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PULP AND PAPER SESSIONS

SAFETY FOR PROFIT

By H. A. BLACK

Director, Industrial Relations, The Mead Corporation, Chillicothe, Ohio

I want to discuss an aspect of accident prevention that is becoming more important day by day, year by year. That is, safety for profit. I chose this topic because it is a current problem in our own business and I suspect is a concern in many of your own companies. We are eagerly engaged in a search for profits—a way to increase the return on our capital employed. I'm sure you've all heard of the so-called profit squeeze. The profit squeeze has arisen out of the dilemma of rapidly rising costs of doing business coupled with stable or softening prices, leaving less each year in the terms of net earnings and dividends for shareholders.

Who is responsible for the profit squeeze? Is it the unions with their continual insistence upon annual wage increases and additional fringe benefits? Is it management which has not pursued an active cost reduction program? Is it foreign competition which is becoming an increasing problem, if not in pulp and paper, in many other industries? Is it the politicians or the government through their inept fiscal policies or social welfare programs who have brought about this condition?

I won't attempt to analyze today the causes or to assign the blame for the profit squeeze. It is enough to accept the fact that it is here. I ran across this statement the other day by a nationally prominent economist, which pretty well sums up the situation. It is titled "Required Corporate Action."

"Faced with an interregnum between the boom of the 1950's and the as-yet unrealized boom of the 1960's, corporate policy must recognize that there is no easy or automatic solution to the profit squeeze. That is, basic economic trends of themselves simply will not carry business along as was so often the case in the early post-war years of rapid sales growth and easy price advances. Business, therefore, has no al-

ternative but a program of strenuous cost cutting directed to every phase of the operation—overhead, distribution, manufacturing and financial, clear through to the most minute phase of every business organization. The profit squeeze suggests that nothing else than a massive assault on costs will suffice."

Well, this is where we are, and if you're not in this situation you should count yourself one of the fortunate few.

Accidents are a direct drain on profits. Their cost is wholly unnecessary to the production of any product, including pulp and paper. Accidents are an evidence of inefficiency and failure on the part of someone or something, whether it was the injured employee, his fellow employees, his supervisors, the management, or the equipment manufacturer. Someone or something failed. Accidents are important to cost cutting and to profit development because unlike many other costs of doing business they can be reduced or at least prevented from climbing; and they are unique in this respect.

Take a look at your costs of doing business, costs of pulpwood, of coal, of chemicals, the costs of new equipment and machines, the costs of labor. How many of these show any promise of cost reduction except as you may be able to introduce labor saving devices resulting in decreased numbers of people. I don't think anyone here expects wages themselves to go down nor the price of chemicals or pulpwood to diminish in the foreseeable future, but accident costs are not in this category. We know in our own company and you know in yours that through progressive safety programs and safety measures they can be reduced if not entirely eliminated.

This emphasis on costs and profits as related to safety is in no way intended to minimize the humanitarian aspects of accident prevention. This is still our most im-

portant consideration—the prevention of loss of life and limb, the elimination of pain and human suffering, and to avoid the deprivation of families through the temporary or permanent loss of their breadwinners. Such a subject might also be more appealing since most of us are or should be emotionally involved in the sacrifices of ourselves and of our fellow-men. The fact that we will not dwell on them here does not diminish their importance.

Let's talk a little bit about how much accidents really do cost. At the outset, I'm not going to burden you with a heavy treatment of statistics—if you're like most people you don't get too excited over figures. So please don't close your minds; I only want to give you a few significant facts.

The National Safety Council's *Accident Facts* estimates the total cost of accidents in the U. S. in 1959 at 4 billion, 200 million dollars. This total is made up of about one-half direct or visible costs of accidents and about one-half of other or less visible costs of accidents. It includes both compensation costs and medical costs as well as wage losses and the value of damaged equipment, lost materials, production delays, and time losses of other workers who are not directly involved in the accident. With corporate profits for 1959 estimated at 25 billion, you can see what a significant ratio exists between the cost of accidents and actual corporate profits. The ratio is almost one to six, accident costs versus total corporate profits. Or another way of expressing it, accident costs are 16 per cent of total profits. With most of us struggling to increase our profit margins by as much as a fraction of a per cent, you can see the profit potential which exists here.

I could find no very ready source of information on the costs of accidents in the pulp and paper industry. If any of you know of such statistics I would be interested in learning about them. In an attempt to get some idea of the cost of accidents in our own industry, I made use of a figure recently released by the U. S. Chamber of Commerce in their fringe benefit survey, which some of you may have seen. In this survey pulp and paper was classified with two other industries, namely lumber and furniture, so the figures can be somewhat misleading. But allowing for this margin of error, the survey reports that direct costs

of accidents, that is workmen's compensation and medical costs alone, leaving out the indirect costs, for the industry group in which pulp and paper is found, are 1 per cent of payroll.

Now this 1 per cent is an easy figure to use because it is readily converted into your own situation. In other words, if you have annual payrolls of a million dollars and assuming the ratio reported by the Chamber survey prevails in your company, your accident costs are \$10,000 per year. If you have a ten million dollar payroll your accidents are costing \$100,000; and if you have a hundred million dollar payroll, naturally you have one million in accident costs. Applying this same formula to the paper and allied products industry, we find that sales in 1959 were more than 12 billion dollars, earnings were reported at roughly 600 million, and wages and salaries (according to the Bureau of Labor Statistics) were approximately three billion dollars. Using our 1 per cent formula we come up with an accident cost for the paper and allied products industry of 30 million dollars in wasted profits due to accidents. Remember these are direct costs alone. These figures in themselves are staggering in total.

Another significant thing about accident costs is that they are continuing to rise. That is, the costs for each accident, like the other costs of doing business to which we referred a moment ago, are zooming. In 1946 the average compensation case in the nation was estimated at around \$280 per case. In 1956 this figure had risen to over \$600 per case, and in 1960, while I don't have any data, it is certainly still more.

The reasons, of course, are obvious and well known. Each session of the state legislature that meets in your state is being continually pressured to increase not only the levels of compensation but to extend the coverage to many more areas of occupational disease than had ever been previously considered compensable. The costs of medical care, as all of you realize who have had an illness in your family or who have anything to do with group insurance premiums, are continuing to grow at an alarming rate. This, too, is directly reflected in the cost of your accidents. The cost of manhours lost by the injured and fellow workers continues to increase as wages continue to go up. So even if you do have

an improved safety record with diminished frequency and severity your accident costs in total may be higher than before.

So much for national and industry figures. Much more significant to you and to me is how much is the accident bill in our own money? Do you actually know what your accident costs were this year, last year, the year before—what you can expect next year? Probably you know with reasonable accuracy if you keep any kind of records, how much you're spending for workmen's compensation, whether you be privately insured or insured through state fund, or self-insured. Probably most of you also know what your medical costs are for accidents. These so-called direct or insured costs of accidents are much more easily measured. In our own company, for example, we spent about 460 thousand dollars for these two items last year.

But how much do you know about the other less obvious costs of accidents? Do you know how much accidents cost you for the repair or the replacement of equipment or supplies and materials lost or damaged? These are a drain on profits. You all have an idea of what the loss of an eight-hour shift on a paper machine running at speeds over 2000 feet per minute can mean in terms of dollars on the profit and loss sheet. Do you know what the costs were in your company of wages paid for working time lost by other workers who were not injured in an accident, those who stopped to watch or assist the injured or to talk about the accident? I know of a case where a fatality occurred in a machine crew, for example, where the rest of the crew were incapable of continuing work for the entire day due to their shock and reaction to the sudden and fatal injury.

How much, for example, did it cost your company to replace an injured man? If a replacement was not available, it is entirely possible that you paid overtime to other workers during his absence. If a replacement was available he may have had to have expensive training and he in turn may have been replaced chain reaction-wise throughout the mill so that a whole series of re-training jobs had to be done, particularly if he were a highly skilled worker. How much did it cost in supervisory and safety personnel's time in accident investigation, in making foremen's or other supervisors' reports of

accidents? We know these are difficult things to measure but they are costs just the same, as evidenced by the National Safety Council's over-all figure of more than four billion. Two billion of that figure was in so-called indirect or less obvious costs such as we have been talking about.

Back some time ago, as most of you know, a formula was suggested for estimating these so-called indirect or uninsured costs of accidents. This was the so-called four times formula: that is, the indirect costs of accidents were estimated to be four times the direct or readily measurable costs, namely compensation and medical. Perhaps you have used this in your cost forecasting.

I think there are some disadvantages in this method. First of all, we know that the four times formula is not a true measure of indirect costs for every type of injury nor for every industry. It is a very gross measurement, and it seems to me that its use sometimes discredits the more reliable data, namely the direct costs data which are probably pretty accurate. In other words, when you present a package of information in some portion of which there is room for considerable margin of error or doubt, it frequently affects in the receiver's mind the acceptability and the validity of the entire data. And this, of course, is unfortunate, particularly when you are trying to sell a cost conscious business man upon some sort of a safety activity.

Much more acceptable and salable in my opinion are actual costs of accidents that can be accurately measured in your own case. One recommended procedure is found in the text *Safety Management*, by Simons and Grimaldi, which describes a relatively simple method for ascertaining what your actual accident costs are. It is important that you get down to actual cases in terms of your own company and your own experience. In this connection I would recommend that you get with your accounting people and attempt an analysis with their assistance which will organize your data in terms of the kinds of cost systems that are used within your organization.

For instance, how do they go about preparing cost estimates to obtain approval to buy a new rewinder or a new hydropulper? Use the type of accounting or statistical treatment that is most readily accepted and

understood in your own organization. I am sure you will find your accounting and financial people interested in helping you in this regard. Find out what your accidents are actually costing. Find out what you are spending for accident prevention. What is the cost of your safety activity—your salary, your secretary's, the time spent in safety meetings, the cost of membership in the National Safety Council, the cost of posters, contests, and the rest of it—put it all together.

Then present your analysis, again in terms of the way that it is most meaningful for your organization. Does your company look at expenditures on the basis of return on investment or capital employed, or as a percentage of the sales dollar, or as unit costs in terms of tons or pounds of product? Whatever system or combination of systems is used, try to use the same one. Prove, if you can, what your activities have done to affect costs and ultimately profits. Go back historically to make your point and make reasonable assumptions and projections for the future. Don't draw a pie in the sky picture for your management but one that is reasonably attainable.

I have heard much wailing and gnashing of teeth by safety people because they could not get the top management support behind their safety programs and it is for this reason that safety activities were falling down or failing in the company. I assure you if you can show your management that your safety programs, your accident prevention activities can turn up dollars on the P & L sheet, you will have not only an interested listener, but an insistent listener and one who insists upon action being taken to capture these dollars.

Perhaps some of you have had experience with a recalcitrant supervisor, one who has been around for a good many years, and you have been attempting to persuade him to put a new guard on a machine or to take some time out for safety meetings, but have been getting nowhere rapidly. Remember, this supervisor is probably under pressure from his supervision for cost reduction and profit development. As is true in most companies, the costs of accidents are not charged back directly to his department but come out of some overhead account which may be the insurance premium or a fund maintained for self-insurance purposes. So

he says, "Well, maybe the accident won't happen anyhow and if it does it won't show up in my budget."

What better way to convince this kind of a man or at least his superior than to make an actual study of his department and what his accident record has done to the cost of doing business for that department. I venture to say, if he won't listen to such statistics, someone in the company will. I know of some companies who have gone so far as to see to it that accident costs are charged back directly to the department in which they occur, feeling that this can have the desired effect of motivating each supervisor to take an active part in accident prevention.

We have charted the accident experience for our company for a period of years. From a frequency of near ten in 1948, by aggressive safety and accident prevention measures we were able to reduce our frequency down to the four and five area and were tending pretty well downward until the year 1959. This year our frequency shot up again almost as high as it had been ten years ago. This was occasioned by the fact that for the first time we included in our safety statistics for this year a number of new plants and companies which had been acquired by the corporation as a result of a merger and acquisition program. Many of these were small box plants or small mills which had never had an aggressive safety program in their history. The results are obvious. Now we have demonstrated that by pursuing an aggressive safety program accident experience can be brought under control. Our management is convinced by the record that this can be done with this new group of members of our corporate family.

Although I have used frequency figures as a measure of our accident experience, we all know that this measure can be misleading, even deceiving. In our opinion the important thing is not to demonstrate a lot of frequency and severity figures to management but to translate these into dollars—dollars for each year in total and dollars per accident, using methods traditionally acceptable in the field with which you are familiar. On a second chart we have made covering the same period, we see revealed the trend which I spoke about earlier of the rising costs of accidents. Even though

frequencies were diminishing markedly during this period, actual dollars of outlay were going in the other direction. You can imagine what happened in 1959. We intend to show historically what has happened to our profit as a result of our accident rate and our accident prevention program, as well as what can reasonably be expected from pursuing this program in the future in terms of profits to our company.

At Mead we know of no short cuts in achieving good safety performance; safety takes a lot of hard work. However, we believe that the work should be properly directed. A well rounded program of activities has produced the best results for us, a program which encompasses all the important elements of safety: supervisory and management interest and participation in the safety program, making it clearly their responsibility; adequate first aid and medical facilities; good accident investigation and records; good engineering and maintenance;

training and safety promotion—all are necessary if good safety results are to be consistently achieved.

Now this is a simple message and not very new. For some of you it may have been boring because you are already doing this and much more in convincing your management of the importance of accident prevention. If so, well and good. Others may have done this at some time in the past but not on a continuing basis. If you have not made cost estimates for several years, I suggest that you bring your figures up to date. You may be surprised at the inflation which has occurred in both the direct and the indirect, or the insured and uninsured costs of doing business today. If you have not done this at all, I suggest that it's time to get with it. Remember that numbers like 200, 300 and 400 have little meaning to most business executives but figures like \$200, \$300 and \$400 really talk. They know exactly what you mean.

OFF-THE-JOB SAFETY MAKES GOOD SENSE

By H. E. NEWBURY

Safety Supervisor, Olin Mathieson Chemical Corporation
Ecusta Paper Operations, Pisgah Forest, N. C.

When I was contacted by our program chairman with reference to this assignment, I was hesitant about accepting it. Not that I wasn't deeply interested in the subject, but I felt that our plant's program for "getting safety into the homes of our personnel" was not the success we had hoped it would be—could be vastly improved—and was not of sufficient magnitude to be publicized at this time.

There is no doubt in my mind that every one of you here today, will agree with the statement that "safety is not an experiment—it has taught us to place a greater value on human life." Not only on the lives of those we work with or supervise, but on the lives of their loved ones—their friends—their acquaintances—even those who are total strangers! We all know that safety is actually living insurance.

At the 10th Annual Conference of the Southern Pulp and Paper Safety Associa-

tion in 1953 at Brunswick, Ga.—we heard E. J. Gayner, III, speak on "Safety Applies to People"—and I wish to share with you his opening remarks:

"I have for many years, been keenly interested in people. Not that they are black or white; rich or poor; young or old—but rather, whether or not they are happy or unhappy;—which leads me to ask these three questions: Have you ever seen an injured person who was really happy?—I haven't!

"Have you ever seen a father, mother, sister, brother, son or daughter happy, because a loved one was injured?—I haven't!

"Have you ever seen a fellow worker happy because good old George was injured?—No, neither have I!

"Could we not, therefore say, that "safe people are happy people"—and since I stated earlier that I am interested in people's happiness—I am necessarily therefore, inter-

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ested in safety, welfare and well being of all people—some of whom are our employees."

Wouldn't it be wonderful if everyone of us felt this way? Think how valuable it could be to us—providing it was sincere! We had copies of Mr. Gayner's talk reproduced for every supervisor and foreman in our plant and have, for seven years, tried to encourage them to adopt this wonderful attitude toward people.

At our plant, we are continuously striving to sell our personnel on just what safety means to them as individuals, and we are indebted to the "staff" of our medical department, for the wonderful assistance they are giving us in doing this. We feel that our medical director and his staff of 10, have contributed greatly to our low frequency and severity rates—far below the industry average over a period of years. Around-the-clock professional services are available to all personnel of the film and paper operations, and as a result of the prompt and adequate treatment of even the minor type injuries, infections have been few and far between.

I look upon our doctor, and his assistant, and all the nurses, as a great asset to our program for preventing injuries on and off the job! They are continuously preaching to everyone, the great importance of adhering to safe practices. Safety supervisors, and I am no exception, are often looked upon by a small minority of hourly employees, as a necessary evil connected with industry—a meddlesome person who is always sticking his nose into other people's business—one who has nothing better to do than to be always pointing out various ways that someone can get hurt. We who are in safety work, never take offense at such thoughts—we do know from experience, that accidents can be tragic, and will continue to do everything possible to help prevent them.

If you have never seen an employee so badly mangled as a result of being caught in moving machinery that you did not recognize him; if you have never ridden in an ambulance to the hospital with such a person, fully realizing that his next breath could be his last; if you have never stood by the operating table as they were preparing to administer whole blood, and heard the doctor say that there was no life left; if

you have never had to go back into the home, and tell a man's wife and five small children that the worst had happened . . .

Or, if you have never assisted the doctor and nurse as they worked with a man so badly burned with sulphuric acid, that you wondered whether or not he would live—his entire neck, face and forehead one raw blister—his tongue twice its normal size—his right eye burned out—burned so deep that it would be impossible to fit a glass eye into the socket. If you have never had to go tell a man's wife and four kids about something like this—and try in your humble way to assure them that you felt he had an even chance to pull through . . .

Or, if you never received a telephone call just after reporting for work, to come to a certain paper machine quick—and upon arriving, see an employee with the right side of his chest caved in . . . and bleeding freely; if you have never had to go tell the man's wife, take her to the hospital and spend the entire day with her . . . in and out of the hospital chapel, with both of you offering up prayers to the Almighty that this man might live; if you have never stood by as the surgeon talked with her late in the afternoon, explaining that it was necessary to amputate the right arm three inches below the shoulder—that he had done all he could—and that God be willing, she and the three youngsters would have their husband and father back home within several weeks—providing no serious complications arose . . .

If you have never experienced cases such as these three I have related to you, then you cannot appreciate just what it will do to you, deep down inside.

Unfortunately, these are three accidents that occurred on 8/5/42,—6/50/58—and 1/2/59 respectively; — and I've prayed a thousand times that it will never happen again—to me, or to any other person in safety work. It's experiences like these that will instill in a person, the desire to do everything possible to help eliminate even the minor type injuries!

The task of going into the home and telling members of the family about their loved ones being seriously injured or killed, is indeed an unpleasant assignment. I personally feel that if such an assignment was the responsibility of the foreman or super-

visor of the department in which the accident occurred, a much greater interest in seeing that serious injuries do not occur, would be manifested by supervisors in all industries. One such trip is one too many.

I couldn't forget the latter two cases mentioned, even if I wished to—I'm living with them five days a week! (The man who lost the eye is now working for me as a fire inspector—the man who lost the arm is in an office just across the hall from mine. I see and talk with both of them several times each day). Each of them is a walking testimony of the importance of on and off-the-job safety.

Now, let's take a look at off-the-job safety—and why it makes good sense!

To begin with, let me tell you what we are doing at Ecusta Paper Operations, to publicize the importance of safety off the job.

For over four years we have furnished our supervisors and foremen with three to five pages of supplemental material each month, to assist them in conducting their monthly safety meetings . . . material that carries as much, and sometimes more, information about safety off the job, than on the job!

We have sent into the homes of our employees, prepared booklets such as "How to Drown-proof Your Family"; and one on eye protection, entitled: "Only One Pair to a Customer."

Also:

a) A seven page special bulletin on traffic safety —

b) The picture of an automobile, showing the 10 vital points that should be checked for safe operation. —

c) Plastic pocket card on artificial respiration —

d) A bulletin on fire fighting, listing the many ways that fires can and do start in the home —

e) A bulletin on gun safety—for the kids and adults —

f) Copies of our State Highway Point System for traffic violations —

To the schools in our small county, which have an enrollment of about 4,000, we furnish varied bulletins three to four times a year (one for each of the kids to take into their homes), and the more recent ones

were on school bus safety and bicycle safety —

We have for several years made available to our employees at cost, fire extinguishers, first aid kits and snakebite kits —

We furnish free, wet felt to be used on the soles of fishermen's shoes and boots. (Trout fishing is one of the finest sports in Western North Carolina, and our personnel swear by the wet felt, when it comes to the prevention of slips and falls on slippery rocks).

At our employee recreation area where we have from 100 to 200 swimmers and non-swimmers daily during the summer months, we are forever stressing the great importance of waterfront safety. Capable lifeguards are on duty seven days a week—eight to 12 guards at all times, each a college student having a senior life saving certificate, and several of them have had the National Red Cross Aquatic School Instructor's course in waterfront safety. Swimming classes are conducted for youngsters and adults, and in the past 15 years, more than 2,000 'beginner swimmers' have passed their tests for swimming 50 yards or more. (In fact, we do not allow anyone in the deep water area, until they pass such a test under the supervision of one of the lifeguards). Incidentally, the National Red Cross predicts a drowning a year at such areas, and we are very proud to be in our 15th year of operation without any tragedy.

In addition to a playground supervisor who is on duty seven days a week, a boys' coaching school is conducted three days a week from 9 a.m. to noon. This is handled by college students, who emphasize true sportsmanship in teaching various forms of athletics, and safety is tied in with every activity.

With the use of two safety bulletin boards just inside the main entrance to our plant, we are continuously subjecting our personnel to pertinent messages with reference to safety on and off the job. (We use 8 and 17 inch green plastic letters, and the boards are 4x6 feet and 6x16 feet in size). Messages have been changed from three to five times a week for the past 10 years, and at least one out of every four messages on the large board pertains to off the job safety. (The smaller board is seen by employees as they leave the plant, and every message on

this board covers items off the job). What has our off-the-job accident experience been in recent years?

This is the sad part that might be left unsaid, but that it might help impress you with the title of this talk:

Until July 1, 1959, we did not attempt to keep an accurate record of off-the-job accidents. However, we do know that 12 of our employees have died as a result of them, since the plant started operations 21 years ago . . . as compared with one fatality on the job during this same period. These 12 deaths were as follows: *auto wrecks, 6; private airplanes, 2; drownings, 2; hunting, 1; and wood saw, 1—*

From July 1, 1959 to July 1, 1960, not counting a fatality from drowning and one that resulted from an auto wreck, the personnel of our plant experienced 35 disabling injuries off the job that caused them to lose 1,018 days from work.

Auto wrecks—21 (1 fatality)
Home—12 (several severe injuries)
Public—2 (1 drowning)

During this same 12 months period on the job, we had four disabling cases with a total time charge of 117 days.

No, we are not proud by any means of our on-the-job experience either—but in comparing it with the 35 cases mentioned before, it does prove to us that we still have work to do in our efforts to get safety into the homes of our personnel.

Let's take a look at the cost to our plant, for the 35 cases referred to: (This includes life insurance, hospital and surgical costs, and the weekly benefits for days lost from work—it does not include necessary overtime that was paid on numerous occasions, and this amounted to hundreds of dollars . . . or the seemingly intangible production efficiency that is lost when members of a production team must be supplemented by new players when an accident benches one or more employees).

The total cost to our plant was \$22,500. And listen to this: The 35 injured employees lost \$12,500 in wages during this 12 month period!

A total cost to the employees and the paper operations of \$35,000. Incidentally, the four cases on the job during the same time, carried a compensation cost of less than \$500.

We cannot overlook the fact that when a company or corporation pays out money from their profits for 'accident costs,' they are paying out money for something that could be prevented, avoided—in effect then, paying out money for nothing.

To give you a clear picture of just how much one off-the-job accident can cost, I wish to cite an auto wreck that involved three of our machine room employees on March 8th this year, a foreman, a machine tender, and a third hand.

