NATIONAL SAFETY NEWS

MARCH 1935

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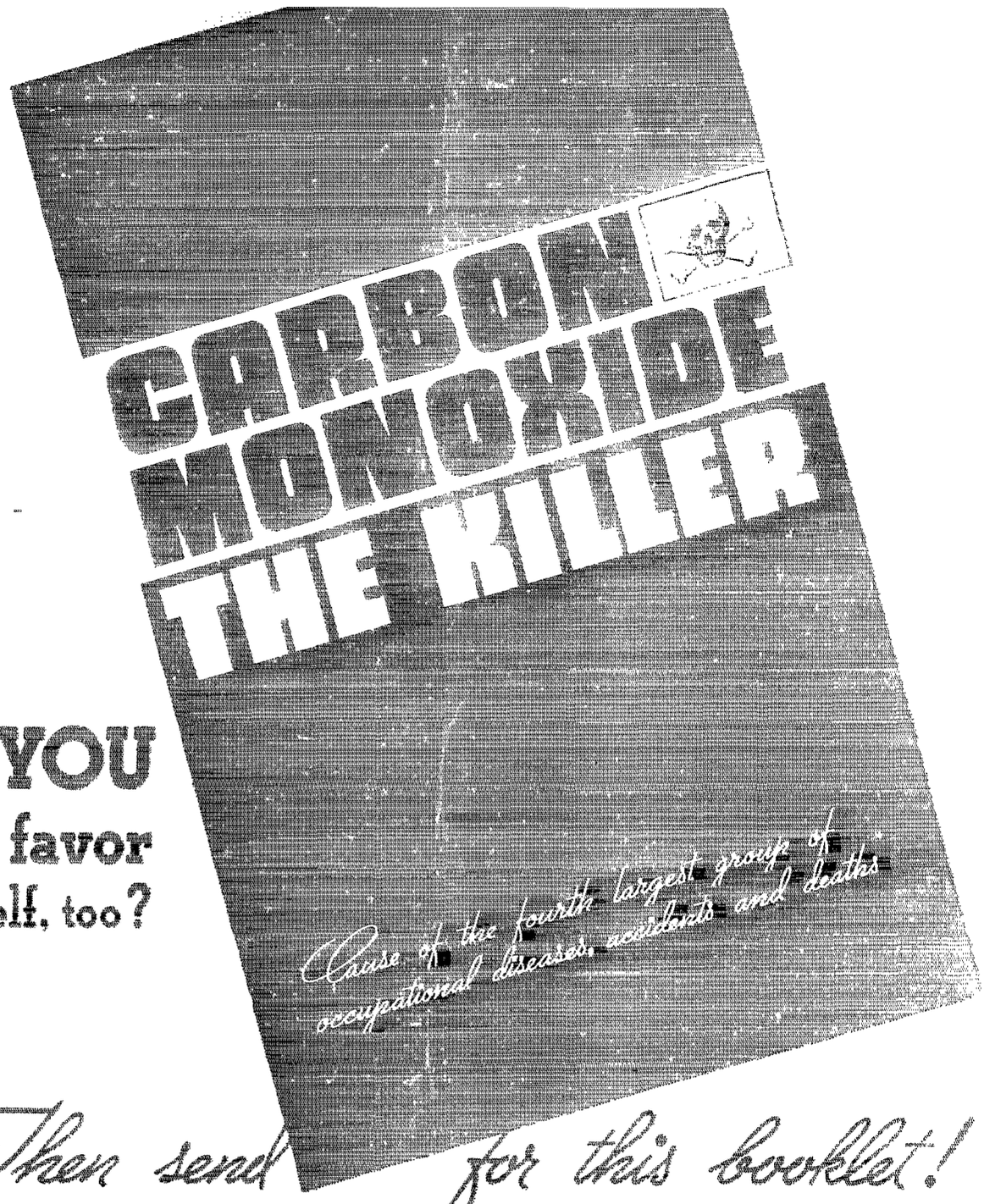

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with Willson Approved Long Life Filters

Made to pass a series of difficult shop and laboratory [illegible] before their perfected models were submitted to the U. S. Bureau of Mines, [illegible] 300 and 400 Willson Bag Respirators were made to order for Industry—designed and re-designed to meet its most exacting conditions. It is highly gratifying to have them approved by the Bureau of Mines since this is, in a sense, a confirmation of Industry's Approval.

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IT COSTS YOU NOTHING

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We are always interested in anything that is practical and economical and will help us reduce accidents among our employees.

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Address.....

Town.....State.....

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1. *Mail The Coupon* . . . Fill in and mail. It will bring to your desk complete information about International Safety Shoe Week and why it is endorsed by organizations and how little actual effort is needed on your part to greatly benefit your company and its employees.

2. *Display Bulletins and Posters In Your Plant or Factory* . . . If after receiving complete information about International Safety Shoe Week you care to take advantage of this national movement, notify us and we will supply you free of charge with bulletins and posters to display in or about your company that urge proper care of the feet and your employees to wear safety shoes.

3. *Distribute Literature on Safety Shoes Among Your Employees* . . . We will also send you small folders that can be put in pay envelopes or distributed to the employees. These tell in detail why it is advisable to wear safety shoes. As one interested in cutting down accidents you are naturally willing to support anything that will accomplish this objective in a practical economical way. International Safety Shoe Week is doing this. It's the simplest, easiest way to help you accomplish what you want to do we know of. We'll help you all we can.

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with one of your workers



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

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

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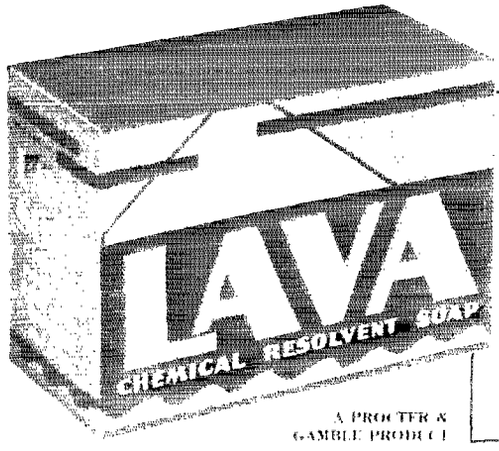

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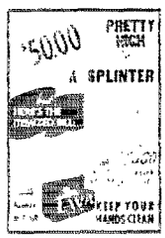

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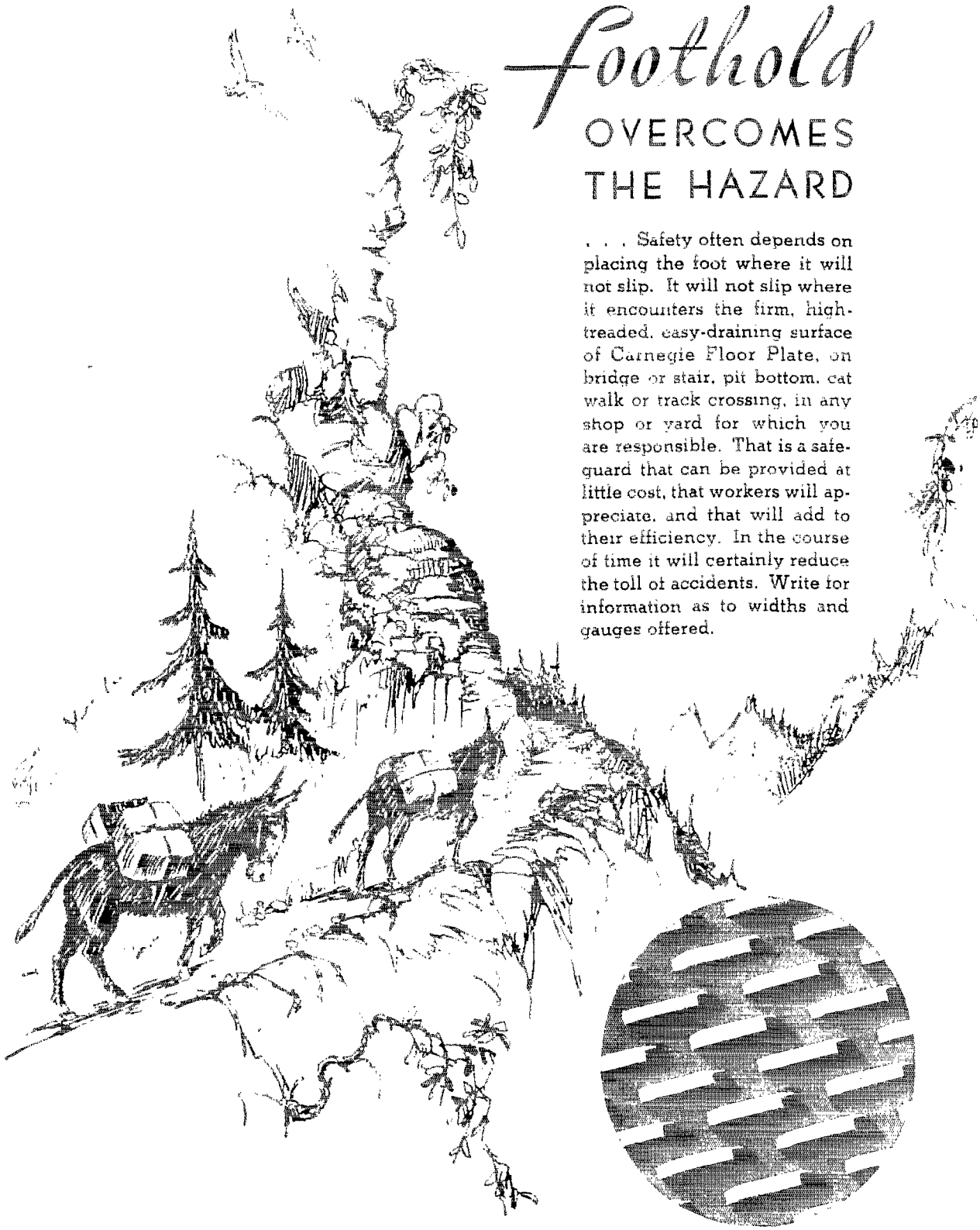

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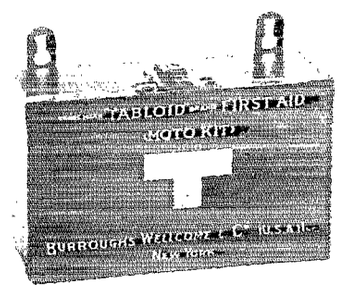

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IT is far better to have this practical and compact assortment of indispensable first aid items instantly available—than to wish you had when the emergency demands immediate first aid measures.

When replacements are needed, 'Tabloid' First-Aid (Moto-Kit) contains standard Burroughs Wellcome & Co. products, which can be promptly supplied. Write for quotations for equipping motor fleets, bus lines and railroads.

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National Safety News

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

VOL. XXXI, No. 3

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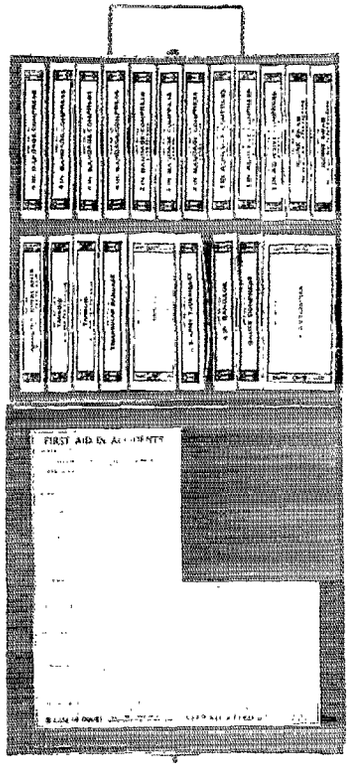
The Interchangeable Unit System of First Aid is probably in more general use than any other.



The Units are generally known as "D" cartons. "D" for Davis the originator of this system.

You will obtain real Benefits—as well as the satisfaction of using the genuine "D" cartons—**if you insist on Davis First Aid Kits and Refills.**

You may save a life or at least lessen the scar tissue from a burn by starting the Tannic Acid Treatment with **TANNOID** from your kit.

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You will insure comfort to your injured employee by using **DAVIS BANDAGE COMPRESSES**—the modern dressing of cotton lined gauze.

You will insure economy by the use of **DAVIS DRYBAK ADHESIVE COMPRESSES** of waterproof adhesive with large ventilating slots.



DAVIS FIRST AID was "YEARS AHEAD"
DAVIS FIRST AID is "TIME TESTED"

Send for your copy of First Aid Catalogue

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The NEW AO Duralite-50 CHEMICAL GOGGLE

A better Goggle for chemical workers



The new AO Duralite-50 Chemical Goggle is, to our knowledge, the only chemical goggle that protects eyes from splashes of dangerous liquids and the impact of flying particles . . . and is at the same time *ventilated*.

Molded to fit *snugly* to the contour of the face, the eyecups of this new goggle prevent liquid from entering at any point. Perforated shields effectively guarded by solid baffle plates permit free air circulation—*but keep liquids out.* Eyes are cool and lenses clear; men are not tempted to remove their goggles and so expose their eyes to dangers that might cost their sight.

The American Optical Company branch office near you stocks a complete line of eye protection equipment. The AO Industrial Representative there will be glad to call and show you this new goggle; send for him, or mail the coupon for descriptive literature.

The AO Duralite-50 Chemical Goggle protects laboratory men, [illegible] and other chemical workers protection from liquids and flying particles. Yet this AO Goggle is [illegible] Super-Armorplate lenses complete the protection by offering maximum resistance from impact. Cool, comfortable . . . exhaustive tests under actual working conditions prove that men can wear this goggle all day in comfort—*and be safe.* Patented

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Please have an AO Industrial Representative call in to demonstrate the new Duralite-50 Chemical Goggle.

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NATIONAL SAFETY NEWS

Published by National Safety Council, Inc.

MARCH, 1935 Vol. XXXI, No. 3

Louisville in 1935

LOUISVILLE, Kentucky, will be the scene of the Twenty-Fourth Annual Safety Congress. The week of October 14 has been selected as the date.

In selecting Louisville as the Congress city, the Executive Committee of the National Safety Council was deeply appreciative of the cordial welcome extended by other cities. Atlantic City in particular offered many inducements, and the cordiality of our New Jersey members made it difficult to come to a decision. The many years of close association between Governor Harold G. Hoffman and the National Safety Council also gave Atlantic City a prominent place in the Congress plans.

It was felt, however, that a central meeting place was desirable. A second reason for choosing Louisville is the demand for a convention city this year which will be easily accessible to the south. This is important because of the growing industrial importance of the Southern States.

Many of our members have happy memories of the Congress which was held in Louisville in 1924. The Safety Movement has developed remarkably since then but the city's hospitality will be found unchanged.

Contests Bring Returns

WHY do the same companies enroll in national and local safety contests year after year? Many plants which have not yet won a trophy are among the enthusiastic boosters for these contests. They still have hopes of winning.... eventually but even more important is the stimulating effect upon their safety programs.

When a plant wins a trophy in an accident prevention contest the operating head of the company is usually as enthusiastic as the safety man. And when his own company's record is placed in comparison with the others, the whole organization is likely to receive a little stimulation from the front office. Safety contests have started many a plant on the profitable path of accident reduction.

Knowing the Automobile

TWENTY FIVE years ago the automobile was merely a machine. It emitted foul odors and uncouth noises and had many of the balky and stubborn traits attributed to mules. It was usually kept in the barn.

The automobile of today has become a well-bred servant: in many instances it is more like a member of the family. Automotive engineers and petroleum laboratory technicians have overcome many of its early crudities. The garage has become part of the architectural contour of the house. It is but a step from the kitchen.

With the automobile playing such a prominent part of our daily life there is need for better training of young drivers. Not every parent has the time or the ability to do a thorough job of teaching. Too many youthful drivers, and many not so young, have picked up their present inadequate knowledge of automobile operation. Many of them do not seem to have learned the responsibility which ownership of a car involves.

Many educators feel that the high school is the place for such instruction and several states have made forward steps in this direction. Such a course impinges on at least two of the traditional high school fields—physical science and social science. In the *Journal of the National Education Association* for February, 1935, Ernest W. Butterfield, Commissioner of Education for Connecticut, suggests an outline for a practical course of instruction.

The course recommended by Mr. Butterfield would give the high school student a thorough knowledge of construction, operation and maintenance, a pride in maintaining the efficiency and appearance of the car, and an appreciation of the conventions and amenities of driving.

A course in the automobile as a part of the civic curriculum offers many possibilities, for the development of character as well as the acquiring of mechanical skills.

In This Issue

HER congratulations are extended to the International Harvester Company which is celebrating its twenty-fifth anniversary of organized safety work this year. It was the splendid work of those companies which pioneered in accident prevention that laid the foundations for a National Safety Movement. (Page 11.)

Accidental deaths in the United States reached a total of 99,000 in 1934, only 500 less than the peak of 1930. This will give some idea of what may be expected when prosperity really returns—if no additional effort is made to check the increase. (Page 14.

The man who needs a complete first-aid kit to take care of an injury is not a real first-aider, says Dr. W. R. Redden of the American Red Cross. Equipment and supplies should be as complete as possible but accidents have a way of occurring when no kit is available. (Page 17.)

Good eyesight is recognized as one of the important qualifications of a safe driver. The driver's vision can be tested quickly without elaborate apparatus. (Page 19.)

Sheet metal has sharp edges but it can be handled with a minimum of hazard. (Page 21.)

Safety in the pressroom starts with die design but foremen and operators must continue the work. (Page 23.)

Days are lengthening but artificial light is needed the year 'round in most factories and offices. A simple device has replaced guesswork in determining the adequacy of illumination for any location. (Page 25.)

Driving a nail is a simple operation but you will find many a poor job of nailing in some factories. Here are some helpful instructions. (Page 27.)

The Managing Director's Page

Uncle Tom's Cabin

IF THE immortal story, "Uncle Tom's Cabin," was not considered a great literary work, it was undoubtedly the most dynamic piece of propaganda ever written, for it succeeded in revealing slavery in all its dreadfulness.

Certainly this epoch making book has plenty of flaws. As an accurate picture of conditions in the slave states it was open to question. While the author tried conscientiously to portray the good as well as the bad in human nature, the inevitable result was to foster the impression that every slave owner was a Simon Legree. Coming as it did at a time when sectional feeling in the United States was running high, "Uncle Tom's Cabin" added gasoline to a conflagration. One side was roused to righteous wrath that such conditions could exist within the nation; the other smarted under what is considered a gross libel.

And so a simple story written with an artless sincerity proved to be the greatest single influence in overthrowing a great evil. It may be argued that a terrible civil war was a heavy price to pay for hastening emancipation by a few years; that the institution of slavery was already doomed because of its economic unsoundness and because of the growth of public opinion against it throughout the world. But that is beyond the scope of our present discussion.

The great power of "Uncle Tom's Cabin" lay in its merciless flaying of the emotions. Even in this sophisticated age we are moved by the simple pathos of a story written more than eighty years ago. Great masses of people can be influenced quickly and drastically through their emotions.

The immortal safety book and the perfect safety speech are still waiting upon a Harriet Beecher Stowe. An earnest member writes: "Why permit all these boring speeches; the same old uninterpreted statistics without drama and emotion and stirring episodes. Not a drop of blood spilled!

A labor union resolution recently reached the ear and the heart of a Washington official and the dramatic story of three cruelly destroyed lives hastened a thorough investigation of 70 similar accidental deaths on a public works project. Remember, those horrible deaths might have happened on a similar work job anywhere in the world. There was a "Uncle Tom's Cabin" story in each one of them.

A brilliant insurance company executive, his mind at business, was knocked down by a speeding automobile. His leg was broken in two places, and his astute brain was smashed in. And in the fraction of a second fifty-five years of painstaking struggle and development was wiped out.

Civilization will not stop because of this tragedy, but the widow and nine children will never quite understand why reckless driving should have been permitted to end the useful career of this father and business leader.

There are a hundred thousand "Uncle Tom" stories in our country's annual death toll. Some of them are just as cruel as the murder of the Lindbergh baby. A hundred times a day some father, mother, wife or child must go through that agonizing experience when the life of a dear one is suddenly taken through an accident.

There flashes before my mind the picture of what is perhaps the most popular poster ever issued by the Council. It is entitled "The Pity of It," and dramatizes the heart-breaking moment when a father picks up the broken body of his little girl who has been run down by a thoughtless motorist. Here is drama with all the gripping heart-appeal of Uncle Tom and Little Eva.

The ravages of blood poison finally aroused industrial leaders to the danger of neglect. We need an "Uncle Tom's Cabin" story to arouse the uninformed and the indifferent in order to hasten the enactment of drivers' license legislation and a thousand and one other controls.

If all our citizens would for once just appraise the real significance of the national accident story they would rise up in indignation and demand—and secure—the laws, corrections and adjustments that are the crying need of America today. Even more important than legislation is the aroused public sentiment which would ostracize those who acts endanger others.

M. Dameron

INTERESTING ITEMS

President Roosevelt has sent a letter to the governors of all states suggesting remedial measures on automobile accidents. The services of the Council were offered to the governors and specific information was sent to twenty-five who requested help with their activities.

* * *

The preliminary edition of "Accident Facts" is published in this issue in slightly abbreviated form. Copies of this pamphlet are now available.

* * *

Reports are now coming in from hundreds of cities participating in the 1934 Inter-City Traffic Safety Contest. Entries for the 1935 contest show a 50 per cent increase over the registration for 1934.

* * *

In cooperation with the FERA, the Council is now conducting an investigation into between 4,000 and 5,000 home accident cases handled by the Cook County Hospital in Chicago.

* * *

A special study of 1934 permanent disabilities and deaths reported by members is now being made.

* * *

The Council is now working with five states on Drivers' License Laws.

* * *

Eleven thousand copies of the pamphlet, "Too long at the Wheel," have been printed and distributed.

Safety's Silver Anniversary

in the

International Harvester Company

By CARMAN T. FISH



Silver identification checks have been issued to all 25-year men. These are displayed proudly in each department.

TWENTY-FIVE years ago the International Harvester Company established accident prevention work on an organized basis. That was two years before the first Safety Congress convened in Milwaukee and three years before the establishment of the safety movement on a nation-wide scale.

There had, of course, been considerable effort directed toward the prevention of accidents for many years prior to 1910. However, these isolated, uncoordinated efforts were the work of individuals. Superintendents and foremen were keenly interested in keeping their men from getting hurt, but it was personal interest, rather than company policy.

A twenty-fifth anniversary is one of those traditional milestones from which we can look back upon the road we have traveled. So the International Harvester Company decided to celebrate its first quarter century of progress in safety during 1935. The idea of a silver anniversary was originated at McCormick Works, the largest plant of the Harvester organization, by Superintendent Frank H. Harrison.

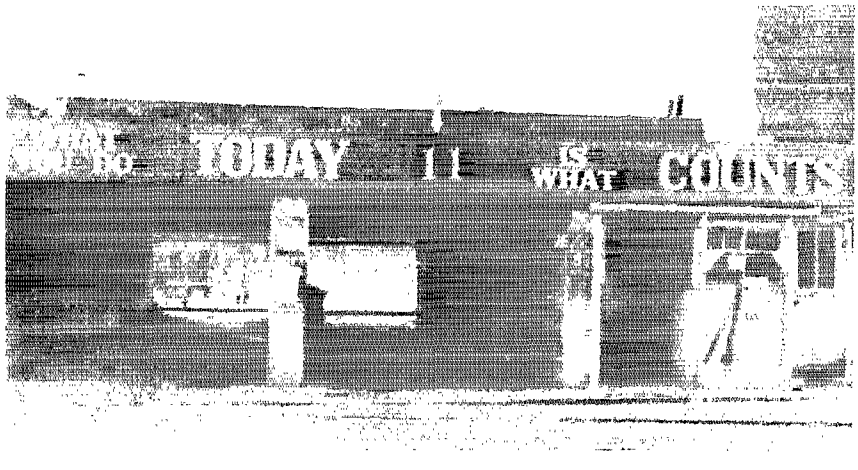
Since the International Harvester Company covers so much territory and since several of its units have previously been written up in the NATIONAL SAFETY NEWS, this story will be confined to McCormick Works.

McCormick Works, located at 15th Street and Western Avenue in Chicago, covers 125 acres. Within its gates is a representative cross section of American industry. There are foundries, malleable and gray iron; forge shops, woodworking shops, machine shops, tool rooms, pattern departments, etc., all presenting their own natural problems and hazards. During 1934 the plant operated with an average of 4,000 employees. A normal force for the plant would be approximately 6,000.

The plant has a safety department, headed by a chief safety inspector, who is also head of the fire and watch department, and an assistant. Manufacturers of new equipment are required to submit their blueprints to the safety department to be checked for mechanical safeguarding. This department also examines the drawings of jigs and tools made in the company's engineering department.

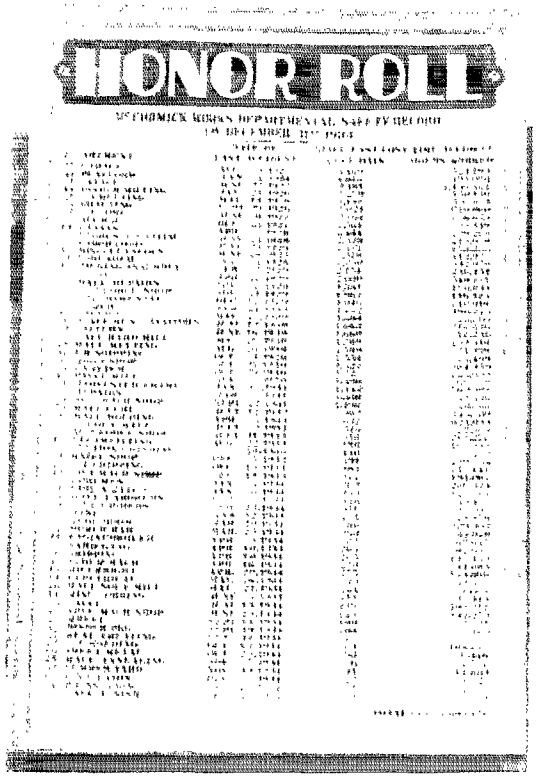
The plant safety committee is composed of members of the staff and of general department heads. It meets once a month. The main responsibilities of the committee are to make monthly inspections of the plant and to stimulate the safety interests of foremen. A bulletin is issued monthly showing the results of their inspections. This committee formulates general rules concerning safety as the result of experience gained from the monthly inspections and in the study of accidents that have actually occurred.

The International Harvester Company's plan of employee representation through works councils is widely known. McCormick Works is divided into 19 divisions and the workmen in each elect a representative to serve them on the council for one year. The management appoints its representatives to meet with them once a month. Working conditions, hours, wages, and other problems of industrial relationship are considered at these meetings and accident prevention is considered a matter of great importance.



"The number on the slate" tells the number of days since the last compensable accident. When an accident occurs the number is removed and the name of the department in which the accident occurred is substituted.

Every Harvester unit has spoken enthusiastically of the splendid service rendered to safety by these works



At each of the five plant gates the record of each department is displayed on a signboard ten feet high.

councils. They reach the men on the *job. Since each elected representative* is employed in one particular place, he has "safety deputies," one for each room where men are employed in his division. The council representative maintains close contact with his deputies.

Each safety deputy is selected by the representative in collaboration with the department foreman. His duties require him to contact all new employees in the room where he works as soon as the foreman has given the new man instructions regarding his job. The safety deputy introduces the new man to his neighbors, acquaints him with the department facilities for his comfort and convenience, and tries to make him feel at home. The deputy is also expected to observe the behavior of all employees in his room and discourage unsafe practices, such as horse play and any method of work that would endanger the employee or his fellow workers.

Flying a safety pennant at the gate has been a custom at Harvester plants *for many years.* This flag is displayed throughout the day, provided there has been no compensable accident, and the workers leaving by the plant gates feel a keen satisfaction in knowing that the flag is still flying from the staff. The slogan, "Keep the Flag Flying," has been a wonderful inspiration.

At each of the five plant *entrances is a number,* changed daily by the watchman, which tells the number of days since the last compensable accident.

The number mounts daily until an accident occurs and pulls down the safety flag. At such times employees find the number missing and in its place a sheet metal sign indicating which department suffered the accident. The next day the flag goes back and the numbers start over at number one.

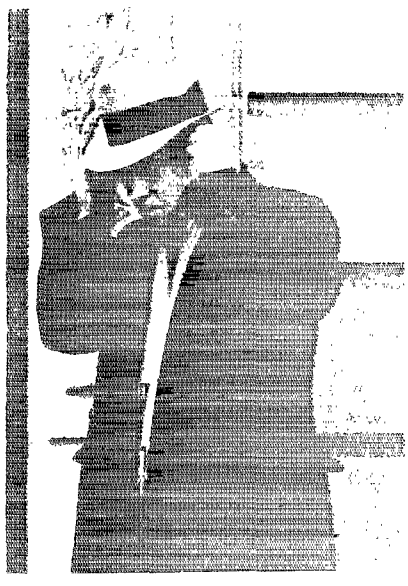
In using only compensable (seven day) injuries *instead of disabling injuries* (one involving loss of time beyond the day on which the accident occurred) the company is not minimizing the importance of the minor mishaps. This plan, it is believed, gives the plant doctor an opportunity to take care of many a borderline case by ordering the man home *for a few days where anxiety to* [illegible] the record might result in his returning to work too soon and thereby aggravating the injury. There has been excellent cooperation on the part of foremen and workers in reporting injuries and in following the doctor's instructions.

Each employee receives the printed minutes of the meetings of the works council. Safety is an important part of the program and a complete record of the discussion is printed. Also included in the minutes is the comparative safety standing of all departments which shows the hours of work since the last accident. This Honor Roll of departments is reproduced at each gate on a sign board ten feet high. When an accident occurs in a department, that department is removed from the comparative list and from these sign boards. On January 1, all departments are reinstated, according to their respective standings. Each issue of the council minutes contains also reproductions of *the weekly safety posters for the preceding month.*

Each department has a bulletin board where the weekly message from the superintendent's office is posted, along with posters received from the National Safety Council. In addition, each department has its own special bulletin board, showing the number of days since the last accident. The actual design and arrangement of these boards is left to the taste and judgment of the foreman.

Each foreman holds a safety meeting in his department at least once a week, the meeting being called at a time convenient for the department. As all departments have copies of the safety bulletin from the superintendent's office the meetings at least start out with the general subject matter supplied. The foremen are also encouraged to discuss the hazards peculiar to their departments. Works council representatives, deputies and volunteer employees take part. The safety bulletin is matched with a letter from the superintendent on the same subject, directed personally to the foreman, giving him material with which to conduct the meeting. These meetings last from ten to ten minutes.

Another method of maintaining the interest of the foreman is his daily safety inspection. A set of cards bearing the names of the respective departments is shuffled each morning and the man in charge of the reception room [illegible] to each department head daily that he is to make the fifteen-minute [illegible] section of his department [illegible] next quarter-hour. Thus the [illegible] makes his regular inspections [illegible] out time each day, and reports his findings on a special form once a week. It has been found that this has been very valuable in keeping safety [illegible]



Visitors must put on goggles before making a trip through the plant.

ground where the rush of production might divert the interest of the foreman, even though he might have the best of intentions. From experience it has been found that it is better to change the time of making the daily inspection each day than to have it at a given time when men are likely to be on their good behavior and perhaps not acting naturally.

The monthly inspection of the plant safety committee is a check on the efficiency of the foremen's daily inspections. The net result has been a much higher standard of housekeeping and more faithful use of machine guards and personal protective equipment.

Once a month all new employees hired during the preceding month are called together and given a safety talk by Superintendent Harrison to make sure that no one in the confusion of being employed has misunderstood the company's policy regarding his conduct from a safety standpoint.

To make certain that boys just employed keep out of trouble because of lack of general factory knowledge, they are entrusted to a competent mechanic for instructions. This man conducts the new boy, before he reports to his foreman, to several important departments and gives him personal coaching as to basic hazards in the various departments. It has been found that although a boy has received instructions for his own particular job, he also requires a general knowledge of what is going on in other departments. His natural curiosity might tempt him to investigate operations outside of his own particular job and get him into trouble.

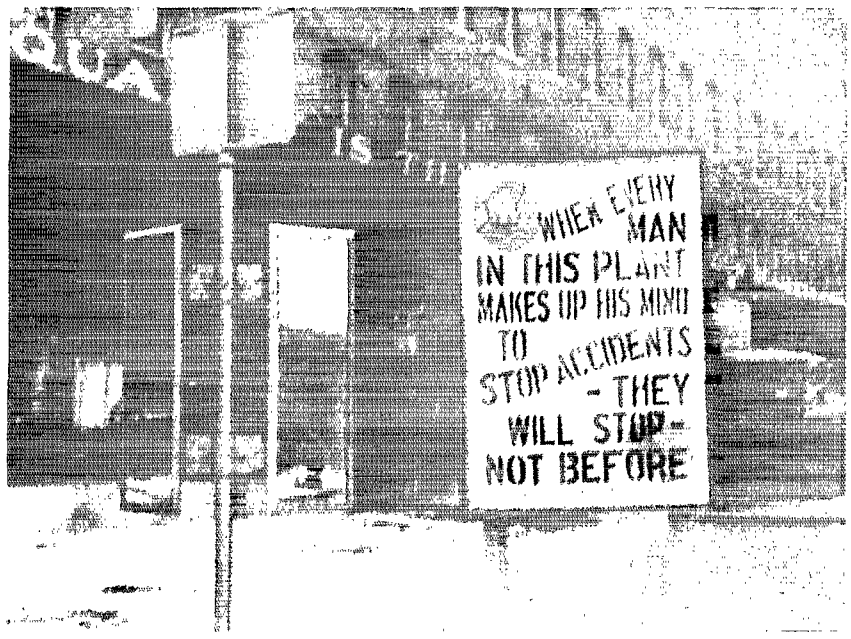
Goggles are now worn by practically 100 per cent of McCormick Works employees. After trying for several years to secure their use "where necessary," the local management finally decided to make the wearing of goggles universal. Visitors to factory departments must also wear them. I was no exception, some ten years before when visiting the Pullman Car Works I had been decorated with a pair of goggles but none of the plants visited in the intervening years had suggested this precaution.

