6. Wheelbrator Data Book.** A comprehensive coverage of abrasive cleaning and preparation methods is contained in this book on the subject of Wheelbrating the airless abrasive cleaning and preparation method. American Foundry Equipment Company.
- 7. Salisbury New Connector End Line Hose.** Folder illustrates how this new connector end line hose is used and tells where it is valuable from the standpoint of safety and convenience. W. H. Salisbury and Company, Inc.
- 8. Chippewa Safety Shoes.** Catalog shows a line of safety shoes with steel and fibre toe protection. Various types illustrated for industrial uses. Chippewa Shoe Manufacturing Company.
- 9. Report on Alloy Metals.** A summary report of more than 50 lubrication tests with Pyroil in connection with alloy bearings. An interesting study of value to those concerned with lubrication problems. Pyroil Company.
- 10. Macwhyte Wire Rope.** A splendid catalog with spiral binding for easy use. Contains valuable information on wire rope with tables showing sizes, weights, and breaking strength. Slings and fittings also covered. Macwhyte Company.
- 11. Audubon Wire Cloth.** A well illustrated 8-page condensed folder giving valuable information on the use of flexible wire cloth particularly adapted for conveyor belts or aprons. Filter wire cloth in all meshes, metals and weaves also covered. Audubon Wire Cloth Corporation.
- 12. Why Ten Models Are Made.** Interesting folder dealing with industrial dust problems with illustrations and descriptions of ten models designed to meet various requirements. Invincible Vacuum Cleaner Manufacturing Company.

NATIONAL SAFETY NEWS

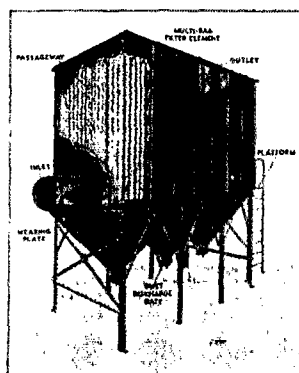
20 North Wacker Drive
Chicago, Ill.

January, 1936

Please have sent to me the publications I have checked:

Name.....
Title.....
Company.....
Address.....

Eliminate DUST the DRACCO way



The
NEW
DRACCO
MULTI-
BAG
FILTER

DRACCO ENGINEERS are EXPERTS

Our Engineers with years of experience to draw from study each problem and design a unit to fit each case. The DRACCO MULTI-BAG FILTER was especially designed to supply the demand for an EFFICIENT unit, having low initial and operating costs. If there is DUST in your plant, eliminate it the DRACCO way. It will pay in dollars and cents.

Write for Bulletin No. 301

DRACCO CORPORATION

Successors to The Dust Recovering & Conveying Co.
4073 E. 116th St. Cleveland, Ohio

Is There TROUBLE AFOOT

In Your Factory

Worn, slippery floors mean accidents ahead, valuable men laid up, costly delays in production. Apply PLASTIC FUT-SURE to all old walking surfaces and you end this danger. It's economical to buy. It's easy to apply. Keeps floors, stairs, ramps and run-ways permanently safe. Write for folder and prices.

GENERAL ABRASIVE CO., INC.

2065 College Ave.

Niagara Falls, N. Y.

PLASTIC FUT-SURE

FOR SAFER WALKING SURFACES

Back to Work

(Continued from page 13)

directly accountable for destroying the orderly processes of thought and submerging them in these powerful emotions. These emotions are known to alter the fluids of the body, suppress or stimulate glandular action, and work havoc with the nervous mechanism. Some of us are so constituted mentally that we can carry on safely and efficiently even in the face of such disturbing elements, but there are many less fortunate.

If, in addition to a disturbed state of mind, the employee has a body tormented by the pain or discomfort of sickness, he is apt to come to grief earlier, and the results of his accident will be more serious. When a man is sick in mind and body, the scene is set for an accident. Where health and a calm mind exist in an environment of comfort, we have the safety man's dream.

How, then, can we protect both employee and employer?