These three men were returning from a short vacation when their car was struck by an auto which entered the highway from a side road.

(a) The foreman received multiple contusions; four badly broken ribs; and lost 47 days from work—

(b) The machine tender's left leg was broken in five places above the knee; he lost 114 days from work to July 1st; and will not be able to return to work before January or February of next year—

(c) The third hand suffered severe internal injuries—and facial injuries that made him almost "unrecognizable"; lost 59 days from work to July 1st; has already undergone surgery for facial scars on several occasions—and the estimated cost of this plastic surgery alone, will be in the vicinity of \$7,000.

The entire cost to the three employees and to the plant on this one case, will be between \$15,000 and \$20,000.

It appears to be a simple matter for our employees to put on a cloak of safety when they enter the plant, and to discard it as they pass through the gate on their way home—and these same employees insist that safety-wise, every suggestion at the plant should be followed immediately. And yet, they neglect their homes; their loved ones; their automobiles; and their own safe actions—away from the plant!

We all know the great importance attached to setting the right example—that actions will often be copied—whether they are right or wrong—safe or unsafe. We know that children mimic actions of their parents—and that some traits have even been known to become hereditary!

Regardless of how strong management's interest might be from the humanitarian standpoint, let's not forget that they are also

vitaly interested in accident prevention both on and off the job, from the standpoint of reducing operation costs. No plant, company or corporation can stay in business without showing a steadily increasing profit to more than match rising operating costs, and it is the responsibility of every person connected

with accident prevention programs, as well as all others in supervisory positions to help assure them of showing a steadily increasing profit! This can be done, by each of us doing our utmost to help eliminate the "needless cost" of both personal and non-injury accidents—on and off the job.

CONSOLIDATED'S 30-YEAR CLIMB— IS THERE AN EASIER WAY?

By J. A. DRAPER

Director of Safety, Consolidated Paper Corp., Ltd., Grand Mere, Quebec, Canada

Let it be understood that we do not claim that the policies, training schemes, psychological approach, and general safety set-up that have worked for us will work for you. We certainly do not guarantee that having reached a corporation frequency rate of 1.5 (11 injuries) (7,311,583 man-hours) in 1959, we can maintain that figure. We've seen many companies — good companies — reach wonderful accident prevention results for a period, and then fall from grace. Some fall only a little way, then struggle back to good performance, others, usually smaller companies, fall back and do not recover. Believe me, in representing my Company, Consolidated Paper Corporation Limited — and telling our story of current relative success in safety, we are not here with our chests out. We've had set-backs before, and we know how insidious, how intangible, are the influences, the feelings and the pressures, that work to the detriment of an organization's safety quotient.

I propose to give you a brief history of safety work and results in our company to date. I suppose the next division of my paper could be called "Policies and Practices." Then will come a section outlining what we believe to be the reasons for our good position. To the title question "Is There An Easier Way" we hope to be able to offer suggestions, but would remind you now that anything fundamentally sound, good, and lasting, does not come easily, for that is not the way of the world.

Organized safety work started in our Belgo and Laurentide divisions about 1915

and 1916. Not many early records are left but we do have a sheet that shows 275 and 243 lost time accidents for Belgo in 1916 and 1917. Last year (1959) Belgo had one lost time accident. We do not pretend that the figures are strictly comparable. However our 1916-17 sheet on Belgo is very complete. It shows 30 and 33 winder accidents for those two years!

In the period 1927 to 1930, by which time Belgo and Laurentide had improved considerably, even dramatically, the Canada Power & Paper Corp., was formed with the same mills that today comprise the Consolidated Paper Corp., Limited. The appointment of a Director of Safety and the organization of a corporation-wide medical service made for much better results. A further systematizing of the handling of accident follow-up and prevention occurred on the Quebec Workmen's Compensation Act coming into force in 1931. We have continuous accident statistics since that date.

However, we do know that in 1929 our 433 lost time accidents gave a frequency rate of 40.3. Following 1929, great improvement was made but we should be careful to allow that the medical service and compensation follow-up made for better frequency rate figures. The safety department must not take credit for all the betterment in accident figures. A little later, I plan to show that one of the greatest mistakes a safety department can make is to "take credit."

In the period 1931 to 1938 our frequency rate varied between $\frac{1}{2}$ to $\frac{3}{4}$ of the continent-wide rate for our Industry. The Na-

tional Safety Council literature and congresses were and are our chief guide. The Quebec Pulp & Paper Safety Association, financed by the P. & P. Class of the Workmen's Compensation Board and formed in the early thirties, were, during this period (as they are now) sending their inspectors around our mills, checking up on physical hazards and urging us to make improvements. This was valuable help. Even more valuable was the determination, tenacity, courage, and persuasive powers of Harry Turner, then our director of safety. Mr. Turner died in January 1938. During the last six years of his regime the Corporation frequency rate varied between 13.92 and 6.72 — the average was 9.24 for the six years.

This average of 9.24 compares with the N.S.C. average of 17.84 for the same period, 1933-1938 inclusive. I mention this to show that safety was a real going concern in Consolidated long before I came into the picture. As a matter of fact, if Mr. Turner returned to us after 22 years, he would find almost unchanged, all the forms that he developed. He would find very little added to, or discarded from the ideas that he was pushing. There was an interval of nine months between Mr. Turner's death in January 1938 and my appointment as Director of Safety.

Incidentally, 1938 was one of our better years for those days — frequency 6.72.

My appointment seemed to be the signal to set off some extremely serious and even tragic accidents. Deaths, heavy disabilities and a rising frequency rate that eventually rose to 10.01 in 1946. Of course the war, 1939 to 1945, presented us with a great many problems that involved manpower, the difficulty and at times the impossibility of attaining acceptable maintenance standards, inability to buy new equipment and tools, and many other difficulties that could be expected to militate against good accident prevention performance.

As for the national accident results in industry, 1946 was also the turning point for our company. With minor fluctuations, we have been improving since that date. But I am a bit ahead of my story.

Considerable soul searching and honest assessing of our wartime and immediate post-war experience showed us that, detrimental as war conditions were to good ex-

perience, there was something else wrong. Safety effort was too much concentrated in the safety department.

Shortly after my appointment, George McKee, then our production manager, a fine and wise old man, told me "Julius, this job of Safety is too big for any one man or small group of men. Your job will not be done until every man in the corporation is trying to do it for you." *Every man in the corporation his own director of safety* — a fine ideal! How to go about reaching it, or even getting within measuring distance?

About 1942, an article appeared in the *National Safety News*. It gave us a lead. "We Fix Responsibilities" was written by H. O. Sprinkle, a superintendent of the Monongahela West Pennsylvania Public Service Corporation. I have never seen a finer piece of industrial safety instruction than that article. Its message applies to any situation where men are supervised. It is fundamental and timeless. We persuaded the National Safety Council to make the article available as a reprint. We bought hundreds of them. We made a translation into French and the Council produced the translation as a reprint for the benefit of their members in the Province of Quebec. This was an instance of outstanding service and co-operation on the part of the National Safety Council.

We divided the article into five chapters, and wrote a covering letter for each chapter. We called it a guided reading course and we covered all ranks of supervision. Each division manager wrote a letter to his supervisors explaining the object of the course and asking for careful study. Each man then received the article with covering letter for the first chapter. Letters for the remaining chapters went at weekly intervals. This scheme has been repeated so as to cover newer supervisors (each in his own language) since about 1945. We are at present using the course for supervisors appointed since 1956. Since the article is out of print at N.S.C., we, with permission, make reprints in our own plant.

One of the fine and true remarks made by Mr. Sprinkle is: "The prevention of accidents is the logical and inescapable result of good workmanship." That sentence has almost literally become our watchword and we are continually belaboring that point at safety meetings.

For some reason "Safety First," "Take no Chances," and such safety catch phrases carry little or no pride value, but "Good workmanship" is a matter for pride the world over. With good workmanship, you have many desirable results besides safety.

Another of Mr. Sprinkle's remarks has had a profound effect on our approach to safety work in the past several years. Here it is "—We found that nearly every man knew how to do his job better than he was doing it." This made us think — perhaps we should reach for their hearts rather than their minds. But I am ahead of my story again: We are listing some of the things we have done to improve our Safety results—*which means to improve our people.*

During the war years and immediately after, we did a great deal of training among superintendents and foremen using the J.I.T. and J.R.T. Courses. This interest in J.I.T. and J.R.T. continues but not at the somewhat intensive level of some years ago.

Since about 1943, a regular feature of our work has been the issuing at irregular intervals (about 4 or 5 per year) "Letters to Supervision." These go out from my office to all superintendents, foremen and leading hands in the corporation. They are safety news letters. Their format is extremely simple, merely "ditto" jobs. They keep all ranks of supervision informed regarding the score to date. They suggest useful safety activities. They are instructional and inspirational, and we believe the inspirational side is by far the most important.

Beginning about 1942 and up till about 1950 or 1951, we made considerable use of sound slide films and records. All foremen were given the N.S.C. "Safety in Foremanship" series of 12 programs. The Human Side of Safety (6 programs) was also used together with many other sound slide films for both foremen and the rank and file.

Some few years ago, the American Manufacturers' Association produced a very well printed sheet containing their "Ten Commandments of Safety." We were impressed by this effort. We made up a lecture and discussion course for foremen using these Safety Commandments as a base or framework. Two commandments per session made

a course of five one-hour sessions. All foremen were given this course.

This was a very simple and inexpensive scheme but it took basic and fundamental ideas from a well known and reliable source, slanting them to our own conditions and pointing out their truth in the light of our own experience.

We believe that, like the covering letters for our "We Fix Responsibilities" reading course, such a training scheme carries more impact than so-called "canned" programs such as movies, sound-slide, or even safety graphs. By the same token, we believe that the best visual education device is a blackboard with a well guided piece of chalk plus comments that are the product of considerable thought and preparation. The disadvantage of the latter approach to training is that thought and preparation are required. The tremendous advantages are its flexibility, it allows one to put in the local touch, it is personal, and it allows one to get beyond their minds and reach the men's hearts.

We are still listing the things we do to improve our safety performance, which means, (and I repeat again and again) *to improve our people*, their knowledge, their thinking, their attitude, the fundamental health of their minds and hearts. There is little or nothing new in what we do. The fundamentals of the requisites for good safety performance can be found in the Bible, and in many other ancient writings not to mention relatively modern, and modern works.

Listen to this from the pen of Ralph Waldo Emerson: "Now understand me well. Any fruition of success, no matter what, shall call forth something to make a greater effort necessary."

Shakespeare had a wonderful lesson or guide for safety men, or any other men when he wrote in a "Midsummer Night's Dream" — "our doubts are traitors and make us lose the good we oft might win, by fearing to attempt."

What do we do? Read almost any safety man's account of his "safety program" and what do we find? — safety meetings, competitions, good housekeeping, keep-the-boss-informed, good communications up and down, good tools, good guarding, floors-painting-lighting all the best, etc. etc. We

all know how to do it. Why such varying results? I submit that *those who succeed have reached their men's hearts*, and the converse applies.

Before leaving the "what do we do" section of this paper, I should mention our training department.

We have on head office staff, quite separate but parallel to myself, a director of training. Mr. Ladd has a full time training organizer on his staff at each division. The training department people write their own textbooks and prepare all their own material—process courses, spot training courses, courses in English and in French. When I say they do a fine and valuable job and leave it at that, it is because, being English, I am given to understatement.

Don't forget Mr. Sprinkle's remark: "The prevention of accidents is the logical and inescapable result of good workmanship." I believe it to be no accident that our relatively good safety record since 1952 coincides with the intensification of our in-company training activities.

Now, when you have a situation where one department does the work and another department gets the credit, then the latter department has a very pretty little set-up!

We mentioned that we would tell you something of results obtained. Here I must be careful. We are not chest thumping. We are very conscious of our failings, and we know that there is more than a modicum of truth in the quotation "Pride goeth before a fall." What success we have had is relative success. We still have accidents producing serious injuries and we are far from satisfied. However, we have won trophies and awards. I do not intend to bore you with a list of them, but perhaps the following facts might be mentioned:

In the 34 years of competing in the "Safest Mill in Canada" Contest — sponsored by the Pulp & Paper Magazine of Canada, our corporation's mills have won 12 times. Our Laurentide mill itself has won eight times. Our company has four pulp and paper divisions and we are competing in a contest among an average of about 40 mills in Class "A".

In 1953, our Wayagamack Division beat an 18-year record held by the St. Croix Paper Co. — Woodland, Maine, for North American record for newsprint manufac-

turers, with 3,197,801 man-hours without lost-time accident. In July of this year, our Laurentide division beat the Wayagamack record with over 3,300,000 man-hours. In 1959, our Belgo division with over 1½ million man-hours had one lost-time case. Our Port Alfred division, also with more than 1½ million man-hours per year, this summer completed over 365 days without reportable injury.

The Arthur Hoyt Scott Award was instituted in 1953. This, of course, is a contest for multi-plant paper companies with over 3 million man-hours per year. Our standing since 1953 has been as follows:

2nd - 1st (1954) - 3rd - 2nd - 4th - 2nd (1958) and 1959, who knows? Our corporation frequency rate was 1.5.

Returning to "Safest Mill in Canada" Contest, in 1958, we had three divisions in the first four places — last year, we had three divisions in the first five places, our Laurentide division taking 1st place both years, and also 1st place, Group "B" in the National Safety Council Paper Industry Contest, 1959.

If we dare be proud of these results it is only for two reasons — we are proud of good workmanship on the part of our men. We are proud of the great saving, in human values, due to accident prevention.

As I come to policies and practices, I find myself on difficult ground. These things are intangibles and some of the most important and effective are not written down. Again, company, or safety department policy and practice may be such-and-such but a tough superintendent or foreman will tend to give that policy or that practice a tough slant — the reverse of course applies. So we find that safety or any other endeavour is not practiced in the same way in all departments because of the difference in the character and personalities of supervision. I don't believe I am far off the track in saying that for a given group of men the most important intangible influencing their safety performance is the character, personality and ability of their direct supervisors. To that perhaps I should add that in safety work (but *not only* in safety work) the intangibles are far and away more important than the tangibles. This I suppose is what makes our work at times so baffling, frustrating, difficult, and fascinating.

But I digress again—we are talking about policies and practices—and when reading this (if they do) I can hear quite a few of our Consolidated people saying to themselves—there goes Draper; away off the beam as usual!

1) We, as a corporation, will do all that is reasonable and practical to ensure the safety of our people.

2) The safety department will work through line supervision, neither going over people's heads nor behind their backs.

3) When something goes wrong, all concerned will look for their own failures rather than concerning themselves with the faults or shortcomings of others. The ramifications of this item are considerable!

4) The safety department will keep watch over departmental injury trend by means of volume of first aid primary dressings, and act on variations from "normal."

5) When doubt exists, the injured party will receive all benefit of that doubt.

6) The safety department will keep all concerned, down to departmental level, informed regarding frequency and cost of accidents.

7) When accidents occur in other mills or other companies, action taken will be as if the accident had occurred in our own plant.

8) The safety department will not "know it all." When changes are required in a mill or department, get the responsible supervision to suggest the necessary changes. All we have to do is to get them to agree that something should be done.

9) The safety department will not lose touch with the rank and file employees. Have them in to safety meetings. Give them all possible information. Act on suggestions given by men or tell them why not.

10) "Discipline" in only the rarest of cases. Let mercy always temper justice. The seemingly obvious cause of accident is often not the real cause.

This list is far from complete. I should add that these policies and practices are somewhat idealistic. They are not in practice applied 100 per cent. Nothing human is 100 per cent. Perhaps this is as good a place as any to put in one of my pet theorems or formula or whatever it should be called. It poses a difficulty that I guess all

organizations who have gotten their accident rate to low figures run into:

"As the frequency rate gets lower, the incentive to accident prevention diminishes, whereas the lower the frequency rate becomes, the greater is the effort necessary to maintain that low rate."

I guess this is one of the things that will keep safety departments in business!

As for what we believe are the reasons for our relative success we can only tell you what we think. Perhaps first should come that we operate in the Province of Quebec. Does that sound queer? O.K. Then you tell me why the top 12 mills in the "Safest Mill in Canada Contest" 1959 were all in the Province of Quebec.

For the rest, I cannot do better than quote from part of the conclusion of my Annual Report for 1959:

"Others say we are successful. We prefer to say we have relative success, and much remains to be done. Why do we have such marked relative success? If we don't know the answer we are groping in the dark. Your writer is going to suggest some answers to this question, not necessarily in order of importance:

a) We believe we have a good psychological approach to our workers and therefore have, by and large, wonderful co-operation.

b) We have "general" safety meetings and keep the workers right in the picture.

c) We have a great deal of support and encouragement from the top men in the corporation.

d) We have a first class medical department with good industrial nurses at our mills.

e) We operate in Quebec and in fairly small towns. The rural French Canadian is a gentleman and a fine person to deal with. Our labor turnover is small.

f) Our managers, superintendents and foremen are behind all safety work and do a great deal on their own initiative.

g) We have led, rather than driven, our foremen into safety activities and have sold them and trained them. They do more and more for safety as the years go by.

h) We have staff direction on safety from head office. This has been shown to be good practice.

i) We have a good well-organized training department. Very valuable.

j) We have wasted no effort on the frills of safety but have stuck to fundamentals.

k) There may be quite a few other reasons. Your writer believes that the sum total of the above adds up to a better "safety quotient" than that of most other companies. We succeed because we are the kind of company we are. It all adds up to good men and good management from top to bottom."

Now — Is there an easier way? Perhaps not — but one thing is sure — if in the early days of organized safety, the safety men had concentrated on getting the job done by way of line supervision instead of trying to do the job themselves, no doubt progress would have been more rapid. This is probably unfair criticism, for their obstacles were tremendous. The human race seems to be past masters at learning the hard way. However, we do believe that there

is a great deal of wasted effort in safety work even today. There is a great deal of barking up wrong trees.

The Bible and other ancient writings have the answer. Shakespeare knew a thing or two about it. R. W. Emerson had it, all written down. The early morning sessions at National Safety Council Congresses — at least during the past 22 years — give us all the lead we need. Alfred Lateiner and H. W. Henrich have it all wrapped up. There is no really easy way. Neither are there any insurmountable obstacles.

There are many, many paths that lead to better safety results. *Anything that makes for better people makes for better safety.*

In a nutshell perhaps it could be stated:

The Golden Rule.

Attack on the broadest front possible.

Stick to fundamentals.

Fix responsibilities — especially remembering your own.

Hard work.

THE CONSERVATION OF HEARING IN THE PAPER INDUSTRY

By DR. ROGER B. MAAS

Employers Mutual Liability Insurance Company, Wausau, Wis.

The pulp and paper industry has made unusual progress in the promotion of hearing conservation objectives in the last five years. Your group has probably done more to save the hearing of employees working in noisy environments than any other group I can name. Unfortunately, the job isn't done.

We are most encouraged to hear of some of the notable engineering achievements which have resulted in significant reductions of noise in pulp and paper machinery itself. All of us know that we have noise trouble spots at suction rolls, pulp screens, slasher saws, drum barkers, chippers, high pressure air nozzles and vacuum pumps. Of course, if noise levels in excess of 85 decibels are hazardous we face similar problems in the converting end of our business.

I have learned that the redesigning of machines, for example a bag machine, has brought down noise levels as much as five to ten decibels. Another change that I have observed recently is the wearing of ear muffs by slasher saw operators in wood-rooms, a job requirement, to make sure that these men exposed to hazardous noise will not lose their hearing. The Canadian Pulp and Paper Association, Pacific Coast Association of Pulp and Paper Manufacturers, Engineering Section of the Technical Pulp and Paper Association, Kimberly Clark Company, Scott Paper Company and others have been aware of the noise problems and have done something about them; and I could add manufacturers of equipment. More engineering controls can certainly be expected.

In the very early days when we panicked over potential claim costs because of the threat of noise-induced deafness, your paper industry was one of the first to open its doors and to invite engineering specialists to make extensive noise level surveys so that more could be learned about this new hazard in order to determine methods which might control or reduce noise exposure and its effects on man.

It was the Pacific Coast Association of Pulp and Paper Manufacturers who pioneered a film in order to promote hearing protection, entitled "Ear Protection in Noise." If you have not seen this film, I would encourage you to do so.

However, with all of these laurels and the head start the paper industry has shown, there is still much to be done before we can say that the noise problem is licked and all workers are protected.

It must be remembered that pulp, paper, and woodworking employees probably experience one of the most hazardous noise exposures due to the high noise levels, the high frequency characteristics of the noise, and the steady or eight-hour exposure. Where noise is intermittent we have a more favorable condition. We have come to the conclusion that a man can take considerable doses of noise without damage to hearing if it is broken up or intermittent.

Probably one of the most discouraging aspects of a sound hearing conservation program is *personal hearing protection*, ear plugs and ear muffs; but for the most part, so far we have been unsuccessful in obtaining protection for the worker. Several weeks ago an occupational health nurse in a large paper mill, who built a reputation for herself in the State of Wisconsin for developing an outstanding employee health and safety program, told me, "I've given up trying to get our employees to wear ear plugs. I can't help but feel this is an impossible task."

This is certainly not the first time our staff has heard a remark like this. Conscientious nurse and safety personnel frequently think of their failure to achieve functional ear protection efforts as personal ineffectiveness. This attitude, of course, is wrong. Let's examine the problem of hearing protection and see what we are up against.

Actually, very few employees ever come to the first aid department and complain about noise, for the average worker accepts noise as a normal part of his occupation. Employees don't seem satisfied with or won't continue to wear protection unless noise levels are extremely high or annoying, even if they are told that with continued exposure some degree of deafness is inevitable. What do we care about something that is so remote as deafness and perhaps will never happen to us?

To do nothing or to allow initial efforts of protection to bog down and die, as we have been doing, is to allow this "sneak thief acoustic insult to the hearing mechanism" to destroy slowly but surely the delicate hearing nerves. Either we must find a way to achieve some degree of success in protecting human ears, as we have for other occupational hazards, or we may as well give up and concede that noise will be an added cost of production of articles made in noisy plants, or, even more important, allow workers to lose this sensory ability decibel by decibel, each day, each week, each year—which is inevitable, but which we know is unnecessary.

In order to understand better the problem of failure in obtaining successful ear protection, Employers Mutual Liability Insurance Company of Wisconsin recently completed a questionnaire study directed to 1,148 plants having sufficient noise exposure to warrant the wearing of hearing protection devices. A large number of these inquiries were directed to pulp and paper manufacturers. The information was obtained largely from occupational health nurses and safety engineers.

The net response should be of help in directing or redirecting our efforts in behalf of *successful*, functional hearing protection. Of special significance are the techniques or practical suggestions which describe successful hearing protection efforts. Here are the questions we asked and the answers.

1. How many plants having noise exposure sufficient to warrant hearing conservation control measures have had reasonable success in maintaining successful ear plug programs for a period of six months or more?

An analysis of the data indicates that very few noisy plants have had much suc-

cess with hearing protection efforts. The actual figure is 22½ per cent reporting success after a start of six months.

2. What are the primary reasons the use of ear protection has failed in plants where the promotion has been unsuccessful?

Seventy-five per cent of the respondents indicated that the programs failed because of *lack of management interest and support*. To try to summarize the full meaning of this by making a composite statement takes the real meaning out of the study. Therefore, I'd like to quote verbatim specific answers which help us to understand the apathy of management in the support of vigorous and successful efforts.

