SAFETY Review

In This Issue:

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SAFETY JOB OPENING

The Safety Division, Industrial Relations Department, Naval Supply Center, Oakland, Calif., has a vacancy for the following position:

GS–018–9 Assistant Safety Officer.

Applicants must meet qualification standards of CSC Handbook X–118, and pass written tests of verbal abilities and administrative judgment (Tests 56A and 600).

Applications on SF–57 should be addressed to Director, Industrial Relations Department, Naval Supply Center, Oakland, Calif. 94625 as soon as possible.

LOCKOUTS

One of the most critical times in a plant is when a machine is down for repairs or maintenance. For, unless the power to this machine is securely shut off, the men working on it could be severely injured. Repair and maintenance men are virtually defenseless: they must work inside equipment with all of the usual safeguards removed or made inoperative. They have only one defense: A system whereby the machine or equipment on which they are working is prevented from being accidentally or unexpectedly started up or put into operation. This system is called "locking out."

The National Safety Council has issued a new Safety Slide series which explains and illustrates the lockout system: Typical procedures and safeguards; how each individual can help make the system work; and how the safety of each person is dependent on the cooperation and responsibility of others for assuring that locking-out procedures are followed.

Specific matters dealt with include: Multiple lockout devices, disconnecting power, preventing arcing and switchbox explosions, checking after applying locking-out device, controlling use of padlock keys, procedure to follow when shift changes, secondary lockouts, and application of lockout principles to trucks, bulldozers, and other dangerous or harmful equipment and products.

There are 30 full-color 2″ x 2″ cardboard-mounted slides in the set, and a 16-page script booklet which provides a commentary for each slide, as well as suggestions for holding successful safety training sessions. The slides and booklet come in a combination shipping-storage container.

Prices are follows: Each (slide and booklet): 1—$17.00; 2—$14.60; 10—$13.50; 100—$12.40.

Automatic 10-percent discount to Government agencies.

When ordering use this title and number "Lockouts" (176.12).

CRASH HELMET STANDARD

Just off the press is a new national standard for vehicular crash helmets—something we have needed for a long time. Put together by the best brains in the country, it provides specifications and performance requirements for the ultimate in available head protection for motorcycle drivers and riders and other potentially high-hazard vehicular activities such as sports car, stock car, and motor boat racing. Activities are urged to publicize the fact that there is now a standard and to advise riders to wear helmets conforming to its requirements, exclusively. It is entitled: *American Standard Specifications for Protective Headgear for Vehicular Users*, ASA Z90.1–1966, issued by the American Standards Association ($3 plus 75 cents handling charge).

SAFETY Review

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HOLIDAY FROM HAZARDS

By Nelson M. Bortz, Director, Bureau of Labor Standards, U. S. Department of Labor, and Chairman, Federal Safety Council at the 4th Annual Metropolitan Washington and Military-Civilian Traffic Safety Conference, July 21, 1966

TODAY we are riding the crest of a great wave of safety consciousness and concern.

I need not spell out the reasons. They are known to each of us who, in one capacity or another, I suspect, bears a responsibility in part for what has occurred, and much more importantly, bears a responsibility for seeing that the future is better than the past.

It is for this reason—and the challenge it poses—that I am grateful for the opportunity to participate in this program.

It is not—and I know it will not be—a program which begins this morning and ends this afternoon. Death takes no holiday. It makes no distinction in terms of on the job or off the job.

My role is to outline Federal concern and objectives.

In considering an approach to this subject I asked myself—is it a discussion of what the Government is doing overall, or the activities of the Federal Safety Council? Is it in terms of internal agency safety programs, or participation in what is essentially a matter for handling by the local public authorities?

I concluded it was all of these since they are intertwined—the formulation of safety standards by GSA for the purchase of new cars, the work of the Bureau of Public Roads, what we are doing in the Federal Safety Council as a coordinating group of safety officials from the various agencies, as well as the day-to-day traffic movements of Post Office trucks and chauffeured limousines.

Approximately a quarter of a million Federal workers are employed in the Washington, D.C., metropolitan area. Thus, Uncle Sam, as the community's largest employer, must be concerned and involved. Perhaps this concern has not always been expressed with the intensity desired, and desirable.

This does not mean it has been ignored. President Johnson has spoken out forcefully in cataloging the traffic situation as one of the Nation's greatest domestic problems and the Congress is acting on a number of far-reaching proposals designed to increase the protection and safety of motorists and citizens generally.

Moreover, the President has launched within the the executive branch his Mission SAFETY–70 program designed to reduce the number of work injuries 30 percent by 1970. This program is moving! During its first year—basically a tooling-up period—the overall frequency rate was reduced between 4 and 5 percent and 1,000 fewer disabling injuries were chalked up.

Within the past several weeks the President, the Vice President, and Secretary of Labor Wirtz have all reiterated the Federal Government's concern not only about on-the-job accidents but off-the-job as well.

On an earlier occasion, Secretary Wirtz put it in this manner—

> A typical day at the office (thanks in part to Mission SAFETY–70) presents comparatively few hazards. But the trip home from 14th and Constitution Avenue to Arlington can be as exciting as a James Bond movie—and more dangerous. GSA requires the automobile makers to deliver cars equipped to carry the Government employee on his official business as safely as possible. But the same employee climbs into his own car in the evening and takes every chance his employer would not let him take during the day. If he has an accident at 5 o'clock the loss to the Government—in terms of the employee's services—is the same as if it happened at 4. His pain and suffering are no different. I propose that the Federal Safety Council undertake to consider the safety not just of the Government employment—not just as employees (which they are a quarter of the time) but as people (which they are all the time).

Nationwide, the Federal Government's stake in traffic safety is substantial. In terms of total civilian employment it is 2½ million; adding in the military services you can almost double that figure. And may I observe at this point that the military services, for a variety of reasons, have attacked the traffic safety problem with greater

vigor and success, I believe, than we have on the civilian front.