We must plan a broader employment selection. We must consider the mental states of those returning to industry. We should change the age limit for the new employee, permitting older men to find work and encouraging the young recruit to take up gainful occupation in a safe manner. It is essential that there be greater personal contact between management and employee, and a better understanding of each other's problems. The physical condition of those returning to work after prolonged unemployment must be carefully examined and the individual placed at work suited to his mental and physical qualifications. This means a medical policy far superior to that in vogue in the past, both as to equipment and personnel, and we should extend our study of preventing illness as well as accidents.

We must individualize the instruction to reach each employee and not rely on mass education. Fit the handicapped worker in the industrial niche that his physical condition will permit. Be more careful in introducing the employee to the work he is to perform. Let there be a more thorough interest and understanding by the supervisor of the problems of those under his direction. After employment we must consider maintenance of men from a physical standpoint and give the same care to their health as we give to our rolling stock and other property.

Employee health is so interwoven with efficient work and with safety that we

must open our eyes to the necessity of aiding the employee to maintain himself as nearly in physical perfection as possible. If we fail now, government regulating bodies are quite likely to put forth plans for employee health and economic security.

Organization to Study Air Contamination

AIR Hygiene Foundation of America, Inc., has been formed by a large group representing various industries, with headquarters at Thackeray Ave. and O'Hara St., Pittsburgh, Pa. This organization will conduct investigations in the field of air hygiene and gather and disseminate information. It will also cooperate with other agencies active in this field. A comprehensive investigation has been begun at Mellon Institute of Industrial Research, Pittsburgh, under support of Air Hygiene Foundation, in which the hygienic, technologic, and economic aspects of air contamination, especially by dust in the industries, will be studied.

H. B. Meller, who has been appointed managing director of Air Hygiene Foundation, will head this investigation at Mellon Institute. During the past fifteen years he has been in charge of the program for the abatement of smoke and dust in the City of Pittsburgh; and since 1923 he has headed the Air Pollution Investigation at Mellon Institute. He has made numerous contributions to the literature of the municipal smoke problem and its control.

In this investigational work Mr. Meller will be aided by Dr. F. F. Rupert. The latter has been an Industrial Fellow of Mellon Institute since 1913, specializing in physical chemistry. During the past three years he has made studies of air pollutants and especially of dusts, working with Mr. Meller; he has also carried out a number of plant investigations, in the course of which he has evaluated procedures for determining and controlling industrial dusts.

The investigational program will also embrace medical studies. The medical adviser will be Dr. Samuel R. Haythorn, professor of preventive medicine in the School of Medicine of the University of Pittsburgh and director of the Singer Research Laboratories, N.S., Pittsburgh.

But Gas and Gin Don't Mix

It's going to be hard for the corner saloon to come back, unless it is willing to move in with a gas station.

NATIONAL SAFETY NEWS



THE SAFE WAY

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

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*Over 40 years' Experience is
at your service for the asking.*

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SAFETY TREAD CO.
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**IN STOCK AT TEN PLANTS
RYERSON STEEL-SERVICE**

Chicago

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JANUARY, 1936

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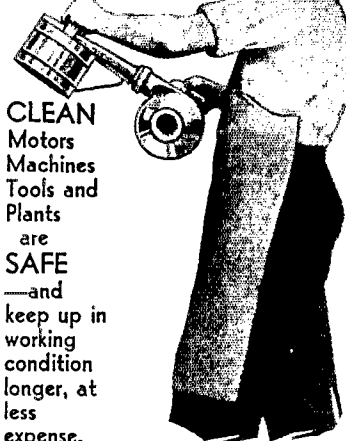
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Progress in Perambulators

Proud baby carriage pushers no longer need take the corners on two wheels. A new type of carriage has a steering device on the handle by which the front wheels can be turned.

—Nation's Business.

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SUCTION
CLEANS**



**CLEAN
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Tools and
Plants
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—and
keep up in
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longer, at
less
expense.**

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THE BUYERS' SERVICE

See Advertisers' Index, Page 75—When writing, please mention National Safety News

A
Accident Prevention Service
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American Foundry Equipment Co.
General Abrasive Co.

