CURRENT SAFETY TOPICS — Volume 10

1956 TRANSACTIONS

FOOD INDUSTRY AND MEAT PACKING, TANNING AND LEATHER PRODUCTS INDUSTRIES

44th National Safety Congress

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NATIONAL SAFETY COUNCIL

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Current Safety Topics in the FOOD INDUSTRY AND MEAT PACKING, TANNING AND LEATHER PRODUCTS INDUSTRIES *(Continued from cover)*

Safety Supermarket

Each fall, some 12,000 safety experts from all over the U.S. and many foreign countries gather in Chicago to discuss safe attitudes, methods and equipment. It isn't just a gossip session. There's serious thought and talk on how to prevent the tragic accidents—on the job, off the job, in the home, on the streets and highways—which claim about 95,000 lives every year.

Each edition of the Transactions is a handy reference to the up-to-the-minute ideas and experiences of these top men in all fields of accident prevention.

Safety people everywhere have found in the Congress Transactions much useful ammunition to aid them in the war on accidents.

The National Safety Congress Transactions are published in volumes, each covering a phase of the safety picture, along with a General Sessions and Detailed Index to all volumes. The volumes of the 1956 Congress Transactions are listed on the last page of this volume. In preparing these Transactions, the proceedings of the Congress have been condensed and edited for reference purposes. Complete original manuscripts, with any charts or illustrations which were used, are available in National Safety Council files. Views expressed at the Congress or in this record are those of the Congress participants and are not necessarily those of the National Safety Council.

THE FOOD SECTION

THE MEAT PACKING, TANNING AND LEATHER PRODUCTS SECTION

This volume is a record of the sessions held at the 1956 National Safety Congress by the Food Section and Meat Packing, Tanning and Leather Products Section. The conduct of these Congress sessions each year is only one of the many cooperative activities which the Food Section and the Meat Packing, Tanning and Leather Products Section carry on in behalf of their members, and for the benefit of accident prevention work in the Food and Packing, Tanning and Leather Product Industries generally. These Sections give guidance in the preparation of a great variety of technical and educational material useful in the day-to-day plant safety programs.

The activities of these Sections are under the direction of their Executive Committees, the members of which are listed at the close of this volume.

The Food Industry

Off-the-Job Safety—Is It an Industrial Responsibility?

(A Debate)

General Chairman: Nixon de Tarnowsky.

Discussion Leader: Thomas J. Berk, Safety Consultant, Metropolitan Life Insurance Co., New York.

Affirmative:

W. F. Leonard, Jr., Vice-President, Southland Corp., Dallas, Tex.

Gregg R. Meyers, Dir. of Safety, Blatz Brewing Co., Milwaukee.

Negative:

E. G. Hutzley, Safety & Fire Prevention Engineer, Campbell Soup Co., Camden, N. J.

Leslie J. Quinker, Dir. of Safety, Schenley Distillers, Inc., Louisville, Ky.

MEYERS: Last summer, when asked to participate in this debate, I figured no one would take the negative side.

The printed program showed that several men were lined up for that side, but I still didn't think they'd show up. But then I realized they were serious.

I am sure they realize that no place in the safety engineer's "Code of Ethics" or on the American Society of Safety Engineer's diploma does it mention only industrial safety. I quote from the ASSE diploma: "This certifies that (blank) is a member of this society, organized to promote the arts and sciences connected with engineering and its relation to safety, to life and limb and the protection of property."

No place, though, does it mention only "industrial safety!" What negative arguments will these men present? I am sure that their own organizations believe that off-the-job safety is an industrial responsibility. Many large industries throughout the nation are spending thousands of dollars annually for off-the-job safety. Are these firms wasting time and effort? I think not! They realize the benefits of industry's participation in such a program.

In 1955, to relate some facts, 28,000 persons were killed in home accidents; 38,300 in traffic accidents, and 14,000 in work accidents. With intensified safety programs in industry the industrial-accident death rate has been reduced by some 4,000 from 1949's rate.

Those figures show that if enough safety effort were exerted in off-job safety, the death toll could be reduced just as industry has reduced its death rate. Industry is vitally affected by off-job accidents. It will profit if it considers an off-job safety program its responsibility. Here are 10 reasons why an off-job safety program would benefit industry:

1. Production would increase and there would be less personnel turnover.

2. Insurance costs would decrease for both management and employee.

3. It would provide the employee incentive to accept management's participation in a safety movement.

4. Employees could work better and safer because group interest would be initiated.

5. A better living pattern in the home would result, too, for the life of the wife and children would not be disturbed by bad news about accidents to their husbands, hospital bills, doctor bills.

6. It would provide safety education for the employee and help make him more safety conscious on the job, especially if he took the lead in teaching his family safety.

7. Incentive would be provided for safety essay contests which could be sponsored by individual plants or departmental groups.

8. It provides a way to "get down on the ground" with the employee, selling him on the idea that management is trying to do something for him as an individual and not merely to set company records.

9. Off-job mishaps occurring to members of the employee's family, though indirect, affect his work habit and attendance rate.

10. Off-job safety programs—to the degree to which they are successful—also will cut down on on-the-job accidents.

Industry must assume this responsibility if it considers itself to be a "good citizen." It must continue to support such organizations as the Red Cross and Community Fund, and it must be interested and active in any program that will be "good for all" in the community in which they're located.

Now, are the members of the negative side here going to tell us that off-job safety is *not* industry's responsibility, but that of the school, the community, the public agency, the Federal government, or the insurance company?

If they tell us that these agencies should hire experienced safety engineers to operate such a program, where are these agencies going to get them and what about the tax burden on the people of the U.S. if safety were the responsibility solely of some state or Federal agency?

Safety prevention is a community problem; it's definitely up to industry to share in this problem. For the rest of my life, I will always be convinced that off-the-job safety is an industrial responsibility!

HUTZLEY: One of the great traditions is the debate, an essential tool of the democratic society where the majority rules. Debate provides for an orderly and comprehensive review of arguments for and against a specific proposal before the votes are cast. It also provides a fair method for a minority to challenge an established majority, or, as in this case, to create thinking on both sides of a subject.

As in all debates, a proposition has been decided. However, the side which either team defends does not represent, necessarily, the opinion of the company nor of the speakers.

Decision as to who wins this debate should not be made on the merits of the question, but on the merits of the debate. That is, consideration as to what may seem to you the intrinsic merit of either side of the question should not enter into or determine your decision as to the winner. You should consider in your determination the team which shows greater argumentative ability and better form as speakers.

In determining argumentative ability, take into consideration knowledge of the subject, power of analysis and structure, logical sequence in selecting and presenting evidence, and effectiveness of rebuttal. Consider, too, public-speaking techniques. For your guidance, however, matter is more important than form.

The debate will be a symposium limited to two points of view, the affirmative and negative, of: "Off-the-Job Safety—Is It an Industrial Responsibility?" The panel will present the fundamentals so that you might decide what should be done about this problem.

The forum will consist of pro and con presentations, a rebuttal and an open discussion in which, it is hoped, the audience will participate.

Our subject matter is tremendous in scope and highly controversial, otherwise it wouldn't be debate material. Like every safety man, I am "agin" injuries. It should be made clear that while we cannot agree that "off-the-job" safety is a blanket responsibility of industry, strong support for education in this direction certainly has our fullest approval.

The little progress accomplished in making persons aware of non-industrial hazards stems mostly from improved industrial-safety programs. But, certainly, we must not forget the need for further improvement along that line. Until we do a better job of clearing up our numerous troubles, accepting full responsibility for off-job safety is little short of foolish. Since on-the-job accidents have been reduced through control, lack of accident control for persons away from work must be responsible partly for this wide variance.

And when dealing with workers, controls often mean resistance, for they consider suggested protective efforts as "nosing in" or an infringement of constitutional rights. Off-job safety still requires straightening out. We sometimes fail to understand that the job today does not rule a person's thinking as it used to. In the average 40-hour workweek, safety practice must be accepted as part of the pattern. In the other 128 hours, however, anything goes.

For example: Of every eight accidents, one is industrial; but in spite of serious efforts by industry to sell "round-the-clock" safety, the large preponderance of off-job injuries to employees indicates most safety

lessons are forgotten when they are on their own time. And employees having trouble with controlled, on-the-job safety usually contribute heavily to the high ratio of off-the-job accidents where there are no controls! An even more ridiculous factor is that all non-industrial injuries invariably are lumped together as off-the-job accidents! Actually, two thirds of those injured are not industrial workers, but old folks, young children, drunk drivers, despondents and others with no industrial ties. Why should they be so classified?

We who work at industrial safety know there are few "act-of-God" accidents. More persons are killed from handling low-voltage electricity than from being struck by lightning. We know, too, that the majority of all injuries and deaths, whether on or off the job, occur to:

1. Persons who refuse to listen, understand or heed rules of common sense and danger warnings.

2. Unfortunate victims of these heedless creatures, usually not at fault themselves. But, when they're hurt fatally, they're just as dead as if they themselves had been in the wrong.

The vast majority of all accidents are caused by discourtesy, ignorance or disregard for the rights of others. We talk around these facts in polite circles, referring to them as "human failures."

What different course should industry take concerning the majority of traffic-law violators . . . the jay walkers . . . the "don't care a hoot," all figures at the scene of most "accidents?" Such persons will continue being killed while making left turns from the right side of the road, by runnig across the street in mid-block and being struck down, or rocking the boat and becoming a drowning victim.

Why should industry be held responsible for remiss parents who leave small children alone to play with matches, to swallow rat poison, lye, paint thinner, detergents, sleeping pills, to shoot each other, to smother in deserted iceboxes, or to find numerous other ways to die?

Why should industry be held responsible for the hundreds of so-called adults who kill themselves with "un-loaded" guns; die looking with lighted matches for gas leaks; electrocute themselves by plugging in defective cords while in the bathtub; cut off fingers with home power saws; lose arms from neglected infections; fall off roofs, or die in a flaming bed ignited by a cigaret? Off-the-job accidents? Industry's responsibility for such inane acts seems far-removed.

Many of the persons who were either maimed or fatally injured in the foregoing accidents are employed industrially, as we know. They are the safety man's burden, responsible for most of his frustrations, sweat and tears. They, a chief cause of bad accident records, think someone is picking on them if told to practice safety. Industry is aware of the vital need to teach these problem workers common safety sense, both on and off the job. Too, industry-sponsored safety advice and information reaches millions of persons daily in all walks of life. Despite the barrage of safety messages put out through the media of radio, television and newspapers, evidence indicates too many pay too little attention.

You've all heard community "leaders" cite "deplorable conditions" as the cause of accidents, fires, disability and death. But too frequently the blame lies with the city leader who coddles habitual traffic-law violators, issues driver licenses to persons unable to handle even a wheelbarrow safely, or grants favors which make it impossible for the conscientious fireman or policeman to do a good job of preventing disaster.

Enough of this nonsense about "human failure." That's a weak and unacceptable excuse. However, the old game of "buck passing" makes it difficult to get necessary action. And because industry—after years of hard work in devising and enforcing safety controls—is often the safest place to be, there's a mistaken idea that industry alone can wage the never-ending battle against accidents.

But though every community and crossroads in the U. S. is affected, buck passing will continue—and so will injuries and fatalities that could have been prevented. Every person must accept his share of responsibility for stopping accidents, regardless of the place they occur.

And a good beginning would be to give as much time to day-by-day safety problems as is given to collecting overtime-parking fines.

We need an honest, thoroughly planned, continuous campaign at the local level. There, injured or killed persons will be known by others in the community. And industry, which is always local, will continue to help.