Statistically, in the Federal civilian sector, the number of vehicular deaths has risen and now accounts for more than a third of all work-connected fatalities. Motor vehicle injuries are the greatest single cause of job fatalities. Employee costs (medical, leave, and compensation) are nudging the $7 million mark. Other costs—damage to equipment, material, and tort claims—are much higher but no one really knows because we don't have a Federal system for accounting for these costs.

So what are we going to do about it; what are our objectives?

Let me list a few of the more important under the broad categories of (1) making the vehicle safer; (2) making the driver more skilled; (3) making the highways less hazardous; and (4) making the community more conscious.

MAKING THE VEHICLE SAFER

This is probably the most spectacular. Thanks to the Congress for enacting the so-called Roberts bill almost 2 years ago, the Federal Government—through the General Services Administration with the technical cooperation of other agencies and the Federal Safety Council—has now prescribed a total of 26 safety standards which must be satisfied before the Government will make its yearly purchase of some 65,000 to 75,000 motor vehicles. These requirements include 9 new standards applicable to 1968 models, and 11 revisions of the original 17 standards which apply to the 1967 models purchased later this year.

This is an epochmaking, landmark advance. It has implications far beyond the range of Federal purchase of motor vehicles.

At the same time we cannot overlook vehicle maintenance for the hundreds of thousands of Government vehicles now on our streets and highways. A car does not remain safe in perpetuity. Much more needs to be done in planned programs of preventive maintenance.

MAKING THE DRIVER MORE SKILLED

Improving driver skills is a task that must involve every agency, every field installation, and obviously the drivers themselves.

It was encouraging to note in recent agency reports to the President the number of Government departments that singled out driver improvement as one of their major 1966 Mission SAFETY–70 objectives. Many agencies are cooperating with, and utilizing, the Driver Improvement training courses of the National Safety Council. This training effort needs to be encouraged and expanded.

In another area, we have the requirements of the Civil Service Commission for obtaining a Federal driver's license to permit an employee to operate a Government-owned car. This has been helpful but a further strengthening of these requirements seems in order particularly in the areas of administering practical road tests and physical standards for applicants and renewals of permits.

Another—simple but sensible idea—is to encourage greater courtesy on the road. One suggestion that has been voiced from time to time is to give visibility by the flying of a small, distinctive courtesy pennant on the radio antenna of the car. I'm not sure this would work in some of our traffic snarls that test the patience of the biblical Job, but if the pennant would also fly our Mission SAFETY–70 symbol I could be interested!

MAKING THE HIGHWAYS LESS HAZARDOUS

Quite obviously, vast improvements from an engineering and technical point have occurred in our street and highway building programs. But we still encounter hazardous curves (even on our beltway), treacherous bridges especially in wet or icy conditions, and a confusing array of traffic signals and directional signs. I do not believe we have done all that is possible within, and cooperatively between, the three jurisdictions encompassing the Washington metropolitan area.

Here also we have a Federal agency—the Bureau of Public Roads—as an administrative body developing standards and disbursing funds. Both recent and pending legislation are directed toward more effective highway safety programs. The safety expertise of groups such as are assembled here today should, it seems to me, be utilized in an advisory capacity to see that our future highways are completely free from high hazard "danger spots" and that local programs are modeled to meet local situations and needs. In the Federal area, the Motor Vehicle Division of our Council is developing a suggested accident prevention program to assist Government agencies.

MAKING THE COMMUNITY MORE CONSCIOUS

We can all work at this—State, city, Federal, military, employers, labor organizations, schools, churches, safety groups, and citizens generally. And we have a job to do.

We have in our Washington metropolitan area not only a heavy flow of job-oriented traffic but also heavy weekend, holiday, and tourist movements combined with the rotation and reassignment of military personnel, the diplomatic corps, and similar movements.

All of these factors, together with the fact that we are *the* Nation's Capital, call for greater effort and leadership in conquering the carelessness, confusion and carnage on our streets and highways.

I think we must muster all our resources, our ingenuity, and our unsurpassed national leadership which exists in abundance on Capitol Hill, in the executive branches along the mall, and in offices of the national and local organizations which help to make the metropolitan area what it is.

The District of Columbia has provided a working example in the form of its "Operation Survival." In Maryland, last Christmas, Governor Tawes instituted a rigorous enforcement program which also was effective.

Possibly what is now needed is a coordinated, consolidated, cooperative campaign involving the *whole* of the Metropolitan Washington area. We are seeking this in our mass transit plans and it makes sense in our individually operated vehicle programs.

I can assure you that the Federal Safety Council will be glad to participate in such an all-out effort.

When I first thought of an approach along these lines the idea of a 30-day "Holiday from Hazards" campaign came into mind. I suppose this was prompted in part by the recollection that last December the number of motor vehicle deaths in the Nation reached an all-time peak of 4,950. I checked on the figures for the 3 jurisdictions and found that December fatalities totaled 14 in the District; 54 in Maryland; and 103 in Virginia—171 in all!

I have a natural aversion to "crash" programs which I am sure most of you share. Nonetheless, I cannot but wonder whether the period between Thanksgiving and Christmas might be used effectively to dramatize—and to test—the ability of the entire metropolitan area to mount a massive concerted attack.

With time to plan soundly, I am confident the cooperation of public leaders, the news media—radio, TV and the press—could be marshaled. Schools and churches could be brought into the campaign and safety organizations as well as the trained safety personnel in unions, industry, insurance and other groups would assist in developing a meaningful, powerful appeal.

Frankly, in terms more frequently used in another type of deadly combat, I would *saturate* and *escalate*. I would saturate the metropolitan area with a well-planned series of safety messages, tips, and for example, couple our daily weather bulletins with advice on current driving hazards. I would escalate by calling upon and drawing upon public officials, the press, the radiocasters such as Carrol James with his "thinker" and "stupid driver" and all sorts of civic groups and activities from the Redskins games in D.C. Stadium to inserts in our utility bills and the stores in their holiday advertising. I would make it a compulsive moral obligation for every party car to have a "sober brother" at the wheel. In short, we need an eyeball-to-eyeball confrontation and crusade.