Alarms, Fire
Mine Safety Appliances Co.

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Moss Laboratories, C. A.

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Portable Lamp & Equipment Co.

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Safety Equipment Service Co., The
Safety First Supply Co.
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Blaw-Knox Co.
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Iracos Corporation
Pangborn Corp.
Surtz Mfg. Co., The

Awards, Prize
Mine Safety Appliances Co.

B
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Mine Safety Appliances Co.

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Bullard Company, E. D.
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Safety Equipment Service Co., The
Safety First Supply Co.
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Bullard Company, E. D.
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Safety Equipment Service Co., The
Safety First Supply Co.
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Pulmonan Safety Equipment Corp.
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Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.

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Sanitary Institute of America

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Sleepsafe Industries, Inc.

Compounds, Cleaning
Safety Clothing Co., The

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Justite Mfg. Co.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.
Protocolsal Company
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co., The
Strauss Company, The

D
Detectors, Gas
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Mine Safety Appliances Co.
Portable Lamp & Equipment Co.

Detectors, Indicators, Recorders, Carbon Monoxide
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Mine Safety Appliances Co.

Detectors, Pyrotannic
Mine Safety Appliances Co.

Disinfectants and Deodorants
West Disinfecting Co.

Dust Camera

Dusters, Rock
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.

E
Emblems, Safety
Mine Safety Appliances Co.

Exhausts, Grinding Wheel
Surtz Mfg. Co., The

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Safety Clothing Co., The
Safety Equipment Service Co., The
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Standard Safety Equipment Co.

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Elliott Service Co.
Mine Safety Appliances Co.
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Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.

C
Cans, Oil
Bullard Company, E. D.
Industrial Products Co.
Mine Safety Appliances Co.
Protocolsal Company
Safety Equipment Service Co., The

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Justite Mfg. Co.
Mine Safety Appliances Co.
Protocolsal Company
Pulmonan Safety Equipment Corp.

Pulmonan Safety Equipment
Corp.
Strauss Company, The

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Safety Clothing Co.
Safety First Supply Co.

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Never Slip Safety Supply Co.
Cleaning Equipment, Abrasive
American Foundry Equipment Co.

Cleaning Systems, Vacuum
Clements Manufacturing Co.
Invisible Vacuum Cleaner Mfg. Co.
Spencer Turbine Co.
Surtz Mfg. Co., The
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Clothing for Industrial Workers—See Aprons, Gloves, Hand Leathers, Leggings, Shoes

Clothing, Acidproof
Clothing, Fireproof
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NATIONAL SAFETY NEWS

THE BUYERS' SERVICE

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Exterminator, Rodent

Extinguishers, Fire
Bullard Company, E. D.
Harker Mfg. Co.
Ridde & Co., Inc., Walter
Mine Safety Appliances Co.
Portable Lamp & Equipment
Co.
Pulmonan Safety Equipment
Corp.
Pyrene Mfg. Company

F

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Poppelair, Inc.
Surtz Mfg. Co., The

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Clipper Belt Lacer Co.

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Bauer & Black
Bernhard, Robert A.
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Mine Safety Appliances Co.
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Fountains
Bauer & Black

G

Germicides

Germicides, Cutting Oil
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Standard Safety Equipment Co.
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Industrial Products Co.
Safety Clothing Co., The
Safety Equipment Service Co., The
Standard Safety Equipment Co.

Guards, Kick Press

Surtz Mfg. Co., The

Guards, Portable Lamp

Guards, Power Press
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Guards, Safety

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Portable Lamp & Equipment Co.
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Strauss Company, The

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Helmets, Safety

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Portable Lamp & Equipment Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co., The
Strauss Company, The

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Industrial Products Co.
Mine Safety Appliances Co.
Safety Equipment Service Co., The
Safety First Supply Co.