But it is both improper and unfair to expect industry to carry the full burden of stopping off-the-job accidents until: (1) A realistic, standard, nation-wide traffic code is effected; (2) common-sense requirements for all drivers become fact instead of fancy, and, (3) a firm, 365-day-a-year disciplinary code goes into effect to isolate those few persons who do not, will not, or cannot follow simple rules of decency and common sense.

LEONARD: It is essential that industry protect its investment in its employees. The poyroll of any company is an investment that must be protected.

It is essential that industry save on the 65 million man-days lost per year by 2.3 million off-job injuries.

Off-job safety will reduce both state compensation and group hospital costs for both the company and the employee (prevention of accidents reduces rates).

Off-job safety provides the employee incentive in accepting management's participation in a safety movement.

It provides a way of getting "down on the ground" with your employees and selling them. You are doing something for them as individuals—for them and their family—and when they realize this, they will accept the safety program. My company has tried this for six years and it will work; we've got it on its way. A result is better employer-employee relations.

Off-job safety makes a better pattern of living in the home and raises living standards for adults and children. These children are the safer workers of tomorrow.

Off-job injuries can create welfare cases for the company or community.

Off-job accidents to members of an employee's family affect his productivity and attitude—and his lost time.

Off-job safety provides safety education for the employee and helps make him more safety conscious on the job, especially if he takes the lead in teaching his family about safety. And in the home is where safety should start!

A good off-the-job accident-prevention program ties the family to the company and makes for a 24-hour relation; and it promotes full-time safety attitudes.

Off-job safety reduces economic losses, improves individual and group productivity and increases employee efficiency. It reduces preventable absenteeism and increases take-home pay.

"Off-job safety preserves needed skills and knowledge and makes the family partners in production.

Finally, the 24-hour safety program promotes good public relations with the community, state, and, in some cases, the nation. In some cases, no great amount of improvement will be made until the entire family is educated to the safety attitude.

QUINKER: My opponent apologized after his speech for any sarcasm. None was intended, I know, and no offense was taken. I will make a like apology before I speak.

Yawl been alistenin' to my friends on the opposition—and to my learned colledige here uh arguin' about the responsibility fer off-the-job safety. I don't calate as how I'll change any minds on the subject but a few of us ridge-runners down in Kentucky jist don't cotton to the idea that we're responsible for our hoot-nanys 24 hours a day. On the way up here, I been a'talkin' to some of these big business typhoons. They're a-gripin' 'bout how the guvmint's got them a-hangin' by their heels down a well, what with taxes atakin' every cotton-pickin' dollar they can put their greedy hands on. Most of 'em tell me they can't afford off-the-job safety.

We got two big hazards in our plant:

1. The still might blow up.

2. The revenooers can put us out of business any time.

Part of our delivery price on a gallon of good ole mountain dew covers the safety program in the plant; another part goes for round-the-clock guarde force; more of it goes for raw materials and equipment, and still more for Lum and Abner's take-home pay. With all them hands a-grabbin' in the pot, boys, there hain't but durn little left when it's my turn.

Now they want me to send my safety man up and down the hollers to see that everybody's safe at home. And, man, he ain't agonna do that for just an extra jug a week. He's gonna want some more of this here portal-to-portal pay and time-and-again for overtime.

I'm areddy in this off-the-job stuff up to here; I've got company picnics, movies, "Little League" baseball, bowling teams, softball teams, Sea Scouts, toy balloons and comic books! Great day in the mawnin', boy, them things cost money!

And from what I've heard, these here companies 'at spend all their money on 'em off-the-job accident programs have about the same off-the-job accident rate us poor folks do.

I don't want you boys to get any wrong ideas; so I better correct this misconception you all might have about my position. Any fool—includin' me—knows that when Cy gets hisself hawg-tied by a accident at home, he cain't make no more mash than if he had been hirt at work. "We all believes in off-the-job safety—we just don't think we should pay through the nose fer all the fancy frills what they want.

My mind is already made up; so, don't confuse me with the facts. If'n I'm supposed to be responsible fer my boys' safety away from the plant then I oughter be responsible fer their clothes and food and tools and insurance and fringe benefits, too, on accountin' I'm ree-sponsible fer them on the job. Yawl think I'm bein' ludy-crus? Wal, now, yawl fergit I'm in a luxury item business—so they tell me—and our customers got only 750 different brands of bourbon to choose from. Besides worryin' about cookin' up a good batch of moon, I gotta worry about gettin' that nectar sold.

So it all builes down to these hyer two pernts:

1. I ain't got the time.

2. I ain't got the money, either, honey, to stick my nose into Lud's home and see that he stays safe so's he can cum inta work the next day.

I womp up a pretty good program in the plant an' I don't think anybody should say I'm askin' too much to want my boys to take home what they larn there 'bout being safe.

It cost me 39 bucks to put Abner on my payroll and a whole lot more to keep him there. Who says I gotta foller him home and see that he don't stub his cotton-pickin' toe afore he comes back to mixin' up a batch?

They say the good Lord heps them what heps theirselves; so I think Abner oughter take the load offen my shoulders so as'n we can carry double.

Don't you-all agree?
Take keer of yourselfs!

Rebuttal

Statistics indicate that accident losses approximate $225 per household each year. A successful off-job safety program could reduce this loss and leave money available for purchase of goods and services of the employer.

Reduce preventable injuries now being absorbed by the production program of the company.

An active, dynamic off-the-job safety program provides the missing link—or completes the circle—in continuing an effective industrial safety program.

My Company Record

By pushing the 24-hour safety program, in the past 6 years:

Employee injuries — decreased frequency 62 per cent.

Number of employees increased 30 per cent.

Vehicle accidents — decreased frequency 40 per cent.

Number of vehicles increased 40 per cent.

We are all 'ambassadors of safety." Off-job safety programs will make us all "ambassadors of happiness" because safety is just people helping people.

Guarding Against Hazards of Mechanical Equipment

(A Symposium)

Machine Guards and an Effective Locking and/or Tagging Problem

By EDWARD J. MULLIGAN
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There are really two separate subjects in the topic given me—"Machine Guarding" and "An Effective Locking and/or Tagging of Equipment Program." Both are very important elements in accident prevention work. Failure to deal properly with either can result in the loss of hands, arms, legs, and even lives. Accidents resulting from such failures are small in number compared with those resulting from people falling or mishandling objects, but the severity of such accidents is usually high. Although Aluminum Company of America has an over-all, basic safety policy for all of its operations, each location's safety program functions independently with guidance from the general office in Pittsburgh, Pa.

I'd like to quote one paragraph of Alcoa's over-all safety policy which deals with our subject: "It is management's responsibility to see that its plants, equipment and machinery are as safe as they reasonably can be made. The basic approach is to eliminate the causes of accidents wherever possible. When this cannot be done, mechanical guards and other safeguards are incorporated into the design or added to equipment as it is found necessary to do so." This is a good basic policy and lets each local works of Alcoa understand what its responsibilities are in this matter.

It is most essential to have a company policy on safety which not only looks good on paper, but one that is genuinely practiced.

Machine Guarding, in itself, is a tremendously broad subject. Therefore, we will have to deal with the problem in general terms. Part "B" of the Health and Safety Acts of the State of Illinois, which covers rules and regulations relating to guarding of mechanical power transmission apparatus, prime movers and moving parts of machinery and guarding of operation of machinery, covers 36 pages. This is a very comprehensive code and a very good one.

A substantial part of my experience with Alcoa involved the manufacture of machine guards, inasmuch as I spent 15 years in the shops doing sheet metal work prior to my entry into safety work. Most of our machine guards are made in our shop unless the machinery is purchased with guards already provided. Quite often when we purchase machinery with guards installed, we find that we have to make some additions or changes. For example, the State of Illinois code calls for complete enclosure of drives, and when we purchase machinery equipped with guards that do not have a back panel, we have to add this panel.

Guards with expanded metal openings that are too large to comply with the code must be replaced. The code calls for openings small enough to reject a ½ in. marble for guard panels within four inches of moving parts.

Any moving part of a machine that could cause injury to someone should be guarded if at all possible. We shouldn't take the attitude when appraising a possible hazard that only a fellow who is mighty stupid would put his finger, hand, foot, or maybe his head into the position necessary to get hurt. My advice in this matter is that if there is *any* chance of injury, guard it. Man should be the master of the machine—not the prey.

Guards should be built of materials that meet the qualifications consistent with the safety and operating requirements of the particular job. We have practically eliminated the use of the so-called temporary guard at our plant. Generally, when new machines are ready to be put into operation, the permanent guards are already installed.

In our organizational procedure we have a good opportunity to discover any shortcomings that might exist on machine installations, because the safety department receives notice of all job orders and must approve

them before the job is closed. We are certainly given every opportunity to discover and correct any inadequacies as far as safety is concerned before equipment is ready to operate.

Secure fastening of machine guards is also very important. They should be anchored securely enough so that if anyone leans against them or even stands on them, they will be sturdy enough to do the job for which they were intended. We do not advocate the use of machine guards as platforms, but we know that workmen will at times stand on a guard. We must make sure they are strong enough to hold him.

A great deal of resistance from operating people who claim a particular guard is impractical should be investigated for possible remedies. Sometimes, a change in operating procedure helps provide a solution. Pooling the ideas of the workers and supervisors is apt to bring out the best solution to problems of this type.

Very often a simple solution is the answer to a problem that at first seems to be very complicated. For example: Several years ago we had an inclined conveyor belt that had a steel roller extending from the high end to position the bags as they came off the belt. There was only about ¾ in. clearance between the roller and the moving belt. At first, we did not recognize a hazard being present at this point because there seemed to be no occasion for anyone to expose himself in normal operations. One day a worker slouched against the nip point and pinched his elbow, causing a laceration that required several sutures. After this accident, we made several guards, but none of them proved to be practical. They tore the bags and did not position them properly. A couple of years went by without further incident. Then one of our employees got his hand caught between the roller and the belt, causing severe bruises but, fortunately, no fracture. It was serious enough, however, to cause him to lose several weeks' work. Following this second accident, we took another look at the situation to determine what we could do to avoid further injury. After much discussion, we solved it by simply slotting the holding arms for the roller on a slightly inclined plane, so that if a person's hand or arm was pinched, the roller would simply move away from the belt. We have had no more injuries since we made the change.

Incidentally, this method of slotting a holding arm for a positioning roller is included in the safety gadget booklet distributed by the National Safety Council. Safety problems, at times, seem to be almost impossible to conquer, but if we persist in discussing and developing a solution with enough people, someone is bound to come up with the right answer.

Generally, there are two basic weaknesses that cause people to get hurt on machines:

(1) Failure to install adequate guards and safe operating practices.

(2) Failure to use the safeguards provided.

Guarding every possible source of injury around machinery is one of the best ways to express management's sincere interest in the safety program. We have to be sincere to be effective, and we should demonstrate this to our workers at every opportunity.

Failure to use safeguards provided is a little different type of a problem. There are two reasons why an employee might fail to use a guard that is provided for his safety:

(1) It may be inconvenient.

(2) It may be impractical.

If a guard causes inconvenience, we may or may not be able to improve the situation, but if at all possible, we should attempt to design guards which will cause the least amount of extra effort so as to discourage attempts to short-circuit their effectiveness. Unfortunately, this is not always possible, and education, training and supervision have to take up the slack. To illustrate this, at one time in one of our departments, some of the guards covering the drives on the dumping mechanisms of the acid stills were occasionally left off. When a choke-up occurred, the operator would remove the guard and sometimes he failed to replace it. After we called it to the attention of the department head several times, he instructed his shift foreman to note on each shift report that all such guards were in place at the end of the shift. We have not had trouble at this point since, but it took definite action on the part of the supervisor to correct it.

