

NATIONAL SAFETY NEWS

FEBRUARY
+ 1934 +



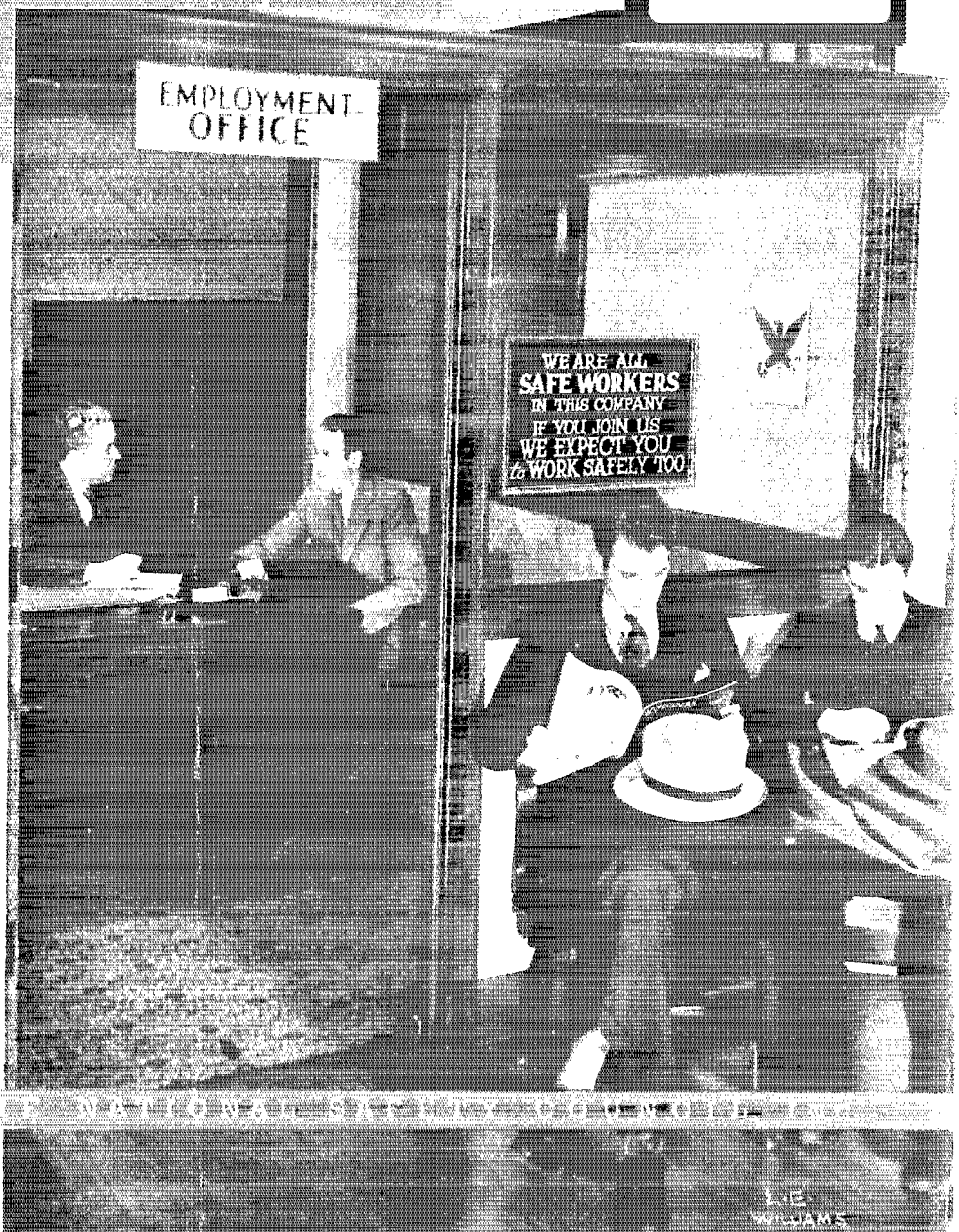
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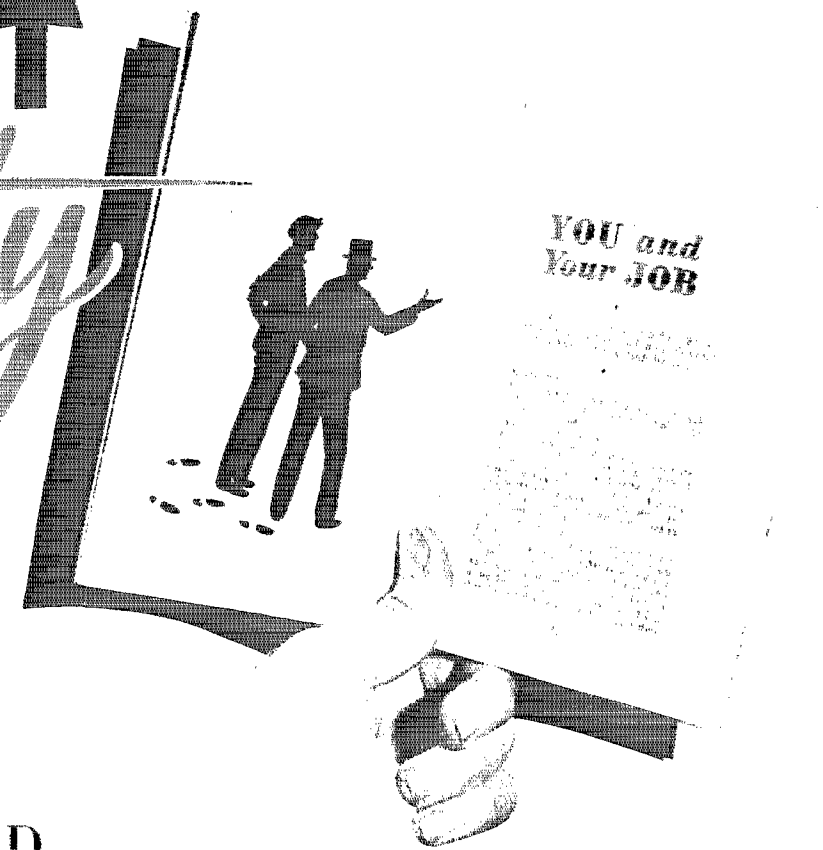
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NATIONAL SAFETY NEWS

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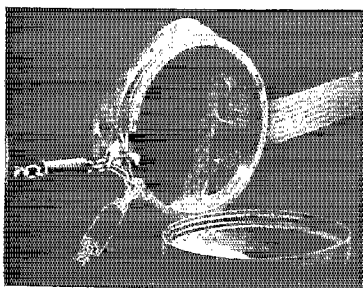
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FEBRUARY, 1934

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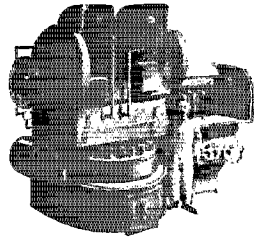


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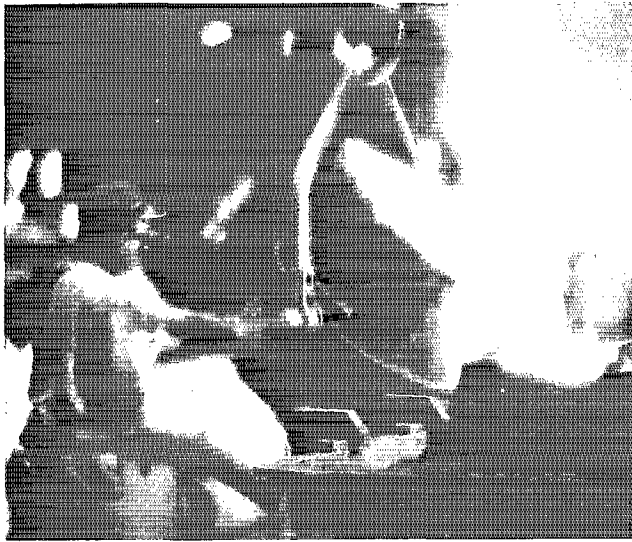
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National Safety News

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

VOL. XXIX, No. 2

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

STANLEY H. KERSHAW, Poster Editor
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20 North Wacker Drive, Chicago, U. S. A.

New York Office, 9 East 41st Street

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

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Rate of infection for wounds of the Hands—26%

Records show that 7 out of every 10 injuries in industrial plants occur to hands and fingers—that the rate of infection for such injuries is 26%!



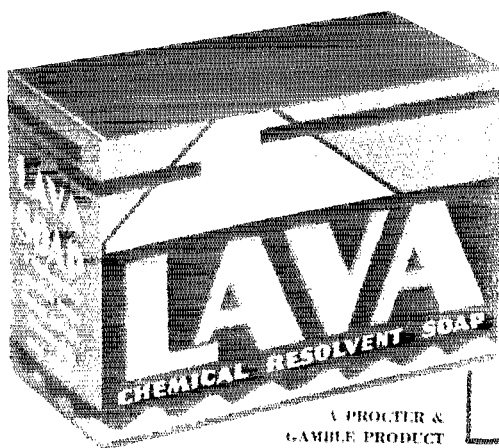
How much lost time in *your* plant is due to infections of hands and fingers? What are the best steps to take to reduce the number of these infections?

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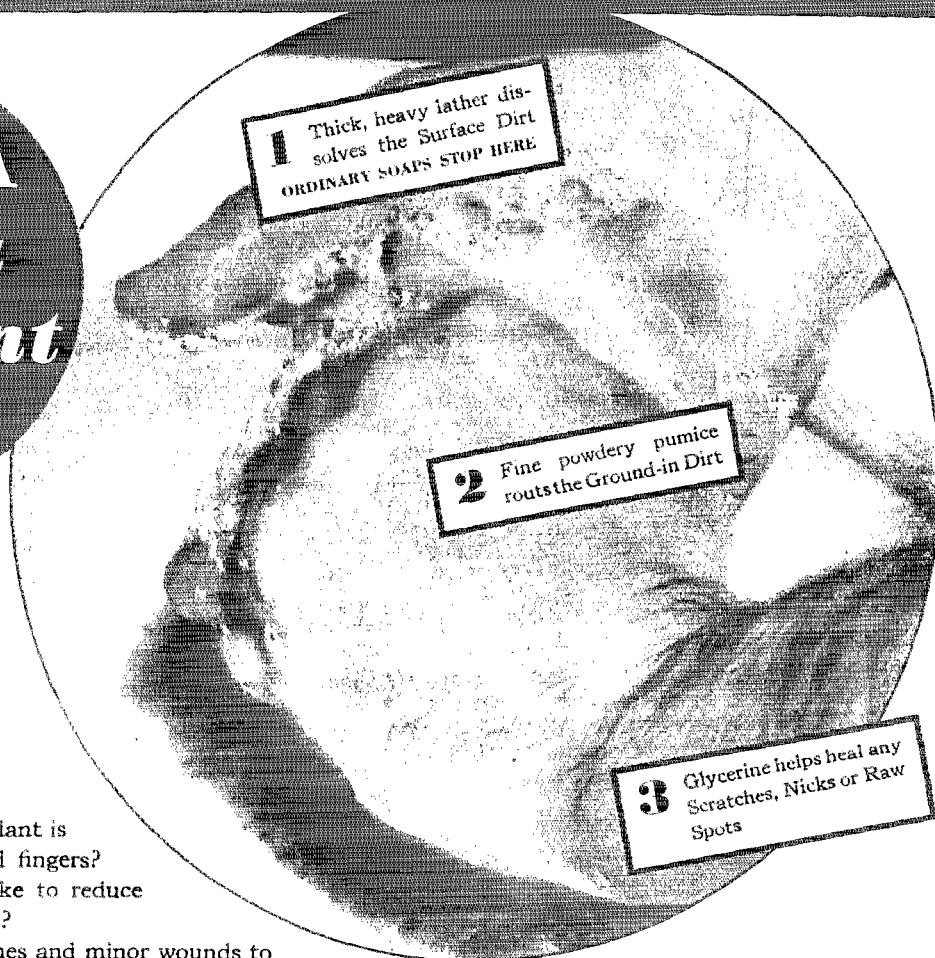
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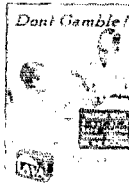
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NATIONAL SAFETY NEWS

Published by National Safety Council, Inc.

FEBRUARY, 1934

Vol. XXIX, No. 2

Tools

THE dub who has never broken a hundred feels confident he could win the U. S. Open with that new set of matched clubs he has been admiring in the pro's shop. But when he finally gets them, he still slices into the rough with the same regularity. What he really needed was more lessons and more practice. Mechanical perfection cannot compensate for what is lacking in the human element.

The value of good tools cannot be denied, but there is a tendency to overestimate their importance in achieving the result. With the same tools one man might make an artistic carving while another would simply spoil a good block of wood. Good tools enhance a worker's skill and give him increased confidence, but there is a very definite limit to what can be built into a tool. That applies also in the field of safety.

In accident prevention work there still seems to be a prevalent belief in magic—the magic of some method or some form of organization which will take care of the accident problem with the minimum of thought and effort, just as the thermostat on the furnace keeps the house comfortable. This hope persists in spite of the generally recognized fact that safety work is concerned with human beings who can never be depended upon to do the expected thing.

There is no substitute for thought, study and resourcefulness. The safety man who tries to adopt a ready-made program intact is like the editor who depends upon the shears. He should, however, keep in close touch with his fellow safety men and borrow as many of their ideas as can be adapted to his own organization. But he must use the tools himself.

An Employment Service

WHEN President Roosevelt decided to place four million men at work on the CWA program, the Administration rightly made a place in this gigantic undertaking for the prevention of injuries to men on these jobs. The National Safety Council's employment service was instrumental in placing in this activity a number of experienced safety men who were temporarily unemployed.

This service, maintained for the placement of competent unemployed safety men, has been most helpful on many occasions. The benefits accrue to the employer as well as to the man who is looking for a job. Of course, no fee is charged for this service.

If you know of some unemployed safety engineer who is not registered with the National Safety Council, why not tell him to drop a line to headquarters so that his name may be placed on the records? If you know of some company seeking the services of a safety engineer, suggest that application be

made to the Council for a list of qualified men. The Council serves as a contact between the employee and the employer in an effort to render a service to each.

* * *

NO SINGLE phase of our operations receives more earnest consideration from our board of directors than does accident prevention, for accidents mean wastage, high cost, and a retarded growth.—C. A. Higgins, Vice-President, Hercules Powder Company.

In This Issue

DISTURBED minds can be just as dangerous as unguarded gears, and they are much more difficult to detect and remedy. When a worker can tell his troubles in confidence to somebody in authority, he has a safety valve for emotions that might result in a mental lapse and consequent injury. (Page 7.)

And here are some more thoughts on mental hazards by a noted psychologist and psychiatrist, whose lectures and writings are well known in the safety movement. Dr. Hulbert discusses the mental states of the men who are now returning to work after months of involuntary idleness. (Page 9.)

Last year the managing director's annual report bore the rather dubious title, "1932 Might Have Been Worse." For 1933, however, the National Safety Council is happy to report the events of a year in which conditions have taken a decided turn for the better. (Page 13.)

Soap and water seem to be too simple a remedy for the prevention of dermatitis. People are likely to put more faith in fancy cures, but Dr. Redden reminds us that the cause of many a case of dermatitis is merely dirt and the remedy personal and environmental cleanliness. (Page 15.)

Industry is a vast school and its foremen are the teachers. Have your foremen the knack of imparting knowledge and the patience to give the same thorough instruction in elementary details to each new man? (Page 18.)

When the CWA program was launched by the federal government in December, the National Safety Council was called upon to aid in the organization of safety work for the protection of four million workers. Appeals were sent to members in all parts of the country to participate in the work locally, and their response made it possible to start the program immediately. (Page 19.)

A safety man can't forget hazards—even while on vacation. C. E. Libby, who edits the News-Letter of the Power Press Section, found plenty of opportunities for safety education on the farm. (Page 21.)

Outside Troubles Make Unsafe Workers

By J. J. LOGIE*

• Even trivial disturbances off the job may pave the way for an accident

THERE are still many problems in this world about which we know very little. There are still others about which we possess some knowledge, but not enough for efficient control. Man falls into this latter class. We have had him with us for thousands of years, but our knowledge of the factors that inspire and control his activities is very limited. In man there are still dark spots into which we are unable to probe with methods now available.

Man is a creature of the heart rather than of the mind. His conduct is influenced more by his feelings and emotions than by his reason. Psychologists assert that our efficiency is below normal some 30 per cent of the time due to the influence of some crisis in our emotional state. The sources of these crises are in many cases only trivial things.

Imagine a man being below normal efficiency because rain interfered with a golf match planned for that afternoon. Or a young man doing inferior work because his girl would not go to the dance with him the night before. Another fellow's production falls below par because his foreman had reprimanded him about poor quality work.

These and many other things disturb our emotional state. For instance, in one of the National Safety Council Posters entitled "Anger" (No. 4493) is this quotation: "When you get sore at your neighbor, yourself or your job, look out - you'll be ripe for an accident."

In other words, crises that aggravate our feelings reduce our efficiency, and hence we become "accident prone." Thus we have "the effect of outside conditions on accidents." I will give you a few examples of injury cases that were influenced directly by outside conditions. Take the case of Mr. A:

This man had been for several years a steady, dependable employee. He worked as a sort of gang boss over a crew of general laborers whose duty it was to do all types of cleaning up, dismantling

and moving. His personal accident record was perfect until a certain day when he received a badly-contused finger while handling an I-beam and it was necessary to amputate the finger at the first joint.

After about one week, we allowed him to return to work as he could act as a leader for his gang and at the same time favor the injured member. On the second day after his return to work, I happened to drop in the hospital for a casual visit, which I frequently do. There sat my friend soaking an injured foot.

I asked him a few simple questions to determine the cause of the accident and injury and noticed that he was considerably embarrassed at having received a second injury so soon after the first. I invited him to come to my office after he had received treatment. Together in my office, A and I had a complete understanding.

To put him at ease, I immediately explained that he was not called into the bawled out and that my whole purpose was to try to help him. I said, "A, I have known you for a long time. You have been a dependable fellow and I

have had confidence in you and still have. Lately you have been working under some sort of handicap and if possible I would like to learn what it is."

At first he was reluctant to talk, but gradually he opened up and told me this story: Some weeks previous he had been out with the boys and came home late, with too many drinks under his belt. His wife made the mistake of scolding him while he was in this condition. They quarreled and he slapped her. In the morning, he found that his wife had left for her home in the south and had taken their only child with her.

She wrote him after a few days and asked him to come and bring her back, explaining also that she had not revealed their troubles to her people. The letter had been written about two weeks earlier, but A, although remorseful, was too stubborn to reply. Naturally, I advised him to do the manly thing and go and bring his wife back. I pointed out to him how considerate his wife had been in not telling her relatives.

The injury to his foot was not serious and within two days he was able to drive his car, so his pay was advanced to him and he made the trip. Like most stories, this one has the usual happy ending.

You can readily see how this crisis in A's life reduced his efficiency and was the direct cause of two personal injuries in less than two weeks.

Another case that comes to my mind concerns a man whom we will call B. Like A, he had to his credit several years' service with the company, and was recognized by his boss as a good worker, which type is the pride and joy of any foreman. B was a widower of middle age and "stepped out" occasionally.

On a certain Monday morning he reported for work and, about one hour after starting, his hand was caught between two solid tire bases, causing a fracture of second, third and fourth metacarpal bones. This man made a slow recovery and eventually suffered a permanent partial loss of function of the hand. X-Rays, light treatments, doctor

(Please turn to page 32)

ANGER



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

NATIONAL SAFETY COUNCIL

*Supervisor of Employment and Safety, General Tire and Rubber Company, Akron, Ohio.

The Managing Director's Page

This Crazy World Is Getting Better

HOSE pioneers definitely waging war for safety must have been exhilarated by the proposed changes in the status of the worker under the "new deal." For centuries his lot had been one of unsafe and unhealthful working conditions, excessively long working hours, and inadequate wages. Year in and year out, these and other problems have been agitated with but a meager prospect of fair and reasonable protection. Many enlightened employers have indeed made remarkable progress in promoting the health, safety and well-being of their workers. In every age there have always been a few in positions of authority who felt a responsibility for those under them, but they were in advance of their time. It has only been within the present century that a well developed public conscience has begun to exert a widespread influence on industrial relationships.

Only a few decades factory inspection was practically unknown. The worker sold his services at the current rates of pay and assumed the risks of his employment. He took working conditions as he found them, sanitary or unsanitary, dangerous or safe. There was little or no compensation for the man who was injured at his employment. Privation for him and his family was the all too frequent result.

The sweatshop operated unchecked by either law or public opinion. Women and children were exploited shamelessly and there was little protection for them. Tuberculosis claimed a heavy toll. Drunkenness was a problem of much concern to employers who wanted efficient workers as well as to those who were more concerned with its moral aspects.

INTERESTING ITEMS

SINCE my report in the January issue the Civil Works Administration has invited the National Safety Council to set-up a safety program to protect the four million recently acquired new employees. Sidney J. Williams of the Council's staff has been appointed the Federal Safety Director under the CWA program. State Safety Directors have been appointed to work under the State CWA Administrators and very active programs are now in progress. It is possible that permission will be given to use unemployed persons in traffic surveys.

The 1934 Inter-City National Safety Contest has been announced; applications and printed booklets sent to mayors of cities, and governors of states; a new pamphlet "Accidents Can Be Prevented," presenting programs of activities, has been distributed to all of the contest cities. The enrollments by both cities and states have exceeded the number of participants in the 1933 Contest.

Many activities are going on constantly to expand the Council's activities and improve its administration methods. One recent example is contained in the report of a committee on "Procedure in Making Researches;" the continual revision of many standard publications, such as the Safe Practices Pamphlets, Public Safety Memos, and similar documents.

The financial report and the managing director's annual report will show a slight improvement of the Council's business situation. Important activities are being carried on and the prospects for 1934 are better than they have been for several years.

Now we are beginning to realize that alcoholism is merely a symptom of a disease—of the social structure as well as of the individual.

Our cities today present many a distressing picture but who would turn time back half a century? True, traffic accidents were comparatively infrequent then but many of the scourges now brought under control by medical science took a heavy toll of child life. A journey by railroad or steamship was undertaken with considerable apprehension, and not without reason. Many a factory bore the unpleasant appellation of "slaughter house." We have no adequate picture of home accidents during the pre-safety period, but it is not too much to believe that they were even more frequent than they are today. And nobody believed that anything could be done about it.

Fifty years ago there were no tenement house laws. Anybody could build any kind of a building that would bring in the biggest return on the smallest investment. Our metropolitan areas, and many smaller communities, too, were unclean, poorly policed, and often infested with an alliance of vice and corrupt politics.

The "rugged individualism" that pushed back the frontiers was not conducive to the development of finer traits of character. The leader who had graduated from the hard school of farm or factory was apt to despise the refinements of living. And many worthy people had a secret feeling that indulging even in wholesome recreation softened the moral fibre and encouraged laziness. There was charity, of course, but alms were regarded more as an aid to personal salvation than as a means of helping one's fellow men. Our modern attitude toward sociological problems, imperfect as it still is, represents a great advance.

Now under the auspices of the "new deal" we seem to be taking a mighty step forward. It is an experiment, and a daring one, but the objectives justify a departure from some of our outworn ideas. Part of the anticipated gains ought to help in solving the particular problem in which the members of the National Safety Council are so greatly concerned. The continuing improvement in working conditions and the growing conviction that accident prevention is real economy, are noticeable on all sides.

No, never tell me that the world is growing worse, or even standing still. It grows always better. Not swiftly, not with a steady motion of progress, not as impatient men desire it to improve. Still it grows better. It is immensely better than it was fifty years ago. There is more kindness, more interest in the other man's welfare, more impulse toward justice, more perception of the fundamental truths of human existence and fellowship.

As we open up the year 1934 to the opportunities of saving the lives of the workers and protecting their families from avoidable accidents, let us understand that nothing pays so well as movement for betterment like that which is tied up in the whole problem of accident prevention.

W. J. Williams

NATIONAL SAFETY NEWS

What Does a Re-Employed Worker Think About?

By HAROLD S. HULBERT, M.D., F.A.C.P.

IT IS generally recognized that the re-employed workman is more wrought up emotionally than when he was first taken on or employed. It is generally recognized that while unemployed he has become addicted to thinking idly. Formerly he was not out of work for very long periods, and when first employed on a job, he would take the work as a matter of course. His interests then were mainly about himself and about ordinary affairs, thus leaving him with sufficient excess interest to be attentive to mastering this job in all its phases, including the prevention of accidents.

Nowadays, after prolonged unemployment there is an unwarranted attitude on the re-employed workman's part that he knows all about safety and that he himself is a safe man. Really he has an insufficient amount of unpledged interest to be much concerned with it. Scientists

realize that any individual has only a limited budget of interest or emotion to spend each day, and that if his interest is deeply centered upon himself he is not going to be much interested in safety. If he is worried about conditions at home (because worry is intense interest or emotion) he will have still less concern for anything, including safety.

While unemployed his thinking became idle and hazy, and he did not have an opportunity to keep in practice in the use of judgment. Consequently he is not now sharp-witted, nor is his judgment very reliable, especially in matters concerning himself. His reactions to hazy ideas are slow and not incisive: he appears lazy although actually he is just not keen.

To meet this situation two things seem very obvious. First, he needs explicit orders, as from the foreman and supervisors, and he needs an endless



He appears lazy, although actually he is just not keen.



What a job for a former sergeant of the Marines!

repetition of orders until he has established non-thinking but good habits of safety practices.

The second thing is even more important. In regard to emotion or interest in adequate amount, he has it not, but we (must) have it for him.

I am reminded of a method used by one commanding officer during the war. He was a quiet, well spoken, keen minded, rather pastoral gentleman. He made the decisions as to policy. Among others on his staff were two men in particular. One of them was bright and genteel and more or less of a "yes" man. If the chief approved of an idea presented to him by someone who had come to confer with him, he would refer his visitor to Captain Smith, who would amicably work out the details of the plan prior to its execution. The other of the two men under discussion was, upon occasion, the "no" man. He was loud and boisterous and dynamic and impressive, and could appear very rough and uncouth. No one ever argued with Captain Murphy: he could shout anyone down. One never forgot what he said. It took me some time to realize that each of these

(Please turn to page 60)

Controls Can Be Safe

Even When the Atmosphere Isn't

By J. V. ALFRIEND, Jr.*

PERHAPS the most spectacular accident in industry is the explosion of gases ignited by electric sparks. Such an explosion can wreck a plant and kill or maim dozens of men. The production of films, cellophane, alcohol and petroleum derivatives are typical processes where motor drives must operate in explosive gas mixtures. To remove this hazard the explosion resisting motor was developed. Such a motor must be enclosed to prevent the ignition of a gas mixture outside the case from an explosion inside the case. Three constructions are available: totally enclosed; totally enclosed, fan cooled; totally enclosed, pipe ventilated. The first is practical in small and slow speed ratings but becomes prohibitive in cost in medium sizes, and impossible to build in the larger ratings. The last is applicable in relatively few cases and then only when few units are installed.

The fan-cooled construction is practical for medium size motors of 2 h.p. up to 300 h.p. Built in accordance with the specifications of the National Board of Fire Underwriters and approved by them for Class 1 Group D atmospheres, this motor insures adequate protection under all conditions coming under that classification.

This motor in a most desirable operating form is shown in Figure 1. This is called the heat exchanger or dual ventilated construction. By circulating the internal air through the ducts in the frame adjacent to ducts for the external

*Industrial Engineer, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

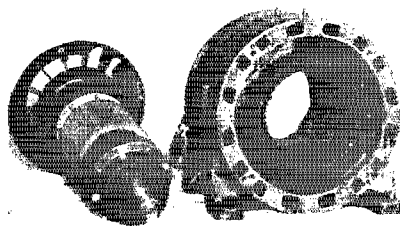


Figure 1. An explosion resisting motor of the heat exchanger or dual ventilated construction.

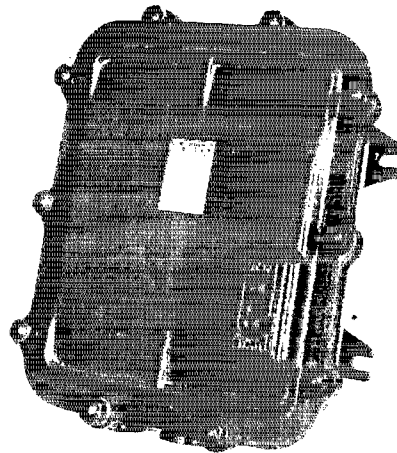


Figure 3. A small circuit breaker for lighting circuits.

air, the rotor heat is disposed of without large temperature gradients and with complete elimination of hot spots. The gases escaping after an explosion within the motor must escape through the bearings or through the ground metal fit of the brackets to the frame. The cooling thus obtained has been proved by actual test in Underwriters Laboratories to prevent ignition of the atmosphere outside the motor.

With the hazard removed from the motor, the next step was to build explosion resisting starters and push-buttons. Figure 2 shows a linestarter of explosion resisting construction suitable for Class 1 Group D atmospheres. Where the explosive gases are non-corrosive and clean this is eminently satisfactory. Where the gases are corrosive or dirty, it is necessary to use an oil-immersed construction.

Probably the second most common hazard is that of fires originating from the operation of circuit interrupting devices. Since the discovery of the De-ion principle of current interruption, air circuit breakers have been developed to apply to all feeder and power circuits, removing the hazards of older types of construction.

The Nofuze switch unit shown in Figure 3 is a small De-ion circuit breaker

for lighting circuits. There is no temptation to wire around the device when a refill is not handy; one has simply to reclose the circuit breaker to make it operative. If the fault has not cleared there will be no burned fingers; the device is trip free in all positions. Furthermore, accidents are prevented by the short time necessary to restore lighting service. The position of the handle shows which switch has operated. Movement of the handle to the "off" position resets the device then to the "on" position, and service is restored in less time than it takes to tell about it.

The ABI De-ion circuit breaker has been developed for industrial feeder circuits. This switch has opened short circuits of 10,000 and 20,000 amperes at 440 volts without setting fire to the absorbent cotton with which the case was wrapped for the experiment. Figure shows a group of these switches.

And the father of them all is the type U De-ion circuit breaker. Different appearance and construction but the same in principle of arc extinction, these circuit breakers open power faults

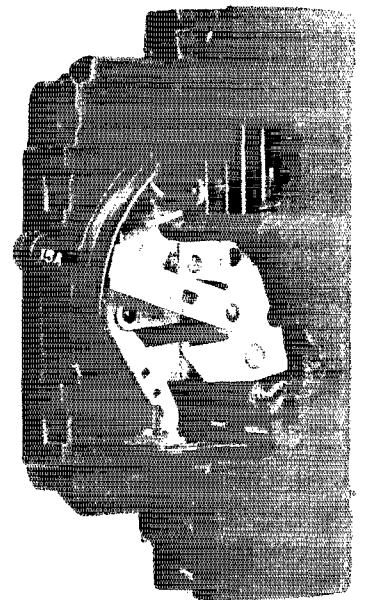


Figure 2. A linestarter suitable for use in Class 1 Group D atmospheres.

one-half million to one million arc kv-a. in less than three cycles after the occurrence of the fault. With no oil to throw during the tremendous electrical stresses involved there is no possibility of setting fire to the station.

The hazard of fatal shock from workers coming in contact with live circuits



Figure 4. A group of ABI De-ion circuit breakers for industrial feeder circuits.

is a serious one. This type of hazard falls into two classes: (1) Accidental contact with known live circuits; (2) Contact with a supposedly dead circuit.

The first form of hazard is eliminated by the use of "dead front" control and switchboards. All power circuits are behind the board, and all operating handles are "dead." Not even deliberate suicide is possible from the front of the board.

