

Bulletin No. 90

Safety Series No. 35

University of Arizona Bulletin

State Safety News

SEPTEMBER, 1918

EDITED BY S. C. DICKINSON

SAFETY ENGINEER, ARIZONA STATE BUREAU OF MINES



Entered as second class matter November 23, 1915, at the postoffice at Tucson, Arizona, under the Act of August 24, 1912. Issued weekly, September to May.

PUBLISHED BY THE

University of Arizona Bureau of Mines

G. M. BUTLER, *Director*

TUCSON, ARIZONA

1918-19



State Safety News

Safety

Efficiency

BULLETIN No. 90

SEPTEMBER, 1918

LEST WE FORGET TO DO OUR PART

THEY *say*, who have come back from Over There, that at night the troubled earth between the lines is carpeted with pain. They say that Death rides whistling in every wind, and that the very mists are charged with awful torment. They say that of all things spent and squandered there young human life is held least dear. It is not the pleasantest prospect for those of us who yet can feel upon our lips the pressure of our mothers' good-bye kiss. But, please God, our love of life is not so prized as love of right. In this renaissance of our country's valor, we who will edge the wedge of her assault make calm acceptance of its hazards. For us the steel-swept trench, the stiffening cold—weariness, hardship, worse. For you for whom we go, you millions safe at home—what for you? We *shall need food*. We shall need care. We shall need clothes for our bodies and weapons for our hands. We shall need terribly and without failure supplies and equipment in a stream that is constant and never ending. From you who are our resource and reliance, who are the heart and hope of that humanity for which we smite and strive, must come these things.

(Signed) Citizen Soldier No. 238
—th District, National Draft Army

ACCIDENT PREVENTION AND WORKMEN'S COMPENSATION

"The Safety First movement which is now attracting so much attention throughout the country is fully justified. Our industrial accidents are simply tremendous in number.

Every hour 243 workmen are killed or injured.

Every 29 minutes a workman is killed.

Every 13.6 seconds a workman is injured.

Every year 2,076,500 workmen are killed or injured.

And this for every hour of every day. If we reckon on the basis of 300 working days of eight hours each the figures mean a working man killed every four minutes and a workman injured every four seconds.

Even this startling showing is incomplete, as it refers only to male workmen, taking no account of the many working women or the many minors employed in our industries.

Every reasonable effort which can be made by any one concerned to reduce these accidents to the smallest possible number is well worth while.

The results of an accident are by no means confined to its money cost to an employer. In fact, this may be said to be the least important of the direct results.

Whatever the direct cost may be, the employer can pass it on to the consumer, thereby spreading it out over such a large number that it is not felt by any one of them.

It is far different with the workman. Not only does an accident cause a money loss to him which he cannot pass on to others, but it is he and his family who undergo the suffering and privation often due to accidents.

The workman's interest in accident prevention is therefore *more vital than the interest of anyone else* and the part which he should take in preventing accidents is at least equal in importance to that which should be taken by the employer. No matter how much an employer may do in providing safe places of work and in safeguarding machines and operations, at least half of the accidents which are preventable can be avoided solely by the workman exercising personal caution and by making use of such safety appliances as are furnished.

It is only by the *cordial co-operation of workmen and employers*, each doing their own part, that the full measure of accident prevention possible can be attained.

That such co-operation does materially reduce accidents has been proved beyond question. For instance, it has been publicly stated by Secretary Drake of the Michigan Industrial Accident Board that one year of intelligent co-operative effort for accident prevention reduced the number of fatal accidents in Michigan from two every day to less than one, and decreased the non-fatal accidents from an average of one hundred a day to less than sixty-five. The experiences of individual concerns where employer and workman alike are doing everything possible to prevent accidents have been equally conclusive.

Much of the increased interest in, and effectiveness of, accident prevention is doubtless due to the Workmen's Compensation laws which are now being so rapidly enacted in this country.

It has been well said that prevention is a *benefaction—compensation an apology*.

No amount of money can recompense an injured workman for total or partial disablement, affecting not only his earning capacity but his enjoyment of life, nor can money recompense a wife and children for the loss of husband and parent, either materially or otherwise.