Impractical guards are a little different type of problem. Usually, after an accidental injury on an operation, there is a clamor from the safety department and others to put a guard on the equipment that caused the injury. It's possible that at a time like this the foreman in the department may agree with putting on a guard which he might later

find difficult to get along with. We should be very careful of this, and if we have persistent complaints, we should gather as much experience as we can from people directly connected with the problem and attempt to work out a better solution with them. The answer may be a different type of guard or a change in the operating set-up. Sometimes the problem may be solved by contacting someone in the local chapter of the American Society of Safety Engineers or local Safety Council, who has had experience in dealing with the particular problem. Once again, a very simple solution is often the answer to a problem which at first seems to be very complicated.

Rule #1 in our local safety manual, under machinery and its operation, is as follows: "Do not start any machine unless safeguards are in place and working properly. Machine guards may be removed only by persons authorized to do so in order to make necessary adjustments and repairs, and must be replaced before the machine is again put into operation. If guards become broken or inoperative, the machine should be shut down until it can be operated in a fully guarded condition." Though this rule is clear enough, persistent effort on the part of supervisors is necessary to keep it working.

The subject of locking and/or tagging of equipment is a very important next step in our accident prevention program. In fact, we believe that our danger tag rule is the most important one we have in our employees' safety manual.

Whether locks or tags are used is not the important point. What is important is the manner in which the procedure is administered.

We have found the standard danger tag to be the most practical for our own particular use. There are certain advantages to us in using this type of tag because of the nature of our operations. There is no doubt that for other kinds of operations the use of locks on switches is more positive.

In a chemical operation such as ours, it's possible that as many as 45 valves would have to be danger-tagged in order to work on a common drain trough. This is an unusual case, but it illustrates how impractical it would be to use locks on this many valves I want to make it clear that I am not trying to sell the idea of using danger tags instead of locks.

I would like to read the contents of our Danger Tag rules which have been in effect since 1930. These rules were revised at that time following a fatal accident in which a millwright was caught in the paddles of a pug mixer.

They have since proven to be quite effective. The same basic approach could be used for a locking system as well.

Danger Tag Rules

The following Danger Tag rules apply to each and every employee:

1. It is the duty of the foreman in charge to see that all machinery and equipment of his department are kept in safe condition at all times or Danger Tagged when unsafe.
2. No one may operate a switch, valve, or controlling device to which a Danger Tag is attached.
3. A push button master switch, safety lock-out switch or other electrically operated control devices are *not* to be considered as ample protection to prevent equipment operation. You are required to place your Danger Tag on the open main power switch for that particular equipment.
4. The only person permitted to remove a Danger Tag from a valve, switch, or controlling device is the person who placed it there, or by his authorized representative.
5. No machine or piece of equipment may be started, valve opened, or pipe line broken for repairs without permission from the foreman in charge of the equipment.
6. When a machine or piece of equipment has been shut down for repairs, the foreman in charge of the equipment to be repaired shall see that all control devices are set in a safe position and then attach his Tag to the main switch or controlling device for that equipment. Danger Tags are to remain on these devices until the equipment is ready for safe operation.
7. Repairman, before starting repair work upon any power-operated machine or upon any valve or pipe line, shall be sure that the Danger Tag of the foreman in charge of the equipment to be

repaired and his own Danger Tag are both attached to the controlling device.

8. When repairs upon any machine or piece of equipment are not completed at the end of a shift, all attached tags shall remain on the control device. Each relieving craftsman shall remove his fellow craftsman's tag and attach his own; but the foreman's tag shall not be removed except where it is necessary to start and stop the machine during repairs, or when the repairs are fully completed and the equipment ready and needed for immediate operation, in which case the foreman of the department on duty may remove the original foreman's tag.
9. When necessary to start and stop machines and equipment during repairs, or energize circuits controlling such equipment for test purposes during such repairs, the foreman in charge of the equipment, after having properly safeguarded all others who might be subject to the hazards of such operation, will remove his Danger Tag to permit this type of test and repairs to be completed.
10. When machinery is stopped for oiling, the oiler must place his Danger Tag on the main switch or control device and remove his tag when oiling is completed.
11. When electrical equipment is being installed and the electrician has energized the equipment, he will have the foreman in charge of construction take over the job. This foreman will place his signed Danger Tag on the main power switch after which the electrician may remove his own tag.
12. Specific instructions for operation of laboratory equipment will be posted near such equipment.

A rule in itself is only part of the answer. To make it effective it is essential that we cover every possible loophole and make sure its contents are thoroughly understood by everyone concerned.

On jobs where mixers and agitators are concerned, and it is possible for employees to be killed if someone slips up, we danger tag the controlling switches in the prescribed manner and then disconnect the drive as additional insurance.

Where workmen have to enter tanks with connecting pipe lines, we shut off the valves, danger tag them, and then insert solid metal blinds between the flanges so that we have positive assurance that no gas or liquid can enter the tank while workmen are present.

Supervisory control is the key to effective administration of your safety rules. Our Danger Tag rule is frequently the topic of our department safety meetings. Our foremen do this to keep their workers constantly alert to the danger of any defections.

One of the biggest changes in our Danger Tag rule, which was made following the fatal accident of 1930, was the part that required the foreman to check and danger tag equipment before permitting work to be started. This is a very important point because it minimizes the possibility of making mistakes, such as working on wrong equipment.

If a foreman is going to do the kind of job we expect of him, we as safety supervisors have to give him all the help we can. It is in this area that we can be of the utmost help. This can be done in a number of ways:

(1) Make clear to the foreman what we expect of him and what his responsibilities are.

(2) Organize our program so that we can best synchronize his efforts with those of his fellow supervisors to obtain consistent application of policy.

(3) Use whatever media we can, such as bulletin boards, posters and plant magazines to educate workers and make it easier for the foreman to put our program across.

The main motivating force in a safety program generally is wrapped up in three words—Morale, Education, and Discipline. When these three components are blended together properly, you will usually find an excellent safety record.

Morale among workers can only be developed through demonstration by management that it is really sincere in its efforts to prevent accidents.

Sometimes employees of this age are suspicious of the motives of management. Although we know that management is sincere in its efforts to prevent accidental injuries, we must not overlook any opportunity to demonstrate this fact.

In conclusion, we might review some of the things we have discussed today.

We come to the Safety Congress to satisfy three needs that are necessary to do the best job safety-wise that we can. We need inspiration, education and evaluation. Our employees need these same things, and it is our job to take them back with us from this Congresss.

It is essential that the companies for which we work have a strong, carefully worded policy concerning safety, and it is our job then to ascertain that employees at all levels understand and follow its principles.

We have found that the main motivating force behind our safety program is wrapped up in the morale, education and discipline package. Every opportunity for us as management people to demonstrate our sincerity for safety to hourly workers should be utilized. Machinery, wherever possible, should be adequately guarded consistent with the best interests of safety and in line with provisions of state codes.

An effective locking and/or tagging of equipment program is essential and should be periodically reviewed to make sure that it is thoroughly understood and practiced by all concerned.

The foreman is the key man in the safety program. He is responsible for accidents which occur in his particular department. These phrases, I am sure, will be repeated several times during this 1956 Safety Congress, but we must remember that it is our job as safety supervisors to gave the foreman all the help he needs to do the job we expect of him. Human desires and impulses are not always consistent with the best interests of safety. We must, therefore, rely on coordinated supervisory effort to successfully operate our program.

Common Denominator of the Safety Supervisor

By GLEN LATSHAW
Safety Dir., Northwestern Bell Telephone Co., Minneapolis, Minn.

Fundamentally, the prevention of personal injury from accidents is a job of fixing people's minds. It has been said many times that, "You can provide a foolproof guard but cannot guard a fool."

Every employer has a moral obligation to every individual he, she, or they employ. Stated briefly, the moral obligation of the employer is to reasonably do everything in his power to see to it that the employee returns home after each day's work in as good physical condition as when he reported for work in the morning or at the beginning of the tour. That obligation consists not only of induction training and information of a personal nature but, most important, it requires adequate training in all the vocational aspects to avoid hazards, maintain quality and the proper production methods to accomplish uniformity of all three. Each employee has a right to expect such procedure from the employer and this must be a management policy.

Each of the three E's that are basic in the prevention of accidents, i.e., *engineering, education,* and *enforcement* are vitally important to the success of the over-all result. Of these three, one offers the most effective medium for accomplishment by the safety supervisor. That is in the field of education. In this field, there are countless opportunities for the improvement of people's attitudes not only in the prevention of injury to themselves and others on the job, but likewise in all of their other activities on a 24-hour-a-day basis.

As far as industry is concerned, the off-the-job accident frequency and severity is a much greater problem than that on-the-job. This results from the inherent right of the freedom of the individual to control his Life, Liberty, and Pursuit of Happiness, insofar as it does not legally interfere with the rights of others. However, the on-the-job educational approach, if properly planned, can provide the incentive necessary to improve both. For example, there are many hazards in industry that have their counterpart in and around the home, in places of recreation, and on the streets and highways.

These counterparts are highly productive facets, the continued use of which will have a profound effect on the individual's atti-

tude over the entire range of things and habits that experience has proven are the producers of injury and violent death not only to the perpetrators but to many innocent victims as well. And, of course, therein lies the tragedy that we all abhor and that so many lament but do nothing about.

Studies in industry over the years have produced some extremely enlightening and valuable facts. Specifically, we know as a result of these studies that it takes about 6,000 unsafe acts to produce a serious or fatal injury. Also, it requires an average of approximately 300 accidents to create a like result. This knowledge permits the use of a very simple formula or chain of injury producing things and events as follows:

The first link in the chain is the *individual*. The second link is the *unsafe act*. The third is the *accident*. And the fourth and final one is the resultant *serious or fatal injury*. Sounds simple, doesn't it? An individual commits 6,000 unsafe acts and has 300 accidents before he finally becomes the victim of a serious or fatal injury. If that were true the prevention problem would be relatively easy. All we would have to do would be to prevail on the individual to avoid the last or 6,000th unsafe act and the last or 300th accident. There is, however, a joker in this accident formula or chain that, as yet, "All of the King's Horses and All the King's Men" have been unable to solve. At least not the easy way. The difficulty is that no one knows which one of the 6,000 unsafe acts will cause which one of the 300 accidents that produces the one serious or fatal injury.

What then is the solution? Which link in the chain is most vulnerable? Let us for the moment analyze this chain of events. Our primary goal in safety work is the preservation of human life. Next in importance is the prevention of property damage and destruction. Conversely then if we are to save lives and property we must avoid accidents. To do this we must remove the cause of accidents which is the unsafe act committed by the individual.

Safety engineers, safety directors,, safety supervisors or whatever title adequately describes the many men and women who are devoting their lives to the science of the prevention of accidents have pondered the solution to this problem since the beginning of time. Great strides have been made over the years against tremendous odds in the beginning when only a few voices were heard. The greatest strides, however, have been made through the medium of education to the individual. He or she is the focal point as accidents are caused by and happen to individuals. Obviously the question arises as to what educational device will most effectively obtain the best results.

Because unsafe acts are principally the result of either individual habit, inexperience, lack of adequate training, or disregard for known safe practices, a wide variety of training approaches are available to fit the particular situation. Specifically, there is one method that experience has proven to be the most effective determent known to the commission of unsafe practices by the individual provided, however, that it is properly used.

It is the observation of the individual's work operations during the progress of any job in the course of his employment. Such observation is the key to the prevention of unsafe practice and thus is the "common denominator for the safety supervisor."

For such a plan to be successful management must be in full accord with the policy that the most important responsibility of every level of supervision in the organization is to get the job completed without injury to anyone at any time. Such a policy makes every production foreman, production or staff supervisor, and each superintendent a safety supervisor first, last and always. Forgetting for the moment the employer's humanitarian responsibilities to their employees, such a policy is economically sound as many authentic studies prove that competitive firms enjoying a low frequency and severity rate operate 35 to 40 per cent more efficiently than those with a high injury rate. Therefore, the safe way to perform any work operation is always the best and most efficient way.