There is no doubt but that eliminating exceptions has made it easier to secure compliance. A safety man or foreman wearing goggles where the chips may fly can insist upon their use with a much better face than if he trusted to his position for protection. The results have justified the effort. During 1934 there was not an eye lost in any of the 58 units of the International Harvester Company. A few years ago the loss of a dozen eyes would not have been considered an exceptional record in relation to the exposure.

So much for what might be called the routine safety measures. Safety, however, has not been allowed to degenerate into a perfunctory routine. The safety department, foremen, works council representatives and deputies are constantly working to prevent that, and it is hard to imagine safety going stale under Frank Harrison's supervision.

Every week two bulletins are issued from the superintendent's office. One of these is for posting on the departmental bulletin boards and the other is a letter to foremen. Both messages are on the same subject, presented differently for the two groups. These talks are based upon Mr. Harrison's thirty-five years of factory experience, twenty-five of which have been with the Harvester organization. Their effectiveness is due in no small measure to this varied experience and to the author's gift of forceful expression. The weekly messages issued during 1934, together with an outline of the safety program of McCormick Works have been published in booklet form. Some of the titles illustrate the scope of this manual of safety: Housekeeping, material handling, fire prevention, near accidents, infections, automobile hazards, heat exhaustion and heat stroke, vacation hazards and other subjects concerning the employee at work and elsewhere. These are not exhaustive essays on the subjects but they contain some thought-provoking messages and some practical suggestions.

To prepare the organization for the silver anniversary program, a series of mass meetings was held during the closing days of 1934. More than 7,000 workers and guests attended these meetings which were held in the plant warehouse on six successive nights. In addition to talks by officials of the company, professional vaudeville talent was employed.



A new home-made poster is displayed each week at the plant gates. Note the mirrors which enable vehicles entering the plant from under the viaduct can see whether the way is clear. Vehicles within the plant grounds can also see a car entering through the underpass.

In [illegible] Mr. Harrison found that 51 men and two women had been with the company since 1910. These veteran employees, who were distributed quite evenly through the various departments, were appointed members of the safety committee for 1935. Each was given a silver badge indicating that he was a "twenty-five year man," and since this label would hardly do for the two women, special badges were designed for them. Another distinction conferred upon the veterans was the issuing of silver checks to them in place of the customary brass identification checks. These are kept on a special rack in the department.

Appropriate letterheads were designed to carry the superintendent's messages for the bulletin boards and department heads. These letterheads carry a heading in silver letters against green background, three different

Please turn to page 52

Accidents Mount Sharply in 1934

This summary of the 1934 accident experience has been abstracted from the preliminary edition of "Accident Facts." Because of the completeness of the available current statistics presented here, the "Accident Barometer" page has been omitted from this issue

NINETY-NINE THOUSAND persons in the United States met death through accident in 1934. This startling total practically equals the all time high of 99,500 in 1930 and represents an increase of 8.7 per cent over the total for 1933. During the ten years ending with 1934, there were 944,174 accidental deaths.

Tentative figures for the past two years are:

	1933	1934
Total*	91,087	99,000
Motor Vehicle	31,363	35,500
Other Public	17,500	17,500
Home	30,000	33,000
Occupational	14,500	15,500

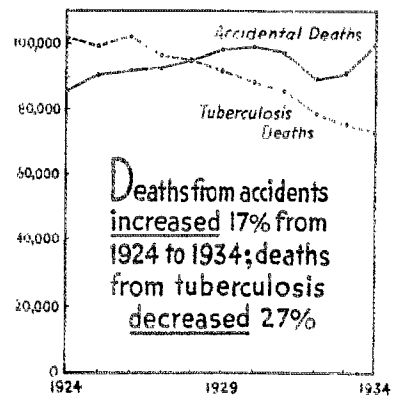
*Totals eliminate duplication of 2,500 occupational motor-vehicle deaths each year.

In 1934 accidents killed more people than respiratory tuberculosis and influenza combined. In 1933 the victims of these two diseases numbered barely 100,000, and substantial declines in both diseases have been estimated for 1934. Accidental deaths last year also outnumbered homicides 3 to 1, and suicides 2 to 1.

The 1934 increase in fatalities was nation-wide. Only one state reported fewer deaths in 1934 than in the preceding year. Most cities also had increases.

The 1934 accident rate was 78.3 deaths per 100,000 population. This is well above the 1933 rate of 72.3 and the 1925 rate of 73.4, but it is lower than the rates of many earlier years when there were fewer deaths than in 1934 but also a smaller population. The lowest accidental death rate since 1900 was reached in 1921, 68.4; the highest in 1907, 93.2.

In 1913, when the National Safety Movement was started, the accidental death rate was 97.6. Each year since then the rate has been lower than the preceding year. Were it not for the reduction [illegible] 200,000 persons who are alive today would have been killed by accident had the 1913 rate continued.



Of the total increase of 7,[illegible] accidental deaths in 1934, motor vehicle accidents were responsible for about 4,100 and excessive heat for perhaps 2,000. The remaining increase of 1,[illegible] deaths cannot be exactly classified by type of accident at present but it is likely that final figures will show increases in deaths from falls, burns and machinery. 1933 death figures for these types were: falls 21,740; burns, including conflagrations, 6,755; machinery, 1,431.

In spite of the general advance of 8.7 per cent, accidental deaths of children under 15 declined 3 per cent from 1933, according to preliminary figures. The increase amounted to 10.5 per cent among persons 15 and over. This favorable showing continues the decline in fatal accidents to children which started in 1923 and has continued each year since.

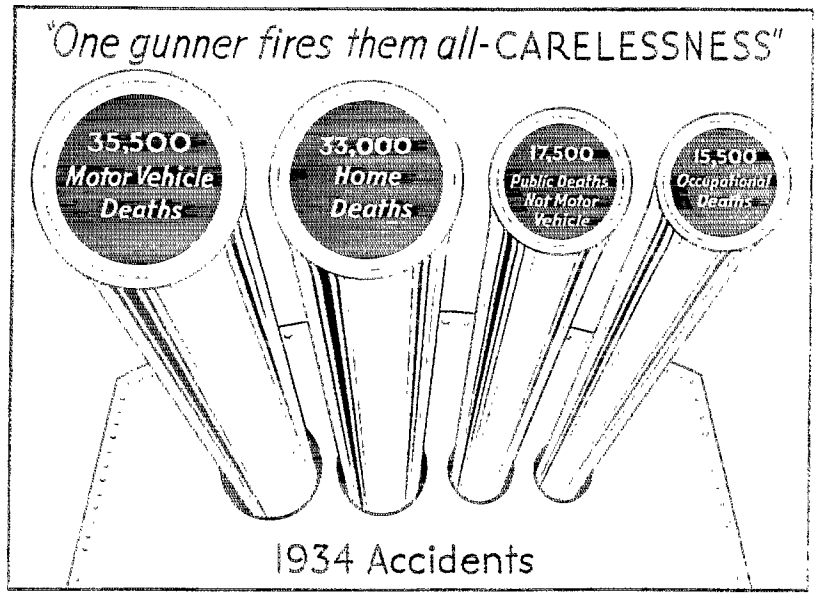
Accidents were responsible for approximately 9,500,000 disabling injuries in 1934, including deaths. The cost of these injuries—wage loss and medical expense—approximated $3,400,000,000. To this sum may be added, in round numbers, $500,000,000 for property damage in motor vehicle accidents, and $300,000,000 property losses by fires, making a total of $4,200,000,000.

Motor Vehicle Accidents

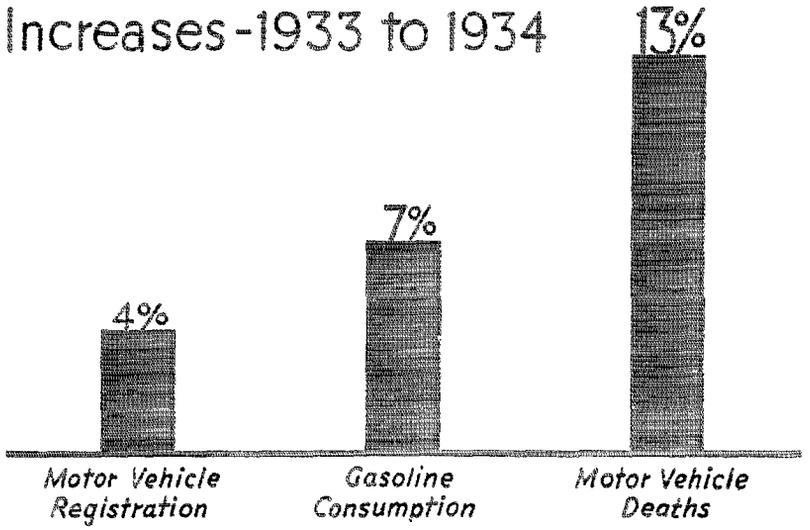
Motor-vehicle fatalities reached a total of 35,500 in 1934—more than were killed in 1922 and 1923 combined. The 1934 figure represents a 13.5 per cent advance from the total of 31,363 in 1933, and is 1,800 deaths above the previous high total of 33,673 which was reached in 1931.

All motor-vehicle death rates sharply up. The population rate (deaths per 100,000 population) advanced from 25.0 in 1933 to 28.1 in 1934; the rate per 10,000 motor vehicles registered from 15.2 to 14.3; and the rate per 10,000,000 gallons of gasoline consumption from 22.0 to 23.3.

The 1934 population rate is the highest ever recorded, twice as high as in 1922. The registration rate is highest since 1919, when the average mileage per car—and thus the [illegible]



The 1934 statistics given here are purely tentative and subject to revision on receipt of more recent information. The regular 1935 edition of "Accident Facts," with its comprehensive analysis of the accident experience of 1934, will be published in May



The increase in motor vehicle deaths is only partly explained by the increasing use of cars

to accident—was much less than at present. The gasoline consumption rate is the highest since 1927.

Rural sections of the country had the greatest increase in 1934. Preliminary estimates are that fatalities increased in cities only about 11 per cent, whereas rural areas increased at least 16 per cent. Only 18 out of 74 cities reporting cities over 100,000 population, and only 4 states, had fewer motor vehicle deaths in 1934 than in 1933.

Milwaukee has the lowest 1934 death rate of any city over 500,000, an honor held by this city for the past several years. Providence for the second successive year, has the lowest rate among cities from 250,000 to 500,000.

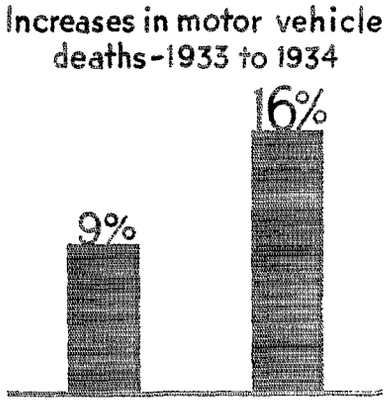
Alcohol was responsible for some of the 1934 increase in motor vehicle accidents. A nine months' study of 1934 and 1933, covering half the country, showed that "had been drinking" drivers in fatal accidents increased 20 per cent and pedestrians 33 per cent, and that in non-fatal accidents drivers under the influence of liquor increased 50 per cent and pedestrians 64 per cent. If as most authorities believe, many "had been drinking" operators and pedestrians are not so reported in

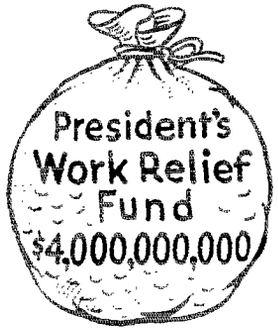
ingly shown in the 1934 figures. States with such laws had an increase of only 9 per cent in fatalities, compared with 1933, whereas states without such laws increased 16 per cent.

Pedestrian fatalities in 1934 maintained the comparatively favorable trend which has existed for the past several years. Nine months' figures for a large area show that pedestrian deaths increased only about two-thirds as much as other types of motor vehicle fatalities. Nine months' figures for highway grade-crossing accidents show a 24 per cent increase in non-fatal injuries but only a 3 per cent advance in fatalities.

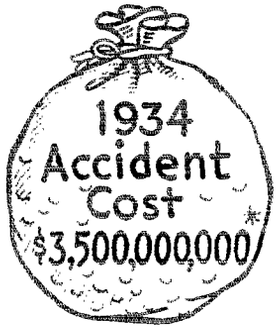
Commercial vehicle fleets reporting to the National Safety Council had fewer accidents per mile of travel in 1934 than in any previous year. The

one period of 1935. If the experience of this group of fleets accurately represents country-wide commercial vehicle operations, it will mean a continuance in 1934 of the previously existing trend





The money wasted on 1934 accidents was almost equal to President Roosevelt's special work relief fund.



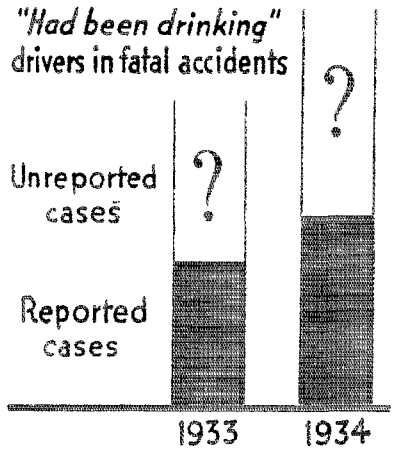
*Cost of all revenue deaths and injuries, plus property damage in motor vehicle accidents, plus property loss in fires.

for each passenger car in fatal accidents increased 40 per cent from 1927 to 1933 while commercial vehicles involved declined 9 per cent.

The total number of disabling injuries in 1934 motor vehicle accidents, including fatalities, is estimated at 1,250,000. The cost of these accidents (including wage loss, medical expense

Occupational Accidents

Increases in employment during 1934 brought corresponding increases in deaths from occupational accidents. According to present information the year's total of these fatalities is about 15,500, a gain over 1933 of 1,000 deaths



Drivers in fatal accidents reported as "had been drinking" increased 29 per cent in 1934. There were many unreported cases both years.

or 7 per cent. Accidental deaths reported to Industrial Commissions in 21 states show this much advance. The Industrial Commission totals given below are of interest in showing some of the geographical distribution of the change from 1933 to 1934.

	1934	1933	Per Cent Change
Alabama	66	64	+3.1
California	659	610	+8.0
Idaho	65	47	+[illegible]
Illinois	445	447	−0.4
Indiana	94	102	10.8
Kansas	61	67	9.0
Kentucky	139	98	+41.8
Maine	28	24	+16.7
Maryland	150	105	+42.9
Massachusetts	361	294	+22.8
Michigan (11 mos.)	147	148	−0.7
Minnesota	152	151	−0.7
Missouri	65	72	−9.7
New Jersey	225	197	+14.2
New York	1,294	1,301	−0.5
Ohio	958	907	+5.6
Pennsylvania	1,127	1,043	+8.1
Tennessee	105	91	+15.4
Texas	340	326	4.3
Virginia	165	134	+23.1
Wisconsin	127	110	+15.5
Totals	6,[illegible]0	6,328	−7.0

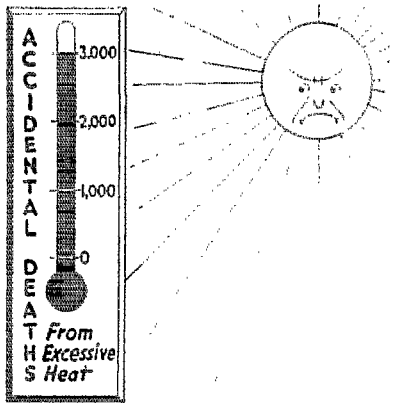
(State figures are not comparable with each other due to differences in population, industries and compensation laws.)

Increased exposure resulting from more employment is not the only factor involved in the 1934 advance of fatal and non-fatal occupational accidents, however, for records of plants reporting to community safety councils show that the injury frequency rate rose 14 per cent over 1933 and the severity rate went up 37 per cent. Also, plants in three sectional contests conducted by the National Safety Council show an increase in the frequency rate of 6 per cent. Evidently men who have been out of work for some time and who are now coming back to their jobs have not yet reacquired their safety habits.

The cost of the 1,350,000 occupational deaths and injuries occurring in 1934 is now estimated at $590,000,000, or $40,000,000 above the total for 1933. This figure consists of wage loss, medical expense, and the overhead cost of insurance.

Home Accidents

The home accident fatality total for 1934 is estimated at 33,000, an increase of 3,000 over the number that occurred in 1933. This is the highest figure since the National Safety Council



The record breaking summer of 1934 was responsible for at least 2,000 more heat deaths than occurred in 1933.

started making estimates of home deaths. The large increase comes mainly from one type of accidental death—those caused by excessive heat. It is at present estimated that perhaps [illegible] of the advance comes from this source. If the summer of 1935 is about normal, the year's total of home deaths will drop back to about 31,[illegible]—perhaps somewhat lower—without any other change in the accident picture.

The home total is heavily loaded with these excessive heat deaths because they occur most frequently to persons 65 years old or older. For the same reason the number of home deaths from falls is large, numbering as many as 12,000 to 14,000 during the past several years. On the other hand, the importance of conflagrations, burns, and explosions in the home total is due in part to the frequency of such fatal accidents to children. In 1932 these deaths numbered 5,700, of which 1,950 were children under 5 years of age. Deaths of this type for persons over 64 years old totaled only 1,050.

The estimated total of deaths and non-fatal injuries in homes for 1934 is 4,800,000, and the wage losses, medical expense, and overhead cost of insurance amount to $600,000,000.

Public Accidents
(Not Motor Vehicle)

Deaths from public accidents not involving motor vehicles probably totaled about 17,500 in 1934, the same number as occurred in 1933. This estimate is based on reports from cities and states with 34,000,000 population and is subject to change when more information becomes available.

None of the various classes of these public accidents appears to have experienced any great change in 1934, but there were more excessive heat fatalities, the increase perhaps amounting to [illegible] or 300. Partially offsetting this is a probable decrease of more than 100 in non-employee deaths on steam railroads. There are no records indicating any large fluctuations in public deaths from falls, drownings, or firearms accidents—which, combined usually cause more than half of all deaths in the public (not motor vehicle) classification.

The 1934 deaths and non-fatal injuries resulting from these accidents are estimated to total 2,1[illegible]. The wage

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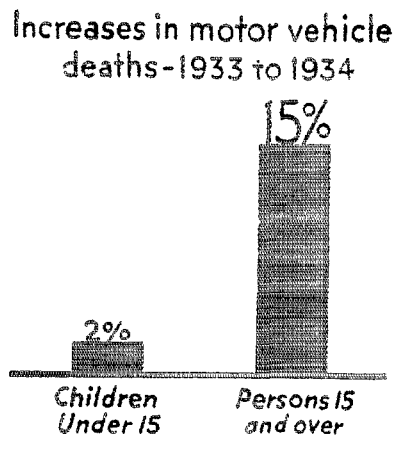


After a continuous decline from 1929 to 1933, fatal accidents to children increased slightly in 1934.

The First Thirty Minutes

First aid following an injury is often the most important phase of the total treatment

MANY people die of mental sclerosis long before arteriosclerosis sets in, raises the blood pressure, bursts an artery, and rings down the curtain on life. Fixed ideas begin early in life, and their accumulation creates one of the greatest barriers to progress.

I know of a number of men who still use a set of seven old-fashioned razors, one for each day, instead of using the modern safety razor which is just as effective and far safer.

I know of a business man who sticks to the steel pen and inkwell because he will not take the trouble to investigate the convenience of the fountain pen.

There are still many industries which do not realize the help which first aid training can give to the safety program. For some reason they have developed a fixed idea about first aid and no new idea can gain admission.

However, industrial groups that have actually tried first aid training know that it is one of the best available devices in safety [illegible] and that properly administered first aid on the spot reduces lost time and the cost of injuries.

The [illegible] the injured worker [illegible] first aid is to supply adequate trained first aiders [illegible] first aid kits. Experience has [illegible] furnished with uniform sized packages planned in variety and quantity to meet the needs of the particular industry, are most economical, easiest to handle and most [illegible]. This form of unit kit is readily obtainable from supply houses.

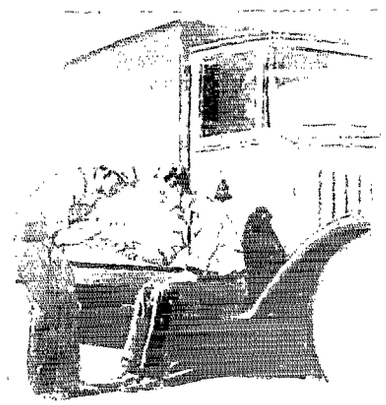
What are [illegible] noted from the handling of the injured worker by the trained first aider with a kit?

Infections among injured employees have been reduced so strikingly that the cost of training and first aid equipment have been reduced [illegible] the [illegible] example, during [illegible] New York [illegible] infected cases among employees in the field who were often far removed from medical service. During the past ten years trained men have carried first aid kits, and only two or three cases of infection have occurred over periods of three years. This report covers groups of workers whose work takes them far afield and on jobs which result in numerous injuries that break the skin.

The recent experience of the United States Leather Company in the reduction of infections is one for the book. Up to about three years ago, none of the plants had regular medical service. Then the company developed a program of first-aid training throughout the plants. Equipment was purchased, first aid rooms established, and the most competent first aiders placed in charge.

During a recent month one plant reported the treatment of 1,800 injuries that broke the skin without a single infection. This happened in a plant which formerly had such a high rate of infected injuries that the insurance company made it clear that something must be done to clear up the situation.

It is clear that with sterile dressings, a safe antiseptic and the proper application of both at the time of injury, infections can be reduced to the vanishing point, even in a tannery where infections are the most common type of injury.



By W. R. REDDEN, M.D.

Director, First Aid Service, New York Chapter American Red Cross

Now let us turn to the problem of handling the injured worker with improvised equipment.

"When is a first aider not a first aider?" calls for only one answer: "When he has to have a first aid kit to handle the injured."

Ingenuity May Save a Life

Every employer should be as much concerned about injuries that happen to his employees "after the whistle blows" as before the day's work is done, for the loss of a worker, irrespective of the time and place, is still a loss which requires readjustment to keep the machinery running efficiently. But, employees do not carry first aid kits in their hip pockets, hence most extra-industrial injuries must be handled without formal first aid equipment. Nor is the problem limited to the after-work phase, for accidents in the shops happen frequently when no first aid equipment is at hand. Therefore, the life of the injured worker may depend upon the ingenuity of the first aider.

Let us consider a few types of injury that can be handled without equipment:

The injured worker has severe bleeding which may kill or may increase shock which turns the tide in favor of death. Any first aider knows that he can plug the wound and apply pressure to stop bleeding, if it can be stopped by first aid methods. He also knows that on the head and the extremities there are places along the main arterial lines at which he can stop bleeding by manual pressure without using a tourniquet. If a tourniquet is needed he uses a belt, a necktie, a woman's stocking, or any other article of clothing which can be torn into strips long enough to encircle the arm, leg or head.

The problem of fractures is readily handled on the arm, wrist and ankle by the use of the ordinary wire coat hanger applied with pieces of shirt, ties, garters or stockings. The broom handle, [illegible] handle or carpet sweeper handle all make excellent splints for broken legs; and the ironing board can not be beaten for handling a person with a spine injury.



First aiders develop remarkable ingenuity in using available material in emergencies. These miners are making splints for a spine injury.

for it acts, not only as a splint for the back but also as a stretcher. A Western Union safety engineer declared to me recently, that the coat hanger splint gave him the best idea he had had about improvised splints among employees of his company, for, said he, "Our line men always have plenty of wire with them and it is a simple matter for them to do a bang-up job with wire in case of a fracture."

Broken ribs simply require compression of the whole chest, which is readily accomplished by tightening up the vest or shirt of the injured person by pinning tucks in these, either in back or at the sides, as the victim exhales.

A broken jaw needs only a garter and a tie, or two bits of shirt to hold the jaw shut.

Slings for injured arms are improvised readily. The coat sleeve, the shirt sleeve, or waist sleeve is pinned to the material on the opposite side, high up on the chest, or the hand is inserted above the last button of the coat, vest or shirt.

Bandages for use in the application of dressings to large areas, such as the chest, lower trunk and arms, are easily made by using the underwear where it is, but applied more firmly by taking in tucks at the sides or at other favorable places. The shirt sleeve is the easiest bandage to apply over a dressing for the arm, just as a woman's stocking is the best sort of bandage to hold a dressing on the whole leg. A man's sock does nicely for a foot and lower leg or ankle bandage.

Tourniquets are easily made [illegible] garters, suspenders and belts, to say nothing of a woman's stocking which has length, strength and flexibility.

Get away from the idea that bandages must be white. Any material may be used. For dressings, clean handkerchiefs are safe. Above all things, don't fool yourself into thinking that you can make any cloth more sterile by flaming it, as is suggested by some first aiders.

If you have available a flat iron, say, in the home, the quickest way to get a safe dressing is to wet a cloth in tap water, then iron it as you would a handkerchief. Again, the color makes no difference.

For handling small puncture wounds, simply force the wound to bleed by a milking pressure toward the wound. This will force the blood from the wound, and even if there is only one drop of blood it is worth more than anything you put on the outside, for the blood is the only thing on the inside pushing out. Put no dressing or antiseptic on a puncture wound, for there [illegible] there since the injured part has closed down, or has filled with blood and injured cells.

A Lesson from the War

Large materials thrust into the body—head, chest, abdomen, legs, arms and feet—should be left in place for the physician to remove, for the knife, large splinter, spike, or other material acts as a plug to prevent bleeding.

In like manner a real first aider should be able to handle any emergency with improvised equipment.

Before closing, I shall present a new first aid approach to handling fractures [illegible] the thigh.

In [illegible] Surgeon General Ireland, of the United States Army, told me that during the World War our soldiers were dying at the rate of about 75 percent, among those with fractures of the leg.

Reason: bleeding and shock from increased pain as simple fractures were compounded when the victims were bounced in ambulances as they hurried to the dressing stations and more remote hospitals! Then General Ireland secured the best fracture surgeon he could find in the country, put him in charge of training one thousand picked laymen in the application of just one splint: the Thomas splint developed by a British surgeon at the time of the Franco-Prussian War.

Result: When these trained [illegible] began to do their stuff among the wounded American troops, mortality from fractured legs was reduced from 75 per cent to 12 per cent—an accomplishment to be proud of in any phase of treatment.

When I related this to a British medical officer, he gave me the figure for the British Army as follows: before the use of the Thomas splint, mortality for leg fractures was 82 per cent, but after the trained laymen got busy this was reduced to 12 per cent.

Now, the American College of Surgeons has developed a splendidly coordinated Fracture Committee with national director and local committees in all the important cities. Their chief function is to teach the general practitioner the most modern methods of handling fractures, and to devise methods for giving the best immediate treatment to people with fractures.

Already every ambulance in New York City is equipped with Thomas splints, and internes and ambulance attendants are trained in their application at the scene of the accident, instead of waiting until the victim reaches the hospital.

Object: There are two things [illegible] tial in the immediate treatment of a fracture: fixation or immobilization and extension of traction. Traction is the most important [illegible] aider can give within the first thirty minutes, for traction relieves pressure of fractured bones on soft tissues and thereby reduces pain.

A well-known surgeon in New York has repeatedly told us that the treatment of a fracture within the first thirty minutes constitutes the most important phase of the total treatment.

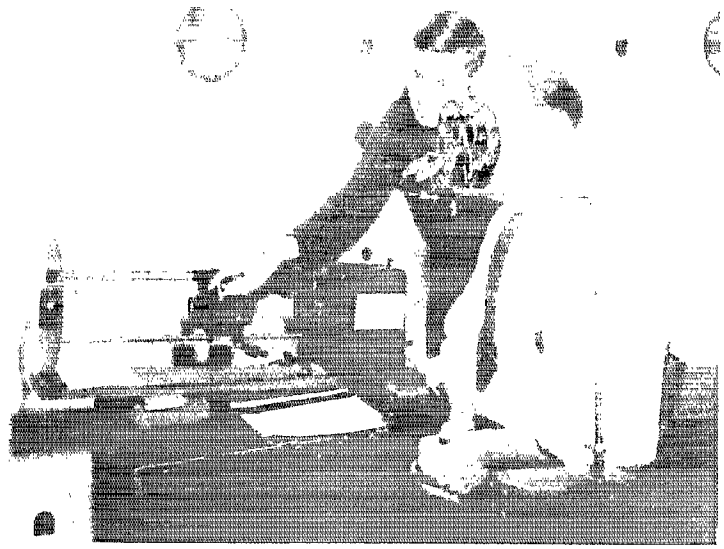
Learn what to do in an emergency. Learn how to use formal first aid equipment! Then [illegible] the use of anything at hand in the [illegible] ment of all types [illegible] *real first aid.*

How Well Can the Driver See?

By ALVHH R. LAUER, Ph.D.

Associate Professor of Psychology, Iowa State College, Ames, Iowa

The driver with seriously defective vision is generally regarded as a highway menace. This article describes the more common types of visual defects and the possibilities of each for causing accidents



Quick tests of vision are possible with the acuity meter shown in the above illustration. A simplified procedure is used.

NUMEROUS possibilities of relationship between vision, observation, and driving are apparent when one goes into the problem. It is obvious that a given amount of vision is necessary to successful manipulation of a motor vehicle in traffic. The question arises as to the relative importance of the factors involved. To make this more succinct we may crystallize the problems into briefer form. They are resolved into two general questions as follows:

A. Is defective vision directly responsible for certain accidents?

B. Is defective vision indirectly responsible for inefficient driving which leads to accidents?

Under each heading several kinds of defects may be suggested with possibilities of each for causing accidents. Experimental data are given.

Visual Defects Directly Affecting Driving

Low acuity in both eyes. The driver fails to observe the obvious things in driving: runs down a pedestrian, knocks over a safety zone marker, runs into an open sewer excavation in the street, ploughs headlong into a double parked car, or runs off the roadway at a curve.

It is clear that such accidents rarely occur. One who knows he has very poor vision will usually exercise a great deal of caution and not take chances. A few cases of drivers with 10 per cent vision have been discovered on the highway. While a hazard, they usually do not often have such mishaps as described above. However this does not tell the whole story. Indirect causes will be discussed under the next section. It does seem that a reasonable amount of farsightedness may be beneficial to driving. Nearsightedness and astigmatism are likely to be detrimental.

Low acuity in one eye. It is often argued that 20-20 or normal vision in one eye is adequate for safe driving. This seems reasonable at first thought. However two facts remain which override the common sense point of view.

First, when one eye is noticeably weak the functional vision often shifts to the better eye resulting in marked ocular dominance. Under such conditions the poor eye is very likely to become functionally blind for periods of time. This is a psychological condition similar to that commonly observed in the failure to notice a clock ticking in the room. We do not see or hear everything which is presented to us. We are as absent-minded professors at times.

Second, the weakness of one eye definitely limits the field of vision. With two eyes we encompass a visual scope of 180 to 200 degrees. With one eye we can see through but 135 to 155 degrees. A vehicle creeping up at the side may easily be overlooked especially if it approaches on the left side of the driver.

A Dangerous Defect

Narrowed field of vision. For reasons indicated above this condition is particularly dangerous. Wide variations are found between persons. Some see through a very narrow angle while others see more than [illegible] degrees. It appears that training in some way widens the field. Taxicab drivers and football players have been found to have a much wider field of vision than the average person. Careful measurement of the visual field and consequent training may improve such deficiencies somewhat. Knowledge of a limited field may cause a driver to be more careful and turn his head when in doubt.

Muscular imbalance, including the condition of [illegible] turning [illegible] the tendency of the eyes to turn away from [illegible]. In conditions of actual turning the person is usually strongly

[illegible] the Highway [illegible] optometric association.

dominant eyed. One eye will focus while the other will gradually become amblyopic or functionally blind. Otherwise double images would result which would prove quite disastrous in many situations.

When the eyes merely tend to turn the danger is only periodic. In cases of 4 or more degrees of phoria the eyes are likely to lose fusion when fatigued or in low illumination. The writer's wife declared she saw cars abreast when returning home one night after a fatiguing day. She has about 3 degrees of exophoria. It is easy to see how such conditions would be disturbing to a driver and therefore be a potential source of trouble.

Color vision. A small percentage of color-blind persons—much less than one per cent of all drivers—will confuse red and green stop lights. The tests for color vision of aviators and army recruits is much too rigid. However color-blindness is a source of danger and all drivers should know their conditions in this respect.

Night-blindness and photophobia. Some person's vision drops off decidedly in low illumination. Their eyes seem insensible to the longer wave lengths of the red rays. These persons are at a definite handicap after dark but may have normal vision in daylight.

Photophobia is a condition of extreme sensitivity to light. A student in my classes the other day could not stand a lighted candle held up to the blackboard in a room lighted to some 3 or 6 foot candles of daylight. Such persons are at a great disadvantage when meeting car lights at night.

Holes or spots in vision. These are technically known as negative and positive scotoma. The negative is merely an area of the retina having no vision. The subject often does not know the condition exists. Any object present in the field from which light impinges upon this area of the retina is not visible.

Positive scotoma are permanent spots or obstructions in vision—similar to the black nebulae in the heavens. They obscure anything behind them.

There are some other visual conditions which may affect driving directly but the above are most frequently found.

Indirect Effects

[illegible] pointed out before the direct effect of poor vision tells only a part of the story. The following conditions may accompany strain brought on by low acuity and therby affect neuromuscular activity.

1. A correlation of +.2664 found between visual acuity and glare indicates a tendency for persons with poor vision to be afflicted with mild photophobia or susceptible to disturbance by light.