I

Inclinators, Carboy

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Industrial Products Co.
Safety Clothing Co.
Safety Equipment Service Co., The

Indicators, Flammable Vapor

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Davis Emergency Equipment Co., Inc.
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Insurance

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Interlock Systems

Union Switch & Signal Co.

J

L

Ladder Shoes or Feet

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American Mason Safety Tread Co.
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Davis Emergency Equipment Co., Inc.
Dartmouth Safety Ladder Co.
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Mine Safety Appliances Co.
Patent Seafolding Co., The
Pulmonan Safety Equipment Corp.
Safety Clothing Co., The
Safety First Supply Co.
Surtz Mfg. Co., The

Ladders, Safety

Bullard Company, E. D.

Safe Walkways — Fewer Falls Lower Compensation Costs

A report of the New York State Department of Labor, covering a period of three years, showed that 62 per cent of all compensated cases resulting from falls of workers were caused by falls on stairs or level surfaces. The compensation paid out amounted to \$8,125,304. Make your walkways safe by keeping stair treads and floors in a safe, non-slip condition. It can be done. One large chain of restaurants reduced its premium almost \$30,000 a year by investing a considerably smaller sum in suitable surfacing materials, etc., required for the eradication of certain walkway hazards.

Accident Prevention Equipment Manufacturers Section of the National Safety Council

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Industrial Products Co.
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Standard Safety Equipment Co.
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Chicago Eye Shield Co.
Cover, H. S.
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Pulmonan Safety Equipment Corp.
Safety Clothing Co., The
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Standard Safety Equipment Co.
Willson Products, Inc.

Guards, Flywheel
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Industrial Products Co.
Surtz Mfg. Co., The

Guards, Foot and Toe

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Safety First Supply Co.
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Strauss Company, The

Guards, Gear

Surtz Mfg. Co., The

Guards, Grinding Wheel

Surtz Mfg. Co., The

Guards, Joinder

Industrial Products Co.
Safety Equipment Service Co., The
Standard Safety Equipment Co.
Surtz Mfg. Co., The

Industrial Products Co.
Safety Clothing Co., The
Safety Equipment Service Co., The
Surtz Mfg. Co., The
Wiesman Mfg. Co.

Guards, Saw

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Industrial Products Co.
Safety Equipment Service Co., The
Standard Safety Equipment Co.
Surtz Mfg. Co., The

Guards, Shaper

Industrial Products Co.
Standard Safety Equipment Co.
Surtz Mfg. Co., The

Guards, Treadle

Surtz Mfg. Co., The

Hand Cream

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Industrial Products Co.
Mine Safety Appliances Co.
Safety Clothing Co.

Hats, Safety

Bullard Company, E. D.
Industrial Products Co.

JANUARY, 1936

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Dayton Safety Ladder Co.
Mine Safety Appliances Co.
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Lamps, Safety

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Mine Safety Appliances Co.
Portable Lamp & Equipment Co.

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Bullard Company, E. D.

Lanterns, Electric

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Industrial Products Co.
Justite Mfg. Co.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.

Leathers, Hand,

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Industrial Products Co.
Pulmonan Safety Equipment Corp.
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Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Strauss Company, The

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Industrial Products Co.
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Safety Clothing Co., The
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Safety First Supply Co.
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Strauss Company, The

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Lubrication

Proll Company

M

Machines, Floor Cleaning, Electric

Lincoln-Schluster Floor Mch. Co.

Markers, Traffic

Safety Equipment Service Co., The

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Davis Emergency Equipment Co., Inc.
Industrial Products Co.
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Safety Clothing Co., The
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Safety First Supply Co.
Standard Safety Equipment Co.
Willson Products, Inc.

Mats, Standing, Safety

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Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Safety First Supply Co.

Mattress, Fireproof

Sleepsafe Industries, Inc.

Metal, Expanded

Surtz Mfg. Co., The

Metal, Perforated

Harrington & King Perforating Co.

Safety Equipment Service

Co., The
Safety First Supply Co.