Whether all this makes sense I leave in the hands of those who are experienced in traffic safety. I do know, however, from my work with the Federal Safety Council that one must give visibility, viability, and durability to safety efforts. We *must* set goals, map out workable programs, command top-level support and widespread public awareness.

If a "Holiday From Hazard" campaign is undertaken we will, of course, never know—never be able to identify the beneficiaries.

However, we will have demonstrated how to tackle traffic tragedies at their root source.

And we will have acted to meet the President's adomínition—

> "The toll of injuries and the cost of accidents must be reduced again and again."

Check and repair heating equipment in your home now. Above all be sure that any fixed or portable room heaters are in first-class operating condition. Dirty, defective ones can spell danger and disaster.

A REMINDER FOR SUPERVISORS

When an accident occurs to one of your people, he gets hurt and it costs him and the Navy money. But did you ever stop to think what it does to you?

1. You loose time when you take the man to first aid.

2. You lose the services of an experienced employee on a particular job.

3. You have to rearrange employees and work assignments.

4. You lose production, and, to an extent, quality.

5. You have to take time to investigate and to write reports of the accident.

6. You have to answer questions of concerned fellow employees.

7. You have to inform your line organization.

8. You lose again when the employee returns unable to perform as quickly and as efficiently as he did prior to the accident.

You just don't have the time for all this.

—Adapted from U.S. Plywood Corp. Loss Prevention Bulletin

WATCH THAT CROSSING

With autumn here and winter not far off—bringing earlier darkness and bad weather—motorists must use greater caution than usual at railroad grade crossings, the National Safety Council warns.

"Records show that the four months from October through January account for more than 40 percent of all grade-crossing accidents," says Harry Porter, Jr., the Council's director of traffic safety.

Most accidents of this type involve motorists who live within 25 miles of the crossing where the accident takes place.

"This indicates that familiarity certainly breeds carelessness. Motorists use the same crossing so often that they tend to forget how dangerous it can be," says Porter.

This hazardous situation is intensified in snow-belt States with the onset of bad weather. Early darkness, plus the poor visibility and inadequate traction at crossings because of rain, sleet, and snow, can cause skids into trains and stalls on tracks. Motorists also often fail to hear warning bells or train whistles because of tightly closed cars and the noise of heaters and radios.

The Council's Committee on Motor Vehicle Traffic Safety at Railroad Grade Crossings lists these as other causes of crossing accidents:

- The motorist races a train to the crossing and is either struck by the train or runs into the side of it.
- As the train clears a crossing, the motorist immediately starts across the tracks without looking for other trains and either strikes or is struck by a train running on an adjacent track.
- The motorist, driving at night or in an unfamiliar area, travels at a speed too great for such circumstances, and, because he cannot stop in time, drives in front of or into the side of a train.

—NSC Employee Publication Newsletter

WET LEAVES

The Greater New York Safety Council advises city dwellers to get out into the country and enjoy the autumn foliage, which is usually at its brightest around Columbus Day. But at the same time it warned motorists to beware of patches of fallen leaves on the roadway.

Wet leaves are about as treacherous a hazard to motoring as the nature lover will encounter at this time of year. Leaves that appear dry on top are often wet and slippery on the underside. Most motorists go slowly and carefully on wet, slick roads but all too few slow down for a patch of what appear to be dry leaves on a dry road. Such deceiving leaves, really wet underneath, create a skid trap because that part of the road they cover is dangerously slippery.

The car that hits such a patch at a fast speed is likely to skid off the road or into another car, the Council advises.

RIGHT WRENCH FOR THE RIGHT JOB

Accident reports clearly show that even though many articles have been written on the proper use of tools it is always a timely safety subject. The majority of hand tool accidents are caused by the improper use of wrenches. There are many different types of wrenches and although more than one type can be used for any one job, there generally is a wrench for every job. Select the proper type and size wrench for the job to be done, making sure first that the wrench handle and your hands are free from oil and grease.

Despite the large selection of wrenches, all too frequently the wrong one is used and someone winds up with skinned knuckles, sprains, bruises, or worse. Here are a few simple rules for the safe and correct use of wrenches and for each type in particular:

1. In using an open-end wrench be sure that the wrench fits the nut or bolt head. Never shim the jaw of such a wrench to fit a smaller nut as it may slip, or strip the threads. The length of the wrench handle is in proportion to the opening in the wrench. When you use too big a wrench you also are applying too much strain on the nut or bolt head.

2. Always *pull* on the wrench, do not push; always see that the wrench fits snugly over the nut or bolt head before giving it the works. If the nut should loosen without warning and you are pushing, you may severely bark your knuckles. If you are in a position where you must push, keep your hand open.

3. When you need a hammer, use a hammer not a wrench. Using a wrench as a hammer damages it and it could cause an accident. Also, speaking of hammering, do not hammer on an open-end wrench. It is not built for it.

4. Do not use an adjustable or crescent wrench as a substitute for an open-end, box, or socket type wrench. They are to be used for odd size nuts and bolts. Furthermore, they are not designed for hard service. It is much easier to snap a bolt or stud with a crescent wrench because you do not have the same balance between size of opening and length of handle. Develop the "feel" of the wrench so that you will know when a nut or bolt is tight enough without snapping the bolts or stripping threads.

5. Whenever you must exert any amount of force on a crescent wrench to "break loose" or "sung down" a nut, place the wrench on the nut so that the pulling force is applied to the stationary jaw side of the handle. After placing the wrench, tighten by adjusting knurl so the wrench fits the nut snugly.

6. The same precautions that apply to the adjustable wrench also apply to the monkey wrench.

7. The pipe wrench is designed to work only on round stuff and never on a bolt or nut. No instructions are necessary on which way to pull on this wrench, as it only works in one direction. It works best, however, when the "bite" is taken at about the center of the jaws. Under no circumstances should a pipe be placed over the handle of a pipe wrench to increase leverage. This is a sure way to break the wrench and bruise your knuckles.

8. When using a wrench, balance your body so that if the wrench slips or the nut comes free, your hand and body will still be under control. This is especially important when working above deck, on platforms, staging, etc., or between hot steam lines where secure support is necessary for all wrench work.