So far as compensation for accidents is concerned there are two essential features of a Compensation Law: (1) the benefits provided should be fair to the workman; (2) there should be an absolute guarantee that he will get the benefits which the law provides. The workman naturally takes the keenest interest in these two essentials. He not only wants fair benefits, but he wants to be sure of getting them.

There are four methods of administering a Workmen's Compensation law: (1) individual employers carrying their own risk; (2) employers insuring in a mutual association of employers; (3) employers insuring in an insurance company; (4) employers paying into a mutual fund to be administered by the State (State Insurance, as it is called).

As already said, a prime essential of any Compensation law is that the benefits be guaranteed to the workman. Any or all of these methods should, in the first place, comply with this requirement. An individual employer carrying his own risk must furnish satisfactory evidence to the State that he can and will meet his obligations under the law. The same requirement should apply to a mutual association, or insurance company, or a State insurance fund. Each should be required to set aside each year a cash reserve amply sufficient, so far as can be calculated in advance, to cover all deferred payments on account of accidents occurring in that year.

Now, suppose that this requirement of adequate cash reserve has

been complied with, and, one thing more—that a proper supervisory State authority has power to review settlements of all claims; what more can the workman ask in the administration of a Compensation Law?

This—that open competition between the four methods, or rather between the three (for the great majority of employers are not able to carry their own risks alone, but must pool their obligations in some form of insurance) puts each of the methods upon its mettle to do the very best that it can with the work in hand.

Monopoly is a bad thing in any line of business or in any line of human endeavor. It is so with the administration of a Compensation law. Any one method having the field entirely to itself will not do nearly so well by either employer or employe as it will do in active competition with other methods, each of which is earnestly seeking to do the work so well that it will get a fair share of the business.

The workman is vitally interested in having such competition, for with it, under the requirements and regulations mentioned, there is the strongest incentive for each and every one of the competitors to bend every effort toward the *most important feature of Workmen's Compensation laws—the prevention of the accidents*. At the same time the requirements and regulations named see to it that when, unfortunately, an accident cannot be prevented (as there will always be some that cannot), proper payment is made promptly and in full accord with both the letter and the spirit of the law.

In witness of this, it is only necessary to look to the State of Michigan, which is administering its Compensation law with all four methods in open competition to the satisfaction of workmen, of employers, of the Industrial Accident Board and of the people of the State.

Coincident with the thoroughly effective way in which insurance companies are working under Workmen's Compensation laws in giving employes prompt and satisfactory payments, they are doing their part in forwarding the cause of accident prevention in a manner which is not surpassed, if it is equalled, by any other of the four methods of administration which have been named. They are doing this in several ways.

In the first place, all the insurance companies are issuing Compensation Insurance under the merit system of rating, a system which offers the employer the greatest incentive to do all he can to prevent accidents, by insuring him at lower cost, in proportion to his efforts in this direction.

The merit rating system is of more importance to the workman than to the man for whom he works, for when an accident happens it is the workman who is injured and not the employer.

Other phases of the accident prevention activities include regular inspections of plants and the recommendation of improvements from a safety standpoint in an endeavor to bring each plant ever to a higher degree of safety. Not only are these inspectors trained and experienced men, but they are constantly being aided by researches which keep them in close touch with accident prevention developments all over the world as well as in this country.

The efficient work which insurance companies are doing in the administration of Workmen's Compensation laws in encouraging and aiding the prevention of accidents, as well as in making prompt and proper payments of indemnity for such accidents as cannot be prevented, cannot fail to be clearly evident to anyone who takes the pains to familiarize himself with the facts.

What the employee, as well as the employer, wants in the administration of Compensation laws, is efficiency in every way; efficiency in accident prevention, in insurance cost and in indemnity payments, from whatever source it comes. If the insurance company cannot furnish such efficiency, it will be eliminated by the competition of other insurance agencies. If, on the other hand, it can show such efficiency, as it certainly has done so far, then its influence as a competitor upon other agencies will be most salutary in holding them up to what they should do, and it is urgently needed for this reason, as well as its direct part as a factor in the successful administration of a Workmen's Compensation law."