Poster Service

Elliott Service Co.
National Safety Council, Inc.
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Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Mine Safety Appliances Co.

Protectors, Arm

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Davis Emergency Equipment Co., Inc.

Safety First Supply Co.

Salisbury & Co., W. H.
Standard Safety Equipment Co.

Publications, Safety

National Safety Council, Inc.
Safety Magazine Publishing Corp.

Pullers, Fuse

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Industrial Products Co.
Mine Safety Appliances Co.
Safety Equipment Service Co., The

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.

Rope, Wire

Macwhirte Company

S

Scaffolding, Safety

Patent Scaffolding Co., The

Screw Drivers, Non-skid

Surtz Mfg. Co., The

Shades, Eye, Non-breakable

Bullard Company, E. D.
Chicago Eye Shield Co.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Mine Safety Appliances Co.
Safety Clothing Co.
Safety Equipment Service Co., The

Shades, Window, Industrial

Shoes, Safety, Factory and Foundry

Bullard Company, E. D.
Industrial Products Co.
International Shoe Co.
Lehigh Safety Shoe Co.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.
Safety Equipment Service Co., The
Safety First Supply Co.
Safety First Supply Co.

Shoes, Wooden Sole

Industrial Products Co.
Reece Wooden Sole Shoe Co., Inc.

Signs, Accident Prevention

Bullard Company, E. D.
Industrial Products Co.
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.
Safety Clothing Co., The
Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Stonehouse Signs, Inc.

Sirens and Signals

Bullard Company, E. D.
Industrial Products Co.

Slings, Chain

American Chain Co., Inc.
Columbus-McKinnon Chain Corp.

Slings, Safety, Wire

Rope
Macwhirte Co.

Soap

Huntington Laboratories, Inc.

Soles, Shoe, Non-slip

Lima Cord Sole & Heel Co.

Sterilizing Equipment

Straps, Safety

Buhrke Company, R. H.
Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Klein & Sons, Mathias
Portable Lamp & Equipment Co.

Stretcher Units

Surveys, Eye Sight

Systems, Dust Control

American Foundry Equip. Co.
Blaw-Knox Co.
Ingersoll Corporation
Pangborn Corp.
Surtz Mfg. Co., The
U. S. Hoffman Machinery Co.

T

Tents, Pneumonia

Bishinger-Koehler Mfg. Co., Inc.
Mine Safety Appliances Co.

Testers, Fuse

Tools, Linemen

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Klein & Sons, Mathias

For Safety and Efficiency Apply Modern Safeguards

Insurance rate dropped from \$2.00 to only 30 cents per \$100 of payroll. This is the record of a large wood products company which recognized the value of properly guarding its many machine operations. Band saws, swing saws, shapers, borers, etc., were guarded with modern equipment. Good guards, plus a well rounded safety program, brought about a 43 per cent reduction in accident costs the first seven months of one year, as compared with eight months' operation the previous year.

Accident Prevention Equipment Manufacturers Section of the National Safety Council

Industrial Products Co.

Movers, Railway Car

Bullard Company, E. D.
Industrial Products Co.
Safety Equipment Service Co., The
Standard Safety Equipment Co.

O

Oxygen Breathing Apparatus

Bishinger-Koehler Mfg. Co., Inc.
Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.

P

Pads, Miners'

Lehigh Safety Shoe Co.
Portable Lamp & Equipment Co.

Pads, Knee

Bullard Company, E. D.
Industrial Gloves Corp.
Industrial Products Co.
Industrial Products Co.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co., The

Industrial Gloves Corp.

Industrial Products Co.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.

Safety Clothing Co., The
Safety Equipment Service Co., The

Safety First Supply Co.
Standard Safety Equipment Co.
Strauss Company, The

Protectors, Finger

Bauer & Black
Industrial Gloves Corp.
Safety Clothing Co., The
Safety Equipment Service Co., The

Protectors for Linemen

Bullard Company, E. D.
Davis Emergency Equipment Co., Inc.
Industrial Gloves Corp.
Industrial Products Co.
Industrial Products Co.
Mine Safety Appliances Co.
Pulmonan Safety Equipment Corp.
Safety Equipment Service Co., The

Pumps, Oxygen

Bishinger-Koehler Mfg. Co., Inc.
Mine Safety Appliances Co.