9. Through such things as constant handling and repeated painting, bolt and stud heads become frozen and the edges become rounded. How are you going to free them without abusing the wrench or the nut? There are several methods. Penetrating oil helps sometimes. Where time is a factor, it may be best to split the nut. Sometimes you may have to cut it off with a hacksaw. Repeated painting may require that the surface of the nut be cleaned thoroughly before the wrench is applied to it.

10. Wrenches should be inspected often for worn or sprung jaws or other defects. Defective wrenches should be taken out of service.

11. Wrenches should be kept clean at all times and the teeth of wrenches should be kept clean and sharp. Apply a few drops of oil occasionally to the adjusting nut on pipe, monkey, and other adjustable wrenches to prevent rusting and make them easier to work.

The above rules emphasize the need to use the proper type and size wrenches to fit a stud or bolt, not to hammer on the wrench or use extensions on wrenches.

Remember even the safest tool is only as safe as its user. Thinking safety prevents accidents.

—Adapted from Marine Safety Pamphlet No. 218, Pacific Maritime Association.

AMC TRAINING COURSE

The AMC Ammunition School, Savanna Army Depot, Savanna, Ill., is conducting special 32-hour training courses entitled FIRE, RADIATION, AND EXPLOSIVES HAZARDS as follows:

Class No. 4—10 Oct.–13 Oct. 1966
5—24 Oct.–27 Oct. 1966
6—31 Oct.–3 Nov. 1966
7—14 Nov.–17 Nov. 1966
8—28 Nov.–1 Dec. 1966

Additional classes will be scheduled as required.

Though the course is designed primarily for firemen who are confronted with emergency radiation and explosives hazards, it has applicable features for other Government personnel engaged in civil defense and transportion. Local civilian and volunteer fire departments and civilian defense units also may have need for this course.

To insure participation in the course, nominations should be sent *at once* to: Director, AMC Ammunition School, Savanna Army Depot, Savanna, Ill. 61074, giving preference and alternate dates. There is no tuition fee for the course, and detailed information will be furnished when confirmation of attendance dates is forwarded by the AMC Ammunition School.

WATCH FOR SCHOOLBUSES

The law requiring a full stop for a halted schoolbus applies whether the highway is two-lane, three-lane or four-lane. Failure to stop can bring a charge of reckless driving—or worse.

As the afternoons get shorter and darker, the danger to pedestrians increases. Be particularly careful between 5 and 6 o'clock, since the "going-home" hour means heavy traffic and hurrying drivers.

Speed can have two bad effects. It makes a crash more likely and it makes a crash more severe. Just think, what are you going to do with the few minutes you save by hurrying and risking your life—and those of others?

PREVENT HUNTING ACCIDENTS

Hunting season will soon open in most localities. Once again the Nation's newspapers will carry stories and a few obituary columns about those who have been the victims of the careless discharge of firearms. Last year 2,400 persons were unintentionally killed. Ninety of them were children less than 5 years old.

A properly maintained weapon in the hands of a careful individual will cause injury to no one. It cannot aim itself at some unsuspecting person, release the hammer and fire itself. It is the individual who, through his careless actions, is responsible for the 'accidental' discharge. The following rules for safe handling will ensure a more pleasant hunt for yourself and for those around you.

a. Treat every weapon with respect due a loaded weapon.

b. Never point a weapon at anything you do not intend to kill.

c. Carry your weapon so that it always points up and away from yourself and others.

d. Carry your weapon so that you control the aim of the muzzle if you should stumble.

e. Be sure of the target before you shoot.

f. An obstruction in the barrel is dangerous, but so is looking into the muzzle. Open the breach before inspecting the barrel.

g. Never leave a weapon unattended without first unloading it.

h. Never climb over or through a fence with a loaded weapon.

i. Never fire at a flat or hard surface or the surface of water—the shot may ricochet.

j. Mixing gunpowder and alcohol creates a deadly poison—it's murder!

k. Keep the safety on until ready to shoot.

l. After a fall or walking through a plowed field or snow, examine the barrel for obstructions.

m. Never carry a loaded shotgun or rifle in a car.

n. Never shoot in the direction of a dwelling.

o. Never leave a weapon or ammunition within the reach of children.

p. Wear bright colored clothing when hunting—preferably fluorescent orange.

—NavNews

CADMIUM FUMES— POTENTIAL DANGERS

Careless or improper handling of alloys containing cadmium can prove a serious health hazard. Recognizing this fact, and the importance of following certain rules relating to proper ventilation (particularly when toxic fumes are released in brazing) Military Specification MIL–B–15395 has been revised to include special marking requirements for brazing alloys. It is pointed out that no health problems exist when:

- Limited or intermittent brazing operations are carried on in an open atmosphere and natural ventilation exists.
- Mechanical ventilation, adequate to remove the fumes, is provided during continuous brazing operations in an open atmosphere.
- Local exhaust ventilation or individual air-supplied respirators are provided during all brazing operations in a confined space. When used, individual air-supplied respirators shall be provided for all workers present in the confined area.

Likewise, Dr. Paul Joliet, Chief of the U.S. Public Health Service's Division of Accident Prevention warns hobbyists who use silver solder containing cadmium in home workshops that the fumes are practically odorless, lethal doses can be inhaled without any warning irritation or discomfort, and it may take 4–8 hours for serious symptoms to develop.

Cadmium, however, is used in only certain types of silver solder. The commonly used tin-based solders do not present this hazard.

Bureau of Ships Notice 5100 of April 4, 1966, requests all naval activities with brazing capabilities to apprise all brazing operators of the importance of adequate safegnards and the necessity for enforcing the precautions.

Reminder: Over one-third of the children killed in dwelling fires are alone when fire breaks out.

DERMATITIS: PREVENTION GUIDELINES

By Dr. D. J. Birmingham, a professor of dermatology at Wayne State University School of Medicine, Detroit. He is a coauthor of "Occupational Diseases of the Skin"

It is discouraging that so little thought is actually given to the selection of industrial skin cleansers.