2. Perceptual capacity correlates +.2054 with measures of acuity indicating a tendency for those with better vision to see much more accurately at a glance of the order of 1/10 of a second duration. (105 signal.)

3. Drivers with low acuity in a standard driving performance test made more mistakes in missing signs, etc. The correlation [illegible].

4. Low efficiency of vision increases [illegible] in distance perceptions enormously. [illegible] per cent the error of judgment is more than doubled. [illegible] per [illegible] hundred per cent. This means that [illegible] on the road with poor vision will gross [illegible] calculate distance of approaching cars. [illegible] in passing are known to be of frequent [illegible]. Cutting-in alone is responsible [illegible] heavy proportion of accidents.

5. Nervousness is known to be [illegible] with poor vision. Lack of confidence [illegible] to results in a certain percentage [illegible] to psychological causes alone. The effect cannot be easily measured but it is constantly observed by experimenters.

6. More rapid onset of fatigue is [illegible] with nervous conditions. The latter will induce eye strain and a vicious circle is set up.

While there [illegible] between visual acuity and size of the visual field, it is unsafe to generalize vision in the macular with that found in the paramacular [illegible]. Acuity drops very rapidly as the distance from the fovea increases. There is [illegible] drops more rapidly [illegible] restricted field although we do not have experimental proof of this fact.

[illegible] increases the rate of fatigue. In [illegible] the [illegible] the time and an excess [illegible] him.

10. In a similar way such defects [illegible] blindness, scotoma, narrowed field, [illegible] of vision produce strain and [illegible]. In persons of certain [illegible] will greatly influence their [illegible]. Witness the effect of stage fright upon [illegible] of certain musicians [illegible].

This paper is based upon a technical article published in the *Journal of Applied Psychology* for June [illegible], Volume 18, No. [illegible], pages 422-431, under the heading "Automotive Manipulation in Relation to Vision." It is entirely rewritten in a non-technical way with supplementary information gathered since the article went to press. In general the studies made suggest the need for a more complete yet relatively short visual examination as a screen for sorting out [illegible]. Their condition should be noted on the driver's license, in order that they may be held responsible for their performance.

Supervision Teaches by Precept and Example

By A. D. BYLER

Vice-President and General Manager, [illegible] General Electric Appliance Co., Chicago

PERHAPS an approach to the underlying causes of accidents may be made by giving thought to the attitude of mind of the worker, varying from alert to inert, and from attentive to thoughtless—from an active interest in what he is doing to a dreamy reverie, [illegible] night's party to tomorrow [illegible] on the family debt [illegible] to an itchy nose, from the hope [illegible] raise to the fear of the loss of his [illegible].

Hopes, fears, likes and dislikes [illegible] reds, jealousies, envies, ambitions [illegible] of duty and loyalty, all struggle [illegible] place in his mind.

Someone has aptly said that the safety device is a careful man—[illegible] can we have careful men?

Let us grant at the outset that a [illegible] is equipped with all reasonable safety devices. You must still deal with the human factor, the same weaknesses which [illegible] bath tub, cellar stair [illegible] accidents, worries, absent-mindedness, lack of judgment, awkwardness [illegible] have-you.

Supervision cannot rectify [illegible] herent human faults which lead [illegible] dents but supervision can [illegible] foresee their possible [illegible] certain courses are followed [illegible] sion can educate by precept [illegible] by kind words of [illegible] marked extent by suggestion [illegible] the worker may not be who's [illegible].

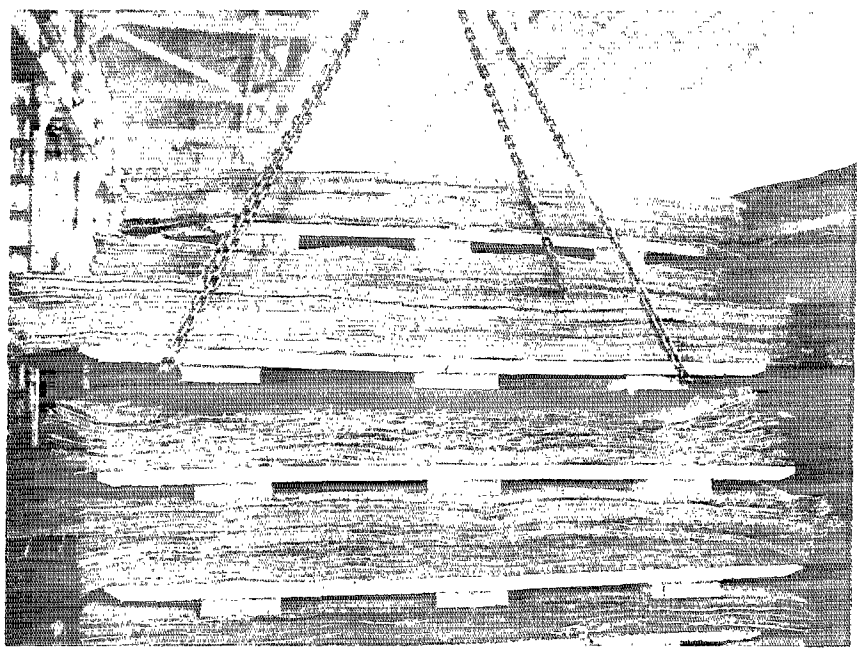
In the South we have [illegible] groes singing at their work [illegible] very rhythm of the song [illegible] the hoe was raised and when [illegible] the ground. This developed [illegible] which, though possibly not efficient, at least of such uniformity [illegible] wholly dependable—thus the minds [illegible] muscles were coordinated. [illegible] mind is usually a happy mind imparting to the muscles a rhythm free from [illegible] nervous twitches and spasms as are [illegible] disastrous. The foreman who can [illegible] his worker to create and maintain happy mind has made his first [illegible] step in creating that best of all safety devices—a careful man. Then consider the [illegible] which conscious or sub-conscious safety mindedness may be imparted [illegible] worker.

Sheet Metal Has Sharp Edges

By GEORGE S. THOMPSON

Gnau & Co., Detroit, Mich.

Safety in handling sheet metal is a problem involving both equipment and space



Skids are a necessity in handling sheet metal. At the lower left corner is part of the angle iron which guards the sharp corners.

AFTER contacting twenty manufacturing concerns which use large quantities of sheet metal in their operations, I have come to the conclusion that little consideration to the handling and piling of this material by many companies.

What are the elements involved?

First, we must have space. I have found material stored everywhere. It used to be common practice for the manufacturer to order 25,000 or 50,000 tons of sheet metal and release as needed. Now the steel company does not care to hold the bag, and if the purchaser is to get the price, he must take the stock when it is finished by the mill. This means that he must provide the space to store this material.

Second, we must have equipment for handling the stock. This consists of a crane or some other type of hoist, with the required fittings, such as chains, cables, frames, etc.

Our troubles, however, have just begun. We must not only provide space and equipment, but we must also subdivide our material, for if we are to have uniformity of methods we cannot afford to have equipment for one size of stock and not for another. So we must provide for stock received in bundles, which is shop practice in the steel mill. We must again subdivide as we find some bundles are fitted with skids and some are not. We again encounter difficulties as some stock is narrow and some is wide; some is long and some short. We must also handle narrow stock put up in bundles. If I gave this type of material its shop name it would not look well in print.

However, what can't be cured must be endured, so let us establish an arbitrary division. Thirty inches or less we will call narrow; 36 inches or more we will call wide.

Space should be light, with an even floor. A good concrete floor is preferred. Hardwood over concrete is good but reinforced concrete is better.

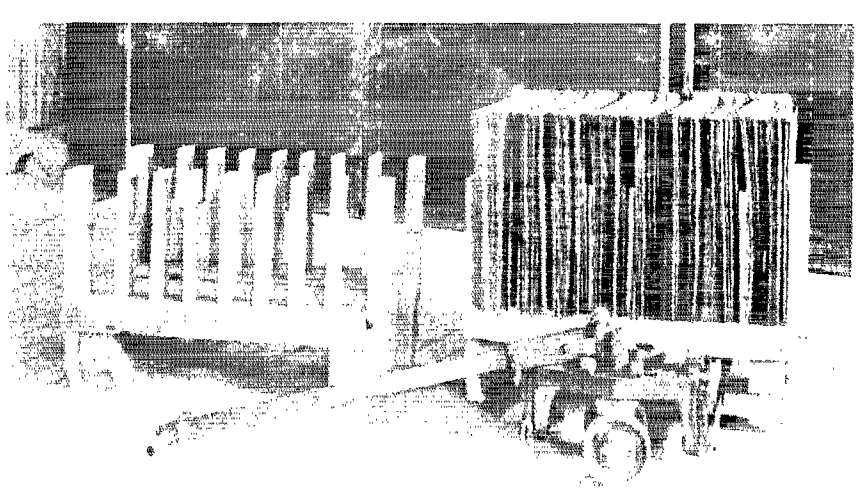
For equipment an overhead crane is usually best. We can use a hoist and cram car, or, if we must, a factory tractor or highlow. But to my mind, the most important factor is the appliance used for contacting the load. These may be divided into three types:

Rigid—frames and lazy hinges.

Semi-rigid—beams and hooks, which are commonly used in steel mills.

Flexible—chains, cables, straps or a combination of these.

It has been found that all of the above have failed at some time or other.



For small sheets of metal this lift truck platform has proved convenient.



Several men had been cut on the corners of the metal sheets before a foreman found the remedy. Portable corner guards of wood that could be wedged in offered a satisfactory solution of the problem.

so I present what I consider a happy medium. That is chains for unloading from box car or gondola and a combination of a hook with a spreader bar and chains for handling loose sheets. I have found that while cables, both single and braided, have their place and are made for their purpose, the severe bend that is ever present and the strain imparted at the corner of the bundle is conducive to crystallization of the strands in the cable and failure may occur.

In using chains the links provide a hinge action. The rod from which the link is made is heat treated and made to stand severe usage. If we use ordinary precautions in the application of our hoist, we have a reasonable factor of safety present.

Inasmuch as there seem to be no set standards of height established I suggest that bundles if skidded be stacked four bundles high, assuming that the bundles are at least 24 inches high over all. If they are not skidded and are approximately 24 inches high, five bundles would be safe. This does not apply to loose sheets, particularly when they have been oiled. Such material presents a different hazard.

Now we must consider aisles, spacing and cross spacing. We are going to put this material into production and the bundles are going to be opened, not on the ground but on top of the stack, and we must provide a safe amount of space in which the men can operate. That means main aisles not less than four feet wide, with intercepting aisles and back aisles three feet wide. Three feet will give a man enough space to work freely, also a chance to get away from a falling stack.

Solid stacking is to be looked upon with distavor. It may be inevitable at times, but it should be avoided wherever possible.

What are we going to do with open bundles and loose stock, I suggest that these be stacked with spacer bars for every twelve inches of height. These spacers should be placed one in the center and one for every three feet measuring from the center. Piles or stacks should not be more than four feet high.

If stacks are secure, men can work much more efficiently. Also, if we use the chains and hooks with a spreader bar, paced stacks are very easy to get at to move either full bundles or parts of bundles.

When loose sheets are transported on a truck or trailer, they should be chained to the body of the vehicle. Log chains are cheap; much cheaper than broken legs and lacerated feet and hands.

The man who is the life of the party at midnight is usually a pain in the neck at nine o'clock the next morning.

Propose Color Code for Industrial Machines

A STANDARD code of nine colors to prevent accidents in the use of machine tools has been devised in England and proposed for international adoption, according to *The Week in Science*. The idea is, for example, that all hand levers controlling the power supply shall be painted gray and marked with the symbol of an elephant feeding. Stop and start levers are to be painted red and marked with a symbol like the stop and start arms of a railway signal.

Levers that change the feed of raw material into the machine are to be painted a mottled green; those which change the speed, a mottled orange. The locking lever is to be painted brown and carry the symbol of a padlock. The reversing lever will be blue and carry an arrow showing the direction of reverse. All levers controlling screw-cutting operations are to be painted mauve and to bear the symbol of a screw thread. Levers which control the shift of the machine by hand will be black, with a painted hand as symbol. Quick action levers intended to make similar shifts electrically or mechanically are to be painted cream color and will carry the image of a flying bird to indicate the speedy action.

Advocates of this color and symbol code claim that it will prevent many accidents due to wrong use of levers, that it will facilitate the instruction of new workers in the operation of the machine. This system can be readily understood by those who cannot read.

An Automobile May Skid in Five Ways

AUTOMOBILES are subject to five types of skidding. In a report the Chicago Motor Club they are listed as follows:

1. The [illegible] most common, caused by [illegible] application of the brakes.

2. The steering skid, whereby the car is guided either incompetently or carelessly, causing the back of the car to swing around to the front.

3. The power skid, caused by too much engine speed which results in spinning wheels without normal traction.

4. The traction skid, resulting from smooth tires on oily or icy roads.

5. The mis-alignment skid, which is often overlooked, caused by cars driven with wheels out of line.

Safety Starts with Die Design

By GEORGE KOCH

Chief Die Designer, The Murray Corporation of America, Detroit

Instructions to operators do not accomplish very much if the designer does not realize his responsibility for the protection of his fellow workers

WHEN we look back even ten years we can appreciate the progress made in the designing of safe dies. The old idea was merely to produce a die that would make a panel. If it did that, it fulfilled its purpose. Lost fingers and crushed hands were regarded as inevitable in the production run and no special effort was made to analyze the causes of these accidents.

Little attention was paid to safety in the drafting room until it was realized that the enormous yearly accident losses could be reduced by stimulating safety consciousness in the designing department. Management was astonished to find the benefits that could be derived at small cost if safety was included in the design.

A well-designed die must include safety for the press operator as well as sound mechanical principles. If we fail to make the designer realize that his responsibility includes consideration for his fellow workers as well as technical elements, all our instructions to the operators will not accomplish very much.

In the accompanying sketches are illustrated some of the safety features which have been incorporated in die design by The Murray Corporation.

CHAIN SLOTS. With the present system of conveying dies overhead, there must be a way of handling the equipment so there will be no possibility of a die slipping through a chain. We put 2x4 chain slots in each corner of all dies large enough to carry them. By the use of these slots the die is always boxed in on three sides. Some authorities consider a fence sufficient but experience has shown that the chain slots provide a far more reliable protection. For example, if one chain should break, the die will be retained in the air until it can be lowered in safety.

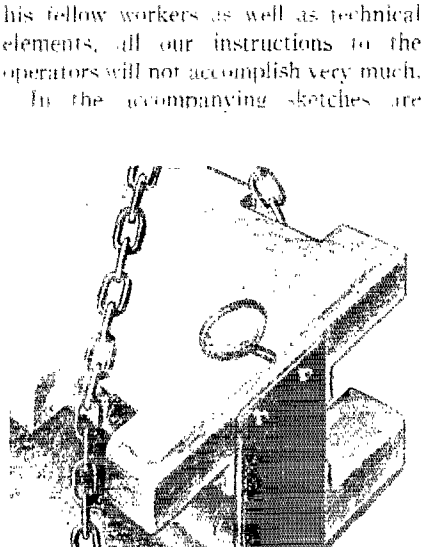


Fig. 1. Chain slots in each corner of all large dies provide a safe means of carrying them.

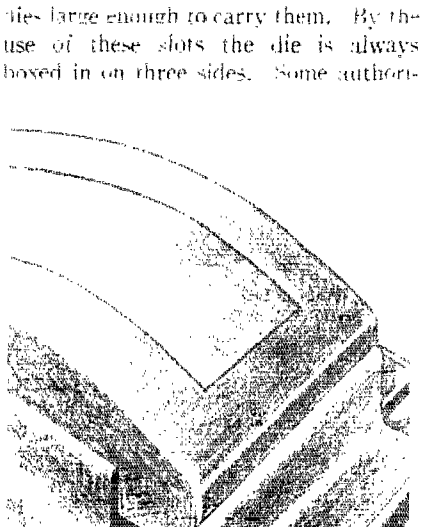


Fig. 2. Enclosing pads with sheet metal or iron guards prevents crushed fingers and also prevents dirt from entering between guard and shoe.

In addition to this safety feature the chain slots increase the life of the handling equipment since the rounded corners do not tend to crack or fracture a chain or rope.

CLOSED PADS. Many a finger has been crushed when an operator riding a pad did not realize until too late that the pad bottomed or closed up. All of our pads are enclosed with sheet metal or iron guards. These guards not only prevent crushed fingers but they also prevent dirt from entering between the pad and the shoe, thus avoiding breakage of the die.

GUIDE PINS. The guarding of guide pins has always been a problem for which we have welcomed suggestions. If a die were to run in one particular press, the problem would be comparatively simple. But since our dies must be made flexible enough to run in all types of press with strokes varying from six to sixteen inches we have a much more serious problem confronting us. At present we are using a method that is actually a modification of the guards used on railroads for signals.

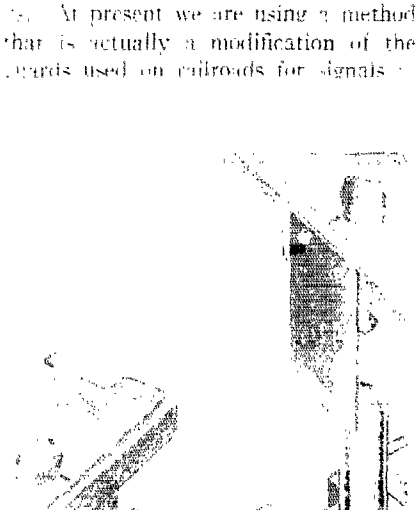


Fig. 3. Leather guards attached to the upper pin boss warn the operator if he should have his hand between the guide pin and the bushing.

brakemen at the approach to a low bridge. These leather guards are attached to the upper pin boss, and extend far enough down to warn an operator with a sharp blow in case he has his hand between the guide pin and the bushing.

We also maintain a minimum clearance of [illegible] inches between the upper and lower guide pin bosses, and wherever possible between the male and female die. Not many years ago we ignored this particular feature of clearances on all surfaces but now we insist on it. In some cases, however, such as the binder ring of a draw die, this is impossible as the die must close to grip the metal.

In Figure 4 we have two applications of spring returns for cam slides. The upper one shows a method very commonly used a few years ago. It consists of a compression spring acting through a rod which is fastened to the cam slide block. A washer and jam nut are used to retain the spring. If anything should happen to the spring or slide, or if the jam nut should work loose, the spring would be released with tremendous force. Sometimes the hazard created by this method can be reduced by applying sheet metal or pipe covers over the jam nuts and springs.

The lower sketch shows the spring set in milled sockets in the lower shoe. This method is more costly in the building of the die and requires more careful maintenance, but it avoids the possibility of accident through released spring, etc.

Along with this illustration is shown the cam and the cam heel. We make it a practice to keep these cams and heels away from the front of operation side of the die, even going to the expense of spreading them far enough apart to clear the panel. This increases the ease with which the panel can be loaded to and from the die, and removes the possibility of a man injuring himself by the cams.

In addition to these items, something should be said regarding the presses. With the present method of rushing dies through for new models, the designer [illegible] neglects to give sufficient attention to the operation of his die in the press. Unless he gives some thought to the loading and unloading of the panel to and from his die, he will not create a well balanced design, and his die will remain a constant source of danger as long as it is in use.

Every foreman should endeavor to keep his men interested in safety, for we cannot place the responsibility of all accidents on designers alone. We must continue to guard our presses and instruct our men in safety.

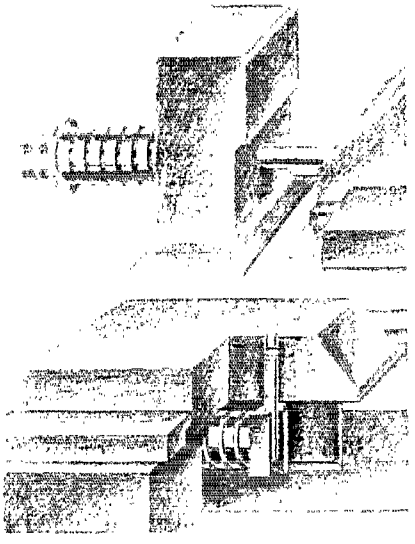


Fig. 4. Two applications of spring returns for cam slides.

[illegible] Chap. Division [illegible] Safety Council

Accidents Mount Sharply

(Continued from page 10)

losses, medical expense, and overhead cost of insurance involved amount to $440,000,000, the same as for 1933.

Steam Railway Accidents

Death in steam railway accidents numbered 4,103 in the first ten months of 1934, according to Interstate Commerce Commission records, a decrease of 2.0 per cent from the corresponding 1933 total of 4,186. This decrease is not shared by all the classes of railway accidents, however. Deaths at highway grade crossings rose from 1,176 to 1,209, and employee deaths from [illegible] to [illegible]. Trespasser deaths, in total, decreased from 2,443 to 2,[illegible].

Contrary to the decline in fatalities, persons receiving non-fatal injuries in steam railway accidents numbered [illegible],721 in the first ten months of 1934, or 5.6 per cent more than in the corresponding period of the preceding year. This advance was confined to non-trespassers, trespasser injuries declining abruptly from 3,361 to 2,795.

Aviation Accidents

The U. S. Census Bureau reports show a total of 434 deaths in air transportation during 1933, compared with 401 in 1932. As the mileage flown by airplanes in civil operations decreased slightly this should be viewed as an unfavorable trend, even though the change is small.

These data may be supplemented by reports issued by the U. S. Department of Commerce, Aeronautics Branch, covering civil operations in the first six months of 1934, which show a death rate of 1.3 per 10,000,000 plane-miles in scheduled operations, compared with 0.7 for the first half of 1933. In miscellaneous (non-scheduled) operations the rate rose from [illegible] to 4.4. Injuries in scheduled operations also increased from [illegible] to 74, but for non-scheduled operations the total dropped from [illegible] to 193.

Fire Losses

Fire losses in the United [illegible] totaled [illegible] during 1934 according to the preliminary estimate of the Actuarial Bureau, National Board of Fire Underwriters. This represents a small increase from the revised [illegible] figure ($270,000,000) issued last July. Not only is this a very small increase but judging from the records of previous years, the final 1934 figure may be appreciably lower than this first estimate and thus below 193[illegible]. In [illegible] practically all the totals for the past [illegible] years are much higher than the present figure for 1934, several of them reaching more than $400,000,000. Deaths in conflagrations numbered 1,521 in 193[illegible], those from burns (conflagration [illegible]cepted) totalled 5,2[illegible].

Blast Stuns Watchman, Sprinkler Revives Him

A WATCHMAN rendered unconscious by a bakery oven explosion and then revived by the sprinkler was the interesting sequence of [illegible] an explosion which occurred recently in Springfield, Mass. [illegible]

Just as the watchman [illegible] rear of the oven, [illegible] the brick arc, tipped over the rear [illegible] wall, broke a two-inch gas-supply pipe and knocked the watchman unconscious. The flash of the explosion set fire to the gas escaping from the broken pipe, producing a 10-foot [illegible]. The heat from the gas jet immediately opened a sprinkler, the water from which revived the watchman, who first shut off the gas and then closed the sprinkler valve. The master mechanic replaced the sprinkler and restored protection [illegible] which the watchman resumed [illegible] rounds.

Snap Shots or Time Exposures?

By RALPH W. LIDDLE

Editor, Edison Round Table, Commonwealth Company, Chicago



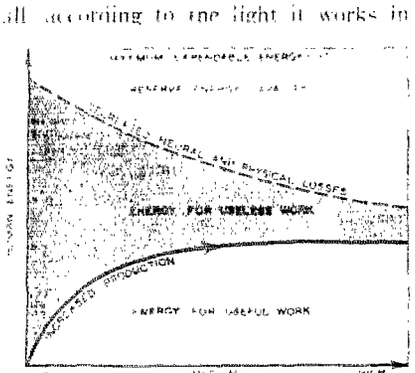
The modern photometer, or "light meter," measures the light quickly and accurately for every seeing task.

The eye and the camera are similar in many respects but there is one important difference. The camera cannot be strained by overwork

UNDER good light, our eyes must make "time exposures," but with good light they can make "snapshots."

On each of the hundreds of thousands of individual seeing operations each of us performs in a day our eyes must work harder, and longer, if the light is poor. And our eyes will do this unnecessary additional work every day without complaining for a while. But there is no escape from the eventual effects of eye-strain.

The human eye is very much like a camera. Its lens registers an image on a sensitive film, and this picture is sent to the brain by means of nature's original television apparatus. But there is one significant difference between the eye and the camera: the camera is a lifeless mechanical device and cannot be "strained" beyond its capacity. It gets a good picture, a poor one, or none at all according to the light it works in and that is the end of the matter. No one holds the camera responsible if it falls down on its job. It doesn't get sick or wear out its lens trying to do something it cannot do in the light furnished it.



Better light increases the proportion of human energy available for useful work, and reduces the amount of energy wasted in the effort to see quickly and clearly under poor light.

But eyes are different. They are not strain-proof. They are held responsible for whatever they undertake to do whatever the lighting conditions under which they work. They do get sick and wear out prematurely when the light is insufficient.

Eye sickness that results from overwork in poor light is commonly called "eye-strain." That term includes a multitude of sins—lighting sins. And every one knows that eye-strain finally results in defective vision. Nevertheless, almost every one seems to think that by some special protection of the god of good luck he or she will avoid this misfortune, in spite of the fact that conditions are allowed to continue which definitely work against the possibility of good luck. It is too often a "stacked deck" of cards. And if the player waits for his own eyes to impress him with the truth, experience shows that in most cases the damage will already have been done.

No one defends poor lighting. It exists and persists because it has some of the earmarks of economy. But the evidence against this notion is so convincing, and has become so widely known, that the economy theory is doomed. Even now it is not pretended that factory owners sustain a financial loss when they improve their lighting. On the other hand, it is becoming generally known that the benefits from improved lighting actually show up as increased earnings on the balance sheet. But these benefits *begin* with the individual worker, a fact that he well knows.

The chief benefits of good lighting from the employee's point of view, are that it reduces accidents, and the percentage of spoiled material, and that it helps to increase production. These benefits obviously originate in the improved efficiency of the individual employee.

Dr. Matthew Luckiesh, an acknowledged authority on illumination, said recently that "The difference between barely seeing and seeing with maximum ease is as wide as the poles. To industry it means the difference between conserving and unnecessarily wasting the nervous energy that is the most valuable possession of every worker. Reduction of waste of human energy expended in useless work becomes a proper demand of every human seeing-machine and a proper objective of every employer."

Eye-strain, in the end causes defective vision. But before this happens it has caused nervousness, headaches, irritability, drowsiness and lassitude to some and "jumpiness" to others. These things are not good for people and they are not good for profits. Seeing is actually work, and it causes fatigue. The statement has been made that an office worker who uses his eyes all day under inadequate light may be actually more tired at night than the man who spends a day digging ditches.

If you drive an automobile for fifty miles on a bright sunny day over a straight piece of road, at the end of the ride you notice no particular fatigue. Then make the same trip at night in a fog. After fifty miles of this you will feel that you know what a galley slave's job was like. And the only difference between the pleasant exercise and the galley slave task was in the lighting. In the trip through the fog you gripped the wheel—although you were driving



Before and after. A tryout of better light in this Chicago plant led to the extension of the improved system. Employees were able to work with less fatigue, which brought about increased production and less waste.

more slowly — tensed your muscles, strained your whole body not alone your eyes. You were not doing any more useful work, but you were using up several times as much nervous energy in trying to see. This simple test will show you that men and women can work as well as they can see—and no better.

Wherever vision is involved in the home, office, and factory—good lighting is not only a comfort; it is mildly stimulative, an enlivening factor. It makes the surroundings more cheerful and the worker's general attitude toward his work and his environment is bound to be influenced favorably. The workers themselves are the first to notice the increased ease with which they can perform their tasks. These benefits from lighting are intangible, but they are in no sense theoretical. A manufacturer of automobile parts reported that after installing a new lighting system his labor turnover dropped from 6.5 per cent a month to 2.75 per cent a month and the actual production economies equalized the entire cost of the installation in a little over one year.

The snapshot and time exposure comparison is a key to one of the significant facts developed by what lighting engineers are pleased to call the "science of seeing." It would seem that the simplest imaginable act of seeing would be to perceive the existence of a black dot on a sheet of white paper. You see it or you do not see it, and that is all there is to it—you think. But that is *not all there is to it. It takes you three* and one-half times as long to discover that dot with two foot-candles of light as it would take with ten foot-candles. And it takes you twice as long with two foot-candles as it would with twenty. This is not guesswork; it is a fact. It applies to the industrial worker, the president of the company, and to the ribbon clerk.

The real news of the last few years in the field of industrial lighting, as well as in commercial and home lighting, is the result of carrying forward investigations of light and seeing as a human and physical proposition, rather than as an instinctive and mechanical operation. These studies have given scientific practical information concerning the relation of light and seeing, the speed and ease with which people see, and most important of all, scientifically accurate information as to the amount and kind of light that is needed for various kinds of seeing tasks.

An obstacle to the progress of industrial lighting has been the matter of convenient measurement of light. For many years it has been no great task to measure light with the aid of cumbersome instruments and two or three laboratory experts. But this process satisfied only the scientists. It was not understood by the layman, and when he doesn't understand he doesn't always take a scientist's word as gospel. But the scientists played a dirty trick on the layman. *They invented a little doo-dad* they called a "photometer" with which even a layman could measure light any time anywhere, and then they said "Laugh that off." The layman renamed the doo-dad, calling it a "sight-meter," and has accepted it as "the goods."

Thus it has come about that the light-measuring device is now working every day. It has been perfected to the point where it occupies a space only half the size of a cigar box. With its aid a factory can be tested for correct lighting in about one-fourth the time and at one-tenth the expense that was formerly required. Light and power companies have adopted them generally and the companies that will not make good lighting survey for any of their customers without cost or obligation are a rarity.

There are three simple factors in a seeing operation—whether a man does his particular seeing at a machine, a tunnel or beside the radio. These are the thing to be seen, eyes, and the light by which to see. The [illegible] correlation of these three elements may have required some expert assistance twenty years ago, but today it is regarded as almost if not quite, an exact science.

[illegible] be seen, eyes, and light—have [illegible] not be equally important. But [illegible] they are not equally simple to vary and control. Usually the thing to be seen and the eyes cannot be materially changed. Lighting is the factor that can be varied most readily, and it is in fact so flexible that it can produce comfort and efficiency in the most difficult circumstances.

In few words, the general requirements of proper lighting are adequate intensity, proper distribution, diffusion and the prevention of glare, harsh contrasts and shadows. The right kind and

(*Please turn to page 57*)

Good Practice in Nailing Wood

By L. J. MARKWARDT and
J. M. GAHAGAN

NAILS afford one of the commonest and simplest methods of fastening wood together. The strength of a nailed joint, unlike a bolted or riveted one, depends on the frictional contact of the nail with the wood fibers. Good nailing practice consists largely in selecting the proper kind, size and number of nails to be used, and then employing a proper technique in assembly to insure necessary frictional contact between the nail and the wood.

Assuming that no appreciable splitting occurs in driving, the resistance of nails to withdrawal for any species varies approximately as the area of contact of the nail with the wood. With nails of sufficient length, the lateral resistance varies directly as the 1½ power of the diameter. (See table on next page).

Senior engineer and [illegible] Engineer, Forest Products Laboratory, Forest Service, U. S. Department of Agriculture. This laboratory is maintained at Madison, Wisconsin, in cooperation with the University of Wisconsin.

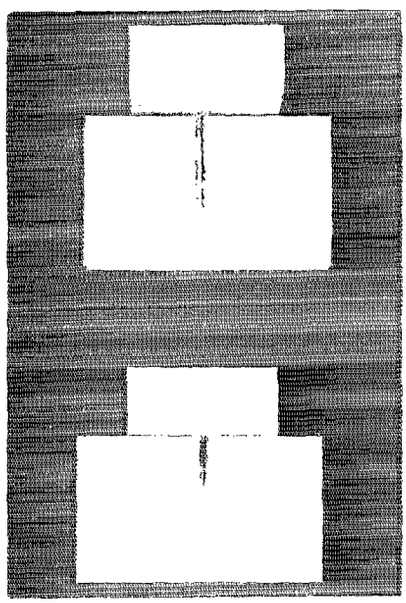


Figure 1. Nail joint sawed open to expose length of nail. Above: Good practice. Nail of proper length, about two-thirds of the length being in the block receiving the point. Below: Poor practice. Nail too short, giving insufficient length in block.

To secure the greatest strength in nailing wood, to avoid accidents resulting from improper nailing, and to eliminate weak and faulty construction require care in observing a few important details.

1. Use nails of proper length. Wherever possible the nails should be long enough so that in soft woods approximately two-thirds of the length goes into the member receiving the point. This means that the length of the nail should be at least three times the thickness of the outer piece. (Fig. 1) Where the thickness of the members does not permit this suggested depth of penetration, a sufficient number of shorter nails should be used to provide equivalent area of contact in the wood member receiving the point.

2. Drive nails so that the points do not come out of the side of the piece. These "shiners" as they are called not only result in a weakened joint but are also a cause of injury. (Fig. 2A).

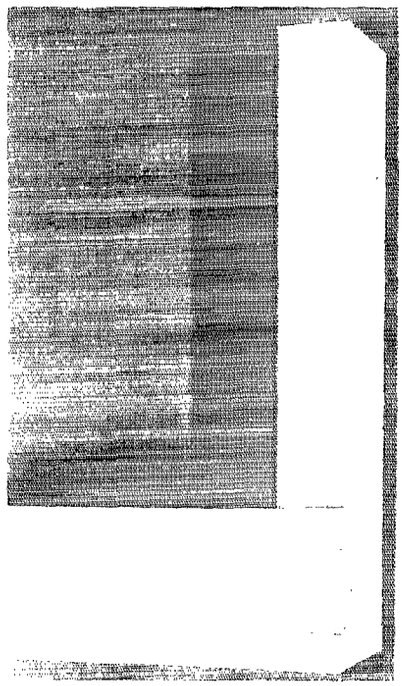


Figure 3. Poor practice. Nailing should be done so that little or no splitting of the wood occurs.