R

Respirators

American Optical Company
Bishinger-Koehler Mfg. Co., Inc.
Bullard Company, E. D.
Chicago Eye Shield Co.
Corcoran, E. R.
Davis Emergency Equipment Co., Inc.
Industrial Products Co.
Mine Safety Appliances Co.
Pangborn Corp.
Portable Lamp & Equipment Co.
Pulmonan Safety Equipment Corp.
Safety Clothing Co., The
Safety Equipment Service Co., The
Safety First Supply Co.
Standard Safety Equipment Co.
Willson Products, Inc.

Resuscitation Equipment

Bishinger-Koehler Mfg. Co., Inc.

NATIONAL SAFETY NEWS

THE BUYERS' SERVICE

See Advertisers' Index, Page 75—When writing, please mention National Safety News

Tools, Marking or Stamping	Treads, Safety	V	W	Wrenches, Hopper Car
	American Abrasive Metals Co. American Mason Safety Tread Co. Industrial Products Co. Inland Steel Co. Surtz Mfg. Co., The	Valves, Oxygen Bishinger-Koehler Mfg. Co. Inc. Mine Safety Appliances Co.	Washers, Safety for Grinding Wheels Industrial Products Co. Standard Safety Equipment Co.	Industrial Products Co. Safety Equipment Service Co., The Safety First Supply Co. Trumbull Mfg. Co., The
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Torches, Blow Klein & Sons, Mathias	Trophies		Welding Equipment	

The following companies are those whose names appear under the various headings contained in this Buyers' Service

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American Abrasive Metals Co.	Irrington, N. Y.	General Abrasive Co.	Niagara Falls, N. Y.	Pittsburgh Plate Glass Co.	Pittsburgh, Pa.
American Chain Co., Inc.	New York, N. Y.	Harker Mfg. Co.	Dayton, O.	Portable Lamp & Equipment Co.	Pittsburgh, Pa.
American Foundry Equipment Co.	Mishawaka, Ind.	Harrington & King Perforating Co.	Chicago, Ill.	Propellair, Inc.	Springfield, Ohio
American Mason Safety Tread Co.	Lowell, Mass.	Huntington Laboratories Co.	Huntington, Ind.	Protectoseal Co.	Chicago, Ill.
American Optical Co.	Southbridge, Mass.	Hynson, Westcott & Dunsing, Inc.	Baltimore, Md.	Pulmosan Safety Equipment Corp.	Brooklyn, N. Y.
American Tel. & Tel. Co.	New York, N. Y.	Industrial Glove Corp.	Danville, Ill.	Pyrene Mfg. Co.	Newark, N. J.
Ampeo Metal Inc.	Milwaukee, Wis.	Industrial Products Co.	Philadelphia, Pa.	Pyroll Co.	La Crosse, Wis.
Bauer & Black	Chicago, Ill.	Inland Steel Co.	Chicago, Ill.	Reese Wooden Sole Shoe Co.	Columbus, Nebr.
Benjamin Electric & Mfg. Co.	Des Plaines, Ill.	International Shoe Co.	St. Louis, Mo.	Safety Clothing Co., The	Cleveland, Ohio
Bernhard, Robert A.	Rochester, N. Y.	Invisible Vacuum Cleaner Mfg. Co.	Dover, Ohio	Safety Equipment Service Co., The	Cleveland, Ohio
Bishinger-Koehler Mfg. Co.	Pittsburgh, Pa.	Johnson & Johnson	New Brunswick, N. J.	Safety First Shoe Co.	Holliston, Mass.
Blaw-Knox Co.	Pittsburgh, Pa.	Justite Mfg. Co.	Chicago, Ill.	Safety First Supply Co.	Pittsburgh, Pa.
Bradley Washfountain Co.	Milwaukee, Wis.	Kidde & Co., Inc., Waller	New York, N. Y.	Safety Magazine Publishing Corp.	New York, N. Y.
Buhrke Co., E. D.	Chicago, Ill.	Klein & Sons, Mathias	Chicago, Ill.	Selsbury & Co., Inc., W. H.	Chicago, Ill.
Bullard Co., E. D.	San Francisco, Calif.	Lehigh Safety Shoe Co.	Allentown, Pa.	Sanitary Institute of America	Chicago, Ill.
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Clements Mfg. Co.	Chicago, Ill.	Lima Cord Sole & Heel Co., The	Lima, Ohio	Standard Safety Equipment Co.	Chicago, Ill.
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Columbus-McKinnon Chain Corp.	Tonawanda, N. Y.	Macchiate Co.	Kenosha, Wis.	Strauss Co., Inc.	Pittsburgh, Pa.
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Dracoo Corp.	Cleveland, Ohio	Mosso Laboratories, P. A.	Chicago, Ill.	Union Switch & Signal Co.	Swissvale, Pa.
Dudley Lock Corp.	Chicago, Ill.	National Safety Council, Inc.	Chicago, Ill.	U. S. Hoffman Mch. Corp.	New York, N. Y.
Ellwood Safety Appliance Co.	Ellwood City, Pa.	New Slip Safety Clamp Co.	New York, N. Y.	Westinghouse Electric & Mfg. Co.	East Pittsburgh, Pa.
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THE ACCIDENT BAROMETER