Manufacturing plants spend enormous amounts of time and money selecting high quality raw materials to be used in their products. They employ research and development experts to make newer and better products. Yet the purchase of an industrial cleanser is frequently relegated to a purchasing agent whose only question to the supplier is "How much does it cost?"

He gives little or no consideration to whether the cleanser will remove the soil without injuring the skin. There is no one all-purpose industrial cleanser. Officeworkers do not need strong, abrasive agents. Machinists and others who contact tenacious soils will use raw solvents rather than an ineffective perfumed cake of soap.

Industrial cleansers can be purchased as: Powders, liquids, cakes, creams, and waterless types.

Some of them are excellent in quality and efficiency—others can be a hazard in themselves.

Therefore, selecting a good cleanser to be used by workmen requires the knowledge of the soil to be removed and the most efficient way to do it. The choice merits more than a casual interest.

The majority of workmen rely on personal cleanliness as their chief line of defense against dermatitis. There have been sufficient outbreaks of dermatitis in industry due solely to using poor quality cleansing compounds to make us respect this potential hazard.

POWDERS AND LIQUIDS

Some powdered cleansers have an enhanced cleansing capacity with built-in scrubbers—these inorganic or organic additives impart a mechanical assistance to the powders. Many products contain an organic scrubber and are preferred by workmen exposed to tenacious soils such as tars, oils, or greases.

Liquid soaps with neutral pH have been used for a number of years in industry. They do not provide the mechanical action inherent in a powder soap containing scrubbers, but where the soil is not tenacious and exposures are light and largely alkaline, the liquid neutral soaps are useful.

WATERLESS TYPES

For the past 8 or so years waterless cleansers have been used considerably in industry. They have a useful purpose where water is inadequate or the soil is extremely difficult to remove.

Some of the less desirable waterless cleansers are high in alkali and solvent, and when used with frequency cause a marked drying effect on skin—in some instances they produce frank contact dermatitis.

Several of these products have stood the test of time and proved to be highly acceptable in a number of industries. A waterless cleanser is a far safer soil remover than a raw solvent, and where heavy soil is encountered it can be the cleanser of choice.

BARRIER CREAMS

Barrier creams are widely used in industry both by male and female workers.

Ease of application, relative comfort during use, and a subjective sense of protection are reasons workers like them.

No one will deny that a thin film of barrier cream is less efficient than a closed chemical system or an appropriate protective garment, but there are situations where the barrier cream is the only practical means of protection.

For example, barrier cream applied to the face may be better than having to use a cumbersome face shield. A cream may be the best means by which a workman can maintain manual dexterity. A dry barrier layer may constitute less of a hazard around machinery than would the wearing of gloves or sleeves.

Like cleansers, creams should be selected for the job. No one cream will serve all purposes. The reputable manufacturer knows this, and makes several products designed for particular defense purposes. Some will have built-in resistance against dusts, some against water, some against water-soluble chemicals, some against oils, and some even offer mild protection against solvents.

—NSC Printing & Publishing Section

NOP LOUISVILLE SAFETY STORY

By Wm. W. Byrd, Safety Engineer

STRONG LEADERSHIP AT the Command level projected down through management and culminating in a "safety conscious" attitude at the worker level, are the basic ingredients that made possible the safety success story at NOP Louisville, Ky.

That you may have some idea of the physical layout and characteristics of this industrial activity, some background information is desirable. The NOP consists of 71 structures, with over 1,400,000 square feet of floorspace, situated on 132 acres of land. Some 100 crafts and specialties are employed in manufacturing hardware for the Fleet. Its industrial operations are of a highly complex nature and are rated in the high risk category. The total value of in-plant equipment is over $48 million. An often quoted fact is "If it can be made of metal, NOP can make it."

Realizing the importance of accidents, associated costs, and the conservation of human worth, the NOP safety program produced a determination to excel in safe performance. The proof lies in the fact that the same 2,200 people who were being disabled at the rate of 8 to 10 each year stopped accidents dead, and worked 563 days (or 6,099,876 man-hours) without a disabling injury.

How was the plant able to achieve this? First, the program was kept simple; second, it was worked out to make each employee feel important and appreciated in his efforts to become a safe worker. Foremost, always, was the desire on the part of management to create a desire within the worker to be safety conscious. Simply put, consistent emphasis at the worker level introduces the "Mother of Memory" concept toward safe work habits. When people take pride in working safely, the safety program has taken root. Our employees responded with a desire to excel in the safe performance of their work.

In implementing this safety record, the only paperwork required of the line supervisor was a NAVEXOS–108 "Accident Report." This report was prepared on every work injury regardless of its nature, and the accident, in turn, was investigated by the Safety Department.

Management made it plain to all employees that their safety was just as important as production and, in fact, was an integral part of the production process. This management attitude was communicated to employees chiefly by line supervision. Supervisors were encouraged to set an outstanding example in safe work practices and to show approval of individual effort to do things correctly. Consider for a moment the pleasure you get from the appreciation expressed by someone for a job well done. It is a good feeling, isn't it?

In the beginning there were the "Doubting Thomases," who believed that the price of production was inevitably measured in so many finger amputations, back sprains, hernias, fractured toes, etc. As the injury-free days rolled into weeks and months, their attitudes changed. The Safety Crusade began to spread.

The NOPL doesn't have a monopoly on geniuses; most of the workers are "average" men, just like you or me. But loyalty, enthusiasm, and experience lift men of no special talent about the "average" level. Outstanding safety records are not made by supermen. Plants which have won high honors in accident prevention have employees who are basically no different from their counterparts in other plants. Invariably they are superior in their cooperative attitudes; and these attitudes spanned the gap of "Doubting Thomases" at NOPL.

As the number of accident-free days continued to increase, management anticipated indifference for safety at the worker level. Publication of so-called "near misses" through weekly standup safety sessions, bulletins, and face-to-face communications acted as a deterrent and maintained worker "safety consciousness." After it had been demonstrated to the employee that he was important as a safe worker, the next phase in the safety program was concentration on ways to show the employee that he was appreciated. We provided personal protective equipment that really fitted and was comfortable to wear. How often have you observed ill-fitting gloves, aprons, goggles, respirators, and eyewear and the resultant resentment toward safety engendered when a worker is required to wear ill-fitting and uncomfortable protective equipment? It was realized that when little thought is given to worker acceptance, and

much of the protective equipment is indiscriminately passed out the equipment is not used and the worker almost inevitably winds up in the dispensary.