- a. Our management takes an ostrich attitude toward the noise problem.
- b. Management fails to sell employees on the need and value of ear protection.
- c. Management is afraid it will create an industrial relations problem particularly with wages and job placement, not to mention claims.
- d. No continuous follow-up by management because other matters are more pressing.
- e. We need a law to get management interested as they do not feel the problem exists until a law is passed.
- f. Lack of interest, reluctance of management support because of bad experience with other protective equipment briefly describes why our program has failed.
- g. Failure of management to follow through once a program is started.
- h. Complete lack of interest on the part of management as other problems are more pressing and need immediate attention while this problem has results or implications that are far in the future.
- i. Foremen and supervisors are discouraged because they think this is a "fruitless task."
- j. No single person has been assigned responsibility of seeing that the program is made to work. Too much it is assumed that ear protection will be worn, but what it really amounts to is, "What is everybody's business is nobody's business." Unfortunately, the importance of this new venture is really not understood; therefore, little can be expected in the way of results.

3. What are the major objections to the wearing of hearing protectors that you have heard first-hand from workers?

- a. Ear plugs are uncomfortable—85 per cent.
- b. Ear plugs are too much bother and get lost.
- c. Ear plugs are a nuisance and an inconvenience. Workers cannot hear the sounds of machines to check their operation properly.
- d. Ear plugs cause infection.
- e. Fear of placing an object or foreign body in the ear.
- f. Danger of not hearing signals or voices. (The noise is really not bothersome.)
- g. Ear plugs are an insult to a worker's manhood; I can't take it!
- h. Joking, or kidding of the fellows who wear muffs or plugs.
- i. There are no real complaints or objections once management decides it is good for the employees and pushes the program.

4. Do you feel that insert-type ear plugs can be worn throughout the working day with negligible discomfort to user?

Ninety per cent of the nurses and engineers answered "yes." Many of the respondents qualified their answer by stating that the plug must be fitted properly and that you cannot help but feel a little initial discomfort, which should be recognized and understood as the price one pays for protection.

5. In plants where insert ear plugs are available, have the employees been fitted by one individual who knows how, or have the employees been expected to fit themselves?

This question was answered about fifty-fifty, but 80 per cent of the respondents indicated that without question a nurse or doctor should be in on the program, and self fitting should always be discouraged. The nurses, when we have them, seem best qualified and most successful in obtaining acceptance to the wearing of hearing protection by their own personal counseling and direction.

6. If you have any experience with ear muffs, what is your opinion of the practical value of this type of protection?

There is a great deal of enthusiasm expressed for using this type of protection. In fact, it looks like the ear muff is "in."

- a. Ear muffs are very good. Ear muffs are easy to take off and put on like goggles. In many plants ear muffs are replacing ear plugs.
- b. Employees in one paper mill wouldn't operate a machine without wearing ear muffs.
- c. Ear muffs are excellent for operators on slasher saws in woodrooms. They should be compulsory.
- d. Ear muffs in a number of plants are accepted because it is mandatory, and once management takes the stand and explains the reason for the policy of compulsory wearing, it ceases to be a problem.
- e. Now that ear muffs are less expensive, approximately \$12 to \$15, they are perhaps even more economical in the long run than trying to replace the lost and forgotten ear plugs.
- f. Ear plugs are no good in paper machine rooms because they are too hot and uncomfortable. Ear muffs are successful because they eliminate the usual fitting problems and complaints.

The only serious objection to ear muffs is that other workers kid and joke with the wearer. Once this is eliminated and the fellows get used to the appearance, it ceases to be a problem.

7. What methods, techniques and gimmicks have you found most successful in promoting hearing protection?

- a. Supervision must sell employees on the need and value of hearing protection devices. When employees understand what the protective measure is for, it will be accepted because the employee realizes it is for his own good. Isn't this the approach we take with any protective device? Supervision needs to make itself an example in the wearing and promotion of hearing protection. How many times are we reminded of this when visitors in our industrial plants tell us how impressed they are when management requires the wearing of safety glasses on plant tours. It is symbolic of management's consideration for its workers and friends. Likewise, it should be pointed out that management provides hearing

protection because of its consideration for its employees.

- b. Personal demonstrations are effective. Show the employee the wearing of plugs makes a tremendous difference in obtaining comfort, and ask him to suddenly remove the plugs in front of his noisy machine or operation and note the difference.
- c. When the nurse or the doctor plays a part in the program, we have much greater success in maintaining hearing protection efforts. The fitting should be a prescription and the nurse or doctor can explain the why of protection and answer many questions frequently asked. Improper fitting has been one of the greatest causes of discouragement and failure in getting protection on the employee.

Physicians are now beginning to use the audiogram as a motivating device to urge the worker to wear protection faithfully, by noting high frequency loss so often discovered in routine preplacement and follow up audiometric measurements. The audiometric card is a visual tool that helps make the worker feel the importance of preserving his own personal record of hearing sensitivity, for this record tells him something about himself; and if protection is faithfully worn, further damage to the delicate hearing nerves can be prevented.

- d. Hearing protection should be emphasized to the new worker along with his other safety orientation, safety shoes, hats, etc. The wearing of plugs or ear muffs should be included in the job description and the worker told that this particular operation requires the wearing of protective equipment at all times. There is a rapidly growing trend toward mandatory hearing protection programs.
- e. Use the sound and sensible argument that employees will be more comfortable and hearing will be preserved if your hearing protection is worn.
- f. Management should let the employees in on what is going on. When they know it is for their own good, they will accept it; but supervision must set an example by wearing protection themselves whenever they enter a noisy area.
- g. A meeting with supervisors having the

nurse or another qualified person properly fit each supervisor and at the same time explain the occupational hazard and control principle. Also, explain that each individual must become accustomed to wearing the protective device the same as one must become accustomed to wearing eye glasses. Have each supervisor agree to give the plugs a fair trial, using them for short periods to start and gradually working up to longer periods until they can be worn for a full shift without discomfort. This method not only sells the supervisor on the value of protection but also convinces him that required use by the employee is not unreasonable. The fact that the supervisor is using the ear plugs himself will encourage the employees to "give them a fair try."

- h. The nurse and safety director must always be prepared to answer the usual objections such as "ear protectors hurt," "I can't hear when I wear ear protectors," "I can't tell whether the machine is running right," and many others, all of which can be answered successfully.
- i. You must have several types of approved protective devices, so if the employee finds one not to his liking, you can direct him to the use of a different type.
- j. Unless you have a mandatory program and make workers wear ear plugs just as you do safety glasses, respirators, hard hats, etc., you are bound to fail. And last,
- k. Keep at it, keep at it, keep at it. This is the only way and the way we have dealt with all other protective equipment which is now considered commonplace in our industrial environments. Is there anything different or more difficult in this new area that veteran safety men have not experienced all these years with other equipment?

A nurse in one plant which has succeeded in obtaining a 100 per cent hearing protection effort for over two years tells us why her program has been successful. "First of all, we had 100 per cent management interest and support. Then we took the time and effort to sincerely explain to each employee why it was so important for him to wear protection at all times. We fitted each man individually, showed him how to insert

the device in the ear canal, and lastly, sent a notice signed by the foreman to the man who forgot or neglected to use the equipment. It didn't take long for them to realize that we meant business. Now it is just taken for granted."

It is possible to establish the necessary effective controls and abide by them, just as we have done with countless other protective devices, thus assuring the worker that he can maintain normal hearing. It need not be a fruitless task.

Now let's take time to summarize some of the more recent research and practical experience, much of which has been obtained in the paper and pulp industry, which should help us in maintaining practical and realistic hearing conservation efforts.

1. There is every reason to believe that compensation loss governing noise-induced deafness will become more and more severe, resulting in increased claim costs. Each year our legislatures are faced with bills requesting more benefits. Regardless of laws or administrative rulings, hearing can be kept within safe limits by the establishment of sound hearing conservation programs.

2. Audiometric measurements are a must. In fact, if you have not started a pre-employment program of audiometric testing, you are losing valuable information each time a new employee is hired. Some paper mills I know have had audiograms on each new worker and in some cases annually at the time of periodical physical examinations for over ten years. Hearing measurement is not only one way of providing protection against claims, for we know that for every four new "hires" one comes to us with a substantial hearing loss, but we make available a device to keep an individual check on the ears of each worker. An audiogram properly made can "spot" a sensitive ear, and we obtain these warnings well in advance of damage to the critical speech range, which makes it possible for us to exercise controls.

3. In regard to the question, "What is hazardous noise?", it will no doubt be an impossibility to satisfactorily establish damage risk criteria that will help devise practical controls that will protect all workers. According to Doctor Carhart, Professor of Audiology, Northwestern University,

"All we can do is establish target goals to attempt to protect the most people we can; but we know from the onset that we can't possibly protect them all. There's too much difference among people. Also, there are many practical limitations imposed on the average industrial setting, which includes sufficiently trained personnel. The money necessary to employ them will impose a limiting factor on hearing conservation activity, but at least we can pinpoint the highest areas of exposure and start there; later we can go down the ladder to areas of less exposure."

Let's not worry about trying to protect everybody at once, but let's be certain we are doing something for the worker who is exposed to the greatest amount of noise. Perhaps we should change our system of arithmetic. If we can get 50 or 60 per cent of our men to accept ear protection, we can cut our exposure by over one-half.

4. In answer to the question "is it good to hire a person with a hearing loss?"—certainly, if he can perform the job. Dr. Aram Glorig, Director of Research, Sub-committee on Noise in Industry, recently stated, "I believe we can say with very little reservation that a person who already has a hearing loss is *not* more susceptible because he works in a noisy environment. I do not believe that the amount and type of hearing loss found in most industrial employees should deter management from placing these men in the usual noisy environments." Of course, with ear protection a man should be able to work almost anywhere.

5. Higher frequencies are potentially more harmful than lower frequencies. (We

know that higher frequencies predominate in the paper industry.)

6. We now know that noise-induced hearing loss results from years of exposure, and probably it would be rare indeed to find severe losses from exposures of less than eight to ten years; and most of this hearing loss occurs in the frequencies above 2,000 cycles, which is above the speech range. In other words, the ear appears to be tougher than we thought it was, at least in the critical speech range.

7. Noise-induced loss is *permanent*. Medical treatment will not help. Prevention constantly and consistently applied can be our only answer.

8. In studying the research on effects of noise on man, about all we can say for certainty is that noise destroys hearing sensitivity. Concerning the contribution of noise in loss in productivity, loss of efficiency, physiological changes, health hazards, and noise as a contributing hazard to safety, etc., little is really known.

9. Recent research, yet unpublished, leads us to believe that the greater portion of damage to the hearing mechanism occurs in the first 12 years of work, probably from years 20 through 30. When the final findings are published, it may lead us to put special emphasis on protective efforts during these beginning working years, which will lighten our supervisory and administrative responsibilities in seeing that protection is worn.

And finally, we are not engaged in an impossible task, if we keep at it, keep at it, keep at it!

THE SEVEN BASIC STEPS OF SAFETY (A Symposium)

(a) COMPANY POLICY

By ARTHUR CARLE

Safety Director, The Northwest Paper Co., Cloquet, Minn.

When Harris Williams asked me to participate in this panel, he assigned me the subject "Company Policy." I wrote Harris a letter back, accepting and advising that if I could educate myself first, I might be in a better position to know what I'm talking about. So after wading through a few chapters on company policy and stealing some stuff from the experts—here I am trying to tell you what I learned.

First of all, I learned that we should have a clear idea of what policy is. I found out that policy is a plan of action and that a plan is a policy. When we refer to policy, we mean a guide in making decisions. I then learned of three classifications of personnel management. One, management has no definite policies but has confidence that supervision will know enough to do what it is supposed to do. Two, management has some pretty definite ideas but has not spelled them out in writing, but hopes supervision understands them as well as management and will do what it is supposed to do. Finally, there is Utopia. Management has a thoroughly developed policy or plan of action—spelled out in writing and communicated down through supervision so everyone understands, with nothing left to chance—which will accomplish what it is supposed to do.

We can conclude from this that a policy or a plan of action must be written. It is of little use unless it is in writing and, of course, communicated down to supervision—down to employees so everyone, without question, knows what the policy is.

To put policy in writing there are three basics:

1. *The objectives*—what do you want to accomplish with the policy or the plan of action?

2. *The procedure* to attain the objective—spelling out the mechanics of the plan of action.

3. *Assignment of responsibility*—delegat-

ing the responsibility to see that the policy is effectively carried out.

So far we have found out that policy is a plan of action or guide to set forth principles for supervision and employees to follow. We learned that policy to be effective must be in writing and that we have to know what we want to accomplish with it. We follow this up with blueprint on how we want to make policy operative, and then to communicate the blueprint to levels of supervision and employees to see that it is carried out. These are the basics of policy and would apply whether the problem be hiring policy, vacation policy, safety policy, or what have you.

Now let us apply company policy as it would relate to safety. Management must first spell out that it is company policy to operate the plant or plants in such a way that will realize to the fullest extent possible the safety and welfare of the employees. This should be the prime objective. Now let us consider some examples of procedure to accomplish this. One item of company policy could be to provide to the fullest extent possible that the physical status of the plant comply with all safety code requirements on mechanical safeguarding. Another could be that personal protective equipment as may be required for safe performance on the job be furnished to and worn by employees. Safety could be incorporated under other policies such as employment policy—each applicant for work could be examined at the time of employment to determine employability on the basis of health.

Finally, we have assignment of responsibility. Naturally it follows that this responsibility would be delegated by top management to supervision to so enforce the policy that it is complied with at all levels. Safety supervision should cooperate to see that those policies that pertain to safety are carried out.

(b) GETTING COOPERATION

By RALPH MYERS

Safety Supervisor, The Mead Corporation, Chillicothe, Ohio

The word cooperation signifies working together. In modern language it is an effort of "togetherness" born of a commonly recognized need to accomplish a desired goal.

The efforts to prevent accidents in our plants will succeed in direct proportion to the cooperation obtained from all the people in the plant. One rotten apple may eventually spoil the whole bushel.

From whom must we get that spirit of togetherness in preventing accidents and what is the contribution of each group? The help of every employee is needed from the president of this company to the janitor who sweeps the floor.

We need the help of —

Top Management—to demonstrate by its attitude, actions, and stated company policy that it has a heart and a conscience, and is genuinely interested in the health, welfare, and paycheck of its employees and their families, even though occasionally there is no visible direct return on the dollar spent for accident prevention.

All levels of operating supervision—to accept the key responsibility for preventing accidents, train the employee and follow up to see that he is working safely; set a good example in safety and enforce fairly and impartially the safety rules and procedures.

The purchasing and engineering departments—to blueprint, specify, and buy machinery, equipment, and materials of good quality, safe to use, and properly guarded if guards are available.

The construction and maintenance departments—to install and maintain the buildings and machinery according to legal codes and accepted safe standards of plant layout and machine guarding.

The personnel and medical departments—to obtain the best and safest working employees available by interview, testing, and physical examination and to assign these employees according to physical and mental ability.

And last and most important of all, *the rank and file employee who performs the*

services or produces the product—to come into the plant mentally and physically alert, wear his protective equipment, follow accepted safe procedures, and above all to try to think a little.

When all these various elements of the working force are genuinely interested and working at the business of accident prevention, there spreads in any plant an enthusiasm and a safety contagion that is hard to resist.

Most certainly cooperation is best obtained from the employee on a volunteer basis. Occasionally, however, it must be sought by compulsion. This is particularly true in getting cooperation in wearing protective equipment. Ninety-five per cent of the employees will wear their hard hats and safety glasses when there is a recognized need and a good job of selling is done. The rule book of discipline must speak to the other 5 per cent.

Since most employees like to feel that they have a part in doing a job of value and one that is appreciated, the factors of recognition, participation, and sense of belonging are valuable tools to gain their cooperation. Recognition of a safety job well done on the bulletin boards or in the company magazine, membership on a safety committee, a part in housekeeping inspections, help in investigation of accidents, membership on a contest or banquet committee, recognition through such organizations as the Turtle and Wise Owl Clubs, a visit to a Safety Congress or banquet — these and dozens of other ways are instrumental in developing the general accident prevention climate in a plant to the point that the entire work force feels that it is separately and collectively a vital cog in the safety program.

One of the things that affords me the greatest satisfaction in this business is to pick up our plant publication and read a statement such as that made in a recent issue by a retiree in his farewell interview with his editor. His first statement was "During the 36 years I've worked here I've never been involved in a lost-time injury." When an employee has this degree of pride

in this phase of his work record, you are getting his cooperation. Would that this were the sentiment of every member of the work force!

I believe that it takes a long time to develop a genuine spirit of cooperation in accident prevention in a plant, but only a short time to destroy it.

(c) ACCIDENT PREVENTION AND ANALYSIS

By ALFRED B. BARNES

Safety Engineer, Fibreboard Paper Products Corp., Oakland, Calif.

There are many means of investigating accidents—individual, team or groups of independent investigators. The extent and scope of the investigation will vary with the means used, the type of accident and extent of injury. This is logical, but a more important determinant is honest application of the purpose of investigation.

Obviously if there is a system requiring reports of accidents, an investigation of some degree is necessary in order to fill in all the little blanks on the form. In some cases filling in all the little blanks seems to be an end in itself.

Then there is the "I've got to get off the hook" type. In this one the victim doesn't have a chance. The investigator first looks up the safety rules and then searches until he finds the "cause." There may have been a definite hazard involved and the victim didn't even know of the rule's existence let alone understand it, but on the report he violated a safety rule.

Of course, there is the "cover story," too. In this one, interviews will reveal every real, suspected or imaginary hazard within 150 feet of the accident scene and will document the time, date and circumstances of numerous previous reports of these hazards. When it comes to describing the circumstances of the accident, there are 150 versions or a complete lack of eye witnesses. That is, until the buzz sessions start.

We really know the purpose of investigation, but let's repeat it. The primary purpose of investigating accidents is to find the causes, to find the corrective steps necessary and to prevent the same type of accident from recurring. In making the investigation the who, what, where, when and how are relatively simple to determine, but the *why* often gives us fits. Unfortunately it is the *why* that gives us the most valuable answers.

We must find the immediate causes—the broken step or missing guard; the contributing causes—the dropped load because it was too heavy or the poor fit of the guard; find the steps to prevent recurrence—replace step or guard; lighter loads.

The two primary requisites for good investigation are open-mindedness and promptness. The quotation Carman Fish uses at the head of his column in the *National Safety News* each month is an excellent statement for investigation—"Nothing human is alien to me." If you have had to investigate many accidents you will firmly believe this. You will also realize that you cannot have preconceived notions of the cause or causes if you really want to find the real "why."

Promptness is essential to obtaining accurate facts. Memory fades with time and the human mind deplores vagueness so that it is quite common for the mind to fill in missing details with quite honest intent. The more logical the story, the better, but all accidents don't follow a logical story. Too long a delay in the investigation allows too much time for busy minds.

Where accident investigation is concerned with a single accident injury case and is primarily directed toward solving an individual problem, the data yielded can give valuable help in the total accident prevention effort. This plus of investigation is a strong reason for investigating all accidents. In our modern safety programs we can hope at least that the lost-time injuries are really few in number. In this case we will truly be attempting to solve only isolated problems. If we develop a good source of information from many investigation reports we can find patterns, problem areas, operations or positions. Stripped of all the mumbo-jumbo of

causes, classifications and dissection listed in the manuals, this is the function of accident analysis.

In brief summary, accident investigation

and analysis are real tools to help you find the only possible benefit from an accident. We must learn preventive measures for every accident and these tools provide the means.

(d) RECORDS AND STATISTICS

By ROSS E. SCOTT

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Toronto, Ontario

What can you say about "Records and Statistics" that might be illuminating and of sufficient general appeal to hold the attention of such a well-informed and alert group?

I talked this matter over with my brother, and he readily agreed to join me in a little test. We journeyed to a golf course the following week-end to conduct an experiment. During the first nine holes we kept the score cards in our pockets. We played the entire first half of the course without recording a stroke. On the back nine we changed our technique. From the tenth hole on we recorded everything that occurred to us. Whether we sliced or hooked, number of sand traps played into, putts, numbers of irons used on each hole, and even the frequency of our expletives!

In the locker room after the game we compared notes. You can guess the conclusions we drew—which were:

- 1) It is necessary to maintain records to retain interest, and
- 2) Over-recording becomes a nuisance and is actually pointless.

It is much the same in any sport. Very few people are interested in whether or not Willie Mays hits a pitcher's first throw more frequently than any other batter in the league or that Johnny Unitas throws more 19-yard passes than any other specific distance. Nor is there any tangible reason for keeping such statistics.

I recall, years ago, when delegated the responsibility for the safety program, it seemed to me that more statistics would be an asset in the control of accidents. Accordingly, I set up records on everything conceivable. I had information on the age of people injured, time of day or night the accident occurred, education of the individ-

ual concerned. We could even tell a superintendent whether his married people were suffering more injuries than his single workers. I am sure we had records that no one ever kept before or since. After about two years my boss called me into his office and, in a most diplomatic manner, inquired how many injuries had been prevented and what benefits had accrued from my voluminous records. I got the point and we immediately reduced our record-keeping to sensible proportions which permitted us some free time for accident prevention activities.

Certainly, some records are required, if only to be able to tell your boss the frequency is decreasing. There is excellent information available on this subject in the National Safety Council Accident Prevention Manual for Industrial Operations, Chapters 9 and 10. Anyone setting up records at this time, or wishing to review his present system could do no better than study this in detail.

Probably, the greatest advantage to be gained from maintaining accurate records is from knowing what type of accidents are happening and where. What would be the point in conducting an intensive educational program in an area, or on occupations, remarkably free of injuries? Obviously, the answer is "none!" Through the maintenance of good records and statistics, many situations and conditions adversely affecting your overall program can be detected and corrected.

In conclusion I can only say that, in my opinion, records and statistics are an important and essential step in the "Seven Basic Steps of Safety" but, *please* refrain from making the same mistake I did—over-recording.

(e) TRAINING

By HARRY J. HAHN

Safety Coordinator, Hammermill Paper Co.
Erie, Pa.

The importance of safety training is quite clear to all of us. Proper knowledge and skill to do a job safely are essential to any business operation. No business can survive indefinitely if such training is not provided.

Training means teaching or instructing and is essentially selling; selling attitudes, knowledge, ideas, skills and appreciation.

Those responsible for the training of others must do a proper job of instructing. They must acquire the fundamentals of the art through study and practice to be effective and efficient in training people to remember how to work and live safely.

Safety instructions must guide the thinking and actions of employees to secure their desire to avoid injury to themselves and fellow workers. Most people have the native ability to strive for knowledge but the instructor must show them why they need safety training; why it is important to them.

Be enthusiastic. Plan your presentations beforehand and be sure you have something to sell. Arouse interest, explain, illustrate, discuss, demonstrate. Teach by eye as well as by ear.

Take it easy—one point at a time.

Repeat ideas but keep them from being monotonous and boring.

Have worker try what it taught. Test him. Correct errors immediately. Be sure he can perform safely.

Remember perfection is not always possible at first but progress is a must. Some things can be taught in one lesson, however, many things are easier to learn the wrong way.

Faultfinding can hurt your cause because it is negative. Harping on unsafe methods causes workers to dislike safety. Be generous with your compliments because they stimulate good results. Let employees know that improvement is expected and they will produce proper results. Take into consideration the imperfections and frailties of humans; i.e., their lack of judgment, lack of consideration for others, resistance to change, troubled minds, laziness, ignorance and lack of interest in work. Build around human nature.

Teach workers to relax their bodies, their muscles, but to keep their minds alert. Tenseness leads to accidents. An alert mind and relaxed body are a winning combination.

Use visual aids to add interest and to stimulate thought. Show employees the machine or hazard or a skilled worker performing the job the safe way. Eighty per cent of our knowledge is gained through the eye and retained 55 per cent longer.