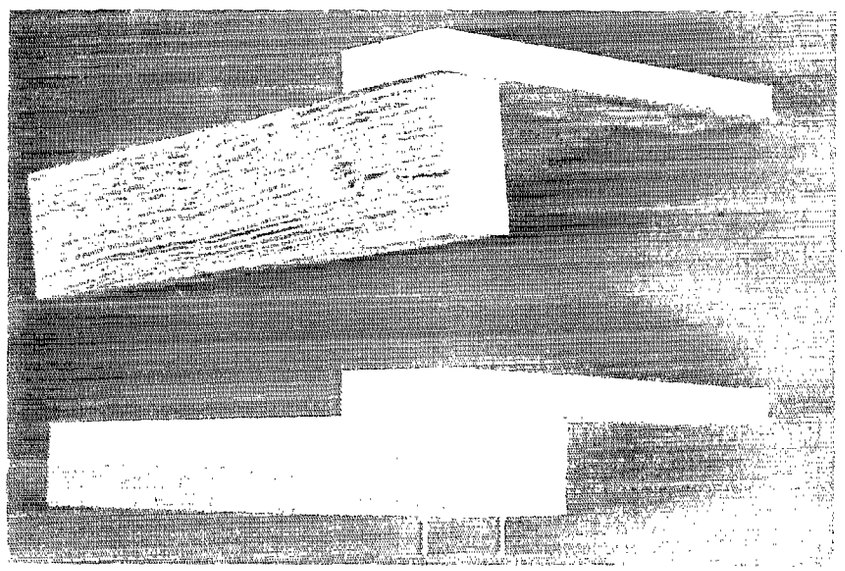


Figure 2. Nails with exposed points are often a source of injury. Above: Poor practice. Do not permit the nails to come out the side of a piece. Below: Where workmen are liable to come in contact with them, protruding nail points should be avoided.

3. Where workmen are likely to come in contact with them, nails should not be used which extend entirely through the piece, unless the protruding points are suitably protected. In unexposed parts such protruding points are not objectionable. (Fig. 2B).

4. Be sure the nails you use do not split the wood. Splitting greatly weakens the joint. If the wood tends to split badly use a thinner nail, blunt the

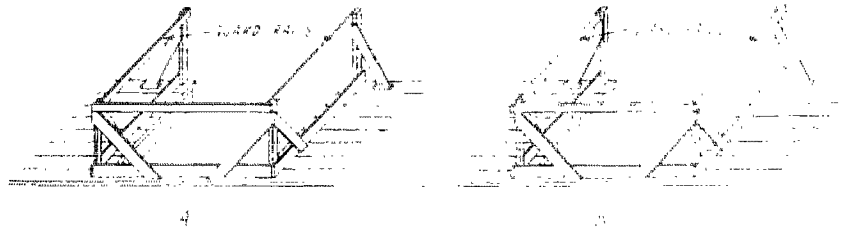


Figure 4. Guard rail construction. Nail guard rails to the side of the post away from the opening, as in *B*, avoiding the poor practice, shown in *A*, in which the nails of the guard rail may be subject to direct tension.

points, or better still, purchase blunt pointed nails. When practical, boring lead holes slightly less in diameter than the diameter of the shank of the nail is excellent practice. (Fig. 5.)

5. Use plenty of nails. The strength increases directly as the number of nails used.

6. Whenever possible, do not use nails in direct tension, but use them preferably in lateral resistance. When nails in direct tension give way, they usually fail suddenly and may cause injury or damage (Fig. 4). The resistance to withdrawal is influenced greatly by the surface condition of the nail. For temporary service cement-coated nails may be expected to give 25 to 100 percent increase in holding power, but this increased effectiveness falls off [illegible] time. More permanent and greater increased holding power may be obtained with special nails having a minutely pitted or etched surface.

7. Do not expect good nailed joints when using green wood that will later dry out. Nails driven in green wood that later dries out quite commonly lose most of their holding power. Hence, use dry lumber.

8. Nails are more efficient when driven into side grain of dry wood than when driving into the end grain. (Fig. 5).

9. The safe lateral resistance of nails is expressed by the formula:

$$P = Kd$$

Where

P = safe load on nail, in pounds.

K = a constant, depending on the species of wood. (Oak [illegible] northern white pine 900; southern yellow pine [illegible])

d = diameter of nail in inches.

The accompanying table based on the formula gives recommended values of safe lateral resistance for common [illegible] nails driven perpendicular to the grain of wood at 15 per cent moisture, expressed in pounds per nail.

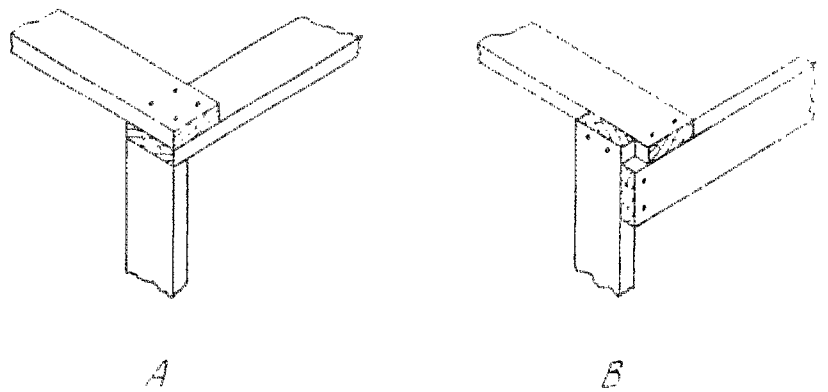


Figure 5. Two of many possible types of corner construction. *A* is poor practice. *A* is insecure because of partial end grain nailing and lack of mutual reinforcing. *B* shows three-way corner construction with side grain nailing which affords good bracing and rigidity.

Species	Size of Nail								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Southern yellow pine	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Oak [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	111	[illegible]	160	[illegible]

[illegible] is applied [illegible] grain of the pieces joined and [illegible] right angles [illegible] grain. [illegible]

Broken Porcelain Handles Cause Bathroom Injuries

A BOLITION of porcelain handles on water faucets and other bathroom fixtures is urged by Dr. Harold T. Maloney, of Oakland, Calif., in a communication to the American Medical Association, as reported by [illegible] *Science*. Dr. Maloney has seen no [illegible] than 20 persons more [illegible] hurt by the sharp, broken edges of such handles when cracked accidentally, [illegible] a leaky faucet is pounded with the [illegible] to close it more tightly, or when a [illegible] faucet is wrenched violently to open [illegible]

Such injuries [illegible] because they frequently involve [illegible] nerves, arteries, or tendons, all of which structures are slow and difficult to repair. In one case which Dr. Maloney reports, both [illegible] the hand were [illegible] was disabled for six months and [illegible] sensation did [illegible] seven months. [illegible] in the little finger [illegible] left the finger numb for months. In [illegible] case of a cut tendon full movement [illegible] the finger never was recovered.

One man who lazily tried to shut off the bath-tub faucet with his foot while lying in the tub suffered a painful [illegible] disabling foot injury.

The plumbing industry already has developed all-metal handles which are quite as ornamental and sanitary as porcelain handles. Public demand for these safer handles, Dr. Maloney believes, would prevent many an accident.

Dry Ice (Solid Carbon Dioxide) CO_2

Industrial Data Sheet D-Chem. 11

A. Problem

1. What are the hazards of "dry ice" and what precautions are necessary?

B. Hazards

2. The principal hazard is that of severe "burn" or frost bite by bodily contact with the solid. One other possible hazard is the generation of carbon dioxide gas in quantities sufficient to cause suffocation because of oxygen deficiency. A third possible hazard is that if a piece of the "ice" is tightly corked up in a bottle, the bottle may explode because of the pressure built up by the change of the ice into carbon dioxide gas.

C. Discussion

3. "Dry ice" is a substance which in cake form resembles blocks of closely packed snow. A cubic foot of it weighs about 95 pounds or 40 pounds more than a similar amount of natural ice. It is the coldest substance in common use, its temperature being about 100° F. below zero.

4. Pure carbon dioxide gas is the raw material from which "dry ice" is made commercially. This gas liquifies when compressed to about 1000 pounds per square inch, at a temperature of about 80 degrees F. The liquid carbon dioxide is allowed to escape from cylinders into large tanks where "snow" is produced which is hydraulically compressed into hard blocks.

5. "Dry ice" is used principally for refrigeration of food products. It is also employed in oil refining, particularly in connection with low cold test oils; for testing electric cables at low temperatures; for freezing quicksand in tunnels and foundations, and in testing insulating qualities of building materials; for quickly cooling candy and thus producing speedier crystalization; in conjunction with a fumigant for safeguarding wool, fur and grains in storage by ridding the product of vermin; for rapid cooling and condensing low boiling point distillates in chemical laboratories, and in many processes in industrial plants, such as shrink fitting, as a condensing agent for mercury vapor vacuum pumps used in the manufacture of neon signs and radio tubes or wherever a high vacuum is required.

6. The ice is commonly supplied to the trade in 10-inch cubes packed individually in brown wrapping paper and shipped in cork insulated or balsa wood containers although corrugated paper containers are sometimes used. In order that these cubes may be used when packing an article, such as a package of ice cream, it is usually necessary to cut the cubes into slabs 1 inch in thickness. However, the cubes are sometimes used whole or crushed like ordinary ice. Slabs as thin as ½ inch are used. The cutting of the cube into slabs is usually done on a power band saw of typical woodworking shop design.

7. "Dry ice" does not melt in the ordinary sense but changes directly from the solid state into a dry non-flammable gas, (carbon dioxide) which being heavier than air, sinks to the floor or ground in the absence of air currents. The "fog" which is sometimes seen when the ice is exposed to the air at ordinary temperatures, is water vapor condensed from the surrounding air. A pound of the ice will produce at ordinary temperatures about 9 cubic feet of carbon dioxide gas.

D. Precautions

8. On account of its extremely low temperature, the ice should never touch any part of the body, because to do so will result in painful injury in the form of severe "burn" or frost bite. Gloves should always be worn whenever it is necessary to handle the ice or metal objects that have been in contact with it. All tools and implements used in handling the material should be provided with wooden handles.

9. Dry ice should not be used in drinking glasses for cooling drinking water or other liquids or, if so used, it should be removed before drinking the liquid because if a small piece of the solid is swallowed, it will cause a painful frost bite in the stomach.

10. Pieces of dry ice should never be put into air tight containers such as bottles or fruit jars because when the ice changes back to the gaseous form, sufficient pressure may be built up in the container to cause an explosion.

11. The gas liberated by dry ice will not produce a "burn." It may form a slightly protective insulating covering about the ice. However, the liberated carbon dioxide gas may be dangerous in another way because it replaces oxygen in the air. A person coming into an atmosphere highly charged with carbon dioxide gas will be warned of danger by quickened breathing, dizziness, ringing in the ears and other unusual sensations. But if he returns to fresh air immediately, the symptoms will soon pass off. If a person is overcome by the gas it may be necessary to apply artificial respiration. It is unlikely that there would be enough dry ice in the room of an ordinary plant at one time to create the hazards mentioned. However, in one plant where large quantities of the ice are handled in storage pits, the pits are limited to a depth equal to the height of three or four blocks of the ice so that a man's head is normally out of the pit.

12. When the ice is cut into slabs, it is necessary for the operator to wear cotton gloves to protect his hands against freezing. Both upper and lower band saw wheels should be fully enclosed, and all portions of the saw blade guarded except the working side of the blade below the guide rolls or gage. As a further protection against the hazard involved in sawing thin slabs the band saw should be provided with:

(a) A roller table at the rear of the [illegible] thickness gage [illegible] saw. The front of the table should be provided with a hand shield on each side, and a handle for moving the table.

(b) A [illegible] and thickness [illegible] slabs be provided with [illegible] the carriage [illegible].

Treatment of Burns

13. Treatment for the burns is the same as for heat burn. First aid treatment should be rendered by the application of tannic acid or other recognized remedy; then the services of a physician should be obtained. Should a piece of the ice be swallowed, a physician should be called without delay.

Interior burns may result in inflammation or perhaps stomach ulcer.

[illegible] and a [illegible] equipment [illegible] dry ice [illegible].

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

THE SAFETY EXCHANGE

"A ROUND TABLE IN PRINT"



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

An Efficient Method of Stacking Cases

From The *Staley Journal*, of the A. E. Staley Manufacturing Company, Decatur, Ill., we get this photo of some very neat piling of shipping cases. These cases are first stacked in a regular order, and the cases are then pinched into an exact pile by the three following steps:

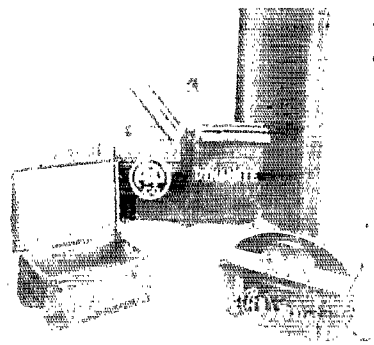
1. A block with a wire handle for guiding it is placed against the first case and on the floor, then by means of a pinch bar pressure is applied and the case is firmly packed in against the one opposite it.

2. The block is applied between the first and second cases and the same operation performed.

3. The block is applied between the third and fourth and the operation again repeated. This may be done up to any height where the man doing the packing can get sufficient leverage between the block and the floor to push the cases into position.

Dynamite Carrying-Case Increases Safety

This dynamite carrying-case [illegible] only a small quantity, just enough for the day's work. The intention is to discourage the carrying of an over-supply and in rough country to save the labor of carrying a large box. All hinges, clasps, screws [illegible] other metal parts of the box [illegible] painted red and in addition to the [illegible] pany name the word "DYNAMITE" is lettered on prominently. The [illegible] used by the Appalachian Electric [illegible] Company, of Bluefield, W. Va.

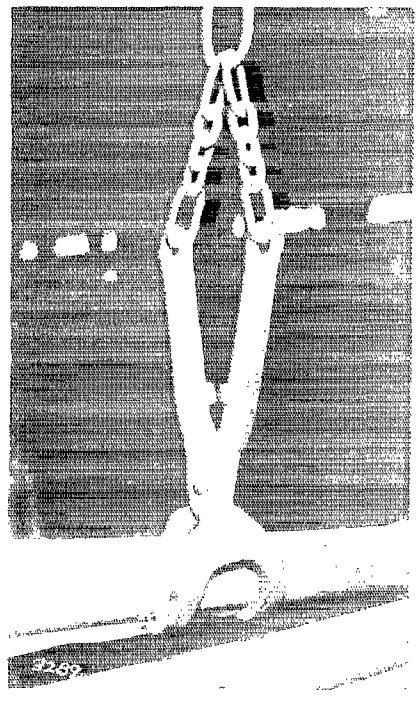


Making a Non-Slip Floor in Emergency

Here [illegible] suggest [illegible] non-slip floor [illegible] [illegible] times [illegible] Don't merely dust the sand on but pile it on good and thick. Next morning, brush up the sand that did not stick to the glue; what remains will keep that section of the floor in a non-slip condition for quite a while. One man with a helper to shove the sand can cover a considerable section of floor in a short time.

These Tongs Handle Forged Axles Very Well

A safe method of handling forged axles, piston rods or pipe is depicted in the accompanying picture from the shops of the Chicago & North Western Railway, at Chicago. A pair of three-fingered tongs does the work in excellent fashion. As the crane lifts, the tongs tighten their grip, until the crane itself releases the tension.

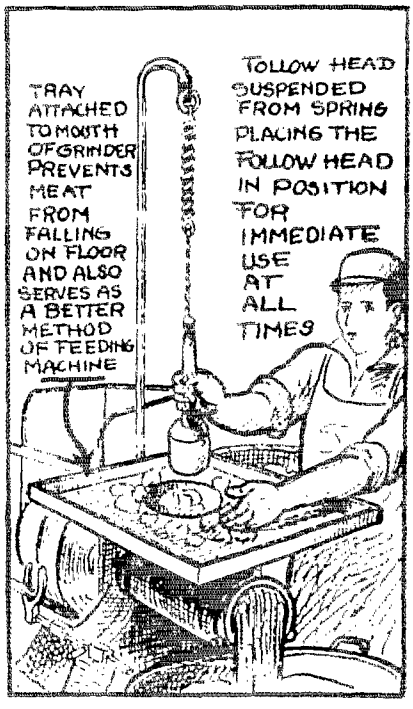


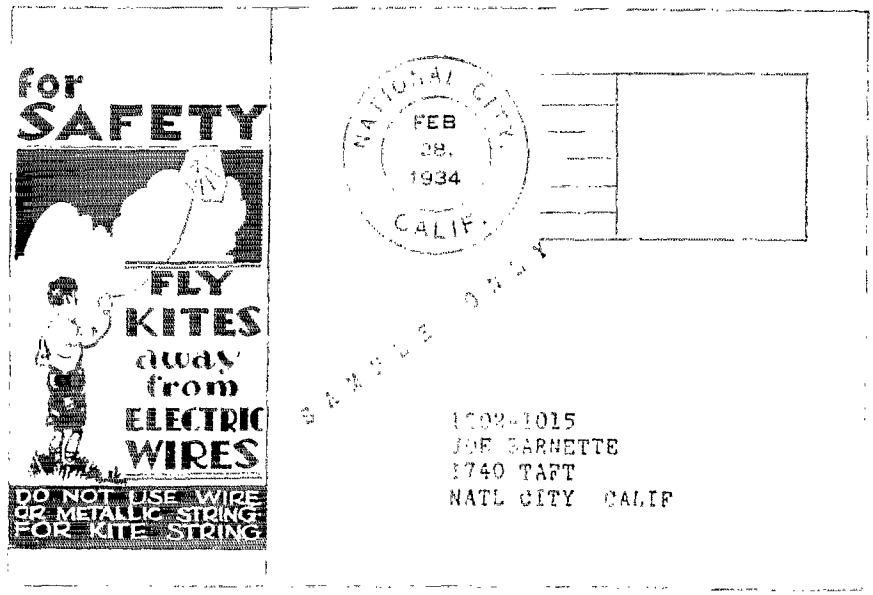
An Overhead Light Hazard in Some Departments

The ordinary light shade suspended from the ceiling only by the electric cord is found to be a hazard, especially in departments where there is a good deal of vibration on the floor above. Goodyear reports a good deal of trouble from this source. After a short time the continual vibration causes the cord to wear, and finally break, letting the shade fall. Although fortunately no personal injuries have resulted, the hazard is apparent. By installing a spring making direct connection between the shade and the ceiling, and thus relieving the cord of the weight the problem was solved at small expense. The spring takes up the vibration.

Sausage Grinder Can Be Made Safer

When a sausage maker's helper lost several fingers through reaching his hand in the worm feed of the hopper, the division of safety, Labor and Industries Department, Washington, issued a poster bulletin describing the injury and offering the accompanying illustrated suggestion on how to avoid such an accident. The design suggests not only a follow head or wooden plunger to be used in feeding the machine, but also a tray attached to the mouth of the grinder to prevent pieces of meat from falling on the floor. It was a piece of meat on the floor which caused the operator to slip and thus have his hand caught in the sausage grinder.



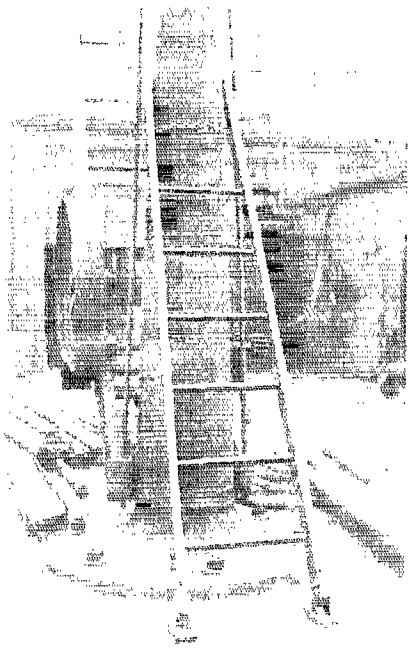


Safety Message Carried on Billing Card

Putting over a safety message to the customer is recognized as important by the San Diego Consolidated Gas & Electric Company, National City, Calif., as may be seen by the accompanying illustration. The message is printed on the address side of a post-card, and the reverse side is used in billing the account. The message here calls attention to kite-flying dangers; it is changed frequently for other seasonal hazards.

This Safety Ladder Has Has Unusual Features

A safety ladder is shown in the accompanying picture that deserves appreciation. It is not only strongly and gracefully constructed but note that at the top there is a chain which helps make the ladder more rigid when placed against a post. The safety feet help to prevent slipping, and the rungs are reinforced with steel rods which add rigidity. The picture is from the American Steel & Wire Company, Cleveland.



Posts Protect Sprinkler Shut-Off Valve

The Corduroy Rubber Company, of Grand Rapids, Mich., sends us this photograph of a protected sprinkler shut-off valve. Three posts are set in the ground around the shut-off valve to [illegible] and the posts are painted white, so that at night auto lights will shine on the white posts, and mark the position of the valve.



Cameron to Serve on Labor Department Committee

W. H. CAMERON, secretary and managing director of the National Safety Council, has been authorized by the Council's Executive Committee to accept an invitation issued by Miss Frances Perkins, Secretary of Labor, to serve on a special advisory committee of the United States Department of Labor for the consideration of matters pertaining to industrial safety and health. Others invited to serve on this committee include Cyril Ainsworth, American Standards Association; John Fry, American Federation of Labor; Wesley M. Graff, National Bureau of Casualty and Surety Underwriters; Dr. R. R. Sayers, U. S. Public Health Service; Thomas P. Kearns, Industrial Commission of Ohio.

The organization of this committee follows closely the recent appointment of V. A. Zimmer, who is serving on Miss Perkins' staff as director of the Division of Labor Standards.

It is understood that among other things Mr. Zimmer will be available to assist various states in their efforts to improve their industrial safety and health laws, rules and regulations; also to assist other federal departments and bureaus in handling their industrial safety and health problems insofar as such matters come within their jurisdiction.

This new division, headed by Mr. Zimmer, will no doubt cooperate with the proper authorities who deal with the industrial safety and health work of the NRA.

It is recalled that on March 14, 1934, General Johnson, then the NRA Administrator, issued Office Order No. 71 which provided that:

"In exercise of the President's power under the National Industrial Act to prescribe conditions of employment, the following provisions will hereafter be included in every code which has not, at this date, been formally submitted by the industry:

"Every employer shall provide for the safety and health of employees during the hours and at the places of their employment.

"Standards for safety and health shall be submitted by the code authority to the Administrator within six months after the effective date of the code.

"These provisions, including similar ones now embodied in most codes, will be given execution in the following manner:

1. Each code authority will create [illegible] committee on safety and health [illegible] the number and causes of accidents and health hazards in the industry and report [illegible] program.

2. In these programs developed by the committees on safety and health consideration will be given to the following:

(a) A statement of the average accident experience in the industry; a comparison of the experience of employees [illegible] plan for uniform accident [illegible] in the industry.

(b) Preparation of a statement showing [illegible] possible benefits to individual employers, individual employees and the industry as a whole through [illegible] organized safety efforts.

(c) A recommended plan for organized safety work for various types and sizes of companies.

(d) Minimum standards for safety and health for the industry.

Later, Miss Perkins organized a committee which drew up a series of "Minimum Standards for the Safety and Health of Workers in Manufacturing Industries" which has been published by the U. S. Department of Labor, Bureau of Labor Statistics, [illegible] No. R117." This committee was composed of nineteen individuals connected with various organizations but the document was not submitted for official approval by these organizations. It is merely a suggested set of standards which might be considered by various code authorities when attempting to comply with item No. [illegible] of Office Order No. 71. Thus, any code authority may do either of three things:

1. [illegible] minimum standards verbatim as presented in the leaflet Serial No. R117 [illegible] NRA [illegible] which case upon approval of the code [illegible] become mandatory [illegible] federal law.

2. [illegible] minimum standards before adoption.

3. Or it may prefer to formulate [illegible] new set of standards of its own and adopt them [illegible] of course [illegible]

It is said that several code authorities are considering plan No. 1; several others are following plan No. 3; but it seems that a majority prefer plan No. 2 because they feel that several rules in the U. S. Department of Labor Minimum Standards (particularly rules Nos. 5, 9, 14, 15, and 16) if adopted, would impose an unnecessary burden on their industries and would be unnecessary and impracticable in small establishments.

Perhaps this new advisory committee of the U. S. Department of Labor will suggest the revision of Serial No. R117 with modification of those rules which seem to be objectionable. In any event the committee of which Mr. Cameron is a member has a job cut out for itself to [illegible] job that will mean much [illegible] industry as a whole and particularly for the proper protection of the American worker.

Research Laboratory Opened by du Pont Company

A NEW medical research laboratory known as the Haskell Laboratory of Industrial Toxicology, was dedicated and opened at Wilmington, Del., on January 22 by E. I. du Pont de Nemours & Co. The purpose of the laboratory will be to test, from a health standpoint, all of the company's products before they are placed on the market. A function of the laboratory will also be to study the effects of new products upon the health of employees during the process of manufacture.

The director of the new laboratory is Dr. W. F. von Oettingen, formerly [illegible] the staff of the medical school at Western Reserve University in Cleveland. Dr. von Oettingen received his training in chemistry and medicine in Germany at the universities of Jena, Goettingen and Heidelberg. Assisting him at the laboratory are Dr. W. C. Hueper and Dr. Frank W. Wiley.

The dedication ceremonies were attended by a group of distinguished scientists, physicians and industrialists. In the morning a scientific meeting was held at which addresses were given by Dr. R. R. Sayers, medical officer in charge of the office of industrial hygiene and sanitation, Public Health Institute, Washington; Dr. G. H. Gehrmann, medical director of the du Pont Company, and Dr. von Oettingen.

The afternoon was spent in inspection of the laboratory and the ceremonies were concluded with a dinner at night at which addresses were made by Lammot du Pont, president of the company, Vice-President Harry G. Haskell, for whom the laboratory was named, and by Dr. Gehrmann and Dr. von Oettingen.

INDUSTRIAL HEALTH

A Non-Technical Symposium for Physicians and Laymen

Preventing Oil Dermatitis

THERE are many kinds of dermatitis encountered in industry, one of the more familiar types being the skin infection sustained by workers in machine shops and metal cutting plants. These infections are attributed to contact with cutting oils and compounds. This article will discuss only dermatitis sustained through this medium. The information presented here, which appeared originally in the News Letter of the Automotive and Machine Shop Section has been drawn from medical literature, research departments of oil companies, manufacturing plants, safety councils and state departments of labor.

The following symptoms usually accompany an infection or irritation of this type. The skin is constantly in contact with oil-containing more or less solid matter in suspension. The trouble is confined almost exclusively to the hairy portions of the skin. Small black spots gradually appear in the pores surrounding hairs and increase in size until they become "blackheads." If untreated, or if the worker continues his contact with oil the blackheads grow in size and become elevated above the surface of the skin, giving the surface a congested appearance with a black spot about the size of a pinhead at the apex of each elevation.

Usually only the hands and arms are affected but sometimes the thighs and abdomen become covered with these impacted sores. If the cause of irritation is continued, the impacted sores become inflamed and show reddened areas. The infection continuing, these inflamed areas become pustulated and advance to the stage of pimples. In severe cases they become boils.

The time required for the trouble to develop varies with the individual. With some workers blackheads develop within a few days after contact with the oil. The infection progresses by rapid stages until the legs and arms are covered with boils and the patient is unable to carry on his work. Others seem to be immune to the infection. Some may go months or even years without trouble or with only an occasional sore. Some men are subject to the blackheads but do not get beyond that stage, no matter how severe the exposure.

Men reporting to the hospital for treatment are usually in one of the three following conditions:

1. A leathery condition of the skin, dried and sometimes cracked open. The pores are enlarged and plugged up so that blackheads dot the surface of the skin. This gives the appearance of leather in the early stages of tanning.

2. Red blotches on the skin. These vary in size from 1/64 to 1/2 of an inch. As inflammation continues these progress to the pimple stage, although free from pus.

3. The red blotches are pustular and are rapidly on the way to the boil stage. In this condition the worker is unfit and usually unable to work.

Occasionally there are cases where a rash or an inflamed condition appears without the plugged condition of the pores. This occurs among persons with tender skins, usually of the blond or sandy type.

Causes of Infection

Following is a summary of the known causes of infection:

1. Infection is bacterial.

2. The bacteria or germs are not present in the oil as received from the manufacturer. They exist on the human body.

3. The germs have no power to cause boils or sores until they have secured ingress to the skin, or until the skin is broken or the bacteria can attack the flesh by some other method.

4. All cutting oils have skin penetrative powers. This property of penetration is due to the high thermal conductivity of such oils; that is, their ability to convey heat from the point of generation to the atmosphere. The oils actually penetrate the skin through the pores.

5. Oil penetrates the skin of a hairy person much more readily. Hairy skins are more vulnerable because of their abundance of capillary pores.

6. In penetrating the skin through the pores the oil carries with it the bacteria which exist on the surface.

7. Bacteria also enter the skin through minute punctures made by metal chips which are carried in suspension by the oil. Many of these chips are too minute to be discernible by the naked eye.

8. Epidemics of dermatitis are more prevalent in hot weather or in heated working atmospheres than when men work under lower temperatures.

9. The sores are not always precisely similar, and the bacteria are not always the same.

10. The breeding of sore-producing bacteria has been traced to unsanitary conditions in the plant where the oil was used. It has been found that workmen sometimes expectorate in the oil as it passes through the machine, or in the oil tanks. Occasionally they throw garbage and other filth and refuse into the oil or otherwise contaminate it while in use.

11. The most practical preventive of sores is cleanliness on the part of the operatives. Men should be instructed to wash as frequently as possible with pure soap and hot water and to avoid [illegible] with oil before washing. They should be taught to change their clothing at least twice a week and wear clean overalls and working clothes. Overalls should be washed at regular periods determined by the time it takes a pair to become soiled. When clothing is saturated with oil, the rubbing of the fabric allows the metal particles to abrade the skin, thus facilitating ingress of the bacteria.

Preventive Measures

The steps recommended for the precaution of infection are:

1. Personal cleanliness of the worker's body and clothing. Particular stress

should be laid upon thorough washing of hands and arms with a good soap and hot water, using a brush (not too stiff) to loosen the dirt lodged in the pores.

2. Filtration and sterilization of oil. These oils and compounds in use carry particles of metal and other foreign matter which should be removed.

In most plants the filtering and sterilization of oils is as follows: The oil is first put through a centrifugal separator purifier and clarifier. It is then heated to at least the pasteurizing temperature (140 degrees F.) and held at this heat from one-half hour to two hours. A higher temperature is better if there is no bad effect on the oil. Temperature is then raised to 250 degrees F. for about two minutes, after which the oil is returned to the storage tank ready for recirculation through the piping system.

The effect of sterilization by heat is only temporary and the oil is soon inhabited by a new family of bugs. To secure long-lasting protection the use of a germicide in the oil is often recommended. Some people believe that a germicide will make heat sterilization unnecessary. Nothing, however, can take the place of filtration to remove the metal chips and dirt. Germicides if used too strong may corrode metal, reduce the lubricating efficiency of the oil or compound, and irritate the skin of the worker.

The hands and arms of worker should be watched closely. The first sign of rash or redness should mean a trip to the hospital for examination and treatment. The filthy practice of spitting in machines and troughs should be prohibited and violations punished. Workers should be warned against wiping the hands with dirty rags which are full of metal chips.

Printing Magazine Praises Safety Calendar

ONE of the National Safety Council's 1935 calendars, bearing the imprint of the Mack Printing Company, Easton, Pa., was received with other specimens for review by *Printing*, a trade magazine of the graphic arts. *Printing*, which evidently did not realize the origin of the calendar, reproduced a specimen page commenting as follows:

"The Mack Printing Company devotes its calendar this year entirely to the subject of 'Safety Around the World.' Each sheet covers a different section of the globe, showing the safety or accident prevention measures taken in the nations. The reverse side of each sheet tells the story of the scene, accompanying the picture which appears on the front. Accidents in plants and in the home are covered. The illustrations in these progressive discussions [illegible] are [illegible] and the importance of safety efforts, are shown to good advantage. Credit to the Mack Printing Company."

General Motors Plants Receive Knudsen Safety Trophies



General Motors officials at presentation of safety trophies. Left to right: R. G. Kremer, personnel director Chevrolet Indianapolis plant; A. A. Clemen, manager, Fisher Body Seattle plant; William S. Knudsen, executive vice-president, General Motors Corp.; S. D. Gallaher, personnel director, Chevrolet Atlanta plant.

OUTSTANDING safety records in General Motors plants during 1934 have been cited with the awarding of the William S. Knudsen safety trophies in Detroit. Mr. Knudsen, executive vice-president of the General Motors, personally made the awards before more than 5,000 safety supervisors and plant employes. The awards were made at the forum of the Detroit Industrial Safety Council on January 22.

Sixty-seven General Motors plants in the United States and Canada participated in the Knudsen contest during 1934, a program designed to reduce the industrial accident toll in plants and improve working conditions. Of these plants, three won engraved silver plaques mounted on ebony bases and 19 others received honorable mention in the form of scrolls.

First places for the best safety record for the year went to the Fisher Body plant in Seattle, Wash., and to the Chevrolet Motor plant in Atlanta, Ga., both operating throughout 1934 without a single disabling injury.