I will smash the German line in France if you will smash that damnable Hun propaganda at home.—Pershing.

CANDLE POWER OF CARBIDE LAMPS

The types of carbide cap lamps now in use give much more light than the miner's oil-burning lamp. When fitted with a reflector, carbide lamps with a flame 1 to 1½ inches long give a candle power head-on of 4.2 to 6.2 and at right angle to the flame of 0.87 to 1.45. Without a reflector, the head-on candle power of the lamps averages 1.9 to 2.15 and at right angles 1.9.

The miners' and drivers' oil-burning lamps, when the flame is

adjusted so as to give the most light, have average candle powers of 1.4 to 1.9.

It has been fully proved that the flame of a carbide lamp does not require as much oxygen in the air supplied it as does the flame of an oil lamp or candle. In the air of coal mines, where black damp displaces some of the oxygen, it has been found that the oil-burning lamp flame goes out in air in which the carbide lamp continues to burn brightly. Comparative tests of the extinction of flame should always be based on the percentage of oxygen present, or on the composition of the air at the moment the flame goes out. The flame of an oil-burning lamp goes out when the atmosphere about the lamp contains 17 or 17½ per cent oxygen, whereas an acetylene flame does not go out until the atmosphere contains only about 12 to 13 per cent oxygen. A miner with a lighted carbide lamp may go into such a mine air until his flame is put out. If he goes still farther, where the air contains less oxygen, he may be overcome and may lose his life.

Carbide lamps are used for the following reasons and purposes: To obtain better and stronger light; to improve the air of the mine by getting rid of smoke such as is made by oil lamps; to reduce the fire risk from snuffs and candles being carelessly left burning near timber or things that will take fire, or from discarded cotton wicks of oil lamps being thrown into the waste or gob.

America is God's last chance to save the world.

COMMUNITY LIFE

"Man will form a democracy in his country, a civilization where men will be dear and goods cheap, a harmonious living together, in proportion to his individual thoughts and acts.

A community is made up of individuals—each is a unit.

An individual community takes on the character of the thoughts, the acts of the individuals that form it. It becomes like the smallest, the weakest as well as the greatest, the strongest.

A community is democratic as its individuals are efficient.

The form of the community life is followed by the function of the individual life.

The beauty of life is the use of life.

Harmonious community life will follow mutual effort for mutual profit—the Golden Rule."

*The kaiser may be a great fighter—but so was
Jack Johnson.*

PREVENTION OF ELECTRICAL ACCIDENTS

An electrician who is not familiar with or does not follow accepted standard practice in his repair and installation work is a constant menace to the safety of any establishment and its employees.

Shield your eyes from electric arcs or flashes. This kind of light frequently causes temporary blindness and in some cases ruins the eyesight. If you ever become so affected, consult the plant doctor or your own physician at once.

Small cuts, bruises or burns should receive treatment immediately and be protected from dirt or mechanical injury. Blood poisoning may set in and must be guarded against.

Keep your eyes on your hand when reaching for electric switches. Otherwise you may touch the "juice."

Before working on electric machines lock the service line switch open and place the key in your pocket. No person can then turn on the current with fatal results to yourself. This has often occurred.

Screw drivers, pliers and all other handy tools should have insulated handles.

Immediately stop any abuse or misuse of electrical apparatus.

Never work on live circuits unless it is absolutely necessary. If you must work on such circuits, use all the safety devices and methods possible.

Treat all wires as "live" until you are absolutely sure they are "dead."

Unsafe or improperly working electrical apparatus should be immediately shut off and reported to the proper authorities.

In working overhead be careful to place tools so they cannot fall on persons underneath.

If working on ladders or scaffolds see that they are substantially built. If they are not, you may be the sufferer.

Use your safety belt whenever possible. It may be your "life preserver."

Never overload a circuit or use a fuse of too great capacity. Overheating of conductors may occur and the possibility of a fire is thus increased.

Study regulations for the proper installation of electrical apparatus. Never install wiring or other electrical apparatus which is not strictly in accordance with such rules. They have been formulated to prevent fires and accidents.