We know one cannot please all employees, but attention to the little things is important—it demonstrates that someone cares—and the worker responds to this type of treatment. He ceases to feel he is a number on the timecard—call it "parental," "the father image," or what have you—it works! It aids in closing the gap between the line supervisor and the worker and makes the worker feel important and realize that he is part of the team.

The worker was now ready and willing to accept a goal.

During the period 1952–63 the NOP reached a plateau, safetywise, with an average frequency rate of 2.37. With top management determined to make a breakthrough, the first goal was to complete 1964 without a disabling work injury. Signs, outdoor displays, postings on plant bulletin boards, weekly safety messages, slogan contests, and other forms of motivation were instituted but no particular ultimate man-hour goal was set. The plant on various previous occasions had reached 1 million accident-free man-hours or more. In 1955 the plant operated 208 days or 1,958,972 man-hours; in 1960–61 it operated 218 days or 2,006,747 man-hours, and in 1963 it operated 182 days or 1,956,100 man-hours without a disabling work injury. With this past experience well ingrained, the safety breakthrough became a reality in 1964–65 when the plant operated 563 calendar days or 6,099,876 injury-free man-hours.

Throughout this long period, there was no letup in stimulating "safety consciousness" at the worker level. After the 4 million accident-free man-hour point was reached, appropriate ceremonies were held at which the union was invited to participate–and small, individual tokens of appreciation were given to all workers. As the accident-free man-hours rolled on, local and union newspapers praised the program. The individual worker developed a safety awareness—sparked by pride; he learned to care about himself and avoid chance taking.

The rapport with employees, established by making them feel important and appreciated in their safety efforts, had a direct effect on reportable "Material Damage Loss"—reducing this monetary loss to less than $2,500 for the year 1965—an incredibly low figure for this type of plant operation.

Another important side effect of this long-term injury-free operation was the time allotted to settle prior, long-term compensation cases without adding new cases to be resolved. As a matter of fact, the activity entered the calendar year 1966 without any pending compensation claims to be adjudicated.

The end product of this safety effort justified the means both in dollars and increased efficiency. We feel that the plant has made a substantial contribution toward economic operation and we will continue to do so in the years to come. Often we have counseled the fact that "*Safety conscious people just don't happen—They are motivated.*"

O&R DEPARTMENT ADDS ANOTHER MILLION ACCIDENT-FREE HOURS

The Avionics Division of the Overhaul and Repair Department of the Naval Air Station, Alameda, Calif., has added another 1 million accident-free man-hours to its record. Between June 7, 1961, and April 15, 1966, they operated 8 million consecutive man-hours without a lost-time accident.

Shown above is Mr. H. L. Hinsinger, master mechanic of the 4000 Division with the seven certificates earned over the past 5 years.

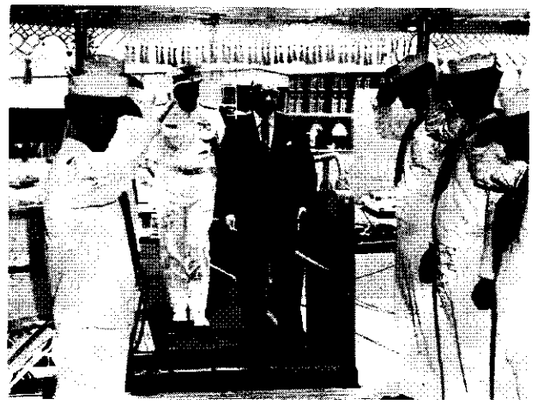
The Air Station, and all personnel of the Avionics Division of the O&R Department are congratulated!

Safety should be akin to religion—a faith, a conviction, a knowledge of the precepts, and the desire to obey them.

DRIVER IMPROVEMENT COURSE COMPLETION

Rear Adm. John J. Lynch, USN, Chief of Naval Air Basic Training is piped aboard the aircraft carrier USS *LEXINGTON* (CVS-16) at NAS Pensacola. With RADM Lynch is Governor Howard Pyle, President of the National Safety Council. Governor Pyle came to Pensacola from his office in Chicago to attend Driver Improvement graduation ceremonies aboard the carrier.

The program, under the sponsorship of the National Safety Council, is currently underway in Federal agencies throughout the United States and actively underway in Pensacola. The July 15, 1966, graduation of 405 men aboard the *LEXINGTON* brings the total to 3,000 graduates in the Pensacola Navy complex.



PREPARE FOR WINTER

With the advent of freezing temperatures, shorter days, and ice and snow, we again have to winterize our thinking. The carefree summer months have made us forget that we must adjust our habits to the hazards that return with the winter months.

Slippery roads and poor visibility, brought about by snow and ice, add immeasurably to the driver's problems in the winter.

Winterize your car, your driving technique, and your attitude. Accept the fact that normal speeds are often too fast for winter conditions. Whenever weather is bad, slow down.

Make sure you can see. Keep windshield and windows clear. Maintain wiper blades, heater, and defroster in proper operating condition. Darkness arrives early, making it difficult for drivers to see pedestrians before it is too late. Pedestrians often are laden with packages, are cold, and in a hurry.

Streets are likely to be slippery. In short, the entire situation is tailored for trouble.

Check your tires. Whether you use regular or snow tires, keep them in good condition. Use reinforced chains for deep or hard-packed snow and ice and in emergency conditions.

Have the exhaust system of your vehicle checked by an experienced mechanic. Keeping windows closed could subject passengers to dangerous concentrations of carbon monoxide from a faulty exhaust system.

Never start or idle an authomobile engine unless all garage doors are wide open. Carbon monoxide can be extremely treacherous.

Dress warmly for winter driving. You won't regret it if you are stalled in a storm or slide off the highway.

Don't follow too closely. Keep well back of the vehicle ahead to give yourself plenty of room for an emergency stop.