The supposedly dead circuit may be guarded by one of the forms of metal-clad switchgear known as "lift up" or "roll out." In the former the circuit breaker is lowered from engagement with stationary contacts (possible only with the circuit breaker in the open position) and the unit removed from its compartment where it may be worked on with all possible safety. No one can close these disconnects while the operator is working on the breaker for the disconnects are the terminals of the breaker.

The "roll out" equipment is similar except that as the term implies the movement of the unit to disengage the stationary contacts is horizontal instead of vertical.

Figure 6 shows a "lift up" oil circuit breaker installation with one of the units removed from the compartment and Figure 7 shows a roll out carbon circuit breaker installation. It will be noted that these compartments are of the dead front type.

The liability of transformer fires resulting from lightning disturbances has recently been reduced to the minimum by the development of surge-proof transformers. This design is capable of withstanding direct strokes of lightning without puncturing the insulation. In this design the insulation of the windings is correlated with the insulation of the terminal bushing or with a special form of lightning arrester in the transformer so that the surge will jump across the terminal bushing to ground or across the arrester before it will puncture the insulation. In order to improve the transformer insulation to this extent creepage paths had practically to be eliminated because strange as it may seem increased creepage distance does not increase the resistance to surge voltage in anything like the ratio encountered in the less steep wave fronts of 60 cycle voltages.

The most fool-proof equipment that the manufacturer can devise can be made death traps by faulty installation. Many a control board has been installed on the rotational center-line of the driving or driven equipment or where a broken belt might kill or injure the operator. Operating and control stations should be placed in the most secure of positions considering the mechanical, electrical and fire hazard. In other words, the control equipment should be located at a place where men in danger will naturally run to rather than run from. This is made possible only with electrically

operated devices such as circuit breakers and contactors. Main circuits must be kept close to the equipment but control circuits for the operation of these devices may be conveniently and economically run almost anywhere. The use of a multiplicity of stop stations is most advantageous.

A foot or body operated emergency stop push-button should be located at a machine which is liable to entangle an operator's hands. A second stop station should be close by the machine but safe from it. A third stop station should be located at the supervisor's desk which should be protected from the operating room by safety glass. Here also should be located an emergency switch to shut down the entire plant.

In some rare instances it is necessary to place the entire control in a room separate from and protected from the hazards of the operating room. Such a control station must have a clear view of every operating equipment and must be capable of complete control of each individual item.

The use of such simple contrivances as door switches seems hardly worth mentioning, yet I doubt if there is a plant in the country where one or more could not be used to eliminate a serious hazard. Any section, compartment or bin where electrical power must be removed for the operator's safety should not be protected by disconnect switches and a sign warning against the closure

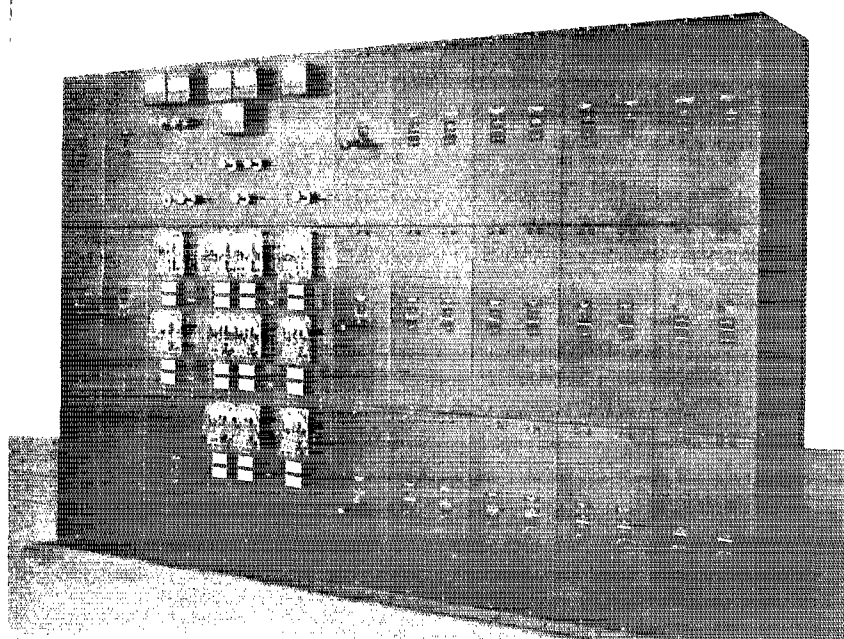


Figure 5. Not even deliberate suicide is possible from the front of a "dead front" switchboard.

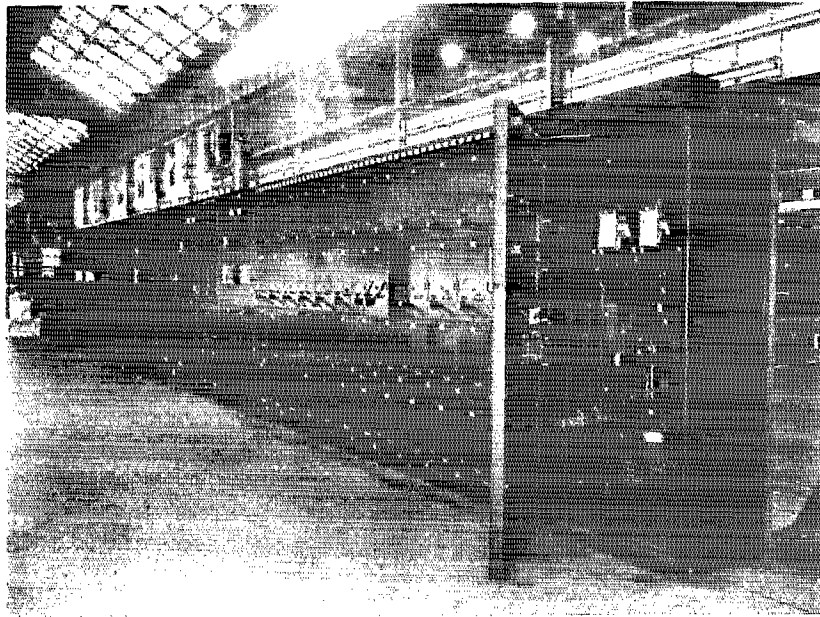


Figure 6. A "lift up" oil circuit breaker installation with one of the units removed from the compartment.



Figure 7. A "roll out" carbon circuit breaker installation.

of the switch. The door to such an enclosure should be wired with a low-voltage control circuit so that while that door is open no circuit breaker or line-starter or other switch may be closed, and that door may not be closed without the key which is in the possession of the man in the compartment. There are many types of this sort of protection.

Just as it is the unloaded pistol that does the most damage, it is the "dead" circuit that causes the most deaths. In plants with hundreds of feeders in one of the many forms of networks to improve regulation, it is difficult to prevent sneak circuits with certain combinations of open and closed switches. Sad to relate, the unlucky combination does not always occur on the test at the completion of the new installation. To avoid this, there is only one recourse—careful wiring diagrams, carefully checked, and

careful workmanship. An aid to this end is the purchase of factory assembled combinations of control. The savings in space and installation cost are more than sufficient to pay for the higher price of such units.

The "Average" Driver Is An Accident Maker

By K. M. FARR*

A RECENT analysis of automobile accidents in a certain large city indicates that the drivers involved lack understanding of the apparently innocent acts that often end disastrously.

Some authorities claim that it is the minority which contributes most of the accident frequency. However, a casual investigation of the drivers involved will

*Engineering, The United Automobile and Automobile Company, Detroit, Mich.

in most instances indicate that it is the average driver who usually comes to grief. As there are more "average" drivers than exceptionally good or exceptionally poor drivers on the road, it is probably safe to assume that the majority contributes its share to the accident total. Therefore, let us direct our efforts in his direction and provide a simple plan of procedure.

It will not be necessary to engage in a very extensive plan nor will it be necessary to set up any elaborate machinery. This has already been done for us. The National Safety Council, the insurance companies, and other organizations have long been studying the problem and offer suggestions based upon their findings.

From the ideas obtained from the assembled data have come the various traffic ordinances. Local ordinances vary only in minor details. They are really directions for safe driving; they are not difficult to understand, and may be obtained with little cost by the public.

A few actual cases may illustrate the point. A traffic rule states that all drivers must drive on the right hand side of the road except while passing another vehicle, and then only when the way ahead is clear. A recent case—a clear violation of this rule—resulted in the death of the innocent driver. The offending driver was proceeding in the outside lane of traffic, which was moving two abreast. He became impatient, pulled out to pass the car ahead and in traveling in the outside right hand lane of approaching traffic he collided head on with another car. Of course the offending driver was arrested and severely punished.

Another rule which is frequently violated is the one which states that all traffic must come to a full stop at a through street and proceed into the intersection only after observing traffic in all directions. A young man swung around the corner from a stop street without stopping and was run into by a truck traveling in the same direction on a through street. Considerable property damage resulted.

Cutting in and out of traffic, which comes under the head of reckless driving, contributes its share. A truck driver was forced into a protected safety zone by another driver and was badly cut when he went through the windshield.

The list is without end. Possibly only one violation in ten results in an accident, but even though the ratio be much higher, the effort to obey is certainly worth while. We never know when the lightning will strike close to the fireside.

What Happened in the Safety World in 1933

By WILLIAM H. CAMERON

The Annual Report of the Managing Director, National Safety Council



WISH it were possible to condense into an epigram, as did the friends and relatives of the western cowboy, the essence of our Council family life in 1933. You will remember that the epitaph carved on this westerner's tombstone was "He never licked his mother." If our joint accomplishments were distilled into one phrase I would say "we never batted an eye--we kept plugging up hill."

I could fill the space allotted to this report by enumerating the activities of the Council for any one typical day during the year. The pace is rapid; the momentum exhilarates; every individual out of a cemetery is subject to accidents twenty-four hours a day. Our task is to work together to protect them from accident hazards. With the depression continuing most of the year unabated, gripping and sacrificing production and the normal work of many people, it has been difficult to carry on constructive, protective and altruistic enterprises. We have been confronted with this attitude: "We must first provide bread, clothing and shelter; we will risk possible accidents."

However, it will always be one of our country's glorious achievements that while struggling with economic problems, so many of its good citizens have persisted in their efforts to protect life from accidents. All during 1933, 854 non-paid, big-hearted, intelligent committeemen served the membership of the National Safety Council, and through the activities of the Council, our large population. Credit goes to them for their unselfish and humanitarian interest in protecting the lives of little children; in preserving the breadwinner to his family; in lessening the horror and grief that might have been caused by more accidents; yes, in effecting economic savings too.

The 1933 record will show another reduction in accidents; not in all directions, because the uncontrolled automobile driver, pedestrian, and the thought-

less person in the home are still slow to learn the safety lesson, but we have the comfort of knowing that slowly but surely safety is being accepted as feasible; dangerous conditions and modes of living are being corrected; life is being protected as never before.

Let us get down to detail. What did the National Safety Council do in 1933 that is worth ten minutes of your time to scan:

1. Progress or achievement of any kind is the sum total of millions of efforts. And like the standards of our home life that are being made by millions of mothers, the approved working conditions everywhere are due to the painstaking efforts of thousands upon thousands of the men on the job. But what was the spectacular new activity for safety in 1933? Probably the recognition by the Federal Government of the need for protecting the four million workers employed under the CWA program. The Federal Government has not established in its budget or working program the modern safety organization recognized as an integral part of operations by comparable large industrial organizations. Your Council has bombarded a dozen of the leading Federal Governmental departments in Washington for the past six months with little results, but the CWA will prove to President Roosevelt the need for organizing definite safety activities, for setting up separate budget items to ascertain the costs of accidents to governmental employees for unearthing the causes of these accidents, and then for finding the means for their eradication. The Federal Government must be an example to every employer and employee. The concern and protection of the lives and welfare of our people surely should be manifested under direct employment conditions.

2. Every activity undertaken by the Council benefits American industries directly or indirectly. From an industrial standpoint, however, it seems particularly important to emphasize the increasing values of the NATIONAL SAFETY NEWS, the SAFE WORKER, the monthly News-Letters of our 20 industrial sections and of the ASSE-Engineering Section, the Safety Calendar, the 63 safety posters distributed each month, not only the new but also the revised pamphlets in our Safe Practices and Health Practices series, the established annual report known as "Accident Facts," and the separate statistical studies for 32 major industries. Six national trade safety contests, as well as the Steam Railroad Contest, accompanied by the "Green Book" were carried on. In all, 46 trophies and 103 certificates were awarded to the winners in these contests, and hundreds of medals were presented to persons saving lives through the prone pressure method of resuscitation. The industrial health services have been maintained and much time given to a consideration of technical research, study, and publication of results. Work on safety codes, as well as cooperation with the American Standards Association, with trade associations, and with engineering colleges have been continued.

3. Our publicity services were continued and strengthened. The recognition of the accident problem by the newspapers and magazines was helpful. Many new services: hundreds of special articles and stories were sent to the editors. Radio broadcasting, material for addresses, interpretive data were sent to many members and people of influence. Trade journals carried special stories on accident prevention, some of them running series of articles.

4. Because highway accidents constitute our greatest accident problem today, the Council is ever alert to its responsibilities in this field. All of the general services established over years of trial and experiment have been main-

tained including the regular publication and distribution of PUBLIC SAFETY. There was constant attention to the problem of drivers' license laws; essential statistics were broadcast at the end of each month; the commercial fleet contest and similar activities were maintained. The Second Annual Inter-City Safety Contest grew in interest and accomplishment. Awards were made at public ceremonies in seventy cities, where prizes were awarded for first, second and third places in each group, and there were 49 honorable mentions. These ceremonies were held simultaneously and all joined together through the radio broadcasting hook-up. Continued cooperation was given the National Conference on Street and Highway Safety. And special engineering studies, important annual and regional conferences and contacts were maintained throughout the year.

5. The school safety program, financed by the National Bureau of Casualty and Surety Underwriters, has brought about a steady reduction in child accidents. The school safety problem is getting more and more into the consciousness of the state educational leaders. Contacts were maintained with the National Congress of Parents and Teachers, and similar cooperating institutions.

6. The Community Safety Councils have suffered grievously from the depression, but new Councils were organized during the year and continued service rendered those operating by correspondence, conference and personal contact. The Annual Conference of the Managers, the Monthly News-Letter and similar services were maintained.

7. Our New York office has continued, through many committee activities, to serve the members in the New York and Atlantic Coast area. There have been district meetings, a greater New York Safety Conference, special activities through new study committees, contact with Washington departments; personal services to the Safety Councils operating on the Eastern Seaboard; outstanding accomplishments through the Metropolitan Chapter of the ASSE-Engineering Section; through the organization of representatives of motor vehicle fleets, and in other ways.

8. Twenty-two regional safety conferences were consummated between the Washington and Chicago Congresses. Full time services were given to our National Government by the director of our Public Safety Division and by the

director of our Publicity Division; and part-time service by the manager of our New York office. In addition to the hundreds of speeches made by voluntary committeemen and members during the year the staff also made many speeches and were in constant attendance upon the members at the various committee meetings. Services were rendered to our Pacific Coast members through the State of California Safety Convention and a number of speeches. The Annual Congress in Chicago was planned and executed on the same scale as previous annual conventions, and the attendance this year was larger than at the 1932 Congress in Washington.

9. Among the new services instituted in 1933 were our new publications "School Buses;" "Safety Instruction Cards;" "You and Your Job;" "Safe Driving Pays;" "Safer Cities;" the new "Service Guide;" the jig-saw type of puzzle picture; the new booklet "What is the National Safety Council?" a number of Public Safety Memos and Industrial Data Sheets; new Safe Practices pamphlets, and revised and reconstructed pamphlets; "Safe Driving Hints," and a number of others of more or less importance.

In spite of a reduction in income and the necessity for living a hand-to-mouth existence, every essential activity of the Council has been carried on; every call for service met promptly; every request for cooperation and service promptly filled. The requests for sample publications from many parts of the world, given freely, are opportunities the Council welcomes.

The really outstanding accomplishment in 1933 was the maintenance of interest and activities among the members of the Council and among the many cooperating institutions joining hands in this national undertaking. This page could well be filled with a list of activities by state and local governmental departments, insurance companies, railroads, various associations, and others interested specifically and directly in the safety problem. The safety movement fared better than many other welfare or humanitarian activities. By demonstrating the practicability of stopping accidents in many groups from playgrounds to organized plants, all of us have helped to set the example of long-time no-accident records. Such records convince us that accident prevention must be made a part of our mode of living; it must be made as natural as the

maintenance of sanitation and protective health measures. The ups and downs of our economic lives may limit the rapidity of our success, but the justice and reasonableness of preserving lives will never be questioned.

Leadership and Money

How many times have we said to one another that the Council has all of the problems of the typical business organization, plus the difficult task of meeting the demands made upon it out of current income. A letter, or even a telephone call, costs money. As the Council grows older and bigger the public assumes that the Council must be a Santa Claus, a public library, or a municipal bathing beach, where everything is given free. Our leading committees know how difficult it is to spend our comparatively small income for the best interests of our members, and yet at the same time stretch out a helping hand to many others. The Council naturally follows wise business methods. It lives within its income and still maintains its pledged activities. It has no capital, reserves, or endowments. Yet in 1933 the Council lived within its income and stretched every dollar to the utmost.

The depression has taught us that a successful continuing institution must have a foundation of money to assure continued activity without abatements. Experiments were started in 1933 to test out how responsive our members would be to a plan of building up a fund which could be used not only to expand the program of activities but also to relieve your officers and committees of the worry and struggle for economic existence. Our safety progress depends upon leadership and money. Enough is now known about the technique of safety to put the Council as a whole in a position where it can give the answer to almost every accident problem, but we cannot adequately publicize the prescription without larger money resources. We cannot serve adequately, we cannot grow as we should without adequate funds to pay the accident prevention bill.

Among the changing leadership and sponsorship of the Council, there were several deaths during the year that will mean a loss to the safety movement for years to come. Among these should be mentioned Mr. Elisha Lee, vice-president of the Pennsylvania Railroad Company, and a member of the Advisory Committee of the Council; Mr. Edwin

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NATIONAL SAFETY NEWS

Before experimenting with fancy methods for the prevention of occupational dermatoses, why not try simple methods of personal and environmental cleanliness?



Bradley Washfountain Co.

Try Cleanliness First

By W. R. REDDEN, M.D.*

MANY employees suffer from skin affections because of contact with cutting oils, dust and other irritants. In fact, industrial dermatoses head the lists of industrial diseases whenever reported. Yet the real trouble may be dirt—both the ordinary dirt that we recognize as “dirty” and the general kind that is merely “matter out of place.”

My own study and the experience of numerous industries convinces me that in many cases the best preventive is keeping clean. Personal and environmental cleanliness has definitely cut down the number of cases of dermatitis (skin inflammation) with only simple and inexpensive measures based on soap and water.

Of course, many circumstances give rise to skin irritations (dermatoses) but they are all subject to similar principles of origin and control. For instance, many young persons of adolescent age suffer embarrassment and distress because of greasy skin, blackheads and pimples. These skin conditions are the result of radical changes going on within the body as the child develops into an adult.

An examination of more than a million

*Director, First Aid, New York County Chapter, American Red Cross.

persons from 14 to 16 years of age in England during the period 1922-25—as these boys and girls came up for certificates of fitness for work—shows that for every 100 reasons given for conditional and definite rejection, 34.71 were for skin disease. A large number of these adolescents reach adult life with a skin particularly sensitive to external and internal reactions. In other words, there is an individual variation and susceptibility to skin reactions, irrespective of the cause.

Skin irritation and skin diseases are common to all who rub in dirt, grime, or other foreign materials.

After years of traveling, we, who have a normally clear skin, find that we have many blackheads about the nose after a whole day on a train, especially in warm weather. After a number of years of observation, we find that the ordinary dust and dirt which is stirred up in train travel lodges on the face. We rub it in a bit—and the dirt clogs the oil gland openings. This causes itching. Increased rubbing or even scratching on our part almost invariably results in a crop of blackheads and pimples about the nose.

As surgeon to the hotels at Yellowstone Park for a number of seasons, we had occasion to treat 300 or 400 patients

with boils during a four months' summer season each year—chiefly among bus drivers and the group of 85 or 90 motorcycle patrols who regulated traffic. We were well aware of the fact that these boils had no relation to bad blood, since years before it had been demonstrated that boils were an infection of hair follicles. This infection was due chiefly to dirt and bacteria that had been ground or rubbed into the openings of hair follicles where they caused an irritation which was relieved by scratching with finger nails or by the part of the garment in contact with that part of the skin.

What are some of the factors in the development of industrial dermatoses?

Anything from hot water and mild soap, which are harmless, to pitch, tar, and arsenic, which are definitely poisonous, may cause a skin irritation with resultant inflammation if these materials come in contact with the skin in sufficient quantities over a sufficient length of time.

It is well known in medicine that if a person is exposed to certain substances repeatedly, at first nothing may happen to the skin or to the body in general, but gradually or even rapidly this repeated contact may make the skin or body sensitive to the material and result

in a dermatosis or even a general body reaction. This might well be the case with workers in sugar, gardeners who handle hyacinth bulbs, or even housewives who fondle the beautiful blooms of the Japanese primrose. We are speaking of specific cases which have been personally observed. It is quite possible that certain persons who suffer from "rubber itch," "bakers' itch," etc., might fall under this group, even though we know that at least the hexamethylene-tetramin used in the rubber industry is of itself toxic.

Individual Susceptibility

Season, temperature and humidity, working conditions, and kind of skin play an important part. It has been observed that when workers in industries in which cutting oils or dust of various kinds are found, become soaked with perspiration, there is an increase in dermatoses; and that dry-skinned persons and persons troubled with excessive oil (seborrhea) are more susceptible than normally oily-skinned persons. Probably part of the answer in regard to heat and perspiration lies in the fact that more dirt is taken up by the perspiration; that the person in an attempt to keep the sweat out of eyes and off the hands, brushes his hands and arms across each other, across the forehead and the back of the neck, thus rubbing in the dirt. If the substance is toxic in itself, so much the worse. Moreover, if work clothes are filled with dust and dirt, then become soaked with perspiration or oil, every movement of the body as well as the rubbing with the hands grinds in the grime and irritating substances.

Apparently the oil on the skin is the first line of defense against irritants and other dermatoses producers. Hence, if the natural skin oil is frequently removed by gasoline, benzine, kerosene and other grease solvents, the skin becomes dry, harsh, and cracked, and the first barrier to dermatosis is destroyed. The same holds true when pumice, harsh and abrasive cleaners, and stiff brushes are used. That this natural skin fat is an important factor in the prevention of cancer is indicated by the following:

Lanolin applications to the skin alternated with synthetic tar delayed tumor development. Where lanolin was applied twice as often, cancer did not appear.

The synthetic tar used was many times more potent than shale oil, the most dangerous commercial oil.

The occupational dermatoses are not primarily caused by infection of the skin. When the skin becomes irritated, when bacteria from the

skin are carried by dirt, grease, non-poisonous or poisonous substances in the openings about the hairs, the way is open for infection. When itching causes scratching with bacteria-laden finger nails, or rubbing with dirty hands, arms, or clothing, the skin is broken and germs find an open door to a fine incubator. When the skin is wiped with coarse burlap, waste, or cloths which contain minute particles of dirt and metal, or when a skin covered with oil and dirt is rubbed with clean waste or clean cloths, the surface is broken and the greatest defense of the skin against infection is destroyed.

With these preliminary statements we are now ready to consider the *prevention of dermatoses* and their control in industry.

Obviously, for materials like acids and alkalis, including chromium, which destroy the skin oil and skin, there are two answers: provide closed equipment wherever possible; provide workers with adequate protective covering. In other words—keep these skin destroyers off the skin.

Require a pre-employment physical examination for every applicant and a periodic examination of all employees when there is to be an exposure to a known toxic substance. Exclude those with skin disease. In the case of paraffin workers, there should be a daily skin examination.

Do a patch skin test on all who are to be exposed to toxic materials and also on all who develop a dermatosis during employment. The skin patch test is simple. Soak a piece of sterile gauze about one inch square in a solution of the substance to be tested; apply this to the skin of the inner surface of the forearm and hold it in place with adhesive and allow it to remain 24 to 48 hours. Redness at the end of this time indicates a positive reaction. A crop of small blisters indicates a more positive reaction. No special change is a negative.

Avoiding Contact

Whenever it is evident that a worker has a susceptible skin, whether this is due to a systemic condition, to a natural dryness of the skin, or to sensitization of the skin following repeated exposure, the person should be transferred to a non-exposure task.

In addition, it is important to keep as much of this toxic material as possible away from contact with the worker. This is done by use of a closed process as far as this is possible and by the use of protective materials such as gloves, aprons, snug fitting clothes tight at neck, wrists, waist and ankle.

It is just as important to remove these substances as rapidly and as effectively as possible from the skin. An illustra-

tion of how the American Cyanamid Company solves its problem will help. It was found that the most satisfactory results were obtained as follows:

1. Workers change from street clothes into clean work clothes at the beginning of the day.
2. They bathe thoroughly before leaving the plant.
3. They make a complete change of work clothes from the skin out after the wash-up.
4. Men unloading cars of cyanamid are furnished with clean underwear and outer clothing.
5. Soap dispensers were installed in the locker rooms containing the following solution:

Glycerine	960 grams
Alcohol	691 grams
Salicylic Acid	540 grams

This solution is applied to the face, neck, wrists and hands after bathing and seems to keep the skin soft and pliable.

6. Plant hospital records showed 225 cases of dermatitis treated during 1929. During the next year, after the above system was put into effect, only 29 cases were treated, and these fell within the first five months.

Fungus Infection

Fungus infection has claimed more and more attention during the past few years, because of publicity given to cures for so-called "athletes foot". This has been helpful to industry because it has unearthed cases of dermatitis due to fungi. Since the United States Public Health Service estimates that as high as 50 million people in the United States have this ringworm infection each year, it is obvious that many of these cases must appear in industry.

Recently it was recognized that a person with ringworm infection in one part, like the toes, may develop a dermatitis elsewhere without spread of the infecting agent to that part. In other words, a toxic substance may cause this distant dermatitis. Fungus forms of dermatitis have not been studied sufficiently to warrant further discussion at this time, but this form should be kept in mind when dermatoses are considered.

Before you try any of the innumerable methods for the prevention of industrial dermatoses, give the simple methods of personal and environmental cleanliness a thorough trial under adequate supervision. Then add to these the proper handling of oils for re-use.

For cutting oils and compounds, then, the primary preventive measure rests squarely upon supervised washing with a mild soap, a soft individual scrubbing brush, running hot water, and the use of a personal towel.

To this we add, wear leather aprons to prevent abdominal irritation and wear a simple, clean band about the forehead such as is used by tennis players to keep perspiration from pouring down into the eyes and to prevent contact of the arm

or soiled hand to wipe away this perspiration. Such a procedure calls for plenty of clean protectors made of old, soft cloth.

Keep all work clothes clean and dry. The frequency of washing the clothing will depend upon the amount of contact with dirt, oil, or perspiration. Some groups have found it pays to set up a laundry equipment to handle underclothes and outside work clothes and the towels of the employees.

Washing Facilities

Certain it is that work clothes should always be changed for street clothes, etc., and should be kept in locker rooms where they will thoroughly air and dry.

The re-used oil should be freed from metallic materials and should be sterilized.

The workers should be taught never to use waste to wipe oils from the hands because waste contains bits of metal and dirt which may break the skin and open the way for infection. It has been found that a magnet will pick up plenty of such particles when the skin is wiped with waste.

The workers should be taught to rinse off the oil, etc., under running hot water with the use of mild soap rather than to use the cutting compounds for cleansing purposes. This holds true for the use of kerosene, gasoline, etc., as before mentioned.

Dr. Gray,* Director of the Bureau of Industrial Hygiene of Connecticut, says, "We feel that if proper washing facilities are provided and someone of authority be delegated to see that they are used, that oil dermatitis can be readily controlled.

"Dr. Taylor, Director of the Medical Department of the General Electric Plant of Bridgeport, has eliminated oil dermatitis from the plant by insisting on proper washing and banishing harsh cleaners and abrasives from the washing rooms."

The purely mechanical action in plugging skin openings, causing a backing up of skin oil with distension of the oil ducts and subsequent irritation is well illustrated by zinc oxide.

This non-toxic, non-irritating substance causes what is known in the industry as "zinc pox". Just as with other dust that is rubbed into the skin openings, zinc oxide causes itching and as the dust is rubbed into the gland ducts it carries with it body dirt, waste and bacteria.

The itching results in scratching with

dirty finger nails or rough, soiled clothing. Frequently, a purely mechanical irritation is turned into a secondary infection. The gland ducts plugged with dirt and skin waste offer a splendid chance for bacterial development in an incubator with automatic control.

When the tops of the pimples are scratched off and the material is squeezed out, itching is relieved.

The condition is found most frequently in the pubic region, scrotum, and inner surface of the thighs; that is, where there is continuous exposure of the body and clothing to zinc oxide during work periods. This is aided by free perspiration (greater in parts of skin rubbed together).

The prevention of this type of dermatosis is simple:

1. Exclusion of zinc oxide dust by using a closed system as far as possible.
2. Use of special work clothes—close weave, snug neck, wrist, waist and ankles.
3. Frequent cleaning of work clothes.
4. Thorough washing of muslin and collecting bags before they are mended.
5. Provision of adequate and suitable bathing facilities so that workers can bathe at the end of the work day.
6. Instruction of the workers in personal hygiene which really amounts to instruction in personal cleanliness. This matter of personal cleanliness is the prime factor in prevention, for even the workmen themselves say that the disease depends entirely upon personal cleanliness, and that if they take a daily bath there is no trouble.
7. Reporting of the skin disease should be made compulsory.
8. Bathing should be under supervision and a serious attempt should be made to develop an esprit de corps among the workers that will automatically swing new workers into line and keep old workers in line.

General Preventive Measures

Because dermatoses form such a large proportion of all occupational diseases and are often disabling, one should be familiar with at least the more important occupations that are exposed to skin irritants.

Complete lists are almost impossible because almost any foreign substance can become a skin irritant if it is in continuous contact with the skin. But it is always possible to have in chart form a complete listing of all chemicals used in your plant. To this list should be added a complete chemical analysis of all new materials as they are introduced into old or new processes.

Against such a list, it is then possible to check up on the substances that are known irritants or that are known to cause dermatoses. Substitute a non-irritating substance for a known irritant wherever possible.

Give the worker every possible protection against contact with a known irritating substance. In addition to the use of protective clothing, the length of time of exposure each day should be reduced by a system of alternation of work wherever this is possible.

Provide for cleaning down machines, walls, benches, and other surfaces. Make this cleaning frequent enough to keep the equipment and the air as free as possible from scatterable dust and to reduce to a minimum the contact of the worker with oils, dyes, and other substances used in the operations.

Make floors impermeable and keep them clean.

Paint walls so they will show up dirt and so they can be thoroughly cleaned and have them cleaned regularly.

Wherever possible, have machinery painted to show up oil and dirt, and keep it clean.

Put the workers in washable uniforms provided by the company and laundered by either the worker or the company. The American Rolling Mill Company tried this out with men handling sheet metal—and found it paid.

Have adequate handwashing and other toilet facilities readily available in comfortable places and provide ample shower heads to take care of peak loads.

Either supply soap and towels, or provide a routine whereby each worker has his own. If a scrubbing brush is indicated, make it a part of required equipment but be sure brushes are not harsh.

Supervise handwashing, bathing, and the change from street clothes into work clothes and work clothes into street clothes.

Put all toilets, washrooms, and locker rooms in charge of a cleaner who does nothing but keep equipment and rooms clean.

Many plants have used for years a "worker scrubber" who handles humans as laundry instead of clothing. These scrubbers scour the skin of workers who have been exposed to dirt, dust, or oils during the work day.

Give the workers sufficient time for the routine clean-up on company time; you will find it does not take long once a system is established. You will find that reduction in lost time will more than pay for the effort.

Before you try fancy methods for the prevention of industrial or occupational dermatoses, try the simple methods of personal and environmental cleanliness, for there is no industrial disease that can be prevented and even cured to a higher degree by this simple method.