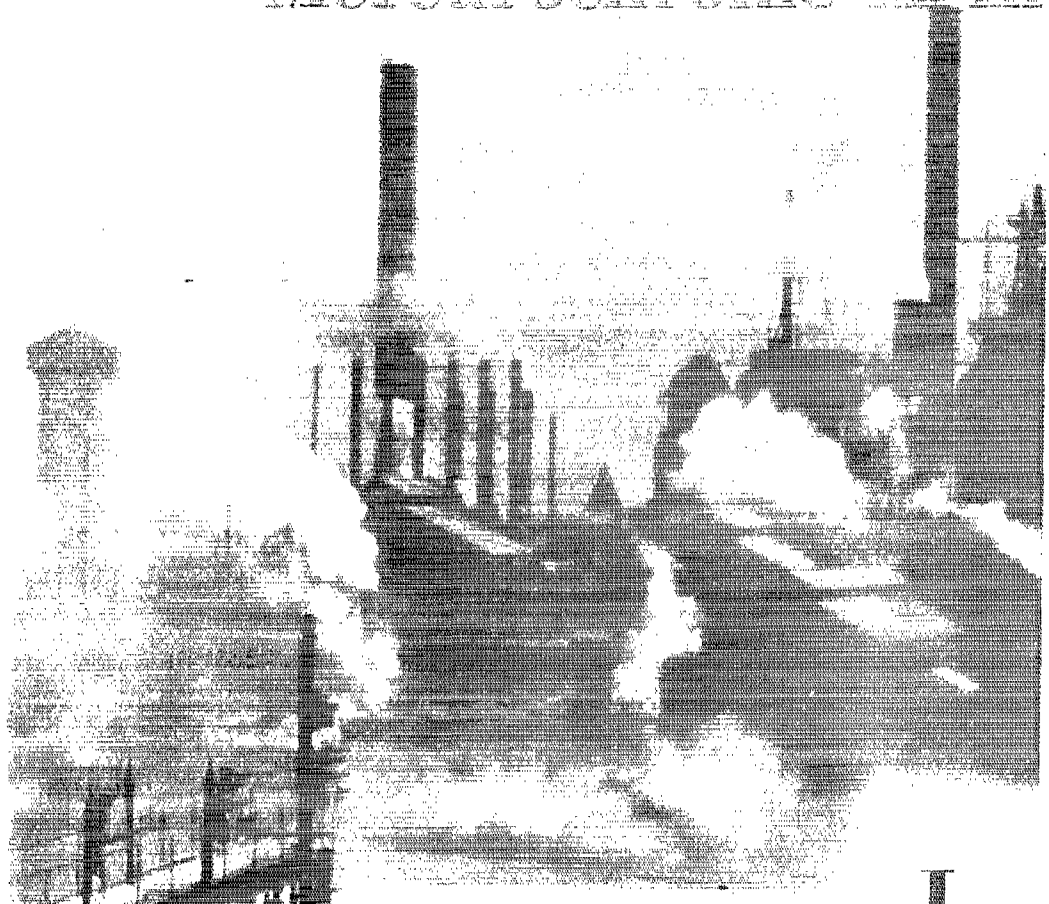
A similar plaque for the plant showing the best improvement in safety during 1934 went to the Chevrolet plant at Indianapolis, for an improvement of 39 per cent in 1934 in time lost due to accidents.

Scrolls denoting honorable mention were awarded to the following plants:

BEST SAFETY RECORD: Fisher Body Plant, Kansas City; Fisher Body Plant Atlanta; Fisher Engineering and Development, Detroit; General Motors Research Laboratories, Detroit; Sunlight Electrical Division, Warren, O.; Fisher Body Plant, Oakland, Calif.; Fisher Body Plant, Lansing, Mich.; Fisher Body Plant, Pontiac, Mich.; Moraine Products Division, Dayton, O.; Allison Engineering Division, Indianapolis, Ind.

BEST IMPROVEMENT FOR YEAR: Winton Engine Division, Cleveland; Fisher Body Plant No. 2, Flint, Mich.; Frigidaire Dayton, O.; Hyatt Bearings Division, Newark, N. J.; Fisher Fleetwood Plant, Detroit; Pontiac Motor Co., Pontiac, Mich.; Chevrolet Motor, Tarrytown, N. Y.; Fisher Body Plant St. Louis; Delco-Remy Department Manufacturing Division, Meriden, Conn.

Mercurochrome in Industry





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

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

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



The Organization Behind the Safety Program

By ERNEST W. BECK

Supervisor of [illegible] Rubber Company

THE company which I represent has about 30 factories and about 30,000 employees. It is, therefore, in an excellent position to experiment with plant safety methods. Our program has the support of the head of our company who takes the attitude that accidents will not happen in a well managed plant. He believes that a plant efficient in safety is also efficient in its production methods. I believe that a survey of our industries would demonstrate that our most efficient factories are those where the greatest attention is paid to accident prevention.

In large plants, the next most important person in a well organized safety program is the safety engineer, safety supervisor, or whatever title you may give him. His most important qualification is enthusiasm. Of course he must have in safety work, as in other fields of endeavor, certain basic qualifications. He must be physically well, honest and industrious. He needs intelligence and sufficient general experience to see his problems clearly and to work out the solutions. He is greatly benefited by a technical training, by specific experience in his industry and by personal experience with the men with whom he works. He must believe in his work or he carries no conviction. He must break through resistance to new ideas, through resentment against interference with existing working conditions, through suspected infringement of personal rights. And no man can accomplish the best results without a compelling contagious enthusiasm.

Active Safety Committees

The first and most important job of the safety engineer would be to organize a real active safety committee. A small safety committee might include the works manager or superintendent as chairman, the safety man as secretary, the master mechanic, employment manager, and two or three foremen. Or, there could be a larger safety committee.

Periodically the safety engineer should occupy part of the program of the foremen's meeting. He should present to the foremen a true picture of the safety experience of the plant and suggest methods of improving existing conditions. He should review some of the accidents that have taken place and not only enlighten the foremen but get their cooperation.

In several of our factories we have two committees—an employees' committee and an advisory committee. The employees' committee is made up of employees selected from our factory departments. They report to the advisory committee which is made up of the factory manager or superintendent, or both; the plant engineer; industrial relations manager; production manager; and possibly the development engineer; together with the safety engineer who may serve as secretary. In factories where there is employee representation or factory councils, the safety problem is handled through one of the sub-committees of the factory council.

At several of our factories we have large employees committees, the members of which are selected from the factory departments. They meet monthly and usually the employees are rotated every three months. Once a man has served on the safety committee he may be considered a committeeman whether active or not. Sometimes the aim is eventually to have every man and woman serve on the committee.

At the United States Tire Company in Detroit, we have an employees committee of [illegible]. This committee [illegible] monthly, and sitting in with them members of the factory council who [illegible] posted and cooperate in carrying out all accident prevention programs.

At some of our plants the safety committees appoint safety inspectors, usually two male and one female, whose duty it is to make a thorough inspection of the plant between meetings of the committee. Their recommendations are discussed and written up in the report of the safety committee, and then submitted to the management. Such recommendations are not [illegible] to die, but at the next [illegible] the same subject is again [illegible] ascertain if the recommendations were carried out; if not, a reason is given. Every recommendation is given a serial number.

At many of our plants we [illegible] organized suggestion system and all employees are encouraged to hand in any suggestions for the good of the organization. Suggestions are usually handled by a special suggestion committee.

Don't think that by organizing a safety committee your safety problems are solved. The committee must not be allowed to lose interest or it will [illegible] a natural death. It is the job of the safety committee to provide the members of the Committee with interesting literature. See that they receive [illegible] of the NATIONAL SAFETY NEWS and reports of unusual accidents. Talk about their jobs and get them [illegible] with others about safety. Don't [illegible] fine your safety talk to the safety committee. Information should also be passed along to the man on the [illegible].

Human Interest Stories

I am a firm believer in telling the workmen what it is all about. We have an organized safety work in our company that copies of all accident reports and committee reports are given [illegible] publicity. Such reports are forwarded to New York, and my office receives a copy of every accident and every [illegible]

● The experience of many plants, both large and small, is included in this story of a safety program that is reaching 30,000 workers

Have you discussed these questions with your foreman?

"ARE COMPENSATION PAYMENTS, DOCTOR BILLS AND HOSPITAL EXPENSES OUR ONLY COSTS WHEN AN ACCIDENT OCCURS?"

"WHAT ARE THE CAUSES OF BAD PRODUCTION RECORDS?"



Do your foremen know the answers to the above questions? There is a way for them to obtain these answers as well as hundreds of others, and also find their own shortcomings in managerial problems. All this and more is covered in the National Safety Council's series of twelve "Safety in Foremanship" textbooks. They have been produced purposely to assist management in training men in supervisory positions.

SAMPLE COPIES AND PRICES SENT UPON REQUEST

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

mendation, so it is simple to re-assemble this information by drawing up a consolidated report and sending it to all factories. When I visit our factories, I usually address gatherings of foremen, safety committeemen and employees and tell them of some of our problems and explain some of our accidents.

I tell the story of a worker in one of our Connecticut factories for over 20 years and was considered a conscientious worker. The story goes that one Saturday morning he ran a splinter in his finger. One of his co-workers took a jack-knife and tried to pick it out. He got the splinter out but he put something else in. John was absent for about five days and nobody knew where he was as he had not reported his injury.

The foreman, who had known John for many years, called at his home one night and found him in bed. Poor John had a pain in his arm and didn't know what it was all about. It became so serious that two doctors called in a third doctor and John was rushed to the hospital, with a serious infection. In two days he died leaving a widow and six children, the youngest of whom was a crippled girl. John's death probably would not have happened if he had gone to our first aid room and received treatment.

I also tell the story of a machinist at our Detroit Plant who had been given a pair of goggles and was told many times to wear them while working at his machine, but he was from the old school. He told the safety engineer that he had worked since he was in knee breeches and still had his two eyes to see with. One day a chip flew from his machine and caught him in the eye and in a few months he was blind in that eye. This fellow came to the safety engineer with tears in his eyes and told him that it was his own fault, he did not want compensation, all he wanted was a steady job. We paid him compensation and we gave him a job. He then asked us if we would allow him to give the employees a talk at one of our safety committee meetings. Of course we gave him this opportunity and that man gave one of the finest safety talks ever given but it cost him an eye to do it.

The New Employee

At one of our factories recently I was [illegible] copy of the following letter which is sent to each new employee on the first day of his employment:

[illegible] Company to emphasize that one of the most important practices of this company is "Safety Work."

We want you to realize that this company is making every effort to prevent accidents among its employees. It is expected that you will cooperate, not only today, but every day, in this work. No matter what work you are doing, whether operating a machine or handling equipment, remember this - the man who thinks "Safety First" all the time does not get hurt.

For your own sake, for the sake of your family, for the sake of your employer, BE CAREFUL! It will pay you well.

(Signed) FACTORY MANAGER.

You can imagine how a new employee would feel receiving a letter like this, on the first day of his employment, signed by the factory manager.

Intensive Campaigns

It is sometimes helpful to stage an intensive campaign—lasting a week or a month. Such a campaign should be thoroughly advertised before it starts. Pledge cards could be passed out by the foremen and sub-foremen for the workmen to sign and return. Each employee thus pledges his support to the campaign and promises to exercise more than usual care to prevent an accident to himself and to those working with him during the period of the campaign. The factory manager should give his endorsement to the campaign by addressing a letter to each foreman. Copies of the letter could be posted on the bulletin boards.

We believe in the home-made safety poster, and find that in most plants there is a good cartoonist who can be used to advantage for drawing on blackboards, making bulletins or sketches that give his fellow employees a good laugh and a safety thought at the same time, with the added interest that comes from knowing the artist.

We have conducted safety slogan contests; used enclosures in pay envelopes; safety buttons at times are worn by employees during safety drives; large signs, over the entrance gates and at other points of advantage, are exhibited; safety slogans have been printed on time cards; safety rallies have been held where demonstrations were given on the prone pressure method of resuscitation.

One of the best methods of putting over the safety message is by the use of safety motion pictures. These are even better than a good safety talk. You can appeal to the eye better than you can to the ear and you are leaving a more lasting impression as each one draws on his own imagination and applies the picture to his own experience and living conditions. The story in moving pictures goes over big among foreign help, especially those who may have difficulty in understanding a safety talk.

We, of course, use the services of the National Safety Council, sending copies of the NATIONAL SAFETY NEWS to our foremen and executives. At Christmas the National Safety Council calendar is distributed.

It has often been asked if a no-accident campaign discourages employees from reporting their injuries at the hospital. If you counted all accidents, minor and major, I believe it would, but the thing to do is to count only lost-time injuries, that is accidents where time is lost on the shift following the shift on which the accident occurred. Put over the thought that of minor injuries are neglected, lost-time infection cases are likely to result.

Don't think that a safety drive will inject enough enthusiasm into the organization to last six months or a year. All these methods mentioned and many others have their places and if seriously carried out will have a certain favorable effect, but those of us who have devoted several years to the cause of accident prevention know that it is the every day plugging away that counts in the long run.

Annual Safety Contests

About ten years ago the United States Rubber Company decided to conduct a safety contest among our factories in the United States, the contest lasting from year to year and the object being to reduce to a minimum the waste due to industrial accidents. The first thing we did was to divide our factories into two groups—those employing less than 500 people in one group, and those employing over 500 people [illegible] the other group.

We next had the task of striking out a formula on which the contest was to be based. We have in our system tire, mechanical goods, [illegible] including regenerating plants, three textile mills, a chemical plant and a factory making shoe hardware and shoe lasts. No two factories alike. We decided to use as a basis in our formula the average experience of each factory for the last three years. The contest was based on the percentage of improvement of this year over-age for the previous three years. We consider this is a fair formula, since it places all factories on the same basis and also permits each factory to compete with its previous average experience.

We had two bronze plaques designed...

Please turn to page 49

37th Annual Statement, December 31, 1934

MARYLAND CASUALTY COMPANY

Baltimore

ASSETS

Cash in Banks and Offices		$ 1,990,690.80
U. S. Government and Government Guaranteed Obligations*		9,768,019.75
Other Bonds and Stocks		12,920,871.44
Premiums in Course of Collection	4,382,055.69	
Less premiums due more than ninety days	391,695.22	3,990,360.47
Real Estate		
Home Office Buildings	2,545,735.42	
Philadelphia Office Buildings	761,839.34	
Other	153,758.96	3,461,333.72
First Mortgages on Real Estate		1,116,645.07
Collateral Loans		439,791.93
Reinsured Losses due from Other Companies		460,345.79
Salvage Recoverable		250,137.56
Interest Accrued		51,893.17
		$34,950,090.30

LIABILITIES

Reserve for Unearned Premiums		$ 8,952,904.22
Reserve for Unpaid Claims, Adjusted and Unadjusted		15,650,890.34
Reserve for Commissions		807,374.03
Reserve for Expenses and Taxes		510,593.22
Reserve for Reinsurance unauthorized		51,506.82
Real Estate Depreciation		683,708.50
Funds held under Reinsurance Treaties		136,249.03
Partial Payments received on Unissued Preferred Stock		251,021.68
Reserve for Accumulated Dividends on Preferred Stock		341,666.67
Special Voluntary Reserve		600,000.00
Capital:		
1st Convertible Preferred Stock Series A**	1,000,000.00	
1st Convertible Preferred Stock Series B**	1,000,000.00	
Junior Convertible Preferred Series B Stock†	137,408.00	
Common Stock	566,792.00	
Surplus	1,261,895.73	
SURPLUS TO POLICYHOLDERS		6,908,095.73
		$34,950,090.30

Securities carried at $2,598,894.52 in the above Statement are deposited with various governmental departments to comply with insurance laws.

* Amortized values on bonds amortizable in accordance with Resolution adopted by the National Convention of Insurance Commissioners, the balance of the bonds and stocks, except those of foreign and subsidiaries, carried at [illegible] shares of [illegible]

** First Convertible Preferred Stock, Series A, represents one million shares, $1.00 par, issued at $1.00 per share and redeemable at the option of the Company at the same price and entitled to dividends at the rate of [illegible] per share per annum. First Convertible Preferred Stock, Series B, represents one million shares, $1.00 par, issued at [illegible] and redeemable at the option of the Company at the same price and entitled to dividends at the rate of [illegible] per share per annum [illegible]

Total Claims Paid Since Organization $239,121,450.85

THE BULLETIN BOARD

A page for those who maintain the Show Windows of Safety

Conducted by STAN KERSHAW

If I Were Running the Bulletin Board

IF I WERE in charge of a safety bulletin board, I'd make it the best bulletin board that was ever used to display posters. I'd get the best safety posters I could find. I would make them all the more interesting by adding stories about accidents and near-accidents. I'd go out of my way to get the fellows on the job to tell me about their narrow escapes and what they learned from them. I'd take snap shots of these fellows to illustrate their stories and I'd take snap shots showing how these near-accidents occurred.

I'd paint up and clean up the bulletin board and maybe I'd polish it. I'd make bright colored backgrounds to show off posters that are not so bright and I'd fix up some backgrounds not so bright to give the brilliant posters a chance to do their best.

I'd make sure no one could say he couldn't read the posters because of poor light and I'd make doubly sure they would stand out so brilliantly at night that every member of the night shift would want to walk over and take a look.

I'd never let a day go by without making some change in the display. I'd at least put up a newspaper clipping about some local accident or perhaps some good local safety activity. I'd see to it that there was plenty of news about the fellows out on the job, and I'd never forget to put up complimentary remarks when compliments were deserved.

I'd get my boss to write safety messages every now and then and I'd give them preferred space. I'd ask him to go further than this and give me, for my bulletin board, the answers to some of the questions Bill Workman is asking about managements, policies and problems.

I'd keep the bulletin board alive with notices of local goings-on and particularly the company events that would be of interest to my fellow workers. I'd obtain or write some brief stories about the company products. I'd tell what they are used for, and what an important part they play in the progress of civilization and what an important part each man plays in their production.

I'd post the safety score of the company every day and I'd find every possible way of giving expression to words of encouragement. I'd have a kind word for the fellow who hasn't acquired the safety spirit and a boost for the fellow who has.

I'd keep a special file of posters on special safety subjects and I'd build up a supply of interesting clippings of articles and pictures to draw from on special occasions.

I'd find out who there might be in the company who could draw or paint and I'd use their talent to produce home-made safety posters, and I'd give them full credit for it. I might even put on a home-made poster contest and [illegible] prizes to the winners.

I'd make sure my bulletin board was located where every one could see it and I'd make doubly sure it was in a place where they would be most apt to stop long enough to read it. I might move it from time to time but I'll wager it would be so interesting that no matter where I'd put it, the fellows would walk out of their way to make sure they hadn't missed the news and I'd guarantee they'd all be a lot more interested in safety than if there were no safety bulletin board.

Each package of posters you receive places in your hands a tool with which to build safety. The results you obtain will depend upon how well you use it.

Give your safety poster displays a keen edge that will enable you to mow down those careless practices that stand in the way of a perfect no-accident record. Keep your bulletin boards clean and attractive and use your best efforts to make them demand the attention they deserve.

When Accidents Strike Close to Home

A SIMPLE but effective way of [illegible] pressing upon his coworkers [illegible] seriousness of the local accident [illegible] tion is used by M. W. Dundore, Beloit Iron Works, Beloit, Wis. First, he selects a strong general poster for the bulletin board. Each day thereafter for a limited period he clips from the newspapers stories of local accidents that sticks them on the poster one beneath the other until several columns are built up.

Sooner or later every employee [illegible] going to recognize the name of [illegible] friend or acquaintance among [illegible] killed and injured. It will bring [illegible] more forcefully the fact that it [illegible] always the other fellow who suffers [illegible] accidents.

From the Scrap Book

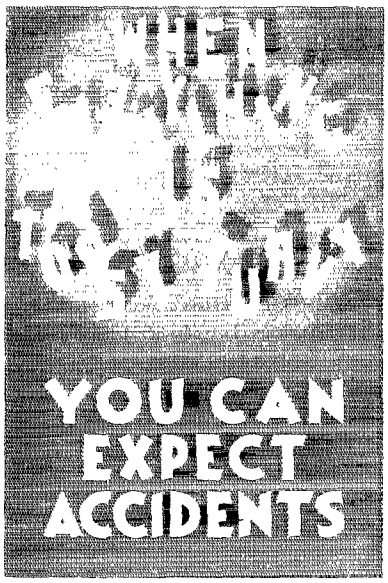
If you want your bulletin board [illegible] look cheerful, paint [illegible] with bright green. If you give it [illegible] of varnish and, when [illegible] it, you will find it quite [illegible] clean.

[illegible] good fibre [illegible] good background for the bulletin [illegible] If you use thumb [illegible] plays in place. It presents a particularly good appearance when painted.

Keep feeding your men information about safety; give it to them in small doses, and give it to them often.

Lead your people to the bulletin boards with large white foot prints painted on the pavements.

Results demand attractive displays, properly located and frequently changed.



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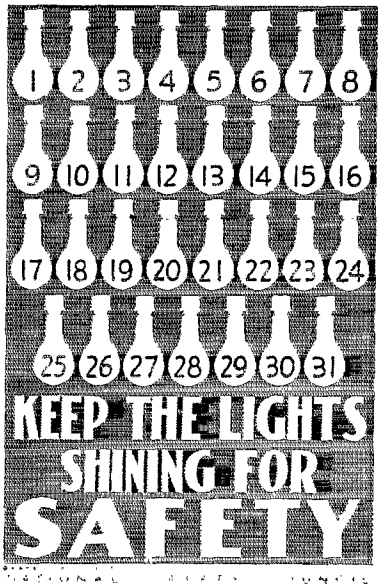

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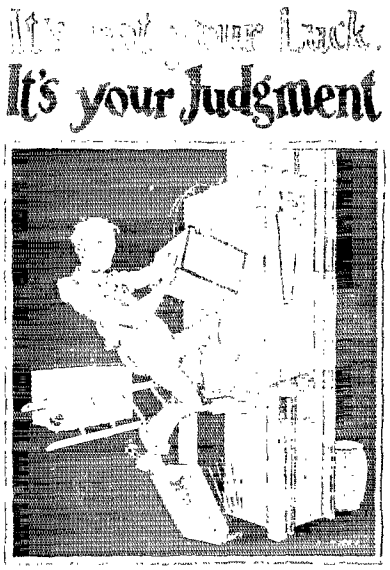
5017-B 17x23 inches 4 units



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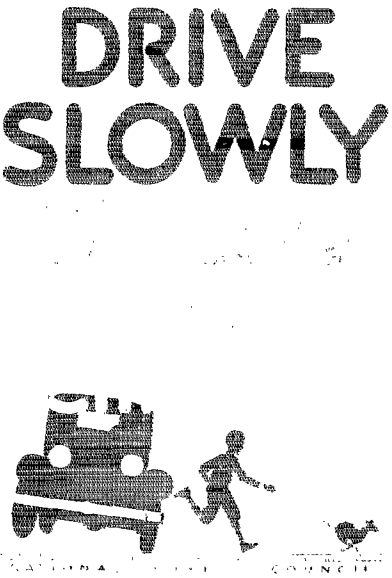
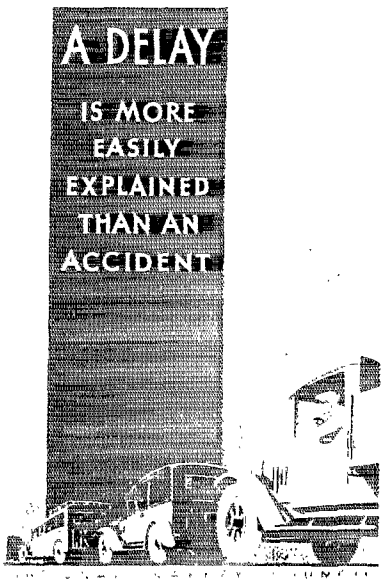


4881-B 17x23 inches 4 units
4882-C 25x38 inches 8 units



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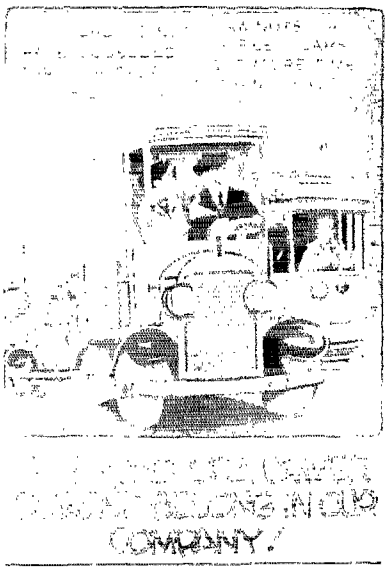

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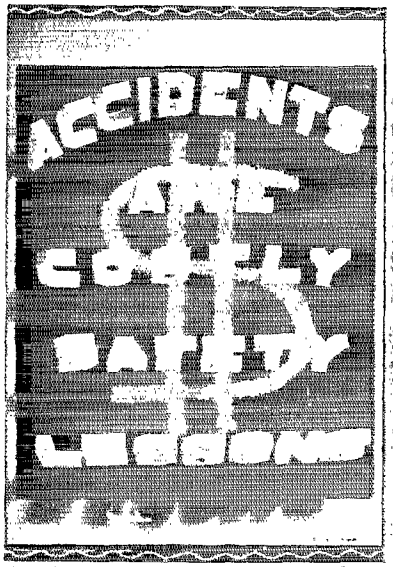


4187-B 17x23 inches 4 units



4845-B 17x23 inches 4 units



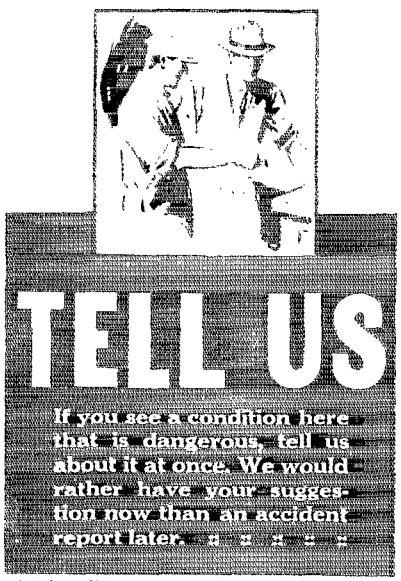
5268-B 12x18 inches 2 units



5401-B 12x23 inches 4 units



4779-B 12x23 inches 4 units



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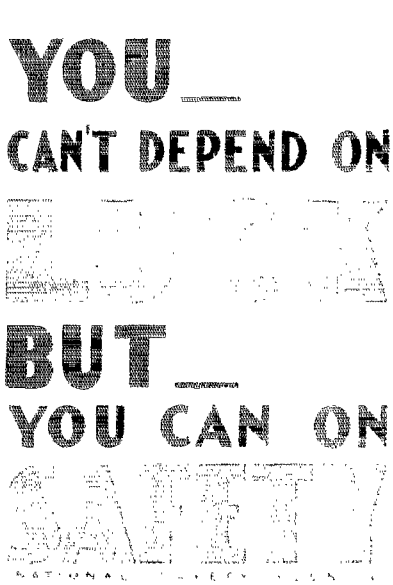

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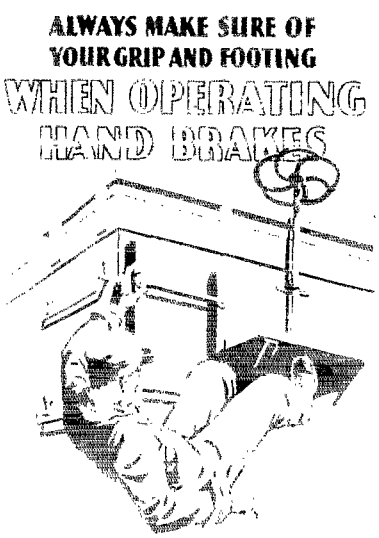
4421 9x12 inches 1 unit



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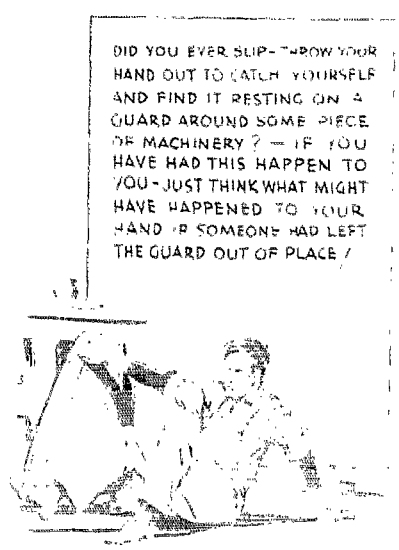

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Electrotypes may be purchased from the National Safety Council for 50 cents. NATIONAL SAFETY NEWS



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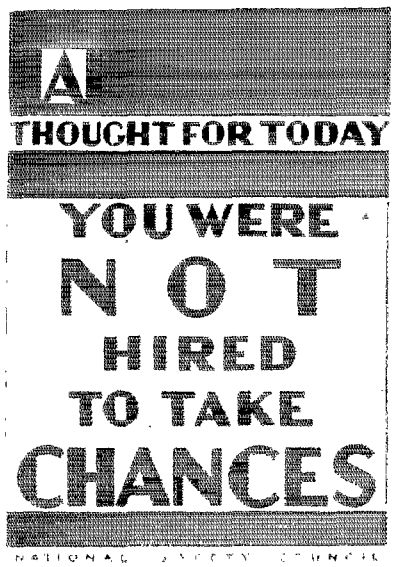

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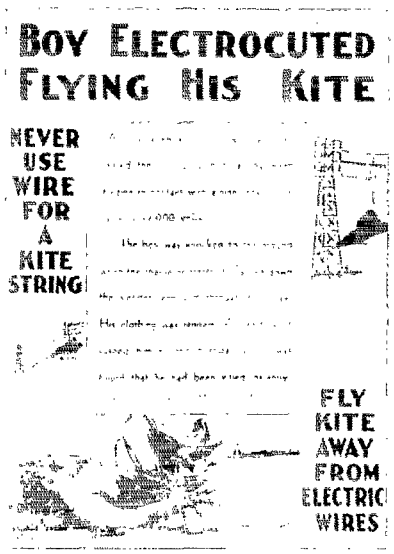

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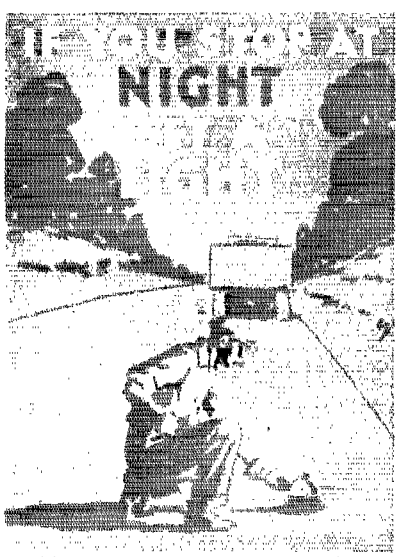

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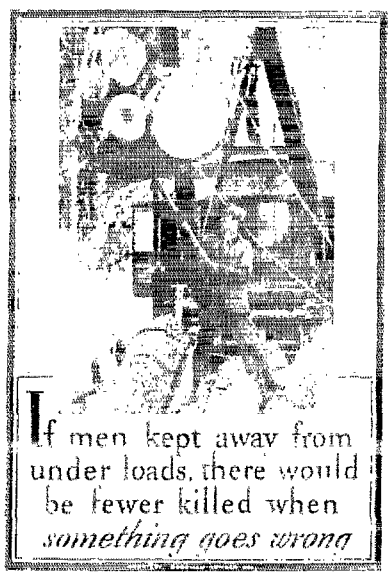

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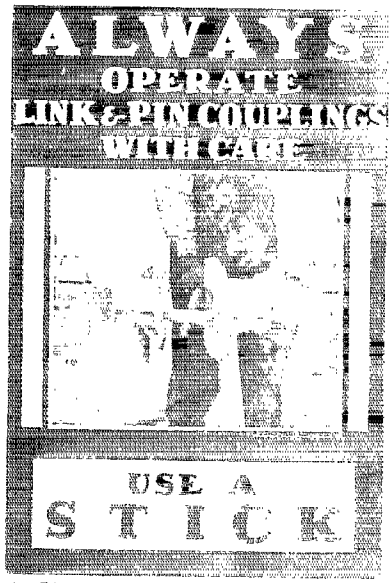

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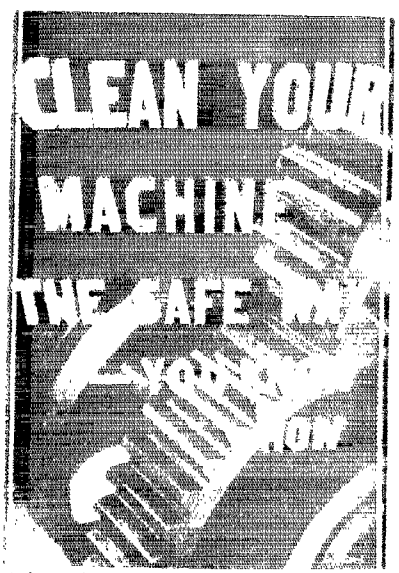

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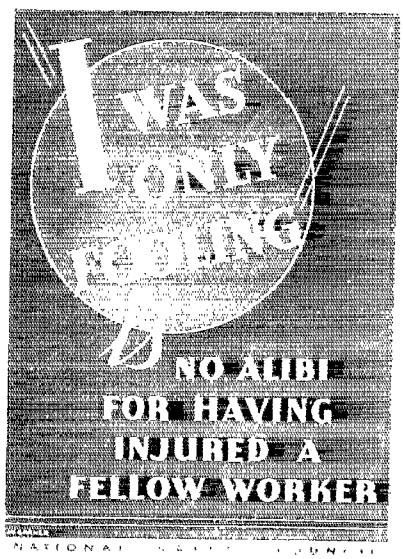

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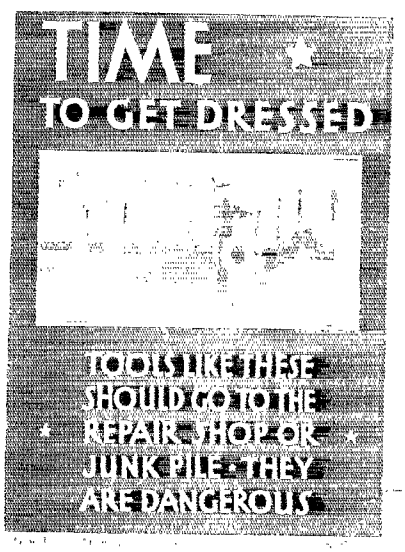