Be on the lookout for snow removal and sanding equipment, and give them the right-of-way.

To stop quickly on ice, pump your brakes in a series of fast applications. Jamming on the brakes will lock them and throw the car into an uncontrollable skid. If you do skid, keep your head.

Alternate thawing and freezing makes for hazardous footing which increases your chances of falling and being hurt. Be alert to the possibility of slipping by anticipating ice hidden under snow. Ice on walkways should be removed or sanded.

Falling icicles can cause injury. Steps should be taken to prevent persons from walking under suspended icicles until they can be removed.

Accumulations of snow on sloping metal roofs can slide without warning. These accumulations should be pulled down or barricades should be installed to prevent persons from being struck by falling snowslides.

—NSC Public Utilities Newsletter

"A tiger in the tank is no use if there is a donkey at wheel,"—British Minister of Transport.

FUN NIGHT FOR GHOSTS AND SPOOKS

It is suggested that small-fry goblins use make-up instead of masks this year to achieve the Halloween effect. It should be more fun for the children to express themselves with facial makeup, applied under proper supervision, than to don an uncomfortable mask.

However, if a child does wear a mask, parents should make sure that the mask has nostril holes adequate for comfortable breathing. The Greater New York Safety Council advises that in some cases this may necessitatie enlarging those in the mask. Also, hostesses who order such masks for Halloween parties should see to it that there are such holes for breathing.

Many masks of the tight-fitting type obstruct the wearer's breathing, and an unventilated mask on a child's face is as dangerous as the plastic bags that caused several deaths before the public was alerted to their danger. Rubber or plastic masks carry the greatest danger of suffocation if not properly ventilated.

Make sure, too, that the wearer has normal 90° vision on either side. Most masks cause some obstruction of vision, and are responsible for some accidents when children cross streets on their "trick or treat" tours. It may be necessary to enlarge the eyeslits in the mask for better vision.

Children who normally wear glasses should not wear masks, the Council advises. Dress up the frames with colored tape, paper wings, and other ingenious designs which will not obstruct the wearer's vision.

Do not dress children in dark costumes if they will be exposed to traffic to any extent. Of course, it is best to keep them off the street altogether, but the next best thing is for them to carry a flashlight and be accompanied by an adult.

In some cases where children wear the flimsy, flowing gown type of costume, care should be taken to fasten the costume securely at the waist in such a way that it extends no lower than halfway between the knee and ankle to avoid tripping hazards. Also, the danger of painful burns and even more tragic accidents must be kept in mind with such costumes. Other precautions to observe for a fire-safe Halloween are:

- Avoid wigs and masks with *fibrous "hair."*
- Be sure children understand they must stay away from open flames.
- Never let children carry pumpkins lighted by a candle. Don't use them indoors, either, where they can set fire to curtains or table decorations.
- Keep small children in charge and in sight of a responsible person at all times.

FLASH POINTS

When grease catches fire try to smother it by covering it with a lid. If unsuccessful and a fire extinguisher is not at hand, spread baking soda on it but *never* douse with water.

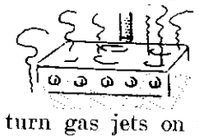
A cookstove is a bad place to leave flammables, someone may turn a burner on under them. Where there are children, check burners frequently to make sure they haven't been turned on.

Cleaning fluid can be ignited by a pilot light, a burning cigarette, a spark from a flatiron, or friction from rubbing, so use it cautiously.

Aerosol spray is under pressure. Don't use it near fire or flame or while smoking. Prolonged exposure to sunlight could cause it to burst. Cans should not be punctured or thrown into incinerators.

Matches should be kept out of the reach of children and away from heat sources.

Hang clothing a safe distance from heaters and stoves and be careful when wearing flimsy clothing around such appliances.



If leaking gas fumes are detected, open windows immediately. Don't strike matches, flick light switch or turn gas jets on until air is clear, particularly where natural gas is in use.

Electrical appliances should not be left ON too long while unattended.

Labels may carry important instructions or warnings, be sure to read them.

Smoking in bed invites tragedy. Be alert also, for defective heating pads and blankets.

Burning cigarettes should never be tossed into wastepaper or trash containers.

Overloaded electrical outlets cause overheating of wires and lead to fires.

Fuses perform an important function. Use the correct amperage. Don't put pennies or foil under the fuse when it burns out.

Trash, newspapers, oily rags, and other rubbish accumulations are fire hazards, clean them out. Store flammable liquids outdoors.

—Canadian Pacific "On Guard"

ETHER EXPLOSIONS

A RECENT OCCURRENCE at Chico State College emphasizes the need for special procedures and precautions in the handling and storage of ether compounds. An assistant professor of chemistry at the college, making a routine check of the contents of a storeroom, noticed a partially full five gallon can of isopropyl ether and recalled reading recently about potentially dangerous properties of certain ethers. The article he remembered had stressed the property of many ether compounds to form peroxides under certain conditions of storage or use, and that these peroxides were potentially very powerful explosives which could be initiated by heat or shock.

The authorities were alerted and a special army detonation squad was called in to assist in disposal of the suspect container. After appropriate precaution, the container was removed to an isolated location and exploded with a detonating substance. The resulting explosion, far greater than could be attributed to the initiating charge itself, was violent enough to rattle windows almost a mile away and was heard over 3 miles away.

Other recently reported incidents illustrate the potential hazard of ether peroxides. At the University of Maine, two glass bottles of slightly less than 1 gallon capacity, labeled "isopropyl ether," were found in a basement storeroom and apparently had been there for more than 20 years. Both bottles were nearly one-third full of a crystalline solid under the liquid upper layer. Aware of the peroxide hazard, the school authorities removed the bottles to a dump at the edge of town and then threw stones at the bottles to break them. The report goes on to state, "When the first stone struck, there was a violent explosion which blasted mud and debris over the surrounding landscape." Unfortunately, not all the incidents have had happy endings. A chemist was attempting to loosen the stuck glass cap on a pint bottle of isopropyl ether and just as the cap broke loose the bottle exploded violently and the man died from the injuries received.