If we see we learn more than what is taught by words, but the two combined make impressions more effective. You can use models, photographs, charts, diagrams, motion pictures, filmstrips.

Show why—arouse interest. Coach employees and then check them to be sure they can do the job safely. Recheck them as frequently as necessary to be sure. Leave every employee with a clear picture of how to live and work safely.

Safety is for the employee and it must be by the employee, but continuous training by supervision is needed to secure individual, voluntary acceptance of safety through proper attitudes.

(f) INSPECTIONS

By C. W. MATZINGER, JR.

Safety Director, International Paper Company, Southern Kraft Division,
Mobile, Alabama

To me, safety inspections are, in most instances, of little value if the line foremen and the rank and file employees are not trained in being safety conscious and always watchful of conditions or practices that may cause injury to themselves or others. We walk, sometimes hurriedly, through a department and make a list of *mechanical* things that *will* probably help to prevent injuries. We then say we have made a safety inspection. Check your list, or think back over some list you have prepared. Aren't most of them unsafe conditions and not unsafe practices?

The National Safety Council instruction cards separate a *mechanical* safety inspection (Card #333) from a safety inspection (Card #325).

I am not saying we don't have to have these mechanical safety (or as I am accused of at times, maintenance) inspections. You can never convince an employee that the company wants him to perform his job safely and not get hurt if nothing is done to correct an unsafe condition. Of course, these conditions do account for some of our accidents. I *am* saying, however, that we cannot *just* make inspections of unsafe conditions.

Before I go any farther, let me say that I feel a good inspection must be done in a lazy way. By this I mean that you should, at times, not appear to be making an inspection, and you should not hurry. Some of the best ideas for correcting an unsafe practice can be gotten while sitting in a smoking ring, apparently doing nothing but "shooting the bull" when, actually, you are observing

some operation that is going on. Listening to comments being made by employees can, at times, tell you more than you can see.

The foreman can make one of the best safety inspectors a department can get if he is truly interested in eliminating unsafe practices and unsafe conditions that may cause someone to get hurt. He is always in the department and can observe the hour-to-hour way that jobs are performed and not the way some employees will perform them while a planned inspection is being carried out.

Housekeeping is another most important safety item to look for on an inspection. This is the background of the cause or the direct cause of some injuries. A department may look fine on a planned inspection, but how much thought is given to the hour-to-hour housekeeping? How does the department look when they are having difficulties with some phase of operation? This is the time that everyone is rushed. If housekeeping is good only on "inspection day" then this is the place you will probably have an accident. Someone slipping on broke paper or falling over an uncoiled hose can be a nasty injury.

These comments are in no way intended to suggest that employees be spied on, but because many injuries are contributed to by human failure, it is my belief that we should concentrate our inspections on unsafe practices. We must get away from our inspections showing 9 out of 10 recommendations to be "correct an unsafe condition" of a mechanical nature. Based on our own statements, this type of inspection won't obtain the results we want.

(g) THE FOREMAN'S RESPONSIBILITY FOR PREVENTING ACCIDENTS

By JAMES M. PINKSTON, JR.
Personnel and Safety Supervisor
The Crossett Co., Crossett, Ark.

Let me suggest to you that, whether he likes it or not, a foreman is held responsible for the prevention of accidents in his department.

This is true, it seems to me, because existing laws, rules and ordinances require, in varying degrees, that places of employment, machinery and equipment be maintained in safe working condition; that accidents be reported; that adequate first-aid facilities be provided. The burden of responsibility for compliance with these requirements is fixed by law and it is fixed squarely on the shoulders of management.

Furthermore, the accepted moral obligation of an employer to his employees, to his employees' families, and, in fact, to society, requires that a reasonably safe working environment be maintained. This same obligation demands that consideration be given to adequate training and instruction of employees in safe working methods. Additionally, it requires that a systematic effort be made to eliminate, minimize and control the physical and mechanical hazards that have produced accidents or are likely to do so. The same effort to eliminate, minimize and control unsafe actions of persons is demanded.

In short, dependence for the prevention of accidents *must* and is placed largely on the management. And the term management is used in its broadest sense—that is, from the president to the foreman.

A foreman is in the front line of management; he is the on-the-spot representative of management who must lead and take the brunt of responsibility for both the good

and bad. He is responsible not only for scheduling, upkeep of machinery and the other necessary ingredients of profitable management. He is also responsible for his men—to see that they work productively, safely, and insofar as possible, happily. It seems, therefore, only logical that the foreman must be responsible for employees' safety training and the creation and maintenance of safe working conditions.

In short, the immediate supervisor or foreman has the greatest opportunity to control unsafe acts and to correct unsafe conditions of anyone on the management team. After all, the president or general manager can set policy that provides the broad terms under which a safety program can be carried out. But it is the front line foreman who must take the leadership in affecting the safety program. It is the foreman who must be constantly on the lookout for hazards and infractions of safety rules. He is the man who can get them corrected.

In a sense, the foreman must be his brother's keeper. After all, he knows more about his men and their working conditions than anyone else in the management set-up. And, of course, the foreman has and must have the authority to do something about unsafe acts and conditions that exist in his department.

In summation, I would say that the foreman has the responsibility for controlling unsafe acts and conditions, and thus accidents, in his department because he has the opportunity and authority to do so. The things that the foreman does to prevent accidents are the same things that he does for efficient production.

PAPER WINDING WITH SAFETY

By JOSEPH V. CALDERONE

Applications Department, Cameron Machine Co., Dover, N. J.

Manufacturers of winding equipment produce winders which have a variety of safety features to make the equipment as inherently safe as possible without encumbering the operation.

Safeguarding of the winders can be divided into two general areas: that which covers the guarding of power transmission parts, usually protected by conventional chain, belt and gear guards, and that which covers the operational area. Other aspects of winder safety which certainly should not be minimized are good housekeeping and maintenance, which are as important on winders as on any other mill equipment.

With respect to operational safeguarding there are several devices available. One of the most important is nip guards.

Nip guards range from the simple angle-iron frame-type covered with woven wire mesh or expanded metal, which are hinged-mounted on the winder's front beam, to the box-shaped type, which completely embraces the front section of the winder above the front beam. Generally this latter one is motor-driven and electrically interlocked so that the drive cannot be accelerated from the jog or thread speed, which is usually 50 to 60 feet per minute, until the guard is in place.

The type of nip guard that can be used varies with the particular operation and the conditions of the paper. Generally speaking, winders in operation on newsprint, catalogue stock, tissue and kraft can be more completely protected than winders on bonds, clay-coated papers and other fine papers. These papers require constant vigilance on the part of the crew to eliminate the formation of wrinkles or other roll defects by proper tension or spreader bar adjustment. To detect wrinkles the crew member must feel that surface of the rewinding roll with the palm of his hand, since wrinkles or corrugations are not always visible to the eye when the winder is running. Obviously, this requirement restricts the degree to which the nip can be guarded.

To anyone who has seen high-speed winders in operation, the importance of nip

guards is readily apparent. The in-running nip creates a condition which can be considered potentially the most dangerous, and in addition, this is the area in which the greatest part of the crew's time is spent. Another point which magnifies an already dangerous situation is the element of human reaction as related to the winder speed. Once the fingers or hand of a crew member are caught in the nip it is very difficult if not impossible to withdraw it or for any other crew members to give any assistance. Stopping of the winder in time, of course, would be impossible since the time element involved is a fraction of a second and winder stopping times, even under emergency stop conditions, range from 10 to 20 seconds.

Accidents associated with the nip of the winder indicate that more attention should be given to the proper guarding of in-running nip areas. Winders are being operated with the nip guards in the lowered position; in other cases, the nip guards have been removed from the winder or are in such disrepair that they are inoperable. In many instances, nip guards are not interlocked.

Regardless of the type, nip guards should be used. To insure that they are in position when the winder is in operation, they should be interlocked with the main drive. Even the simplest guard which may be six inches or eight inches high can, merely by its presence, serve as a reminder to the crew that care must be exercised when working in the vicinity of the nip. A further aid in this direction will be to paint the nip guard a bright red or orange color. Interlocks can be provided which are either electrical, pneumatic or mechanical depending on the nature of the drive used.

On the subject of drives, it is desirable to have the starting circuit so arranged that the drive cannot be actuated unless the rheostat is in the zero, or off, position. This is to prevent the winder from accelerating to a high speed, when the start pushbutton is actuated, in the event that the speed rheostat was inadvertently left at the high speed setting.

Idler rolls are another source of potential danger, especially in large high speed winders, if they are not stopped before the crew is ready to thread the winder. These idlers have a tremendous amount of energy stored in them by virtue of their weight and speed. If they are not stopped by some braking means they can continue to rotate for a considerable length of time. This time is normally greater than that required for the crew to put on a full roll in the unwind stand and start threading the web through the winder. This procedure requires that crew members come into close proximity to those idlers and consequently into close proximity with danger.

To eliminate the hazard, all mill type and large converting type winders should have means of stopping these idler rolls before any attempt is made to thread the sheet through. This can be accomplished by a manually actuated brake either mechanically or pneumatically operated. Another method is to have pneumatically operated brakes which operate in conjunction with the main drive motor. In this method, an extra contractor is provided in the main drive motor starting circuit, which controls a solenoid-operated pneumatic valve. The circuitry is so arranged that when the drive rheostat is put in the off position, or when the "off" pushbutton is actuated, the idler roll brakes are applied. When the rheostat is put in the run position, or when the "on" button is actuated, the idler roll brakes are released.

Riding rolls on many winders are powered by either hydraulic, electrical or pneumatic means and these riding rolls are equipped with a counterweight system for the riding rolls consisting of a cylindrical tube to which weights are applied for controlling the amount of riding roll pressure. In some instances when the riding roll counterweight element is in the extreme bottom position, the distance between it and another element such as an idler roll, tie bar or roll ejector cross member is only two or three inches.

One of the reasons that this factor becomes a point of danger is that in many instances the control console is so located that this portion of the winder is not visible to the operator. Another reason is that the crew may be inclined to relax their

caution since the winder will be shut down when the riding roll is motivated during the course of unloading the completed rolls and making preparation for starting a new set. Under these conditions a crew member threading the winder, or cleaning broke in this vicinity, can suffer very painful and disabling injuries if any part of his body becomes trapped between the counterweight tube and any other of the elements mentioned. This can occur, and has occurred, on winders.

There are devices which can be employed which will reduce or eliminate the hazard; and the most positive method is to incorporate a photo-electric cell which scans across the back of the winder and will prevent the riding roll from moving if the beam of light is broken. Another method is to locate a loud alarm signal in the danger area which will ring when the riding roll is motivated. A third method is to utilize a properly placed mirror so that the operator has a full view of the area involved. This last method, of course, depends on the operator's alertness and is not fool-proof, although it does offer some degree of safety.

Winders which are equipped with powered roll ejectors should have an interlock system which will prevent any motion of the roll ejector until the riding roll is in the full-elevated position and the rewind shaft bearings are in the extreme bottom position. Since the controls for the roll ejector are generally grouped with the other operating controls, there is always the possibility that the controls may be accidentally actuated. If there is no interlock and the roll ejector is put into operation when the machine is in motion, it can result in injury to some crew member, to say nothing of damage to the equipment.

A roll of paper weighing upwards of three or four thousand pounds, leaving the winder with a peripheral speed of, say, five or six thousand feet a minute is a serious threat to personnel in the vicinity. In addition, there are the broken fragments of the rewind bearings, or parts of the rewind shaft, which could inflict injury. Since the winder is always run with the rewind bearings engaged with the rewind shaft, the interlocking of the roll ejector with the rewind bearings will certainly eliminate this threat.

Shaft pullers and roll lowering tables are other sources of danger.

Shaft pullers can be as much as 20 feet long or longer, and since the operator's attention will be occupied in engaging the rewind shaft end with the shaft puller coupling, he may not be aware of any person in the vicinity who may have his hand in the path of the chain and/or chain sprockets. The best method of preventing accidents from this source is to completely enclose the top area of the shaft puller with an inverted "U" shaped guard.

Roll lowering tables, in many cases, are equipped with powered roll out arms which bridge the gap between the winder's front beam and the table itself when the table is in the raised position. A man pinned between the front beam and one of the roll out arms will be severely injured. Generally this area is in full view of the person operating the table and it would seem that this should eliminate the possibility of an accident. However, the danger exists and it is a real one. Here the employment of a pressure board interlocked with the driving medium of the roll out arms will greatly reduce or eliminate the possibility of accidents from this source.

The most desirable table top should be "diamond plate" or any other threaded design to reduce the possibility of slipping. In cases where the table top must be smooth to prevent marring or scuffing the outer layers of the rolls, it is suggested that crew members be instructed to wear rubber, or composition-soled shoes.

The general arrangement of a winder installation is also a factor to consider from the standpoint of safety. Layouts which encourage or permit traffic, such as fork lift trucks and personnel not connected with the winder operation, to pass in the vicinity of the winder can affect the safety of the operating crew. The element of danger here is the distraction caused by this traffic. Existing installations are limited in what can be done to eliminate traffic in the vicinity of the winder. However, in future planning a great deal of consideration should be given to this factor.

Another point which must be considered under this category is the safe handling of the rolls produced by the winders. In many instances the rolls are being transported

from the winders on flat bed hand trucks with no more than a loose wooden chuck or wedge to prevent the roll from falling off the truck. These trucks are usually towed along an aisle directly in front of a winder or several winders. A roll weighing a ton or more falling from a height of 18 inches to 24 inches off one of these trucks can seriously injure operating personnel especially if he is pinned between the roll and winder or any other object.

If this type truck must be used, then they should be provided with a concave top contoured to fit the particular roll diameters being handled.

A safe way of transporting rolls in front of winders is to use low steel trucks which run in tracks and are practically flush to the floor.

The location of the operator's console is also an important consideration. In some instances the console is so located that the operator has virtually no view of the front of the winder; in other cases the controls are so placed that the operator must face away from the winder. While it is very difficult and in some cases impossible to locate the control console so that the operator has an unobstructed view of the entire winder, the use of strategically placed mirrors will certainly go a long way in eliminating this deficiency.

Education — The safety education of winder crews and operators is one of the most powerful tools that can be employed to reduce winder accidents.

To borrow an adage used frequently in conjunction with automotive safety campaigns, "the best safety device is a careful driver"—so it is with winder operation, "the best safety device is a careful operator." Experience is often tagged the best teacher and since the nature of the winding operation varies from one mill to another along with the type of accidents incurred, from one mill to another, the basis for winder safety educational programs should be derived from the experience accrued by the safety department in conjunction with the particular operation. Of course, the experience of other safety groups, such as, state safety inspectors and also insurance company safety engineers should be incorporated in any safety training program.

The training program should also include familiarization on the function and operation of any safety device employed so that any sign of malfunction can be immediately reported. Close liaison is required between the safety department and the maintenance department so that any irregularity of the winder and/or safety devices is quickly resolved.

The winder accident rate of any installation will show a definite decline with the

institution of a comprehensive safety program encompassing the careful selection and use of safety devices and a good safety training schedule with conscientious follow-up on the part of supervisors. By this I mean that:

1. The guard or safety device must be properly applied.
2. It must be in operating order.
3. Its use must be enforced.

IS THERE A PRICE TAG ON SAFETY?

By KENNETH BOOBER
St. Regis Paper Co., Bucksport, Maine

Safety: What is it? Webster says that safety is the condition of being safe; "Freedom from danger or hazard. A keeping of one's self or others safe especially from danger of disease."

The last is the one that I like best. Let's look at it again—"a keeping of one's self or others safe especially from danger or disease," and with this in mind, let's proceed and see what it is that we are concerned with and what it is we are trying to be sold on. Let's treat safety as a commodity and see if we want it or not.

Of course today most of us are very cost conscious and the first thing we look at is the cost; so let's take a look at the price tag on safety.

First let's look at the company's side of the tag. Could you guess what the company spends annually in your plant for safety?

Would you like to venture a guess as to what the costs are for the Doctor, Nurse, First Aid Room and insurance premiums on the Workmen's Compensation?

How about the costs of the protection devices, the guards for machinery, belts, the non-skid paints?

What about the equipment for the employees—the goggles, safety helmets, rubber gloves, respirators, gas masks, and air breathing packs, warning signs, file handles? What about the safety shoes they make available?

Do you think this is all compelled? The insurance commission requires that each employee be covered with insurance, that the elevators be inspected. If there were a high disease rate coming out of the mill, or if there were some condition affecting the employee's health, they would step in and have it cleaned up.

But what about the rest of these things? Why do they spend the money on them?

Would you swap your year's pay for what it has cost them? Why do they do it? Don't you feel that the stockholders could use the money, or do you think that maybe the company is merely looking for a chance to spend a little extra money?

Why does the company spend this money? They aren't spending it. They are investing it. They know when they lay out money to make a safe worker that they are investing in production and that they are investing in the man.

You ask how? Well let's take Ray Lord for example. Ray is the construction foreman with 25 years experience with that type of work in the mill. The boss knows that when he and Ray sit down and go over the preliminary layout that Ray will take it from there.

The boss knows that the job will be done the way that he expects it to be and he won't be bothered with questions about small details every 10 minutes. You don't walk into the State Employment Office and say

you want a man with these qualifications and get accommodated.

Earl Johnson is a motor winder. Mac has worked with Earl enough so that he knows now that when he hands Earl a motor to rewind that it will be done the way he wants it. He doesn't have to stand and watch every move.

But what good would these men be to the company if they were out with an accident when they were needed. If a construction job came up and Ray was out with an injury or a motor blew and Earl had hurt himself and wasn't available, what good would those years of experience or hours of training be to the Company.

Through the years, the boss has built a team in the electrical department. Each in some small way makes the team click. But we can only function effectively as a team if each one of us will do his part and can be depended upon to do so; and that is why the company invests this money, to keep the team operating as such, so they can maintain their effectiveness as a unit.

Now that we have some idea as to the costs to the company and why, let's turn the price tag over and look at the cost to the workers. Would anyone like to venture a guess?

Look at your check stub for payroll deductions—bonds, union dues, income tax—but not one penny for safety so you feel pretty good, do you—nothing deducted for safety? But let's take a closer look at what it means to us if we pay the full price for safety.

Let's take some personal examples:

Now Carl Green got a sliver in his eye a while back. Suppose the eye had gone, would Carl be able to see that big buck jump, or those ducks sit in on that side of him?

Suppose it was late Sunday night and Lloyd Burr wanted to check a piece of machinery but figured that it was late and there was no one around so he wouldn't bother to tag it out. Someone started the motor and when Lloyd came home from the hospital, he held up his hand and said, "Look, Dear, no fingers." Do you know the price he would have to pay? Ask Lloyd if he gets any enjoyment from playing the piano?

Bill Goodspeed puts up a teeter-totter staging. The staging teeters, Bill totters, and when he comes home from the hospital he has a stiff knee.

Supposing Dan gets careless and opens a disconnect under load splattering his eyes with hot copper. Dan can't read the newspaper too well now, but do you know the real price he will pay for safety? Do you think he'll be cruising down the bay anymore enjoying the scenery?

Orville Shirley checks the brushes in the hydrafiner and gets his knuckles busted on a fan blade. Results—a stiff hand. Ask Orville how he'd like to play golf one-handed?

Suppose Mac changed drills in the press with the safety switch turned on. Someone wanted to ask him a question and stepped on the foot switch and the chuck key went into his thumb so the thumb joints were useless. What price does he pay? Ask Mac how he'll rock the hammer back on the old 30-30 this fall.

Suppose Reg Linscott goes out into the new bleach plant without his hard hat on and gets a brick on the head and gets an injury that causes him to lose his hearing. What price has he paid? Ask Reg what good a radio hobby is to a man who can't hear.

Accidents won't discriminate between the boss and the worker, they just wait for that careless moment and move in and deprive us of more than just a physical capacity, they deprive us of the very pleasures of life.

Look around you, you'll find men dragging around half sick. Too sick to work, too well to stay home. I've done it—so have you. Why? So we won't lose a day's pay. Look around the next repair Sunday. Such a man will be standing under the crane when it's moving a bull roll over his head. It doesn't make sense for a man to come in half sick so not to lose a day's pay—then lose his life! They do some foolish things that might cripple them forever.

Workman's Compensation pays us \$35 a week while we're layed up. While we're on the job for a full week we take home \$125. For a 10 week period we have lost \$900 in pay, but the cost could have gone higher. How high can this price go that we might have to pay for safety?

So you want to say safety is for the birds? Well O.K.—but

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If you don't want to wear your hard hat, that's O.K. but you'll have trouble getting the old Fedora on and off with a brick sticking out of your head—and you'll get used to the headaches in time. You don't want to wear your goggles—that's O.K. too, because they make some real nice plastic eyes now—look real natural with small blood vessels in them and everything; but remember, when a good looking girl walks by—you know, really stacked—you're going to miss a lot, and only do her half justice.

You don't have to wear your rubber gloves when you handle DeIon fuses or tong test. Don't worry about the burn and those blue marks. They can be covered by Tweedie, the undertaker, and formaldehyde will kill the smell of the burned flesh.

You don't have to lock it out and put on a hold tag. Never mind if you lose your fingers. You don't need buttons anyway—zippers have replaced them.

Don't worry about changing ceiling lamps without wearing your goggles. But I would recommend that you get a book on seeing-eye dog care as soon as possible and study it thoroughly while you are able to, because you are asking for one. They tell me that a white cane is standard equipment with the outfit.

You don't have to buy safety. You can pay the price in other ways—if you want to.

We are all aware of the misfortune of one of our fellow workers. It wasn't through an accident but he still was incapacitated for a long while. Where would you and I be if we had a serious accident and were laid up as long as he was? We saw where we would lose \$900 in just 10 weeks, but suppose we had the misfortune to be involved in a long, lost-time accident, what would happen? Our homes, our automobiles, and the very pleasures and luxuries of life that we had sacrificed for and gone without to get, would be taken from us for that one moment of carelessness.

Maybe we don't care about safety. Who is going to pay for this attitude? Who is going to suffer because we are careless or take the don't-give-a-damn attitude? The company pays a little because they will have lost the service of a trained worker; we must pay in pain and suffering. But who really has to pay? Who pays the most? Who

are the ones who surely pay? Our families—yours and mine.

Think of the bills—the children going without food and clothes—consider the possibilities of having the children deprived of a college education, or losing the home or family car.

Remember this: before you climb that ladder that is not properly footed, grind without your eye protection, work on equipment without first tagging it out, tong testing or handling Delon fuses without your rubber gloves, or do anything unsafe—if you don't give a damn about yourself, then consider your family.

Where does the responsibility for safety lie, with the company or with the workers? Is it the duty of Bobby, Mack or Everett to follow us around to see that we work safely? Haven't you seen that fellow step up to the emery wheel with a small grinding job to do and peek over his shoulder to see if any one is watching to see him grind without his goggles.

Who does he think he is putting something over on? It's his eyes! If he doesn't think enough of them to wear his eye protection, why should he expect his foreman to be responsible for them?

Safety is the responsibility of all concerned—the company and the workers. As workmen, we owe it to ourselves and our families to work safely—but, we also owe it to our fellow workers and it should be a reciprocal duty.

Let's take an example. Suppose I'm working on a light fixture in the basement and lay my screwdriver on the stairs while I have to get some material. Uppie walks up those stairs, sees it lying there and figures it isn't his, and lets it stay where it is. In a few minutes Oliva Jacques hurries down the stairs, steps on the screwdriver and goes off into orbit. Where does the fault lie? Who is to blame for this accident? Where did the responsibility lie? While you're finding the answer to that, also find the answer to who will pay Oliva, his fuel bill, buy the clothes, and feed his family while he is laid up.

We owe it to each other to know two things—artificial respiration and where the pressure points are to control bleeding.