*Dr. Albert S. Gray, Feb. 11, 1931. Personal communication.

Foremen As Teachers

By W. DEAN KEEFER*

• The successful foreman causes his men to learn correct habits, and to think

EVERY worker who comes into an industrial organization to perform a job which he has not been doing regularly in that plant presents a problem which must be solved by that man's foreman. Not only must the foreman teach the new man how to do his job efficiently, but he must also teach him how to do it without injury to himself or to others nearby.

Before starting the teaching process, however, there are several important things which the foreman will want to check.

First: Is the right equipment available for the job? For instance, if the man is to truck castings from the foundry to the machine shop, is the right type of truck available?

Second: Is the equipment guarded and in a safe condition? If the new man is to operate a lathe, are the gears guarded, is the starting and stopping device in good condition, is there suitable illumination, is the floor in good condition, is there enough "elbow room" for the operator, and are the goggles suitable for this job?

Third: Is the method of operation correct? The foreman must be absolutely sure in teaching a new man to do his job, that he is teaching him the efficient and safe method of operation. Otherwise, the quality and quantity of production are bound to suffer, and in addition, the man sooner or later is sure to be injured.

After these three preliminaries have been checked, the foreman is then ready to take the new man and start the real business of teaching. This involves at least four steps:

1. Tell him.
2. Show him.
3. Have him practice.
4. Watch and check him (supervision).

It is never sufficient simply to tell a man how to do a new job. Most of us forget a great portion of those things we hear. Telling, therefore, should be supplemented by showing, for after all, im-

pressions gained through the eye are much more lasting than those which come through the ear.

It has often been said that experience is the best teacher. Certainly in work such as this, the teacher should use this method of letting the student practice the job, thus clinching in his mind the things he has heard and seen. This step serves as a check on both the foreman and the man. If the man does the job correctly, the lesson has been well presented; if he cannot, the lesson has failed to register.

Watching and re-checking the man through careful supervision constitutes the final step in teaching a man a new job. This step is never-ending and is necessary not only to make sure the man remembers what he has learned, but also to see that he does not get into trouble either through experimentation or through an effort to establish short-cut methods.

Unfortunately, many foremen who are successful in every other respect, frequently fail as teachers—particularly when two or more new men come into their departments at the same time. Quite often, a foreman will succeed with the first man in each group, but when he gets to the second man or to the third or the tenth, he becomes tired of his "lines." He hates to repeat what he has already said and done. In other words, he is a poor actor. He has lost sight of the fact that success as a teacher, like that of an actor, depends upon one's ability to be just as convincing in the second or tenth performance as in the first.

A Teacher's Qualifications

Psychologists agree that the best teaching is done by those who present their subjects from the positive rather than from the negative point-of-view. That is, the best teachers place the greatest emphasis on "what to do." If at any time it is necessary or desirable to explain "what not to do," the teacher should be unusually careful to give the reasons why certain things should not be done.

Many foremen do not realize how easy it is for the superintendent or mana-

ger to check up their ability as teachers. Most accidents result either from unsafe conditions or unsafe practices. And every time a foreman states that "the man was injured through his own carelessness or thoughtlessness," he, the foreman, condemns himself as a teacher. The successful teacher or foreman causes his "student" to learn correct and safe habits and to think. So if a worker is injured through carelessness or thoughtlessness isn't it obvious that that man did not develop the safe habits which the foreman tried to teach him?

One thing more: what qualifications should the foreman have if he is to be a good teacher? Here is a list of answers recently suggested by a group of foremen themselves:

1. Knowledge of the subject.
2. Tactfulness.
3. Ability to command the respect of his men.
4. Patience.
5. Sincere interest in the workers.
6. Ability as an "actor."

Successful foremen are not bosses—they were in the so-called good old days of 20 or 30 years ago. Instead, they are leaders—and teachers.

COMING EVENTS

Of Interest to Safety Men

Mar. 6-7, New York City

Fifth Annual Greater New York Safety Conference. Julien H. Harvey, manager, New York Office, National Safety Council, 37 E. 41st Street, New York City

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

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

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

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

Sept. 3-6, Pasadena, Calif.

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

Oct. 1-5, Cleveland, O.

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

*Director, Industrial Division, National Safety Council.

The Biggest Industrial Safety Job Ever Attempted

By CARMAN T. FISH

● No private enterprise has yet equalled the task of protecting the 4,000,000 men on CWA jobs

PUTTING four million men at work on useful jobs in less than one month ranks among the great accomplishments of all time. The Federal Civil Works Administration might be called a triumph of organization, ingenuity and hard work. Considering the slowness with which large organizations are expected to function, particularly governmental bodies, the speed of the CWA has been amazing—even in an age which is becoming accustomed to rapid changes.

CWA is by far the largest employer on this continent. Its workers far outnumber those of United States Steel Corporation, General Motors, and a dozen other mammoth corporations combined. The CWA was organized to meet an emergency situation, to provide gainful employment where it was urgently needed and with the least possible delay. State, county and local administrators have received the warmest praise from the heads of the administration for their loyal and energetic work.

The preliminary organization work had scarcely been launched when the CWA realized that it was confronted with a staggering problem—the protection of these four million workers. With at least one billion man-hours to be worked there would probably be between 300 and 500 fatalities, while non-fatal injuries of varying severity might run into the thousands. And, because of the hasty organization of this vast force with comparatively little training and supervision, any estimates based on industrial averages might easily be exceeded.

Here both the economic and humanitarian motives for preventing accidents were to be found in even greater degree than in industry. The CWA had the obligation to provide the maximum of employment from the appropriated funds and could ill afford heavy compensation and medical costs. The men employed on CWA jobs were in urgent need of the income, and disabling injury might make the depression a permanent condition for the victim. The govern-

ment had the same clear cut responsibility for its workers that has been accepted by private industry.

In looking for a solution for this vast problem, the Administration turned to the National Safety Council for help in organizing its forces for accident prevention. In December, at the request of Harry L. Hopkins, federal director of the CWA, the Council contributed the services of Sidney J. Williams, director of the Public Safety Division, to launch the safety organization—the biggest industrial safety job ever attempted.

The administration realized at the start that the job was much too big for any man or any group of men in Washington. Hence the first step was to decentralize it, just as the CWA is decentralized into state, county and local units which are very largely autonomous.

Time was short. The entire CWA program would be completed and the working forces demobilized by the time safety work would ordinarily be just starting to function. The whole hope for the success of the program depended on getting the immediate support of the state administrators. The first step, therefore, was to wire each state administrator to pick out the best safety man

he could find and appoint him as state safety director for CWA. If a competent man, unemployed at the time, was available, the administrator could hire him. If the man he wanted was employed, he was to borrow him. The Council furnished lists of qualified men in all parts of the country.

The response to this appeal has been splendid. Men who were already busy with their regular jobs were loaned to the CWA for the emergency. Other experienced safety directors accepted these positions at salaries far below their normal earning power.

There was no time to prepare elaborate plans and instructions, since the original plans of the government called for the completion of the work by February 15. At Washington it was not even known just what kinds of work were in progress in the different states. The initial safety program was mimeographed on a single sheet of paper. Briefly, it included: daily inspections of the job, with a part or full-time inspector on every job employing ten or more men; correction of physical hazards in compliance with existing codes; placing men on jobs suited to their physical and mental powers; instruction of new men by foremen; the provision of adequate first-aid facilities on every job, and the immediate reporting of accidents to the state safety director.

Since then the federal administration has issued a dozen bulletins and letters explaining various parts of the program and offering practical advice on preventing the various types of accidents that might be expected. Mr. Williams has held meetings in Chicago, Boston, New York, Washington and Birmingham, conferring with the state safety directors and strengthening the organization through interchange of experience.

"Our main reliance is on the experience, initiative and energy of our state directors," says Mr. Williams. "I have said to every one of them, 'Here are some suggestions as to what you might do, but don't take them too seriously.

**CAUTION AND
COOPERATION
WILL GIVE US
WORK
WITHOUT
ACCIDENTS**

Federal Civil Works Administration

C.W.A. jobs are SAFE jobs



Meeting of state safety directors, CWA, held at National Safety Council headquarters, December 26, 1933. Standing: H. J. Brammeier, Missouri; W. H. Cameron, NSC; D. F. McCauley, Nebraska; Sidney J. Williams, NSC, federal director of safety, CWA; Arthur F. Dunnebaeke, Michigan; Roger C. Kerchoff, Wisconsin; D. T. McMurchy, Ohio; W. Dean Keefer, NSC. Seated: C. W. McFarland, Iowa; A. E. Holstedt, Illinois; S. M. Lauderdale, Arkansas; E. D. Murphey, Oklahoma; W. Pierce MacGoy, Indiana; Robert L. Schmitt, Kentucky.

"Your job is to go out and stop accidents in your state, and I don't care how you do it."

Most of the state directors of safety also felt that their first problem was organization. Many of them have already employed from half a dozen to thirty or forty competent safety engineers to go out into the field, interest the county and local administrators and the job supervisors, size up the situation and give specific instructions. They have also distributed copies of the one poster issued to date by the CWA, which is reproduced herewith. Eighty thousand of these posters have been printed, half in the large and half in the small size. These are sent out only as requested by the state directors to avoid having them lie around unused. The second poster, which urges first aid for all injuries, has been purchased from the National Safety Council and 98,000 copies are being distributed.

First aid for minor injuries is one of the important items of the program. A competent first aid man on every job has been the aim of the administration but some jobs have gone still further and provided a nurse to handle one group or a combination of groups. Many of the states and local units are purchasing simple first-aid kits.

Prompt and accurate accident reporting is another fundamental which has been stressed. The states are now beginning to furnish Washington with reports which present a clearer picture of the problems involved. The outstanding problems are those which arise from inexperience and lack of supervision. For

example, several men have been killed while digging in gravel pits when the bank has fallen in on them. This would not have occurred with expert supervision. The transportation of men to and from work in trucks has also involved several accidents, and serious hazards have been encountered in using explosives and in ditch digging. The use of hand tools, as in private industry, has been accompanied by numerous minor injuries.

The federal administration has undertaken this ambitious safety program not only to hold down compensation costs, which would otherwise be enormous, but also to make them better and safer workers when they return to regular employment. The CWA is endeavoring to establish a new standard of safety in the United States, and it is putting safety on the map in many districts and among groups where it was unknown before. Of the four million workers employed, comparatively few ever received any previous instruction in accident prevention.

Other plans now being formulated by the CWA are also contributing to public welfare, as well as putting men back to work. For years traffic engineers have complained about the lack of definite information about traffic. Traffic research projects, carefully planned and unquestionably needed have been postponed because the men and money to carry them out were not available. Now it has been made possible to carry out these plans. Several progressive cities have taken advantage of the opportunity and have used CWA workers to conduct traffic surveys and studies of other

traffic problems. Unfortunately, many cities have not been able to supply the necessary technical talent to direct surveys because falling revenues had crippled their own police and engineering departments. Consequently a big traffic survey project is now being planned in which the local CWA offices will supply the men and the federal office will borrow or employ an adequate traffic engineering staff to give technical advice and supervision to the various cities. Plans have been discussed with the American Automobile Association, the National Bureau of Casualty and Surety Underwriters and the National Safety Council. The success of such a project would require not only the cooperation of these bodies but also the active participation of traffic men in cities all over the country.

The experience acquired by the National Safety Council in more than twenty years of service to humanity has proved invaluable to the country in the present emergency, and the Council welcomed the opportunity to put across a safety program among four million men, most of whom had never before been exposed to any safety instruction. The Council had not only the technical knowledge but also the loyal support of hundreds of safety men who had the work of the safety movement in broadest sense at heart. Because of long experience in working together, these leaders in the safety movement have been able to start right in and do the job with the minimum of preliminary planning and discussion. Had the federal administration not been able to call upon these experienced men, any effective safety work in the limited time would have been almost hopeless.

"The administration is gratified at the way these men and their employers have cooperated," says Mr. Williams. "Men who have been very much needed on their jobs have been loaned for the work because their companies recognized real emergency and a real opportunity."

"The statement carried on our posters 'CWA Jobs Are Safe Jobs Are Safe Jobs,' is perhaps an ideal rather than a fact, but an ideal which we are bound to accomplish."

The following state safety directors have been appointed:

Alabama—W. R. Loyd
Arizona—Thomas Cowperthwaite
Arkansas—S. M. Lauderdale
California—R. E. Donovan
Colorado—A. A. Klinge
Connecticut—H. W. Heinrich

(Please turn to page 54)



Century Photos

Hazards Lurk in Rural Scenes

By C. E. LIBBY

A vacation on the farm showed that the city had no accident monopoly

THOSE of us whose work is so constantly related to accident prevention as to make us "hazard conscious" in every waking hour (and some of our sleeping hours) become acutely aware of conditions and practices which invite injury.

The writer's vacation on the farms, in the dairies and at the tables of friends was not in any degree marred by the lack of a "safety program," or even an evident ignorance of the industrially known fact that 95 per cent of accidents are preventable. But the ten days of the blessed two weeks spent in a rural community brought out vividly the possibility of injury and disaster in the country.

Here is the diary. As the bus dropped us at the country store clerks and customers were expressing sympathy for a neighbor who had just been carried into his home a quarter of a mile away with a broken rib. He had fallen from his low hung manure spreader while operating it in the field. His side struck a wheel or a stone. Later it was found a second rib was fractured and the subsequent consultation rendered a verdict of a punctured lung. When we left for home and the job the doctor was trying to save the man from pneumonia.

That evening more than passing comment was aroused by the paper's account

of the violent death of a four year old girl in a neighboring town. The little one had been allowed to wander within reach of a mettlesome horse in the barnyard. A horse just bought not used to children. The animal's hoofs fractured the skull of the curly haired youngster.

Generations of experience, much observation and a limited water supply, coupled with the urgent advice of insurance agents have made intelligent farmers safe smokers about their barns. There seemed to be an unwritten law that smoking in the barns should be confined to the dairies where the floors are of concrete. And that only pipes should be smoked. One noticed every match used was extinguished, broken and placed in a pocket or jumper or overalls, never dropped on the floor.

One Calamity After Another

Our host was one of those who raise the famous Catskill Mountain cauliflower which reaches the New York market less than twenty-four hours after it is cut. August requires extra help for handling this crop; and at times a force harvesting and shipping which would compare with the most hectic schedule known to an industrial production manager.

One of the extra hands, a close mouth-

ed boy of eighteen, became somewhat confidential about the third day. On inquiry as to whether his father was farming, he told of the following events.

In 1929 their barn was burned. Cause thought to be spontaneous ignition from tilling mows with hay not properly cured. In 1930 their house burned, cause undetermined. In 1931 the lad's father was killed when forced off the highway by another car. And the boy exhibited a scar from an axe wound in 1932 which had severed the principal tendon of the left thumb. Cause was insecure footing. Very skillful surgery had saved the member from any degree of permanent disability.

The rain which had made opportunity for our conversation ceased and as the young man left the barn a buyer of live veal came in with the farmer. At the calf pen, he leaned heavily on the 2 x 4 which formed the top rail of the pen, receiving a badly scratched arm from one of the seven nails which my friend had driven half way home in a pattern arranged to hold his axe firmly when he wanted to file the edge.

Sunday dinner was with one who reminisced about the activities of the local church. He told of the locked door in the parsonage, opening directly on the cellar stairs, which looked just like an adjacent door leading to the kitchen, and of the wife of a visiting clergyman, who opened the wrong door, fell against the cellar wall and died a few hours later.

Mental characteristics offer just as great opportunity for study in the country as elsewhere. The attitude of two neighboring farmers as shown in their respective methods of handling their bulls was revealing. Especially when compared to their viewpoints toward other things. They will remind safety directors of similar personalities met in the offices and shops of industry.

Mr. A keeps a pedigreed bull, is a member of a cow testing association, has one silo and if the price of milk becomes stabilized at a reasonable figure will build another. He whitewashes his dairy twice a year when once would meet requirements. Within the barn the bull has an ample stall of two inch plank well braced with a top rail of heavy pipe. Planks are so spaced at his head that after the gate of the pen is opened behind him his owner can remove the chain from the nose ring without entering the pen. Soon as the bull turns the man is back by the open gate with a word of command and a gentle prick on the flank with a pitch fork. The animal is trained to exit at once to his exercise

enclosure, thirty by fifteen feet with feed waiting at the far end. The gate here is immediately swung to behind him. One side of this enclosure is the foundation wall of the barn. The fence and gate are of three-inch planks bolted for cross bracing to two by fours and at the ends bolted to posts set thirty inches in the ground. While in this run the bull is fed and watered from outside the fence. This bull has always been gentle.

Mr. B. is an older man with more available capital, inherited and not made originally and directly from the soil. He thinks cow testing associations are foolishness, and frets about the requirements imposed which include an annual white-washing of the herd's domicile. This man also has a pedigreed bull.

This bull is penned within the barn and rather loosely held by an ordinary old fashioned tieup chain, whose clanking keeps the bull reminded of his fettered state. This animal has not had any nose ring fitted. At intervals he too is turned out of his pen of one inch boards into the barn yard with the same unconcern and lack of precaution as the cows are turned out. This bull has never been anything but gentle.

These two men must have their methods of handling bulls mirrored in the light of this fact. It is very doubtful if one can read the papers circulating in any block of ten dairy counties, without finding on the average of once a month the account of a fatal or at least an attempted goring and trampling by a bull "which has always been gentle."

To go back to the cauliflower crop. As intimated above, everything else waits on the necessity of getting this luscious vegetable to the New York market in prime condition. The speed of its growth and its quality is determined by the weather day by day after the heads are set. Our hostess not only thought it her duty to become one of the cauliflower crew on shipping days but apparently liked her part of the labor. I think she was also conscious of her ability in supervising the others engaged in the task of shipping. Cauliflower heads are cut from the stalks in the field, trucked to the shed or that section of the barn set aside for the purpose and stacked with heads forward.

Indoor operations are trimming, picking and washing, packing; and the colored strings with which the leaves have been tied up to keep the light from the maturing head, must be retrieved from the leaves after they are cut off, both for use again and to be sure the leaves are free from them before being fed to the stock.



Farmerettes become extremely skillful in trimming cauliflower heads but it makes a visitor nervous to watch the flashing blade.

Our friend the farmerette did the trimming and the supervising. In beach pajamas wielding a blade fourteen by two inches with a razor edge, and with the truck driver waiting for his load, safety seemed to take a back seat for speed.

Two strokes of that cleaver for each head. One to square the stem which in the field had been severed with a diagonal stroke, another to cut the leaves off within a quarter of an inch of the flat head of the cauliflower, without making it unmarketable by the slightest shaving of the head itself. Very quickly the pile of slippery leaves grew. It having rained the night before, the lady's footing seemed none too secure; yet the flashing of the blade never slowed, and at times she was trimming five heads every two minutes. I thought fearfully that what had not happened in six years of cauliflower harvesting might happen in the next six seconds. It didn't but it eventually will unless she and others take warning and give thought.

Drowning and shooting victims in the country are mostly visitors or new comers. Traffic accidents involving people on the farms are of the same degree of severity and of the same relative frequency as those which happen to city folks.

To meet the accident hazards, which are inherent in farming operations one wishes some sustained effort could be made. And to one who has an intimate

acquaintance with farmers, a deep personal affection for many whose lives are on the land, accurate knowledge of the organizations serving farmers and the literature entering their homes; coupled with a growing appreciation of the work of the National Safety Council, there can come only one wish. Perhaps not a conviction that the Council should assume some measure of responsibility, but at least a wish that the beautiful five pointed star of Industrial Safety, School Safety, Home Safety, Safety in Travel and Public Safety might take to itself one more point—that of Safety on the Farm.

N.F.P.A. Creates Organization for Volunteer Firemen

DURING the past year the fire losses in the larger cities of the country have shown a material reduction but the losses in the smaller cities and towns and in the rural districts have been increasing. Because of this fact the National Fire Protection Association during the past few months has organized a Volunteer Firemen's Section which is designed to provide helpful information and assistance to the volunteer fire departments throughout the United States and Canada. All of the small towns and some cities and towns of fairly large size depend upon volunteer fire departments or departments with only a few paid men for their fire protection.

There are approximately 12,000 volunteer fire departments in the United States and Canada and the N.F.P.A. has communicated with every one of these departments, inviting them to join this national movement. The volunteer have shown widespread interest and cordial response to the organization of this new section. During the past three months over 1200 volunteer firemen have affiliated with the section. The new section has received the endorsement of the state firemen's associations in New York, Pennsylvania, Nebraska, Illinois, Rhode Island and Utah and has been endorsed by state fire marshals in Illinois, Iowa, Texas, Maryland, Minnesota, Mississippi, Montana, Nebraska, Washington and Wisconsin. The National Fire Protection Association is publishing a monthly journal especially written for volunteer firemen about problems with which they come in contact. The plan of membership for the section provides that each individual volunteer fireman affiliated receives a copy of the monthly bulletin and that the fire company receives at its headquarters all of the regular literature issued by the National Fire Protection Association.

NATIONAL SAFETY NEWS

Pipe Lines in the Plant

By C. V. BECKER*

- Safe procedure in the operation of steam, air and gas lines involves problems of design, installation and maintenance

BASICALLY, safe practices in the operation of pipe lines conveying steam, compressed air and gas are, in the author's opinion, dependent on certain fundamentals of design, installation and maintenance:

1. All pipe lines should be designed to conform with sound engineering practice, special care being taken to eliminate unnecessary friction, and to make adequate allowance for expansion and contraction.
2. All piping should be installed in a workmanlike manner, using the proper materials for the function the pipe line is to perform.
3. Adequate inspection and maintenance must be provided.
4. The contents of pipe lines should be designated by painted bands or color at such intervals along piping as to permit ready tracing of lines. In addition, porcelain enamel signs should be used near the color band stating plainly the nature of the contents.

For illustration, consider the removal of accident hazards in the high pressure steam line by the application of engineering design and installation. The line described is 12 inches in diameter extending from the boiler headers through a tunnel and then into the manufacturing buildings, a total length of 600 feet. The steam pressure is 150 pounds per square inch, the equivalent temperature of the steam is 366 degrees F.

One of the greatest sources of high maintenance cost and safety hazards due to leaks, is the pipe joint. Pipe joints may be divided into three general classes: screwed, flanged, and welded. All three are in general use on steam lines. Screwed or threaded fittings have their most extensive use in small diameter piping, (3 inches or less); occasionally they are used on larger diameters, where only low pressures are carried. The initial cost of a screwed joint is relatively low for these small sizes. This type of fitting performs quite satisfactorily when new, but in a short period

of time, losses through leaks and maintenance costs soon enter into the calculations.

Sooner or later, leaks will develop in the threaded joints of a pipe line. This is particularly true of lines carrying high pressures or subject to extreme temperature changes. Slight inaccuracy of threads allows a slight relative movement between pipe and coupling as a result of expansion and contraction stresses due to temperature changes. Eventually, this tends to produce a leaky joint, regardless of the use of white lead, litharge or other caulking material. When threads are cut on the end of a pipe, a large percentage of the pipe strength is lost. Since the pipe is cut to a depth of as much as 50 per cent of the pipe wall thickness in some sizes of standard pipe, the threads usually extend two or more turns beyond the end of the coupling. The extra threads are exposed and it is at this point that corrosion almost invariably begins.

Gaskets Deteriorate

It is a well-known fact that nicking or notching a joint makes it much easier to break. The exposed pipe threads have the same effect and materially reduce the strength of the pipe at the joint. In large size pipes carrying high pressure, this constitutes a definite hazard.

It has been a common practice during past years to use flanged joints in the installation of steam pipe lines. Some types of these are variations of the threaded joint since the flange is screwed to the body of the pipe. Flanges of this type necessitate the use of gaskets. These gaskets are subject to deterioration, resulting in the loss of pressure or materials, in addition to constituting an accident hazard. The cost of maintenance is also higher, as gaskets demand continual care and attention with frequent renewal to maintain the line in proper working condition.

Flanges and flange fittings are neces-

sarily large and heavy. It is not unusual for the weight of the flanges and fittings in a large run of steam plant piping to total considerably more than the weight of the pipe itself. This entails the fabrication of heavy pipe supports to relieve the flanges from excessive bending stresses. Even then, difficulties are often encountered, especially in a continuous steam line passing over a number of supports, with a flanged joint midway between supports. Unless supports are near enough together and are bearing equally, the strain set up at the joint due to unequal stress at the top and bottom may be enough to break the flange or at least to start a serious leak.

Elbows Create Hazards

Another source of danger in operation of a high pressure steam line is the 90° cast iron elbow. The engineer should bear in mind these fundamental facts:

1. That the stress due to bursting pressure is very definitely concentrated at the throat or inner radius of an elbow.
2. That the mechanical stress imposed upon a piping system due to expansion and contraction is very definitely concentrated upon the elbows, and this movement in the piping causes a breathing action in the elbow.

It is merely necessary to consider the number of cycles of expansion and contraction to which an average installation is subjected in the course of its lifetime, and to visualize the repeated breathing action at the elbow, to realize that at this point there is grave danger of a serious accident due to breakage of the elbow joint, without warning, at any time while the line is in operation.

After considering the disadvantages of the various factors enumerated, it was decided to design the new steam pipe line so as to eliminate all accident hazards, disadvantages of operation and effect economies by the installation of the pipe line so that it would be practically free from mechanical or threaded joints. This was accomplished in the following manner:

All joints, that under previous practices during past years had been connected by means of threaded couplings or flanges, were eliminated and butt type welded joints were provided by means of

*Works engineer, Oxweld Acetylene Company, Newark, N. J.

oxy-acetylene welding whereby the joint was made entirely permanent and entirely free from leaks as demonstrated by a hydrostatic and hammer pressure test. Experiments on sections of pipe proved that this joint was stronger than the original pipe itself. This resulted in the removal of accident hazards, decreasing the cost of installation, and practically eliminating maintenance cost.

All cast iron elbows were eliminated from consideration in this layout by the substitution of extra long radius easy bends which were also welded permanently into the steam line. All piping was suspended from hangers equipped with rollers so that the breathing action of the pipe line in operation, caused by the contraction and expansion of metal due to temperature changes, was entirely compensated for in a safe manner.

"U" bends were placed in the center of the longest lines of pipe to compensate for expansion not otherwise provided for. This line has been in continuous operation for a period in excess of 5 years, without any repairs being necessary.

Compressed Air

Distribution main piping for the conveying of compressed air at a pressure of 100 pounds per square inch, has since been installed in practically the same manner as the steam main just described. There are, however, several innovations which may be of interest.

Four sections of steel pipe 6 inches in diameter and 20 feet long were welded together in position on the floor and then hoisted in place by means of electrically operated stacking machines where the pipe was firmly bolted to the hangers. No slings or hoisting apparatus was necessary, and practically all the work of fabrication was done at a floor working level. No threaded tees or elbows were used in the entire air line, approximately 1400 feet in length.

In the tapping off of distribution branch lines from the main header, a very simple procedure was established by welding a nipple to the main header at any point where it was necessary to furnish air for process work to the machine operations. This practice eliminated the use of any screwed fittings or tees of any type, and also provided for future changes in location of equipment to be furnished with air, or for future expansion of additional machines, as it is a simple operation to weld in a nipple wherever required, up to the total capacity of the main air header. Air is supplied to this line by motor-driven

compressors having a capacity of approximately 1,000 cubic feet of free air per minute.

In order to avoid hazards due to the presence of cylinder lubricating oil or moisture from the atmosphere, or condensation from the cooling air in the discharge pipes leaving the compressor, both discharge lines were connected to tank receivers and from there to an aftercooler, then through a series of filters to a drip pocket. To the top of this drip pocket, the compressed air main was connected.

In establishing a safe procedure of operation, a blow-off valve was located at the bottom of each tank receiver, and any oil or moisture was blown out every morning before starting in operation. The same practice applied to the bottom of the drip pocket to which the main line was attached.

In addition to the unloading device on each air compressor to maintain a constant pressure of 100 pounds per square inch, there was also provided a safety valve on each of the air receivers and the aftercooler, conforming to the American Society of Mechanical Engineers Code for Unfired Pressure Vessels.

This pipe line has also been in operation for more than 5 years, and as there are no threaded joints in the entire distributing main, no leaks have occurred and no maintenance has been necessary.

Pipe Lines Conveying Acids

In order to design new pipe lines or modernize old pipe lines now in service for the conveying of various acids, the first factor to be considered should be the selection of the proper metal for the pipe lines. Development of corrosion-resistant metals has made rapid strides in the past few years. Some of these materials have a broad field of application, others are adaptable to highly specialized conditions, but wherever waste due to corrosion is serious, use to which the metal is to be put should be studied.

For example, in chemical, bleach and dye plants, oil refineries, packing plants, creameries, dairies and paper mills, the new 18-8 chrome nickel steel has a broad range of application, and frequently can be made to pay for itself in a comparatively short time. Rehabilitation of sulphite digester relief lines in paper mills is an excellent illustration. These pipe lines were formerly made of bronze and replaced every 6 to 9 months. In one particular installation where these lines were replaced by 18-8 chrome nickel steel, they have been in continuous serv-

ice for more than 3 years, and still appear to be in good condition.

In the average metal working plant or today, a great many operations require the use of various kinds of acids, such as chrome, nickel, copper and cadmium plating baths, also the pickling of ferrous and non-ferrous metals.

Sulphuric Acid

The acid most commonly used in plants of this type is sulphuric acid usually used in a dilute solution of from 8 to 12 per cent. It has been common practice to handle concentrated sulphuric acid in iron piping from the tank cars to the storage tanks at the plant without danger of excessive corrosion. However, it is dangerous and costly to use iron piping, valves or fittings to convey weak solutions of sulphuric acid, as the acid solution will attack and disintegrate the iron piping and valves. In a case recently reported, an iron gate valve located in a cast iron pipe line conveying weak sulphuric acid was the cause of an explosion which wrecked the valve. The weak sulphuric acid attacked the cast iron, forming hydrogen gas which, being lighter than the liquid lodged in the valve chamber or bonnet above the gate valve. When the valve was closed the chamber due to packing around the valve stem, became gas tight and the pressure of the hydrogen gas could be relieved only by the explosion which occurred.

The term "weak sulphuric acid" used in this article means acid below a strength of 70 per cent. Concentrated commercial sulphuric acid is stronger, more than 95 per cent strength. As accidents have occurred through the use of cast iron pipe, there seems to be little reason for the use of cast iron or similar metals for the storage, pumping or piping of sulphuric acid in the modern plant.

It is suggested that antimonial lead, safer, more dependable and cheaper over a period of years.

1. It is recommended that storage tanks lined with 6 per cent antimonial sheet steel, preferably 5/16 in. in thickness.

2. The pumps required should be of the centrifugal type made of 6 per cent antimonial lead with an acid resisting impeller bearing shaft of Everdur or equal.

3. The piping should be double A or triple A 6 per cent antimonial lead, eliminating elbows by means of easy radius bends.

4. If possible, there should be but one valve in the system, and this valve should merely be a conical shaped antimonial lead plug with a lead covered rod long enough so that the plug can be inserted in the bottom outlet of the tank which leads to the suction side of the pump or the gravity static head feed to the distributing system as the case may be.

Please turn to page 52.

NATIONAL SAFETY NEWS

Trailers in Highway Transport

By R. E. ORWICK*

● Their use involves precautions common to all vehicle operation, plus a few special problems

TRAILERS used in conjunction with automotive transportation may be divided into four general classes: (1) Semi-trailers; (2) Four-wheel trailers; (3) Drag or carryall trailers—either semi, four or six wheel; (4) Pole trailers.

Their uses may be classified according to the service in which they are employed, such as: interplant hauling, local city delivery and pick-up services, and intercity or interstate work, commonly called "long distance hauling."

To facilitate discussion, let us separate our subject into three phases: selection or purchase, operation, and inspection and maintenance.