Prepared by the Statistical Bureau, National Safety Council

These items summarize briefly the monthly reports collected by the National Safety Council to show current accident trends. Certain of these reports are analyzed more fully in other monthly publications of the Council, devoted to industrial, traffic, commercial vehicle, home, and school safety. In addition, the Council's annual statistical report "Accident Facts," contains detailed information on all types of accidents.

ACCIDENTAL DEATHS OF ALL TYPES increased sharply in October, reaching a total of 8,710 compared with 8,190 in October 1934—an advance of more than 6 per cent. The change comes from increases in motor vehicle, other public, and occupational fatalities. Home deaths were about the same in both months. Compared with the preceding month October shows an even greater upward trend, for in September the death total was only 7,590. The estimate for the first ten months of the year is now placed at 80,540, or about 3,100 deaths less than last year's comparable total of 83,664. This decrease of 3.7 per cent represents approximately the reduction in excessive heat fatalities; there appears to be no other significant change between the two years.

OCCUPATIONAL ACCIDENTAL DEATHS increased to 1,500 in October, from a total of 1,300 for the same month last year. This advance appears to come from an increase in exposure, although data on employment are too few to be wholly reliable. With the addition of the October estimate, the cumulative total for this year now stands at 13,600, or 300 more than are estimated for the same months of last year. Community safety councils' inter-plant contests show continued improvement in accident frequency compared with last year. The average October frequency rate per million man-hours dropped to 10.26, from 11.51 for October 1934. The severity rate per thousand man-hours, however, rose from 0.70 to 0.92. During the ten months frequency has averaged 12.59, or 12 per cent under last year, and severity as been 0.93—down 18 per cent. In the three sectional contests conducted by the National Safety Council the October frequency rate averaged 9.39 or 2 per cent above the same month last year, but the ten months' rate was 8.82 or 13 per cent less than last year's comparable figure.

Deaths reported to Industrial Commissions during October numbered six per cent more than in October, 1934.

STEAM RAILROAD ACCIDENT deaths in August were more numerous than in the same month of 1934, the increase amounting to 3.1 per cent. Part of this comes from more highway-grade crossing fatalities; part from trespasser deaths. During the eight months from January to August deaths have totaled 3,302, or only 30 more than occurred in the same months last year. Grade crossing fatalities, alone, increased 32 and trespasser deaths went up 19. In contrast, employee deaths decreased by 4, and those of passengers on trains and travelers not on trains went down by 7. Non-fatal injuries of all persons dropped 4.5 per cent, from 18,931 to 18,079.