Do not have soldering torches burning unless you are present. Thoughtlessness in this matter on your part may cause considerable damage.

Care and caution in your work is necessary for your own safety and for that of your fellow employee.

See that all combustible material is removed from places where a spark from electrical machinery or apparatus could ignite it.—*Penn. D. of L. & I.*

Every man at the front means six in the industries. You are one.

SAFETY-ORDERS FOR EXPLOSIVES

We reproduce recent orders issued by the California Accident Commission relative to the storage and use of explosives, this being known as order No. 1105. These rules for the use of blasting materials have a highly economic importance aside from their desirability in the prevention of accident. Much loss of time and efficiency in mining result from disregard of the simple precautions set forth in this circular. It is always agreeable to the public when a "safety first" requirement is found also to have the desirable effect of increasing revenue.

(1) Magazines shall not contain tools other than a wooden mallet and wedge or a phosphor-bronze chisel.

(2) When supplies of explosives or fuse are removed from a magazine, those that have been longest in the magazine shall be taken first. Packages of explosives shall be removed to a safe distance from the magazine before being opened, and such package shall be opened only with wooden or bronze tools. Empty or broken boxes, paper, and rubbish shall not be allowed to accumulate within 100 feet of a magazine. Such boxes, paper, and rubbish shall be removed to a safe distance (at least 500 feet) and burned or otherwise disposed of.

(3) Packages containing explosives shall not be opened in a magazine.

(4) Magazines shall at all times be kept clean and dry. Before repairing or altering a magazine, explosives shall be carefully removed and the magazine cleaned thoroughly. Nails or screws must not protrude from any part of the interior of a magazine.

(5) No detonators shall be taken into a magazine containing other explosives.

(6) No detonators shall be transported in the same receptacle with other explosives.

(7) Detonators shall not be removed from original container except as they are used for capping fuses.

(8) Explosives shall not be thawed in a magazine where other explosives are kept.

(9) Explosives shall not be thawed in any device other than a room, box, or other receptacle heated by exhaust steam, hot water, manure, or electricity. If steam or water be the agent employed, the stove, boiler, or other primary source of heat shall not be nearer to the thawing-room than 10 feet. Explosives shall not be thawed by direct contact with steam. If electric current be the thawing agent, the current shall not be brought within five feet of the explosive to be thawed, and in no case shall explosives while being thawed be exposed to a temperature higher than 80° Fahrenheit.

(10) Explosives shall not be placed or left within five feet of live electric wires.

(11) Explosives shall not be kept exposed to the sun any longer than necessary. Explosives deteriorate under the direct heat of the sun.

(12) No person shall remove explosives from a magazine without the written or verbal orders of the superintendent or foreman of the job.

(13) Fire-extinguishers or hydrants and hose shall be provided and kept ready near all powder-magazines for use in case of fire outside the magazine.

(14) Smoking in a powder-magazine or while handling powder, or entering a magazine with an open light is prohibited.

Order 1106: Fuse.

(1) No fuse shall be used for blasting that burns faster than 1 foot in 30 seconds or slower than 1 foot in 55 seconds. Only fuse of sufficient length shall be used so as to allow the men to retire to a point of safety before firing a hole or round of holes.

Under no circumstances shall fuse less than 2½ feet long be used.

(2) Caps and electric fuses are extremely sensitive, hence it is forbidden to carry them in one's pocket or store them in buildings except a magazine as specified in these Orders.

(3) The use of oil or grease to waterproof joints between cap and fuse is forbidden. This practice causes misfires. The use of a compound sold by powder manufacturers for waterproofing, such as roofing paint, celakap, etc., is recommended.

(4) In capping fuse, at least 1 inch shall be cut from the end

of each coil of fuse to be used in blasting. This will prevent damp fuse-ends from getting into the cap.)

(5) Only a crimper shall be used for attaching fuse to blasting cap. Crimping with the teeth or a knife is strictly forbidden. Crimpers shall be provided and kept in good repair ready for use.

(6) It is forbidden to use fuse that has been hammered or injured by falling rocks or from any other cause. (Such injury may increase the rate of burning, or may render the fuse entirely useless.)