Selection of Equipment

In the selection of trailer equipment, extreme care should be exercised to make sure that a unit of ample capacity is obtained. Trailers are normally expected to function for at least ten years, and unless overloaded, this is a very conservative expectancy. Unfortunately, there is a tendency among trailer salesmen to undersize, but this responsibility rests mostly with the buyer who wants the lightest possible vehicle to carry the largest possible pay load, and, of course, to keep the initial investment at a minimum.

In determining correct specifications, it is safe to follow tire manufacturers' specifications. But this alone is not enough. Axles, wheels, bearings, springs, frames, gusseting, etc., should be of the proper kind and size to insure long life and freedom from breakage.

Special attention is directed toward the braking equipment. The truck or tractor pulling unit should not be expected to stop the trailer vehicle and its load. Exceptions are the slow-moving units, such as drags or pole trailers, whose speed does not exceed 10 or 12 miles an hour.

Trailer manufacturers will equip your trailers with any one of several types of brakes: hydraulic or mechanical with vacuum assister, mechanical with compressed air assister, or mechanical with

electrical assister. Any of these types will stop vehicles under high speeds or heavy loads when correct sizes are applied.

The local inter-plant or inter-station work where couplings and uncouplings are frequent (commonly called shuttle work) brakes play an important part in the prevention of accidents. For this class of work, the fully automatic semi-trailer not only gives greater economy but is more desirable generally. It is much safer to operate because the driver does not leave his seat in the cab to hook up or uncouple. The brakes apply automatically when uncoupling and release automatically when coupling, eliminating the hazards involved in blocking the wheels as a substitute for brakes.

Power brakes have been successfully developed to work in conjunction with automatic brakes without the necessity of coupling or uncoupling hose connections. It was found in local work that the driver would very often neglect to make these connections manually. This method increases safety by automatically furnishing additional power brakes at all times. By adhering to the manufacturer's rating on axle capacities, adequate braking capacities will be obtained.

Attention is also called to the fact that fully automatic semi-trailers are best suited for this type of work from the safety angle because the support legs are moved farther forward when uncoupled than is possible with the commercial type of manually operated leg support that is hinged to the frame.

In Case of Fire

It is also apparent that many hazards present in the type where it is necessary to hand crank the leg supports to the ground are fully eliminated in the type where the driver does not leave the cab.

This same attribute of being able to uncouple without leaving the driver's seat in case of fire to either the tractor or semi-trailer unit has often resulted in saving the menaced equipment. One large marine company covering cargo insurance has a lower premium rate where fully automatic trailers are used. In the

case of the semi or pole trailer the size and design of the king pin should be carefully considered.

The methods of attaching and suspending the semi-trailer on the tractor should be canvassed most carefully to insure freedom from accidental uncoupling and weaving or swaying in operation. Care should be exercised to make certain that design has provided proper rocking or universal action between tractor and semi-trailer when varying angles and planes are encountered.

Proper location of the fifth wheel on the tractor is important, and it is essential that it be so securely fastened to the tractor frame that even the most severe shock will not dislocate it but transfer the shock to some less vital point. Careful attention should be given to the fifth wheel design in both upper and lower fifth wheel to obtain that design which provides the greatest possible safety between king pin and coupler jaws and locks.

Avoid Overloading

Body sizes that will minimize the possibility of overloading should be selected. Loads should always be carried as near to the ground as practicable. For long distance hauling under high speeds the underslung or drop frame type minimizes weaving and swaying, and more important, tipping on curves or turns. It is always important to keep the center of gravity as low as possible.

When selecting a four-wheel trailer, the drawbar design and the method of its application to the main dolly frame should be carefully considered. The pintle hook design and safety auxiliary drawbar chains seldom receive the attention their importance justifies.

Proper lighting facilities, including front, rear and side, clearance light and markers, will reduce the risks of accident. Well-equipped vehicles will not limit their lighting to mere statutory requirements. In long distance hauling road flares should always be part of the equipment. Spot lights properly installed on the tractor should be standard equipment. They will prevent many an accident on curves and at turns.

*President, Lapeer Trailmobile Company. (Abstract of a paper presented before the Fleet Superintendent's Division, Chicago Safety Council.)

When these factors are considered in the selection of trailer equipment failure will rarely be chargeable to the vehicle itself.

Safety in Operation

Before sending a driver out on the streets and highways with a trailer, give him sufficient time in a vacant lot to become thoroughly familiar with its operation. He should be instructed as to the functions of the coupling mechanism, leg supports and braking mechanism. The trailer is a simple machine and the driver should know how each part of it functions.

Most of the precautions in the use of trailers are those that apply to all commercial vehicle operation. The driver who is alert seldom has an accident. Tests to determine this faculty when assignments are made will eliminate many unsafe drivers.

Routing and dispatching should always provide adequate rest periods for the driver. Contraction of the eye muscles from too long a focus, and tension of other muscles from motor vibration, or cramped positions result in a bad reflex action and increased accident risk. In long distance hauling it has been found valuable to establish regular points for gassing where the driver is able to leave the cab and relax. In some fleets arrangements have been made with the station attendant to make certain inspections of both driver and equipment. This practice has been credited with a definite reduction in accidents by the fleets.

Whenever possible, the driver should be so scheduled that he will sleep in his own bed. Where it is necessary for the driver to be away on alternate days a check of sleeping quarters has been found advisable to insure sufficient rest before the return trip. With so many accident causes having their origin in conditions outside employment, the employer cannot be indifferent to the environment of the driver in his off time.

Drivers' reports covering the condition of equipment, as well as road and traffic conditions, can help in preventing accidents. They should be encouraged. The driver can be of great assistance if you will give particular attention to his reports.

Inspection and Maintenance

Variations in operation demand just as varied a program of inspection and upkeep. Trailers in city or interplant work, used only a few miles daily and in the daylight hours, require compara-



By W. W. WILLIAMS*

BACK on the job and rarin' to go, eh Bill? Well, it's good to have you back, and if you're rarin' to go safe, we'll start with a clean slate.

Been brushing up on safety? Well, our safety rules don't impose any hardship but their violations will.

Yes, I could have fired you six months ago, but we're not passing the buck for teaching our men to some other concern; we can do the job right here. It would have given you a jolt and you might have been more careful on the next job. But you got a jolt, all right, and so did everybody else. Besides, it costs money to break in a new man, and it's always a gamble how he will turn out.

Bill, it takes years to build up a good workman and he may be lost in a moment. Yes, your accident cost us plenty, directly and indirectly.

You know, Bill, we have some people around here who think that safety is all one sided—just a company scheme to save money. They just can't see that they profit, too.

We can't afford the double loss of a man's services and his compensation. Why, the hidden or indirect cost of your accident will be four or five times what we paid in compensation and medical. And accidents cost an injured man more than money can pay for, and that isn't half of it.

Of course you suffered, although the doctor's hypodermic relieved your pain. But no doctor could administer an anesthetic to your wife's heart and feelings. She did the real suffering. It's your loved ones who pay the price—a price you can't reckon in dollars and cents.

There goes the whistle. Remember, Bill, I have faith in you, and I'm betting on you.

*Assistant to the President, Employers Insurance Company of America, Kansas City, Mo.

tively little attention. An adjustment of brakes at scheduled periods comprises the principal item. Units operating many miles a day at high speeds and during the night should have daily inspection and maintenance.

Perhaps the most important is tire inspection to prevent blowouts en route. Proper inflation or deflation of tires is important for both economy in operation and prevention of accidents. Lighting equipment should have daily inspection, including light bulbs and battery.

Brake mechanism should receive attention to avoid leaks in the power lines, to insure lining renewal when needed, and shoe adjustments to keep the time required for application at the minimum. A quick brake is even more necessary than a quick motor, and a positive brake more essential than high speed.

Regular attention to the wheel bolts and nuts to prevent the loss of a wheel while traveling. Body clamps should be tightened regularly to prevent weaving and swaying. Coupler jaws and locks and king pins should be examined to make sure that the units will not separate while on the road.

It should not be necessary to stress the importance of lubrication other than to mention that lack of oiling and greasing eventually results in failures and thereby the introduction of accident hazards.

Life Insurance Sees Hazards in Liquor Dispensing

THAT the manufacture and sale of intoxicating liquor is hazardous to the health of those employed in the industry, would seem to be indicated by the occupational ratings imposed by life insurance companies, according to *The Eastern Underwriter*. Few classifications are being handled at standard risks. Some companies will not grant such benefits as waiver of premium and double indemnity to those engaged in the liquor industry. Proprietors and managers of distilleries, breweries, hotels, and wholesale houses are accepted by some companies at standard rates. In some cases disability benefits will be allowed. Even these selected occupations will not be considered as standard risks if there is any connection with the retail dispensing of liquor.

Many companies will not accept bartenders at all, and one company rates them at twelve years. Waiters, salesmen and collectors come in for rating of eight years each because of their close contact with the actual dispensing of liquor.

At present, companies have only their pre-prohibition experience, and this is not considered as representative of present day conditions. Some authorities feel that the bootlegging industry will be a factor in liquor traffic for some time to come.

Reorganizing Safety Work

By ALVIN VITZ*

• Much of the success of the program will depend on the man who heads the department

WITH the renewal of industrial activity, a great increase in the number of injuries can be expected. Even though many safety departments were disbanded during the depression, unusual safety records were established. This was probably due to a low rate of labor turnover which resulted in men becoming thoroughly familiar with the hazards of their work. With the increase of production, departments will have to be reorganized and new equipment installed. Men who have been out of work for long periods of time have lost many of their safety habits and will have to be retrained. This new era will severely test the methods of accident prevention used in the past.

As soon as the first flurry of recovery is over, the question of organizing safety work will again come to the front. The selection of a man to head the safety department is most important as a first step in developing a program. The following qualifications should be considered:

1. Personality
2. Enthusiasm
3. Analytical mind
4. Experience and education

A safety engineer deals primarily with men. His success depends largely upon his ability to enlist cooperation both from the management and the workers. This cooperation results from presenting ideas in a convincing though open-minded manner, at an opportune time. He must know how to compromise. One who gets the reputation of being uncompromising will create among his associates an opposition which will handicap his efforts. Safety engineers must often point out unpleasant possibilities and perhaps get the reputation of being calamity howlers. A friendly personality will tend to overcome this.

With the stress placed on costs, quality and production, operating men have many things to think of and much of the enthusiasm of safety work must be supplied by the safety engineer. He should be a man who shows great interest in any problem to which he is assigned. An operating superintendent once remarked

that his safety engineer considered accident prevention too important and sometimes forgot that production was the major purpose of his factory. However, the physical condition of workers is surely a production problem just as the maintenance of equipment, and too much interest and enthusiasm is better than too little.

There is sometimes a tendency to forget the human side of industrial accidents. A man who is sympathetic with those who are injured, who appreciates their physical and mental suffering, is stimulated to prevent such occurrences.

Many of the serious injuries and catastrophes in industry result from conditions that are obvious after the accident but were passed over beforehand. Gas-air mixtures may have occurred in a process for years without ignition, when suddenly the unusual happens and an explosion results. A successful safety engineer recognizes potential hazards and should be able to suggest workable preventive measures. The safety engineer must have an inquisitive, analytical mind that will search behind the tank wall or into the details of processes.

A Safety Man's Background

What should be the educational background of a safety engineer? Aptitude and knowledge in mechanics and chemistry aid him in understanding the equipment and process hazards of his factory. Operating experience gives an appreciation of operating problems and makes his suggestions more acceptable to production men.

The above points probably describe briefly the characteristics of an ideal safety engineer. In every plant there should be several men who have held supervisory positions whose characteristics approximate these and who, if enthusiasm were sufficient, would be successful in safety work.

The training of a safety engineer may be divided into eight sections.

1. Study and literature on safety methods
2. Study and analysis of injury reports
3. Conferences with factory superintendent
4. Interviews with supervisors and their foremen to discuss processes and injury hazards

5. Study of safe practices
6. Inspection of mechanical hazards
7. Investigation of current injuries
8. Installation and follow-up of safety committee system

There are several good books available on safety methods such as "The Manual of Industrial Safety" by S. J. Williams and "Industrial Accident Prevention" by H. W. Heinrich. These should be read for their possible application to the factory in question. The current literature will point out what other men are doing and should aid the new safety engineer in developing enthusiasm for his work. For the details of prevention methods there is no better source of information than the Safe Practice Pamphlets of the National Safety Council. A study should also be made of the rulings of the compensation law and the specific requirements of the state and municipality covering physical conditions in the factory. Reading on safety should be done gradually as training progresses. Assignments may be given to investigate certain phases of accident prevention pertinent to the factory. This will make the study of the literature less routine and more purposeful.

Most factories have a file of injury reports covering several years' experience. These can be read to advantage to obtain some idea of what happened in the past. Such facts, when assembled, are often a revelation to production men who sometimes forget the injuries that have occurred. A break-down of the data according to departments and operations will locate any high accident procedures. The costs involved can be effectively presented to the management in the support of preventive measures. Classifying injuries according to "handling objects" or "falls from elevations," etc., is of questionable value as the classifications are too general and do not reach the fundamental causes. The actual injury reports will more easily point out some common specific cause such as insufficient training, improper discipline, or unsatisfactory guarding of equipment.

Close contact should be maintained with the executive immediately in charge of the factory and problems and ques-

*Safety Engineer, The Procter & Gamble Company, Ivorydale, Ohio.

tions referred to him. A weekly conference is recommended at which the activities of the week would be discussed and training projects explained and assigned, such an arrangement with the superintendent forces the new safety engineer to organize his material and keeps him on the top of his job.

Interviews should be held with each of the supervisors and their foreman to discuss processes and to draw out their ideas on the safety problem. Later there will be ample time for the safety engineer to present his ideas when they are better formulated. A letter from the superintendent to his supervisors, explaining the program, will give the necessary official sanction.

Safety regulations may not be in existence; in many cases they are only verbal instructions from the foreman. The safety engineer should work with the supervisors and foremen in development and recording safe practices. These may be divided into two sections, the first covering general regulations for all operations and the second specific operations only. In any such procedure, it should be remembered that the safety engineer has no authority in most organizations and acts only in an advisory capacity. He must sell and not force his ideas.

A guarding program must be practical and recognize economic requirements. Few companies would spend thousands of dollars on guarding questionable hazards where occurrence of injury is very improbable. The money available for guards should be spent as wisely as possible where it will do the most good. With these thoughts in mind the safety engineer should inspect the departments and list the equipment hazards. They should be discussed with the foreman and a method of prevention worked out. In the detailed design of guards, it is much better to work with the mechanical department rather than to supply them with complete working drawings.

The investigation of current injuries may be divided into three parts.

1. What happened?
2. Why did it happen?
3. What can be done to prevent recurrence?

The greatest difficulty will probably be in convincing the foreman of the real cause of an injury, especially when he is to blame. Such situations require the utmost tact and diplomacy. In difficult cases it is well to have a meeting of the superintendent, the foreman and the safety engineer to discuss the details of the accident.

The safety committee system which parallels the line organization is gaining favor. In this system the foreman meets

1933 from the Standpoint of Finance

DURING the trying year just past and until the October elections at the Congress, Mr. Carl W. Bergquist served as Chairman of the Finance Committee. In spite of the fact that Mr. Bergquist had acted in the arduous role of President of the Council, both in 1931 and 1932, he most unselfishly consented to guide the Finance Committee through the difficult times of 1933. The results of the Finance Committee labors, as shown by the accompanying Annual Report of the Treasurer, are such as to be a source of pride to us all who had any part in the work.

The Council has completed the twelve months of 1933 with a sound financial position, and during that time there has been no harmful curtailment in the scope of its activities and work.

It would not be possible to make an adequate or fair survey of our year's business experience unless special mention was made of the ability and resourcefulness shown throughout the year by our managing director, Will Cameron,

with his men, the supervisor with his foremen, and the superintendent with his supervisors. The details of the plan can be modified according to local conditions. In some factories the workers' meetings are held at specific intervals, in others they may be dependent on the number of minor injuries that occur, disregard of safe practices by the workmen or some special program. Any important material coming up in the workers' meetings is passed on by the foreman to his supervisor and by the supervisor to the superintendent. The safety engineer submits to the production organization data which can be used in the meetings and keeps a record of the meetings that are being held. He should remain in the background, allowing the line organization to provide the leadership.

Accident prevention work is filled with uncertainties; a plan may be progressing smoothly when a serious injury suddenly occurs. Every accident is potentially serious, the severity of the results often being a matter of chance, of seconds and inches. Analyses of data covering a great number of cases show that minor and serious injuries tend to occur in somewhat definite proportions. For these reasons and in fairness to the new safety engineer, the success of a safety program should be gaged by the number of injuries rather than by their cost,

and unless we specially commended to our membership the unflagging loyalty, zeal and attention to Council work maintained by all members of the Headquarters Staff.

Really, to the faithful and interested member, the best picture of the financial accomplishments and situation for the year is obtained by poring over the Treasurer's Report.

As you study the comparative balance sheets you will find two adjustments that should be explained. To show the Council's assets and liabilities on more of a cash, current basis, the auditors have suggested the following:

First, the writing down of the book-keeping value of our equipment and printing machinery equivalent to two normal years and charging that amount against the surplus account. This write down is in addition to the 1933 depreciation shown in the statement of revenue and expenditures. A year ago (see report in the February, 1933, News) equipment and machinery were carried at \$30,463.44. The two year special write off reduces this to \$16,370.74. After 1933 depreciation is written off the equipment and machinery are now carried at \$10,371.78. We feel this to be a very reasonable valuation.

Their second suggestion was to show our bond investments at their market value as of December 31, 1933, instead of at the purchase price. This represents a write-off against reserve for future service to members of \$34,921.25. While this does not represent an actual loss, as the bonds are held as a long-time investment, it does give a better current picture when considering the real cash net worth of the Council. It is interesting that the market value of these bonds at the time of writing this review (January, 1934) was \$3,000.00 greater than the figure given on this statement.

Your Executive Committee, at its January 15 meeting, approved the above adjustments.

One word more before I close; the latter half of the year saw improvement in every phase of our work. The general response to the strengthening of the nation's business pulse, was so quick and so gratifying in its extent as to lend encouragement to all members of our Committee.

G. T. HELLMUTH,
Vice-president for Finance

NATIONAL SAFETY NEWS

Annual Report of the Treasurer

National Safety Council

COMPARATIVE BALANCE SHEETS—DECEMBER 31, 1933 AND DECEMBER 31, 1932

Assets					Liabilities				
	As at Dec. 31, 1933	As at Dec. 31, 1932	Increase	Decrease		As at Dec. 31, 1933	As at Dec. 31, 1932	Increase	Decrease
CURRENT ASSETS:					CURRENT LIABILITIES:				
Cash	\$ 8,545.41	\$ 4,554.11	\$ 3,989.30		Notes Payable—				
Accounts Receivable (Including Billings In December for January Dues)	63,723.04	70,627.62		6,903.58	Secured by Collateral.....	\$ 18,657.14	\$ 18,047.78	\$ 609.36	
Inventory of Supplies.....	27,298.07	28,368.67		1,070.60	Unsecured	888.00	6,282.43		\$ 5,394.43
			\$ 3,989.30	\$ 7,974.18	Accounts Payable	7,225.10	27,672.21		20,447.11
					Accrued Expenses	293.32	292.10	1.22	
								\$ 610.58	\$ 25,841.53
Total Current Assets	\$ 99,565.52	\$ 103,550.40		\$ 3,984.88	Total Current				
National Safety Council Reserve Fund					Liabilities	\$ 27,063.56	\$ 52,294.52		\$ 25,230.96
Investments—Market Value at December 31, 1933, \$27,609 and \$3,100					Deferred Income	\$ 4,682.32	\$ 12,258.32	\$ 2,424.00	
Uninvested Cash (Pledged to Secured Indebtedness to Bank, \$26,644).....	50,709.00	67,092.50		16,383.50	Reserve for Future Service to Members—Less, at December 31, 1933, Depreciation on Securities	63,384.00	99,867.50		36,483.50
Cash in Closed Banks.....	119.30		119.30		Surplus	35,180.63	39,767.03		4,586.40
Office Furniture and Equipment, Less Depreciation	19,840.79			19,840.79	There is a contingent liability of \$25,487.28 for reduction of rent for years 1932 and 1933, dependent upon renewal of lease in 1935.				
Printing Machinery, Less Depreciation.....	10,622.65			10,622.65				\$ 2,424.00	\$ 64,300.86
Deferred Charges	1,544.91	5,081.03		3,536.12					\$ 61,876.86
			\$ 119.30	\$ 61,996.16					
	\$ 142,310.51	\$ 204,181.37		\$ 61,876.86		\$ 142,310.51	\$ 204,181.37		\$ 61,876.86

STATEMENT OF REVENUE AND EXPENDITURES

For the Year Ended December 31, 1933

Revenue		Expenditures	
Industrial Safety Division and National Safety News	\$153,140.82	Industrial Safety Division and National Safety News	\$158,836.08
Public Safety Division	55,762.85	Public Safety Division	129,608.65
Poster Department	61,457.72	Poster Department	66,755.82
Miscellaneous Sales, such as Booklets, Bulletin Boards, "Safe Worker," Calendar, etc.	105,422.74	Miscellaneous Expenditures for Booklets, Bulletin Boards, "Safe Worker," Calendar, etc.	35,040.92
Congress and Transactions	19,422.78	Congress and Transactions	13,111.85
Films and Slides	751.47	Films and Slides	1,184.08
Printing Department Charges to Other Departments	\$26,688.97		
Deduct: Expenses of Printing Department	22,455.05		
	\$ 1,235.92		
Interest—Net	1,550.72		
Excess of Expenditures over Revenue transferred to Surplus Account	6,612.34		
	\$ 104,657.36		\$ 104,657.36

We have examined the accounts of the National Safety Council for the year ended December 31, 1933. In our opinion, based upon the examination which we have made, the above Balance Sheet as at December 31, 1933 and the accompanying Statement of Revenue and Expenditure fairly present the financial position of the National Safety Council as at December 31, 1933 and the result of its operations for the year ended on that date.

Chicago, Illinois, January 17, 1934.

ARTHUR YOUNG & COMPANY,
Certified Public Accountants.

THESE cards are intended for individual distribution. They may be carried in the pocket conveniently; they will slide into most pay envelopes easily. If tacked on the wall over a work bench or machine they will not tear off when a little wind strikes them; several of them can be displayed in a small space and they will fit in a standard card file.

Posters serve most effectively when they are used to transmit messages that can be read and understood quickly. It should be remembered that each card is intended primarily for individual instruction on a specific job.

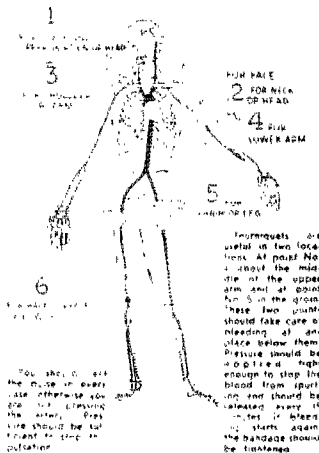
The following alphabetical index of Safety Instruction Cards issued to date has been prepared to aid members in ordering cards which apply to their own particular operations. Reproductions of these cards have been published in previous issues of the NATIONAL SAFETY NEWS.

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

Kite flying	19
Knives	144
Knot, underwriters	2
Ladders, safe angles for	3
Ladders, climbing	5
Lathe operators, general suggestions for all purpose metal-working lathes	34
Lead poisoning, protection	115
Loading tank cars (flammable liquids)	1
Linemen's climbers, to sharpen	21
Manila rope	12
Manila rope, care when not in use	14
Manila rope, care of	105
Maintenance and repair men, general suggestions	7
Making safety suggestions	102
Motormen and conductors, suggestions for	41
New employee, helping	10
Office accident causes	78
Oil storage tanks, cleaning	10
Oilers, advice to	71
Oiling machinery	17
Piling materials, general suggestions	11
Pipe lines, blanking off	100
Piping systems, identification of	20
Pneumatic hammers and chisels	1
Poison ivy	3
Poison oak and poison sumac	64
Power trucks, operation of	1
Power press operators, advice to	6
Portable electric tools	1
Portable extension lamps	1
Posture	1
Push tools for jointers and circular saws	1
Roll scraper (for cleaning power- driven rolls)	1
Rope hitches and slings	1
Rope, protecting from chemicals	1
Rope and block sizes	1
Ropes, safe loads for	1
Rubber gloves, to test for leaks	1
Scaffold planks, identifying	1
Scaffold planks, safe loads for	1
Scaffold planks, how to test	1
Scaffolds, suspended	1
Skidding cylindrical objects	1
Slings, how angled after carrying capacity	1
Stacking cylindrical objects	1
Stacking pipe and round bars	1
Stairways, ramps and fixed ladders	1
Stairways, how to use	1
Storerooms and stockrooms	1
Sunstroke	1
Swing cut-off saw	1
Tank cars, opening dome covers	1
Tackle, lifting capacity of (wooden shell blocks with manila rope)	1
Tackle, lifting capacity of (steel shell blocks with wire rope)	1
Tank cars, loading (flammable liquids)	1
Tank cars, unloading (sulfuric and mixed acids, compressed air method) (liquids)	1
Thawing frozen pipes	1
Timbers, setting in mines	1
Toolkeepers	1
Warning signs, colors to use	1
Warning signs, style of lettering	1
Watchmen, suggestions for	1
Weights of materials (dry materials)	1
Window cleaning, safety belts	1
Window cleaning, from ladders	1
Wire rope, how to lubricate	1
Wire rope, uncoiling and unreeeling	1
Wire rope, when to discard	1
Working beneath a car	1
Worry	1
Wrenches, use of	1

PRACTICAL FIRST AID

Where to Apply Pressure to Stop Bleeding



NATIONAL SAFETY COUNCIL No. 149

USE OF GUARDS

DID you ever slip, throw your hand out to catch yourself and find it resting on a guard around some piece of machinery? If you have had this happen to you, just think for a moment what might have happened to your hand if someone has left the guard out of place.

Guards are made to save limbs and life in just such emergencies. Every second a guard is left off of machinery that is in motion there is danger of someone being injured. Accidents seldom take more than a second to cause injuries that can cripple a person for life.

You may be quick and alert and you may know your job better than anyone else. You may have worked for years without the slightest kind of an injury, but always remember that you only have to be off your guard for a fraction of a second to meet with a serious accident. If you don't believe this ask any prize fighter!

It costs money to install guards. They are there for your protection. If you know of any that are not satisfactory, report them so they can be changed, but whatever you do, don't remove them while machinery is in motion or leave them out of place after repairing, oiling or adjusting it. It is not always the other fellow who gets injured in an accident and, anyway, no one wants the other fellow to be injured either.

NATIONAL SAFETY COUNCIL No. 150

SAFE USE OF CHAINS

REMEMBER that old saying: "A chain is only as strong as its weakest link." Remember also that sometimes every link in a chain is weakened by overloading or other abuse.

Use only chains you know are safe for the work in hand and keep in mind the following:

1. Don't overload a chain. Know the safe capacities of the chain you use.
2. When a sling chain is hooked, the strain is much greater than when it forms a narrow angle. Always stop to think of this before making a lift.



Allowable safe load varies this way.

3. Don't apply a load to a chain suddenly.
4. Don't fasten chains over sharp corners or edges without padding them.
5. Don't cross a chain twist it or put a link in it.
6. Don't tie a knot in a chain or bolt it to shorten or lengthen it.
7. Don't use a chain if inspection shows a flaw, insecure weld, crack, fracture, or any other defect. Put it to one side and tag it "danger—do not use."
8. Don't use a chain that has been strained by overloading.

NATIONAL SAFETY COUNCIL No. 151

YOUR HEALTH

Headaches

A HEADACHE is one of nature's warning signs that tell us when something has gone wrong.

Powders, pills and tablets are usually useless drugging unless you know the cause of the headache.

If you suffer from headaches, talk to your doctor about it. Let him discover the cause and recommend the remedy. Perhaps a simple change in your living habits is all that will be necessary.

NATIONAL SAFETY COUNCIL No. 152

HOW TO START A NAIL



WRONG

RESULT IF NAIL SLIPS—
Crushed thumb and finger.



RIGHT

RESULT IF NAIL SLIPS—
Thumb and finger knocked out of way.

NATIONAL SAFETY COUNCIL No. 153

"HORSEPLAY"

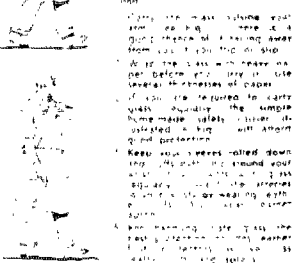
WHILE work is serious business, we do not ask you to take life too seriously. You know as well as we do when a joke is a joke and when it may become a serious menace.

Practical joking may create a lot of laughs, but when a joke sends a fellow employee to the hospital or to the morgue—the fellow who did it is going to pay with a life-time of regret for one moment of laughter.

NATIONAL SAFETY COUNCIL No. 154

CARRYING WINDOW GLASS

If you should fall with a sheet of glass under your arm, there would be serious danger of cutting or bruising. You should always use the following method of carrying window glass.



A person carrying a sheet of glass should always use the following method of carrying window glass.

NATIONAL SAFETY COUNCIL No. 155

HAND TRUCKS

Four Wheel Push Trucks

HAND trucks, whether they roll on wheels or castors, can and do cause more accidents than you would think possible. Feet are crushed under the wheels and castors; legs are broken by the trucks running against them; hands are crushed between the truck bodies and nearby objects; and between the bodies and material in them. Persons at work are run into by misdirected trucks and some fall over trucks left in passageways.

If you use trucks you can prevent all of these kinds of accidents by taking the following precautions:

1. Get the habit of keeping your feet out from under the wheels and castors while loading and shifting position of trucks.
2. Wear safety shoes.
3. Whenever possible, push the trucks; don't pull them. They may tip up on your feet and legs if you pull.
4. When legs are broken by trucks, it is usually because there is a heavy obstruction on the floor and pathing.
5. When legs are broken by trucks, it is usually because there is a heavy obstruction on the floor and pathing.
6. Whenever a truck is not in use, see that the wheels or castors are turned so that the truck will not roll into a passageway or into a doorway.
7. Get the habit of placing your hands for pushing where the truck will not be crushed in the front, back, or side.
8. Give ample warning when you approach bumpers.
9. Give ample warning when you approach bumpers.

NATIONAL SAFETY COUNCIL No. 156

HANDLING EXPLOSIVES

DROPPING DYNAMITE CASES

DROPPING cases to open them does not do the job and is dangerous. Never use any kind of a mallet, such as a hammer, sledge, or other tool, to open them.

Use the following method of opening dynamite cases.



A person carrying a sheet of glass should always use the following method of carrying window glass.

NATIONAL SAFETY COUNCIL No. 157

GOING TO AND FROM WORK

THERE is no quitting time for safety. Your chances of being injured by accident are at least twice as great away from work as they are on the job.

We don't want to lose your services because of an accident and you can't afford to lose your pay.

If you have to cross railroad tracks, always look both ways before crossing. If you don't have to cross them, don't use them as a short cut. The risk is too great.

If you ride a bicycle, always carry a light after dark, and remember it is not easy for an automobile driver to see you at dusk or in the dark.

If you have to walk along a highway, always walk on the left side facing the oncoming traffic, and at dusk or after dark carry a light or wear something white so you can be seen easily.

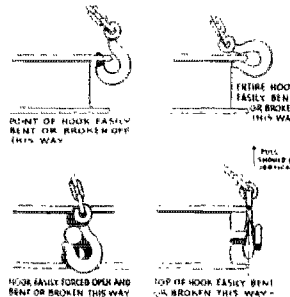
However you travel to and from work, please **WATCH YOUR STEP**.



NATIONAL SAFETY COUNCIL No. 158

SLING CHAIN HOOKS

SLING chain hooks generally look so much heavier than the chain that they would stand all sorts of abuse, but this is not so. Here are several ways in which hooks are either broken or made unsafe.



Never use a hook you know is unsafe or you are in doubt about. Put it to one side and mark or label it **DANGEROUS. DO NOT USE.**



NATIONAL SAFETY COUNCIL No. 159

WARNING SIGNS

Location

A WARNING sign is a waste of effort and money if it cannot be seen easily or if it is either too far or too close to the real point of danger.