Look at the fellow beside you. Take a good look. If you get belted or cut bad, are

you going to lie on the floor and die because he didn't care, or wouldn't get into the safety program?

Look again! Is that the fellow you are going to let lie there while you run for the doctor because you wouldn't put yourself out a little to learn artificial respiration or bleeding control?

You don't learn artificial respiration to save your own life, so you had better hope that the fellow working with you knows how to give it.

Remember, those first seconds are precious, maybe life itself. So learn to give artificial respiration and learn how to control the bleeding while someone else goes for help.

The worker who is with a crew that has trained first aid and safety men in it is very fortunate.

When you're working with someone like Orville or Russ you can feel some satisfaction that, if something does happen, at least you have some chance when it really counts—which is immediately.

I would like to reflect a moment on our attitude about safety. Why am I here today? Last night I worked 12-8. I have given up sleep to be here. I will have driven 14 miles and am here on my own time. You people are getting paid to listen to me talk, so don't feel too bad about it.

When I was informed that I was to handle this program for three months, the first thing I thought of was how can I get out of it. The wheels turned and I

had the solution, my work schedule was wrong, so I couldn't be here. I informed Ferdin and was told to drop it into my committee. I passed the buck to them and I was informed in good plain English what I could do. I could still have gotten out of it.

I began to think, "What kind of a damned fool am I to want to shirk the responsibility of safety. What if all folks had the same attitude? This would be no program at all. It might even cost me my life or I might have the responsibility of a fellow worker's life on my conscience because I wouldn't concern myself or put myself out a little. If I can't spare a few hours of my time and a little effort to devote to my fellow workers welfare, then I should be denied the privilege of working with them."

What I have tried to drive home is that if everyone can get some small contribution into the safety program, maybe present something in a little different light or on a different angle, he will be helping his fellow workers; but he also could be helping himself.

We all know that there is no enjoyment in working with an unsafe worker, or a person who isn't concerned with safety. Because a worker who isn't concerned with safety, isn't concerned with your welfare either.

If anyone sees me during the day, doing something unsafe, you will be doing me a big favor if you will first tap me on the shoulder and say, "Would you like to go duck hunting with me tomorrow, Boober?"

AN ASSOCIATION'S ASSISTANCE TO AN INDUSTRY'S SAFETY PROGRAM

By JEFFERSON D. KEITH
Safety Officer, American Pulpwood Association
New York, N. Y.

The American Pulpwood Association is a national association, with members from coast to coast. Membership consists of consumers and producers of pulpwood. Our consumer members represent approximately 80 per cent of total U. S. pulpwood con-

sumption. Our producer members account for almost three million cords of pulpwood.

The Association's program of activities is carried out through the New York office and four field offices which are in the charge of forest engineers. These are located in

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Portland, Maine—for the Northeast Region; Roanoke, Virginia—for the Appalachian Region; Sylacauga, Alabama—for the South; and Wausau, Wisconsin—for the Lake States and Western Region. In each region, we have technical committees made up of representatives of members working actively in their area. These committees meet two or three times each year.

In addition, we have a Washington Representative who keeps in close contact with legislative developments affecting our industry and also serves as a liaison with the government agencies with which we work.

The over-all activity of the Association falls into five major categories:

Technical. This program provides for exchange of ideas in better methods and machines for growing, harvesting, logging and utilizing pulpwood.

Industrial Forestry. Through this program, the Association encourages maximum utilization of mill and woods wastes; provides for exchanges of ideas on policies, techniques and management of company forest lands and forestry personnel; and provides for cooperation with conservation agencies as well as leadership and coordination in the formation of policies on national issues and legislation concerned with forestry matters.

Statistical. The Association makes available current details on receipts, consumption, and inventories of pulpwood. At the present time, through participation by non-member companies, our reports cover over 95 per cent of the total U. S. consumption.

Legal and Legislative. We keep members advised on legal and legislative matters affecting the pulpwood industry and when necessary present the consolidated viewpoint of the industry before committees of Congress and other governmental agencies.

Safety and Training. This program has been designed to help producers and foremen of pulpwood logging operations train labor safely.

Preliminary to reviewing the assistance APA provides to its members concerning safety, let us consider some of the problems we face in our program.

Statistics which show the complete, over-all accident picture in the pulpwood logging industry are non-existent. We know our record is not good, but we don't know the

important facts on this record, because reports that are available do not cover a major or even a significant portion of the pulpwood workers.

Early this year, the U. S. Department of Labor published a thorough analysis of accidents in the logging industry in 1955. Admittedly, these figures are old. Nevertheless, they are extremely revealing. If you haven't seen this report entitled "Work Injuries and Work-Injury Rates in Logging Operations," you should order it and study the facts which show that during the 10-year period between 1945 and 1955 these government studies seem to show that the pulpwood-logging accident frequency rate dropped a mere 7, from 76.2 to 75.5.

During this same period, the report states that the all-manufacturing injury frequency rate dropped 34 per cent, from 18.4 to 12.1. We cannot be sure what the picture would be today if a similar survey was conducted, using data, based on the 1959 record.

A major problem in approaching safety in our industry is the varying methods of operations throughout the country. In a few areas, the wood-consuming companies conduct their own logging operation, depending on independent operators for only a portion of their wood supply and thus can insist that certain precautions be exercised and can direct that woods workers attend safety and training sessions and obey established rules. This involves only 10 per cent of pulpwood consumed.

Mills in all other areas rely primarily upon independent producers to supply their pulpwood needs. In such a situation, there is little opportunity or obligation to emphasize the need for safe work habits.

In attempting to set up a national safety program, we run into other problems. The terrain in the various pulpwood-producing areas requires different types of equipment and presents varying working conditions and work habits.

Climatic conditions also make it necessary to consider each particular region in setting up a safety project. Where logging is a seasonal operation, there is always the problem of employee turnover. This, naturally, leads to a continuing need for an adequate, basic training program.

For various reasons, logging attracts different types of workers in the various re-

1960 National Safety Congress

gions. In some areas, the logger is quick to realize the need to work safely, and in other areas, he just cannot be sold on the benefits of a safety program. Such a variance in attitudes naturally requires a different approach.

Safety, in the woods, as anywhere else, requires salesmanship. If you don't get the opportunity to make your pitch, it is practically impossible to make the sale. This is also a problem which faces our industry. For many reasons, communication is so difficult with the men in the woods who cause the poor accident record. They are difficult to reach because many shift from one job-site to another daily and refuse to spend any of their working hours listening to a safety lecture. Other problems in setting up a safety program result from state laws which vary in their requirements throughout the industry.

Despite these obstacles, however, there is a tremendous need for an extended safety program at all levels. Slides will give an indication of some of the hazards and practices which lead to the high frequency rate in our industry. They also present very vividly the need that exists.

With our limited budget, it is not possible to do the job which should be done. Since we cannot cover the entire field, we attempt to have materials and services available to our members who request assistance. Through bi-monthly "Safety Guides," which we have just begun, members are advised regarding developments in the field of safety for the industry. Through this medium, we hope to pass along helpful ideas and suggestions which we receive from time to time.

One series of publications which has been very favorably received is our Training Guides and Workers Notebooks. These have been used in training sessions conducted by the Association, and also by individual producers and companies. They are available at cost to our members. The entire set costs only \$2.30 to non-members, while members get them at a discounted rate. Additional guides and notebooks are published periodically.

Our problem in using these has been to get this material into the hands of the proper people where they will receive the most beneficial use. We have a supply of posters

on hand designed specifically for the logging industry. They were created from suggestions of our members by the APA Staff, the National Safety Council, and Dill Poster Service. We have them printed in volume, and make them available to members at cost.

The Association maintains a safety film library. Whenever we become aware of a movie we feel is appropriate and useful in our program, it is procured and made available on a loan basis to members for use in company safety and training meetings. This service is quite popular, and most of the films travel quite widely.

At the request of any member, the Association's safety officer, usually accompanied by the area forest engineer, will observe logging operations and report the findings and make recommendations. In addition, the Association has on occasion arranged training conferences on a particular operation or in a given area when requested to do so.

Equipment manufacturers are anxious to do whatever they can to prevent their product from being used in a way to cause unnecessary accidents. The power saw manufacturers, especially, are active in this regard. They assist the Association in its program and in many cases have published handbooks of their own. Our engineers have aided them in the technical aspects of these booklets. On occasion, the Association has urged manufacturers to consider safety devices developed by some of our member company employees.

Occasionally, similar field trips or training conferences are conducted by insurance companies. The slides of the woods activities (shown earlier) resulted from such a trip. We feel that coordination of our efforts with those of the insurance companies will eliminate duplication. With so much to be done, there is no need for any wasted effort. Within recent months, we have been discussing ways in which we could cooperate in this field.

The various technical committee meetings provide a forum to consider safety problems on a regional basis. Many aspects of the safety problem, including cost of insurance, have been discussed thoroughly at these meetings by individuals who deal directly with pulpwood producers. The exchange of ideas at these meetings is very beneficial.

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forest engineers have initiated safety projects in their own areas. Three of the regions have developed what we call "Safety Flyers." They are designed to insert in an envelope, along with a check in payment for wood delivered to the mill. The message concerning safety is presented comically. These are currently being used by many of our producer and consumer members. They are sold at cost, and in each case, more than one printing has been necessary.

During the last two years, our forest engineer in the Northeast has arranged ten supervisory and safety training conferences. A typical program will include a keynote address by a mill representative, usually the woodlands manager, three or four discussions on maintenance and safe operation of various types of equipment by sales engineers from equipment manufacturers, discussion on various aspects of workmen's compensation laws and how the cost of insurance is affected by a poor accident record, with each conference being closed with a brainstorming session on a particular phase of safety.

These conferences have been held in all areas of the Northeast, providing an opportunity for many logging and forestry workers and their employers to meet together for a day to consider safety. Attendance at each conference has averaged between 80 and 100. The programs have been interesting and beneficial, and it is expected that this activity will be continued.

In addition to the conferences and safety flyers previously mentioned, the companies in the Northeast have developed a safety film fund for making and purchasing safety films, have an accident-reporting program, and have printed a loggers handbook, which is made available at 10 cents per copy. Companies desiring their own cover may order it. The films they have are in addition to those in the APA library in New York. These films are available to members in other regions, only if there is no need by a Northeast member. Some safety slide presentations, with recorded narration, have

been created in that area and have been extremely successful.

Although the accident-reporting program is not detailed, it serves the purpose intended. Participating companies are able to compare their record with others in the area. An interesting outgrowth of this activity was an analysis of the woods safety programs being followed by each participating mill. The analysis was made to determine the reasons for the great difference in accident frequency rates among companies in the same producing areas. As might be expected, the analysis showed that the lowest frequency belonged to the company doing the best job of selling safety. Facts developed in this study should be revealing to some of the companies.

During the past year, a statewide safety program in Florida has been considered. If this becomes a reality, companies with mills in that state would finance a program to be handled by a safety expert, under the direction of the New York office and a committee of representatives from supporting companies. Other states and areas are watching this development. If initiated, it could be the forerunner of similar projects in other states.

While the headquarters office of APA in New York develops and makes available to members data and information applicable to the industry generally, our engineers are relied upon to develop the field programs. Through visits with members and attendance at technical committee meetings, they maintain a continuous contact with the companies in their particular areas. They are familiar with the conditions and methods of operation. They know the desires of the members and what type of activity will best suit them, thus they can determine the best approach to a problem on a local basis.

The American Pulpwood Association will continue as it has in the past, to stress the needs of the industry at large, and assist any member or group of members who want to develop an active safety program that is adequate to meet their specific conditions.

SAFETY POSTERS FOR SOUTHERN WOODLAND HAZARDS

By A. R. BENTLEY

Safety and Training Coordinator, Bowaters Southern Paper Corp., Calhoun, Tenn.

Before I go any further, I must state emphatically that safety posters by themselves, in my opinion, have never made a job safer or prevented accidents. Putting it even more bluntly, from my experience, we don't get safety by putting up a bunch of safety posters.

However, in the next breath, I must say that appropriate safety posters have their place in well-run and well-organized accident prevention programs.

Safety posters help to carry and develop the safety message for supervisors and their workers, provided that message has already been put over and sold to these employees by hard working foremen, supervisors, and safety co-ordinators and directors with maximum cooperation from top-management.

To get Safety in my book, you have to have teamwork which uses safety posters as a lubricant or a catalyst in helping spread the safety message.

Let us examine some of the southern woodland hazards and the present day safety programs organized to combat these hazards. Since I am most familiar with the one used in our company, I will take it as my example. Then, after a full evaluation of the hazards and the problems involved, I will then look over the available safety posters and see how they fill the bill.

Present day safety programs in southern woodland operations may be divided into two parts: (A) Safety programs designed for company employees engaged in forestry work or working on company owned wood yards and company transportation of pulpwood from forest to mill. (B) Safety programs designed for the independent pulpwood producer (as he is called in the South) who is engaged in manufacturing the trees into pulpwood and hauling it to the yard or mill.

Let us first examine a woods safety program designed for company employees. In general, we believe the primary job we have

to do in any safety program is to cultivate a safe working attitude among our workers. This is the old story of trying to make the worker safety conscious. To do this, you have to make the foreman or supervisor safety conscious. The foreman has to recognize that safety is a part of supervision and thus safety is a part of his job. The foreman is also in a unique position, being the supervisor closest to the job, he can spot trouble before it happens and by correcting it, he can prevent accidents and injuries.

In any safety program, management also has a responsibility. As superintendents, woods managers, and safety officers, we have a big job to do in getting behind our foremen and workers, and encouraging them in safe working practices and providing where possible safer working conditions.

No safety program is complete without regular safety meetings. On the local level, they are invaluable in bringing the message directly to woods supervisors, foremen, and company workers. It also helps to make them conscious that they are running the safety program for their workers and that they have a safety responsibility towards their men.

On all company operations, safety inspections are necessary from time to time to keep a close watch on operating procedures and provide and maintain safe and efficient operations.

These inspections are conducted by district personnel; usually a team consisting of a forester, foreman, and a permanent employee make a complete district inspection three days prior to the safety meeting. We believe that operating personnel should make these inspections rather than the safety officer as the information collected is for the direct benefit of employees in the district. However, the primary responsibility for district safety inspections and following up the recommendation remains in the hands of the safety officer, as does the overall direction of the safety program.

Prompt reporting of accidents is essential to a good safety program, and we encourage this as much as possible, even to long distance calls and telegrams in cases of auto accidents and all serious accidents. We require supervisors reports on all injuries as well as the regular insurance forms. All serious accidents are personally investigated by the safety officer in order to develop methods for correction and possible discipline.

We insist upon prompt treatment of all injuries no matter how small, either by first aid administered by the foreman or treatment by qualified doctors. We provide first aid kits in all strategic locations. Along with this, we encourage injured workers to return to the job as soon as possible.

All employees whether salaried or hourly, permanent or temporary, must have a physical examination by a qualified doctor before hiring.

We encourage the wearing of safety equipment in their proper locations: Hard hats, leggings, hard toe shoes, gloves, goggles, safety belts, life jackets, tractor cabs, first aid kits and fire extinguishers.

We believe that the keeping of adequate records is essential to a good safety program.

The computation of frequencies and the analysis of accidents is also necessary to point out where future improvement is possible.

Of the total man hours needed to produce one ton of paper (newsprint), the mill operation takes 42 per cent. The company woods operations takes 16 per cent of the total man hours worked, and the independent producers take 45 per cent of the total man hours worked. It has also been conservatively estimated that for every man working in the mill, there are 10 men working in the woods at different times. Although all these figures are of themselves only estimates, based on the assumption that the average producer's production is 1.5 cords per man day, nevertheless, it can be said that the man hours worked in the woods are close to the man hours worked in the mill and for every worker in the mill, there are approximately 10 in the woods. This is because, as a whole, most pulpwood producers work intermittently and are tied to other occupations.

This gives us some idea of the number of independent pulpwood producers working in the southern woodlands, and the size and scope of a safety program for these people and its importance to the industry.

A safety program for independent pulpwood producers has other problems as well as size or number involved. The average pulpwood producer is a part time farmer as well, completely independent, who doesn't take kindly to advice or direction from anyone, especially from foresters or representatives of paper companies.

To complicate the situation further, there was a case in court in Alabama a few years ago which decided that if company representatives guided or instructed pulpwood producers in safe operating procedures while they worked, the pulpwood producer would no longer be considered an independent pulpwood producer, but an employee of that company. This decision has prevented any direct contact by the companies with their producers and has complicated any safety approach or program for the producers.

Notwithstanding the difficulties involved, pulpwood producers will have to be introduced to safety sooner or later and we are trying to make it on a voluntary basis.

Presently the state of Florida has eliminated most of the exemptions in the workmen's compensation act. Now workmen's compensation insurance in that state is costing 36 cents per cord to insure woods workers. This is being paid presently by the wood dealers. However, workmen's compensation costs have a habit of going up. For example, Florida producers were first insured at somewhere around 16 cents per cord and it has jumped to 36 cents in three years. Everyone knows that the only way to prevent these costs from skyrocketing and becoming a burden on production is through a well-run, well-organized safety program.

One approach to contacting producers was a series of four safety and training conferences put on by the American Pulpwood Association in Lincoln, Maine; Tupperlake, N. Y.; Glen Falls, N. Y.; and North Conway, N. H. Although these conferences were conducted in the North, it is only a matter of time when they will be carried on throughout the South. Already the A.P.A. has a man scheduled to work in Florida this year to help put on a safety program for pulpwood producers.

Another approach was tried out on the Pacific coast in February of this year at the University of Washington. Here 83 contract loggers were exposed to an intensive 4-day session on safety and from all reports, the meeting was a great success. I am sure that this approach will be tried out on other sections of the country and possibly in Florida this fall.

As I stated in the beginning, posters are no good without a safety program to go along with them, so I felt that it was necessary to give you some background into the safety programs before we discuss the posters. As I have explained previously, safety posters in company safety programs for company employees carry the safety message to these employees and help the foreman and supervisors get the message over.

In the case of the independent pulpwood producer, safety posters may be the one way to get a safety message across to these people. Therefore, good safety posters can play an invaluable part in bringing the safety message to the woods worker. I admit it is only a start, but a start must be made. Posters for independent pulpwood producers or company employees working in the woods should have the following points:

1. They should be attractive and with eye appeal.
2. They should have a good safety message.
3. The message should be topical and attempt to correct a local unsafe act or condition that the company employee or producer might meet in everyday work.
4. They should be on stiff board or cardboard so that they can stand a little weather.
5. They should be cheap (5 cents or 10 cents apiece is plenty) and one color is all that is necessary. By keeping them cheap and plentiful, they can be changed often.
6. They should cover the major safety hazards that occur in Southern logging or Southern silviculture or forest management.

Now let us list the southern woodland hazards that affect the company employee and pulpwood producers.

DISTRIBUTION OF SOUTHERN WOODLAND HAZARDS

(A) Independent Pulpwood Producers	Percentage	(B) Company Employees	Percentage
Cuts & bruises axe, saw, pickeroon, small tools & equip.	31		34
Struck by falling or flying objects (head, trunk, feet)	26		6
Lifting (Strained backs, etc.)	14		4
Falls of person (stump holes, machinery, etc.)	7		9
Caught in or between (fingers, legs, hands, etc.)	5		16
Foreign body (in eyes, ears, etc.)	3		16
Vehicles (Collisions, breakage, etc.)	10		5
Insect Bites (snake bite, poison ivy, etc.)	1		5
Miscellaneous	3		5
	100		100

(A) Based on estimates made by Certified Pulpwood Dealers Self-Insurance Fund.

(B) Based on figures collected by Hiwassee Land Company.

Now let us list the jobs performed by the pulpwood producers and company employees in the South: 1. felling; 2. bucking; 3. skidding; 4. loading; 5. hauling; 6. unloading; 7. storage; 8. loading, trucks, rack cars, barges, etc.; 9. transportation — men and equipment; 10. fire fighting; 11. tree planting; 12. hardwood control, including (a) air spraying (b) mist blowing (c) root raking and (d) girdling, and basal spraying; 13. boundary marking; 14. timber marking; 15. maintenance and repair shops; 16. road construction; 17. general construction — buildings, bridges, yards, etc.; 18. timber cruising and land examination; 19. cone collecting; 20. nursery practice; 21. scaling wood; 22. lumber production; 23. chip manufacturing plants and 24. office and administration.

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B) Company
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I think you can see from this list the number and variety of jobs in southern woodlands performed by people whose livelihood is principally obtained from pulpwood production.

Now with all this for background, let us look at the available safety posters and see how they fill the bill.

The first group of posters we will examine are those published by the National Safety Council. Generally speaking, these are good posters on many different subjects, colorful, and eye-catching with a good safety message.

However, there are some objections. Generally there are not enough good posters devoted to all the woods hazards and conditions. Those that pertain to woods conditions feature conditions prevalent in other sections of the country with axes, saws, machinery not generally used in the South. The most recent drive of the N.S.C. which features safety off the job is somewhat inappropriate when we haven't yet figured out how to get safety on the job to our producers. Lastly, these posters are not cheap enough for the widespread distribution and changing that is necessary.

In the National Safety Council Logging Poster sets we have attractive, eye-appealing posters, featuring Paul Bunyan, pointing out safety tips.

Unfortunately, Paul Bunyan is not a hero of southern logging. The safety tips that Paul is pointing out are largely Northern or West coast conditions, featuring large timber and heavy machinery not generally found in the South.

Lumberman's Safety Association safety posters include some excellent hard-hitting safety posters with good eye appeal and a good safety message. However, they are produced for the people they hope to reach—namely, the lumberjacks of Eastern Canada. The safety message is in both English and French and they are slanted for Canadian conditions with the problems of snow and ice, and other typical Canadian or Eastern conditions which we do not have in the South.

U. S. Forest Service safety posters are generally excellent and we have used several of them in our safety campaign. However, the posters were designed for people

who have a well-designed and organized safety program and are just a little bit too sophisticated for the average pulpwood producer.

Thom McAn safety posters are excellent posters to stimulate the wearing of safety shoes. They cover only one subject and the poster "I'm too Smart to Wear Safety Shoes" borders a bit on ridicule, and I would be a bit hesitant to exhibit it to the average producer.

There was an original set of safety posters put out by the American Pulpwood Assn., and I believe most of them are now out of print. They were good posters in their day but are largely out of date now since the advent of the power saw. Also, they were limited as to subject and they do not cover many of the unsafe acts and conditions found in Southern woodlands.

In the spring of this year, we ordered several hundreds of the A.P.A. safety grams and have distributed them out to our yards. In our opinion these safety grams are good and help get the message to our producers. We think they fill the six requirements for woods safety posters:

1. They have eye appeal; 2. They have a good safety message; 3. They contain messages covering local conditions; 4. They are given out with the producer's check so don't have to be permanent material; 5. They are cheap enough so that plenty can be distributed around, and 6. Although they do not cover all the woodland hazards, such as eye injuries, slips and falls, insect bites, etc., we feel they cover a lot more than just the hard hat or hard toe shoe program of other posters.

We make up 8½ x 11 posters based on the A.P.A. safety grams and feel that these posters plus the grams are filling the bill in introducing our producers to safety in the woods.

In conclusion, I want to say that the criticisms and comments that I have made on the various groups of posters were made with the hope that we can develop better posters for woodland conditions.

There is a vast field for safety improvement in the independent pulpwood producer operations and I believe good safety posters will play their part in bringing improved safety records to these operations.

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A PHILOSOPHY OF GUARDING

By OSCAR P. RUTLEDGE, JR.

Safety Supervisor, Pollock Paper Corp., Dallas, Texas

"I've been operating this business for 15 years and have made \$5 million, and no — — — safety engineer is going to come in now and try to tell me how to do things!"