(7) In cold weather, fuse shall be warmed slightly before uncoiling, to avoid cracking the fuse.

(8) The hanging of fuse on nails or other projections, which cause a sharp bend to be formed in the fuse, is prohibited.—
M. & S. P.

*How many dollars' worth of Americanism have
you? Prove it—buy Liberty Bonds.*

CO-OPERATION

“The man who took the word ‘operation’ and set ‘co’ in front of it took the common clay of work and breathed soul into it. Look around with understanding and you will see that Co-operation is but another and a better way of spelling ‘Life.’ Co-operation is at once the name and definition of a power almost as limitless as space, the secret of existence, the secret of success. Where Co-operation is suspended, nature is but cold stone. A business without co-operation is soon stone broke.

A modern business is like a complicated piece of machinery—the smallest cog must co-operate or quickly be replaced. He who compares life to a game of poker makes a bad mistake. No man can play a lone hand and win in the game of life. NOTICE! You will find the surest path to progress, the shortest cut to success, is the fullest co-operation with those with whom you work.”

*Don't be satisfied to “do your bit”—DO
YOUR DAMNEDEST.*

PUT OUT THE FIRES BEFORE THEY GET BEYOND CONTROL

The best manner of extinguishing fires that may start in some of the commodities characterized as dangerous by the Interstate Commerce Commission Regulations, depends upon the immediate existing local conditions. The one important thing to do, is to stop the fire in its early stage.

ACID

Fires caused by nitric or mixed nitric and sulphuric acids, can be controlled by the careful use of water. Care must be exercised in the application of water as in contact with acid, it is liable to cause slight explosions accompanied by the projection of hot acid, which might cause dangerous burns. Therefore, the water should be applied from a safe distance.

Sand may also be used to stop a fire started by acid. But if the fire has thus been stopped, the early use of water is desirable to prevent the fire breaking out again. Thoroughly flush away any remaining acid and remove leaking or damaged containers. In all fires caused by nitric or mixed acids, a considerable amount of nitrous fumes will be given off; these fumes are extremely irritating and are poisonous. Employees should not enter a car or other confined space, where such fumes are present.

MATCHES

Fire in a case of friction (strike anywhere) matches frequently involves ignition of the match heads in one or more of the inside cartons. If the outside box is not broken open and the smoke dies away after a moment or two, no further action is necessary, as the fire has already been extinguished for want of oxygen, and nothing will be gained by opening the box. If the fire has gained some headway, the burning box or boxes should be removed from the car or warehouse if this is possible; or water should be freely used. Boxes should not be broken open as the fire will be increased by such action.

CHARCOAL

Fires in ground charcoal or in charcoal screenings are best handled by removing the burning packages (usually bags). If conditions

are such that removal is not possible, water may be used sparingly to extinguish the visible fire; then remove all of the charcoal and separate the wet from the dry charcoal. The dry charcoal should be stored under cover and under observation for several days before permitting such a shipment to move forward, as it is probable that fire may burst out again. The wet charcoal should be destroyed, as it is unsafe to transport. Fires in lump charcoal should be extinguished with as little water as possible and the wet charcoal removed from the balance of the lading. The same precautions as to observation for several days should be followed to see that fire does not again occur.

GASOLINE

Fires which involve only a small amount of gasoline, can often be extinguished by the liberal use of water, but if there is a large amount of gasoline already ignited, water will only spread the fire. Sand or earth should be used to control the flames of the burning gasoline and could possibly be used in sufficient quantity to smother the fire.

Fires involving tank cars may occur through ignition of the vapors escaping from a safety valve. The burning of these vapors and even of the liquid itself, is not a serious matter except as a source of trouble to surrounding property. An effort should be made to promptly extinguish such fires by the use of wet bagging thrown over the safety valve, pouring on sand in quantity on top, or if the means are available by the use of a heavy jet of steam. If this cannot be done, isolation is the proper course to pursue, and the fire will eventually burn itself out.

OIL (CRUDE OR REFINED)

Carbon tetrachloride, the basis of many of the various chemical fire extinguishers, if thrown on an oil fire forms a heavy non-inflammable vapor over the liquid, and mixes readily with oils. The vapor is about five times as heavy as air, and although the fumes from carbon tetrachloride are pungent, brief exposure to them does not cause permanent injury.