Since a person walking is most apt to see objects that are at or below the level of his eyes, there is just one conclusion as to the best heights at which to place warning signs; namely, at or below eye level and, generally, not too low. There are always exceptions to such rules but this one applies in a great majority of instances.

Look out for the danger of confusing surroundings and backgrounds. A warning sign should stand out in strong contrast to a simple background whenever possible. Otherwise it may be lost in the confusion.

There is no simple rule as to how close or how far to place a warning sign from a point of danger but it is wise to allow ample space for a person to react to the warning before he runs into the danger and very unwise to place the sign so far away that he may think he has safely passed the danger before he comes to it.



NATIONAL SAFETY COUNCIL No. 160

The Safety World in 1933

(Continued from page 14)

W. Kopf, statistician, Metropolitan Life Insurance Company and vice-chairman of the Statistics section of the Council; and Dr. A. D. Risteen of the Travelers Insurance Company, who for many years was a valued member of the technical research committee.

We may thus sum up the outstanding accomplishments of 1933 as follows:

1. The increasing strength and progress of the safety movement in spite of the depression. This was evidenced by the money expended, activities expanded and maintained, and the results obtained.

2. The significant reductions in accident records, particularly in industry and in the commercial fleets of trucks, buses and taxicabs. The value of safety contests proved that practically all accidents can be eliminated where there is direction and control of the individual. Specific concerns and individual plant records have improved and justify the synonym of highest accomplishment—*No Accidents*.

3. An expanding safety leadership not only through industrial members and cooperating institutions but in public life, and especially through the press.

As we intensify our accident prevention efforts, year upon year, we know that our success must be measured by our real interest in stopping the accidents. The resources of the Council are the good will, the services, the enterprise, the capacity of its members and co-operators to have the vision and will to establish safety as a recognized principle of living. Accidents are unnecessary, extremely costly in physical and mental suffering and a financial loss.

It is now known that if our safety processes are deep enough and broad enough, the time will come when we can say that all of our lives will be adjusted

to the precarious hazards of modern existence, and every protection will be given to those under our care in the factories, in the mines, on the railroads, on the streets and highways, and in our homes.

Outside Troubles

(Continued from page 7)

bills, and the loss of mobility, cost the company a large sum of money.

Within ten minutes after the accident, we got the story indicating the cause of this man's troubles. B had spent the week-end celebrating in the usual manner. He had lost all sense of time and location and woke that morning to find himself in a low dive. He came directly from this joint to the plant, changed his clothes and started to work. I have already explained what followed.

A third case in point happened in the curing room, and I will designate this man as C. He was operating an air hoist and one day while shifting molds from the conveyor to the heater, he failed to properly loop the chain around the lugs on two sides of the mold. The chain slipped off the lugs on the side nearest to him and when he hoisted the mold, it tilted toward him and fell off the conveyor onto his foot. It was necessary to amputate the great toe.

This accident cost the company plenty and caused him 50 per cent loss of function of his foot. Now C, a good pit man and a middle-aged bachelor, was keeping company with a married woman. Her husband, quite naturally, did not approve of C's hanging around. He armed himself with a gun and started to hunt for the man who was wrecking his

home. C heard of this and it affected his peace of mind until he neglected to do his work safely. He now hobbles around minus a great toe. Clearly, C's accident and injury were directly caused by outside conditions.

I could go on for a long time quoting cases of this kind. For instance, one man received a broken leg, and when we called to notify his wife, she informed us that he had left home a week earlier and she had not seen him since. Another one received injuries that resulted in his death. We found he had deserted his wife and family and was living with another woman.

I think these stories are sufficient to prove my point. The facts I have given you present accident prevention as a very complex problem, and naturally you will ask the question, "What can we do about it?"

Each of the cases I have cited could have been prevented. Men usually relieve the pressure by telling their troubles to someone else. Fellow workers knew these stories before the injuries occurred, so the whole responsibility reverts to the foreman. Just as it is his duty to know machines and materials, so he must also know the persons who are in his charge. He must gain their confidence by a sympathetic attitude. It is not necessary for him to baby the help—just an earnest effort to understand their problems.

A friendly inquiry or a word of advice or encouragement now and then will accomplish this. It is a wise foreman who treats his help in this manner, as he will know in advance when there are outside conditions liable to cause accidents in his department.

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SPEAKING and WHITE FACEPIECE *DIAPHRAGM*

HERE, at last, is a gas mask that speaks for itself . . . transmits speech naturally and without distortion . . . a boon to every user of masks . . . assures adequate speaking facility between men in gas or smoke filled air . . . permits clear speech over telephone or through speaking tubes . . . equipped with an ingenious diaphragm of micarta that is impervious to acid, heat or corrosive fumes . . . deflector tube is of aluminum . . . facepiece is available in black or white rubber and is interchangeable with any other type of MSA Facepiece Mask . . . truly the greatest improvement in gas mask construction in a decade. These new facepieces are available in white rubber for the regular line of MSA masks. Write for full information and prices.

MINE SAFETY  APPLIANCES CO.

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M.S.A. Equipment includes Breathing Apparatus . . . Inhalators . . . Masks of All Types
 . . . Gas Indicators . . . Eye and Head Protectors . . . Edison Electric Cap Lamps . . .
 Safety Clothing . . . First Aid Equipment . . . Descriptive Bulletins will be sent on request.

INDUSTRIAL HEALTH

A Non-Technical Symposium for Physicians and Laymen

Health Education

By JOHN H. HOLZBOG*

IN establishing a program of industrial health there are two groups to whom the program must really be sold—the management and the employees. Recently I sent a letter to some twenty firms requesting information about their health programs, and from this survey it is evident that the majority of employers are not yet sufficiently sold on the idea of industrial health to make any real investment in a well defined health program.

I do not mean that employers are wholly indifferent to the problems of industrial health. We find that a great many of our larger employers have established complete medical programs and are doing a real job. However, these large plants are in the minority, and there are vast numbers of smaller establishments with between ten and 1000 employees which have either no program at all or one which is very limited.

There seem to be three reasons for this lack of progress: (1) Lack of detailed information with regard to organizing such a program; (2) lack of definite knowledge of its economic value; (3) lack of some promotional agency to push the thing into action.

It is quite evident, therefore, that in the majority of cases our health education must begin with the management. Many employers are still under the impression that a worker's health is his own personal problem and that the employer need not concern himself about it. Most of these employers do not fully realize how important a worker's health is to the organization until one of their key men is suddenly incapacitated and they find themselves in an awkward situation. Even then, I dare say that many of them would complacently lay the misfortune at the door of Providence.

Responsibility is a very peculiar thing, especially when it applies to ourselves.

*Member of Industrial Relations Chain Belt Company, Milwaukee, Wis.

How many individuals will readily accept the responsibility for their own health? Most medical men will agree that one should have a physical examination at least once a year. Yet even in a group composed almost entirely of doctors, nurses, and people who are vitally interested in health work, how many of them can honestly say that they have a physical check-up regularly once a year?

When accident prevention work came into its own, it was the cost of accidents that made employers realize that the accident prevention problem demanded attention and it was then that they started to work on it with real concentration. The compensation law and similar legislation in our various states was largely responsible for placing the responsibility for an injury on the employer. Now, I do not want to advocate that we need legislation to make us realize that the health problem belongs to industry, but it does seem that unless these problems actually cost us money in visible dollars and cents we are very apt to disregard them.

Costly Cases

In Wisconsin, for example, we have had this fact brought home very forcibly through the medium of a new code on dusts, fumes, vapors and gases, and the recognition of silicosis as an occupational disease. I am most familiar with the part of the code dealing with dusts. Since the code has been in effect, about one year, I venture to say that there is scarcely a foundry in the state that has not had at least one silicosis case and some of them have had ten or twenty. When we consider that these cases cost anywhere from \$5,000 to \$20,000 each, there is little wonder that management becomes vitally interested. The occupational disease problem is, therefore, one factor which is now and will continue to be one of the

prime factors in bringing industrial health to the attention of employers.

A few of our larger institutions have attempted to determine the costs of sickness to industry and it is now possible to obtain considerable authoritative information on this subject. Several years ago in our own plant when there was not so much absence due to lack of work, we maintained a chart for a period of some months contrasting the time lost due to injury with the time lost due to sickness. We found that the curve plotted on non-occupational lost time stayed consistently above the curve plotted for occupational lost time, and I would say that the difference was approximately three to one. In other words, if we lose money when a man is off duty due to injury, the intangible costs amount to just three times as much when the man is off due to sickness, according to the figures obtained from this study. It has been estimated that there is an average loss of nine days per worker per year due to illness.

Start with Management

As a consequence, it would seem to me that health education should start with the management. They must be sold on the idea that a health program is an economic investment just as they have pretty well generally conceded that safety work is a good investment. It is absolutely essential, too, that any plan or program of this nature must have the whole-hearted support of the management in order to succeed.

But to get down to the subject of health education for the workers, which is the important point to consider here, let us first consider just what it is we wish to teach these workers. Do we want to attempt to teach them all about the various diseases, their prevention and cures, etc? That is not our object. We are not trying to teach them to be medical experts but simply to teach them the best way to live. If we do a good job of this, we will not have to worry so much about diseases and their cures. From my observations, it would seem to me that this problem of proper living is

PREVENT INFECTION



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more and more becoming recognized as our biggest health problem.

As to the means of educating our workers on how to take care of themselves, there are undoubtedly a great many ways of doing this. It seems to me that the logical place to begin education of any sort is with the newcomer. Experience has proved that in any program we attempt to get across in our various organizations, it is much easier to get new employees to accept the new ideas than to get old employees to change their ways. The new man will regard rules, regulations, systems and other methods in use as standard procedures and in his attempt to become acclimated and to make a good impression in his new surroundings, he is not inclined to question the order of doing things.

Physical Examinations

The initial physical examination has proved of particular value in introducing the new employee to the company and its human relation policies. To secure the fullest value of this opportunity, the physician must impress the individual with the sincerity of his interest in him as an individual. Whatever impressions are made upon the new employee at this time determine his attitude and reactions to a great extent in later contacts with his foreman and fellow workmen. This is also true of the new employee and the hospital personnel. Here he makes up his mind, perhaps subconsciously, whether he will come to the hospital should he meet with a minor injury or feel the need for advice, or whether this is a place to be religiously avoided in the future. Workmen are quick to recognize genuine interest and are eager to place confidence in those they appraise as sincere.

Many people have a great fear of examinations, a fear that perhaps they will find out that they are afflicted with some dreaded disease, or a fear that they will be disqualified for a job because of it. They should be made to realize that these examinations are to their own advantage, as they are conducted in order to fit the individual to a job commensurate with his physical characteristics, and not to discriminate against him. It is absolutely essential to gain the new man's confidence and encourage him to come to the medical department at any time for counsel and advice.

Of course, if we have only the preliminary examination and do not follow it up with periodical re-examinations, the first impression may gradually wear off.

Periodic check-ups give us an opportunity to remind these employees of advice given previously and to see that they are really following suggestions made. Also, it is much more likely that the man will act on the suggestions from the doctor if he knows that in six months or a year he will face that same doctor again.

Where we do not have doctor's services available, almost all of the smaller plants at least have a nurse or someone else who is trained in first aid work. In such cases it is possible to carry on our health education through these people. We must be careful, however, that these people do not attempt to in any way fill the place of a regular physician. They can, however, be of invaluable service in offering advice and help on the ordinary health questions, where a physician's advice is not necessary. Visiting nurses are also used, and provide an excellent contact.

Further efforts along the lines of health education through personal contact can very well be made through our safety committees. This can be done whether or not we have a physician in the plant. In the case where we do have a full-time physician, the safety committee can be used to help popularize the medical department and encourage the use of its facilities to the fullest extent. In the case where no regular medical department is maintained, they can then be taught to disseminate health propaganda of a general nature and to encourage their fellow workers to check up on their own health from time to time.

Another way of educating our workers along health lines is through the medium of conferences and lectures. Conferences, of course, are feasible only with small groups such as safety and sanitation committees, or small groups of workmen. Lectures and short health programs, however, can be carried on in larger groups, and they can be made to serve a real purpose.

In Milwaukee the Association of Commerce has for about ten years organized and managed a yearly school of first aid and health. This school has for its object primary instruction in three subjects. There are usually five bi-weekly meetings which are held in a large auditorium in the center of the city, and during the last few years the enrollment has averaged between two and three thousand persons. Members of the school are recruited from the various industries of the city. The instruction given is of a rather general nature but I believe that some important results have been obtained through this school.

Other methods of health education, on a more or less impersonal nature, include such mediums as employee publications, rule books, and bulletin board displays. The National Safety Council has published a small booklet on health which is a very fine piece of work.

One other phase of the health program concerns sanitation and ventilation. All the advice and instruction we can give will have very little effect unless we supplement it with a work place that is clean, well ventilated and generally conducive to good health.

New De-icer Overcomes Ice Danger to Planes

AVIATION engineers have demonstrated the effectiveness of an improved type airplane de-icer that may enable air transportation to overcome the obstacle of icing conditions along airways.

With almost unnoticeable "sleeves" of balloon silk drawn over the front of wings and tail surfaces, a three-mile-a-minute twin-engined transport, carrying aeronautical engineers of United A. Lines and the B. F. Goodrich Company, took off from a sweltering airport and climbed to 19,000 feet to seek ice-forming conditions.

When ice began to appear on the leading edge of the wing of the all-metal plane, the pilot of the plane turned a valve on an air pump. The sleeve swelled up, and the ice cracked and blew off in the air stream.

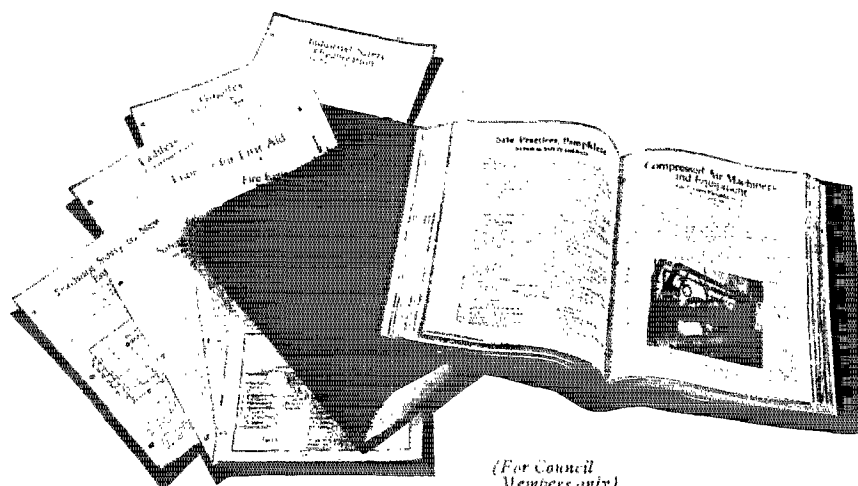
The air transport company will continue exhaustive service tests of the improved device, probably preceding installation of the de-icers on all United planes.

The original type of "overshoe" de-icer consisted of rubber sheets mounted over the leading edges of the wings and tail surfaces. When ice formed on the front of the wing, the rubber sheets were inflated by air pressure. Disadvantages of this type were excessive weight and bulk, the installation for a transport plane being 150 pounds.

By substituting balloon silk for rubber in an ingenious manner, weight of the de-icer was slashed to 45 pounds to make it feasible for use on air liners. Strips of balloon silk sewn to form a series of tubes are placed over the front edge of the wings, their elastic rubber edges being cemented to the wing surfaces. Air is pumped through conduits leading to the silk tubes and it inflates the sleeves to cause the removal of ice by changing the contour of the wing. When the air is expelled, the sleeves flatten out against the curve of the wing.

National Safety Council

Pamphlets on Industrial Safety and Health



These pamphlets are issued in three series: (1) the General Safe Practices series, discussing accident problems common to practically all industries; (2) the Special Industries series, each pamphlet of which discusses the accident problems of a specific industry; and (3) the Health Practices series, discussing health problems encountered in industry.

Title	LIST	Number
Accident Statistics, Commercial Vehicle.....	D-4	
Accident Statistics, Industrial—How to Analyze and Use Them.....	S6	
Accident Statistics, Industrial—How to Collect and Tabulate Them.....	21	
Acids and Caustics	25	
Bakery Operations, Safety in.....	F-3	
Belt Shifters and Belt Shippers.....	5	
Belts and Belt Guards	7	
Benzol	H.P. 14	
Blast Furnaces	Me-2	
Boilers, Marine, Safe Operation of.....	Mar-2	
Boilers, Steam, Equipment and Operation.....	49	
Boilers, Steam, Safe Operation of.....	3	
Brick Making, Safe Practices in.....	CP-1	
Burns, Chemical, Their Nature and Treatment	Chem-3	
Campaign, Industrial Safety, Planning.....	51	
Candy, Chocolate and Cocoa Manufacture Safety in.....	F-2	
Carbon Monoxide	H.P. 7	
Cement Mill Shops, Safe Practices in.....	Cem-4	
Cement Mill Yards and Railroads.....	Cem-6	
Cement Rock Quarrying and Crushing.....	Cem-1	

The following is an alphabetical list of all the pamphlets in these three series. Pamphlets in the General series are numbered from 1 to 99; all numbers with the prefix "HP" indicate pamphlets in the Health series; all others are in the Special Industries series.

Title	Number
Cement, Storing, Packing and Shipping	Cem-5
Chains, Hoisting, Use and Care of.....	28
Chlorine, Safe Handling of.....	71
Chromium	H.P. 1
Clothing, Protective	16
Coal, Bunker, Safe Practices in Handling	Mar-3
Coal Systems, Pulverized, Safe Operations of	97

(Over)

Title	Number
Committees, Safety	72
Compressed Air Machinery and Equipment	47
Compressed Gases, Safe Practices in Handling	35
Construction Work, Safe Practices on.....	Con-1
Contests, Safety	74
Conveyors	35
Cranes, Overhead Traveling.....	4
Cutting Oils and Emulsions, Safe Use of.....	14
Driver, Commercial, Non-Traffic Hazards of	D-1
Drivers for Commercial Vehicles, Selecting	D-2
Drivers for Commercial Vehicles, Training	D-3
Drums and Barrels, Handling, Cleaning and Filling	Pet-8
Dye Cleaning and Dyeing Establishments, Safety in.....	L-1
Dust	H.P. 4
Electric Railway Rolling Stock, Safe Maintenance of	ER-1
Electrical Equipment in Industrial Plants.....	29
Elevator Accidents and Their Prevention ..	15
Engine Guarding and Engine Stops.....	2

LIST—Continued

Title	Number	Title	Number	Title	Number
Engineering, A Factor in Accident Prevention.....	79	Ladders.....	1	Respirators, Gas Masks, Hose Masks and Breathing Apparatus.....	64
Excavation Work, Safety in.....	Con-3	Lead.....	H.P. 3	Rod Mills.....	Me-4
Exhaust Systems.....	32	Leather Tanneries, Safety in.....	P&T 1	Rope, Manila and Wire.....	26
Exits, Fire Alarms and Fire Drills.....	19	Lighting, Industrial Shop.....	22	Rubber Industry, Compounding Materials Used in the.....	Ru-1
Explosion Hazards, Industrial.....	34	Lumber Yards, Commercial, Safe Practices in Operating.....	W-2	Rubber Protective Equipment, Linemen, Testing, Care and Use of.....	PU-3
Explosions, Commercial.....	28	Macaroni Plants, Safety in.....	F-5	Rules, Safety—Their Formulation and Enforcement.....	30
Eye Hazards, Industrial.....	H.P. 6	Machine Shop Machinery.....	39	Safety Man in Industry.....	84
Falls of Workers—Their Causes and Prevention.....	99	Maintaining Interest in Safety.....	57	Scaffolds.....	12
Fatigue, Practical Methods of Reducing.....	50	Maintenance and Repair Men, Safe Practices for.....	70	Shafting, Couplings, Pulleys, Gears, Sprockets and Chains.....	5
Fire Brigades.....	36	Mathematical Tables and Data for the Safety Engineer.....	78	Signs, Warning—Their Use and Maintenance.....	81
Fire Causes and Prevention.....	31	Medium-Sized Plant, Safety in the.....	87	Skin Affections.....	H.P. 10
Fire Extinguishment.....	24	Meetings, Safety.....	77	Spray Coating.....	95
First Aid, Training for.....	83	Meetings, Safety, Topics for.....	93	Stairs and Stairways.....	2
Floors and Flooring.....	11	Mercantile Establishments, Accident and Health Hazards.....	CE-1	State Safety Requirements in Industry.....	21
Food Preserving and Canning, Safety in.....	F-1	Milk Bottling Plants, Safety in.....	F-4	Static Electricity.....	52
Forging and Hot Metal Stamping, Safe Practices in.....	85	Mine Rescue Work.....	M-2	Stills, Petroleum, Safe Practices in Cleaning.....	Pet-8
Foundries, Cleaning and Finishing Rooms in.....	Me-1	Motion Pictures in Educational Work.....	62	Structural and Sheet Metal Fabrication, Safety in.....	Me-7
Foundries, Safety in.....	73	New Employees, Teaching Safety to.....	65	Suggestion Systems.....	40
Fuel Handling, Storing and Firing.....	46	Nursing service in industry.....	H.P. 11	Tank Cars (Gasoline), Safe Practices in Loading.....	Pet-3
Fume Poisoning from Nitric and Mixed Acids.....	Chem-2	Oil Field Pumper, Safety for.....	Pet-7	Tanks, Storage, for Oils, Acids and Dry Materials.....	63
Fumigating Ships, Hazards in.....	Mar-1	Oiling Devices and Oilers.....	10	Tools, Hand.....	3
Gases and Vapors.....	H.P. 9	Organizing a Complete Industrial Safety Program.....	42	Tools, Hand, Portable Electrical.....	76
Gasoline Service Stations, Safety in Operation.....	Pet-2	Personnel and Health Work.....	H.P. 15	Track Cars, Motor, Hand and Push, Use of.....	RR-1
Goggles.....	14	Paper and Pulp Mills.....	PP-1	Truck Driving (Sales), Safe.....	Pet-5
Grinding Wheels.....	13	Paper Box Manufacturing, Safety in.....	PP-2	Trucks and Wheelbarrows.....	30
Grounding Practices.....	PU-2	Physical Defects.....	H.P. 13	Tunnel and Caisson Work, Safety and Health in.....	Con-2
Guards, Machinery, Construction of.....	58	Physical Examination in Industry.....	H.P. 2	Vehicle Accidents, Preventing.....	19
Handling Material (Hand and Truck).....	54	Pipe Lines and Tanks as Causes of Accidents.....	Chem-1	Ventilation, Industrial.....	1
Handling Material (Mechanical Equipment).....	55	Pipe, Safe Practices in Handling and Laying.....	Pet-4	Warehouses and Shipping Rooms.....	5
Health Service Policies.....	H.P. 12	Piping Systems, Identification of.....	88	Water, Drinking, Wash and Locker Rooms and Toilet Facilities.....	2
Health Supervision in Industry.....	H.P. 5	Plans and Specifications, Checking for Safety.....	53	Welding, Gas and Electric.....	2
Heat Treating, Safe Practices in.....	Au-1	Posters, Safety and Bulletin Boards.....	38	Wood Furniture Manufacture, Safety in.....	W-1
Hoisting Apparatus.....	33	Power Departments, Industrial.....	96	Woodworking Machinery.....	20
Hospitals, Safety in.....	CE-3	Presses, Power.....	18	Yards.....	1
Hotels, Safety in.....	CE-2	Pressure Vessels (PT-1) (Air Receivers and Hot Water Tanks).....	66		
Housekeeping, Industrial.....	45	Pressure Vessels (PT-2) (Steam jacketed Vessels, Digesters, Stills).....	68		
Ice, Safe Practices in Delivery.....	Ref-1	Public, Protection of.....	PU-1		
Infected Wounds.....	H.P. 8	Pulling Wells, Safe Practices in.....	Pet-1		
Injured Workers, Caring for.....	82	Radio.....	PS-1		
Inspections, Safety.....	75	Railroads in Industrial Plants.....	48		
Investigation of Accidents.....	56	Rayon Manufacture, Safety in.....	Chem-4		
Knots, Bends, Hitches and Slings.....	6	Refrigeration, Mechanical.....	61		
Laboratories, Chemical.....	60				

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A complete set of the General Safe Practices Pamphlets, bound in a loose leaf binder and indexed, Actually Worth \$26.00 may be purchased by members. Each purchaser receives automatically, a copy of every new pamphlet, as issued, thus keeping the set up-to-date.

Price
\$12⁰⁰

Price includes binder

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PAMPHLETS

A series of Pamphlets which take the status of a reference "Handbook of Industrial Health"—valuable for quick reference purposes. Order a set now and as new Pamphlets are issued they will be forwarded to you automatically.

Price
\$6⁰⁰

Price includes binder

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50 to 99.....	8
100 to 499.....	7
500 to 999.....	6
1,000 to 1,999.....	5
2,000 or more.....	4

NATIONAL SAFETY COUNCIL
INCORPORATED
Civic Opera Bldg. 20 N. Wacker Drive
Chicago

Man Lifts

Industrial Data Sheet No. D—Gen. 2

A. Problem:

Safety of riders on man-lifts.

B. Hazards:

The principal hazards in the operation and use of man-lifts are the possibilities of severe injuries should the rider be carried past the top floor or should he be unable to stop the lift at any time in case of emergency.

C. Discussion:

1. Factor of Safety:

A factor of safety of not less than 6 for all materials should be used in the construction of man-lifts.

2. Steps.

Steps of man-lifts should be placed at right angles to the belt, not less than 10 feet apart and should be made of or covered with non-slip material. They should be not less than 12 inches deep, measured from the face of the belt to the far edge of the step. The steps should be designed to safely carry a load of not less than 150 pounds per step.

3. Hand-Holds:

A hand-hold securely fastened to the belt and about waist-high should be provided above every step. There should never be a step without a corresponding hand-hold, nor a hand-hold without a corresponding step.

4. Stopping Devices:

All man-lifts should be provided with a stop, mechanically or electrically operated, so arranged as to automatically cut off the power and stop the belt when a rider reaches the top landing. This stop should be positive in action and must eliminate all possibility of a rider being carried "over the top" of the man-lift belt.

A manually-operated stopping de-

vice should be provided at the side of the belt for use in case of emergency. This device should be readily accessible throughout the entire travel of the belt, and so arranged that a rider may instantly stop the man-lift by a pull on the device in the direction of belt travel.

5. Floor Openings:

Floor openings for man-lifts should be circular or semi-circular, and not less than 30 inches in diameter. Standard guard rails and toe boards should be provided around all floor openings. Such railing should be so placed so as to allow a landing space of not less than two feet wide at each landing. This landing space should be made of or covered with non-slip material. Openings in guard rails should not be opposite floor openings. The minimum distance between the edge of any step and an opening in the floor, measured at right angles to the plane of the belt, should be 14 inches. The floor space adjoining man-lift openings should be kept free from material and well lighted at all times.

6. Emergency Landings:

When the highest point of belt travel is more than five feet above the top landing, an emergency platform provided with a permanent ladder or stairs to the landing should be installed on one side of the up-travel of the belt. The emergency platform should be three feet below the highest point of belt travel.

7. Overhead Clearance:

The minimum clearance between the head pulley and the roof or other obstruction should be four feet.

8. Shear Plates:

Shear plates at an angle of not less

than 60 degrees with the horizontal should be provided at every point of travel at which there is a projection which may form a shear hazard to the rider while on a step.

9. Carrying Objects:

No large objects should be carried by any rider on a man-lift. If hand tools or other small objects are carried, they should be in a container or fastened to the rider's belt in such manner as to afford no hazard to the carrier or to riders on steps below.

10. Guarding of Machinery:

All machinery of any man-lift should be guarded in such manner as to prevent injury by accidental contact with any parts.

11. Speed:

The maximum speed of a man-lift belt should not exceed 80 feet per minute, or that allowed by state or local requirements.

12. Signs:

Signs carrying instructions for use of man-lift should be displayed at each landing.

13. General:

In some states when existing man-lifts become damaged or deteriorated more than 50 per cent of their original value they must be discontinued from service and cannot be replaced by new man-lifts. Those states also prohibit new installations of man-lifts and do not allow existing man-lifts where used as permanent installation to be re-erected in new locations. Many states classify man-lifts with passenger elevators and require that regular periodic inspections be made of each man-lift by approved inspectors who must file copies of their reports with the state authorities.

National Safety Council, Inc.

20 North Wacker Drive, Chicago, Illinois

THE BULLETIN BOARD

A page for those who maintain the Show Windows of Safety

Conducted by STAN KERSHAW

A Novel Method of Displaying Posters and Publications

SPEAKING of the many uses for safety posters, here is a novel method of displaying them and it offers the additional advantage of a convenient method of keeping safety magazines, house organs and pamphlets before plant workers.

The combination four-sided illuminated bulletin board, reading lamp and magazine stand shown in the accompanying illustration is the idea referred to. If you attended the Annual Safety Congress last October you will remember one of these stands was on display in the Council's poster exhibit in the Exhibit Hall.

The materials necessary to build the stand consist merely of some scrap lumber, a sheet or two of $\frac{3}{8}$ -inch plywood or stout wall board, some cardboard, an electric light socket and attachments and some bright colored paints or enamel.

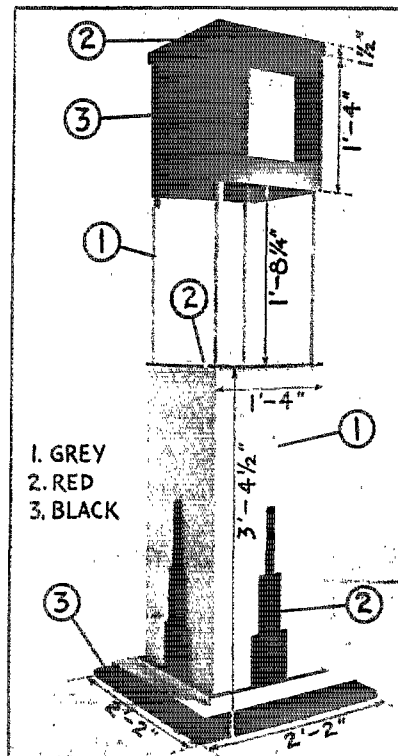
The construction is so simple that it is unnecessary to go into details. The four-sided lamp shade may be made of cardboard, wood or metal. The posters are fastened inside the openings with scotch or adhesive tape so they can be changed easily and if Council posters are used you will find the paper on which they are printed is just about the right weight for the light to shine through them when a 100 watt bulb is used in the socket.

This makes an excellent display for reception rooms, rest rooms, waiting rooms, reading rooms and company restaurants.

Twenty-Five Uses for Safety Posters

THE ways in which posters may be used to interest workers and the public in safety are worthy of special mention. There is a great tendency for most of us to think of the use of posters only in terms of the bulletin board, but in reality this is only one of the many ways of putting them to work.

You will probably be astonished at



the length of the following list. We were when we discovered the numerous uses to which the members have put the posters issued by the Council.

You might find it well worth while to review the list and see what methods you haven't used that would be well worth considering.