There are a great many different ether compounds, all being grouped in the same chemical "family" because of similarity in chemical structure and behavior. Other common families are the alcohols, acids, esters, etc. The best known and most commonly used ether is ethyl ether, also known as diethyl ether and sometimes as sulfuric ether. This compound finds frequent use as an industrial and laboratory solvent, and also is the ether most commonly used as an anesthetic. Another anesthetic ether is divinyl ether. Isopropyl ether has been advocated as a safer variety for many laboratory uses, because it is considerably less volatile than ethyl ether. Anhydrous or absolute ether is ethyl ether with all traces of impurities and water removed, making it chemically pure. There are many, many other ether compounds but these are the most common ones.

Peroxide Formation

At the present time, little is known about the mechanism which causes the spontaneous formation of peroxides in various ethers, nor is the exact chemical nature of these peroxides known. There appears to be ample evidence however that all the ethers mentioned above are subject to this hazardous property.

Experience has indicated that while the formation of peroxides can occur under any condition, the reaction apparently is accelerated by exposure to light, and oxygen from the air. Contact with certain metals, particularly iron and copper, appears to inhibit peroxide formation but there is no evidence available yet to prove that the formation of peroxides can be entirely prevented.

The following facts regarding formation of peroxides seem to be established:

1. Exposure to the air, as in opened and partially emptied containers, accelerates formation of peroxides.
2. Exposure to light, as would occur in the case of storage in clear glass bottles, encourages formation.
3. Absolute ether undergoes oxidation (formation of peroxides) much more readily than ethyl ether containing a few tenths of a percent of water.
4. Isopropyl ether may be more vulnerable than other commonly used ethers to peroxide formation on long storage.
5. Heat encourages the inception of oxidation.
6. Distillation of ether containing peroxides greatly aggravates the potential hazard since the portion remaining in the heated distilling flask becomes more and more concentrated as the opera-

tion proceeds, in addition to the possibility of accelerated oxidation due to heat.

7. Some but not necessarily all ether peroxides are crystalline solids which would be plainly visible at the bottom of a container. Also, some are water soluble and others are not.

Precautions

The following general preventive measures are recommended for minimizing the hazards of peroxide formation in ethers:

1. Glass containers of all sizes should be avoided whenever possible.

2. All containers should be dated so that the age of the contents may be determined.

3. Isopropyl and absolute ethers should not be kept for more than 6 months, ethyl and other ethers for not more than 1 year.

4. Ether should be stored in as cool a location as feasible (but not stored in refrigerators unless explosion-proof).

5. Ether should always be tested for peroxide content before any distillation procedure, and of course should not be used if peroxides are found to be present.

6. Do not attempt to open any containers of uncertain age or condition, or whose cap or stopper is tightly stuck.

7. Manufacturers should be contacted to learn any general recommendations regarding safe handling in storage and use, and any specific recommendations for the addition of inhibitors to prevent peroxide formation wherever possible. Manufacturers can also recommend regarding the best methods for chemical test to detect peroxide content, and for possible removal of peroxides by chemical means.

8. In addition to all the above, special precautions are appropriate to hospital use of ether for anesthesia. Section A 1113, Appendix A of N.B.F.U. No. 56, *Standard for the Use of Flammable Anesthetics*, states as follows:

"The Committee on Hospitals is cognizant of suggestions that the detonation of ether peroxides formed by the oxidation of ether over a period of time may be cause of explosions in anesthesia machines. This has not as yet been experimentally verified, but until further information is secured, frequent emptying of the ether bottle and cleaning of the ether evaporator inside anesthetizing locations would be a simple and desirable precaution."

Finally, if suspect containers are found in storage, do not undertake their removal and disposition on your own. Call the local fire authority. While there appears to be no evidence that peroxides in storage containers have exploded spontaneously, or even under gentle handling, there can be no assurance that this might not occur. Let the local fire authority determine the safest procedure for disposition of the material.

—State of California, Public Safety Agency

CIVILIAN DISABLING WORK INJURY EXPERIENCE AND
AVERAGE MILES PER GOVERNMENT MOTOR VEHICLE ACCIDENT
NAVAL SHORE ESTABLISHMENT, BY PRIMARY SUPPORT BUREAU, COMMAND OR OFFICE
JANUARY - JUNE 1966 COMPARED WITH JANUARY - JUNE 1965

Primary Support	Disabling Work Injuries per Million Hours			Days of Disability Per Million Hours			Average Miles Per Gov't. Motor Vehicle Accident		
	Jan-Jun 1966	Jan-Jun 1965	Percent Change	Jan-Jun 1966	Jan-Jun 1965	Percent Change	Jan-Jun 1966	Jan-Jun 1965	Percent Change
DEPARTMENT OF THE NAVY	2.74	3.95	-31	234	293	-20	107,833	100,222	+ 8
NAVSO	2.75	1.74	+58	53	38	+39	83,888	106,718	-21
OPNAV	4.58	4.79	- 4	109	418	-74	74,690	86,700	-14
AIRSYSCOM	3.27	4.12	-21	262	165	+59	95,029	91,537	+ 4
FACENGCOM	3.28	4.81	-32	404	514	-21	325,790	218,102	+49
ORDSYSCOM	3.49	3.09	+13	467	336	+39	174,269	353,666	-51
SHIPSYSCOM	2.05	3.95	-48	254	394	-36	121,535	122,254	- 1
SUPSYSCOM	2.89	2.85	+ 1	78	320	-76	147,386	102,069	+44
BUMED	8.66	9.09	- 5	84	140	-40	49,768	83,318	-41
BUPERS	2.38	3.97	-40	41	203	-80	106,540	63,704	+67
MARCORPS	2.89	5.95	-51	68	581	-88	96,652	106,180	- 9
MSTS 1/	2.77	3.40	-19	160	104	+54	75,200	80,050	- 6

Source - NAVEXOS-110 and NAVEXOS-2449.
Personnel Ashore based on 8-hour days.

1/ Personnel Afloat based on 24-hour days.

U.S. GOVERNMENT PRINTING OFFICE:1966