There are two major benefits derived from a thorough going safety observation plan.

1. It provides a record of the various types of unsafe practices. This quickly indicates those items demanding most attention and corrective effort.

2. Most important, it affords the ideal opportunity for effective training for which,

in my opinion, there is no substitute in the prevention field.

If every supervisor, from the first line to the president of every industry, would resolve to lead his people by safe example and took the time to stop the individual who in his presence was beginning to or actually working unsafely, the industrial injury frequency and severity rates would speedily be reduced to .00 per million manhours of operation and the compensation insurance business would be a mere shadow of its present potential.

Let me point out that just stopping an unsafe act or practice in the making or actually in progress is not the entire solution. It requires much more than that. After the work operation is stopped the reason for stopping it should be explained. This should be followed by outlining the proper method including the reason for using it, and only it, each time the operation is performed. These steps are basic in corrective on-the-job training. Inasmuch as no two individuals respond exactly the same, the application of this correction will necessarily vary somewhat.

It should be understood that no matter how insignificant the violation from safe practice may be, it is still important and should be given the same treatment as one considered to be of major magnitude. If they are bypassed, the infraction soon becomes a habit with the individual and you find wrong practice becoming flagrant. The habit of right practice is as easily formed as is wrong practice, yet to assure the continuance of right practice follow-up observations or checking is a must.

Peculiar as it may seem, the large majority of serious or fatal injuries occur on everyday routine jobs and are caused mostly by supervisory countenance of the so-called minor wrong habits. This fact makes the old adage, "We live so close to the forest we cannot see the trees" a realistic truism. On jobs where extreme hazards are obvious to all concerned we seldom have serious or even minor injuries. Why? Because everyone involved is aware of the danger, and self-preservation is still and always nature's first law.

This short discourse began by stating three fundamentals in the prevention of accidents. First, the prevention of personal injury is a job of fixing people's minds. And second, you can build a foolproof guard but you cannot guard a fool. And third, management's policy must include the moral obligation for adequately training each employee regardless of the vocation involved.

We then stressed the following points as key aids in the prevention of injury both on and off the job:

1. Of the three E's education provides the most effective medium.

2. Proper application of training permits a combination of incentives to improve both on and off-the-job results.

3. The accident chain or formula consisting of four links.

(a) The individual
(b) The unsafe act
(c) The accident
(d) The serious or fatal injury in equation form $A + 6000B + 300C = D$

4. A safety observation plan properly administered and in which all supervision fully participates is the "Common Denominator."

5. It pinpoints trouble spots. It is the most effective correction medium. It gives supervision an excellent opportunity to lead the way by safe example.

6. The minor infraction is probably more important than one of major proportions as most serious injuries occur on routine work.

And, finally, the difference between a poor and a good policy or program by the employee and/or the employer is well set forth in the small bit of philosophy from the Desert Disciple:

Wrecker—Or Builder

"I stood one day in a busy town
Watching men tear a building down.
With a ho-heave-ho and a lusty yell,
They swung a beam and the sidewall fell.
I asked the foreman, "Are these men skilled,
Such as you hire if you're going to build?"
He smiled and said, "Oh, no, indeed,
Unskilled labor is all we need,
For we tear down in a day or two
What it takes the builders weeks to do."
So I pondered as I went along my way,
And asked myself, which role do you play?
Are you a builder who builds with care,
Measuring life by the rule and square?
Or are you content to walk the town,
Content with the labor of tearing down?"

**Desert Disciple

Round Table Discussions

American Standards Method of Recording and Measuring Work Injury Experience

By H. GENE MILLER
Dir., Statistics and Library Div., National Safety Council, Chicago

In this "Round Table" discussion, we will talk about your problem in recording and measuring work injury experience, and answer questions you may have regarding use of the standard procedure.

Before getting to your specific questions, though, I would like to emphasize a few points regarding the standard, and comment on recent changes in it which were introduced in connection with the 1954 revision.

The first point I want to emphasize is that the standard reporting procedure is one that has been developed under a program of the American Standard Association. It is identified as Standard Z16.1, and its full title is "The American Standard Method of Recording And Measuring Work Injury Experience."

This is *not* a standard of the National Safety Council, or the Bureau of Labor Statistics, or any other individual agency. It *is* a standard developed by all of the groups interested in having a uniform procedure for measuring work injury experience.

Another point of importance is that the Standard does not set up a procedure for measuring *all* injuries. The purpose of the Standard is to identify only those work injuries which should be included in injury rates. Injury rates developed under the Standard may not include all compensation cases, and they may include some cases which are not compensable. Minor injuries are not included, nor are certain other injuries which it is felt cannot be identified uniformly. Actually, it doesn't make too much difference which injuries are included and which are not, just so everybody includes and excludes the same ones. Injury rates developed on this basis can be compared one with another.

The last special point I want to emphasize is that the Standard procedure has nothing to do with the classification of cases under your various workman's compensation laws. The basic purpose of the *Standard* procedure is to permit uniform reporting and tabulating of injuries in all states in order that comparisons can be made between the experience of companies wherever they are located. If injuries were tabulated on the basis of their compensability, differences in injury totals and in injury rates would be influenced by differences in the compensation laws.

Regarding recent changes in the Standard, I will mention these in the order in which the items appear in the Standard.

Medical treatment injury. This classification in the new Standard covers all nondisabling injuries and combines two separate classifications which had been set up in the previous Standard: (1) Temporary partial disability, and (2) Medical treatment injury.

Disabling Injury. The new Standard states specifically that the injury which is used in calculating the standard injury frequency and severity rates is identified as a "disabling injury." In the old Standard, this was loosely referred to in many ways, with the term "lost time injury" developing importance through usage. Some injuries used in developing injury rates may not result in lost time (certain permanent partial disabilities), and the term "lost time," therefore, is not entirely accurate.

Charges for finger and toe amputation. The scheduled charges for fingers and toes were changed in the latest revision. Previously, each finger had the same charge—300 days. In the new Standard, each finger has its own charge, and each joint of each finger has a separate charge. The little finger, for example, has a charge of 200 days, and the more important index finger a charge of 400 days.

I will not cite all of these individual charges at this time, but they are listed and illustrated in the Standard, and I would urge that each of you obtain a copy of the Standard for reference use. (The Standard may be obtained from the American Stand-

ards Association, 70 E. 45th Street, New York 17, New York.

Disabling Injury Severity Rate. The injury severity rate in the new Standard is on the same basis as the frequency rate—1,000,000 man-hours of exposure. The method of calculating the rate is unchanged, and in fact rates calculated on the new basis will be the same as those calculated on the old basis except that the decimal point will be moved three places to the right. A severity rate which would have appeared as .25 previously will now appear as 250. In calculating rates, it is recommended that decimals not be used, but that the rate be rounded to the nearest whole number.

Average days charged per injury. In addition to the injury frequency and severity rates, a third measure has been included in the new Standard. It is the Average Days Charged per Injury.

The severity rate has frequently been misinterpreted as indicating the severity of the injuries. It does not do this, but merely indicates the *rate* of loss from injuries. The new rate, the Average Days Charged per Injury, will tell how severe injuries are on the average. It is determined by dividing the total number of disabling injuries into the total days charged resulting from these injuries. It may also be determined by dividing the frequency rate into the severity rate.

Disability arising solely out of physical deficiency. The new Standard provides that injuries which arise solely out of physical deficiencies shall not be charged as disabling cases. The purpose of this change was to avoid penalizing a company for hiring a physically handicapped person should the physical handicap give rise to an injury. For example, if a worker with an artificial foot suffered an injury in a fall which resulted when his impairment caused his to lose his balance, this injury would be determined as having risen solely out of the pre-existing physical deficiency, and would not be considered a work injury.

However, if an injury arises out of and in the course of employment, it shall be considered a work injury even though the employee had a pre-existing physical deficiency. As an example of this, suppose the same situation existed as in the previous example, except that the worker lost his balance and fell when he stepped on an object on the floor. Since this injury did not arise solely out of his pre-existing physical deficiency, it would be considered a work injury.

The above points cover the principal changes that were made in the Standard. I would like to emphasize that even though all of us may not agree with the changes, and in fact may not agree with the Standard itself, more will be gained if everyone will record and classify injuries in accordance with the Standard procedure than if each does this according to his own preference.

The rest of the meeting was concerned with a discussion of individual cases.

Grain Handling and Processing Division

By JOHN M. JENSEN
Safety Dir., Corn Products Refining Co., Chicago

When your program committee met to decide upon a subject for your meeting we asked ourselves several questions. The first one was, "What is our biggest problem in safety?" Our biggest problem is to get our people to want to be safe, to think before they act, to be alert, to keep their mind on their job or in general, to be more safety-minded.

The second question we ask ourselves is: "Why are people like this—why do we have to encourage people to be safe?" One answer we agreed upon was that we let them be this way: Supervisors and management do not demand safe work habits from their people, in many cases they don't expect safe work habits from their people.

When we got into the old habit of putting a good share of the blame on the supervisor, we asked ourselves the third question: "Are we giving our supervisors enough to work with—The right climate, sufficient backing, the encouragement, the right safety emphasis, and the training he needs to do an effective job of operating a department safely?" In other words, are we giving him the necessary tools to work with?

Thus, we decided to devote half of the afternoon to thinking in terms of re-appraising our operations with respect to whether or not we are giving our Supervisors these necessary tools. We have asked a vice-president in charge of production and training director to discuss this with us. The second half of our program is devoted to discussing safety programs that have proven successful. We have asked an executive vice-president and a manager of training and development to tell us about safety programs that have proven successful at their plants.

With respect to my own experiences with different safety programs, some have proven successful, some were just so-so, and some were definite failures. If there was one word that spelled the difference between success and failure it was the word "participation." Our last two speakers will relate how through participation at the supervisory and employee level, a safety program can be successful.

What the Supervisor Needs

From Management

By E. E. LANGELAND
Vice Pres. of Production, American Maize-Products Co., Roby, Ind.

During the past few years the top management of industrial enterprises has come full-circle about and once again is recognizing the line supervisor as the key man on the management team in accomplishing the work objectives of the organization.

During the first three decades of this century the foreman was generally left alone by top management and was allowed to run his department as an autocratic little king. Such safety work as was attempted at this time was done by the foreman himself. He neither expected nor received help in this area from top management.

When the rise of labor unions occurred in the middle thirties, largely as the result of the Wagner Act, the foreman was shorn of a good deal of his immediate responsibility and authority for the operations of his department. Many of these were turned over to staff departments, who were then thought to be sufficiently expert to accomplish all the desires. The foreman was reduced to little more than a figurehead, and his effectiveness as a leader was seriously curtailed. Safety was largely the responsibility of the Safety Department and the foreman's part in any program was little more than that of the men whom he supervised.

The notion of carrying out the day-to-day activities at the production line by means of staff departments had one very serious defect: It didn't work at all well. At the failure of what may be called committee supervision of operating departments, top management again turned to the line supervisor as the one best equipped to solve the problems which had arisen.

However, one thing was different than in the old days. A new generation of supervisors had grown up and most of them had been well trained in various aspects of supervision. They had been taught how to handle their human relations, how to teach employees, and so on. Over the past 10 years top management has been throwing more and more authority and responsibility to the line supervisor for the complete operation of his department. This is true in the area of safety, just as it is in the other areas of importance to management in an efficiently operating department.

Now, it appears, the responsibility for the safe practices of the workmen is increasingly being lodged at the line supervisor's door and just as has been done in the other areas, top management must give the line supervisor all the help he needs and the kind of help he needs in order to promote more effective safety.