Here they are:

1. On bulletin boards, of course.
2. Mailing copies to the homes of workers.
3. Posting in company buses and other conveyances where employees may read as they ride.
4. Placing them in the windows of local stores, restaurants and banks where workers and their families may see them. This helps to build up a community safety spirit.
5. Placing them in company display windows.
6. Inserting copies in house organs with special mention of them in the text.
7. Giving out copies of special posters as hand bills when drives are being made on special subjects.
8. Mounting copies of special posters on cardboard and lacquering or varnishing them for permanent posting.
9. Enclosing first aid posters of an instructive nature in first aid kits.
10. Posting general posters in passenger elevators toward front of car so passengers may read as they ride.
11. Posting general posters on the sides of electric and gasoline tractors used about the plant and plant yard.
12. Suspending traveling bulletin boards from overhead parts conveyors, as in automotive plants, and putting posters on them.
13. Posting in depot waiting rooms.
14. Putting special sets of posters in attractive binders and placing them in reception and waiting rooms, such as in main offices, employment offices and first aid stations, dispensaries. Also in rest rooms and club reading rooms.
15. Distributing copies of first aid posters to the members of first aid classes for use during the classes and for home study.
16. Posting copies inside doors of individual toilet booths and near the wash stands in locker and wash rooms.
17. Selecting copies of posters especially suitable for children and donating supplies to them to local schools for use in class room. (A fine public spirited thing to do and not without its returns in indirectly reaching the workers through his family).
18. Posting good general appeal posters on the exterior of company trucks, wagons, buses as a means of aiding in building community interest in safety.
19. Posters having strong general appeal and vehicle type posters placed in local streets, cars, buses and railroad coaches.
20. Displaying copies in company canteens, rooms and cafeterias.
21. There are occasional special posters that relate to the use of the products of a company. These make good enclosures to include in packages with such products.
22. Reproducing specially selected posters in miniature in company house organs.
23. Using miniature reproductions of posters as pay envelope enclosures.
24. Using miniature reproductions of suitable posters as stickers to put on inter-departmental correspondence, job orders, etc.
25. Making use of specially selected posters in making up series of lantern slides for showing at safety meetings.

You will probably not be able to make use of all of the ideas but this list provides a good opportunity to determine whether or not you have gone as far as you might in your efforts to make use of this powerful educational medium—the safety poster.

EXPECT THE UNEXPECTED WHILE DRIVING

NATIONAL SAFETY COUNCIL

5060-B 17x23 inches 4 units
5061-C 25x38 inches 8 units



A CARELESS MAN FOOLS
NOBODY BUT HIMSELF, AND
THEN ONLY UNTIL HE GETS
HURT

NATIONAL SAFETY COUNCIL

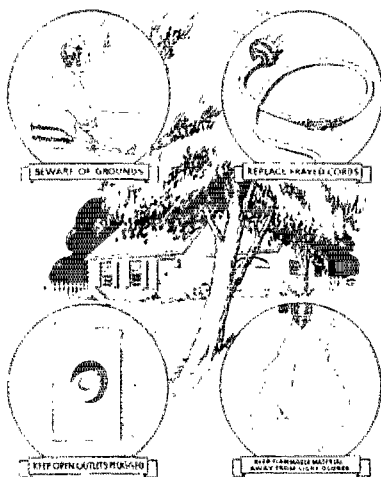


Think of each
ACCIDENT
as
though it had
happened to you

*How would you
have prevented
it?*

NATIONAL SAFETY COUNCIL

2965-B 17x23 inches 4 units



USE ELECTRICITY SAFELY

HERE and at HOME
NATIONAL SAFETY COUNCIL

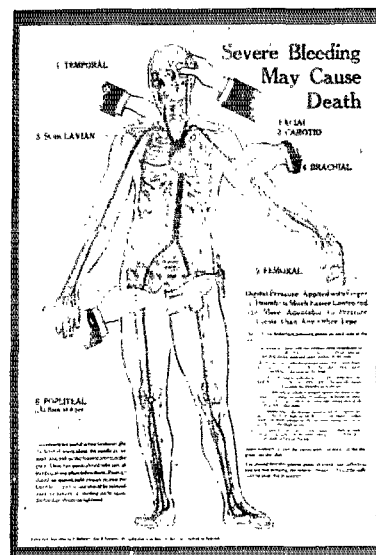
4914-B 17x23 inches 4 units



*Why didn't daddy
work safely*

NATIONAL SAFETY COUNCIL

5059-B 17x23 inches 4 units



NATIONAL SAFETY COUNCIL

5053-B 17x23 inches 4 units



MAYBE YOU
CAN'T AFFORD
SOME THINGS

BUT YOU
CERTAINLY
CAN AFFORD
TO BE CAREFUL

NATIONAL SAFETY COUNCIL

5054-B 17x23 inches 4 units

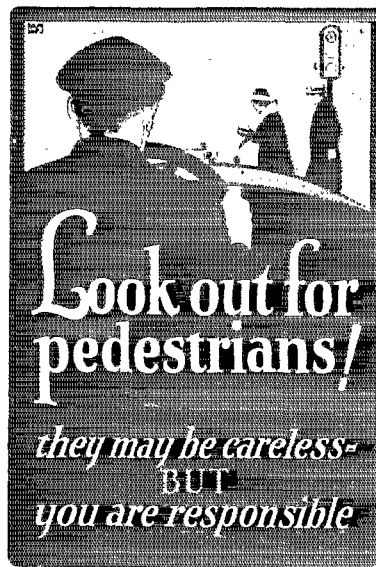


I AM DANGEROUS
WHEN I LOSE MY
HEAD

So ARE YOU

NATIONAL SAFETY COUNCIL

4064-B 17x23 inches 4 units

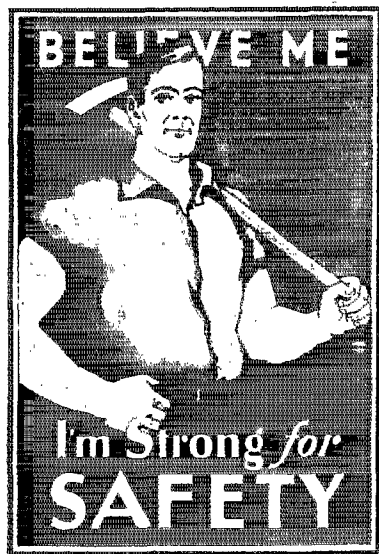


**Look out for
pedestrians!**

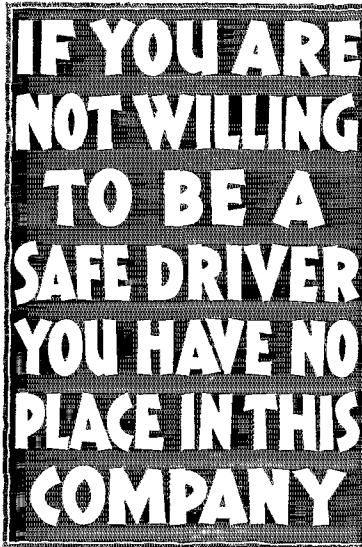
*they may be careless-
BUT
you are responsible*

NATIONAL SAFETY COUNCIL

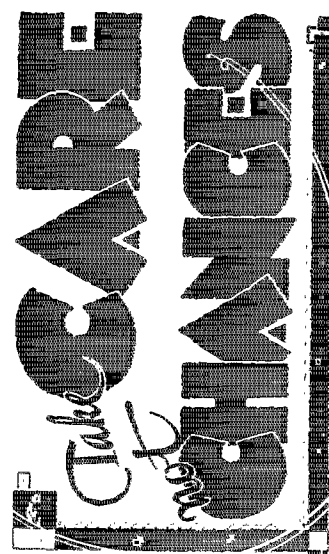
5057-B 17x23 inches 4 units



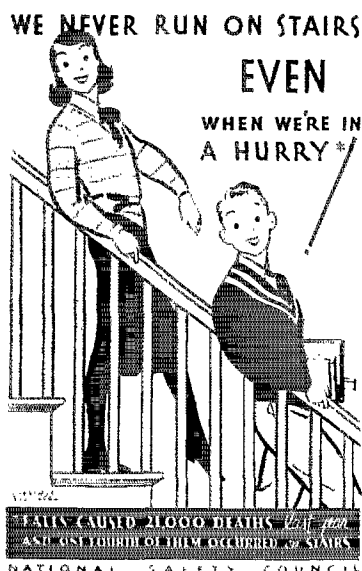
2676-B 17x23 inches 4 units



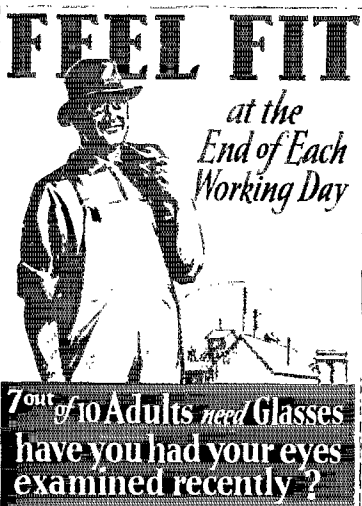
5056-B 17x23 inches 4 units



2516-D 12x17 inches 2 units

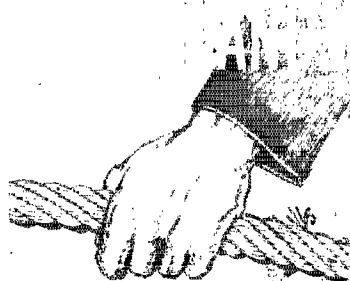


4922-D 12x18 inches 2 units



4852 9x12 inches 1 unit

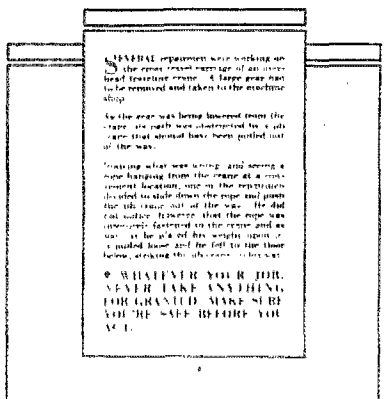
WATCH OUT FOR YOU



MANY men have had their hands badly lacerated by broken wires and loose ends at splices.

Mar. 23 9x12 inches 1 unit

LEARN FROM THE EXPERIENCE OF OTHERS



5044 9x12 inches 1 unit



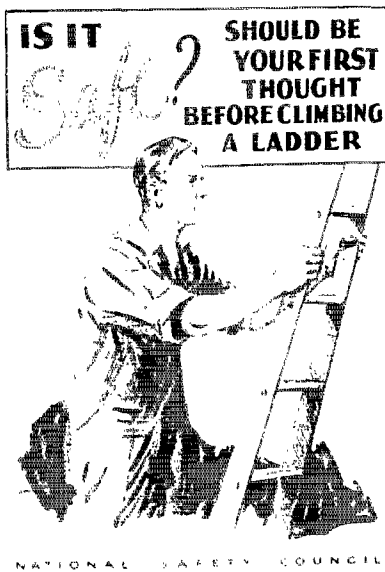
5045 9x12 inches 1 unit



5040 9x12 inches 1 unit

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

NATIONAL SAFETY NEWS



5051

9x12 inches

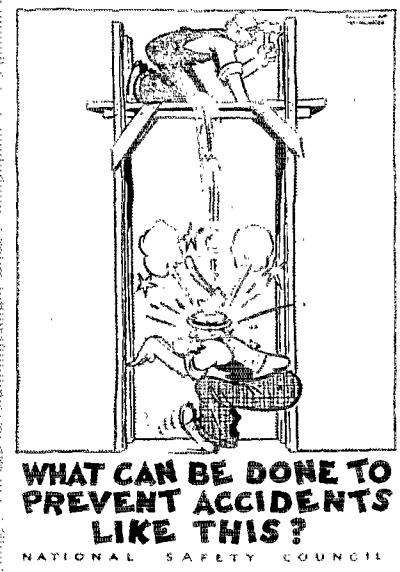
1 unit



4612

9x12 inches

1 unit



5041

9x12 inches

1 unit



5035

9x12 inches

1 unit



4603

9x12 inches

1 unit



2660

9x12 inches

1 unit



5031

9x12 inches

1 unit

FEBRUARY, 1934

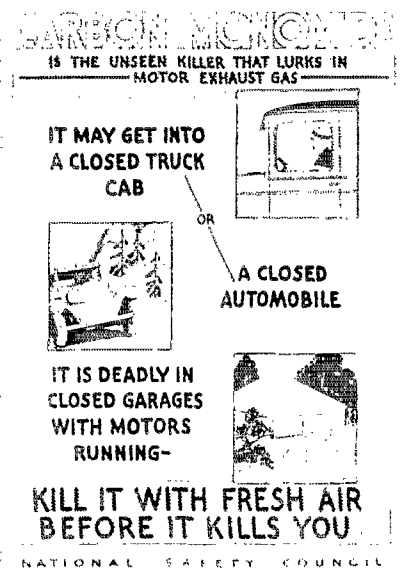


5048

9x12 inches

1 unit

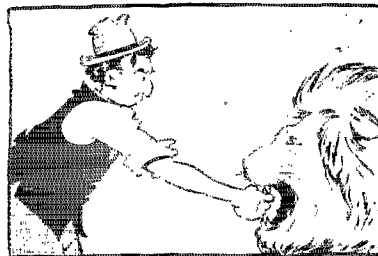
Electroscopes may be purchased from the National Safety Council for \$2 each.



4600

9x12 inches

1 unit



**YOU WOULDN'T
DO THIS—
BUT TO REACH INTO
MOVING MACHINERY
IS JUST AS
DANGEROUS**

NATIONAL SAFETY COUNCIL

4516

9x12 inches

1 unit

3036

9x12 inches

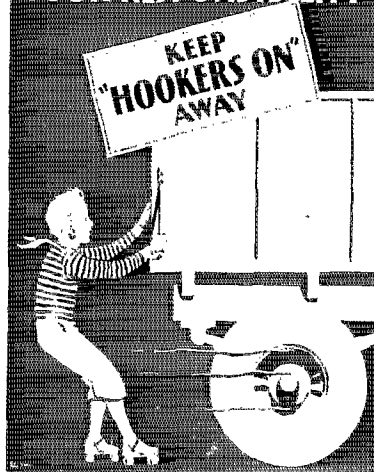
1 unit

4608

9x12 inches

1 unit

YOUR RESPONSIBILITY



NATIONAL SAFETY COUNCIL

He's



a Pest

His dangerous pranks
make trouble and cause
accidents. Urge him
to stop his horse-play.

NATIONAL SAFETY COUNCIL



**SAD
but
TRUE**

**IT TAKES
AN ACCIDENT
TO TEACH SOME
PEOPLE SAFETY**

NATIONAL SAFETY COUNCIL

4309

9x12 inches

1 unit

4301

9x12 inches

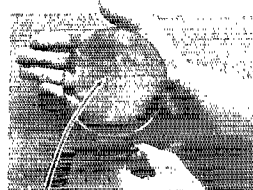
1 unit

4192

9x12 inches

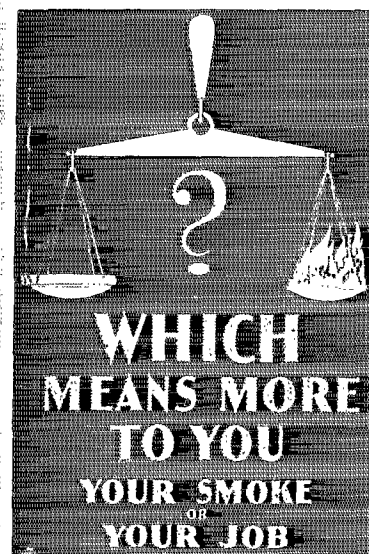
1 unit

The **SMALLEST
SLIVERS**
CAN CAUSE SERIOUS INJURY



GET FIRST AID

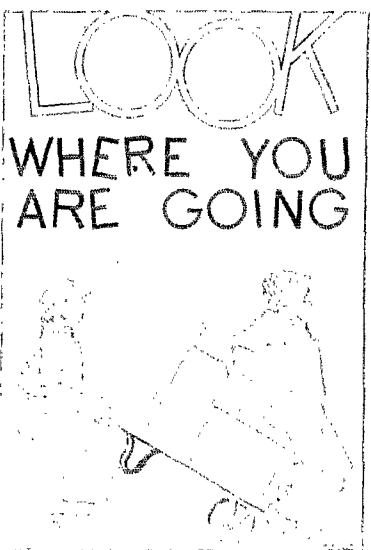
NATIONAL SAFETY COUNCIL



**WHICH
MEANS MORE
TO YOU**

**YOUR SMOKE
OR
YOUR JOB**

NATIONAL SAFETY COUNCIL



NATIONAL SAFETY COUNCIL

4419

9x12 inches

1 unit

3046

9x12 inches

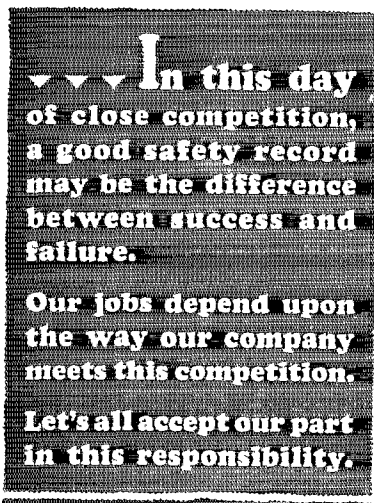
1 unit

3043

9x12 inches

1 unit

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



NATIONAL SAFETY COUNCIL

▼▼▼ **In this day
of close competition,
a good safety record
may be the difference
between success and
failure.**

**Our jobs depend upon
the way our company
meets this competition.**

**Let's all accept our part
in this responsibility.**



have the en-
tire responsibility
for backing your vehicle
safely. When you are
sure the way is clear back
slowly and with caution.

NATIONAL SAFETY COUNCIL

NATIONAL SAFETY NEWS



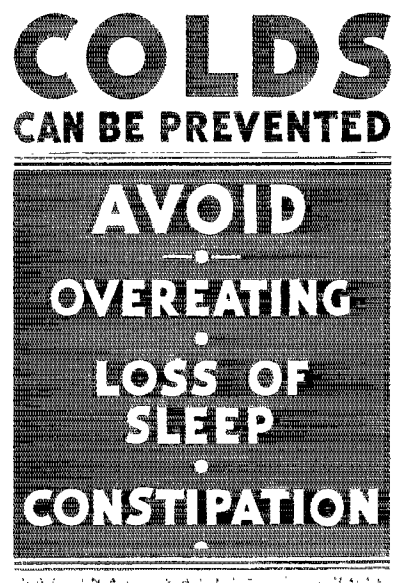
4604 9x12 inches 1 unit



5052 9x12 inches 1 unit



2839 9x12 inches 1 unit



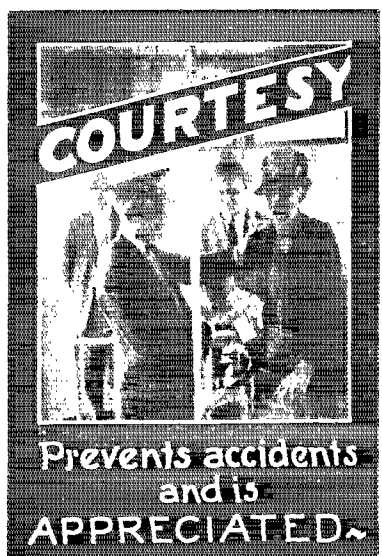
4300 9x12 inches 1 unit



5050 9x12 inches 1 unit



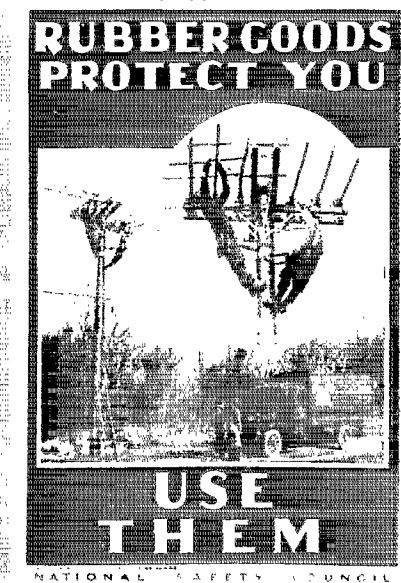
2078 9x12 inches 1 unit



5038 9x12 inches 1 unit

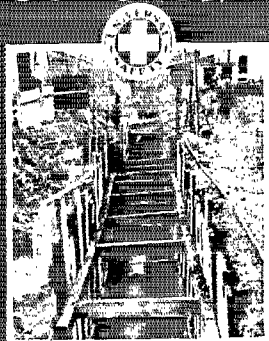


5055 9x12 inches 1 unit



4401 9x12 inches 1 unit

**GOOD SHOULDERS
+
GOOD SHORING**



**HELP TO MAKE
THE JOB SAFE**

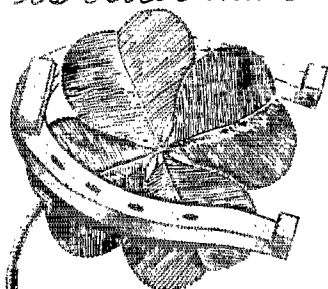
NATIONAL SAFETY COUNCIL

5037

9x12 inches

1 unit

BEING CAREFUL
is better than



**(MAYBE)
BEING LUCKY**

2687

9x12 inches

1 unit

**it's Better to
report icicles
than accidents**



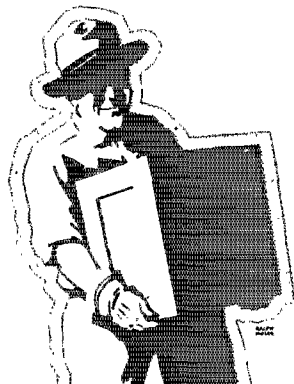
*don't Wait for
someone else to do it*

NATIONAL SAFETY COUNCIL

4622

9x12 inches

1 unit



**A strain means
pain for the chap
who overlifts**

NATIONAL SAFETY COUNCIL

2831

9x12 inches

1 unit



**MORE THAN
21,000
PEOPLE
ARE
KILLED
BY
FALLS
EVERY
YEAR**

NATIONAL SAFETY COUNCIL

5042

9x12 inches

1 unit

**You Wouldn't Shoot
Blindfolded**



**It Pays
to keep your eyes
open on the job**

NATIONAL SAFETY COUNCIL

4614

9x12 inches

1 unit



"WOULD YOU SELL
ONE OF YOUR EYES FOR
THE COMPENSATION
YOU'D GET IF YOU
LOST IT IN AN
ACCIDENT?"

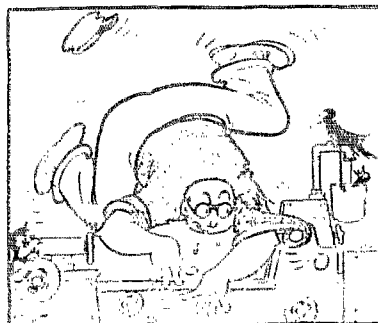
NATIONAL SAFETY COUNCIL

5045

9x12 inches

1 unit

**IF YOU WANT TO
GET ALL WRAPPED
UP IN YOUR WORK-**



**JUST WEAR
LOOSE
CLOTHING!**

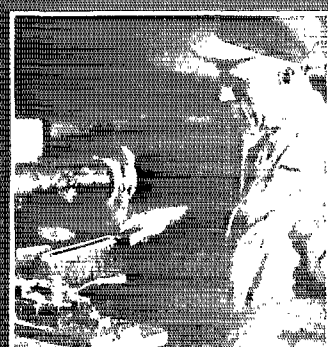
NATIONAL SAFETY COUNCIL

4601

9x12 inches

1 unit

SAVE YOUR FINGERS



**REMOVE CHIPS WITH A BRUSH
Avoid Possible Injury**

NATIONAL SAFETY COUNCIL

4615

9x12 inches

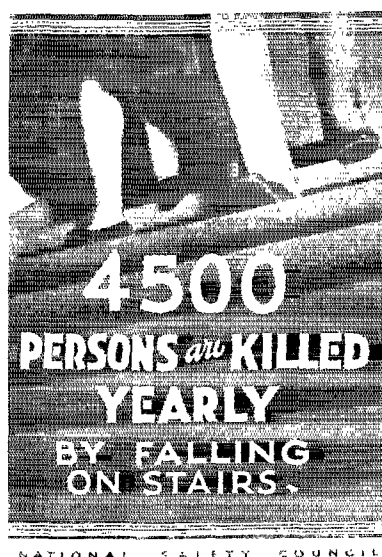
1 unit

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

NATIONAL SAFETY NEWS



2145 9x12 inches 1 unit



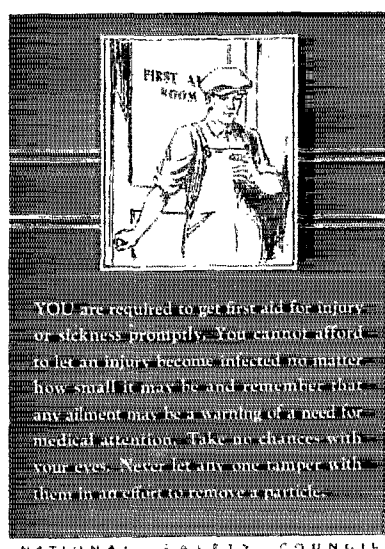
4607 9x12 inches 1 unit



2282 9x12 inches 1 unit



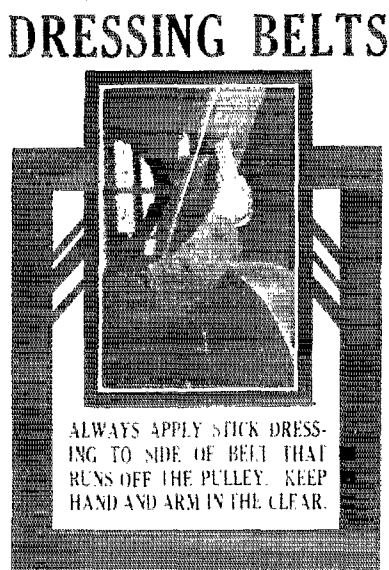
2440 9x12 inches 1 unit



5039 9x12 inches 1 unit



5014 9x12 inches 1 unit



4623 9x12 inches 1 unit



2949 9x12 inches 1 unit



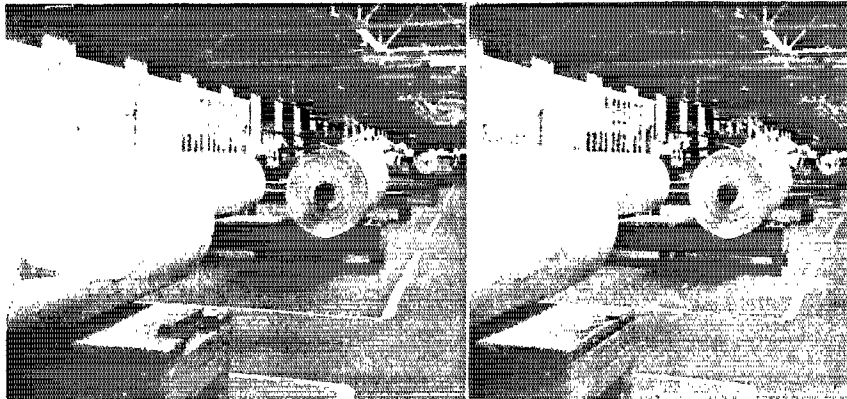
5047 9x12 inches 1 unit

FEBRUARY, 1934

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

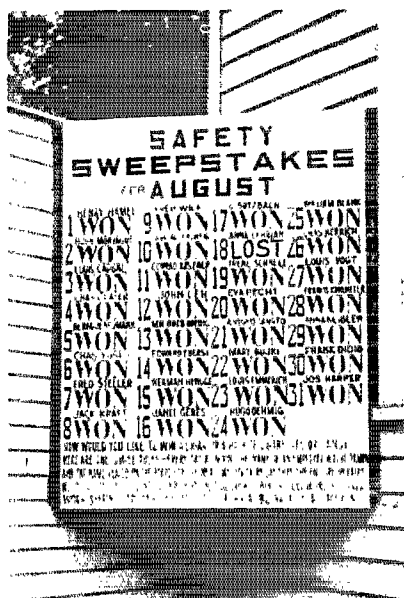
THE SAFETY EXCHANGE

—“A ROUND TABLE IN PRINT”—



Hinged Block is a Perfect Paper Roll Chock

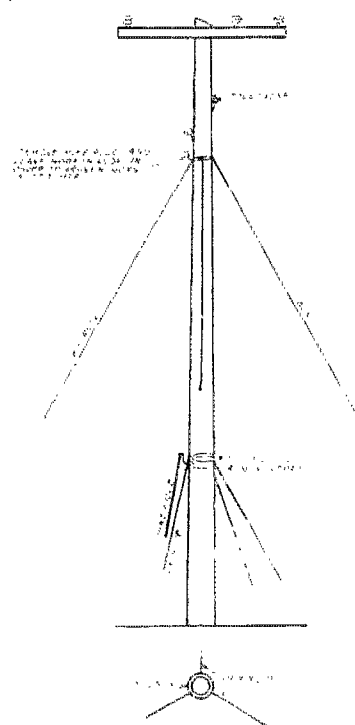
Formerly the big paper rolls, sometimes left on the roll platform without a proper chock, rolled off, with consequent injury to the paper if not also to an unwary workman. In the plant of the Mead Corporation, a neat device consisting of a simple hinged block cut out of the end of the roll platform and folded up and back, now keeps the roll securely in place. When it is desired to remove the roll of paper, the chock is merely allowed to swing back into the depression, leaving a smooth track for the roll.



Novel Bulletin Board Lists Prizes for Safety

This bulletin board shows a long list of employees who won in the safety contest conducted by the American

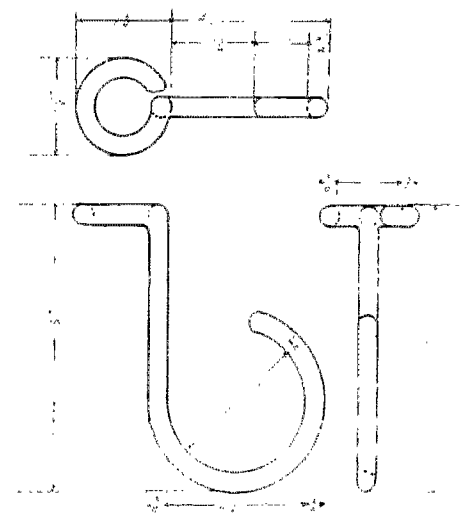
Hard Rubber Company, of College Point, N. Y. Each day the name of one employee was drawn from a "Contest Barrel" and posted on the board; on the following day, if all employees worked without accident, this employee drew the prize. The wording on the bottom of the board reads: "Would you like to win a cigar, or pack of cigarettes, or candy? Here are the simple rules. Every day at noon the name of an employee will be drawn and the name placed on the board for the next day. For every day the factory operates without a lost-time accident, the person holding that day will win that day the choice of prizes offered. Work safely every day—somebody will win—maybe you—who knows."



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

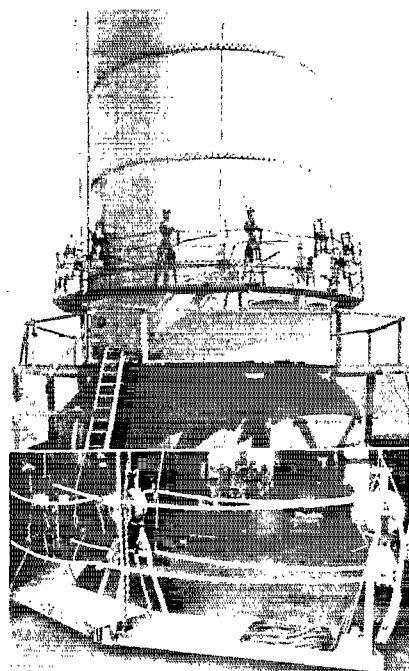
New Safety Guy Hook Has Clever Usage

When linemen climb poles for the purpose of attaching guy ropes, serious falls sometimes occur because of the decayed condition of the poles. The Appalachian Electric Power Co., of Bluefield, W. Va., has designed a special guy hook, however, which has completely eliminated the necessity for men to climb poles for this purpose. (Note the accompanying drawing showing dimensions.) The guy hook is made of 1 1/2 inch round steel stock. The hook is slipped under a sliding loop that has the guy ropes attached, a pike pole is inserted in the eye of the hook and hoisted to the desired point on the pole, the guy ropes are then tightened and the pike pole removed.