This is probably familiar to each of you who have been in our profession for more than 10 years. It graphically represents the attitude or philosophy of management in many sections of the country toward safety, in the period preceding and immediately following the war.

But this situation has been with us for longer than just during the span of our professional experience. It was the growth philosophy of American industry in the early days. It expressed a brutally frank fact, but completely ignored the high cost paid in damaged equipment, wasted material and more seriously, wasted manpower. It expressed a firm conviction in the abundance of our resources, and a lack of concern for conservation of those resources, including manpower, and failed entirely to consider the possibility that waste of these resources might be leading to unnecessary expense and eventual government controlled conservation programs.

It was a philosophy based on the premise that production was paramount, and that any means to this end was justified. It was a period of unequalled prosperity, and little thought had been given to the cost of waste as it affected production.

But as our production curves went steadily upward and supply caught up with and passed demand in many manufactured items, competition became greater and those same management people began to search more closely for cost items that could be controlled and reduced to maintain profitable production operations. There they found the answer in a program of control of waste, elimination of needless expense of accidents and the resultant loss of equipment, material, and men, and the benefits of accident prevention programs to aid in controlling and eliminating these expenses. It became apparent that through proper use of safety, waste of our material resources and more important, waste of men and reduction of

insurance costs, offered a fertile field upon which to reap future profits. Here was the place to start.

The turnabout in management's philosophy first became noticeable through efforts to improve the equipment in use, adding refinements to reduce the hazards to workmen where possible, through re-design and modification of machines, design and installation of guards to protect the operators and helpers, and development of improvements for the benefit of our human resources.

As this attitude advanced, it became apparent that mechanical guards were not enough. Machines were protected against men, but there were still injuries. Somehow, the human element had also to be guarded, protected against the human inclination to evade, "shortcircuit," and make inoperable these mechanical guards.

So was evolved the second step in this "new" management philosophy of safety, that of training the human operators to live with, improve with, and progress with their mechanically improved tools. It became a basic concept of management philosophy that as machines improved and as the operators were required to superintend more complex and advanced equipment, a continual training program was indicated. Then, as the program developed, it soon was noticed that a constant retraining of operating personnel was required to keep them aware of operating procedures, and to enable experienced people to help in the training of new employees.

Thus developed the trained, the educated safety engineer, a man who could, through his knowledge of human behavior and engineering principles, help design machines and train employees for efficiency and the utmost in quantity and quality production while at the same time reducing or eliminating needless waste through job accidents.

A good safety engineer is a process engineer, tool engineer, design engineer, production engineer and manufacturing engineer, all combined. Of him it has been said "... his primary responsibilities revolve around his obligation to select for his em-

ployer the most efficient methods consistent with practical comfort and complete safety for the working man . . . the engineer must unconditionally refuse to allow the installation or specification of any working condition which would endanger the life or limb of a workman who exercises only ordinary care. In every case, the state of training of the least skilled operator who might be assigned to the process should be considered before approving a process."

With such a delegation of responsibility to the safety engineer, company or management policies should be such that safety can be designed and built into the job, rather than added as an afterthought in the form of a guard after the job has been put into operation. Safety engineering must try to anticipate potential hazards in new jobs and discover the hazards present in existing jobs. Although his prime responsibility is not that of building safety into the job by designing and installation of machines or equipment, he does serve as an important consultant during such development.

In order to effectively carry on a campaign for eliminating the hazard from the job, the safety engineer should form the constructive habit of frequently calling on representatives of the various engineering and service departments to find out what is new. Personnel of these departments should, in turn be encouraged to form the habit of saying, "Well, let's have the safety department in on this."

The safety department will be able to function best if individuals connected with the service departments get into the habit of coming to it for ideas and consultation. Furthermore, these departments will come to include safety as a basic factor in their thinking, not just an afterthought.

The safety department should operate as staff function and in an advisory and directional capacity. Immediate responsibility for safe operation of the plant should be in the hands of the supervisors.

"Building hazards out of the job" is the responsibility of the engineers.

MANAGEMENT, UNION, AND SAFETY

By ROBERT C. SMITH

Supervisor of Safety, Industrial Hygiene and Plant Protection,
Johns-Manville Products Corp., Waukegan, Ill.

Discussion Leader: O. B. Eustis, Mill Manager, Abitibi Corp., Alpena, Mich.:

Accidents are like sin, everyone is against them. On that point there is no disagreement between management and unions. Our discussion today will be devoted to ways and means by which management and unions can cooperate toward better safety and possibly toward clarifying some of the points of disagreement between the two groups insofar as accident prevention is concerned.

Unions have a responsibility to their members to work for better wages, job security and working conditions. Safety is certainly a very important part of job security and working conditions, and I am sure that wages are at best of only secondary interest to a man seriously injured in an industrial accident. Therefore, unions also have a responsibility for safety. This

responsibility cannot relieve management of its responsibility, but there should be some way in which the unions can supplement and aid management in accident prevention.

Any matter regarding management-union relations is apt to be a controversial one. In the audience there is probably a great variety of opinions ranging from the feeling that union participation is essential to safety, to the other extreme, the belief that unions do more harm than good in safety work. This panel does not propose to try to tell individual companies or unions how to run their business, nor does it presume that it will bring a new era of sweetness and light to industrial relations. We do believe that accident prevention is of such vital importance that we cannot afford the luxury of fighting among ourselves as to how it might be accomplished.

Therefore, starting with the accepted fact that safety is the inescapable responsibility of management, we propose to discuss ways that unions may use their capabilities and facilities to improve safety, and areas of co-operation between unions and management towards accident prevention. To start the discussion, each of the panel members will spend a few minutes giving his viewpoint on the matter. I do not expect that these viewpoints will all be in agreement. We do expect that they will provoke you into asking some questions which might shed some light on the subject.

Malcolm Trach, Mid-Western States Representative, I.W.A., Bemidji, Mich.:

First let me say that a safety program, wherever it may be practiced—in the factory, in the home or on the street—involves people; and if the program is to be a success we must show favorable results that are derived from such a program. What I mean by this is that oftentimes, or should we say practically every day, we are confronted with unsafe conditions or unsafe acts which are not being corrected. This of course tends to discourage safety committees from functioning well and properly, or even the individual from making corrections. We must show results.

Now let us talk about some of the things that can and should be done to bring favorable results, speaking mainly of working people and management. In the first place I do not believe that anyone can be opposed to practicing safety, be it union or management; but so often we are lax in showing our interest by not making the proper corrections.

Speaking for the union, we do not encourage our members to commit unsafe acts while working on the job any more than the father does his children in the home. We believe that there must be some sort of disciplinary action taken for deliberate unsafe acts, but we also feel that we should have something to say about what the penalty is going to be. This would tend to give the employees a feeling that they are a party to this program and would eliminate any possible chance of its being abused by management.

Speaking of management's responsibility in these programs, so often we hear it said by safety committees that they have ap-

proached their supervisors with an unsafe working condition and the supervisors have given satisfaction by saying they will correct this condition as soon as they can, only to find that six months or a year later it still has not been corrected. Or many times there is money involved if these corrections are to be made, and of course in these instances the supervisor will say that he has no authority to make this expenditure or that they can not afford to make the necessary correction. I feel in many of these cases management does overlook the importance of fulfilling its obligation to the safety program, and I know of nothing that will discourage a committee any more than repeatedly running into the situations mentioned above.

In conclusion my opinion regarding safety is simply this: I believe very strongly in safety programs and that there is great need for improvements along these lines, and I feel that the very best way to have a good functioning committee is to give them the assurances that action will be taken upon their advice.

H. R. Mesler, Jr., Director of Safety, The Ruberoid Co., South Bound Brook, N. J.:

The manufacturing of roofing material is a hazardous operation. Heat, fumes, and burns create problems which much be overcome. Dust, and its possible adverse influence on health, must be taken into consideration and any hazard corrected. Because the finished material is bulky, heavy, and difficult to handle, strains of various kinds may occur. In fact, the modern asphalt roofing plant consists of many different pieces of equipment, each presenting different safety problems which have had to be eliminated.

During my experience in the field of safety and in this industry, I have had the opportunity to observe both labor and management working closely together to provide the kind of accident-free operations that produced the best non-disabling accident injury record known to the roofing industry and the lowest five-year disabling accident frequency rate for the paper and pulp industry in the entire Middle West.

There is no doubt that management is cognizant of its responsibility to the worker, for it has done many things to protect him. Management is also ready and willing to

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adopt new methods, new practices, and any new ideas that will help reduce accidents and injuries to its workers. Sometimes it is difficult to overcome all of the hazards found in a given operation, but today the modern, well maintained, efficient, and safe operating plant has been successful in this endeavor.

Management must lead the way in accident prevention, but it must be a mutual endeavor of management and labor in order to be successful. Management can supply the accident prevention tools in the form of teaching aids, literature, protective equipment, guards, space, etc., and must actively support the safety program through all levels of supervision.

However, one of the principal problems confronting management today concerns unsafe acts by employees and here, I believe, the union can be of its greatest value in the safety field. The local union representatives are chosen leaders in the plants and the employees look to them for guidance and direction.

The union wanting to protect its workers from injury can find a fertile field here for teaching the employees the safe way in which to do the various jobs in the plant. The union can, through its close contact with the employees, control such things as horseplay, chance taking, carelessness. It can help mold the attitude of each employee toward his job and his personal safety. It can encourage adherence to safety rules and help enforce safe operating procedures. It can help maintain good housekeeping and sanitary conditions. It can also help management find and eliminate accident-causing conditions of all kinds.

In my opinion, we are our brothers' keepers and each of us, whether union or management, is required to do all in our power to prevent an injury not only to ourselves but to our fellow employees.

I know that effective accident control is a matter of top management concern. I have found, from my experience with various locals, that it is a concern of labor leaders everywhere. There is a need in the safety movement for both, and working together, a safer more accident-free environment can be ours.

Ted Linebaugh, Local No. 12-260, I.W.A., Alpena, Mich.:

I will try to outline what the members of local unions believe to be the two most effective means of leadership for an efficient and effective safety program in industry.

One is the employment of a full time safety director who is responsible to no one of less authority than a mill manager or factory superintendent.

Local union people feel that where responsibility for plant safety is an additional chore given to an employee holding some other job and title, though he may work very hard in the interest of safety his responsibilities and loyalty must be divided and the safety program he directs must be accordingly less effective. Further the workers with whom the part time safety director must deal may regard his efforts in a different light than they would the direction of a full time safety director carrying the title and authority of this trade and temper their cooperation accordingly.

The other plan local union members believe to be most effective is the safety committee composed of an equal number of representatives of management and representatives of the local union. The union people believe that an equal balance in this committee is necessary to secure effectiveness because of the difference of thought with which members of management and union members may approach a safety problem.

Unions feel that due to their training, members of management may think first of how much a safety corrective measure is going to cost in dollars. The union is likely to think first of what neglect of a safety corrective measure may cost in life or in suffering. I do not mean to infer that members of management are prone to be callous, or that unions are likely to make corrective safety demands that may break a company. I do believe that a safety committee composed of members devoted to both lines of thought does tend toward an efficient safety program that can be both effective and economical.

However, of the two plans, union people believe the full time safety director to be best, if it is possible to obtain a director so devoted and dedicated to the job that he is able to gain the full cooperation of management and also that of the union workers.

Charles J. Ford, State of Michigan Conciliator, Kalkaska, Mich.:

Safety is the responsibility of all parties, and not management alone.

Many companies take a dim view of labor participating in safety programs. I believe this is wrong. In union plants the unions have the bargaining rights on wages, hours and working conditions, and safety is part of working conditions. The union should have the right to discuss.

I am opposed to joint safety committees as such. From personal experience on safety committees, they accomplish little and usually hamper the foreman and committee in correcting unsafe conditions.

On safety rules I don't think they should be part of the contract but set up like shop rules with penalties defined. These rules and penalties should apply to all employees on all shifts, and should be discussed with the union committee.

The union should have the right to the grievance procedure on safety violations, the same as any other grievance in the plant.

Leonard Flicker, Director of Safety, Kaiser Industries, Oakland, Calif.:

The individual's point of view on hazards is very important. He knows best of all what is the unnecessary risk.

I suspect that if more employees raised questions about hazards before an accident occurs, fewer accidents would happen. The man on the job probably knows more about the hazards of his job than we so-called experts in safety.

Our problem in solving safety hazards is to gain the active support of all our employees in our safety program.

Sherman T. Marker, Safety Consultant, Marsh & McLennan, New York City:

As insurance carriers, we represent both management and labor in accident prevention activities.

I am more interested in safety from an accident loss control point of view. We want to stop all accidents—not just the injuries. It is our experience that managements are interested in stopping accidents. They recognize injuries and accidents as waste.

I would like to develop in a few moments two points.

1) We don't buy the concept of union-management safety committees. We will set up such committees if our clients insist, but we don't believe in them. In my 27 years of experience I have seen only two union-management safety committees that did a job. A typical committee spends about an hour and a half gabbing and nothing comes of it.

The place for union participation is at the shop meeting and safety inspection level. The top committee, which is the control group, should be composed of management only.

2) Presently management does whatever employee training is done. Maybe the union should do some training in safety. For example, why doesn't the union sponsor an off-the job safety program for employees. This would be a big help to employees in reducing accidents at home, on the highways and on vacations.

Questions From the Floor

Question: Should a man have the right to refuse to do a job which he considers to be unsafe?

Mr. Trach: He should do the job if he is ordered to do it, but should report it to his steward at the first opportunity.

Mr. Flicker: Most small companies have poor safety records. This means the employees are not trained in safe working habits. When we hire a new man we assume that he has poor safety habits and we train him before we put him to work.

Until we have the man trained we will have this question "is the job safe?" raised. Our experience is that most injured people did not recognize the unsafe act they committed or the unsafe condition that existed.

Question: With a union-directed safety committee, is it possible for the committee to obtain authority from the union membership to recommend disciplinary action for unsafe acts? How might this be done?

Mr. Mesler: In most of our plants we do not have union representation at the top committee. However, the views of the union are given consideration when they are presented to the top committee.

Mr. Linebaugh: I'm sure unions would go along with discipline—except for discharges.

Question: Should an official union safety representative report to the company unsafe

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acts by certain individuals which he has not been able to correct himself which might result in disciplinary action, such as a week off? Is his responsibility to protect the man's job, or to protect his life and lives of fellow union members?

Mr. Trach: The union man should report the unsafe act.

Mr. Marker: This is a symptom of a poor safety attitude in that there is too much emphasis on discipline. Look into the man's attitude. Why did he commit the unsafe act? Has he been properly trained? Did he understand what he was instructed?

Mr. Eustis: I saw a window washer at a hotel wash several windows in a row without attaching his safety belt to the rungs. In a case like this, discipline may be necessary.

Mr. Ford: Union officials cannot by their nature participate in laying a man off. They are elected and as such cannot antagonize union members. I feel management men must "turn in" employees who may then be disciplined.

Mr. Flicker: I agree with Mr. Ford. For example, I know of a man who lost a leg when a crane set a boulder on it. The man had been committing a series of unsafe acts for six months prior to the accident. He had been bawled out many times but finally was just ignored.

Question: There are many phases of our American way of life managed by a committee of some sort. Such as finance, research, rules, etc. Isn't safety important enough to have the benefit of the old saying, two or more heads are better than one?

Mr. Ford: There is too much friction between the union safety committee and the union bargaining committee. They use "safety" to gain other objectives. Shouldn't both of these committees be combined into one committee? Then employees would report unsafe conditions to the steward who would then report it to the one committee who would take it up with management.

Question: Presuming a union contract has no provision for mandatory wearing of personal protective equipment, such as eye and foot protection, toxic dust protection, how can its wearing be made mandatory if management will not buy the protection completely? They will buy respirators and goggles, but not shoes.

Mr. Ford: First let me say that safety rules, including the wearing of protective equipment, should not be a part of the labor contract. However, whenever a company requires that personal protective equipment be worn, such equipment should be furnished entirely by management.

Mr. Marker: I agree with Mr. Ford.

Mr. Flicker: I agree except for safety shoes. A man must wear shoes of some kind and should buy his own if they are required. Safety shoes are usually sold at cost.

Question: How would you, Mr. Marker, conduct a safety program if you did not have a safety committee?

Mr. Marker: We set up responsibilities for accident investigation, safe procedures, safety rules, training programs, etc. You don't need a union-management committee to do that.

Mr. Ford: Do you, Mr. Marker, think safety is subject to bargaining? Mr. Marker: Yes. Mr. Mesler: We have agreements on safety. Mr. Eustis: The National Labor Relations Board has ruled yes on this question.

Question: How does safety expense compare with injury claims?

Mr. Marker: The two items are difficult to compare because costs of injuries are composed of many items. The direct cost of injuries are easy to find, your medical expense and workman's compensation costs. However, the indirect costs of accidents are very high: time lost by fellow workers, material and equipment waste and damage, overtime cost; these are not easily calculated.

Question: Some union safety committees are criticized for too much emphasis on guards and equipment deficiencies, whereas it is known that unsafe acts are present, also, in most accidents. How can this criticism be awarded?

Mr. Trach: Unsafe acts are not as important as unsafe conditions.

Mr. Marker: Union safety committees were first recognized in the early stages of accident prevention. Insurance inspectors and state factory inspectors emphasized unsafe conditions in their reports. I would like to emphasize that good operating rules should be established and they should

include safety rules. Employees should participate in the formulation of safety rules, and then they will be more respectful of them.

Mr. Linebaugh: That is a good idea, but each plant should have a safety director to assist in formulating rules.

Mr. Flicker: We must review and review and review safety operating procedures. This is a most important phase of accident prevention.

Question: Contract seniority clauses usually list seniority, skill and ability as a basis for promotion. Should a man's safety record also be considered? Mr. Trach: Yes. Mr. Mesler: In our company we follow this procedure.

Mr. Flicker: A man may not be aware that he is having a lot of accidents. If you catch him early and talk over his accidents, you may prevent him from having a serious injury.

Mr. Trach: We have held back union men because of too many accidents.

Question: What should an employee do if he observed a superior working unsafely?

Mr. Linebaugh: He should report it to the safety director.

Mr. Mesler: In our plant, it is reported to the steward, who reports it to the bargaining committee.

Mr. Ford: A foreman is an employee and must obey the rules.

Mr. Trach: The union contributes to safety by reporting the unsafe act of a foreman to the union, whereas an employee might be afraid to tell the foreman directly.

Mr. Eustis: I'd like to summarize some of the discussion.

- 1) Unions want to be helpful in accident prevention programs.
- 2) Unions have good lines of communications for reporting breakdown of the accident prevention program.
- 3) In some plants, union safety committees make excellent contributions to the overall accident prevention program.
- 4) In order to have a good accident prevention program, we must keep the objectives of both union and management in mind.

ACCIDENT PREVENTION IN PULP MANUFACTURING

(a) IS OUR TAG-OUT PROCEDURE ADEQUATE?

By W. B. BALLINGER

Safety Coordinator, Brunswick Pulp and Paper Co., Brunswick, Ga.

The tag-out system, whether a "hold tag" or "lock-out" procedure, is one devised and initiated solely for the protection of employees. The system is only as effective as we are diligent in its enforcement.

For those who have adopted or are considering adoption of the American Safety Standard for Pulp and Paper Mills, the method is clearly stated in General Section I, paragraph 4 of sub-section 5: "Lock Outs. Devices shall be provided for locking out the source of power when work is being done on equipment." And then in paragraph 5 of sub-section 5 in the General Section:

"*Locking Out Practice.* Before maintenance, inspection, cleaning, adjusting, or servicing or equipment which requires the entering into or close contact with machinery or equipment, the power source shall be positively locked out and tagged."

In our company, we are working toward the general fulfillment of the aforementioned standard in so far as it is practical and possible for us to do so. The progress is slow, to be sure, but believing in its fundamental concepts we shall support the practices outlined in every way possible. Although we have not converted the tag

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to a lock out system as specified in the standards for the pulp and paper mills, a very close control is maintained over our "hold tag" system.

Over the years several revisions in our system and procedure have been necessary as fallacies became apparent.

No one system would probably apply to every need and situation that might arise, but I shall present our company hold tag system and procedure as one that has been successful in application.

Hold Tag System

The hold tag system has been devised and initiated solely for the protection of you as an employee. It should be as much a part of your normal job routine as any other tool; and, if properly carried out, should never cause unnecessary delays in getting equipment back in service.

The following different hold tags will be provided and they will be used as explained.

Green hold tags are for the maintenance department and will be carried and used by millwrights, welders, pipefitters, riggers, carpenters, and maintenance oilers.

Red hold tags are for the power department and will be carried and used by electricians, metermen, and power maintenance men.

Blue hold tags are for woodyard personnel and will be used by woodyard maintenance men, welders, and operators.

Yellow hold tags are for the use of all departmental operators and supervisors, other than the woodyard.

Brown hold tags are for the use of engineering personnel.

Tagging Procedure — In order to make sure the procedure is absolutely clear, several examples will be given. The sentences which follow the examples are the specific rules of the hold tag system.

(1) Assume any piece of equipment in any given department needs mechanical maintenance. The request for a mechanic could be initiated by any operator or department head. Since there might be a time delay, the mechanic should always check with the operator to make sure the equipment can be shut down at that particular

time. He, or the operator, should then call the shift electrician. When the electrician arrives, the mechanic should go with him and when the disconnect switch is properly opened, the mechanic and all other mechanics and helpers who will be working on the machinery or equipment which is down should place their properly signed and dated hold tags on the disconnect.

As each mechanic completes his portion of the job, he will remove his individual hold tag. For instance, if riggers are setting the equipment, they should remove their tags when they are completely finished and have removed all rigging from the work area. Before the last tag is removed, it will be the responsibility of that particular mechanic to see that the equipment or machinery is in proper operating condition and that all guards or protective devices have been replaced. Upon assuring himself that this has been done, he will then notify the operator, and either the operator or the mechanic will call the shift electrician to close the disconnect switch and energize the drive.

- a. Mechanic always notifies operator when shutting down equipment.
- b. Mechanic or operator calls electrician, but only after operator is notified of mechanic's intent.
- c. If a man is finished with his portion of the work, he immediately removes his tag.
- d. Last mechanic to remove tag is responsible for seeing that equipment is operable and that guards and protective devices have been replaced, insofar as possible.

(2) Assume in the above case that there was some work which the operator himself wanted to do on the down equipment, or that he wanted to witness the closing of the disconnect for some other reason. He would place his yellow tag on the switch along with the green ones of the maintenance men. When the mechanic notified him that the equipment was clear and could be started, it would be up to the operator to contact the shift electrician and remove his tag.

- e. If operator wishes to work on down equipment or determine time it is to be re-started, he must place tag on

switch and call electrician to close disconnect.

(3) If the equipment is to be down over more than one shift, then the mechanic should notify the operator, explain the situation, and remove his hold tag only when replaced by a yellow operator's tag. The operator then assumes the responsibility of seeing that a shift man works on the equipment or that the equipment is not operated. If during this second shift the equipment is repaired and can be operated, the shift mechanic will remove his tag and notify the operator. The operator will then remove his tag and call the electrician. This example clarifies these rules:

- f. No mechanic should leave the mill with one of his tags on a piece of equipment.
- g. If it is apparent that the equipment will not be repaired by his quitting time, he must notify the departmental operator and personally see an operator's tag placed before he removes his.
- h. The next mechanic will place his tag on the switch along with operator's.
- i. If operators change before the equipment is repaired, the first operator must see the second operator tag the switch before he removes his.
- j. When the equipment is ready, the usual procedure of notifying the operator and calling the shift electrician will be followed.