What, then, does the line supervisor need from top management? While there are a great many specific things the foreman needs from management, there is one thing of paramount importance that the supervisor needs not only to accomplish his safety work, but all the other facets of his many sided jobs. Top management must provide what may be described as a "proper climate" in which to do his work.

What do we mean when we talk of a proper climate?" It has been described particularly well by Dr. Leon Brody, the director of research of the Center f.. Safety Education of New York University. He said it in these words:

"The heart of the problem lies in the executive's ability to establish a favorable social and psychological climate within the organization. This means establishing friendly, informal contacts between members of management, building an atmosphere of free and easy exchange of ideas ,and undertaking other things that make for feelings of acceptance and security throughout an organization."

Such a climate is quite essential to all of the foreman's activities, but I think it is of especial importance in safety work and that its lack is absolutely fatal to even the best conceived and executed safety plans. Without such a general attitude throughout the entire management team, the line supervisor

is at best severely handicapped and at worst completely thwarted in his efforts to promote safe operations within his sphere of activities.

Assuming that such a climate does exist to a satisfactory degree, what, then, specifically does the line supervisor need from top management in the way of support for his safety activities?

First of all, I believe that management must have a deep and abiding interest in the work of everyone concerned with safety and the humane belief that the physical safety of individual human beings within the organization far transcends that of any material consideration. Without such a deep continuing interest in the safety program at the very top level, there can be no truly successful program.

This prerequisite has, of course, been recognized for a long time. It is interesting to note what was said by S. C. McGowan of the Borden Company. A few years ago this company, which at that time had 32,000 employees in some 750 different locations, made an exhaustive study of its safety program. The committee reached this conclusion:

"The extent of accident prevention work carried on in any of our operations depends almost entirely on the attitude of the manager toward safety and the amount of knowledge he has of accident prevention methods and techniques."

Since this is such an important prerequisite to any good safety work, it is very fortunate that there has been the substantial change of management attitude that has taken place over the past few years. Within the past 20 years there has been an enormous growth within the ranks of professional management of a social consciousness and conscience.

Out of this has arisen a fundamental respect for the individual human being and for his welfare. Management is aware that it is no longer sufficient only to earn a profit. To survive, a business must also serve, and serve well, the demands of other than just the "economic man" of classical economics. The human values must be fostered and preserved and brought to full flower.

This attitude, which is growing very rapidly, will make it easier and easier to enlist the fullest cooperaton of top management in safety activities.

Even if these humane considerations were not in themselves compelling, management would have to give top priority to safety work from a purely economic reason. Accidents cost money—really big money—and their cost will rise steeply in time to come. The money that is paid out in direct and indirect cost of accdents is just as surely a charge against the profitability of the operation as is money paid out for raw materials or labor.

And, even beyond this, top management must take cognizance of the fact that accident frequency is closely related inversely to plant efficiency. The efficient plant is a safe plant! In all of these senses, a safety program does not cost money—it earns money.

How should a top management, deeply convinced of the necessity for effective safety activity, make its attitude known? How can such favorable attitudes be translated into deeds that will fill the needs of the line supervisor?

First, there must be a clear-cut statement of policy, widely disseminated throughout the organization. This should say that the control of accidents is considered a major company objective, that a program has been instituted to achieve that objective and that everyone must do his share to see that the expected results are achieved. It should be made completely clear that the top executive officer will personally review the progress, and take note of individual effectiveness.

This statement should reach all employees, and it should be repeated at intervals so that new personnel may be in no doubt as to the serious intent of the management.

Another area, too often neglected, in which top management can be of real help to the foreman is in the language of the collective bargaining agreement with the union.

I realize that in many cases top management people do not personally sit in on negotiating sessions. But, in all cases, I believe, they set the policy around which the company bargainers work. And that policy should require that the working agreement be explicit in compelling the adherence of the workmen to all safety rules, with disciplinary action in case of failure.

It should also enlist the active cooperation of the union in fostering and forwarding the safety program. In my company's contract, we refer to safety in seven different pages. In the preamble, one of the purposes of the agreement is stated to be ". . . improve the safety of employees . . ."

In an article under "Working Conditions," the foreman's hand is specifically strengthened when we say, "Any employee who fails to abide by the rules and regulations prescribed by the company for the protection of life, limb and the preservation of property . . . shall be subject to discipline by the company."

The cooperation of the union is enlisted in a section reading, "It is the desire of the union and the company to maintain high standards of safety in the plant in order to eliminate as far as possible industrial accidents . . ."

The article from which the preceding section is quoted is entitled "Safety and Health." In it, provision is made for a joint company-union safety committee, which is required to meet monthly, and may make inspections. In the same article, the company binds itself to provide up-to-date protective devices and equipment for the workmen.

One final section in the article may cause you to raise your eyebrows. We have agreed that "No employee shall be required to perform services that seriously endanger his physical safety, and his refusal to do such work shall not warrant discipline or discharge. In all such cases an immediate conference between the company and the union shall be held to settle the issue in question . . ."

When we put this clause into our contract in 1954, we did so with great reluctance because we feared that it could be misused for nuisance purposes. I am happy to report that in more than two years no such misuse has arisen.

Of course, top management must support to the utmost the foreman in his administration of safety rules and regulations. All the pious language in the world will avail nothing, if the foreman feels that when faced with a grievance or arbitration resulting from his enforcement of the safety rules the company will back down and leave him out on a limb. By the same token, the foreman must use care and thought not to administer safety rules caprciously so that his management is able to support him all the way.

The foreman must be given an adequate budget for safety apparatus and equipment if he is to do the job we are expecting of him. But, I think, top management must go beyond this to see that the work necessary is done. In the press for production, it is very easy to let safety maintenance slide.

Also, when there is a limited time for repairs, and much to be done, it is quite easy to push the safety repair orders to the bottom of the pile. Top management must be eternally vigilant to see that this does not happen, and to see that safety gets its proper share of attention at all times and under all circumstances.

I could go on with a large number of areas in which management must give support to the line supervisor, but my time is almost out, and I can only mention a couple more, hastily. Certainly, such good training of the workmen in safe working habits is a fundamental to working safely; the foreman, who does most of the training of the workmen under him, must himself be well trained in safety. But, above and beyond this, he should be trained in the proper techniques for effective teaching.

Management should not be niggardly in providing various rewards as recognition for good safety work. These do not have to be monumental in themselves, but only enough to let the supervisor know that his work is being recognized and appreciated. Little things like a dinner now and then, time off and fees paid for attendance at meetings such as this, and so on, do a great deal to convince the line supervisor that he has the support of his top management.

It should also be made abundantly clear to each supervisor that his performance in administering the safety program and the safety record of his department, is one of the major factors taken into consideration when promotions are being planned.

In conclusion, let me sum up the points I have tried to make. There seems to be a preponderant feeling in management that modern industry must rely more and more on the first line supervisor to administer

the work. He has to be given more the character of a manager and less that of a straw boss.

Therefore, the basic responsibility for effective safety performance falls on the foreman and with it must go authority and support adequate to permit him to accomplish the objectives. So far as safety is concerned, top management must themselves become "sold" on the desirability of a safety program both from the humane and from the economic aspect. They must make this conviction known in clear policy pronouncements from time to time.

Beyond this, they must implement the program by requiring safe work practices as a condition of employment, by backing up their foremen in administering the safety program, by providing adequate budgets and by seeing that necessary safety work orders get done, and by rewarding good performance with recognition and material gain. These are the kinds of support and help the supervisor needs from management!

From the Safety and Training Department

By K. P. MOORE
Dir. of Training, A. E. Staley Mfg. Co., Decatur, Ill.

Most enterprises are interested in providing physical security for their employees. Foremost in this area are safety and health efforts. Safe working conditions, safety education for employees and alert supervision to eliminate unsafe practices and promote safety thinking by employees constitute the more common efforts to promote safety.

Since the supervisor controls men, machines, materials and the work-place, effective safety training starts with him. All too often people in line supervision overlook, postpone or forget their training needs. Sometimes they get so busy that they can't see tomorrow for today. Sometimes they get so involved in daily details that they can't see the forest for the trees.

Then they need a good training and safety director to take them by the collar and make them sit down and listen to what they need as a safety training program for their people. This requires a safety and training director with initiative (a thick skin is also helpful at this point).

What does a supervisor need from the Safety and Training Directors? I think we can safely say that he needs help in doing his job.

What is the job of a supervisor? It can be outlined as follows:

The job of a supervisor is getting work done through people—

1. By motivation.
2. By training and teaching.
3. By adjusting attitudes.
4. By developing skills.
5. By developing status.

The job of a supervisor is working with people—

1. By communicating with them.
2. By consultation.
3. By control.
4. By leadership.

It is the job of a supervisor to organize and to create patterns—

1. By work simplification.
2. By coordinating.
3. By scheduling.
4. By arranging.

The job of a supervisor is integrating.

1. He must know all the parts.
2. He must make a whole of all the parts.

The job of a supervisor is evaluating—

1. Work products.
2. People.
3. Processes.
4. Methods.
5. Actions.

In each of these areas I believe there is room for the safety and training directors to help the supervisor do his job. Let's examine each of these areas and discus them briefly.

Motivation

The first area is motivation. The impelling motives should be understood by the

foreman. He should be so familiar with them that he uses them habitually. Perhaps the most prevalent of these motives are:

1. The desire to survive.
2. The desire to reproduce.
3. The desire for status or prestige.
4. The desire to help others.

If we identify motives as a drive from within and incentives as the drive from without, then for each of the motives, we may assist in providing an incentive which will effect the motives which the man has.

Training

Our second area is training and teaching as a part of the job of a supervisor. As I identify these two words—teaching refers to the over-all area of our job—training being a specific area with which we are concerned. The supervisor needs information from both training and safety directors if he is to tell the employee the over-all requirements of a job so far as safety and job performance are concerned.

The first two parts of the job of a supervisor tie in very closely with the next two which we have mentioned, that of adjusting attitudes and developing skills. I would like to combine these for our consideration.

Accident prevention is directed to providing the supervisor with the knowledge, skill and attitude necessary to discharge his responsibility for effective safety training. To do this, training conferences and regular meetings should be carried on for supervisors.

A general safety program should be developed for the plant to enable a planned approach to the safety problem by the supervisor. Safety training, where it has been greatly successful, has been directed to giving the supervisor advice, aid and direction which enables him to set up and carry out his unit's safety program.

In the past the supervisor and the employees have been admonished to be safe. Today it appears that they are beginning to get information on how to be safe. To the supervisor this is largely a matter of getting safety know-how as it applies to his section or department. To the man on the job it means that the supervisor must teach him what he must do to work safely, how to be safe, and why. The worker and everyone up to and including top management must be a part of this program.

There are many ways to handle hostile attitudes in person-to-person speech, but one which gets results when a worker gives a supervisor a tough time concerning safety rules or policies is the conciliatory approach.

Perhaps the foreman could do some listening first, then get on the worker's side pointing out the merits of the other side better than the worker can state it, if possible, then he can move in an easy and natural way to get his own ideas on safety rules (which the safety director has planted) across.

When a worker who lacks the necessary knowledge is sent to perform an inherently dangerous job ,he should be instructed in how to avoid all the elements of the danger —merely warning him that the danger exists is insufficient. A danger which would be apparent to an employee only after a long period of training and experience must be specifically pointed out to the new worker.

Safety habits have to be learned. This means they have to be taught. (Safe habits identified by the safety director. How to teach by the training director.) Safety training should be an integral part of job instructions and in teaching a man how to do a job a supervisor should be sure to show him the safe way of doing it. If an employee picks up unsafe habits in learning the job and keeps repeating them, the law of averages will catch up, sooner or later, and there will be an accident.