MOTOR VEHICLE DEATHS, with an October total 5 per cent above the same month last year, seem almost certain to end the year at a new all-time high level. The October total is now estimated at 3,710, compared with 3,531 a year ago, and there is a good chance for an increase in the estimate when reports from more states are available. Such a change has been required for most of the earlier months this year. With the addition of the October deaths, the cumulative total (ten months) is estimated to be 28,880—about 100 deaths above last year's comparable figure.

COMMERCIAL VEHICLE FLEETS competing in the National Fleet Safety Contest had an average of 1.83 accidents per 100,000 vehicle miles in October. This is an increase from the September rate of 1.59, but compared with the rate for October 1934 it represents a decrease of over 8 per cent. This improvement was confined to buses and trucks, for passenger cars had a somewhat poorer record. The average rates for the first

four months of the Contest (July to October) are as follows: all fleets, 1.77 compared with 1.94 for the same months last year; buses, 0.91 compared with 1.21; passenger cars, 1.22 against 1.37; trucks, 2.84 or practically the same as last year.

PUBLIC (NOT MOTOR VEHICLE) DEATHS numbered about 1,200 in October, or approximately 100 more than occurred in the same month last year. The available reports indicate that this increase was spread over several types of accidents, so the change in each one separately was small. There was no change at all in the total from September to October, but the types shifted slightly, with hunting deaths beginning to appear, and drownings decreasing toward the winter minimum. During the ten months from January to October there have been approximately 14,600 of these public deaths, or 500 less than occurred in the same period of 1934.

HOME ACCIDENT FATALITIES in October totaled 2,500, according to present reports. This is the same number as was estimated for October, 1934. In comparison with September 1935, however, the October total showed an advance of 400 deaths, or 19 per cent. Most of this increase appears to be seasonal in nature; there are more deaths from burns and asphyxiations, which may be associated with the starting of furnace fires and the use of open fireplaces. The January-October total of home deaths is now estimated to be 25,800, compared with 28,900 for the same period last year. This decrease of 3,100, or nearly 11 per cent, is largely found in the classification of excessive heat.

Looking Ahead

The most notable feature of the anticipated January accident picture is a sharp drop in fatal motor vehicle accidents. According to the records of the past few years these deaths are likely to decrease by as much as 1,000. The improvement will come from less traffic and a reduction in speed, both due largely to ice and drifted snow on the roads and to the completion of the holiday season. Hunting accident fatalities, also, will show some decrease. Deaths from falls may decline, but the change probably will be small and will depend on the attention given to keeping sidewalks, both public and home, free from ice.

NATIONAL SAFETY NEWS

All Accidental Deaths

January-October

1935	80,540
1934	83,664
1933	74,341

U. S. Census Bureau totals for 1933 and 1934; National Safety Council estimate for 1935.

RESOLVED *for* 1936..

DEC.
31



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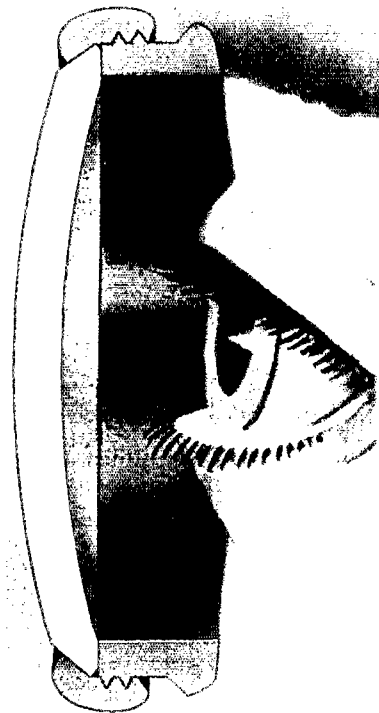
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