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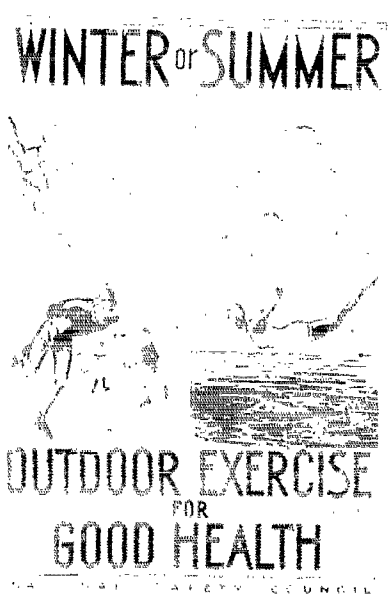

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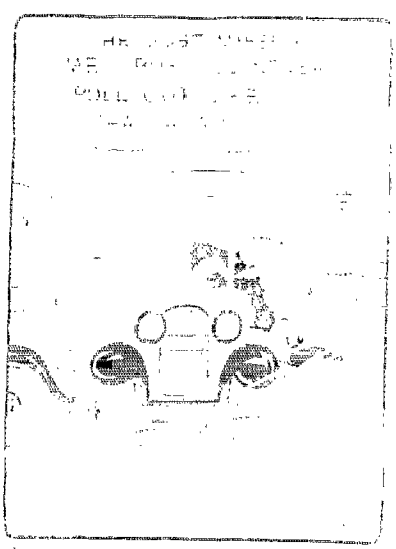

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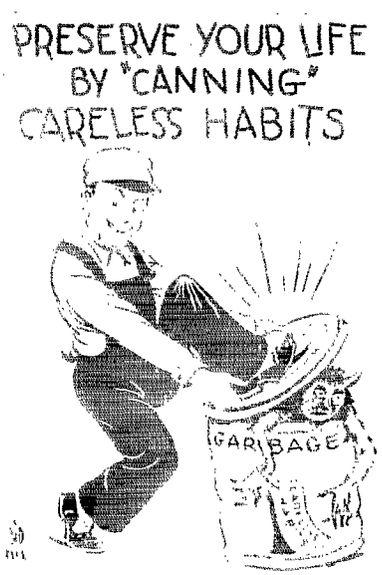

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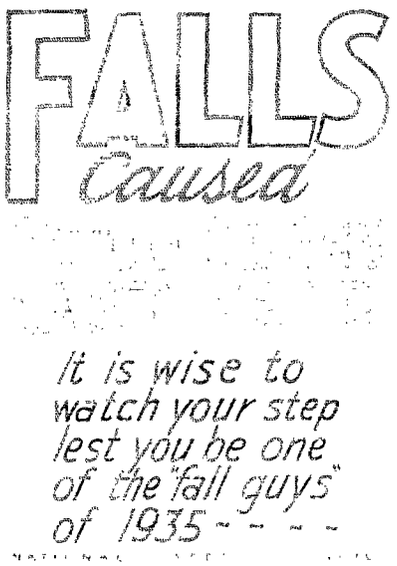

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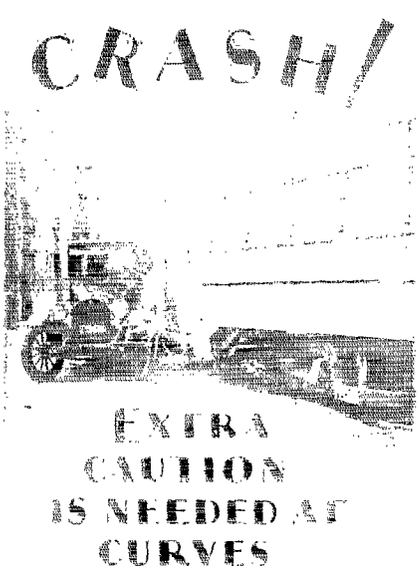

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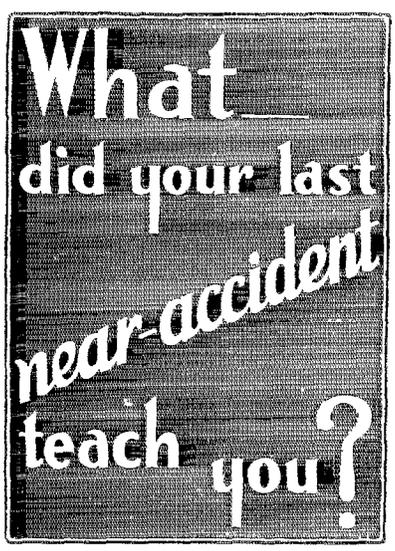

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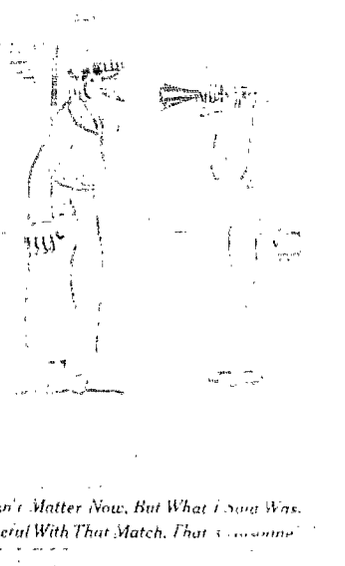

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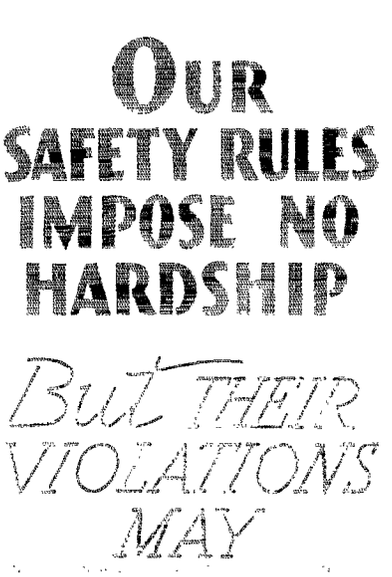

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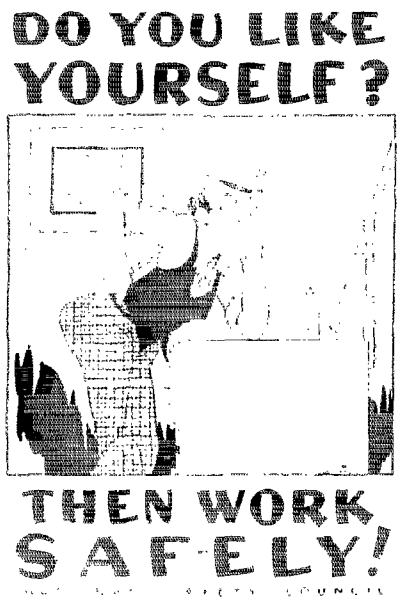

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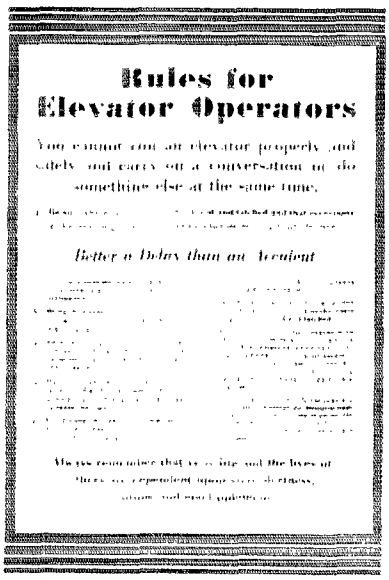

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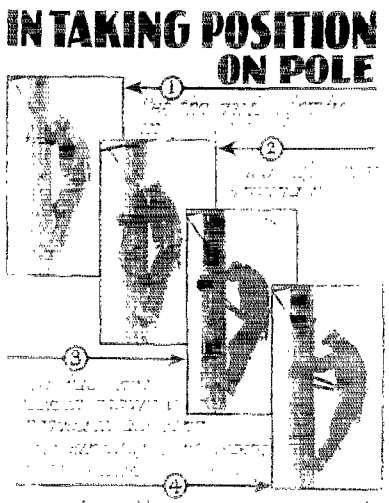

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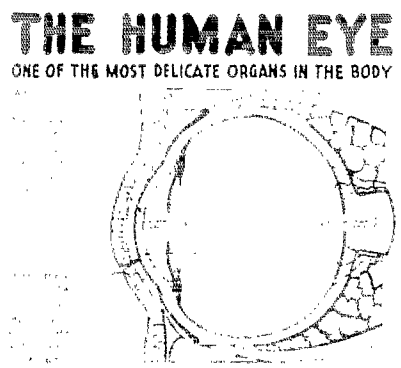



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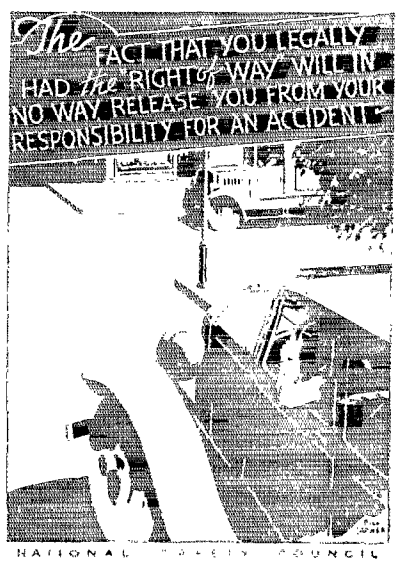

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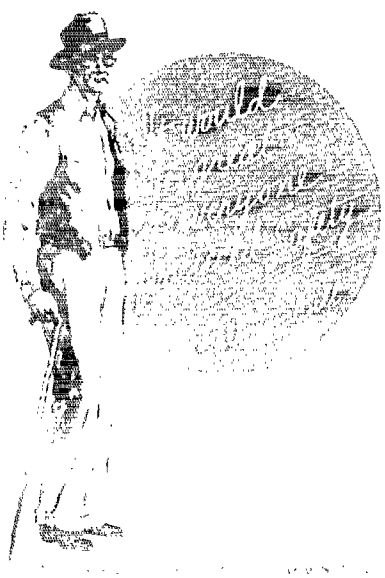

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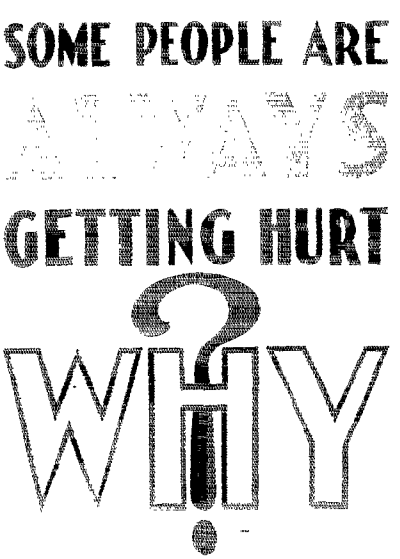

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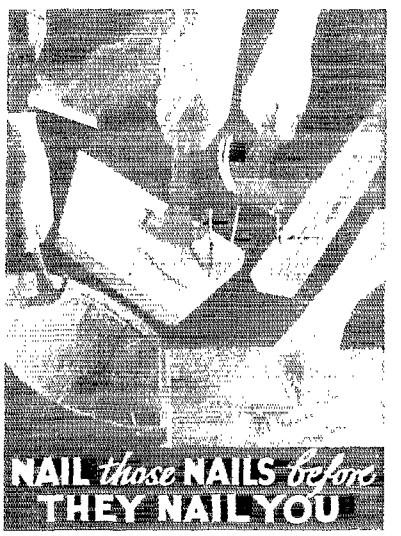

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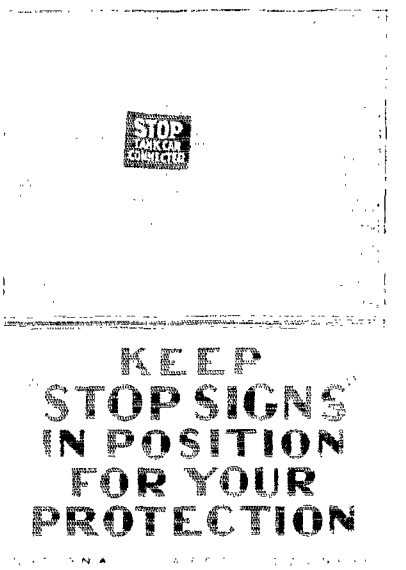

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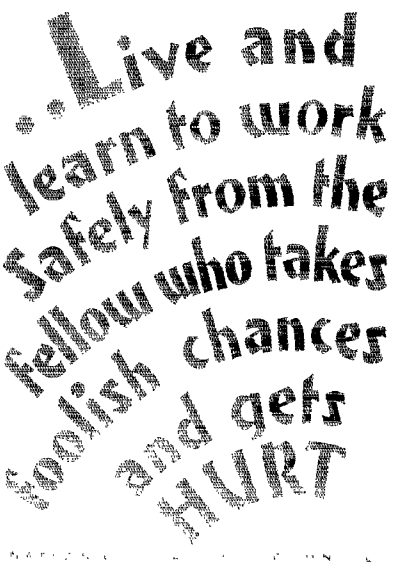

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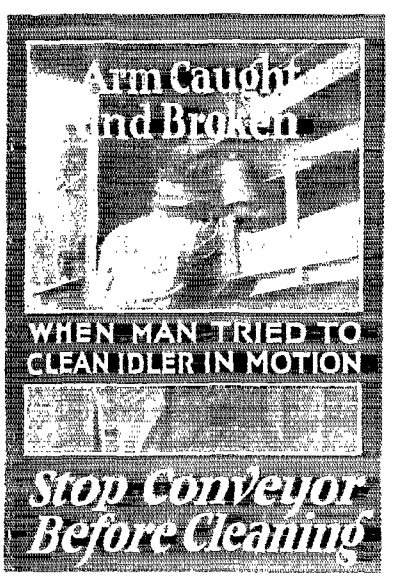

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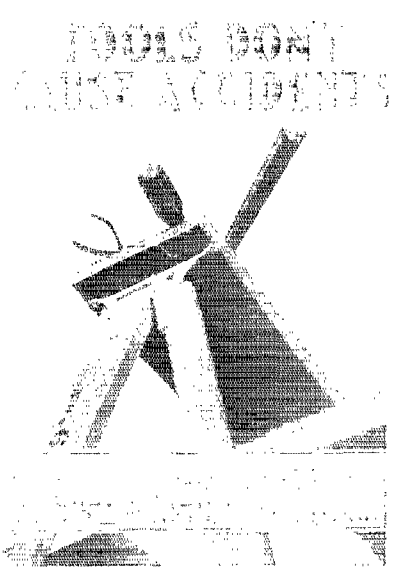

5427 9x12 inches 1 unit

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QUALITY INSPECTOR _____

BOX _____ OF _____

SECTION _____ OF _____

JOB # 2466

The Organization Behind the Safety Program

Continued from page [illegible]

one for each group of factories. During the year these trophies were shipped to the factories for exhibition in order to stimulate interest in the contest.

This is not a safety drive as we all understand safety drives, but a twelve-month contest which is renewed each year and has been running for eleven years. It has aroused a great deal of interest on the part of the entire organization. Here is a letter which was written by the president of our company and sent to the executives at our plants.

[illegible] contest now being [illegible] and shall follow [illegible]

[illegible] which we are [illegible] necessary for all [illegible] maintain [illegible] the time the same [illegible] contest has brought forth. To me the important phase of accident prevention [illegible] much economic as it is humanitarian and I feel that the cost of suffering to those injured and their families, merits the [illegible] safety work of [illegible] industry. The importance of example should be over-estimated; we all share the responsibility of making [illegible]

This letter was posted on all bulletin boards at our factories, and was followed up by similar letters signed by the factory managers, superintendents, foremen, etc. In some [illegible] letters were sent to the homes which give the matter a more personal touch.

Keep Accurate Records

[illegible] should keep [illegible] of accidents [illegible] lost and [illegible]

[illegible] here you [illegible] which [illegible] unless these figures [illegible] and are kept [illegible] work of a safety department is similar to the work of an accounting department in any well organized company. It is the accounting department [illegible] out the profit or loss. The same is true with accident [illegible] the trend of [illegible] prevention work.

The safety engineer should not be satisfied with just compiling his own experience but should have the accident statistics of some other concerns so that he may compare his own experience with the industry as a whole or with the experience of other concerns. Give accident statistics wide publicity in your organization in such a way that they will cause the negligent to do better and further encourage those who are doing good work.

Management is accustomed to dealing in figures and it is surprising how simple a job it is to sell safety to the busy executive by showing him a well prepared set of accident figures. By all means keep accident statistics, and when you get them use them.

Hold mass meetings. Be sure that the big boss is there; in fact he should always have a few words to say on this subject at every meeting. I have heard of factory managers and superintendents saying they were too busy to be present and speak at a safety meeting. They are passing up an excellent opportunity to put over safety in their plants. As a matter of fact they may not know it but their very absence hurts the safety movement at their plants. Employees, foremen and others are going to do their own thinking and in the majority of cases they will think that the factory manager is not interested in safety.

The task of promoting and maintaining interest in safety is not a one-man job. The success of the work can best be measured by the number of people who are cooperating and if the safety [illegible] is wise he will stay in the background as much as possible and stimulate [illegible] on the firing line. He should by all means give credit for results achieved to his helpers as the [illegible] work will be reflected through the efforts and results of his associates. He [illegible] finishing [illegible] of eternal vigilance.

Take Poison Out of Illuminating Gas

A NON-POISONOUS illuminating gas has been invented in Hameln, Germany, according to correspondence with the American Chemical Society, as reported in *The Week's Science*. Accidental deaths have been decreased greatly by the custom of adding odorants to the gas, so that leaks are detected immediately, but this has not avoided an alarming number of gas suicides, often with considerable danger to others as a result of explosions. Carbon monoxide, the same poison found in exhaust gases of automobiles, is the poisonous part of the illuminating gas. It is present in the gas yielded by nearly all processes of making gas from coal or oil. The Hameln chemists let it be produced but then convert it into harmless compounds by mixing the gas with a little water vapor and passing the mixture over a special catalyst. This catalyst makes the carbon monoxide and the water vapor react chemically with each other to produce harmless gases.

The gas is not damaged in heating power or other desirable characteristics. Other chemical processes are used at the same time to remove bad smelling constituents as well as a large part of the sulphur, which element often causes bad smells for dangerous gases when the gas is burned. The extra cost of treating the gas is reported to be less than 1/50 of one cent per cubic foot.

Many York Plants Had Perfect Safety Records

TWENTY-THREE industrial concerns of York, Pa., were awarded certificates by the Foremen's Club of the York Y.M.C.A. for operating throughout 1934 without a disabling injury. These contests have been conducted for the past four years and 68 companies participated during 1934.

The presentations were made at the January meeting of the Club. The illustration shows the banners which were hung over the speakers' table at the meeting.



PROTECT YOUR WORKERS
From the Menace of OIL DERMATITIS

Virulent Skin Disease • Blood Poisoning • Amputation • Loss of Time • High Insurance

- Oil Dermatitis is caused by pus germs carried into pores, hair follicles and abrasions of the worker's skin by cutting oil or compound. Germ free oil becomes infected during use. An epidemic of Oil Dermatitis may infect every worker in an entire department. The danger is serious, for this disease may lead to blood poisoning and amputation.
- Efficient disinfection of all cutting oils and compounds used in your plant will eliminate the chief causes of this disease. Keep all cutting oils and compounds sterile with WESCOL, a powerful germicide, sixteen times stronger bacteriologically than pure carbolic acid, when tested against B. Typhosus which readily dissolves in either oil or compound without altering the efficiency. Just add one pint of WESCOL to each fifty gallons of cutting oil or compound.
- Because of its high germicidal strength, comparatively small quantities of WESCOL will keep oils or compounds sterile without danger of corroding metals, without reducing the lubricating efficiency of the oils and without danger of irritating the skin of the workers.
- The use of WESCOL is inexpensive, yet it protects your workers from a great industrial menace. Write for our free booklet on WESCOL and Oil Dermatitis.

WESCOL

A product of the West Disinfecting Company, 12-16 Barn Street, Long Island City, New York
Branches in All Principal Cities

DUPOR

Reg. U. S. Pat. Off.

The ORIGINAL
REVOLUTIONARY
Double Filter Chamber
RESPIRATOR

Basic and Detail Patents Allowed



BULB VALVE TYPE No. 4

Has a clear entrance filter aperture of 7½ sq. in. and uses felt filter pads.

Extra Pads, ⅛ in. thick, 4c each

The exhalation valve takes care of moisture and makes for easy breathing.

Price $18.00 Dozen

Sample postpaid, $1.50

The slower speed of the air through the felt filter pads, causes more dust and spray to be caught.

First users of DUPOR are continually ordering more.

Thousands in Use.

Used in all kinds of dusts. Also, in light fumes, vapors and paint spray free from harmful gases.

Manufactured only by



BULB VALVE TYPE No. 5

Has enlarged adjustable filter chambers of screw cap type and the very large filter aperature of 11½ sq. in.

Extra Pads, ⅛ in. thick, 3c each

The exhalation valve takes care of moisture and makes for easy breathing.

Price $24.00 Dozen

Sample postpaid, $2.00

H. S. COVER

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

San Francisco News Leads Safety Campaign

EIGHTEEN fewer lives were sacrificed in automobile accidents in San Francisco during 1934 than in 1933. The decrease of 14.5 per cent was obtained while California and the country as a whole registered an increase of more than 15 per cent.

In this splendid accomplishment the *San Francisco News* played a leading part. The crusade started at the beginning of 1934. The best reporter on the staff was assigned to safety exclusively, to work under the direction of an associate editor who advised on policy and assisted on editorials, cartoons and methods of dramatizing the safety message. The order was "at least one safety story every day."

The Mayor cooperated by entering San Francisco in the National Traffic Safety Contest. *The News* conducted a two-week contest with cash prizes for the best traffic safety slogan and accompanying letter on what the paper could do to make the city safer. From the 2,500 entries, the judges selected the slogan "Safety, or else!"

The News Safety Club was organized with an appropriate windshield sticker issued to members, carrying the inscription, "Our pledge No Accidents 1934." By signing a pledge card, citizens obtained stickers and leaflets on traffic laws. Practically every phase of San Francisco's business and civic life was enlisted in the many activities which were conducted unceasingly throughout the year.

A spectacular demonstration occurred during the First Annual Traffic Safety Week, arranged with the cooperation of the Junior Chamber of Commerce. Speakers were provided for every club and for the radio, and a definite program was laid out for each day, culminating in a parade, which included exhibitions of both safe and reckless driving.

All law enforcement agencies were represented in a conference with the judge of the traffic court. Out of this conference grew a revised plan for dealing with drinking and driving.

Accidents were lifted out of the routine class of reporting and became front page news. Views of each day's story carried the total deaths and injuries to date, as compared to the previous year's toll. From the families of victims dozens of human interest stories were obtained.

Many of the activities initiated by *The News* have developed into statewide movements.

TO OUR FRIENDS

THE PURCHASING AGENT AND SAFETY ENGINEER



Purchasing agents and safety engineers in any organization have a common duty to perform for their employer, namely, to BUY materials ECONOMICALLY and to SUPERVISE the production of finished products ECONOMICALLY and SAFELY.

Accidents are an economic waste. Lost time and compensation charges are costly . . . . that's why many insurance companies grant reductions in compensation rates where workers are equipped with recommended or approved safety wearing apparel.

STEEL-GRIP safety clothing is made of the highest quality materials. There is no finer workmanship obtainable anywhere. Hundreds of users know this to be true.

Cheap safety clothing is never economical—for the best is none too good when it comes to preventing accidents and possible loss of life among workers.

Our nearest branch is ready to serve your requirements. Write for your copy of our complete catalog today. Do it now! Tomorrow may be too late.

OLD HICKORY STEEL-GRIP MADE IN U.S.A. REG. U.S. PAT. OFF.

INDUSTRIAL GLOVES CORPORATION

725 GARFIELD BLVD. DANVILLE, ILL.

Chicago Detroit Philadelphia

Safety's Silver Anniversary

(Continued from page 13)

colors being used in rotation to add variety. Posters throughout the plant announced the silver anniversary of safety work in the company.

While attending the pageant, "Wings of a Century," at the World's Fair last summer, Mr. Harrison got the idea for a pageant depicting a quarter century of progress in safety. Historical data are now being assembled and plans are under way for the pageant which will be staged some time in May.

"Our hardest job is to keep people awake," said Mr. Harrison expressing the universal problem in safety work. When the situation seemed to require strong medicine, Mr. Harrison has overcome his own repugnance and dramatized the unpleasant details of a serious accident.

Perhaps no incident has ever demonstrated the strength of organized safety work more forcefully than one fatal accident which occurred at McCormick Works. There was a tragic irony about this fatality that seemed to discredit the whole safety movement. While posting the number of days since the last accident, a watchman fell from the ladder and died later from his injuries.

What a situation for the scoffers, the fatalists and the superstitious! It confirmed their stubborn belief that accidents are beyond human control, in spite of the downward trend of injury rates. But here the morale of the organization asserted itself. Officials, supervisors and the vast majority of the workers refused to admit the futility of preventive effort. The human element had failed but their faith in the underlying principles of safety work was unshaken.

The attitude of the organization toward no-accident records has been admirably expressed in one of superintendent Harrison's letters to foremen. It is worth quoting in full:

"I believe a good way to avoid bitter disappointment when a long record of no accidents is spoiled is to constantly dwell on the importance of what we are doing about it today.

"A record of 1,000 days gives no protection against what might happen today if you failed to learn anything in the making of that record. The winning of banners and contests is no vaccination against a mishap.

"If you can go home each night feeling that you successfully conducted your department through another eight hours because of your personal direction and close attention to the conduct of those in your charge, you have done a good job; in fact, a complete job and all that can be expected of you.

"The older you are the more you realize that each day, as it comes along, presents old problems in an unexpected form, and, quite often, something absolutely new. Being alert, quick witted and on the job will be what is required to add another day to the old record, regardless of whether it was a month or five years.

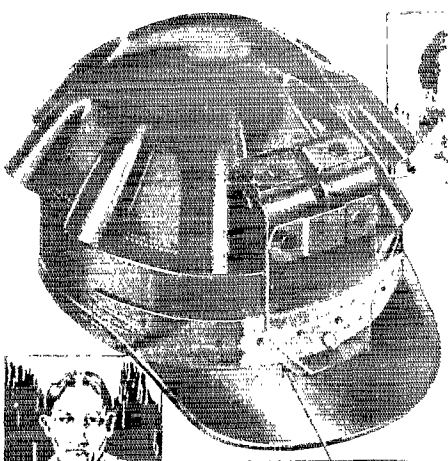
"[illegible] is the record you and I are after."

Filling station attendant: "Here comes another U. W. W. customer."

Patron: "What's that?"

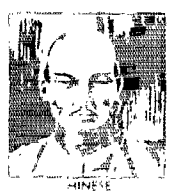
Attendant: "A motorist who wants only information, wind and water."

Which reminds us of a sign on a filling station in Western Ontario, "If you like our air and water, try our gas and oil."





AMERICAN



HINESE





CANADIAN

Protective COOL CAP! Note the Flexible Ventilated Forehead Band for Comfort.

COOL CAPS and COOL HATS

Fit Every Cranium Comfortably!

No matter what the size or shape of head may be, COOL CAPS and COOL HATS fit every cranium comfortably. That's why workmen everywhere have showed such a preference for the COOL brand. And what's more important, they wear them!

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SLAV



GERMAN



HUNGARIAN



POLISH

The Word's Worst Railroad Wrecks

WHEN the Paris-Strasbourg Express crashed into the rear of another train at Lagny, France, on Christmas Eve 1933, killing 200 and injuring 300 it was proclaimed as the world's greatest railroad disaster. But two even more terrible disasters occurred in Europe amid the greater catastrophe of a World War. The three wrecks are described by H. T. Wilkins and J. E. Byrne writing in the January, 1935, issue of *Railroad Stories*.

At Lagny the Strasbourg Express, an hour late out of Paris and rushing blindly through a fog, crashed into the wooden coaches of the Paris-Nancy Express standing on the main line. All of the deaths were in the Nancy train; few of the passengers on the all-steel Strasbourg Express were even injured. Even the engine crew escaped. The speed recorder showed that the locomotive was traveling 65 miles an hour in a fog which obliterated all signals.

The human element was also responsible for an even greater disaster at Gretna Green, Scotland, where on May 1, 1915 five trains were scrambled in one blazing tangle. Confusion in the signal tower as the night towerman was going off duty was responsible. A special train loaded with Scottish troops crashed into a local, and while the survivors were trying to rescue the dead and dying from the wreckage, the London-Glasgow express thundered into the debris, killing rescuers and rescued and scattering the two freight trains on the sidings. Immediately fire broke out. In all, some 225 persons were killed and 250 injured.

Details of the third and most horrible disaster were long suppressed by military censorship and the inside story was probably published for the first time in this country in *Railroad Stories*. It happened on the night of December 12, 1917. About 1[illegible] soldiers were waiting at the little station of Modane on the Franco Italian frontier. They were going home on Christmas leave.

The engineer warned a group of staff officers that the train was too heavy for the steep grade and sharp curves. When he refused to start he was warned that he would be shot at sunrise. As the [illegible] the train [illegible] control. Friction of brakes and wheels started fires but the train thundered on. Then came a sharp curve. The train was hurled to one side and the cars piled in a flaming heap. In that terrible half hour 543 men were killed and 243 injured.

HERE'S

SAFE FOOTING

ON ANY FLOORING



ALWAYS—wherever he steps in your plant—the workman who wears *Gro-Cord Raw Cord* Soles and Heels is protected from costly slipping accidents. On slippery boards . . . on wet flooring . . . on stairways . . . on ladders . . . on elevators, *Gro-Cord Raw Cords* provide a non-slip walking surface.

Upright cords, embedded in live rubber maintain a friction surface between sole and flooring. Wear keeps cord ends constantly bare and sole non-slip to the last day of wear.

Workmen like to wear *Gro-Cords* because of their great flexibility, comfort and long wearing qualities. Easily attached to any shoe or any manufacturer can supply them on new footwear. A complete line of safety rubber footwear, Gro-Cord equipped, is also available.

Write for catalog—test *Gro-Cords* on your *own* shoes.

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

NRA

The Lima Cord Sole & Heel Co., Dept. 3F, Lima, O

Fully Protected by Patents [illegible] Will Be Protected

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NON-SLIP SOLES AND HEELS

USE a UNION or COLUMBIA CARBOY INCLINATOR



for the SAFE and EASY way to pour acids and chemicals from carboys or small and medium size drums.

A tried-and-proved device attractively priced, sold on money back guarantee.

Send for a completely illustrated and descriptive bulletin giving full particulars and prices.

Write to

THE INCLINATOR COMPANY

MINNEAPOLIS—P. O. BOX 363—MINN.

Everything BULLARD in Safety

BULLARD



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

REEL HOSE MASK

NATION-WIDE SERVICE

EAST NEW YORK W. [illegible] Corporation [illegible] Brady Building
PITTSBURGH [illegible]
PHILADELPHIA [illegible]
CLEVELAND Safety Clothing Co. [illegible]
BRAINTREE, MASS. Direct Sales Co. [illegible] President [illegible]

SOUTH CHATTANOOGA, TENN. [illegible] Chattanooga Bank Building

MID-WEST DETROIT [illegible] East Grand Boulevard
CHICAGO [illegible] South Leavitt Street
GREEN BAY, WIS. Safety [illegible] No. Quincy Street
DULUTH [illegible] W. Michigan Street
HOUSTON [illegible] Main Street

WEST SAN FRANCISCO E. D. Bullard Company [illegible] Eighth Street
LOS ANGELES E. D. Bullard [illegible] South Olive Street
SALT LAKE CITY E. D. Bullard [illegible] Tavernet Avenue



Close Hopper-Bottom Car Doors with

EASE and SAFETY

Prevent smashed fingers, strained backs, ruptures and other serious injuries, by using the Prescott Safety Tool—Saves time—Is inexpensive.

Write for prices and details

The Trumbull Mfg. Co.
Warren, Ohio

PERSONALS

LEWIS W. MCINTYRE, formerly chief engineer and head of the Bureau of Traffic Planning of Pittsburgh has been appointed executive secretary and manager of the Pittsburgh Motor Club. He had served as acting manager of the club since October 15. McIntyre has been vice-chairman of the Street & Highway Traffic Section of the National Safety Council for the past two years.

EARL E. GRANT, vice-chairman of the Paper and Pulp Section, N. C. and director of personnel for The Crystal Tissue Company, Middletown, Ohio, has been elected vice-president of the company. Mr. Grant joined the Company in September, 1921 taking charge of the mill stores. He will continue to direct the companies safety activities in addition to his new duties.

COL. B. W. DUNN, who has been chief inspector of the Bureau of Explosives since its organization, retired February 1. W. S. TOPPING has been appointed chief inspector with headquarters at 30 Vesey Street, New York City.

A. E. SMALL, president of Underwriters Laboratories, Chicago, has been elected a member of the board of directors of the American Standards Association for a three-year term beginning January 1, 1935. He represents the Fire Protection Group.

OBITUARY

MAJOR ROBERT E. LEE, organizer and former secretary-manager of the St. Louis Automobile Dealers Association and past president of the St. Louis Safety Council died at his home in St. Louis January [illegible] and one-half years. He was 67 years [illegible]

Major Lee was president of the St. Louis Safety Council from 1926 to 1928. Before and after that period he served the Council on the Executive Committee and on the finance and [illegible]

visory committee. He was also director of the women's safe drivers' school and head of the traffic vigilance committee. Until failing health interfered, Major Lee's services were always available to the council and he was ready at any time to go and make talks in the interest of safety.