If mechanical hazards are not taken care of the same law of averages will work and there will be another black mark on the department's safety record. It's the supervisor's job to see that safe working conditions are maintained. If he does that he has 5 per cent of the problem licked, the other 95 per cent depends on how well he knows his people and how closely he watches the underlying causes of accidents—emotions.

In briefly reviewing the process of working through people I have said that the safety and training directors can assist the supervisor by identifying and providing incentives which influence motivation, by providing the specifics of safety and the methods of teaching and training, by assisting the supervisor in adjusting the attitudes after first identifying the correct attitudes for

safe work, by providing the supervisor with information which he may use in developing the highest skill of his employees and by assisting the supervisor in developing the status of the employees, or I should say, in developing the status of *safe* employees.

To some degree status may be developed by instilling in the supervisor's men and in the supervisor the conviction that safety is everybody's job, by encouraging every member of the work group to make suggestions that will reduce the probability of injury to himself and to others.

The job of a supervisor is working *with* people. First by communication. Safety, it has been said, is largely a state of mind, for despite good working environment, safe equipment, effective mechanical safeguards and standards of safe and efficient operations, accidents do happen on the job and their frequency in most cases corresponds with the degree of safety-mindedness that has been instilled in the work group.

To a large extent then accident prevention is a matter of communication. The supervisor's responsibility for accident prevention entails a responsibility to communicate to workers the critical importance of giving conscious thought to their own safety and to that of their fellow workers. The safety and training director can assist the supervisor in knowing what to communicate to his workers and in knowing how to communicate.

Safety-mindedness, like productivity or morale or good employee relations, cannot be achieved by command. It cannot be ordered into existence. Like other by-products of good supervision, it is developed, often slowly, by persuasion, appeal and leadership, and like good morale it cannot exist without good communication.

The job of a supervisor is consultation with people. In talking with the safety director, with the training director, with the engineers who design the equipment, with his fellow supervisors and with his employees a supervisor may determine and may put int oaction a safe program for his employees.

A supervisor's job is working with people by control.

Whether control charting in the field of safety and accident prevention is good or bad depends on what it does for safety, for you, in your plant. If accidents can be prevented by the use of some new or different device or tool of control, then use that tool or device.

In addition to making his own analysis of potential trouble spots in the department, the supervisor can get valuable assistance from his company safety director. Safety directors cannot only give advice about overcoming specific problems, but they usually have reports covering the department safety record over the years that can help the supervisor pinpoint the chief accident sources.

For example, a compjarison was made of the chief sources of injuries in two departments of a large plant during a selected period. Welding and cutting equipment was the major problem in Department A accounting for about one-third of the cases. In Department B hand tools, especially hammers, were the major factors. Therefore each supervisor concentrated his efforts on different areas to reduce accidents. After identifying the chief trouble spots in conjunction with the safety director, the supervisor must make a further analysis to determine the frquency and severity of the different type of accidents that they cause.

A study of various causes of grinding wheel accidents shows that a measure to eliminate the next to last cause would have prevented only four injuries but measure to eliminate the first cause could have prevented 23.

The job of a supervisor is working with people by exercising leadership.

Ordway Tead has said, "Leadership is the activity of influencing people to cooperate towards some goal which *they* come to find desirable." In assisting the supervisor to exercise his leadership, the training and safety directors may identify goals which are desirable from a safety standpoint as well as from a point of view which is useful and desirable for the people concerned.

The job of a supervisor is organizing and creating patterns. Certainly this is one area where the safety director may exercise very specific influence and may furnish aid and assistance to the supervisor. In work simplification the safe way is most often the best way. In coordinating the work a safety and training director may aid the supervisor in seeing the entire pattern whether it be po-

tential danger to personnel, an irritating situation between departments, or the begining of unsafe habits. In scheduling and arranging the supervisor must be led to establish safe schedules and to arrange sequence of operations which influence his workers towards developing safe habits and in creating safe patterns of behavior.

The job of a supervisor is integrating. The supervisor must know all the parts of a job so that he may relate this to his workers because it is only as they know the over-all concept and duties of their job that they may work safely. It is the job of a supervisor to make a whole out of all the separate parts.

This is true both in the daily job and in developing safe workers. A moment saved may be the most costly moment of a worker's life. It is up to the supervisor to establish this relationship in the mind of the worker and he can do it as he knows all the parts and can make a unit out of all the parts.

The job of a supervisor is evaluating work products, people, processes, methods and actions. Were the work products produced in a safe manner? This may be determined by the supervisor if he will use the records which he may get from the safety director in relating work and safety mtehods.

In evaluating the people who work for him, the supervisor needs to call on the safety director to determine whether or not they are accident-prone workers. He needs to call on the training director to determine whether or not there are ways by which this proneness may be overcome.

In evaluating the processes which he is using the supervisor needs to call on the safety director specifically in relating overall effectiveness, with the safety of his workers. To use the safety director's broad knowledge of safe operations in many areas so that he may improve his own processes or operations.

In evaluating methods a supervisor should call on the safety director as an expert technician to determine if the operations or methods are safe. If there are safer methods, then he should call on the training director to help him in developing training procedures which may be used in teaching his men to use safe methods.

Finally the supervisor's job is evaluating actions which he, his workers, and the staff are all using in performing their job. A supervisor should determine, as the coordinating and integrating force, whether or not he is using to the full advantage the safety director, the training director, his own skills and skills of his workmen so that a product is produced in a safe manner by safe workers.

While the day-to-day enforcement of safety is the responsibility of the first line supervisor, the staff has considerable authority over line supervisors in the matters of plant safety, policies, procedures and equipment, in contrast to accident prevention programs of an educational nature where they remain in a staff capacity. This practice seems to rest in part on a practical, legal consideration. Safety requirements and workmen compensation demand close adherence to a set of legal regulations, therefore, very stiff control is necessary. Where it is possible to work through the line when possible, there may be cases in which time or other circumstances do not permit it.

The supervisor needs from the safety and training directors an understanding of *what is your job,* in which areas and in what manner may I expect help? The training director should help the supervisor in influencing people. The safety director should help in the area of technical information and knowldege of incentive and motivation for safety.

When we are discussing safety—whether it be with the supervisor or with the worker —there is always something else to be said for and about safety. There is always another way it can be said. That may be the way that the supervisor or his worker understands. That may be the influence which will keep him alive.

Foreman Level Safety Programs that Work

The Contact System

By O. H. ADAMS
Executive Vice Pres., Dings Magnetic Separator Co., Milwaukee

We operate basically as a typical small job shop, classified as a heavy industrial type of company. We currently employ 85 to 100 in the shop and 40 to 50 in the office.

Our products are relatively highly engineered and vary in size from small magnets weighing about 3 to 5 lbs., up to large, complete machines weighing 30,000 to 40,000 lbs.

We have tried to set up an organization that steals from the large companies their basic organizational chart, tailor-made of course, to our small organization. Our works manager is in charge of the entire shop as well as our Purchasing Department. The shop supervision consists basically of four to five major foremen, each having charge of a minimum of three to four small subdepartments.

Each subdepartment is headed by what we call a group leader. These men are hourly employees working as direct labor workers, plus having some of the semi-supervision responsibilities. This gives us basically 16 persons out of 100 through whom we can work with—naturally to various degrees of intensity.

The Former Program

The type of safety program that we had prior to installing the contact system that we now use was the typical safety program of many small companies. It was a usually quick and dirty approach, with spasmodic drives to try to correct what was important at the moment.

Aside from using the usual type of safety posters that most insurance companies furnish, not too much emphasis was put upon any part of the safety program. Day-to-day shipments and day-to-day problems were over-emphasized, rather than taking any long-range constructive outlook. We were awfully busy putting out fires and doing nothing to eradicate the cause.

Our safety record in those days was not much to be proud of. For three years prior to our change in thinking we were averaging 40 doctor cases per year, or almost one per week. After adopting the contact system this average dropped from 40 to 30 accidents per year rate for the first 6 months, and then down to a rate of approximately 17 to 20 for the second 6 months. From then on it leveled out to between 12 to 14, depending on the emphasis and degree of sparkplugging that was done.

Eliminating Basic Causes

Our entire program was based on the elimination of the basic accident causes. It started by analyzing a three-year period, finding out where the most accidents were happening and why. After doing this spade work, an over-all program was developed on the foreman's level—to eliminate the basic accident causes:

1. Unsafe conditions.
2. Unsafe work methods.
3. Unsafe personal factors.

Now, knowing (or at least assuming) that these are the basic causes, it meant planning for their correction—and in the same order. Therefore, it was logical to proceed on this basis:

1. Unsafe conditions. To eliminate these meant the company had to do something first. It meant inspection of and correction of unsafe equipment and conditions.
2. Unsafe work methods. To eliminate them again meant inspection or observation of methods being used and developing and changing to standard safe procedures.
3. Unsafe personal factors. To eliminate and correct them, naturally, means to train the employees in new procedures that were developed in the steps above.

Production Group

First of all, we have a foreman's meeting each Monday at 2:00 p.m. for as long as necessary. Here the works manager and his foremen, plus the purchasing agent gather

to discuss the normal production problems.

We also have one safety meeting each month during which time that same group limits its discussion to one specific hazard. From the specific hazard under discussion is developed the format of the next month's work for all members attending.

The hazard is broken down to three points:

1. Inspection. Is equipment unsafe? Material being incorrectly located?
2. The second point is to correct; if unsafe equipment and unsafe physical conditions are responsible action is planned. The correction of this second general phase, if a "method," is analyzed from all standpoints. It is written up and we have developed a standard safety procedure.
3. What specific training should be given to the individual employee concerning standard safety procedure or the new procedure just developed?

We feel that we get a double-barrelled effect with this approach. First, the foreman "participates" in the specific safety meeting just mentioned. Then comes the second shot. He has to make his contact during the ensuing month by inspecting for and/or correcting the hazard.

He has to contact each of his employees each month, discussing the new procedures, which he has had a part in setting up, and to train and retrain his people. Safety consciousness can really be developed as a regular part of their work on a long sustained basis, rather than a hurried "shot in the arm" type of an approach.

Material Handling

Let's take an example now and trace it through to see all the steps that were developed. Material handling was responsible for a high percentage of our earlier accident causes. Here is how we attacked the problem of material handling by cranes.

Following our outline procedure, Step 1 calls for inspection of hitching equipment on our safety contact sheet. A copy of this sheet, incidentally, goes to each of the foremen. No employee contact is necessary at this stage of the game, but equipment only is to be checked. Here's a list of what had to be checked by each man in his department:

1. Manila rope.
2. Chain.
3. Wire rope.
4. Hooks.

Under each of these general titles were specific items they were to inspect for. When they were inspecting manila ropes, for example, they were to look for four things:

1. Braided and broken fibers on the outside.
2. Dull, spotted and chafed fabrics on the inside.
3. Loss of feeling of pliability or stretchness, feeling of dryness and brittleness.
4. Strength, if doubtful, unwind 8 in. of one yarn and test it by hand.

On the back of the contact record sheet they were to list each piece of equipment that they had in their departments that had been checked following the actual inspection instructions of this hitching equipment contact. Naturally, this couldn't be done all at one time or one day. But it had to be completed within the month—more and longer carryover value of general safety consciousness naturally resulted.

The second contact was entitled "Safe Crane Operating Procedures." This contact as it was developed in the safety meeting was so large it had to be broken down into two sessions. Here we requested the foremen to contact each employee and review with him personally the suggestions we had outlined.

Some of those suggestions covered were the obvious ones, such as:

1. Whenever possible, haul all loads over the aisles, not through the work area.
2. Carry the load close to the ground—between the knees and waist height. (Point out that the exact heights vary with each job, depending upon other objects to be cleared, and also on assuring good vision for the operator.)
3. When it is necessary to carry a load overhead, or over a work area make certain that the area is cleared of workmen before the lift is made.
4. Never carry a load over a person or walk or stand under a suspended load.