Sawdust may be used by means of long-handled shovels, in extinguishing fires involving open tanks. The sawdust is not easily ignited, but floats on the surface forming a blanket which will exclude the oxygen of the air.

Fires in sulphur are best extinguished with water, or if discovered

at the start the burning portion may be removed. Sulphur does not burn rapidly nor will the fire spread rapidly. After a fire is apparently extinguished the shipment should be kept under observation, as owing to the low ignition temperature fire may burst out again. The fumes are suffocating and should be avoided by employees.

NITRATES OF SODA

The material itself is not easily ignitable, but when intimately mixed with organic matter such as jute bagging, is liable to cause serious trouble if ignited. The melted nitrate retains a great deal of heat and when water is thrown on it, the sudden generation of steam will cause the melted nitrate to scatter and start fresh fires. Whenever practical, fires in shipments of nitrate of soda should be smothered immediately, as they are difficult to extinguish with water after gaining headway.—*B. of E.*

The business-like air of America, the set jaw of England, the steel nerves of France, are unbeatable.

WHAT IS BUSINESS EFFICIENCY

“Some efficiency engineers, like most other experts, are lopsided.

They overlook the vital thing—the human element—and class men with machines.

They fail to differentiate between the animate and the inanimate—between throbbing steel and pulsing life.

In one respect men and machines are alike. You can drive both to a certain point; then something breaks.

But there is no limit to that which may be drawn from men by the proper understanding and treatment of human nature.

Science and system are admirable for machines. But for men, the practice of the Golden Rule is far more certain to develop 100% efficiency for which we are all striving.

The man who works WITH YOU—who LIKES YOU—who RESPECTS YOU—who wants to please you, will follow your efficiency plans because he WANTS to—not because he MUST.

So, while science and system are a vital part of business efficiency, they are not basic.

Real business efficiency resolves itself into a question of humanity

—not science; of confidence—not system; of appeal to the heart—not to the head.”

*“Come across or the kaiser will.” Buy
Liberty Bonds.*

THE POWERS OF LIQUOR

The following “few remarks” made by a writer in “Coal Age” (New York) may be useful in other places than the United States: “Liquor in excess is a wizard, having power to temporarily change actualities into unrealities and dreams into real happenings. The unending list of accidents caused among workmen under the influence of liquor proves that it makes the ordinary sane and cautious workman insane and incautious by causing a blue cap on a safety lamp to look ‘OK’; switches look right when they are wrong; red lights look white; and doors are forced to open the opposite way from what they were intended by the power of a moving motor. Neither are the pernicious powers of liquor limited to men’s sight, since to the drunken miner a hazardous roof ‘sounds’ good, and foul air seems clear. By such contrarities it transforms happy homes into unhappy ones; turns children fatherless into an indifferent world; and by the arbitrary removal of the bread-winner, cheerful wives become saddened widows. Work and liquor are as oil and water—they will not mix, though more than one misguided individual has literally burned up his energies in the effort to combine both.”

W. S. S. means “We Save to Serve.”

EDISON METHODS OF GETTING AND HOLDING MEN

*Digest of Address by Mark M. Jones, Supervisor of Personnel,
Thomas A. Edison Interests*

The administration of personnel in the Thomas A. Edison interests is centered in a staff known as the Personnel Departments. Its activities cover five main functions—Employment, Adjustment of Rates, Betterment, Safety and Health.

The Employment Service Department is separated into three sections—Clerical, Female and Male-Manufacturing. It has its main office at Orange, N. J., with a branch at Silver Lake, three miles

distant. All persons go on to and are removed from pay-rolls of Edison interests through the employment office. Employment records for all plants are kept at Orange in the main office. Under the plan for centralization of employment, only one person has authority to dismiss a worker. Persons leaving for any reason must call at employment office for interview before they receive final pay. If a foreman wishes to suspend workers, he does so and the case is taken up by the employment office. If the foreman seems to have taken the proper action, dismissal is confirmed. If not, the matter is taken up with the division manager, in which case the employment office is in the status of the people's lawyer. It carries on its activities by persuasion and endeavors to sell its services at all times.