JOHN BARTON PAYNE, national chairman of the American Red Cross and former secretary of the Interior, died January 24. He was 80 years old and pneumonia was the cause of death.

Mr. Payne had been chairman of the American Red Cross since 1921 and had received numerous decorations for his international Red Cross activities. He was chairman of the Board of Governors of the League of Red Cross Societies in Paris, in which 35 nations were represented. Among the countries which had honored him for his services to humanity through the Red Cross were France, Belgium, Greece, Japan, China, Poland and Austria. He was secretary of the Interior under President Wilson after the war. Mr. Payne will be remembered by many members of the National Safety Council as the keynote speaker at the 1925 Congress in Cleveland.

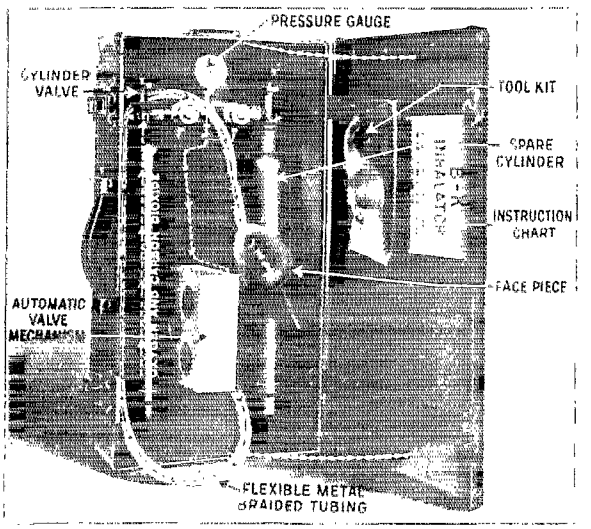
Bureau of Mines Plans to Resume Safety Activities

SERVICES of the United States Bureau of Mines to the Mineral Industries, which have been greatly curtailed through lack of funds in recent years, will be resumed as soon as conditions permit, according to Dr. John W. Finch, newly appointed Director of the Bureau.

In discussing work which he plans to resume as soon as funds can be obtained, Dr. Finch mentions explosives research, which was responsible for the development of comparatively safe permissible explosives for use in coal mines; recommissioning of the nine mine rescue cars that now stand idle on railroad sidings, but which should be placed in service to render first aid at mine disasters or to serve as classes of operation for training miners in first aid, mine rescue and recovery operations and in safety education; the study of methods of accident prevention, particularly with respect to falls of roof in mines; expansion of first aid training which has been reduced to about one-half its former activity; and the resumption of studies of health of miners and of sanitation in mining communities.

B-K INHALATORS • • • •

ARE OFFICIALLY APPROVED BY A.G.A.



B-K Inhalator

Salient and Exclusive Features

The B-K INHALATOR is simple, foot-proof, less expensive and easier to operate than any other make. It can be operated successfully by one person, furnishing oxygen and carbon dioxide automatically, as required by the breather, and at just enough pressure to flow.

B-K INHALATORS are used by the largest public utilities and fire departments throughout the United States. Details on request. Write for Bulletin 104.

$150.00 F.O.B. Pittsburgh, Pa.

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MANUFACTURERS of OXYGEN EQUIPMENT PRODUCTS

PREVENT SLIPPING ACCIDENTS
on Stairs and Other Walkways

*Feralun *Bronzalun *Alumalun *Nicalun
Abrasive Metal Treads

For New and Worn Steps
Abrasive Metal Treads Are Fireproof
Durability Proven in Severest Service
Originators and Developers for 25 Years
Illustrated Leaflets and samples on Request

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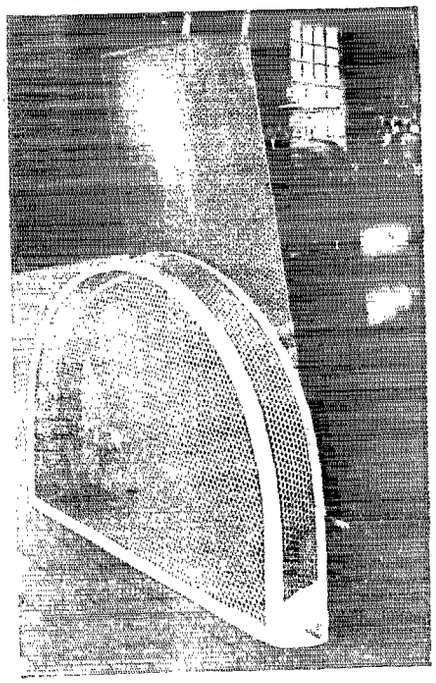


SAFETY GUARDS

Go the limit for safety—it pays. An investment in any device which will aid in preventing accidents will pay good dividends.

The elimination of hazard increases the confidence of the machine operator and steps up production.

Our Safety Guard accessories embrace all the parts needed for making Guards that are safe, sightly, and with machine visibility.

Put out under the inspection service of the Underwriters' Laboratories.

Write for further information and prices.

The Harrington & King Perforating Co.

114 Liberty St.
NEW YORK, N. Y.

5645 Fillmore St.
CHICAGO, ILL.

Carbon Monoxide Continues Its Deadly Work

THE total number of deaths from carbon monoxide is difficult to estimate, since, in many localities, bureaus of vital statistics and departments of health separate suicidal from accidental asphyxiations. Further, the very low ebb to which forensic medicine has sunk in this country, owing to an ancient, politically bad coroners system, renders investigations inaccurate and often of no value.

It may be roughly assumed, however, that there are 50,000 asphyxial deaths a year in this country (approximately [illegible] per week) and that about one-[illegible] of them are caused by carbon [illegible].

In New York City, where the population and [illegible] statistics are of [illegible] value, since all such deaths are reported to and investigated by the office of the chief medical examiner.

During [illegible] period 1929-[illegible] there were 2,501 deaths from carbon monoxide poisoning, an average of 357 deaths a year. As a cause of violent death it is exceeded only by highway accidents, which, for the same period, averaged 1,400 a year.

Certainly more than half of such deaths throughout the country are accidental and due, on the one hand, to such causes as faulty and leaky gas fixtures, carelessness and intoxication, and, on the other, to a lack of interest on the part of the public, the hospital authorities and the medical profession in quick, competent resuscitation methods.

In civil life by far the most common source of danger is the inhalation of illuminating gas. In 5,130 deaths from carbon monoxide in New York City, 2,[illegible] were caused by illuminating gas, [illegible] by automobile exhaust, 74 by coal [illegible] and [illegible] from all other sources.—[illegible] Bureau of Chemistry, November 1, 1934.



Spray your burns

Dealers Wanted

VioGen—*The New Instant Spray Treatment for Burns*—is a solution of Gentian Violet. Rapidly forms a thin, light, tough and flexible crust. Protects the wound against the entrance of germs. Underlying skin tissue permitted to grow rapidly. Tests by leading authorities have proved its use has produced exceptional results. Satisfaction guaranteed. *Large Spray Set $1.50.*

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

FREE

TRIAL SIZE OF VioGen Sent FREE

MAIL COUPON

BURNHAM LABORATORIES, W. Medway, Mass.

[illegible]

State

Award Gold Medals for Safe Driving

EXCEPTIONAL records for safe [illegible] have been made by 1,082 [illegible] employees, it is announced by Ralph [illegible], general manager of the Philadelphia Rapid Transit Company, on January 1 had completed three years of driving through the streets without accident. In that [illegible] they had driven 3,[illegible],000 miles and their combined travel totalled [illegible],000 miles, equal to one and a half [illegible].

In a series of ceremonies being held in

approximately 100 cities through the country where the company's bakeries are operated, the drivers are being presented with gold medals. Through the year about 400 more salesmen will become eligible to receive the gold medals, if their accident records continue clear.

"Accidents in which company employees have participated have been greatly curtained during the past three years, since the start of our five-year safety educational campaign," R. C. Haven, safety engineer for the Continental Baking Company, states. "Every precaution is taken by the company to guard against mechanical failures and constant educational campaign among employees keeps them on the alert to avoid accidents. Aside from our obligation to protect the public as well as the salesmen from accidents involving company wagons, the safety program is proving worth while economically and is much appreciated by the public."

Mr. Haven [illegible] the tremendous increase in automobile fatalities in the United States last year, when more than [illegible] people lost their lives, none of these fatalities resulted from the negligence of any of the company's 1400 salesmen who together drove motor vehicles a total of 49 million miles during the year.

Time Exposures or Snap Shots

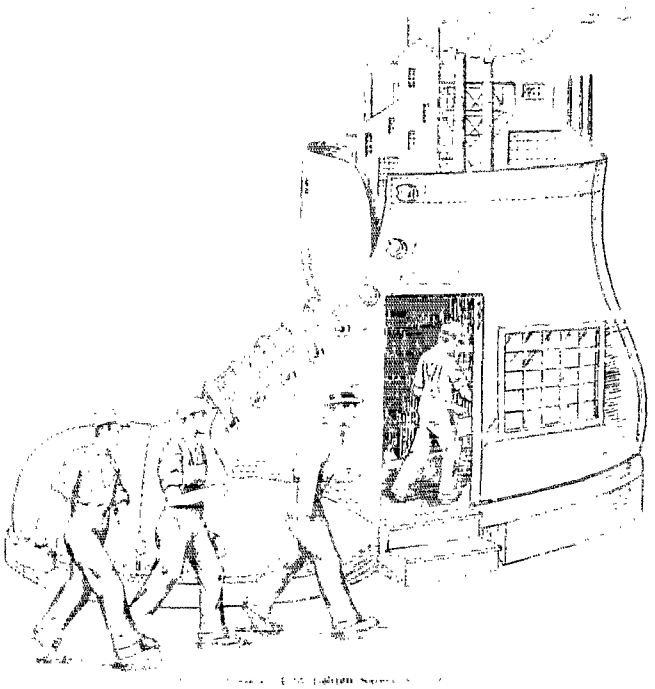
Continued from page 25

amount of light to meet these conditions, and therefore to conserve eyesight and assure quick and comfortable seeing, have been accurately determined for hundreds of [illegible] tasks. Rule-of-thumb methods have been supplanted by scientific studies [illegible] by thousands of practical [illegible] and [illegible] the [illegible].

In the majority of industries, the cost of lighting is a very small percentage of operating expenses. One is forced to add that [illegible] enough item to be noted for the application of supposed economies, but too small to inspire [illegible] possibilities in the realization [illegible] and direct money [illegible] human benefits that are extended to every branch of an organization. These will inevitably find their [illegible] the [illegible] sheet.

The mother of a flying cadet wrote: [illegible] and whatever you do fly low and slow.

Industry Works in LEHIGH SAFETY SHOES



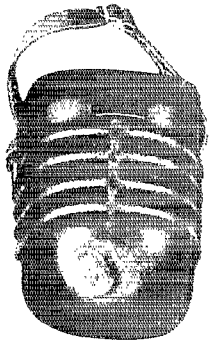
[illegible] Lehigh Safety [illegible]

——and no wonder! Lehigh Safety Shoes with Improved Steel Box Toe are built for comfort, fit and style. Their good appearance appeals to the worker and their safety construction insures maximum protection. Be sure your workers wear Lehigh Safety Shoes.

Write for complete information.

LEHIGH SAFETY SHOE COMPANY

31-33 S. Seventh St. Allentown, Pa.



SANKEY FOOT GUARDS

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

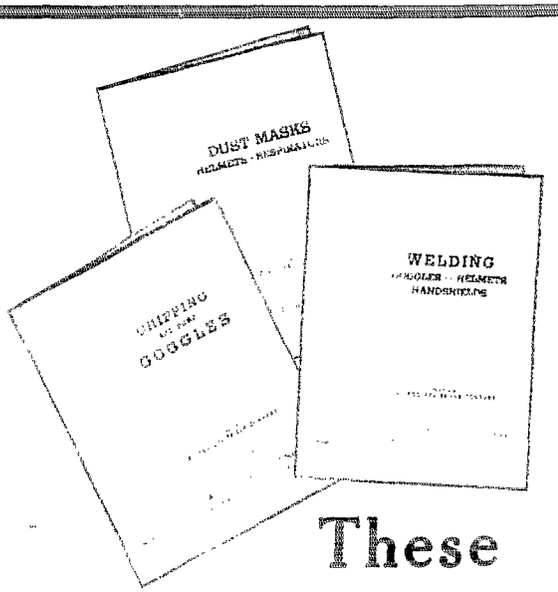
Made of 16-gauge steel, or Rigidlum, an aluminum alloy. Sankey Foot Guards are light in weight, comfortable to wear and permit free and easy movement of the feet.

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

Write for Your Sample Today.

ELLWOOD SAFETY APPLIANCE CO.

Ellwood City, Pennsylvania



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Get them! They give the answers to your problems of selecting the right industrial safety equipment for various hazardous jobs—show the best type of goggle to wear when chipping or grinding steel, what respirator to use in a foundry or lacquer spray room, the correct goggle for acetylene or electric welding and many other problems. Send for your copies! You'll find them valuable guides.

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CHICAGO EYE SHIELD COMPANY,
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Gentlemen:
Please send me your three bulletins [illegible] Welding Goggles.
Name
Address
City [illegible]

STOP NEEDLESS INJURIES

AND

CUT COSTS 50%

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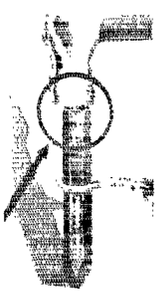
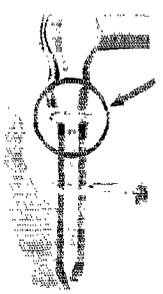


SAFETY STEEL STAMPS



WILL NOT MUSHROOM nor SPALL

MFG BY

M. E. CUNNINGHAM CO.
E. Carson St. PITTSBURGH, PA.

IN SERVICE [illegible] HOURS

IN SERVICE [illegible] HOURS

The White Collar Worker Also Has Accidents

PUSHING a pencil, tapping a typewriter or conducting a conference all have their hazards. No occupation seems to offer immunity from accidents and no hazard seems too trivial to cause an injury, according to actual cases in the files of claims paid by insurance companies. Here is a lengthy but probably incomplete list of possible sources of accident in an office:

1. Loose [illegible] paper or discarded catalogues [illegible] magazines [illegible] floors [illegible] chipping and fire hazards.
2. [illegible] paper baskets [illegible] on points.
3. Loose [illegible] jobs falling on thinly [illegible] feet.
4. [illegible] protruding [illegible]
5. Defective electric cords for [illegible] lamps and adding machines.
6. Loose outlet plates resulting in [illegible] and shocks through contact with them.
7. Protruding [illegible] telephone outlets creating stumbling hazards.
8. [illegible] on lights adjacent [illegible] and other equipment where [illegible] are involved.
9. [illegible] cords on floors across [illegible] other areas where employees have occasion to walk.
10. Unauthorized and improperly supervised electrical connections.
11. Thumb tacks on floor or on chairs.
12. Loose electric fan blades and defective [illegible]
13. Exposed moving parts on addressograph, mimeograph, bookkeeping, tabulating and other types of power driven office equipment.
14. Collision hazard at blind corners.
15. Walking through closed transparent and unlettered glass doors.
16. Matches [illegible] drawers.
17. Matches [illegible] in stands with the heads exposed.
18. [illegible]
19. [illegible] flammable [illegible] lockers [illegible] rooms.
20. Spontaneous [illegible] from [illegible] newspapers [illegible] other printed matter containing ink.
21. [illegible] by protruding [illegible] valves, [illegible] pipes and steps to fire [illegible]
22. [illegible]
23. Stumbling [illegible] lower [illegible] drawers.
24. Metal lockers and shelving [illegible] walls or floors.
25. [illegible]
26. [illegible]
27. Inadequate illumination.
28. Precautions [illegible] of material [illegible] cabinets and other [illegible] objects.
29. Work spring tension adjusting [illegible] and be thrown with considerable force. [illegible] curved backs of swivel chairs.

[illegible] sharp burrs on metal lime cabinet edges and perforations.

[illegible] of rolling and trolley type ladders without braking attachments, for high piling.

Hand punching hazard in closing discarded [illegible] desks without using [illegible] for that purpose.

Exposed sharp points on wire or expanded metal and baskets.

Concrete sharp pointed ends of unexposed fastening pins in belts or conduit or loadcarrying pockets of trucks.

Placing pens or desks with pointed feet [illegible] during possible interval when one reaches forward to pick up something dropped.

Open 2 pointed bundles of plumbing or washrooms.

[illegible] wrecking [illegible] sharp ends.

Tilting backward on swivel chair with [illegible].

Running [illegible] one clerk [illegible] stairways.

[illegible] glass [illegible] opening [illegible] pencils [illegible] fountain ink.

[illegible] Left loose in desk drawers.

The Walking Encyclopedia

DID you ever hear of a walking encyclopedia?

Today's modern foreman is one of should be.

Why? you ask?

The foreman is the chap in the shop who should know everything about everything. It is he who should not only lead men but teach them. It is he who should know where this goes, how that is done, the best way to do this, and most anything else he might be asked.

Tools, for instance. What about their safe care and use? The foreman must know.

Want some information about those ladders, hand trucks and portable power tools? Ask the foreman!

How about the oiling of machinery in motion? How about general order and housekeeping in the department? Ask the foreman!

Know the safest way to do that job? Ask the foreman. How about reporting injuries to the first aid department? Ask the foreman.

It's an encyclopedia job, puts business of being a foreman.

The foreman who gets an even better job knows this. He knows everything he should know and keeps trying to learn a lot more.—*The Hammermill Band*

Then there is the sad case of the man who paid a psychologist $500 to have his inferiority complex removed and on the same day was fined fifty dollars for talking back to a traffic cop.—*Washington Post*

ENDS FUMIGATION HAZARDS

Billions of insects with their eggs and larvae must be killed annually by industry to protect its raw materials and products. Proxate, the Safe Fumigant, makes industry's defensive kill without danger to workers—without interruptions of normal work—without fire and explosion hazards. It is a non-poisonous gas.

Yet Proxate, after long development tests and over a year of practical application offers the most remarkable record of complete kills—eggs, larvae and adult. Excellently adapted to vacuum tank and atmospheric chamber fumigation, as well as grain elevator application.

WRITE FOR THE [illegible] HANDBOOK

PROXATE

The Safe Fumigant

THE Liquid CARBONIC CORPORATION
2100 S. Kedzie Ave., Chicago, Ill.

Branches in 37 Principal Cities of the United States and Canada
London, England Havana, Cuba

THE SPENCER HEAVY DUTY PORTABLE VACUUM CLEANER for Industry

A powerful unit, easily moved and operated by one man. Picks up heaviest dirt and finest dust.

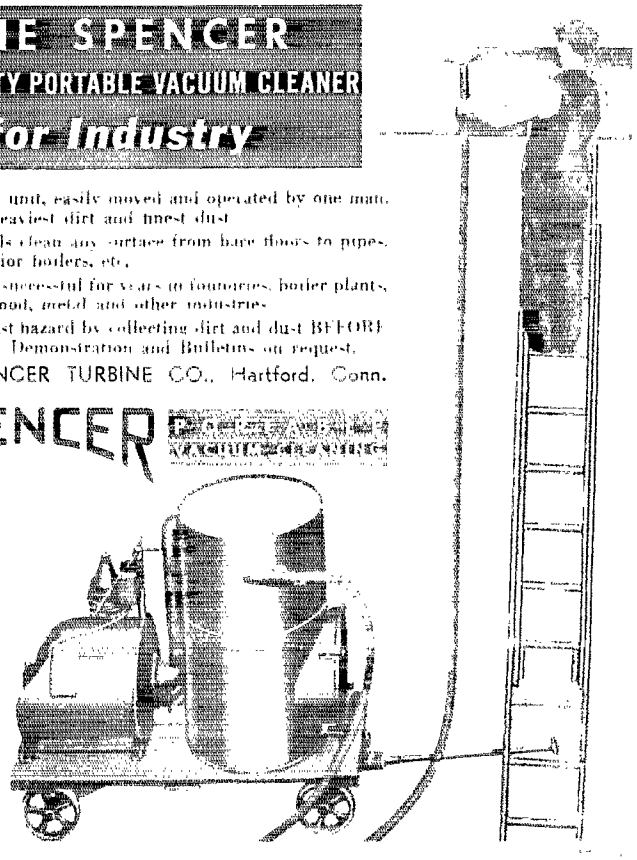
Special tools clean any surface from bare floors to pipes, walls, interior boilers, etc.

It has been successful for years in foundries, boiler plants, chemical, food, metal and other industries.

Reduces dust hazard by collecting dirt and dust BEFORE it spreads. Demonstration and Bulletins on request.

THE SPENCER TURBINE CO., Hartford, Conn.

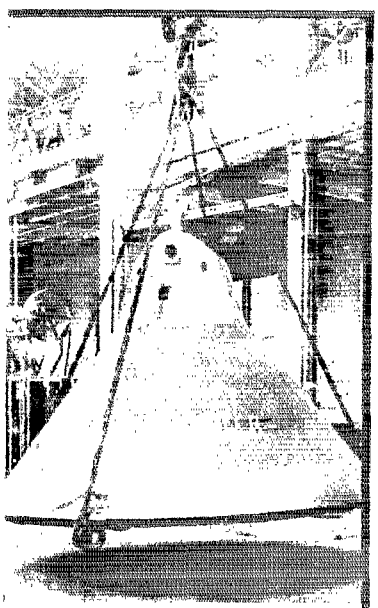
SPENCER [illegible]



Safety Engineers tell us Atlas Slings

SPEED UP LOADING

Endless construction increases safety



● Here's why Atlas Slings are safer: They are made of two endless elements of Monarch Whyte strand wire rope—spliced endless—then braided.

This exclusive braided construction gives an unusually high safety factor—reduces danger of accidents both to men and materials.

Foremen who have made time studies report that Atlas Slings speed up loading from 20 to 40%. And give longer [illegible] flexibility—straightening [illegible] without kinking or spinning.

Atlas Slings are custom-built for all kinds of lifting jobs. Write for catalog.

MACWHYTE COMPANY, Kenosha, Wis.

MACWHYTE WIRE ROPE Slings

ATLAS · DREW · MONARCH

Governor Presents Trophies to Minnesota Communities

AWARDS in the Minnesota Public Safety Traffic contest—handsome bronze plaques bearing the seal of the state and the universal safety emblem—were presented to the winning cities and counties by Governor Floyd B. Olson at a dinner in the Lowry Hotel, St. Paul, on the evening of February 18. The meeting was attended by practically all of the members of the Minnesota Legislature, leading state officials, and official and other representatives from cities and counties all over the state.

Col. Frank W. [illegible] Railroad Commission, president of the Minnesota Safety Council, presided and introduced John F. Long, president of the National Safety Council, who gave the principal address. President Long discussed the national aspects of the public safety problem and commended the officials of the state and communities for their well directed efforts toward greater safety.

Colonel Matson then introduced Governor Olson who, before presenting the plaques, paid high tribute to the work of the Minnesota Public Safety Committee which has conducted this educational campaign since May, 1934, under the chairmanship of A. V. Rohweder of the Duluth, Missabe & Northern Railroad. The governor also presented to Mr. Rohweder a formal joint resolution adopted by both Houses of the Legislature and signed by the governor in appreciation of his services to the state in directing this campaign and also in serving as safety director of the State Relief Administration.

Governor Olson [illegible] of the obligation of the [illegible] community [illegible] against preventable [illegible] dents, pointing out from his former experience [illegible] attorney for Hennepin [illegible] that traffic accidents alone [illegible] times as many deaths as homicides [illegible] that police departments are [illegible] manned and are handicapped by constant pressure to reduce their expenditures when it would be better [illegible] to increase their traffic forces in order to deal more effectively with traffic accidents. He mentioned the beneficial results already obtained from the Minnesota Drivers License Law and said he hoped that the legislature would provide for the continuation and improvement of this work as well as of the law itself.

In conclusion, the Governor said that the awards presented to these cities and counties would mean nothing unless the good work which they represent is continued in the future.

Minneapolis won the contest in the group of cities of 100,000 population or more. St. Cloud won in the group of cities of 10,000 to 100,000 population. Eveleth was the winner in the group of cities from 5,000 to 10,000. Among the counties of [illegible] population [illegible] Wright County was the winner [illegible] counties [illegible] Clearwater County.

Out-of-town guests in addition to President Long of the National Safety Council included Vice-President Lee R. Palmer, A. H. Cameron [illegible] Sidney J. Williams, director [illegible] Public Safety Division [illegible] president, Duluth, Missabe [illegible] Northern Railroad, and W. O. [illegible] director, FERA, Washington, D. C.

During the day several other meetings were held. Mr. Cameron addressed a meeting of some [illegible] persons in Minneapolis sponsored by the Automobile Club of Minneapolis. Messrs. [illegible] and Williams and State Relief Administrator Zimmerman addressed a luncheon meeting of some [illegible] persons [illegible] staff of the Relief Administration [illegible] over the state who held an all-day conference. Those in attendance [illegible] men from the safety department, the engineering department, and [illegible] administrators. Radio talks [illegible] during the afternoon [illegible] tions by Messrs. Palmer [illegible] Williams and Wheary. During the morning the Council's [illegible] Messrs. Matson [illegible] Zimmerman [illegible] and Wheary met with [illegible] since for [illegible] the future [illegible] Minnesota.

Students Get Licenses as Graduation Prizes

THE [illegible] Department [illegible] has organized motor vehicle clubs in all the [illegible] of the state and [illegible] students are now [illegible] An [illegible] operation with the State Board of Public

Roads, includes: Causes of Automobile Accidents in Rhode Island; How the Automobile Runs; Safety Equipment and Its Maintenance; Care of Tires; Lubrication and Cooling; Driving Procedure; Law Enforcement; Pedestrians and Their Relation to Motorists.

These eight lectures are given in this order by a representative of the State Board of Public Roads, a practical mechanic, a service shop manager, a tire salesman, an oil company representative, an experienced motor vehicle operator, a police officer, and a representative of the Safety Department. The club meets for one period each week, the lectures alternating with a study period. At the end of the course a written examination is given by the Board of Public Roads. Each student passing the test is given a card certificate, and when he reaches the legal age, 16, he may apply for an operator's license without re-examination, provided application is made within three years from the date of the certificate.

Underwriters See Hazard in Bright Clothes for Men

GAY COLORS in men's attire, which clothing stylists have been prophesying and trying vainly to promote for many years, might introduce a new hazard. The danger is not to the wearer, however. What the fire underwriters are worrying about is the possibility of a situation similar to that which is found in the women's clothing industry. Extreme colors and styles in women's garments have caused the underwriters no end of trouble, says the Weekly Underwriter.

Stocks of women's clothing which have become unsalable through sudden changes in styles or color popularity become a moral hazard. So far men's clothing has been relatively free from this influence, but if men should ever become color conscious, more trouble is expected.

More Chances to Win Honors Increases Interest

SINCE January 1, 1934, the Western Pennsylvania Safety Council has discontinued the awarding of plaques to the group winners in its inter-plant contests. Certificates are now awarded every six months to all plants having a record better than the average of their group. The purpose of the change was to create more interest among employees of the participating companies.

Real Comfort in this dressy SAFETOE SHOE



Comes in widths A to D

Comfort along with Safety is one of the main characteristics of Brown*bilt* Safetoe Shoes—Stock No. 80 is also a good-looking dressy shoe. It is made of Black Calf, has leather lined vamp and quarter, perforated tip, steel box toe, steel shank, heavy single oak sole, leather base rubber heel and is made by the Goodyear welt process. The wide range of widths assures an accurate fit.

We carry a complete line of Safetoe shoes in stock to meet practically every requirement. Write for special illustrated Safetoe catalog.

Brown Shoe Company St. Louis

Manufacturers of every kind and type of shoe worn in America, including the famous buster brown shoes for boys and girls

SAF-T-TOP

Antiseptic Applicator



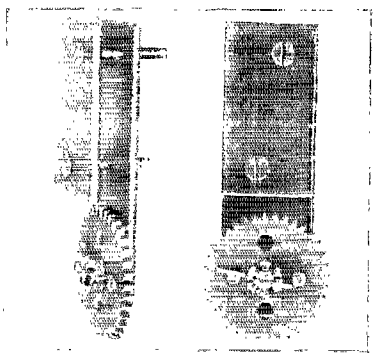
For safety convenience economy! A glass container which feeds antiseptics like a fountain pen, direct to the injury, is cemented in a shock-proof wooden case. The patented closure comprises a feeder tip, a small hole, and a rubber-fitted glass cap, designed to keep the solution at the proper strength. One Saf-T-Top treats over 100 average injuries. No waste ever.



Saf-T-Tops are filled with your choice of solutions: Mercurochrome, Iodine, Metaphen, Merthiolate, Ferric Chloride and Iso-propyl-alcohol in [illegible] of pocket size and the [illegible]

FREE SAMPLE to officials interested in safety. Write for yours today.

Robert A. Bernhard
[illegible]



IPCO SPUR WHEEL LADDER SHOES

For use on ground, asphalt, macadamized and wooden block streets, wooden floors, concrete and other surfaces. Correctly designed and manufactured of selected materials to prevent ladder slipping. The spur wheel is machine steel—case hardened.

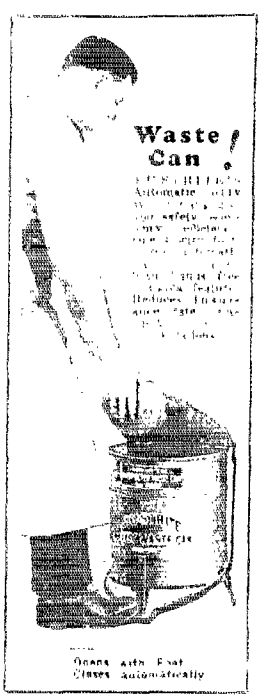
When the points on Spur Wheel become worn, the wheel may be turned—so that the unused portion may then be placed in service. This feature of construction assures a shoe that outlasts the life of the average ladder. Equipped with two steel side plates measuring three inches wide, bolted through with two flat head bolts, properly staggered to prevent any weakening of ladder. This application holds shoes firmly in position and reinforces ladder stock.

A practical shoe offering long service for Industrial Plants and Public Utility Companies for indoor and outdoor uses.

Price, $4.00 per pair
(Discounts in quantities)

INDUSTRIAL PRODUCTS COMPANY
Accident Prevention Equipment
800 W. Somerset Street — Philadelphia, Pa.

PRESENTING *New Justrite Safety Cans!*

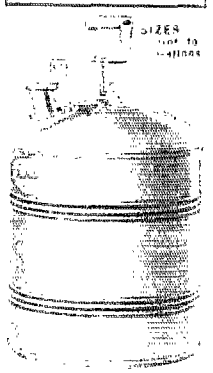


JUSTRITE presents a new improvement in the 5- and 10-gallon Safety Cans. The carrying handle has been redesigned. This permits "Easier Carrying" and "More Accurate Pouring." Large Spout—easily filled direct from filling station hose—no funnels required.

For low cost pouring—the most efficient can for the workman. Automatic spring controlled short cap. Natural Hand Grip—opens in one operation—closes automatically. Vents contained for carrying explosive and volatile liquids—no leakage or evaporation. Labeled by the Underwriters' Laboratories, Inc., and Approved by the Associated Factory Mutual Fire Insurance Companies.

LESSENS INSURANCE RATES





Justrite
TRADE-MARK

Justrite Mfg. Co. 2087 Southport Avenue CHICAGO, ILLINOIS

HONOR ROLL

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

Georgia Power Co.

[illegible] Department of [illegible] Power Company, with an average [illegible] employees, has operated since December [illegible] disabling injury. Man-[illegible] January 1 totaled approximately [illegible] During [illegible] there were only seven [illegible] medical attention and none [illegible] activity.

[illegible] accumulated record man-[illegible] the last disabling injury [illegible]

Philadelphia Co.

[illegible] has been [illegible] Philadelphia Company, Pittsburgh, and [illegible] affiliates.

[illegible] Light Company [illegible] Day and Feb. 20 disabling injury [illegible] all employees [illegible]

Duquesne Light Company substations and [illegible] Department, Meter Division [illegible] since January 15, [illegible] man-hours.

[illegible] Utah Motor Coach Company [illegible] [illegible] man-hours.

[illegible]table Auto Company—Last disabling [illegible]

Union Carbide and Carbon Corp.

[illegible] operating units of the [illegible] Carbon Corporation had completed [illegible] accidents of [illegible] Disabling injury [illegible] continuous over [illegible] December [illegible]

Metallurgical [illegible] Asbestos [illegible] Niagara Falls [illegible] man-hours.

[illegible] Fiber Container [illegible] man-hours.

[illegible] Carbon Co., Inc., Anderson, S.C. [illegible] employees August [illegible] man-hours.

[illegible] employees October 15, [illegible] man-hours.

The World's Largest Manufacturer of Blast Cleaning and Dust Collecting Equipment

PROMISES YOU A SAFE

Blast Room Helmet

- THE Pangborn "DD-1" Air Fed Blast Helmet

  is a REAL SAFETY investment. It is fully approved by State Industrial Commissions and leading Insurance Companies.

- THE Pangborn "DD-1" Air Fed Blast Helmet

  has an improved Air Washer and Filter attachment that insures comfort and health to your operators. Extra large vision window insures quality production in Blast Cleaning.

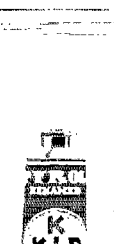
Write for Illustrated Bulletin No. 104

PANGBORN CORPORATION

The World's Largest Manufacturer of Blast Cleaning and Dust Collecting Equipment

HAGERSTOWN . . . . MARYLAND

KIP

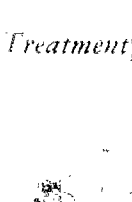


First-Aid For Burns!