Safe Scaffold for the Men on High Stacks

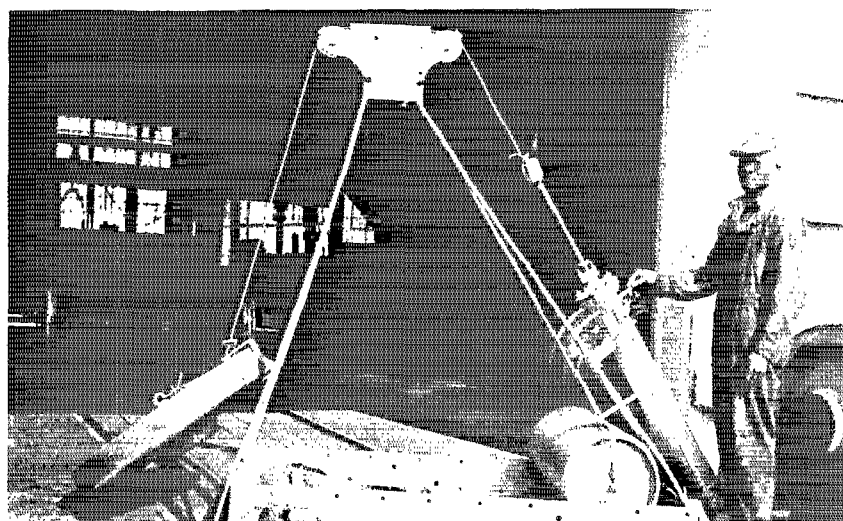
A safe type of scaffold, using the ratchet drum type hanger with steel cable, for working on the inside or outside of smokestacks, has been designed and built by the construction department of the New York Edison Company and the United Electric Light and



Power Company. The scaffold is made up of sections, joined together to form a complete circle around the stack. The sections are made of angle iron frames with rough spruce planking. The frames are loosely bolted together and by means of spacing blocks the scaffold can be made to fit the varying diameters of many stacks.

Mine Stoppings Resist Heavy Pressure

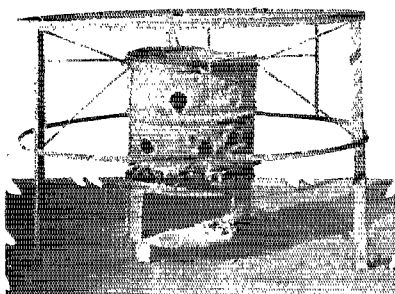
An effective method of building stoppings, to seal parts of the mine where



there is heavy pressure, is shown in the accompanying picture supplied from the Bureau of Mines. Ordinary rigid material such as concrete or masonry walls would very likely be ruptured. In such a case, this stopping is made up mostly of timber wedged lightly into place.

Salamander Protected with Guard Rail

Salamanders are still used, although perhaps not the best means of providing



heat in large buildings such as steel mill foundries and on construction jobs. The illustration shows a guard rail around a salamander, as used by the Jones & Laughlin Steel Company.

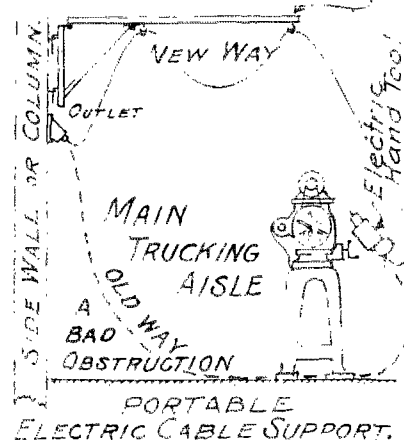
No Hazards in Lifting Car Wheels

Here is an interesting wheel crane built in the Richmond, California, shops of the Pullman Company. The construction and operation are apparent from the two pictures. The crane hook is attached to the wheel, and when air is applied the heavy wheel is easily lifted by one man, when formerly it required three men to lift the same wheel with serious hazards during the process.

Supporting Portable Cable of Hand Tools

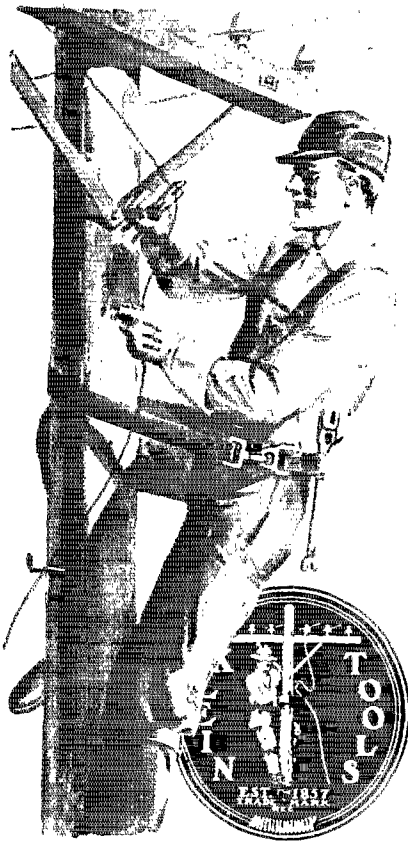
To avoid tripping hazards and excessive wear on the portable cable of

KEEP THE CABLE OFF THE FLOOR
HARD WOOD JIB CRANE



hand tools, the following suggestion is made in the *Michigan Mutual Shop Man* of May, 1933, where the accompanying diagram also appears. The light jib crane is designed to fold up for ease in transporting and storing. The installation of two screw eyes over every outlet socket is the only permanent part of the equipment.

KLEINS



for SAFETY

A TOUGH JOB, a dangerous job, — made easier — safer — by Kleins. Public utility companies everywhere have standardized on Klein equipment for linemen. Linemen themselves know the importance of Klein equipment on the job that calls for skill, courage and caution. Klein equipment has represented the maximum in quality and safety — "since 1857."

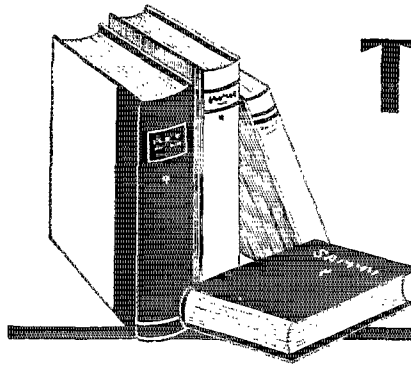
A national campaign featuring safety for linemen is being conducted by Mathias Klein & Sons to assist in selling the idea of safety to linemen.

Distributed through jobbers

Four pamphlets of interest to you if you are a lineman or responsible for the safety of linemen. 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.
3200 BELMONT AVE., CHICAGO



The Safety Library

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

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

BOOKS AND PAMPHLETS

Flammable Liquids:

Suggested ordinance regulating the use, handling, storage and sale of flammable liquids and the products thereof, including requirements for automobile gasoline service or filling stations and Appendix on rooms, cabinets and outside houses for the storage of flammable liquids. Published by the National Fire Protection Association, 60 Batterymarch St., Boston, Mass., 1933. Price 15c. (Pamphlet)

Insecticides:

Insecticides and spraying operations. Published by the Retail Credit Co., Atlanta, Ga., 1934. (Pamphlet) (Industry Report)

Labor Legislation:

Wisconsin Industrial Commission. Child Labor laws. 1933. Published by the Industrial Commission, Madison, Wis. (Free) (Pamphlet)

Occupational Diseases:

U. S. Bureau of Labor Statistics: Occupational hazards and diagnostic signs. A guide to impairments to be looked for in hazardous occupations. By Louis I. Dublin and Robert J. Vane. 1933. For sale by the Superintendent of Documents, Washington, D. C. Price 30c. (Pamphlet) (Bulletin No. 382)

Silicosis:

Workmen's compensation for Silicosis. Report of the Committee on Pneumoconioses of the American Public Health Association. 1933. Printed by the Association of Casualty and Surety Executives, One Park Avenue, New York City. (Pamphlet)

Workmen's Compensation:

Medical relations under workmen's compensation. A report prepared by the Bureau of Medical Economics, American Medical Association. Published by the American Medical Association, 535 N. Dearborn St., Chicago, Ill., 1933. Price 75c. (Pamphlet)

PERIODICAL ARTICLES

Asbestosis:

Donnelly, J., Pulmonary asbestosis. In *American Journal of Public Health*, December, 1933, p. 1275-1280.

Carbon Tetrachloride:

Moller, K. O., Some cases of carbon tetrachloride poisoning in connection with dry shampooing and dry cleaning with a survey of the use and action of the substance. In *Journal of Industrial Hygiene*, November, 1933, p. 118-132.

Fire Prevention and Protection:

Lake, C., Preventing fires with blankets of

gas. In *Compressed Air Magazine*, December 1933, p. 4295-4499.

Gas Industry:

Doyle, F. E., Safety precautions during repair of high pressure gas mains. In *American Gas Association Monthly*, December, 1933, p. 499-500.

Tomkins, S. S., Gas detection instruments. In *American Gas Association Monthly*, December, 1933, p. 511-519.

Industrial Accidents:

Accidents in the manufacturing industries 1926 to 1932. In U. S. Bureau of Labor Statistics, *Monthly Labor Review*, December, 1933, p. 1588-1594.

Labor Legislation:

Labor Legislation of 1933. In *American Labor Legislation Review*, December, 1933, p. 193-201.

Pedestrians:

With or facing traffic? In *Travelers Standard*, January, 1934, p. 1-4.

Radium:

Ives, J. E. and others. Health aspects — radium dial painting. III: Measurements of radio activity in workers. In *Journal of Industrial Hygiene*, November, 1933, p. 433-441.

Schwartz, L. and others. Health aspects of radium dial painting. IV: Medical and dental phases. In *Journal of Industrial Hygiene*, November, 1933, p. 447-455.

Silicosis:

Collis, E. L. and Yale, G. C., The mortality experience of an occupational group exposed to silica dust, compared with that of the general population and an occupation group exposed to dust not containing silica. In *Journal of Industrial Hygiene*, November, 1933, p. 405-417.

Gardner, L. U., Pathology of so-called acute silicosis. In *American Journal of Public Health*, December, 1933, p. 1240-1249.

Sampson, H. L., The roentgenogram in so-called "Acute" Silicosis. In *American Journal of Public Health*, December, 1933, p. 1237-1249.

Smith, A. R., Review of Silicosis. Pt. VI. In New York Department of Labor *Industrial Bulletin*, November, 1933, p. 308-409.

Smith, C. S. and Wikoff, H. L., The silica content of the lungs of a group of tunnel workers. In *American Journal of Public Health*, December, 1933, p. 1250-1254.

Workmen's Compensation:

Mayers, M. R., Time limitation in compensation for industrial diseases. In *Journal of Industrial Hygiene*, November, 1933, p. 466-472.

PERSONALS

L. R. CALVERT, has been appointed works engineer for the Westinghouse Lamp Company, according to an announcement by H. S. Black, manager of maintenance and engineering. Mr. Calvert succeeds to the position held by the late E. J. Smith to whom he was assistant for a number of years. He also succeeds to the chairmanship of the manager's policy committee on safety matters. This work is in line with what he has done for years as supervisor of safety activities for the Equipment and Development Division at Bloomfield. Mr. Calvert has long been a staunch supporter of industrial safety, and under his guidance the good safety records achieved under Mr. Smith are expected to be maintained. Mr. Calvert's headquarters are to be in Bloomfield, and plant maintenance of all company manufacturing properties will come under his direct supervision.

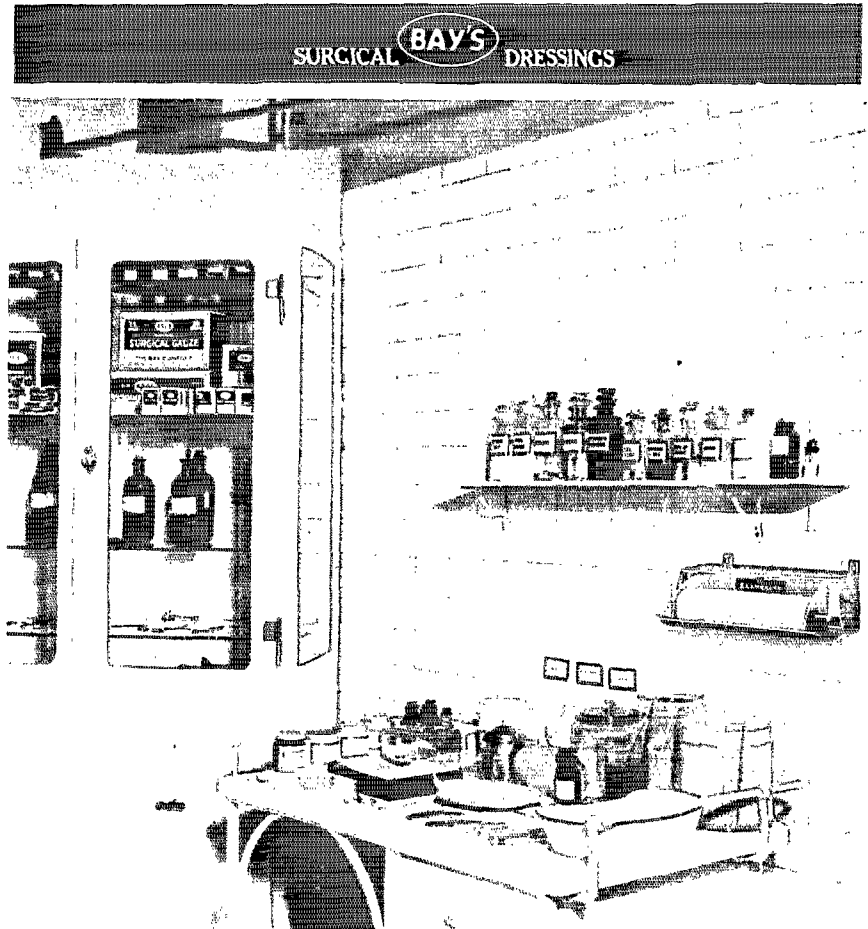
DR. JAMES H. GREENE, for the past four years manager of the Cooperative Department of the Studebaker Corporation, South Bend, Ind., has resigned to become executive secretary of the Merchants' Association of Pittsburgh. WALTER S. GUNDECK, assistant manager of the Cooperative Department, succeeds Dr. Greene as manager. Mr. Gundek has been with the department since its organization 1919 and was in charge of employment before being appointed assistant manager.

JACK V. SCOTT, for the past four years in charge of membership promotion at National Safety Council headquarters, resigned January 1 to become associated with the Quality Weaving Company, Philadelphia.

AS ONE who can remember the old time saloon smelling of sour beer, limburger and men who believed that it was unhealthy to bathe on any other night but Saturday, the contemporary effort to sentimentalize the corner grog shop is just one more example of the invincible immaturity of the American mind. The fact is, of course, that the average old time saloon was such an unpleasant place visually, audibly and olfactorily that the customers had to throw in two or three stiff hookers of whiskey as fast as possible in order to make the environment tolerable.

—Postage and The Mailbag.

FEBRUARY, 1934



MAXIMUM TENACITY
at body temperature
MAXIMUM CONVENIENCE
all the time!

BAYHESIVE attains maximum tenacity at body temperature—a fact which has established is popularity.

And it is available in special forms of particular convenience. Standard widths come in the dustproof, free-reeling BAY container that is handy to use and protects the plaster. Convenient eighth and quarter inch strips can be had on reels two inches wide.

SURGICAL **BAY'S** DRESSINGS

Readi-cut rolls for use in the new improved BAY wall rack facilitate handling in clinics—the closed rack is not marked

by visible advertising insignia.

BAY'S one-inch Readi-Bandages come in handy, professional packages of 100; the six-inch width is packed six to a box.

Physicians who specify "BAY'S" receive maximum efficiency and convenience—at no increase in cost.

THE BAY COMPANY
BRIDGEPORT, CONNECTICUT
A DIVISION OF
PARKE, DAVIS & CO.

THE BAY COMPANY, BRIDGEPORT, CONN.

NON 2

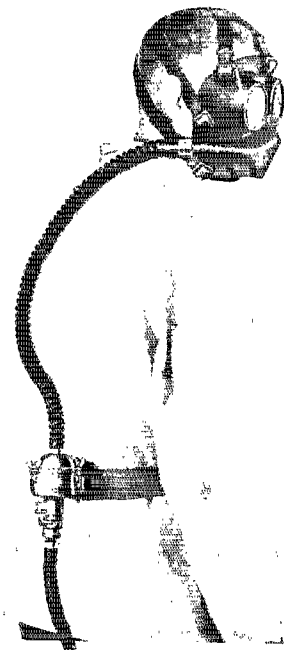
Gentlemen: kindly send me a free sample of BayHesive.

Company

Person requesting

Address

Healthguard SAND BLAST MASK



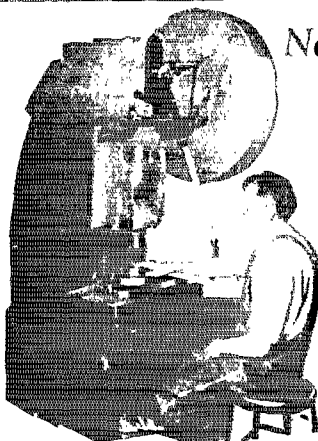
When sand blasting, a hood is worn over mask. Air for breathing and ventilation comes from compressed air supply.

When sand blasting, extra precaution must be taken to see that operators are fully protected against breathing harmful dusts. Sand blasting is a major industrial hazard because if the ever-present dusts are taken into the lungs they cause grave complications and are a source of serious compensation claims.

But sand blasters wearing the new CESCO HEALTHGUARD MASK are wholly safeguarded—they can't breathe these harmful dusts as this mask is (by laboratory rating) over 99% efficient as a barrier to dust entry. Not only is it nearly 100% perfect in this respect, but it is also comfortable to wear, being light in weight, affords good vision, is easily adjusted and quickly removed.

Protect the health of your workers by having them use the CESCO HEALTHGUARD SAND BLAST MASK. It will save their health and save your money. Write for further details and new bulletin.

CHICAGO EYE SHIELD CO.
2300 Warren Blvd.
CHICAGO, ILLINOIS



No More Accidents in This Shop!

—or in any other where WIESMAN SAFETY PRESS GUARDS are installed on the power presses. The operating principle **ABSOLUTELY PROTECTS THE OPERATOR** without interfering with his natural working movements.

Simple, easy to attach, for all types of presses. Made for right or left hand stroke. Details?

Wiesman Mfg. Co.

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

Pipe Lines in the Plant

(Continued from page 24)

In the event of a break in the sulphuric pipe lines, it is a simple matter to insert this plug in the tank outlet pipe, thereby stopping the flow of acid from the storage tank at once.

Should it become necessary to install a distribution manifold header with a valve to each tank or piece of equipment, do not consider the use of any type of iron body gate valve. There are numerous lead lined iron body plug valves on the market for this purpose.

Aside from the elimination of possible accidents which is the principal factor to be considered, it actually is more economical to use lead pipe lines and fittings. Lead piping can be patched locally at the point of leakage by means of lead burning in a few minutes.

In certain metal pickling operations, a dilute solution of from 8 to 12 per cent sulphuric acid is used to remove scale and foreign matter from the metal to be pickled. It is very often desirable to speed up the time of pickling by heating the pickling bath. Heating the bath is usually accomplished by installing a triple A weight 6 per cent antimonial lead pipe coil in the tank, and the heat required is furnished by live steam. However, it is well to remember that lead coils are not built to withstand more than 50 pounds per square inch and it is not good practice to carry steam at higher pressures.

To insure a constant pressure, the following precautions are absolutely necessary:

1. Install on the steam line feeding the coil in the tank, a reducing valve set for a pressure of 25 pounds per square inch, then a standard pressure gage, then nearest to the tank steam line feed, a safety valve of the standard ASME approved type, set to release all pressure at 5 pounds per square inch. This safety valve should have a discharge capacity sufficient for the size of the supply pipe and the pressure at which it is operated. Great care should be taken to see that this is done, because if the discharge of the safety valve is smaller than the capacity of the supply pipe, the safety valve will act merely as an alarm, and may not save the coil from a rupture or explosion if pressure increases rapidly.

In all cases outlets of safety valves should be piped at such a distance that they will not be hazardous to workmen on any floor or platform.

2. Under normal steam plant operation, it is economical to pipe the return condensate from the steam coils in process operations back to the return feed line to boilers. However, it is questionable economy to attempt to utilize the condensate from a steam coil used to heat sulphuric pickling bath. Due to the fact that a small pin hole leak in the lead coil will suck through enough acid, at night when the steam line is shut off, to destroy iron piping, boiler feed pumps and even the boilers themselves, it is therefore, strongly recommended that all con-

condensate from steam coils in sulphuric acid pickling baths should be drained to waste, and no attempt whatever made to conserve the condensate.

In the event that it is desired to handle special acids where there are indications that lead is not suitable, no guess work should be employed. A thorough study should be made to determine the resistant metal adaptable to the particular acid to be handled. As an aid to the selection of corrosion resistant metals, reference should be made to a set of tables entitled "Materials of Construction for Chemical Engineering Equipment" copyrighted and published by *Chemical and Metallurgical Engineering*, New York City.

It may be well to mention that Monel metal is ideally adapted to resist the corrosive action of all concentration of sulphuric acid, and has greater tensile strength than lead. It is, however, much higher in initial cost and it does not lend itself readily to patching and minor repairs.

Designating Pipe Line Contents

In large power houses and on all ships of the United States Navy it is customary to designate by colors the contents of the various pipe lines. Where plants are not so designated, few persons know the contents until an accident occurs. With a standard symbol or color schedule it is easily possible to trace each pipe line and know the liquid or gas it is conveying.

One simple method is to paint a band of color 10 inches long at intervals along the line. For compressed air, the designating color is yellow. A black band 4 inches wide painted in the center of a 10-inch yellow band would signify low pressure compressed air, while a white band on a yellow background would signify high pressure.

The same principle can be applied to water pipes, a red background with a black center band indicating low pressure water, and a white center band on a red background high pressure water.

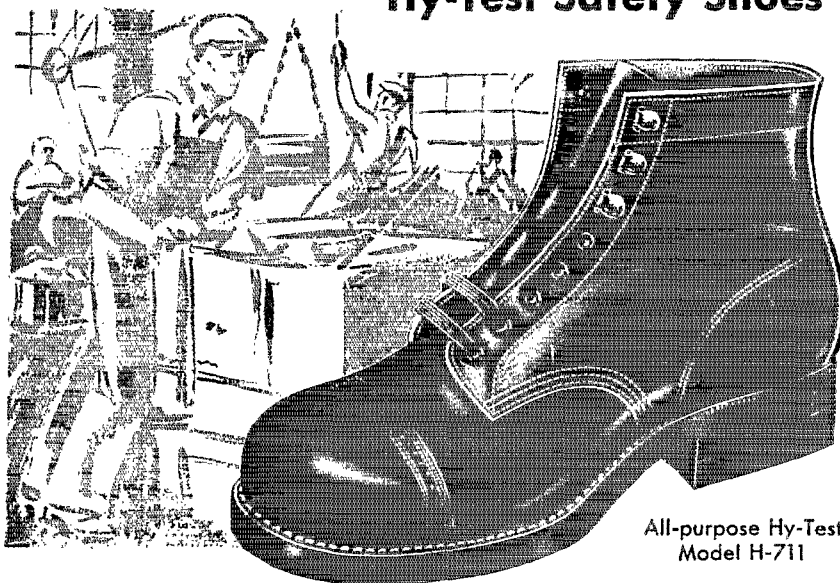
An aluminum band with a black center band would indicate low pressure steam, and an aluminum band with a white center band high pressure steam.

A diagrammatic sketch showing the pipe lines throughout the plant, with their designating bands of color showing the contents, and the center bands showing whether they are high or low pressure can easily be prepared and put into operation by the maintenance crew. This will insure freedom from delays in operation and also enable operators to close valves without delay in case of a break in the lines affected.

FEBRUARY, 1934

Protection *plus* genuine Comfort

...that's why men are glad to wear Hy-Test Safety Shoes



All-purpose Hy-Test
Model H-711

Hy-Test Safety Shoes, with their entirely new design of safety construction, put real comfort for the first time in a safety shoe. Its new comfort last, exclusive with Hy-Test, is roomier and prevents chafed, sore toes. Safety Directors welcome this new feature in Hy-Test Shoes because men like them and are glad to wear them as shown by the wide acceptance in every industry.

In addition to comfort, Hy-Test offers more protection than ever before with its extra-gauge steel box toe. New flange construction of the box insures positive anchorage, prevents pinching the foot or tipping back. Special coating over the metal box insulates it against heat, cold and moisture. Hy-Test shoes are attractively priced due to the vast production of the world's largest shoe manufacturer.



HY-TEST SAFETY SHOES

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

----- THIS COUPON BRINGS THE COMPLETE STORY -----

International Shoe Company,
Dept. HT-13, St. Louis, Mo.

We are interested in knowing more about your new design HY-TEST Safety Shoes without obligation on our part.

Safety Director's Name

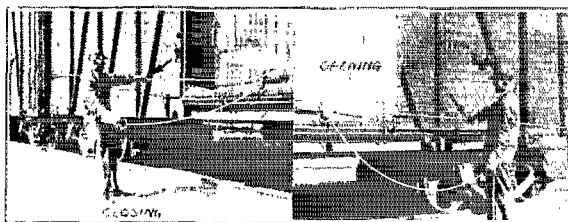
Purchasing Agent's Name

Firm Name Address

SAFE — QUICK — POSITIVE

THE CAR DOOR OPENER — A ONE-MAN TOOL —

ENDS THE STRUGGLE OF OPENING AND CLOSING BOX CAR DOORS



STOPS — FALLS,
PINCHED FINGERS,
STRAINS.

OPERATES FROM
PLATFORM OR
GROUND

ALL STEEL —
WEIGHT 15 LBS.

Write for Bulletin

THE MINING SAFETY DEVICE COMPANY
BOWERSTON, OHIO MAKERS OF SAFETY DEVICES FOR 25 YEARS

Transportation Men

Here's *Your* Shoe

Designed for discriminating men to whom appearance and comfort, as well as safety, are essential. For while safety is a first consideration of practically all carrier corporations, your neat appearance also reflects the high quality of your service to the public and to the company.



No. 873—Gun metal Blucher

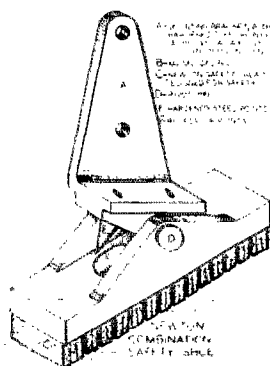
Goodyear welt	Double oak A grade sole
Steel toe box	Leather storm welt
Leather vamp lining	Rubber heel
Wear-proof quarter lining	Sizes: 5 to 12, E width

Write for details and sample

LEHIGH SAFETY SHOE CO., INC.

31-33 So. 7th Street

Allentown, Penna.



SAFETY plus SERVICE

WHEN YOUR LADDERS ARE EQUIPPED WITH ANY OF THE NEWTON LINE of SAFETY SHOES THAT ARE SAFE For Dry, Wet, Greasy, Polished or Icy Surfaces

— WE SPECIALIZE —

Get the Best — — — — — It Pays

From Your Jobber or Direct

Newton Engineering Drafting Service
Waukesha — Wisconsin — U. S. A.

OBITUARY

BRAINARD PLATT, assistant to the vice-president of the Louisville Courier-Journal and Times, died suddenly on December 25. Mr. Platt was 61 years old, and apoplexy was the cause of death. For many years he had been one of the leaders in safety activities in Louisville, serving two terms as president of the Louisville Safety Council and also as a director of the National Safety Council.

MRS. WILL J. FRENCH, wife of the former chairman of the California Industrial Accident Commission, died December 7, 1933. Mrs. French was a devoted worker in the cause of safety not only as Mr. French's coadjutor during the many years of his leadership of safety in California but also through the Berkeley Traffic Commission, Inc., which she served as secretary.

WILLIAM DUN ARMSTRONG, superintendent of the Canada Cement Company plant at Exshaw, Alberta, died at Calgary, September 8. Under his direction the plant had a no-accident year in 1923, and won the Portland Cement Association Trophy for a no-accident year in 1928 and 1929. In 1924 he organized and superintended the removal of over 65,000 cubic yards of overburden from the mountain-side quarry at Exshaw. This successful piece hydraulic engineering work was accomplished at a cost of 13 cents a cubic yard, removing a serious hazard and making the entire slope available for quarry operation.

The Biggest Industrial Safety Job Ever Attempted

(Continued from page 20)

Delaware—J. H. Barnhalt
District of Columbia—Lieut. R. E. York.
Florida—R. B. Grove
Georgia—J. E. Stott
Illinois—A. E. Holstedt
Indiana—W. Pierce McCoy
Iowa—C. W. McFarland
Kansas—Carl C. Campbell
Kentucky—Robert L. Schmitt
Louisiana—W. H. Senyard
Maine—W. J. Brennan
Maryland—Holger Jensen
Massachusetts—Lewis E. MacBrayne

NATIONAL SAFETY NEWS

Michigan—Arthur F. Dunnebacke
 Minnesota—A. V. Rohweder
 Missouri—Herbert J. Brammeier
 Mississippi—George Parker
 Montana—Joseph E. Watson
 Nebraska—C. T. Bailey
 New Hampshire—John S. B. Davie
 New Jersey—Joseph Dorsey
 New Mexico—J. K. Richardson
 New York—W. Graham Cole
 North Carolina—E. G. Padgett
 North Dakota—Roy G. Arnston
 Ohio—D. T. McMurchy
 Oklahoma—F. D. Murphey
 Oregon—E. R. Brown
 Pennsylvania—John Campbell
 Rhode Island—Phillip E. Quinn
 South Carolina—J. Sumter Moore
 South Dakota—Guy J. Johnson
 Tennessee—Paul F. Stricker
 Texas—C. J. Rutland
 Utah—B. P. Spry
 Vermont—G. E. Beirwirth
 Virginia—Col. Wm. M. Myers
 Washington—Ralph Nichols
 West Virginia—C. A. Bundick
 Wisconsin—R. C. Salisbury
 Wyoming—Robert E. Carron

CORRESPONDENCE

BAKELITE NOT AN IRRITANT IN ORDINARY USE

Worcester, Mass.—In my paper, "The Medical Control of Accidents," published in the National Safety News, July, 1933, I used "bakelite" as an illustration of one of the irritating dusts occurring in industry which produced dermatitis. I followed this with a series of suggestions for the protection of the workman from irritating dusts. My attention has been called to the fact that the article might suggest that bakelite in all its uses constituted a health hazard.

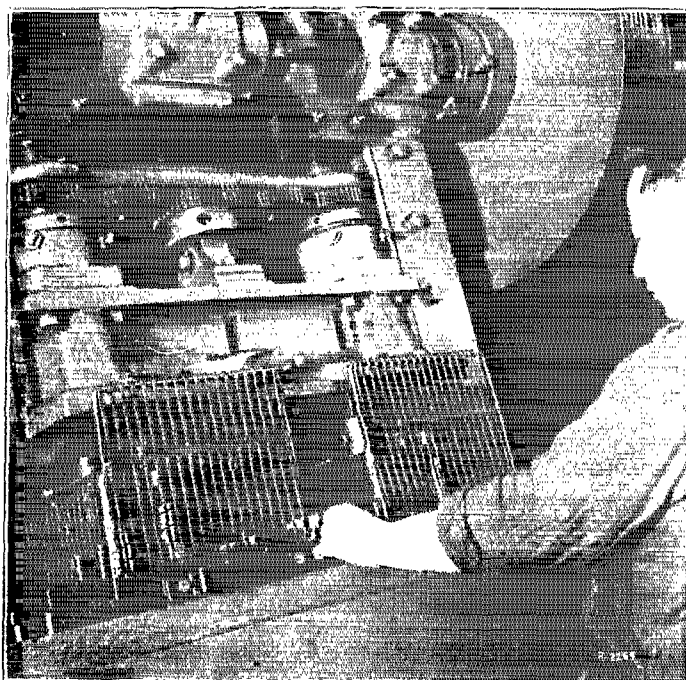
Bakelite, in my experience, is irritating as a dust in the mixing department of a grinding wheel factory. It is present there in the form of a fine powder. Some individuals appear to be particularly susceptible to the irritating effects on the skin, while others are immune. The irritating chemical is probably hexamethyl-amine.