The adjustment of rates is based on the theory of putting the money in the pay envelopes, rather than in special services along betterment lines, as is done in many places. This function is the least developed of all of the personnel departments, but is second in importance from the standpoint of stabilizing labor. On account of the nature of the Edison organization, it serves as a stabilizing influence between widely separated divisions in addition to serving as a specialized function for the adjustment of rates.

Betterment work is carried on through the plant newspaper, the Mutual Benefit Associations, the Suggestion System, etc. The Edison Herald is not issued on a fixed date, it being the opinion that greater interest is stimulated through having it published at more or less uncertain periods. It carries a limited amount of educational matter, but is primarily a newspaper. It devotes a great amount of space to pictures. The Mutual Benefit Association takes care of men incapacitated after one week lost time. Two associations cover the various Thomas A. Edison interests. They are operated entirely by workers and the management takes no part in their activities whatever.

Suggestions are secured through suggestion boxes distributed throughout the various plants. One hundred dollars per month is paid out for the best suggestions. From 75 to 150 per month are received. Careful attention is given to every suggestion and a reply made to the worker in every instance. Workers attach more importance to the letters regarding suggestions than to the money awards made to them.

The Safety Service Department is operated in co-operation with the Health Department. This work was started in 1917, and it has through foremen's and workmen's safety committees reduced accidents $33\frac{1}{3}\%$ in the last three months. Competition between

departments was stimulated through posting bulletins showing safety standings. Through the co-operation of the Health Department the number of cases in which sufficient time was lost to warrant the payment of compensation was reduced 75% during the year. The work was carried on by a technical graduate.

The Health Department has two hospitals, and handles casualties, occupational diseases, illness, sanitation, education. Treatment at the hospitals run from 2000 to 3000 per month. Experience shows that little things which at first are apparently insignificant develop into the most serious medical problems. Every case is required to come to the dispensary for treatment, no matter how trivial.

We find hospital equipment of little avail if the doctor is not of strong personality. The hospital staff must be composed of sympathetic persons capable of administering to wounds of the spirit as well as those of the flesh.

It is important that sales spirit be emphasized in personnel development work. Many personnel departments start with the idea of "showing the foreman where to get off." Men not thoroughly "sold" do not carry out instructions in the spirit given. Better to proceed more slowly and avoid making enemies. The foreman is human as well as the worker. The foreman must not be undermined. He should be considered the king pin around which production revolves, and should be held responsible for final results. The instruction of foremen is an important problem. Too little attention is given him in nearly every industry.

During the first year after the Personnel Department was organized in the Thomas A. Edison interests the labor turn-over was reduced 50%.

*Bonds or bondage? You have your choice.
Which do you prefer?*

THE SOLDIER ON CRUTCHES

By Edgar A. Guest

He came down the stairs of the laughter filled grill
Where patriots were eating and drinking their fill;
The tap of his crutches on the marble of white
Caught my ear as I sat all alone there that night.
I turned—and a soldier my eyes fell upon,
He had fought for his country and one leg was gone!
As he entered Silence fell over the place;

Every eye in the room was turned up to his face,
His head went up high and his eye seemed aflame
With a wonderful light, and he laughed as he came.
He was young—not yet thirty—yet never he made
One sign of regret for the price he had paid.

One moment before this young soldier came in
I had caught bits of speech in the clatter and din
From the fine men about me in life's dress parade
Who were boasting of the cash sacrifices they'd made;
And I thought of my own paltry service with pride,
When I turned and that hero of battle I spied.

I'll never forget the hot flushes of shame
That rushed to my cheeks as that fellow came.
He was cheerful and smiling and clear eyed and fine
And out of his face a white light seemed to shine.
And I thought as he passed me on crutches: "How small
Are the gifts that I make if I don't give my all?"

Some day in the future in many a place
More soldiers just like him we'll all have to face
We must sit with them, talk with them, laugh with them, too,
With the signs of their service forever in view,
And this was my thought, as I looked at him then:
Oh, God! Make me worthy to stand with such men.