An easy-spreading antiseptic, non-toxic ointment that subdues pain promptly, and promotes healing, usually without scarring. A standard treatment for years in departments and hospitals. An ideal dressing for cuts, scratches. Packed in sizes to fit any first-aid kit: tubes, [illegible] oz., [illegible] oz., jars 6 oz. and 16 oz.

New! **KIP®-GENTIAN** *(Spray) Treatment*

Represents the soothing oils of Kip and Gentian Violet in water soluble solution. Recommended as a spray treatment for extensive burns; for cuts, scratches, foot blisters. Non-toxic, powerfully antiseptic, mildly aromatic and analgesic. Packed in 1 oz. bottles (with glass applicator); 4 oz. bottles (with spray); pints, gallons. Introductory 2 oz. bottle with spray, $1.50—postpaid.



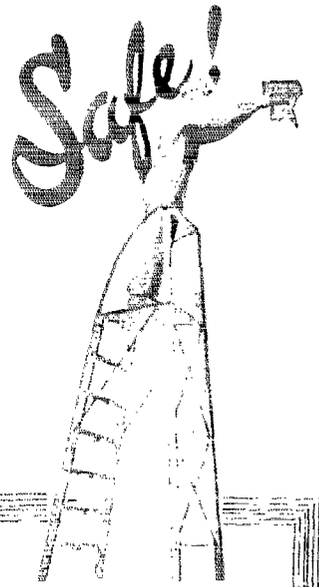
Play safe! Keep Kip and Kip-Gentian Handy

KIP CORPORATION, Ltd.

Makers of Anti-Pyretic & Kip

919 EAST PICO LOS ANGELES, CALIF.

KIP PRODUCTS [illegible] EQUIPMENT HOUSES



ONE BAD FALL
Would Pay For a
HUNDRED *Daytons!*

When you think of the savings in accident-prevention alone the Dayton Safety Ladder gives you, the extra speed and efficiency it gives seem unimportant by comparison.

But *both* are important! And this double saving—safety and efficiency—are yours for a very moderate price on a Dayton. Made of durable airplane spruce its straight back permits close work in corners, against walls. Stands without wobbling or tipping. Sizes 4 to 16 feet.

Dept. N.S.N.

THE DAYTON SAFETY LADDER COMPANY
121-123 West Third St. Cincinnati, O.

DAYTON
Safety Ladder
(Patented)

Stock carried on Pacific Coast by E. D. Bullard Co., Los Angeles and San Francisco, and by and other distributors from coast to coast. Made in Canada by Percy Harmant, Ltd., Toronto

COMING EVENTS

Of Interest to Safety Men

March 30, New York City
Sixth Annual Greater New York safety Conference (Pennsylvania Hotel). Julien H. Harvey, National Safety Council, [illegible] New York City.

April 15-16 Philadelphia, Pa.
Second Annual Greater Philadelphia Safety [illegible] Safety Council, Philadelphia Chamber of Commerce [illegible] and Walnut Streets, Philadelphia, Pa.

April 23-24 Columbus, O.
Ohio State [illegible] Ohio Union Thomas P. [illegible] Department, Ohio State [illegible]

May 6-7, Boston, Mass.
[illegible] Safety Conference, Copley Plaza Hotel). Lewis F. MacKenzie, general manager Massachusetts Safety Council, 20 Beacon St., Boston, Mass.

May 14-17 Atlanta, Ga.
National Fire Protection Association Annual Convention (Atlanta Biltmore). Percival Clapp, secretary, Franklin H. Ayres, [illegible] 60 March Street, Boston, Mass.

May 16, Watertown, Wis.
Eighth Annual Safety Field Day and Conference. General chairman of Arrangements Committee, Walter Booth, Booth Company, Watertown, Wis.

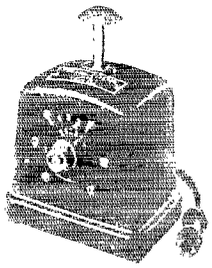
June 26, Beckley, W. Va.
Mine Inspectors Institute of America [illegible] Young, secretary, [illegible] Department of Mines, Charleston, W. Va.

Oct. 14-18, Louisville, Ky.
[illegible]

Hold Safety Course for California Industries

[illegible] Safety Commission of California and the [illegible] Bullard, president of the E. D. Bullard Company.

INDUSTRIAL SIGNAL KALL



Having 40 separate codes, this practical device will call any of 40 different people. Repeats each call three times—need dial once only. Very dependable, simple and easy to operate.

[illegible]

FEDERAL ELECTRIC COMPANY
8711 S. State St. Chicago, Ill.

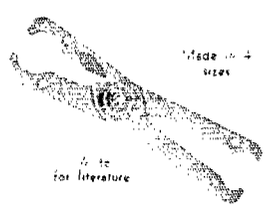
TRICO

FUSE PULLERS

"A lifetime of Safety First service"

Eliminates shocks, burns or possible death.

The standard of America's leading Safety Engineers.



Write for literature

TRICO FUSE MFG. CO.
Dept. S, Milwaukee, Wis.

Bureau Lists Requirements for Respirators

PROCEDURE for testing filter type [illegible] respirators for permissibility is described in Schedule 21 recently issued by the U. S. Bureau of Mines, Department of the Interior. This mimeographed pamphlet describes the classes of filters, conditions under which respirators will be tested for permissibility, requirements for Bureau of Mines approval, details of tests, how approvals are granted, and other details of interest to both manufacturers and [illegible]

Improved Track Makes Travel Safer

A GRADUAL increase in the strength [illegible] track structure is [illegible] in fewer derailments. [illegible] derailments per million [illegible] comparing the [illegible] the following facts [illegible] *Railroad Safety*.

1. [illegible] increase of 12 per cent in [illegible] per yard, derailments due to defects in rail and joints decreased 60 per cent.

2. Because of heavier rail, bigger and stronger tie plates, and, in a measure better ties, derailments due to spread track decreased 80 per cent.

3. As a result of better ties and the nearly 100 per cent use of treated timber, derailments due to worn out and decayed ties decreased 85 per cent.

4. Derailments from all physical causes charged to way and structures decreased 69 per cent. Of outstanding interest is the fact that the types of defects that are discoverable by proper inspection showed remarkable decreases indicating a better quality of inspection. This in turn can be attributed to the efforts made to train the foremen in the fundamentals of track maintenance and safety.



Frank

Knee Leggings
Hip Leggings
Spats

The recognized standard for safe and dependable leg protection emphasizing three cardinal safety points:—

1. Simplicity
2. Comfort
3. Service

Specially designed for hazardous jobs in steel plants, foundries, welding plants, etc.

Write for complete new folder.

THE SAFETY CLOTHING CO.

[illegible] Ohio

SAFCO PRODUCTS

Phonograph Cautions Miners Before Descending

At the Wyndham colliery in Wales miners about to descend into the pit are warned by voice, of the other dangers to be encountered, it is reported by *Coal Age*. This warning is transmitted through phonograph records and loud speakers, and is changed from day to day to avoid monotony. Such warnings as: Hello Manager calling, Safety First! Search your pockets for matches before going down into the pit. Take care of your safety lamps. You must not work under overhanging coal or ground unless securely spragged [illegible] transmitted to the men before [illegible] down into the mine.

This voice system was adopted by D. Llewellyn Richards, mine manager [illegible] it had been found that printed warnings soon lost their power to attract attention. It is reported that accidents have been reduced since the adoption of this system.

Combustible Gases Found in Many Manholes

An abstract of a manhole survey made in Boston and submitted to *Metals Safety* by W. T. Filmer showed that 12,067 manholes were tested for gas. One group of 9,482 manholes had six or more [illegible] holes in the covers. Of this number 140 showed combustible gases or a deficiency of oxygen; 12 contained gas in explosive concentrations and [illegible] showed gas above the upper explosive limit. Another group of [illegible] had no holes in the covers. Of these 260 contained combustible gases.



THE UNSIGNED CHECK

THE fire menace knows no respect for size or fame—it strikes at will. Result—Your property damage may be covered by an insurance company check, but who signs the check for interrupted operations, loss of orders and service?

Today, if you have a lacquer, gasoline or electrical hazard in your plant, it is easy to buy protection that will prevent tie-ups from fire in that plant.

LUX extinguishers will put out fires in flammable liquids against which ordinary fire equipment is powerless. LUX smothers fire with an inert gas instead of a liquid. It is instantaneous and three dimensional in its extinguishing effect—Clean—Dry—and Harmless to Man or Material. Yet LUX snuffs out fires involving gasoline flowing through the air from leaking pipes or overflowing tanks against which foam and carbon tetrachloride fail.

Write for information to Dept. A-3, Walter Kidde & Company, Inc., 60 West Street, Bloomfield, N. J.

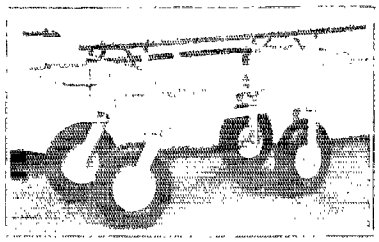
LUX For All Electrical and Flammable Liquid Fires

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

Industrial Hospital Cart

This cart designed by Lewis-Shepherd [illegible] Station Boston, Mass., is especially adapted to industrial use where the injured party may possibly [illegible] carried from the factory building to the [illegible] hospital. It is equipped

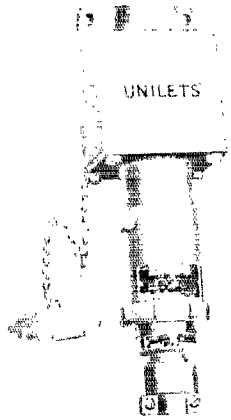


[illegible] and having the [illegible] frame so [illegible] may be used over small [illegible] tracks, [illegible] with the least discomfort to the injured party.

The stretcher is detachable and may be carried between machines or other places inaccessible to the [illegible]. It is also equipped with oak arms and the casters are of the ball bearing, swivel type [illegible] so adjusted as to insure easy swiveling. The frame work is finished in aluminum but may be had in white enamel.

Appleton Dead-End Circuit Breaking Plugs

Appleton Electric Company 1701 Wellington Avenue Chicago has introduced a new line of dead-end circuit breaking plugs and receptacle equipment. This equipment is a complete line of heavy duty

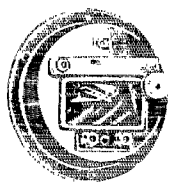


[illegible] to be used for general purposes [illegible] and should industrial [illegible] etc. [illegible] receptacle equipment of this series is furnished with the Appleton dead-end feature, a safety device using [illegible] [illegible] for. Each receptacle is equipped with a dead-end member which is an intermediate current carrying device normally disconnected from the line until the plug is inserted turned to the right, and fully seated at which point actual contact takes place. The arc is confined to and dissipated in the plug combustion chamber during the interrupted [illegible] and withdrawing of the plug.

These plugs and receptacles are made in two sizes [illegible] for use in [illegible] installations where the [illegible] current. Provision [illegible] covering the safety current. Provision is made for connecting the safety unit to [illegible] circuit. Style 2 has [illegible] for grounding and is for use in places [illegible]

Fire Alarm Unit

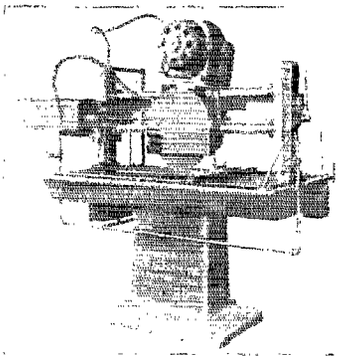
A new fire alarm unit, the [illegible] is announced by [illegible] of Chicago. The [illegible] Belmont Ave. Chicago for use in the conventional electrical alarm systems such as bells buzzers and [illegible] The manufacturers state an important feature is the mercury contact tube which completely protects the contacts from corrosion dust dirt, grease and other contaminations. This tube is fitted with two contact wires entering through the upper end and a quantity [illegible]



[illegible] Under the [illegible] [illegible] [illegible]

Wet Abrasive Cutting Machine

The Campbell Model 302 Horizontal Wet Abrasive Cutting Machine is a new addition to the line of cutting machines [illegible] Diversion of [illegible] Company, Inc., Bridgeport, Conn. This machine is designed primarily for making [illegible] cuts through [illegible] stock or bar stocks can also be cut. The manufacturers say a unique double feed mechanism permits the abrasive cutting of larger sizes of that material than have heretofore been com-



[illegible] machine. The wet-type feed can be regulated for speed of feed with infinite variation from the maximum rate to [illegible] feature of importance [illegible] cutting [illegible] of other tough materials such as Monel, high speed steel or cutting steels.

Cutting is done by a revolving thin abrasive disc to which is applied a continuous and uniform application of a [illegible] coolant. Among the wide variety of that material that can be cut are glass, porcelain, brick, slate, tile, steel, copper, cast iron, cemented steel and alloys of all descriptions. The danger to workmen [illegible] dust and grit laden air is re- [illegible] ing is done by a humid [illegible] chine.

[Statements published on this page are based on the claims of the manufacturer. While the National Safety News must encounter these statements, they [illegible] to be accurate.]

Drivers Must Rest Away from Vehicle

Courts in banks in buses or trucks do not comply with the New York State law that drivers of such vehicles must have at least eight hours off duty once they have worked for a period of ten hours, according to a formal opinion by Attorney General Bennett, of New York. Charles A. Harnett, State Commissioner of Motor Vehicles, recently drew attention to this ruling after receiving numerous requests for interpretations of the law regulating hours of employment for bus and truck drivers.

College Senior: What would you advise me to read after graduation?

Dean of Men: The Help Wanted page.

Trade Publications

for your

SAFETY EQUIPMENT LIBRARY

Information You Should Have

All of these booklets contain many valuable facts on controlling accidents and promoting efficiency. Industrial executives should avail themselves of this fund of information—because along with "safe operation" goes its close friend "profitable operation." Check those you would like and mail the coupon right now!

1. **The Kirk Interlock System.** Bulletin No. 1349. This interesting 32 page bulletin covers the fundamentals of this system and shows how it is applicable to simple or complex interlocking problems. Well illustrated with pictures and diagrams. Railway and Industrial Engineering Company.

2. **Appleton Dead-End Circuit Breaking Plugs and Receptacles.** Bulletin No. 1010 gives a complete listing of heavy duty receptacle, plugs and receptacle fittings to be used for general purposes in and around industrial plants, etc. Appleton Electric Company.

3. **Yale Zephyr Hand Lift Trucks and Skid Platforms.** Interesting folder that illustrates and describes this hand lift truck especially developed for an average load of 800 to 1000 pounds. Also featherweight skid platforms of 1000-pound capacity. The Yale & Towne Manufacturing Company.

4. **Firmtread Rolled Steel Diamond Floor Plates.** This folder illustrates and describes this plate that is designed for floors, stair treads and traffic use. Plate made on special rolls and passed through the rolls diagonally, first one way and then the other. Joseph T. Ryerson & Son, Inc.

5. **The M. S. A. Carbon Monoxide Alarm.** Folder describes this alarm that is designed to give prompt warning when CO concentration reaches two hundredths of one per cent. Mine Safety Appliances Company.

6. **Gro-Cord and Raw-Cord Non-Slip Soles and Heels.** Folder describes the construction and uses of these materials for the soles and heels of shoes and boots to protect against slipping. Gro-Cord Sole & Heel Company.

7. **Protectoseal Products.** This folder illustrates a few units designed for improved handling and storing of hazardous liquids. Includes a line of safety cans inspected and labeled by Underwriters' Laboratories and approved by Factory Mutuals. Protectoseal Company.

8. **Saf-T-Top Antiseptic Applicators.** Small folder describing this applicator and the solutions that are available. Designed to be easily carried in first aid kit, pocket, tool bag, brief case, hand bag, etc. Robert A. Bernhard Manufacturing Chemist.

9. **Perks Safety Washer for Grinding Wheels.** This folder describes these washers that consist of metal disks to each of which has been vulcanized a sheet of high grade specially prepared rubber. Standard Safety Equipment Company.

10. **Frank Adjustable Comfort Leggings.** A folder describing knee-hip, slip over leggings and spats designed to give protection to foundrymen and others in iron and steel and similar industries. Furnished in chrome leather, asbestos and fireproofed duck. The Safety Clothing Company.

11. **Heat Acceleration.** This 20-page catalog deals with heat acceleration, what it is and how it differs from heat anticipations. Discusses the value of heat control in industry from a health and efficiency standpoint. Minneapolis-Honeywell Regulator Company.

12. **Neon Tattelites.** This catalog on Littlefuse products covers a variety of fuses that are used for various purposes. Also illustrates neon tattelites designed to protect electrical equipment against excessive voltages. Littlefuse Laboratories.

NATIONAL SAFETY NEWS
20 North Wacker Drive
Chicago, Ill.

Please have sent [illegible] the publications [illegible]

Name ..

Title ..

Company ..

Address ..

March, 1935

Stonehouse SIGNS for ACCIDENT PREVENTION



The best Safety Device is nine inches above your shoulders.

STONEHOUSE SIGNS constantly teach men to use their heads, to safeguard themselves and those about them.

STONEHOUSE SIGNS, Inc.
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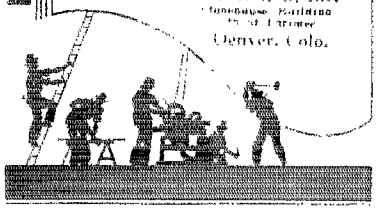
at Larimer
Denver, Colo.



Financing Activities That Save Lives

MANY people are making provision in their wills to continue their support of philanthropic, educational and scientific causes. Such support for the Safety Movement will make possible a greater extension of activities than its present financial structure will permit. Gifts may be made for general activities or to establish specific projects, such as scientific research or awards for outstanding safety accomplishments.

Public safety activities cannot be made self-supporting. The vast amount of educational effort and the numerous research projects involved in this complex and many sided problem must be financed by public spirited individuals and organizations.

The following alternative forms are suggested for those who desire to provide by will for their continued support of the National Safety Council:

For Gift of Money or Other Personal Property

I give, devise and bequeath unto National Safety Council, a corporation organized and existing under the laws of the State of Illinois the sum of_____ Dollars, alternative provision: the following described personal property_____

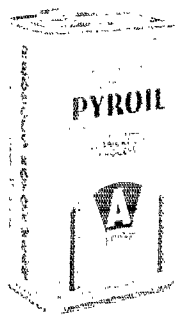
to be disposed of and used by the National Safety Council in the furtherance and carrying out of its work in the cause of accident prevention.

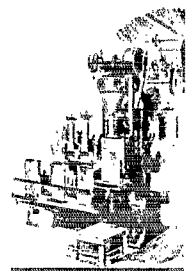
For Gift of Real Estate

I give, devise and bequeath unto National Safety Council, a corporation organized and existing under the laws of the State of Illinois, the following described real estate, [illegible] with all buildings and other property [illegible] thereon, [illegible] description of the land to be given, to have and to hold the same unto the said corporation, its successors and assigns forever. And it is the desire and intention that the National Safety Council shall have unlimited right of disposal of the said real estate, for the furtherance and carrying out of its work in the cause of accident prevention.

For Creation of Endowment Fund

I give, devise and bequeath to National Safety Council, a corporation organized and existing under the laws of the State of Illinois, the sum of_____ Dollars, the principal of this bequest to be safely kept, invested and reinvested by the Finance Committee of the National Safety Council, as and for a part of the whole of a permanent Endowment Fund, the income of this fund to be used by the National Safety Council in the cause of accident prevention. Provided that it in the judgment of the Executive Committee of the National Safety Council, the best interests of the National Safety Council require the expenditure of a part or all of the principal of such fund, then from time to time such principal may be so expended.





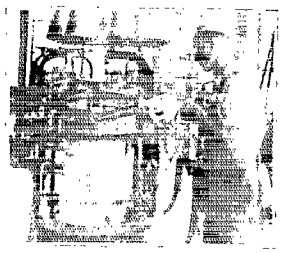
PYROIL SAFEGUARDS MACHINERY CUTS EXPENSE

This [illegible] about [illegible] recommended [illegible] in conforming [illegible] and in despite of [illegible] cost difficult [illegible] Alterations [illegible] could [illegible] what [illegible] Pyroil can [illegible] value in meeting [illegible] Pyroil [illegible] more than its [illegible] the [illegible] your [illegible] [illegible] accomplished [illegible] Pyroil [illegible]

NRA

Pyroil Company [illegible]
LaCrosse, Wis., U.S.A.
[illegible]

A FACTOR FOR SAFETY



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TRY IT 10 DAYS FREE
4 Models—Size for Every Use
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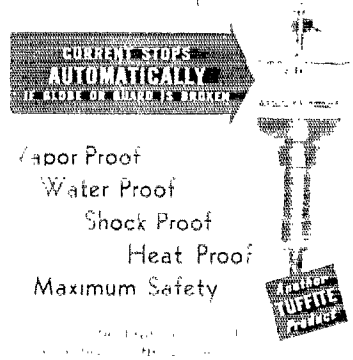
2050 S. Narragansett CHICAGO

TO SAVE YOUR LIFE
You Can't Find A Better Lamp



Vapor Proof
Water Proof
Shock Proof
Heat Proof
Maximum Safety

[illegible] [illegible] [illegible] [

In our January ad we mentioned the loss of an SKID-DRIVER, because of a DING SCREW. We now learn of loss of two more eyes from the same cause.



Everyone interested in preventing such injuries and the enormous loss from lacerations—consequent infections, etc., should get full details on the

NON-SKID SCREW DRIVER



The Pennsylvania Hardware Mfg. Co., Pennsylvania, Makers

Costs a few cents more than the dangerous sort. Lasts longer. No spoilage.

THE SURTY MFG. CO., INC.
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MAKERS OF A COMPLETE LINE OF STANDARD GUARDS FOR MACHINES.

For the First Time Vacuum Cleaning made applicable to all plant cleaning requirements at low cost with

BREUER'S BALL BEARING TORNADO PORTABLE INDUSTRIAL VACUUM CLEANER



Solves all cleaning problems without expense of installing a stationary plant or using semi-portable cleaners which are too heavy and expensive for average plant applications.

Combines light weight (only 40 pounds) with tremendous cleaning power (1 HP G.E. ball bearing motor—36½" waterlift).

Removes dust, dirt, metal filings, etc. Special attachments for cleaning boiler tubes, ovens, machinery, walls, floors, etc. Sprays paint and insecticides.

Reduce the dust hazard which so vitally affects the safety and health of your employees by using this new machine.

We [illegible] further information

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[illegible] Blackhawk St. [illegible] Chicago, Ill.

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The city of New York [illegible] seventeen automobile "cemeteries" throughout the city where owners [illegible] worn-out and obsolete automobiles [illegible] abandon them.

Specify

PROTECTIVE WHEELER APPAREL

"MORE SAFETY PER DOLLAR"

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BLANKETS
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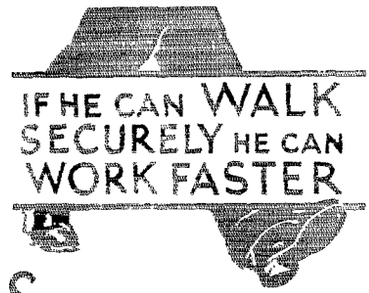
IF HE CAN WALK SECURELY HE CAN WORK FASTER

Solve this PROBLEM with PLASTIC FUT-SURE

Safe walking surfaces mean sure-footed more efficient workers. Provide this security on floors or stairs both new and old, with PLASTIC FUT-SURE. It's economical to buy—easy to apply and it provides permanent under-foot safety. Used by leading industries everywhere—write to-day for descriptive folder and prices.

GENERAL ABRASIVE CO., INC.
[illegible] Niagara Falls, N. Y.

PLASTIC FUT-SURE
FOR SAFER WALKING SURFACES

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Lamp Locks

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Mats—[illegible]

O

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Prize Awards
[illegible]

Pyrotannic Detector
[illegible]

Pumps—[illegible]

R

Rail Clamps
[illegible]

Respirators
[illegible]

Pulmosan Safety Equipment Corp.
The Safety Clothing Co.
Safety Equipment Service Co.
Willson Products, Inc.

Resuscitation Equipment
Bishinger-Koehler Mfg. Co., Inc.
E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Mine Safety Appliances Co.

Rock Dusters
Mine Safety Appliances Co.
Portable Lamp & Equipment Co.

Rope—Wire
Macintyre Co.

S

Saw—Safety
Mine Safety Appliances Co.

Saw Guards
E. D. Bullard Company
Industrial Products Company
Safety Equipment Service Co.

Scaffolding

Screw Driver
[illegible]

Scrubbing Machines—Electric

Shaper Guards
[illegible]

Shoe Soles—Non-Slip
[illegible]

Shoes—Factory and
[illegible]

Shoes—Wooden Soles
[illegible]

Signs
[illegible]
Mine Safety Appliances Co.

Portable Lamp & Equipment Co.
The Safety Clothing Co.
Safety Equipment Service Co.
[illegible]

Sirens and Signals
E. D. Bullard Company
[illegible] Electric Co.
[illegible] Products Company

Slides—Lanterns—Also See Films or Slides

Slings—Safety Wire Rope
[illegible]

Soap
[illegible]

Sterilizing Equipment

Straps—Safety
E. D. Bullard Company
Davis Emergency Equipment Co., Inc.
Industrial Products Company
Mathias Klein & Co.
[illegible]

Surgical Dressings
E. D. Bullard Company
[illegible] Equipment Co.
[illegible]

T

Tools—[illegible]
E. D. Bullard Company
[illegible]
[illegible] Company
Mathias Klein & Co.

Tools—Non-Sparking
E. D. Bullard Company
[illegible]

Tower Cabinets—[illegible]

Traffic Markers
[illegible]

Trends—Safety
[illegible]
[illegible] Products Company

Trendle Guards
The Surry Mfg. Co.

Trestles—Safety Extension
Industrial Products Company

Trophies

V

Vacuum Cleaners
[illegible] Electric Co.
Clements Mfg. Co.
[illegible]
[illegible] Machinery Corp.

Valves—Oxygen
Bishinger-Koehler Mfg. Co., Inc.
Mine Safety Appliances Co.

Vending Machines Sanitary
[illegible]

Ventilating Equipment
[illegible]

W

Washroom Equipment Industrial
[illegible]

Washers—Safety, for Bonding Wheels
[illegible]

Waste Cans
E. D. Bullard Company
[illegible]
[illegible]
[illegible]
[illegible]

Water Coolers

Welding Equipment

Window Cleaner

Window Preparation—Consistent

Wrenches—Hopper Car
Industrial Products Company
Safety Equipment Service Co.
[illegible]

Wrenches—Pipe

Wrench-Sleeve, for Linemen

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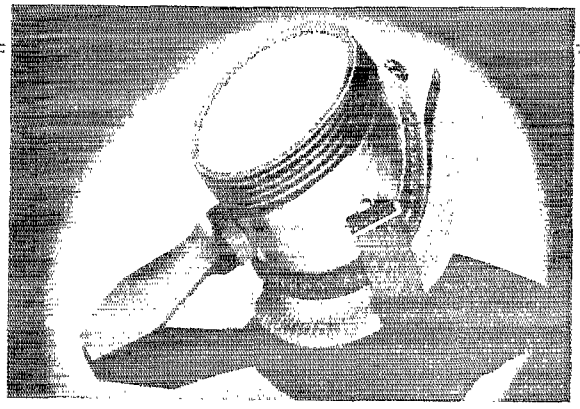
Where Miniature Voltages Are Desirable

THE uses and limitations of miniature voltages for portable electric equipment are discussed in the November-December, 1934, issue of *Industrial Safety Survey* published by International Labour Office by W. C. Cade, approvals engineer for the Ontario Hydro-Electric Power Commission. Mr. Cade lists the following applications where low voltages of 24 volts or less are now required or recommended:

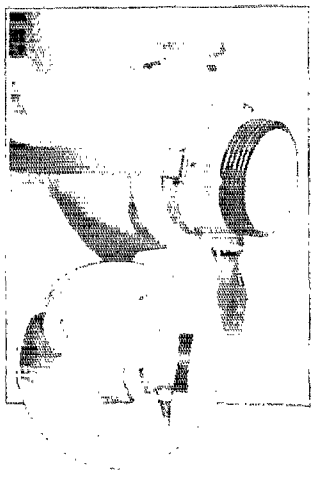
1. Safety and safety supplies from transformers [illegible] 24 volts. Also control circuits of motor capacity [illegible] time and [illegible] [illegible] [illegible]

ONE WEARING

is worth a thousand words!



Let your workers in Dusty Operations try this IMPROVED *Respirator*



We might print lengthy descriptions of the mechanical reasons why Pulmosan "M" Type Dust Respirators have such dependable safety—unusual wearing comfort—and ease of breathing . . .

. . . but one actual trial by the worker who needs its protection, will prove far more convincing!

Workers and employers alike, place high value on the wearing comfort of Pulmosan "M" Respirators. They find the "M" Respirator can be worn for long periods, without hindrance or annoyance. Working efficiency is not reduced.

If any operations in your business cause constantly dusty working conditions, your men need Pulmosan "M" Dust Respirators for protection. Even if your plant now uses respirators it will pay to investigate the "M" Respirator.

Order several Pulmosan "M" Respirators for trial among your workers. That's the most convincing way we know to prove the outstanding merit and superiority of the "M" Respirator. Write for Bulletin No. 10, for further details.

Light — Comfortable
Easy Breathing — Compact
Made in 6 Models

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Members: Industrial Safety Equipment Ass'n.
176 Johnson St. Brooklyn, N. Y.

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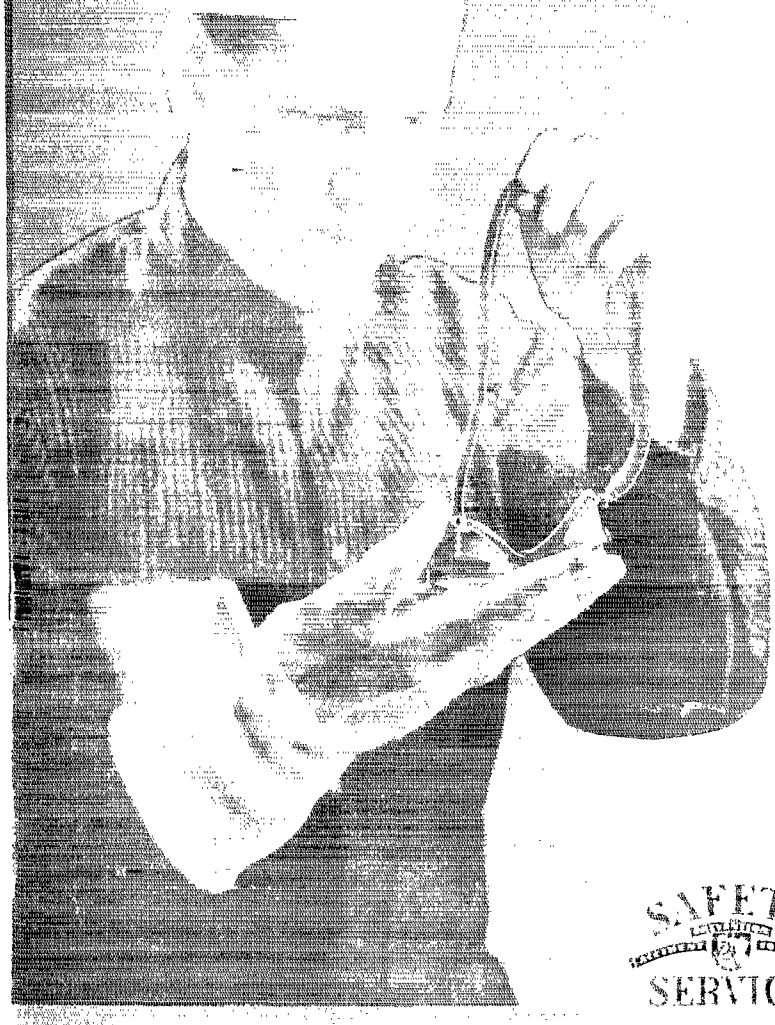
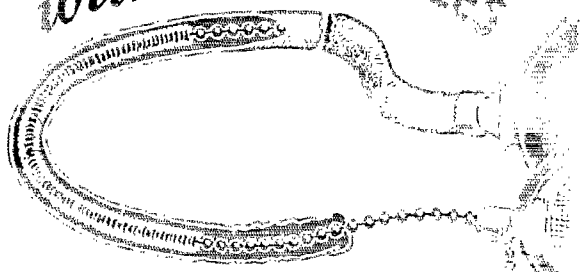
for Dusts—Spray Mists RESPIRATORS

He deserves the Best!

and that Means SUPER-DREDNAUT GOGGLES with





the New Dreadnaut Non-Rubber Headband

Here is the First Improvement in [illegible] Design in 25 Years

DON'T let him go on worrying with an old-fashioned elastic headband that stretches and sags and makes him "take a hitch" in it every so often. That gets stringy and uncomfortable. That suffers from the action of oil and grease, water and perspiration. That is a nuisance to sterilize. That prejudices your workman against wearing goggles at all.

Give him the best. *He's a good man—[illegible] serves it.* Furnish him a headband that [illegible] glad to wear. That is adjusted only [illegible] stays adjusted "for keeps." That does not [illegible] stretch or get stringy. That is immune to [illegible] cants, moisture and like deteriorating agents. That has nothing to get out of order, outwe[illegible] any number of the old type elastic headbands and causes your investment to look better [illegible] day.

To sum up, *end all your headband troubles [illegible] this new Dreadnaut Non-Rubber Headband.*

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You can have all the well known features of Super-Dreadnaut Goggles plus the exclusive advantages of the new Dreadnaut Non-Rubber Headband *at no increase in price.* Order a Dreadnaut Ensemble now and see how your men go for it.

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[illegible] Clair Avenue, Cleveland, Ohio

[illegible] like to examine your Dreadnaut Ensemble (Goggles and Headband).

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Buell W. Nutt, President

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