Bakelite, however, is apparently irritating only in its finely powdered fresh state, and no protection is necessary in handling it in any other form.

I regret that in an effort to describe the protection of the worker against the irritating effects of a powdered chemical, I used as an illustration a substance which in most of its forms is not a skin or mucous membrane irritant.

W. IRVING CLARK, M. D.,
Newton Company

SAFETY GUARDS



A LARGE percentage of machine accidents can be eliminated by adequate guarding, and it is possible to accomplish this guarding without loss in the production capacity of machines. In fact, production may be stepped up by increasing the confidence of machine operators through the elimination of hazard.

The H&K guard accessories are suitable for all machine and belt guarding.

Write for booklet

The Harrington & King Perforating Co.

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114 Liberty St., New York

Chicago, Ill.

DUPOR

Reg. U. S. Pat. Off.

RUBBER RESPIRATOR

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

Price per doz., \$18.00

\$1.50

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

H. S. COVER

CHIPPEWA-A

SOUTH BEND, IND.

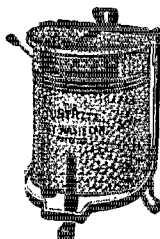


Patents Applied For

Lessen Your Insurance Rates



Justrite Safety Can
Sizes—1 pint to
5 gallons



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

Prevent Fire and Explosion

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

Insurance Companies Gladly Lower Rate Premiums

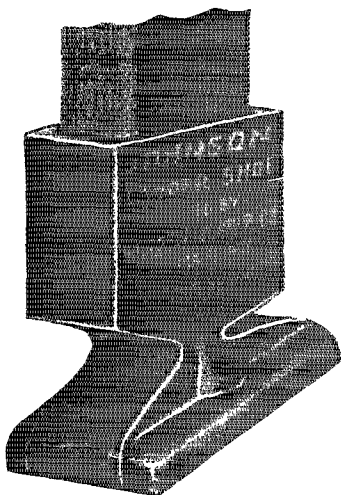
to plants who install approved, up-to-date safety appliances. JUSTRITE Safety Appliances are inspected and labeled by the Underwriters, Inc., and the Associated Factories Mutual Fire Insurance Companies. Protect your plant—your employees—install the latest improved JUSTRITE Safety Devices TODAY. See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

Justrite

TRADE MARK

Justrite Mfg. Co. 2087 Southport Avenue
CHICAGO, ILLINOIS

SAFETY SHOES FOR LADDERS



Office Buildings as well as thousands of manufacturing plants have equipped with Johnson Ladder Shoes.

Order yours today—you'll be our booster tomorrow!

Per pair for straight ladders \$1.50 Set of 4 for step ladders... 50c

SAVE INJURY AND ACCIDENTS!

JOHNSON LADDER SHOE CO.
Eau Claire, Wis.

Look For The DIAMOND



(Patented Jan. 21, 1919)

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

Manufactured by

The Hygeia Respirator Co.

308 East 94th St.

New York City

Sold by All Safety Supply Houses

The Lucky Lady

PERHAPS no more touching and beautiful chronicle of the experiences of a person both blind and deaf who, through a miracle of modern science could suddenly see, and who, through another wave of the magic wand could hear, has been written than "The Lucky Lady" an article by Margaret Prescott Montague which appeared in the September, 1933, issue of the *Atlantic Monthly*. The article has now been reprinted by the Houghton Mifflin Company in a 66-page book, on sale for \$1.

Are you glad you can see? Do you delight in hearing? Perhaps you are not conscious of these joys; but this article can make you aware as you never have been of the great blessing of these gifts.

In the new edition Miss Montague has inserted a grateful note of praise for the efforts being made in the United States for the prevention of accidents which results in so much destruction of both sight and hearing.

She calls herself "The Lucky Lady" because she lives in the present and not in any period of the past—the present the only age that could restore sight and hearing to her. "In this day of depression", she writes, "which I am ready to concede has its difficult side, it may make a little inward blaze at which others may warm the fingers of thought to read, and frankly set forth, how, through the beneficence of the present time, one human being at least escaped a life sentence. Why, if the present age let her out, may do the same for me!" he might claim."

It is a heartening book, a cheering book, and one that everybody and especially safety men, ought to read.

Dayton Power Employee Wins Life Saving Medal

FOR saving the life of Edith Strickland, John Harris, an employee of the Dayton Power and Light Company was awarded The President's Medal by the National Safety Council. On June 18, 1933, Harris rescued Miss Strickland from drowning in the Miami river, by applying the prone pressure method resuscitation. For assisting in resuscitation, certificates were awarded to 10 other employees of the company: C. Brumbaugh, William Smith, Ed Hay, Howard Curtner and Harold Merry.

The presentations were made on November 20 before the annual industrial safety school of the Dayton Chamber of Commerce by Urban L. Moler, chairman of the Safety Division.

NATIONAL SAFETY NEWS

HONOR ROLL

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

American Can Co.

Several notable no-accident records have been reported by plants of the American Can Company as of November 24, 1933. Following are the periods worked without injuries:

Oakland Plant, Oakland, Calif. No accident since October 5, 1930; 1,026,434 man-hours.

Philadelphia plant. No accident between May 10, 1931, and March 8, 1933; 1,023,654 man-hours.

Cincinnati Machine Shop. No accidents between September 15, 1931, and February 6, 1933; 852,053 man-hours.

Illinois Plant, Chicago. No accident since November 6, 1932; 722,725 man-hours.

Eastman Kodak Co.

An accident on December 30, 1933, terminated a no-accident record in the Emulsion Coating Department of Eastman Kodak Company, Rochester, N. Y. The last previous accident occurred April 9, 1932, and in the meantime 129 employees worked 1,219,050 hours without a disabling injury.

Goodyear Tire & Rubber Co.

On December 1, 1933, the plant of the Goodyear Tire & Rubber Company at New Toronto, Ontario, had operated 2,262,319 man-hours without a disabling injury. No accident has been reported to date.

Pennsylvania Salt Manufacturing Co.

Greenwich Point plant of the Pennsylvania Salt Manufacturing Company at Philadelphia had operated 22 months at the close of 1933 without a disabling injury. During this period the 145 employees worked 691,159 man-hours.

St. Louis Gas & Coke Corp.

St. Louis Gas & Coke Corp. had, on December 1, 1933, operated 422,787 man-hours without a disabling injury. The record was still clean at the time of reporting, December 14.

Southwestern Bell Telephone Co.

The last disabling injury in the Kansas City Maintenance organization of the Southwestern Bell Telephone Company occurred September 7, 1927. About 260 men are employed. The last disabling injury occurred in the Central Kansas City district. The Eastern District in Kansas City has not had a disabling injury since May 9, 1927. The Southern district holds the record in the Western Missouri and Kansas area with no lost-time accident since October 13, 1926. The three districts, under the direction of F. E. Holmgren, division maintenance superintendent, have to their credit approximately 5,800,000 safe man-hours.

Index to Vol. XXIII Wanted

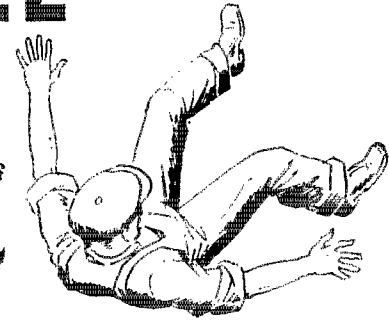
A REQUEST has been received by the National Safety Council from the Library of Congress for a copy of the Index to Volume XXIII of the NATIONAL SAFETY NEWS, January to June, 1931. No copies of this volume are now available at Council headquarters, and if any member has a copy no longer needed it will be thankfully received. Address Chief, Periodical Division, Library of Congress, Washington, D. C.

FEBRUARY, 1934

SO SIMPLE

To Reduce Slipping Accidents

WHY DELAY?



A MAN wearing non-slip GRO-CORD Soles and Heels is going to slip less often than when he wears ordinary soles—no matter what surface he's walking on. That's common sense. Tests prove it.

Sturdy cord tire cords embedded upright in live rubber grip floor at every step workman takes. Wear keeps cord ends bare—non slip to last day of wear. Workmen like Gro-Cords because they're more comfortable—because they cost less per mile of wear. Adopt Gro-CORDS now for safety of your workmen.

A complete line of safety rubber footwear, Gro-Cord equipped, is now available. Gro-Cords and Raw Cords can be attached easily to any shoe.

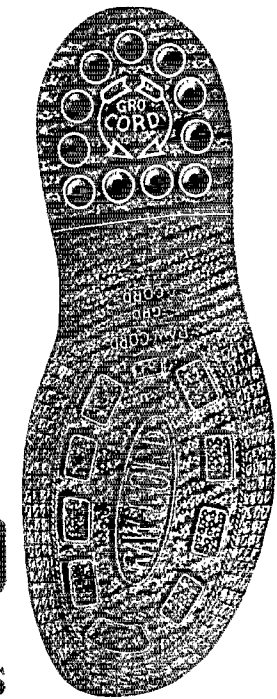
The Lima Cord Sole & Heel Co.

Dept. 2F

Lima, Ohio

Fully protected by patents. Any infringement will be prosecuted.

GRO-CORD
Non-Slip
SOLES and HEELS

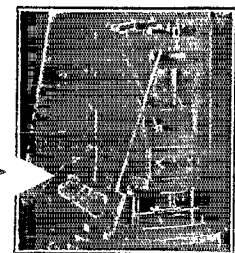


PAT. SHIELD

Continues the PROTECTION begun by the Guard itself

Your operator cannot reach behind this shield (fully protected by U. S. patents) until the danger point is passed. No other punch press guard has this patented shield.

D. & M. Auto-matic Guards fit all punch presses—made only of working parts. The frame entirely of drop forgings and steel (except the guard head), and are low in price—\$18.50 to \$28.00.



Order a D. & M. Auto-matic Guard for 30 days FREE trial. State size and make of press and whether left to right or right to left swing is wanted.

TAYLOR-SHANTZ CO.

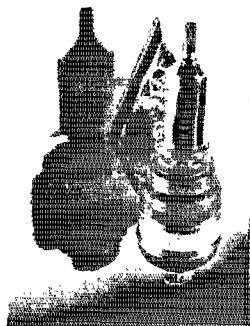
485 ST. PAUL STREET
ROCHESTER, N. Y.

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

AUTOMATIC FIRE ALARM

The two best known principles of automatic fire alarm have just been combined in an electrically operated unit of the appliance type by The Gamewell Company, Newton, Mass.



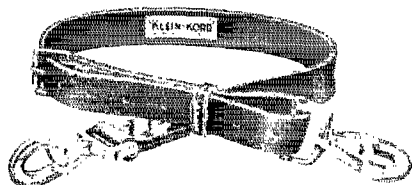
This new fire alarm appliance known as the Vitalarm Signal, contains a "rate of rise" thermostat that detects a fire with amazing speed—automatically sounding a loud alarm within two or three minutes following a rise of 15° to 20° F. a minute from the prevailing room temperature. Should the temperature rise more slowly than that from a very unusual type of fire, another device known as a "fixed" thermostat will sound an alarm at 150° F.

Both fire detector units and an alarm howler are combined in the one attractive appliance which operates on 110-120 volts, 60 cycles A.C. at a cost of not more than three cents a month, the manufacturer states. It can be installed individually or several can be hooked up as a system and connected to annunciators and powerful extension alarm bells or sirens placed at strategic points inside or outside buildings.

The Vitalarm Signal furnishes ideal protection in storage rooms, garages, oil houses, boiler rooms, underneath stairways and in warehouses, factories, offices, institutions, etc.

NEW SAFETY STRAP

Mathias Klein & Sons, Chicago have developed a new fabric safety strap called "Klein-Kord," which is meeting with considerable success in the public utility and electrical fields.



"Klein-Kord" consists of four woven plies vulcanized into a solid strap. Not only has it greater tensile strength than leather, which permits the use of the conventional tongue buckle without slitting the strap

even under severe loads, but it also has a smooth, tough surface which resists damage from accidental cuts and is unattacked by contact with creosote, paint, acid, oil, etc. Being rubberized it has low conductivity, and being woven it possesses uniformity of thickness and strength.

"Klein-Kord" has no appreciable stretch in use and the smooth surface makes it impossible for dirt to penetrate and damage the fibre.

Mathias Klein & Sons have issued a descriptive booklet on this new strap which will be sent without charge or obligation.

NEW GAS MASK WITH SPEAKING DIAPHRAGM AND WHITE FACEPIECE

In the past, gas masked crews, working in smoke and fume filled locations, have been handicapped by the lack of quick and ready communication, the ordinary mask preventing the proper transmission of the voice. This not only prevented the proper coordination between the men but has prevented warnings of impending danger to firemen in smoke filled rooms.



It is believed that greater safety and easier communication for these gas masked crews has been made possible by the development of the new MSA Speaking Diaphragm Facepiece by the Mine Safety Appliances Company of Pittsburgh, Pa. This mask definitely eliminates the muffling effect of the regular facepiece when talking, a special diaphragm being built into the mask directly in front of the mouth. According to the manufacturers, speech is transmitted naturally and without distortion and when necessary, permits clear speech over a telephone or speaking tubes as in the case of Army and Navy officers whose duties require them to give

commands direct or through field telephones or speaking tubes aboard ships.

In smoke filled rooms, fire officers are also able to quickly direct firemen without signalling, misunderstanding or delay in execution of commands—the voice being directional allowing easy location of men.

The facepiece of the new mask is available in either black or white rubber making it possible for an officer to assume his proper identity with his men.

In the petroleum industry the white rubber facepiece is particularly advantageous to men engaged in mixing ethyl gasoline or any spotting by the ethyl fluid can be readily distinguished.

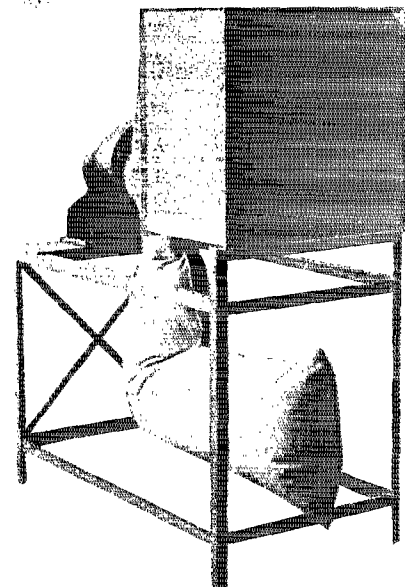
The mask is equipped with a deflector tube of aluminum for best efficiency and a regulation time-tested flutter valve. The speaking diaphragm is made of mica which is impervious to acid or heat.

Facepieces are available in white rubber for the regular line of MSA masks.

SPRAYING EQUIPMENT

A new DeVilbiss Flock Spray Gun and a new Flock Spray Booth have been developed by The DeVilbiss Company, Toledo, Ohio, manufacturers of spray-painting equipment.

The Type GB Gun has an extremely wide range of application. Body is of cast aluminum with a pistol grip handle and thumb button air valve control. Flock passes through the air cap without clogging. Three adjusting valves, one to control main line air pressure, one to control type of spray, and one to control air entering the agitator, are easily operated by the left hand without tilting the gun in any way.

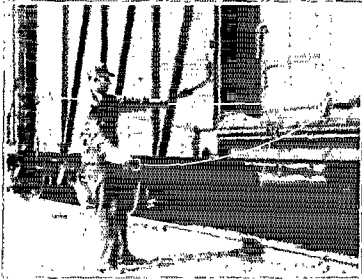


The Type XF Spray Booth is of galvanized sheet steel with smooth interior and funnel shaped back leading to the blower unit. Booths are available in two

or three feet width, with overall depth of thirty-six inches and overall height of five feet. The floor is thirty-three inches high and the depth is eighteen inches. An important feature of the spray booth is the provision for reclaiming excess material. The reclaiming bag is ample in size and of a special dust-proof fabric. It is detachable from the blower for easy cleaning and removing of material.

CAR DOOR OPENER

A new, one-man tool for opening and closing box car doors has been placed on the market by The Mining Safety Device Company, Bowerston, Ohio.



The car door opener consists of a 3/16-inch copper finished chain with hook and hand ring, cast steel sheave and case. The case is equipped with hook portion for attaching tool to handle of car door. To operate, attach hook at end of chain to end of car and draw chain tight by hand ring and pull near center of stretched chain out from car, taking up slack after each pull. With the chain at full length approximately a one-ton pull is exerted on the car door. The case is equipped with locking cam which holds the chain tight after slack has been taken up.

RUSTPROOFER IN COLORS

A new rust-arresting and rust-preventing principle has been employed in a rust-proofing material recently put on the market by Stonhard Company, 401 North Broad Street, Philadelphia. This material comes in liquid form and can be either brushed or sprayed over new or rusted metal surfaces. When applied to a rusted surface, the action of the liquid automatically welds this inert mass to the base metal and the rust action is stopped. Further, a non-porous, moisture-proof, air-tight coating is formed that protects the surface against the attack of further rust deposit.

The original treatment can be made into a finish coat by a single application. Aluminum powder, powdered graphite, or dry red lead may be mixed with this new rust-proofer and applied to rusted metal surfaces for dual effect. Rust action is permanently checked and admixtures give treated surfaces decorative finish.

Applied to new metal surfaces, it will prevent rust. Being transparent, all markings and identification signs remain visible.

[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.]

Trade Publications

for your

SAFETY EQUIPMENT LIBRARY

Safety Information on File

Every Safety Executive should have for ready reference up-to-date information on all types of equipment relating to safety and industrial health. We will gladly help you build your Safety Equipment Library. The publications listed below will be sent free and without obligation to readers of NATIONAL SAFETY NEWS. Indicate the items you wish; fill out coupon and mail to us.

1. **For Safety Speed and Satisfaction.** Circular describes the Swaco Safety Hopper Car Wrench for opening drop-bottom cars. Safety Wrench & Appliance Company.
2. **Accident Prevention Signs.** Illustrated catalog in four colors describes hundreds of signs for use in preventing accidents. Signs for almost every type of industrial hazard are shown. Stonehouse Signs, Inc.
3. **Health Guard Mask.** Folder describes the new Cesco No. 601 sand blast mask for use wherever harmful dusts are encountered. Details of laboratory tests on this mask are also given. Chicago Eye Shield Company.
4. **Portable Emergency Lights.** Folder describes the "Half-Mile-Ray" flashlight of both portable storage battery and dry cell types. Portable Light Company, Inc.
5. **Machine Belt Guards.** Handbook describes the more common type of machine guards and how to make them in your own shop. Harrington & King Perforating Company.
6. **Industrial Eye Protection.** Goggles for every industrial need. Well illustrated pamphlet with description and price, making it easy to select the specific goggle for every need. American Optical Company.
7. **Sure Footed Flooring.** Folder shows method of applying a non-slip colored surfacing for floors and stairs of wood, concrete, stone, marble, steel, slate, glass or tile. The Tremco Manufacturing Company.
8. **Standard First Aid Kits.** Four-page circular describes general purpose first aid kit, airplane kit, and industrial first aid cabinets and kits to meet essential state requirements for industry. Bauer & Black.
9. **A New Tool for Industry.** Booklet illustrates many uses of the Spencer Central vacuum cleaning system for the factory. Also to remove rust, clean boiler flues, and remove excess material during process of manufacture. The Spencer Turbine Company.
10. **New Finnell 100 Series.** Folder announces the new line of electric floor scrubbing, waxing and polishing machines. A machine for every cleaning purpose. Finnell System, Inc.
11. **Here Is Your Extra Man.** Folder describes the details of construction of the Newton Safety Shoe for ladders. Newton Engineering Drafting Service.
12. **Car Door Opener.** Folder gives pictorial directions how this device is used for closing box car doors. The Mining Safety Device Company.

NATIONAL SAFETY NEWS
20 North Wacker Drive
Chicago, Ill.

February, 1934

Please have sent to me the publications I have checked:

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Title.....

Company.....

Address.....



FREE

To officials interested in the safety of employees

★

WE will be pleased to send you, for your personal use, a 2 oz. size sample Saf-T-Top antiseptic applicator in your choice of 5 solutions—U.S.P. tincture of iodine; half strength iodine; 2% mercuriochrome; metaphen or merthiolate.

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Saf-T-Top antiseptic applicators feed directly to the wound without waste. One is sufficient for hundreds of applications. Shock-proof wooden cases make Saf-T-Tops practically unbreakable, and they may be carried in the pocket, tool bag or first-aid kit with perfect safety.

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Write for your sample today, and see for yourself how handy and economical Saf-T-Top antiseptic applicators are.

Robert A. Rabinowitz
Safety Specialist

152 Anderson Ave. Rochester, N. Y.



FUT-SURE WILL "WATCH HIS STEP"

Slippery, accident-breeding walking surfaces are unnecessary. More than that, they are costly.

Plastic Fut-Sure will make any walkway or stairway slip-proof at low cost. Suitable for new construction or repairs. Easily applied and permanently safe. Get the facts.

GENERAL ABRASIVE CO., INC.
2012 College Ave.
Niagara Falls, N. Y.

**PLASTIC
FUT-SURE**
FOR SAFER WALKING SURFACES

Re-employed Workers

(Continued from page 4)

two men was acting in an assigned role. Poker is a great game!

There are countless men who will cooperate with a vivid and impressive Murphy but not cooperate with a more intelligent but calm Smith. Without the cooperation of the workmen, in safety as in other efforts, there will not be success. They would cooperate with a Murphy not because they are afraid of him or in awe of him, but they will remember what *he* says and will do what *he* says because he is *personally* colorful and dramatic. He is emotional, excessively emotional. "The permanence in memory of an idea is proportional to the emotional intensity of that idea at the time it was impressed upon the mind."

I recommend that the safety engineer seek to have someone, some Murphy, put on his staff who can add the necessary and even the surplus amount of emotion to ideas of safety. Then after the safety engineer has instructed the re-employed workmen until they get management's idea of safety, let some Murphy talk to the men as individuals or in small groups and *vividly* impress safety upon their minds. What a job for a former sergeant of the Marine Corps!

This Mule Was Tougher Than Most Autos

THE motorist invariably loses in contact with a locomotive at a grade crossing, but one instance is reported where a mule got the better of an encounter with a Northern Pacific Train.

The mule, known locally by the name of "Missouri," according to *Railway Age*, found a pasture to his liking along the Northern Pacific right-of-way near Walla Walla, Wash. While he was breakfasting in the middle of the track a train approached. The mule ignored the locomotive whistle and the engineer had no alternative but to run the animal down while traveling at a speed of about 25 miles an hour.

After the abrupt contact between locomotive pilot and the mule, things happened in quick succession. Tossed to one side, the mule struck a switch stand. The switch was thrown and, although the engine passed by safely, three cars were derailed and the track was torn up for some distance. Witnesses report that the mule scrambled to its feet and galloped away with a triumphant "hee-haw."

TALCOTT'S SAFETY BELT FASTENERS

They are

SAFE

EASY TO APPLY

LOW IN COST

No wires, pins, or prongs
to endanger the user.

A FASTENER FOR EVERY BELT

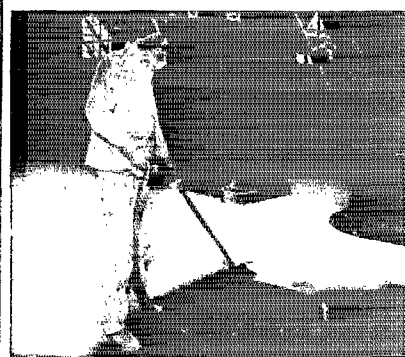
Send for Free Samples

W. O. & M. W. TALCOTT, Inc.

92 Sabin Street

Providence

R. I.



The Spencer Central Vacuum Cleaning System

protects employees by removing injurious dirt and dust at its source.

It also saves in the cost of cleaning, in reclamation of valuable materials and in keeping the finished product clean.

Cleans any surface and is inexpensive, practical and dependable.

Let Us Send You The Bulletin

THE SPENCER TURBINE CO.
Hartford, Conn.

SPENCER
CENTRAL CLEANING SYSTEM

1557

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THE ACCIDENT BAROMETER

A Monthly Review of Significant Trends in the Accident Situation

Prepared by the Statistical Bureau, National Safety Council

Occupational deaths declined slightly from November to December, according to reports of Industrial Commissions in 14 states. The trend was not the same for all states, five showing an increase and two no change, while the remaining seven reported sizeable decreases. Compared with the same month last year, the drop amounts to 23 per cent. The annual totals are all below the 1932 totals, the reductions ranging from 4 per cent in Minnesota to 29 per cent in Maine, and averaging 13 per cent in the states for which information is complete.

	Dec. 1933	Dec. 1932	Total for year 1933	Nov. 1932	Nov. 1933
California ..	55	45	610	687	23
Illinois ..	32	34	447	620	39
Indiana ..	12	16	102	129	4
Kentucky ..	9	30	98	10	10
Maine ..	1	3	21	34	1
Maryland ..	7	10	105	110	6
Massachusetts ..	28	29	294	322	27
Michigan ..	16	16	177	172	5
Minnesota ..	9	14	151	157	15
Missouri ..	6	5	72	97	7
New Jersey ..	14	15	197	228	15
New York ..	59	119	1301	1505	122
Ohio ..	77	77	986	67	67
Pennsylvania ..	82	76	1043	1094	54
Texas ..	2	2	285	2	2
Virginia ..	11	2	134	149	11
Wisconsin ..	15	15	110	117	11

Note: This table shows when deaths were reported to Industrial Commissions, not when accidents occurred. State totals are not directly comparable due to differences in laws.

Steam railroad accidents in September resulted in 512 deaths and 2,492 persons injured, an increase of 18 per cent in deaths, but a reduction of 2 per cent in injuries from the record of September, 1932. Nearly all of the increase in deaths is classified as "trespassers", "Struck or run over, not at public crossings." Greater employment on the railroads also led to increases in deaths and injuries of employees. Rates per million man-hours, however, show deaths advancing only from 0.21 in September, 1932, to 0.24, while injuries declined from 7.77 to 7.50. The nine-months' total of deaths is 3,749, against 3,535 for the same period last year. Persons injured decreased nearly 9 per cent from 21,856 to 19,923.

Motor-vehicle deaths in November probably totaled about 3,000, according to the latest estimate. This is approximately 9 per cent above the total for November, 1932. The eleven months'

total is estimated at 27,050, or 1.5 per cent over the 1932 total for the same months. The December reports of the following 10 cities indicate a reduction from the same month last year, but additional reports for smaller cities largely offset this drop and make it appear that there will be little change from December, 1932.

	December 1933	December 1932	Twelve Months 1933	Twelve Months 1932	Per Cent Change
Baltimore ..	19	13	131	137	-4.4
Boston ..	5	17	109	127	-14.2
Buffalo ..	12	11	104	98	+6.1
Cleveland ..	22	26	196	207	-5.3
Detroit ..	35	38	295	288	+2.4
Milwaukee ..	9	8	72	82	-11.0
Minneapolis ..	15	11	112	72	+35.2
New York ..	50	105	1037	1031	+0.6
Pittsburgh ..	8	14	117	128	-8.6
St. Louis ..	13	8	145	151	-4.0
Totals ..	226	252	2259	2321	-3.4

Commercial vehicle accidents reported in the National Fleet Safety Contest for November numbered 2,37 per 100,000 vehicle-miles, an increase of 3 per cent over the October rate of 2,31. The November rate is even higher than that for November, 1932 (2.29), although the numbers and types of vehicles involved were about the same in both months. However, the traffic of private passenger cars was considerably greater in November, 1933, thus increasing the possibility of collision. The following table gives the November and the cumulative rates for the contest.

	Nov.	July-Nov.
Inter-city bus fleets ..	0.92	0.91
Passenger cars ..	2.25	1.63
Misc. Mfg. plants ..	1.60	1.36
Inter-city trucking ..	2.26	2.07
Public utilities ..	2.52	2.37
Petroleum ..	2.87	2.41
Garages ..	2.25	2.17
Bakeries ..	2.66	2.52
Newspapers ..	4.60	5.01
Department stores ..	3.19	1.89
City trucking ..	4.52	4.08
City bus and taxi fleets ..	4.22	4.56
Coal and ice ..	1.58	1.25
Beverages ..	2.94	2.50
Laundries ..	3.59	6.14

Occupational accidents were both less frequent and less severe in November than in October, according to the experience of 321,000 employees in 844 plants entered in inter-plant contests of community safety councils. The November frequency rate is 10.59, which is 16 per cent down from the October rate of 12.65. The severity rate is 0.65, a drop of 41 per cent from the October rate of

1.10. This decline in both rates makes the November experience unusually favorable. Rates for a similar group of plants in November, 1932 were: frequency, 10.21; severity, 0.89.

Student accidents in November averaged 11.8 per 100,000 student-days, a drop of 19 per cent from the October record of 14.5. This is about the same per cent decrease as occurred in November of previous years. It appears that the student accident situation is getting somewhat better, after the poor showing in September and October.

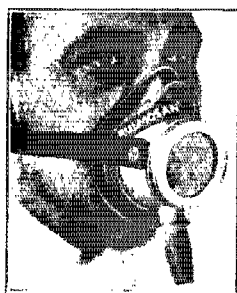
Accidental deaths of all types rose 4 per cent from October to November in the 48 cities and counties reporting this information to the National Safety Council. The November total is 21 per cent above that for the same month last year, which makes the eleven months' total about the same as for last year. The decrease in deaths during the early part of 1933 was offset by the rise in the late summer and fall. December may prove to be worse than December, 1932, for in the following 10 cities the total accidental deaths rose 7 per cent from 584 to 627.

	Total	Occupations	Home	Motor Cars	Other
Baltimore ..	55	1	24	29	1
Boston ..	32	3	36	5	1
Buffalo ..	19	1	5	12	1
Denver ..	1	0	7	1	1
Jersey City ..	11	1	4	5	1
Kansas City ..	1	1	1	1	1
Mo. ..	26	1	12	12	1
Newark ..	37	0	11	11	1
New York ..	354	26	142	112	1
Rochester ..	5	1	1	1	1
St. Louis ..	26	1	11	12	1
Totals ..	627	37	253	297	1

* Deaths unless noted for Nov. 1933.

Looking ahead . . . As February is a short month, the following predictions are based on deaths per day rather than on monthly totals. February automobile deaths will probably be about 16 per cent fewer than January, due largely to the seasonal slump in traffic. Fatal falls will drop about 8 per cent. Deaths from burns and from asphyxiation and suffocation will show a small decrease, perhaps as much as 5 per cent. Other types of accidental death may decline somewhat, though the change is likely to be small.

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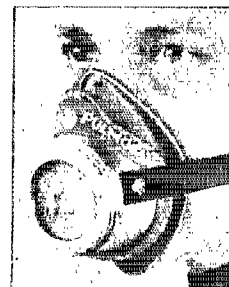
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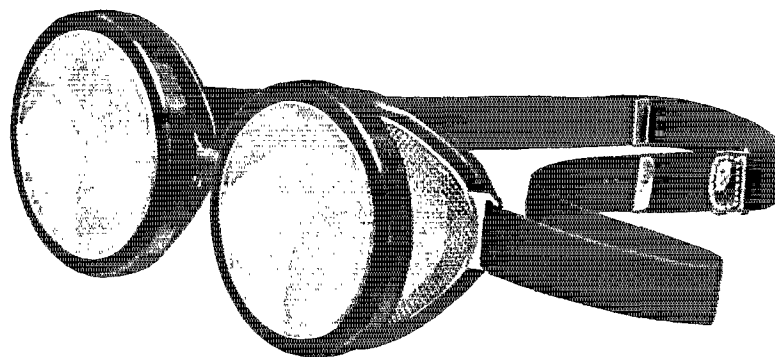
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