The foreman here could elect to contact each person individually or to go through his contact in small groups.

Good Housekeeping

Another example of what a typical contact is and how it could be worked, includes a contact on housekeeping. Actually, what we're doing is eliminating an accident caused by dirty, disorderly, and poorly maintained shop conditions. This particular series of contacts led to investigating additional facilities or better housekeeping. When we really took a look at what we were trying to have people do, without giving them the necessary equipment, we were a bit embarrassed.

Special sling racks had to be provided for the crane slings, as well as for our major assembly tools. Aisles had to be marked, specific storage areas allocated, rubbish cans painted and located. These and many other small, but nevertheless vital items, the company had to do first before we could ask our people to do their part.

The second phase of the housekeeping contact was frankly discussing with our employees what we had done and the fact that our part was only half of the story. We had to have their cooperation to make the good housekeeping program a success. They had to do their part by using the equipment that had been provided. It was their responsibility and part of their job to keep the aisles clean and maintain their own space work area in a safe and orderly manner.

Each month a new general topic was selected, not on a chance basic but on a well planned one. The planning actually went according to analysis of accident causes and their eliminations, over the past three historical base periods.

The retraining procedure and their problems led us into the second phase of the over-all program. During this phase we concentrated on the human relations and gaining of understanding and better cooperation from employees. There is a very fine line between the specific safety training and general training. We found ourselves overlapping and wishing many times we had a better knowledge of how to unlock the individual and accomplish as much through him, or people in general, as we have through machines.

The third phase of the over-all program was setting up and maintaining the original program. This program was outlined again one year at a time and always leading by three months. We're currently carrying on with the monthly inspections and contacts. The difference being, that now the subject choice, instead of coming from the management level, is coming from the group leader level.

In looking back and trying to make an over-all appraisal of our accomplishments we think of three items that helped make it a success:

1. Supervisory training was not just class room training. It required participation in the shop each month, and when people participate the process of learning is usually much faster.
2. The supervisors become part of management, taking part in departmental improvement, as well as developing procedures of their own. There is nothing more discouraging to anyone than to be merely told to follow the safety program. Any program we have helped develop has a much better chance of succeeding.
3. As far as the employees are concerned, because each month management did something first and then requested their cooperation in complying with the safety procedures, we felt we had a minimum of bucking. All too frequently we have had the tendency to put the full burden of responsibility for being safe on the individual. We feel very definitely it is a two-way responsibility.

All in all, we feel that the contact system not only helped to eliminate many of the hazards out in the plant, as well as developing a more safety consciousness among employees and supervisors, but it serves as an excellent medium for active management participation via the supervisors, and in our case this last year, the group leaders.

The Quaker Oats Program

By RALPH HARTMANN
Mgr. of Training & Development, The Quaker Oats Co., Chicago

There are a number of basic needs of human nature which are essential to the effectiveness of your work and mine in making our employees more safety conscious. If more attention were paid to them, I believe, it would have a profound effect on the accident problem.

Participation

Probably the most effective technique to gain cooperation of fellow workers is to provide for their participation. Participation helps to bring about a mutual desire for operators, supervisors and executives to work closely together by creating the conditions necessary for cooperation. Individuals who are "in" on the problem, and whose help has been solicited, are better able to understand and feel the need for cooperation.

One of the chief reasons for failure to indicate safety consciousness is the worker's feeling that the rules are arbitrary and do not apply to his particular job. But, when employees help to write the rules—they observe them.

Individuals who have participated in solving a safety problem feel bound to carry out the solution which they had a part in formulating.

How to Secure Participation

When establishing, directing and administrating safety activities, procedures should require participation of all individuals specifically concerned. This probably means effective communications between all levels of personnel and in this way the importance of safety can be brought to the whole group.

We believe that accidents and injuries are luxuries that our company employees cannot afford. Every member of supervision is held responsible for the safety of men and women working with him. This makes it an integral part of every job.

Top Executives Participate

1. Our safety philosophy is expressed in our policy manuals, in our annual reports and regularly by top executives in communications with plant management people.

2. Distribution of monthly, annual and special reports to executives, who write to plants concerned.

3. At annual meetings of plant executives, top management reviews the accident experience and safety activities, at the same time productions records and problems are reviewed.

4. The safety performance or record for each supervisor and plant executive is examined as a part of his annual appraisal or performance review. Ability to get work done without injury is an important consideration for promotion, and for salary increases.

Plants are required to submit safety articles for publication in company and plant house organs.

6. Company executives regularly recognize plants, departments and individuals for safety accomplishment.

7. Plants are required to submit a monthly resume of safety activities at their location to our company staff office. Summaries are in turn sent to all plants which provides helpful information and tend to promote a competitive spirit.

8. Monthly accident data on each plant is exchanged among all Quaker plants. This in turn is made available to supervisors and plant safety and inspection committee members. Annual safety and fire reports are distributed in a similar manner.

9. Representative from company staff department will visit at plant periodically each year to specifically review accident and health problems with plant executive and supervision.

10. Use is made of safety engineers from insurance carrier.

Since we feel safety is a personal responsibility, our plant activities are beamed to show employees the purpose of safety, to instill responsibility for safety and to take pride in accomplishment.

We make every effort to have safety and accident prevention build in to production—engineering preventive maintenance costs, and so forth. We still however need activi-

ties that involved large numbers of people to assist in creating safety consciousness.

1. Safety and inspection committees are present with specific assigned responsibilities.
2. Detailed records are kept at each plant of accidents. The data is made available weekly to supervisors concerned; and they in turn must visit with employees involved and report back on discussion and action taken.
3. The plant nurse or first aid attendant visits with each person reporting for first aid concerning accident, cause, and so forth.
4. Departmental safety meetings are held for all employees with non-supervisory employees conducting meetings, advance preparation, and so forth.
5. Employees are asked to assist in the revision of existing safety regulations and the preparation of safety procedures for hazardous jobs.
6. Safety suggestions are solicited. They are given honest consideration and receive priority when job sheets are submitted to the plant engineering department.
7. More recently, some specific activities in our plants have been used. They are:
   (a) Assigning different departments to sponsor safety activities for particular months of the year.
   (b) Annual safety rally night—involving families of all employees.
   (c) Departmental recognition parties.
8. Try to tie in annual observance of National Fire Prevention Week with the home. Same is true at vacation time, start of school. Use these occasions to send letters and pamphlets on safety to the homes.

Since 1944 our total number of accidents has steadily declined, in spite of an increase of some 3,000 employees and the addition of 15 new plants.

When considering lost time accidents our record is as follows:

Year	*No of Accidents*	
1944	311	(9 plants)
1945	276	(10 plants)
1950	92	
1955	76	(25 plants)

We still have a long way to go, but I believe the proper utilization of accident information, involving the participation of increasingly greater number of employees has done more to reduce the number of accidents in our company than any other factor.

Meat Packing, Tanning and Leather Products Industries

Build It In—Don't Tack It On

By CLAYTON ORCUTT
Coordinator, Supervisory Institute, University of Wisconsin, Madison, Wis.

I have been attending the National Safety Council Congresses since 1931. Every one of these congresses has had one thing in common. Several times during the sessions, several statements have been made to the effect that safety and efficiency are "industrial twins;" that the safe plant is the efficient plant, and vice versa; that you can't separate the two.

I clearly recall the 1938 Congress, and the American Society of Safety Engineers Banquet. Mr. L. C. Hill, Manufacturing Manager, Murray Corporation of Detroit, was the speaker. I do not remember the title of his talk, but I made some notes of the "highlights." They are typical of many others.

"You can't divorce safety and production efficiency, because doing a job safely is always doing it efficiently." "Is your safety a part of the cake or just the frosting?" "Efficiency may be defined as doing a job the easiest way; at the lowest cost, and on time. When accidents are a by-product of your production, you are getting results the hard way, at extra costs, and always with delays." "The methods for control of occupational hazards are identical with methods for controlling costs, quality, or production volume." "Because the line foreman is in the best position to know and do something about unsafe conditions and work practices, he must assume the major reponsibility in a sound program. A sound program is one that has three dimensions—length (continuity); width (scope); depth (based on tested principles)."

I am sure that all of you have heard similar statements in the course of your work or your travels, and that as a fundamental principle, you too subscribe to the idea that safety must be made a part of one's job, to be really effective.

Some plants that I know of, have done a very good job of making safety a part of each job. Some of the methods used by these plants, may be adaptable to your situation and position. I would like to present some of these techniques by asking some questions.

Mr. Plant Manager, do you realize the impact on your supervisory organization and others, if you make it a habit of occasionally inquiring of how safety is going? Mr. Plant Manager, do you have a plant safety policy in writing, so that everyone knows that safety is important—so important that it rates a policy posted in every department and in every office? Mr. Plant Manager, do you have the safety responsibilities of every individual in the organization spelled out? Do you know that on four 8½x11 pages you can put down the responsibilities of every man in the organization, every department, every activity? Is your safety program a safety program or a production standard? Mr. Plant Manager, do you make it a practice to demonstrate *active* interest in the injuries that are occurring every day in your plant?

Some one has said that "a plant is as safe as the man in charge wants it to be!" This should be amended—"a plant is as safe as the man in charge wants it to be, and continually demonstrates his sincerity on the matter!"

Mr. Shop Superintendent, as a first lieutenant of top management, do you assist those above you in showing *active* interest? Do you, in your production meeting, "kick-off" the meeting by inquiring if anyone has been injured since the last meeting? Do you spend five minutes *at the start of a meeting* to put safety "on the map"—keep it in the "main tent," so that it isn't just a "side show?"

Mr. Shop Superintendent, do you demand of your foreman that you be the first to be informed in case of a serious injury? Do

you take an active part in accident investigations? Do you put the emphasis on blame or the prevention of a recurrence?

Mr. Shop Superintendent, when you promote a man to the position of supervisor, when do you brief him on his safety responsibilities? *When* you do, this is as important as *what* you tell him if you want to convince him that he as a foreman, must accept the major responsibility for detecting and removing accident causes in his department.

Safety ideals, policies, and attitudes have a way of deteriorating as they are passed along down the line from top management to the employee who got injured. So the $64.00 question for superintendents and general foremen is "are you conductors or insulators in the chain of command from top man to employee?"

Mr. Foreman, how do you look at that oft repeated admonition "you are the key man!" Your reaction to the statement is highly important, because in no other activity does your attitude play such an important part as it does in injury prevention.

Employees are apt to have one or more negative attitudes toward safety. Most common is the fatalistic attitude—that if your number is up, you will be hurt. Another dangerous attitude is the one that the accident will happen, but to someone else. Some people feel that a past record of no-injuries is insurance for the future. Some employees feel that safety precaution is a sign of weakness. Some employees charge every injury to "carelessness" and let it go at that.

Foremen are the logical ones to work with and correct such attitudes. A starting point is the setting of the proper example. A foreman with a negative attitude himself is in a poor position to "sell" the idea to those who "take their cue" from his actions and the examples he sets.

Foremen who are sold themselves on the practical value of making safe thinking a part of every one's job, will develop a habit pattern for doing some of his routine work.

For example, when he selects and inducts a new employee, he will never forget to emphasize that safe *thinking* is as much a part of every job as coming to work or collecting his pay check. He will also always call attention to the hazards when an old worker starts a new job.

To "build safety into each job," a new employee will be interviewed as to his past safety record; his viewpoints on safety; what he considers his responsibilities to be. A new man can be made to realize that he didn't get the job until he had passed the safety "test."

When safe methods are "built in," safety discipline problems are reduced. It is one thing to correct a man for not following instructions, and it is quite a different problem to get an employee to follow a safe practice recommended by a safety committee or some one else, sometime after the employee has been hired or placed on new work.