(4) It is absolutely necessary that all mechanics place their own tags and personally remove them. One might tell the other to remove his while he's at it, then if the switch is some distance off, he might see something (tool, etc.) in the machine he thinks he can remove before the equipment is energized. The odds are very great that nothing would happen; but it *could* be possible that the operator and electrician were near the switch and as soon as the first mechanic removed his and other(s') hold tags, the equipment could be started. The result could be a very serious injury or fatality to the mechanic(s) who asked that their tags be removed.

- k. All mechanics, helpers, and operators *personally* place and remove hold tags.

- l. To remove a tag for another is as much a violation as failure to tag.

(5) Every piece of equipment in the mill is subject to being tagged. Metermen tag valves and, of course, all mechanical equipment can be tagged. Under no circumstances must any piece of equipment be operated while it is tagged. Even if a wheelbarrow is tagged, the tag must be removed by the person placing it before the wheelbarrow can be operated. We all know that indiscriminate and careless use of the hold tag system will minimize its effectiveness. Ordinarily, when an entire department is down for a slowdown or any other reason and no work is to be done on any equipment, hold tags should not be used. However, if any work whatsoever is to be done on any equipment, and regardless if it is only a minor adjustment, that equipment must be properly tagged.

- m. No piece of equipment will be tagged unless absolutely necessary; but if any work including minor changes or adjustments is to be done, then that particular piece of equipment must be properly tagged.

For the protection of contractors and their employees working in the plant, the following procedure is followed.

Method of informing contractors working in mill as to safety rules and regulations which must be followed by their employees:

- 1. All contractors must register at the gate house when beginning job, furnishing guard with list of men who will be working in the mill.
- 2. Guard will notify engineering department when contractor moves in.
- 3. It will be engineering department's responsibility to see that the contractor or his representative receives a copy of the general safety rules and hold tag system.
- 4. The contractor or his representative will be taken to the first aid department and its facilities explained to him. The contractor will also make arrangements for a doctor's service in case of an emergency and also arrange that the nurse call this doctor when necessary.
- 5. Safety rules and regulations must be posted on a bulletin board at contractor's shack or pay office.

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taining general safety rules, the hold tag system, fire suppression instructions and other helpful information are also given to the contractor for distribution to each of their employees.

In closing I add this comment: a tag out or lock out system that is not closely supervised and rigidly enforced may be compared with a lethal weapon. Loosely controlled, its existence can be destructive.

(b) SAFETY PRECAUTION — PULP STORAGE FACILITIES

By GEORGE LaHUSEN

General Safety Supervisor, Crown Zellerbach Corporation, Portland, Ore.

(Delivered by Jack Robertson, Assistant General Safety Supervisor)

During the past few years, we have had our attention directed to a number of fatalities and asphyxiations that have occurred in the pulp and paper industry due to workmen entering stock chests, digesters and other types of enclosed containers.

Stock chests, bleach cells, digesters and similar equipment which have contained pulp, or materials used in the manufacture of pulp, have to be entered from time to time for the purpose of cleaning or repairs. Entering should be done only under the supervision of a competent man who is familiar with accident prevention regulations and first-aid measures.

Any mill in our industry that does not have personnel informed on the hazards of cleaning and repairing this type of equipment sooner or later will be faced with a serious injury or fatality. Work of this nature has been done for years without the seemingly slightest hazard and then, due to a series of events, the tank or stock chest becomes a death trap.

Let's review one case that caused the death of two workmen, involving a condensate tank with overflow line leading to the mill sewer.

The sulfite mill was shut down on the morning of August 30, for an eight-day shutdown period. The sulfite evaporators and recovery boilers were taken off the line at the same time.

On Tuesday, Sept. 2, two boiler repairmen were instructed to enter the sulfite evaporator condensate tank. This tank is approximately 12 feet high and 8 feet in diameter. The manhole opening on top is approximately 18 inches square. The repair job involved the removal and replacing of corroded bolts supporting the strong back

at the top of the tank. The bolts were removed on Sept. 2, after approximately three hours working time with no ill effects to the workmen.

On Friday morning, Sept. 5, the two workmen were instructed by the assistant superintendent of power to inspect the condensate tank for gas before entering in order to complete the repair work which had been started on Sept. 2. They reported that the only smell in the tank was a slight odor from the sulfite condensate and that they felt it would be safe to enter without any further protection.

Both men were last seen by two carpenters who were getting measurements for scaffolding work nearby. In the same vicinity, a welder who was engaged by an outside contractor to do repair work on an evaporator called out minutes later that there was gas below. He then ran down the walkway. The carpenter advised his partner that he would run down and secure gas masks for both of them.

In the meantime, the welder, upon reaching the ground, called out "they are dead." In the meantime, the carpenter standing by went to investigate the accident. He found them at the bottom of the ladder which extended from the top opening to the bottom, one of the deceased was lying on his side with his face free from the water and the other was in a three-quarter prone position with his head forward and also free of the water. The carpenter attempted to go into the tank without a mask. Although he reached within two feet of the bottom of the ladder, he had to return due to the gas condition. At the same time, his assistant arrived with four GI cannister type masks. He then put one on and secured a rope to

his waist and again attempted to get to the injured men, but had to return due to lack of oxygen.

At this point the power station shift engineer arrived at the top of the tank with a full face mask and a rope secured around his waist and entered the tank. He was overcome by the lack of oxygen on his way down the ladder and was pulled out by the carpenters. Then, they called down to a pipefitter to call the ambulance and he went to the Kraft superintendent's office nearby and got the Kraft mill shift foreman, who brought a full face, all purpose mask and entered the tank after attaching a rope to his waist. He was able to secure a rope around one of the injured men who was pulled out with the help of everyone present. This action was repeated and the other injured workman was pulled out in a similar manner. Artificial respiration was applied to both men.

In the meantime, the superintendent of power had been notified and the ambulance was called which arrived at approximately 9:08 a.m. Oxygen masks and resuscitators were applied immediately to the faces of the men along with artificial respiration.

A physician was called and upon arrival at the scene, examined the two men and gave them preliminary treatment. The yard crew riggers, under the direction of their foremen, lowered the injured workmen down in a Stokes stretcher. They were taken to a local hospital by ambulance with police escort. Both men subsequently died.

Following is the investigation as to how the accident occurred: The junior repairman had gone into the tank to run the bolts up through the strong back and the journeyman was on top of the tank and was going to place the washers and nuts on the bolts when he noticed his helper fall from the ladder to the bottom of the tank. He then called to the welder that his helper had fallen into the tank and that he was going in after him.

The welder came over to the opening of the tank and started to enter but he had to come out due to the gas condition. When he looked back into the tank, he saw that both men were laying on the bottom of the tank. He ran for help immediately.

Apparently, the lethal gases entered the tank through the overflow pipe at the top

of the tank. This pipe, which is four inches in diameter and extends approximately 45 feet vertically over the ground, is connected to the mill sewage system.

Recommendations were:

1) A four inch valve has been placed in the overflow line which goes directly to the sewer with two, one-half inch taps, one above the valve and the other several feet above the first one, so that water can be hooked into the lower connection making a positive seal between the valve and the tank.

2) All tanks will be purged before the starting of any work. Compressed air or air blowers will be used in order to supply fresh air continuously while men are working in a closed vessel.

3) Suitable masks, such as air line respirators, oxygen masks, or the chemox will be worn in gaseous or oxygen deficient atmospheres.

This example certainly points out the need for the oxygen content of the tank to be measured each time someone enters, and an adequate fresh air supply be provided while men are working in a closed vessel. Also, a training program for maintenance mechanics on the use of gas masks, particularly, the extent to which cannister type gas masks can be used where there is not enough oxygen to support life. There is a need for a life line on all individuals entering such vessels. You are all familiar with the precautions that should be taken, but often are forgotten.

Another case could have resulted in a fatality had it not been for the safety precautions and the correct first-aid measures used.

This was at the dump chest in our bleach plant, the entire top of the tank is covered and pipes enter the chest through the cover. A door was cut in the top of the chest in order for men to enter it and make repairs.

The leadman made certain that the helper was properly equipped with gas mask prior to entering the tank. In this case, a SO₂ mask was used.

The man entered the tank equipped with gas mask and life line. The leadman and bleacher's helper remained as attendants at the entrance to the tank. The leadman attended the life line.

The employee in the tank attempted to climb out but started to slip back as he

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reached the top. The leadman and bleacher-
man's helper realized that something was
wrong and pulled him out of the tank.

The leadman administered back pressure,
arm lift, artificial respiration.

The bleacherman's helper sent for the
nurse and a member of the safety depart-
ment, who immediately brought an Emerson
resuscitator.

The nurse and safety man revived the
employee by use of the resuscitator.

To prevent a recurrence, the pipes no
longer enter through the cover, but the
cover is slotted so it can be entirely re-
moved. Equipment is used to test the tank
to determine whether or not there is ade-
quate oxygen in the air to sustain life. Ad-
ditional precautions are taken by forcing
compressed air into the tank. A self-sustain-
ing Mine Safety Appliance Co. breathing
apparatus has replaced the gas mask.

Many of you probably wonder just what
happened in this particular case. The em-
ployee had entered this tank on many oc-
casions before, but due to a change in the
piping, the entrance to the tank was made
so small that it prohibited the proper amount
of air from entering the tank and the em-
ployee was suffering from lack of oxygen.
This clearly points out that it is important
to take all necessary safety precautions be-
fore entering the tanks, such as: proper gas
masks, life line, testing for oxygen, attend-
ant at the entrance and good knowledge of
first aid.

These are only two of many cases that
have come to our attention on which we
were able to get the complete story in visual
form.

Another case that came to our attention

was an explosion in a broken chest. The
chest was so constructed that there was no
vent on the side opposite the manhole. The
chest was being washed-up, preparatory to
repairing the agitators. The man washing
the chest requested that the agitators be
started and there was an explosion. We are
not sure of the cause of the explosion, but
think it may have been caused by a methane-
type gas generated by decomposition of the
stock and/or starch in the stock. The gas
was in some way ignited by the starting of
the agitator. The overflow from the chest
could also have contributed to gas genera-
tion during the shutdown in a similar situa-
tion to the case previously presented.

We have made considerable progress in
the last 10 years in reducing the number of
disabling injuries. Have we made the same
amount of progress in reducing fatalities? I
think if you review the statistics, you will
find that although the frequency rate since
1950 has gone down, the frequency rate for
fatals in 1959 is higher than it was 10
years ago.

If we can eliminate a fatal accident like
I have described today, we will certainly be
making progress. They are inexcusable. All
it takes is a little planning and the follow-
ing of prescribed rules and regulations.
There is no expenditure of large sums of
money for equipment changes. All of our
plants have compressed air and gas masks
that are adequate if used properly. Lack of
oxygen and the various types of sewer gases
in our plants are silent killers.

Let's live by our slogan "safety every-
where . . . all the time." We will be able to
eliminate a few more fatalities each year,
and help the industry reach its goal of
Frequency Zero.

(c) SODIUM CHLORATE HAZARDS

By R. E. BELL
The Crossett Co.
Crossett, Ark.

Sodium chlorate is used in the manufac-
turing of chlorine dioxide. The chlorine
dioxide is, of course, used in the bleaching
process of pulp. This particular chemical and
its problems are not too well known. My
purpose today is to discuss with you some

of the common problems associated with
the use of sodium chlorate.

To begin with, it would be well to review
the reasons sodium chlorate is hazardous.
Sodium chlorate is hazardous because it
liberates oxygen easily and at an explosive

rate when heated. Sodium chlorate forms explosive mixtures with sugar, charcoal, shellac, sulfur, starch, sawdust, dust, or other organic materials, and also with sulfuric acid, ammonium compounds, cyanides, phosphorous or antimony sulfide. They may be detonated and exploded by percussion or friction.

Since there have been some serious injuries due to ignorance or disregard of the hazards involved, personnel engaged in handling and storing chlorates must be thoroughly indoctrinated in the necessary precautions.

A special hazard of chlorates is that they may impregnate clothing, which can be easily ignited by heat or friction. If chlorates are spilled on the clothes, a change of freshly laundered clothing should be made at once. Even cloth apron strings and shoe laces must not be neglected.

From past history, it would seem that the safety problems are most likely to occur when handling or storing sodium chlorate.

Let me repeat again that personnel engaged in the handling of chlorates must be thoroughly familiar with the problems associated with this chemical. Clean work clothing must be worn each day and must be washed out at night. (CPM furnishes their personnel working with sodium chlorate with "Dyneel Chemical Clothing," and maintain this clothing). Clothing wet with chlorate solution should be washed with water at least three times before they are carried home.

No smoking should be permitted while working in sodium chlorate areas. Deluge showers should be provided in such areas. It is a good idea to have chlorate tanks, lines, and valves plainly marked with some

identifying coloring. Sodium chlorate, although a serious fire hazard, is not toxic unless ingested in large amounts.

The problem of storage of sodium chlorate is almost as extensive as handling this chemical. Sodium chlorate should not be stored close to flammable materials, reducing agents, acids, or other hazardous materials. Buildings used for storage of sodium chlorate should be of a fireproof construction with cement floors, metal catwalks, and the like. Wooden construction is to be avoided because of the dangerous combustibility of chlorate-impregnated wood.

The content of damaged and leaking containers should be transferred immediately to sound containers because of the fire hazard involved. If spillage occurs, the greater part of the material should be picked up for disposal. In general, sodium chlorate may be disposed of by sewerage a dilute aqueous solution, or, if this is not allowable under local regulations, by burying in an isolated location to be leached slowly from the soil. In disposing of the containers, the paper liners, if any, should be burned with care and the drums washed with water before putting them to any other use. Chlorate-contaminated wooden boxes should be burned.

Ventilation must be provided for operations which gives rise to appreciable quantities of fine sodium chlorate dust.

The ventilation system should discharge to water scrubber and should be designed for easy cleaning, preferably by rinsing with water. Frequent cleaning is advisable. Dust control is particularly important where motors are used, since mixtures of sodium chlorate with grease are violently explosive. Totally enclosed motors are recommended, but motors with outside bearings may be used if completely protected from chlorate.

(d) A DECADE OF PULP MILL SAFETY PROGRESS

By HARRIS K. WILLIAMS

Asst. Coordinator-Safety

Southern Kraft Div., International Paper Co., Mobile, Ala.

Between the years of 1949 and 1959, generally, there have been greater mechanical and technical advancements in pulp manufacturing than in any other department in

the paper mill. Keeping the safety program geared to these changes has been a tremendous task for our company, which I am sure, holds true for other companies also.

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Let's go back 10 years and list some of these advancements during this decade of pulp mill safety progress.

Late in 1949, most of the old rotary-type recoveries were retired and replaced with modern recovery boilers. Many of us recall the many hazards involved in the operation of the old units, such as burns from rodding out the spouts and fatalities resulting from explosions.

With the addition of new mills to the industry in the early 1950's came many improvements which were installed in the other mills during the next few years.

New equipment, such as the continuous caustic system, took the place of the old batch system, which is well remembered for its injury-causing blow-backs and eruptions.

Chip silos and chip conveyor systems slowly began to replace chip bins and the old chip hoppers.

Air wrenches for tightening down the digester caps became common.

Hydraulic aids began to be used to lift the digester caps and to raise and lower the chip chutes.

Hydraulic-operated blow valves replaced the manually-operated type. These aids prevented many back and muscle strains and painful burns.

We also saw the flat screens replaced with round screens. Pulp wood rack cars have replaced the box cars. All of these changes again showed favorable results in our safety records.

During the middle 1950's automatic liquor running and cooking systems were being installed, which added much to the safe operation of the digester rooms. In this period most of the diffusers were replaced by brown stock washers. Although this job is not yet completed, we can see much improvement safety-wise.

At one of our mills several years ago a hefty 240-pound diffuser dumper fell in a hole in the grating and was wedged there.

He could not pull himself out; and to make matters worse, the agitator blades were hitting his feet and legs each time they came around. His screams finally brought help, and he was pulled to safety without injury.

During the next few years we saw our first continuous digester installed. This unit had many safety devices never before used in the digester rooms. In some instances it seemed that we had safety devices on safety devices. Flumes began to take the place of the chain-type log haul conveyors, and again we noticed a reduction in the woodyard maintenance accidents.

In the late 50's more new mills were added to the industry without increasing the pulp mill frequency record. Again many new ideas and equipment were engineered into the process, and these developments will be evaluated and passed on to other mills.

We now see the venturi scrubbers taking the place of the precipitators. Underwater pulp wood storage is becoming quite popular and from our experience is much safer. Rubber belt conveyors are taking the place of some chain conveyors.

With all the afore-mentioned improvements, the industry has gone to what I might term "exotic bleaching processes," bringing with it many problems that have increased our exposure. In spite of this, the accident records in the pulp mills have improved each year.

In 1949 we reported 111 lost time accidents for 8 mills. In 1959 we reported 33 lost time accidents for 10 mills. This is not a good record; we are not proud of it because all of these 33 accidents could have been prevented. But in face of all the changes—some that helped us and some that added to our exposure—we had a 70.3 per cent improvement.

The problem is to keep our safety program in step with the mechanical and technical improvements, using all the tricks of our profession in the area of human failure.

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(e) IF WE HAVE A CHLORINE BREAK

By WILLIAM VAN HOUT

Health & Safety Coordinator, Kimberly Mill, Kimberly-Clark Corp., Kimberly, Wis.

The type of break we will speak about here would be one which may cause a great deal of chlorine liquid or gas to escape, creating a hazardous atmosphere and thus endangering mill personnel or community citizens.

Before talking about the break action, though, we should have to back up a bit and give you a picture of our chlorine layout and distribution system; and then maybe we should take time to give you a bit of information on chlorine itself.

Chlorine is a deadly poison in both the liquid or gaseous stage. We manufacture tons of liquid chlorine daily using sodium chloride (table salt) in water solution as the base material by means of an electrolysis process. Of this daily output the mill consumption in pulp bleaching and water filtration is tons, which then leaves tons for shipment to local and area water utilities and to other mills.

Commercial liquid chlorine is a clear amber fluid about $1\frac{1}{2}$ times heavier than water. One volume of liquid will expand to 460 volumes of gas. This, then, is where the extreme hazard lies. A liquid leak is many times greater than that of a gaseous leak.

Chlorine gas in high concentrations has a greenish yellow color, is about $2\frac{1}{2}$ times heavier than air, and therefore has a tendency to flow to the floor or seek its lowest level.

In the presence of moisture chlorine gas becomes very corrosive to most metals. Because of this corrosive action with moisture in the air, a small leak from a pipe, cylinder or tank will rapidly increase in size and thus become increasingly hazardous.

Chlorine has a very pungent and identifiable odor which is natural and not the result of an additive, such as is the case with L.P. and natural gases.

Chlorine is a powerful respiratory irritant and in sufficiently high concentration may cause death by its smothering action or stifling. Small leaks in enclosed spaces sometimes cause nausea and coughing, be-

cause workmen do not realize that it is impossible to become hardened to continued exposure. Chlorine has no cumulative effects and complete recovery occurs from mild exposure.

The gas is particularly irritating to persons afflicted with asthma and certain types of chronic bronchitis. Such persons should avoid exposure at all times.

Contact with skin or eyes will result in extreme irritation causing burning or pricking sensations, inflammation and blister formation. As with most chemicals in the event of accidental contact, immediate treatment calls for flushing of the affected body parts with lots of water. Milk may be given in mild cases as relief from throat irritation.

In more severe cases where a person is overcome, remove the patient from the area to a room at about 70°. Keep the patient warm and quiet. Rest is essential. Place the patient on his back, with head and back slightly elevated. It may be necessary to administer oxygen where breathing becomes difficult. Where breathing has stopped, start artificial respiration immediately.

Now, to get a little closer to the subject theme assigned, let's take a look at the mill layout. There are three areas where a serious leak could create an emergency situation:

1. At the chlorine plant
 - a. Storage tanks
 - b. Tank car loading dock
2. Mill pipe line
3. Sulphite bleachery and filter plant

To cope with this type of emergency we have seen fit to set up a manual of instruction and review, which spells out in detail:

1. Who is responsible for initiating action
2. What are these responsibilities
3. Plan of action
4. Training—This is the key to the entire plan and must be done on a regular and positive schedule: emergency crews twice annually in May and November, mill-wide in November each year.

5. Gas mask program—Inspection; replacement of cannisters on a tickler card system.

Emergency Situation—A serious leak or emergency situation can be defined as one that cannot be controlled by shutting off a valve or other simple means, and would have to be in connection with any container holding 500 pounds or more such as storage tanks, scale tanks, tank car surge tanks or cylinders.

The degree of seriousness in regard to mill and village would have to be determined by the chlorine supervisor.

Our pipe line system is arranged with a series of valves and available dry air so as to permit sniffling out or pulling chlorine back to the plant and into tanks there. Unless there is a complete severing of the pipe line, a minor leak can be controlled here.

Serious Chlorine Leak

1. Between the chlorine plant (liquefaction room) and No. 3 supercalender there is a special signal and telephone system. Also, there are gas masks available at the No. 3 supercalender for four helpers and one calender operator crew and at chlorine.
2. In an emergency, the chlorine operator will signal the No. 3 calender operator and, by telephone, either:
 - a. Alert him to stand by, or
 - b. Have him take immediate action to protect the paper mill from chlorine gas.

Note: If a fire occurs at same time as chlorine emergency, calender crew members who may also be fire brigade members will remain with chlorine emergency crew to carry out the emergency procedure.

The chlorine operator will also tell the supercalender operator the wind direction.

3. If the message is to stand by, the supercalender operator will:
 - a. Stand by the phone for further word; either take action or all clear (emergency over).
 - b. Notify the finishing, supercalender and sorting floor foremen.
 - c. Notify the machine room foreman (including stock room and coating plant).

4. If an action message is received, the supercalender operator will instruct his four helpers to spread the alarm as follows:

No. 3 calender operator stationed at chlorine telephone, remains at phone throughout emergency.

No. 1 two man crew route

1. Shut off four fans and close all doors that may be left open mezzanine floor—finishing department
2. Shut off girl's locker room fan
3. Materials and warehouse office
4. Locker room
5. Finishing room main floor
6. Finishing room tour foreman
7. Shops in basement of finishing room
8. Return to No. 3 super for further instruction

NOTE: Where people are encountered, order them to leave the area and to go to the main mill entrance.

No. 2 two man crew route

1. Shut windows and doors in building No. 38 leading to service department office at the end of building
2. Shut all doors in train shed
3. Warn people in rewinder area
- b. Return to No. 3 stack for further instructions

NOTE: Each man must be wearing gas mask harness ready to slip in face piece if gas is encountered.

If chlorine leak is serious emergency, all four men work in pairs.

No. 1 two-man crew

1. Notify supercalender tour foreman
2. Notify paper machine tour foreman that the chlorine leak is serious and that it may be necessary to shut down paper machines, stockroom and coating plant. Tour foremen and his crews will stand by ready for action. First two-man crew return to No. 3 supercalender stack for further instructions.
3. Notify pulp mill tour foreman

No. 2 two-man crew

4. Notify operator in sulphite bleachery
5. Notify operators in groundwood bleachery
6. Notify operator in turbine room

7. Notify operators in pipe shop
8. Notify people in restaurant
9. Notify paper mill office and people in industrial engineering office
10. Notify machine shop
11. Return to No. 3 supercalender stack for further instructions

NOTE: The above route outline is suggested to avoid duplication and confusion. It is a guide and may be altered to fit conditions as they may change during an emergency.

NOTE: Machine room warning is purposely left for last to delay the shutting down of machines as long as possible in the hope that they may continue operating. Shutting paper machine down is in the hands of the tour foreman and will be executed only on instruction from him.