Years ago it was common practice for an employee to be hired with not much, if any, mention of safety. Many times the employee's first exposure to safety was when he was injured or when some safety committeeman observed him doing something unsafely. If the employee was lucky, the foreman would attempt to "tack some safety on." Maybe it impressed; usually it lasted only until the committeeman turned the corner and left the scene.

Foremen who appreciate the soundness of making safe thinking a part of every job, will establish a system of "across the board" equipment inspections to detect unsafe conditions.

A department program will also include a system for frequent safety reminding of each employee. Frequently and recently reminded people do not have injuries. One hundred per cent safe-minded workers can do their work, without injury, regardless of the hazard involved. These two statements are facts!

A foreman who makes safety a part of each job, always knows the status of his department safety wise, and he sees that each worker knows it too. A foreman who makes safety a part of everyone's job, uses safety as a morale builder. He encourages his workers to talk safety at home; to remind those at home, that safe thinking prevents accidents there too, and that it must be made a part of our every day life. What better evidence of sincere interest in an employee can a forman have than of continued interest in each of his employee's off-the-job safety?

These are but a few of the methods we can use if we become disciples of a safety theory that says "build it in—don't tack it on!" Such a theory is in step with proven safety engineering principles. In addition, it strengthens our position in all of our safety training, safety disciplining, and safety selling activities.

"Build it in—don't tack it on" is a philosophy to live by in a fast moving world. It is a philosophy that will *help* us *help* others live happier too.

Safety Begins at Home

By MAY M. ROACH
Associate Dir. of Rural Education, Central State College, Stevens Point, Wis.

When I set out to prepare for my first safety program, I recalled that a great Greek philosopher had once said, "Know yourself and you will know everybody." With that in mind I began to ponder "Safety Begins At Home," the title assigned to me. What accidents had come to me in my home? I listed too long a list. Turning the boiling syrup over my hand when I was making candy in a kettle with a bail poorly attached. Blowing my hair into an open flame. Falling in the bath tub and breaking ribs. Falling downstairs and breaking an elbow.

Then I began to talk to my friends and learned that I was not peculiar, but probably quite typical. The list of home accidents grew and grew. The fall from a step ladder and the broken ankle. The fall from the chair when the leg gave way. The electrocution when the air drier fell into the filled bath tub. The beautiful organdy apron on fire.

I studied the long list and asked myself "Why?" I decided there were two major reasons. They were: Ignorance and carelessness. The safety slogan someone has coined and many have used became most meaningful to me. Accidents don't happen; they are caused.

The next step in my preparation took me to my friends in the Hardware Mutuals in Stevens Point. They provided me with a great amount of material on Home Safety. Later, the Employers Mutuals in Wausau, Wisconsin, added more to my safety library, and many other groups and individuals have continued to increase my store. For all this I am very grateful.

A little investigation and study can show us what has happened and is happening in the area of safety in industry. Laws have been passed and administered to protect all of us in our employment. Many people are employed to make certain employers live up to the laws. Industry itself recognizes the loss which results from accidents among its personnel both in time lost and money used. I am not sure as to the exact percentage of reduction in accidents in industry because the number quoted varies, but it is somewhere between 50 and 70 per cent.

But what about home accidents? There the story is entirely different. In pamphlet after pamphlet I have read that accidents in homes top those in every other area. Time and time again I hear experts in safety education say that accidents in the home far exceed those in other fields. Recently, as I was riding along to a Wisconsin Industrial Safety Conference, I was listening to a radio program when I heard this statement, "Every 90 seconds in the United States some person dies because of an accident which happened in a home. I figured as far as my mental arithmetic would take me. In an hour 40 people would die. In a day 960 would lose their lives, and in 12 months this would be 345,600 people in America who would reach the end of their lives because of home accidents. Isn't it between 40,000 and 50,000 who die in traffic accidents? There is a comparison which should impress us, each and everyone with the seriousness of the dangers which are so near us in that dear place where most of us feel so safe. Isn't this a real challenge to find a solution to a serious problem? Doesn't it call for the best thinking of each and all of us? In seeking a solution for this knotty problem, I have been reviewing my study and reliving my experiences to decide what makes us act as we do. I recall one chapter in that first psychology course which dealt with habit, the power of habit and the method of developing habit. From that time to this, I have heard those same thoughts proclaimed in one manner or another.

Ninety per cent of what you and I do results from habit. When we consider that the foundation of our habits are more or less made by the time we are eight years old, we can see the significance of my title "Safety Begins At Home." I have been a teacher for more than 50 years, and I am fully aware of the importance of those early years in school. This, of course, places a tremendous responsibility upon the home and those primary years in our schools. But if the responsibility is great, the privilege is

correspondingly great. Have you noticed that responsibility and privilege go hand and hand?

How can we help our people to make habits of safety a part of their armor against that enemy we call accidents, powerful enough in all areas, but far more so in our own homes? As a teacher for more than half a century, I am sure we must begin when folks are young. The most powerful technique is good example. Next, we must teach our people to recognize dangers and to realize that accidents are expensive in life, health and wealth. We must continue safety education during the entire life of our citizenry through every media we have at our disposal, but the job will become much easier in later years if it is done well in the young and impressional days.

My friends in the Industrial Safety Conferences tell me that there are wide differences among their employees in their attitudes toward safety programs in particular, and safety education in general. Some cooperate quickly and easily; others have difficulty fitting in. Let us remember that our attitudes have their roots in our early years!

Can we look forward to the time when we can point to as great a reduction in home accidents as you in the Industrial Safety Conferences can boast about in your program? We as individuals must have as much will to protect ourselves in our homes as we demand that those who employ us provide for us outside of our homes.

There is a little poem which may fit in here as I conclude. Protecting my life, my body, and the materials over which I have control is surely a moral responsibility. All these are gifts to me from the Good Lord which I must use wisely, so

Isn't it queer the princes and kings,
And clowns that caper in sawdust rings,
And common folks like you and me
Are builders for eternity.
To each is given a bag of tools,
A bit of time and a book of rules,
And each must finish e'er life has flown,
A stumbling block or a stepping stone.

Every accident, the result of ignorance or carelessness, helps to make a stumbling block of somebody's life. The habit and the attitude planted in those early years are surely powerful contributing factors, so we can say with much assurance safety does begin at home.

And They Still Get Hurt

By FREDERICK H. DEEG
National Association of Mutual Casualty Cos., Chicago

The history of the accident-prevention movement in the U. S. is full of accomplishments. Certainly great strides have been made since the industrial revolution and the early days when power-driven equipment first appeared on the industrial scene. With the revolution, you'll recall, came a number of accidents, resulting in amputations, mangled bodies and fatalities in numbers greater than anyone cares to remember. But history tells us that each generation, when faced with problems of seemingly unsurmountable magnitude, has always produced men of skill, vision and fortitude who have tackled the problem with vigor and brought it under control. This certainly was true of the accident problem created during that period of transition to mechanization

Born during this period were pioneers of safety, men whose courage, determination and hard work laid the foundation on which tremendous progress has been made. Any table of accident facts tells us that the trend has been downward. The national accident frequency rate was cut in half between 1926-'33. It was more than halved again between 1933-'56. Industry's trend has followed the same pattern.

But another problem faces us. In spite of conscientious effort, workers still are getting hurt in industrial accidents—hurt physically, emotionally and financially. Some 900,000 were injured in 1955. As long as accidents continue, our job as management, supervisors and as safety men and women is incompleted. The challenge before us today is greater than ever.

Why do I say that? Let's look at the picture.

In 1952, the American Society of Civil Engineers asked its members to select the seven outstanding construction projects in the U. S. In terms of lives lost, here's what these projects cost.

Fourteen person died during construction of the Empire State Building; 110 during construction of Hoover Dam; 24 during construction of the San Francisco-Oakland Bay Bridge; 80 during construction of the Colorado River Aqueduct; 1,219 during construction of the Panama Canal, not including deaths from non-accidents, and 97 died during the Grand Coulee Dam and Columbia River Basin project. This is 1,544 deaths —a tremendous accident toll!

Industrial expansion, accomplishments of our engineers, reaching new horizons by our scientists—all are presenting new material, new methods, new processes and new problems. As men and women interested in and dedicated to the continuing job of safety we must see that the downward trend continues. We must keep abreast of progress and provide the knowledge and means to help prevent tragedy and needless waste. We must face up to new problems, knowing full well that some of the old ones are still with us and still have to be solved.

In attempting to solve these problems, we must know where to begin. It has been suggested that "safety begins at home." I agree. I believe that if we are able to instill in our children a "safety is a way of life" philosophy, they will grow up to be better and safer citizens and workers. They will go into our industries with positive rather than negative thoughts and ideas regarding their safety and that of fellow workers.

This, I believe, is important. Far too many persons commonly regard accident prevention as negative. It's not. Accident prevention is action, logical, profitable action, resulting in more ability, more time, more production, more wealth, more happiness and security. One reason workers still get hurt is because we haven't found a way to get the "safety story to everyone so effectively that they understand the problem as well as we. Take management for an example. One safety axiom is that management has the best opportunity and ability to initiate prevention work, and therefore, should assume the responsibility."

Nobody disputes that fact, and management usually accepts this responsibility and gives its support. But there is still a tremendous number of management people, particularly in small businesses, who haven't recognized their place in the broad picture. In these instances, apparently we haven't

got our point across. In recent years, much has been done to reach smaller plants through the National Safety Council's small-business program, a program designed to reach small-business men through trade associations, local safety councils and community groups.

It is a known fact that some supervisors are more effective than others in accident prevention, even when they come from the same company and have similar opportunities and similar assistance in their safety responsibility. Why should that be? That's a question we are still trying to answer. The experts don't know for sure, although they say it's probably due in part to differences among supervisors as to understanding their part in the safety program and their attitude toward this part of their job. Perhaps there's more to it than that. But meanwhile, we have to keep plugging away with tools and material available so we get to every supervisor, at whatever level he may be, a clear understanding of his part, and win him over to the "safety is a way of life" philosophy.

And this philosophy must be carried down through the ranks to the employee. We are told that human error is responsible for a great percentage of accidents, and this error can be corrected through the employee training program. This is important to success. Other parts of the human-error problem must be tackled through improved mechanical design, design which is more intimately related to the physiological and psychological characteristics of equipment operators.

Perhaps another reason they still get hurt is that not enough appeal is put into programs. That's always a problem, and we are always looking for new and unusual ways to get our programs across. Clever promotion, of course, is never a substitute for the basic principles of accident prevention. But, like the ribbon on the package, stunts do help sell safety to workers. In recent months, we have collected some ideas industries throughout the country have used to promote on-the-job safety in their plants. Here are a few:

Mystery Man. In one plant, a mystery man—who will violate a safety rule—is selected. First person to spot his violation and tell him the rule he's breaking, gets a certificate. Naturally, other unsafe actions are uncovered each month because of this scheme.

Safety Slogan. Weekly, a safety slogan is posted on a bulletin board, and an employee able to repeat the slogan later in the week, is awarded a prize.

Safety Smoke. On "safety smoke" day members of divisions having improved accident records during the past month receive free cigarets, cigars or candy bars.

Telephone Communicator. By dialing a speecial plant telephone number, the listener hears a tape-recorded announcement, including safety messages, wage increases, baseball scores.

Family Night. At family night each month, safety plaques and other prizes are awarded members of departments with accident-free operation.

Drawings. Periodically a "roulette" wheel is spun. If the employee on whose number the wheel stops has an accident-free record for a certain length of time, he's awarded a prize.

Someone said recently that safety men don't have to be pitchmen, barkers, or circus performers. But sometimes it helps.

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