Machine Room Plan

1. In the event of a serious chlorine leak, the machine room foreman may receive a stand-by or an action message from the No. 3 supercalender operator.
2. If the message is to stand by, the foreman should:
 - a. Be prepared to shut down fans.
 - b. Keep in close contact with the No. 3 supercalender operator.
 - c. Notify stock room and coating plant.
3. If an *all-clear* message is received, the emergency is over.
4. If the action message is received, the machine room foreman will:
 - a. Shut down necessary intake and exhaust fans. Shut down paper machines.
 - b. Take steps to get people out of the building.
 - c. Recheck areas (especially the basement) for people who didn't "get the word."

Specific Duties

1. Police department:
 - a. If the chief is not on duty at the time, he shall be immediately summoned to duty by patrol man working that shift. Chief is not to leave the area during the emergency.
 - b. He, along with special help from the mill, decides if evacuation is necessary and, if so, what areas to evacuate.

- c. Evacuate necessary people in accordance with plan previously set up.
- d. Assign fireman reporting to him as special police.
- e. Provide necessary road blocks so no unauthorized vehicles can enter the dangerous areas.
- f. If necessary, notify sheriff and highway police to help or stand by for call.
- g. Provide escort for vehicles from the mill to doctor's office or hospital.
- h. Decide, along with mill personnel, when the emergency is over and see that people are returned to their homes or classrooms, road blocks are removed, special police dismissed, etc.
- i. Make a complete written report listing all details of the emergency, procedures followed, problems encountered and suggested improvements to the plan.

2. Fire department:

- a. Those assigned to rescue work report to the scene of emergency and follow closely instructions that will be given by qualified mill personnel.
- b. Those not assigned to rescue work report to police chief for special police duties.
- c. Make a complete written report as to procedure followed, problems encountered and suggested improvements.

General Suggestions for Mill

1. Have someone from the mill who is qualified attend a joint meeting of village fire and police periodically to acquaint them with the basic ideas behind this program and the part they may be expected to play in it.
2. Thoroughly familiarize all as to pipelines, chlorine plant, etc. Acquaint with location and uses of emergency equipment available in the mill.
3. Develop a program to keep this information current as changes or additions are made.
4. If self-contained breathing apparatuses are required, three Chemox units are available at the mills: one in impreg plant, one in chlorine locker room, and one in mill fire chief's quarters. A self-

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contained unit, a Scott Air Pac and a double mask supplied air unit, is available on village fire department vehicles.

5. For emergency use of oxygen a pneophore unit (not portable) is available in the mill medical department. A portable unit is carried in the village police squad car.

Emergency Movement of Chlorine Tank Cars

If the chlorine plant supervisor decides that a chlorine tank car should be moved in an emergency to avert disaster, he will call Ext. 214 (head pulp handler) or inform entrance watchman to make the contact.

Emergency contacts made during regular switching hours (9:30 a.m. to 4:30 p.m.): the head pulp handler will take the two gas masks located in cupboard by materials handling desk, Ext. 214, and contact the C&NW switch crew. The gas masks will be given to the conductor and request made to move the car.

Emergency contacts made other than during regular switching hours: the head pulp handler will select one of his crew members to go along with him. They will put on the two gas masks, take two "badger car movers" (hand car jacks) and proceed to the chlorine plant to move the car. The distance car is to be moved will be determined by the chlorine plant if possible, otherwise good judgment must be used.

The chlorine department will be responsible to see that all piping is disconnected from the tank car or cars to be moved.

Copies of the above instructions will be framed under glass: one copy will be installed in the C&NW (switch crews) caboose, and the other copy will be installed on the gas mask locker near Ext. 214.

Sulphite Bleachery—Mill Pipeline

Case I — A leak at the bleachery weigh tanks.

1. Signal the wet machine tender using special air horn located on fire escape landing in new bleachery. Horn will also sound in basement area of bleachery as signal to people in area to get out.
2. If possible, close the main valve, just ahead of the tanks or any other valve

in the system that will reduce the amount of leakage.

3. Clear the area of people.
4. Put on gas masks. Eight masks are located on fire escape landing inside new bleachery. Be sure the mask is fitted with a white (chlorine gas) active cannister.
5. Close bleachery shut-off valve by ascending the fire escape and opening the door. At this time the wet machine tender should be close by.
6. If leak is beyond bleachery in over the roof pipe line to pretreatment, shut off roof valve there or at bleachery entrance of line.
7. Close all doors to the mill.
8. Alert the chlorine plant.
9. Notify the foreman.
10. Determine if chlorine can be added to chlorinators; carry out this plan if necessary and if it will ease the situation.
11. Notify the adjoining departments.
12. Inform the chlorine operator when the trouble is over.

Case II — A leak in the main line ahead of the bleachery or fire endangering this line.

1. Call the chlorine operator (318). He will "pull back" chlorine gas by reducing pressure.
2. Notify the foreman.
3. Keep people clear of area.
4. Determine if draining the line at the bleachery (into the chlorinators) is practical or necessary.

Filter Plant Chlorine Leak

Safety precautions to follow should chlorine gas be detected in the filter plant.

1. Operators or any other persons in the filter plant must vacate at once should chlorine gas be detected.
2. Operators are to shut off the emergency chlorine shut off valve. It is located outdoors on the east wall of the building proper. This valve will be tested by the pipefitters every three months. A tickler system insures that this will be performed regularly.

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3. Operators are to open doors and windows to vent the chlorine gas from the building.
4. Operators are to contact the first fireman who will arrange to call the pipefitters to determine the cause and make repairs. After 3:30 p.m. it will be necessary to call pipefitters into the mill.
5. Operators should not enter or permit anyone to enter the building until the pipefitters have determined the cause of failure.
6. Operators should wear chlorine gas masks if there is reason to enter the building for operating reasons after pipefitters have arrived.
7. The day operator is responsible for checking the equipment as outlined in "chlorine gas mask instructions."
8. All operators are responsible for practice wearing of chlorine gas masks as outlined in "chlorine gas mask instructions."
9. Gas masks are provided at the main door entrance of the filter plant. Operators should become familiar with the location.

JOINT SESSION WITH WOOD PRODUCTS SECTION

TRACTOR SAFETY

By L. W. RANDT

Technical Assistant, Oliver Corporation, Chicago

I have had occasion to discuss tractors and technical tractor specifications with many types of contractors. As of this date, I have never seen a check list of built-in safety requirements supplied by a prospective purchaser. I have been confronted with lists of "attachments" to tractors, considered to be safety devices. I am often inclined to reflect upon the possibility that safety requirements are too often treated as attachments rather than a basic design requirement.

I submit that *basic* safety specifications should be developed *before* the tractor is purchased rather than as an attachment *after* the tractor is purchased. The development of such basic safety requisites will serve as a specification to designers, to buyers, and in effect start the cycle of automatic safety reflexes.

A basic safety requisite of the tractive vehicle for woods or construction work is good inherent balance or a satisfactory center of gravity for a tractor. The required center of gravity can be predetermined by knowledge of the slopes and banks upon which the vehicle operates. It is surprising how many vehicles are engaged in repetitive work under predictable conditions. The engineers cannot economically develop a tractor which is fool proof, but they can develop a tractor with the optimum potential for eliminating or preventing an accident.

Predetermining the center of gravity requirements for the operation will lead to the development of devices which will warn the operator when a critical angle of operation is being reached. I might mention that I have been chased down a hill by a tractor, and that I have rolled tractive vehicles off of banks. If my equipment had included a warning devices to signal that a critical

balance point was being reached, these accidents might not have happened.

Development of a satisfactory weight-horsepower formula for a specific operation is essential to safe tractor operation. A tractor which is too light for the job encourages the technique of jerking the load into motion. The "jerk" technique has caused a substantial number of deaths by overturning the tractor on the operator. I know of a specific tractor built many years ago that was notorious for its ability to turn over on the operator. This characteristic was soon designed out of the tractor. I have always been amazed at the borderline operational techniques practiced by operators with a machine that is basically too light for the job. The specification of tractor balance, tractor weight, tractor horsepower, should be included in the program of developing a safe tractor operation.

In my considerations of designs for safety, I have been amazed at the safety aspects of cushioned drive lines and torque converters in tractor operations. Construction and logging activities necessitate operation in remote areas, and there is an aggressive compulsion to "keep the job going." Under these conditions, I believe we become more accident prone. I personally have noticed a distinct difference in the safety attitude of the operators of our tractors in our laboratories and the operators in the field.

I had a vivid illustration of the safety characteristics of a torque converter in a tractor in some of my field experiences. An earthmoving machine we were operating to fill in a low bog area became stuck, and we could not develop enough traction on the bog to pull the scraper out. We moved our towing tractor to solid ground on the hillside and attached a long, steel cable to the bogged down scraper. Hillside, steel

cables and immovable objects are the equivalent of an invitation to an accident. I found that while I couldn't move the scraper, I could raise the front end of the tractor. The cushioned control of the torque converter permitted me to develop the maximum line pull under conditions of instability. We didn't get the scraper out of the bog with this tow tractor, but we did find out how we could work under difficult conditions with reasonable safety. In this case, a conventional direct drive line could have resulted in an overturning accident. This story illustrates the potential of specifying basic vehicle components to promote safety.

The transmission of a tractor can be an important contributor of inherent safety characteristics. The transmission specification should cover the performance aspects as well as the mechanical aspects. The transmission capable of shifting under load without breaking the power flow through the drive line materially reduces the accident potential. This reduction is obtained by reducing the number of load startups due to having to stop the vehicle in order to change gears. The reduction in startups reduces the chance of error and the chance for accidents. Power-shifted transmissions require less operator skill. The benefits of power-shifted transmissions in tractors parallel the safety effects of the automatic transmission in the automotive industry.

I had the opportunity to observe the effect of an automatic transmission on the driving habits of an elderly automobile operator. This elderly operator refused to stop at intersections and stop streets because of the difficulty and skill required to shift a hand-shifted transmission. Changing over to an automobile equipped with an automatic transmission completely changed this driver's habits. The automatic transmission made stopping and starting a pleasure. In a heavy traffic flow, the automatic or power-shifted transmission develops more free time to observe and practice safe operation. Power-shifted transmissions develop similar safety benefits in a heavy industrial traffic pattern. More time is available to control maneuvering in restricted areas. The control of the vast amounts of power we now use is much more precise.

We have also observed an important contribution to safety in the development of multiple steering characteristics in track-

laying tractors. Most crawler tractors are equipped with steering devices that develop a singular characteristic.

One type of steering is classified as differential steering. Differential steering provides a fixed rate of turn, that is, a turn which will generate a specific circular path. In high-speed and hillside operations, differential steering contributes to safety. In confined areas, differential steering reduces the work rate of the machine, leading to aggressive and unsafe work practices due to speed-up techniques to keep up with machines incorporating more acceptable steering means.

A second type of steering is classified as clutch-brake steering. Clutch-brake steering provides a turn that pivots on the inner track or a zero radius turn. Maneuverability in confined areas is improved. The clutch-brake turn under high speed is drastic and a safety hazard. Under conditions where vehicle balance is critical, this type of steering may be the final force which generates the accident. The work output of clutch-brake steering is quite good, and this steering has high acceptance.

A third type of steering is classified as the zero-axis steering, in which one track rotates in a forward direction and one track rotates in the reverse direction. This enables the tractor to turn on its center or zero-axis which is the least turning area that the tractor can maneuver in. Such steering is particularly practical in mine shafts, narrow mountain roads and in congested areas. The zero-axis or counter rotating turn again speeds up the work output, due to reducing the maneuvering time. Under critical operating conditions, this turn contributes to safer operations.

Until recent times, buyers and operators have been faced with the problem of selecting one or the other of the steering devices available. We have machines on the market today which offer all three types of steering in a single package. In these newer machines the operator can select the steering that will give maximum work output and safety without compromise due to limitation of steering capability.

The basic tractor started out as a machine capable of drawbar work. It is surprising the amount of engineering effort that has gone into the development and location of

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drawbars on tractors. The drawbar location determined the balance of the tractor, and the steering characteristics of the tractor. Proper design and location of the drawbar were factors in safety performance and the inherent balance of the tractor under load.

Recently I had occasion to review the many major accessories mounted on crawler and rubber tired tractors. The balance of the tractor as dictated by drawbar operations is completely upset by the additions of major accessories. A front end loader requires the addition of heavy counterweights on the rear of the tractor. A rear mounted loader requires the addition of heavy counterweights on the front end of the tractor. If pipe laying equipment is attached to the side of the tractor, heavy counterweights must be added to the opposite side of the tractor. We now add weight on all sides of these machines. It is important for the safe operation of the machines that the degree of balance required for the specific operation be predetermined and specified. Safety is not an attachment; it is an inherent part of the machine and can within reason be prespecified and precontrolled. The safety concept should be carried into the new machine to become an automatic action.

In developing a safer machine for a specific operation, the engineer in all probability will make a number of compromises in order to balance out the work potential and safety potential of the machine. Some of these compromises will require a trained operator. There is no substitute for a careful and trained operator to develop the maximum from a safety program concerned with tractor operations. The well-organized safety program will endeavor to complement its driver training activity by assisting in the selection of tractors that are adequate for the job. These tractors will incorporate good balance, proper horsepower-weight ratios, modern drive line elements, and accessories that re-establish the inherent balance built into the machines.

The industrial trend in this country is to continually increase the rate of doing work. As the rate of work increases, the accident potential increases with it. Speed and accidents are synonymous on our highways and in our industrial activities. I have come in contact with many operators who practice

selection of light machines for heavy-duty jobs for the reason that certain operating economies result from such practices. These light-duty machines in heavy-duty work result in high maintenance costs and a short machine life which in time adds to jeopardy in the operations and poor safety records. The tractor manufacturers in this country build a tractor for almost any specific task and work rate. Mismatched equipment should be reviewed and an effort made to recommend correct equipment capable of sustaining the known work rate.

Good tractor maintenance practices as related to safety cannot be bypassed. How many tractor operators set up a service check list immediately upon acquiring their tractors? The only reason that I was ever forced to ride a semi-truck gasoline tanker down a hill backwards was because the engine failed from lack of power due to negligence on valve maintenance. Connecting an air-brake trailer with a vacuum brake tractor did not contribute to safe operation either.

A well-trained operator, skilled in operational techniques, is reduced to complete ineffectiveness with poorly maintained machinery. The accident potential on poorly maintained machinery is very high because no amount of skill can offset the mechanical deficiencies. Vehicle design, driver training, all go down the drain with defective and poorly maintained equipment. A tractor at work with its load represents a balance of forces. Failure of a component upsets this balance, and in the process serious situations affecting safety arise. The majority of accidents and near accidents which I have experienced with tractors generally happened during periods of maximum performance and resulted from unbalancing the forces I was working with. In most cases I had no control over these forces once they were released.

An improperly maintained and adjusted engine will generally fail under conditions of maximum load and critical position; poorly maintained power plants are a danger to the operator and to every man in the operational area. The art of engine design has advanced to the point where we have a high degree of reliability, providing the engine has adequate maintenance. I have personally observed some tractor engines that were returned from operation in

remote areas. It was difficult to conceive that an operation could be carried on economically with so little maintenance, and so much accident potential.

Drive line maintenance, which covers drive elements from the engine clutch to the driving element on the ground is an important area for aggressive maintenance practices. Most machines in construction and forestry work are operating on unfavorable terrain. The drive line not only transmits power to the wheels, it also holds in check the forces generated by the load. It is a two-way street, working all of the time. To control these forces, adequate maintenance is necessary.

Overloading of tractors is one of the most common reasons for failure and serious accidents. I have been appalled at some "field conversions" I have observed which increased the capacity of the machine. These little "gadgets" welded on here and there to increase the load capability can be "killers." The machine balance is destroyed, components are overloaded, and the tractor and its accessories are converted to an "accident waiting to happen." I have seen machines which I designed that were unrecognizable because of "field conversions." Conversion control is a potential area for incorporating increased safety into tractor safety programs.

I believe that I speak for all tractor manufacturers when I say that we are interested in and conscious of our responsibility to contribute to safer operations of our products. We are willing to work with safety engineers, owners, operators, and maintenance men in developing the safest product possible. Much of this attitude is reflected in our operator's manuals. I have here an operator manual on one of our products. It contains a substantial number of recommendations on maintenance and operation relative to safety areas. Sixteen

recommendations are direct safety references.

There is an old saying in our industry that when all else fails and things look darkest, try the operator's manual—you will probably find your answer. Some years ago I moved to the State of Illinois from another state. It was necessary that I take a driver's license test if I were to continue driving an automobile. I don't know how many of you are aware of this, but I can assure you that the Illinois driver's test is difficult, thorough, and it is excellent. I particularly like the way they force you to read the brochure on driving regulations for the State of Illinois. I soon became aware of the amazing number of violations unconsciously committed every day on any short drive.

I do not believe that any operator should be allowed to run an industrial vehicle until he has read the operator's manual on the vehicle. This should be a requisite in a safety program involving tractor operation. I would even go so far as to recommend that the manual be read at least once a year in order to review items that might have been forgotten. The tractor industry would benefit, the operator would benefit, and the owner would benefit from these reviews. In fact, we might even substantially reduce unsafe tractor practices.

The safety engineers of this country are doing an outstanding job. I have been impressed with their check listed procedures to cover accidents and accident prevention. I submit that they can contribute even further by helping to set up specifications covering recommended design characteristics contributing to safer operations. They can help substantially in reviewing maintenance practices and comparing them to the recommendations of the manufacturers. They can recommend that the operator's manuals be read and absorbed so that the operators know their machines and its limitations.

STANDARDIZATION OF LOGGING SIGNALS IS EFFECTIVE

By E. PAUL LEROY

Safety Engineer, Weyerhaeuser Co., Chehalis, Wash.

In the early days of logging as we know it, there was little or no need for standardization of the tools or equipment or practices involved because there was just *one* Paul Bunyan and *one* blue ox called "Babe."

As long as Babe understood what Paul wanted done there was no problem. Even then, legend informs us, Babe blew his stack one day and took off on his own. I'm told the reason was a simple misunderstanding of orders. It seems Paul wanted Babe to stow his oats but the signs he used meant only one thing to Babe and he thought he was to sow them.

That little misunderstanding took place up in northern Minnesota. Babe stormed out of the stable, snorting and pawing the ground till he reached the Gulf of Mexico—the ditch he dug is now the Mississippi River. He turned north, elated with this freedom from toil, and rolled out the Great Plains. The dirt he pushed ahead of him was left for the Rocky Mountains. Still exuberant, the pawed his way from Canada south and west until he reached the Pacific Ocean and left the Columbia Gorge behind. Then he kicked his way north, still in a playful mood and dug Puget Sound. He was quite certain Paul would be after him pretty soon so he piled a big heap of dirt in the middle of the hole and stretched out on top of it while he was waiting for the ocean to fill up the Straits of Juan de Fuca. It was here that Paul sneaked up on him, sound asleep and exhausted, on what is now called Vancouver Island.

The next few minutes of activity must be left to your vivid imaginations. The result was that Babe understood, at the end of the session, there were to be no more of those "wing-dings" and it was then that Paul Bunyan decided that signs and signals had better be a little more clear and understandable.

Babe and Paul *did* work out their problem and, never again so the legend goes, were there any repeat performances of that famous episode. They both settled down to

logging. But, came time for Babe and Paul to retire from active duty and, accustomed as our ancestors had become to using lumber, logs still had to be brought to market.

It was then the trouble really started because it took hundreds of Babes and Pauls to satisfy the demand for wood. More people creating more hazards because of misunderstood or misinterpreted orders or signals. They were only hand signals at first and most people seem, naturally, to fall into a pattern of talking understandably with their hands. It wouldn't be difficult right now for me to explain to the gentleman back by the door that I would like a drink of water, or to get him to understand that my pencil was broken and I'd like to use his. At least I don't feel that it would be difficult because I would know exactly what I wanted in either example.

But, suppose in his neck of the woods my hand signs meant something else? It would be embarrassing if he thought I wanted to sample his pocket flask instead of a drink of water, and more embarrassing if he interpreted my request for him to replace my broken pencil to mean that I wanted him to break the pencil I have. Simple as it may seem, it's quite possible.

Before we get ourselves too involved in the unending possibilities we could wind ourselves into with this trend of thought, let's slide into a more practical line of thought and see if we can get back to logging.

We on the West Coast have been trying for generations to match the production of Paul Bunyan. We've built some of the most fantastic logging machinery in the world—the biggest yarders—the biggest and fastest skidders. In fact they eventually got so big and so fast that millions of board feet of our choice logs were a bundle of splinters by the time they were yanked and bounced into the landing. It was a case of speed and power out of control and much of the lack of control was due to lack of understanding—or, possibly I should say a lack of logical interpretation of what we understood.

Most important to our discussion here was the needless destruction wrought by these tremendous machines because the effort was not controlled. In the early days, rules of any kind were for the birds. Even mechanical controls were "adjusted" to fit individual needs—or whims. "Pop valves" were screwed down; gear ratios were stepped up; rigging was built heavier and then "beefed up"—and still the logs shattered. The only logical result was destruction and, sadly enough, the destruction did not stop with machines and equipment and timber—there were lives lost by the hundreds in this wide open competition to get logs to the markets.

Some of you remember from first-hand experience the "stretcher call" and how it struck terror into the hearts of everyone within hearing. Granted, the terror was too often short-lived and, sometimes in minutes, operations were back to "normal" for everyone except the immediate family involved. Another man was moved in to fill the gap and the logs rolled on!

Times have changed since those days. Those of us who lived through them are mighty grateful to be here and more grateful that we've been able to help, even in a small way, to build into our industry some of the controls that have lessened this toll of destruction. These controls have been countless because most of them have been the result of trial and error or, more plainly said, the result of "blood, sweat and tears."

We have come a long way, even in my short lifetime. Our goal of accident-free methods of harvesting timber is still a long way off but it is closer than it was 20 years ago, and we can bring it closer with every generation of loggers if we'll continue to search for more efficient logging methods and continue to put forth our best efforts to see those methods adopted wherever logs are moved.

None of us even stops to think twice when we hear the term "Underwriters Laboratories," or "Society of Automotive Engineers," or "American Standards Association." Why? Because those organizations represent universally accepted standards of uniformity for all of us. There is no doubt in our minds that parts of like size, manufactured according to S.A.E. standards, will fit no matter where we buy them. We've

developed confidence in controls and those controls merit our confidence as long as some screw-ball doesn't decide to indulge his individuality and run in an extra thread on a bolt or some equally distracting innovation and thus make the control ineffective.

Many years ago some very honest attempts were made to consolidate all the signals used in the various logging areas but habit is a strange creature. In every area there were "peculiar circumstances" that prevented the use of the other fellow's signals. Since loggers were, by nature, a transient, roving breed of people, they soon adapted themselves to new surroundings and methods. Even signals that served to start and stop machines were different but they became accustomed to that confusion, too. It was a case of get used to it or get run over, so they lived with the confusion or died because of it.

Even in recent years since state codes were enacted, many operations continued to use their own pet signals. Then when the states and provinces were able to get reasonable compliance with their own sets of signals, there was still not complete uniformity between areas but our loggers kept moving—from Oregon to Washington to Canada and back to California. They followed the signs much easier than they could follow the signals because the signs were clear and concise and had a universal appeal. "Follow the birds to Victoria": "Come south for the winter"!

In transit they nearly always had to stop off to pick up more travel expenses. The one saving feature of this nomadic life was that they never stayed long enough in one place to get really accustomed to any one method of doing things or to one method of letting the other guy know what they expected him to do. Again, I'll remind you that some of us lived through those years.

As recently as 1948 our Forest Products Safety Conference, looking for more ways to bring standardization of methods into our industry, set up a "signals committee" to determine whether or not our West Coast logging operations could possibly devise a standard set of signals for universal adoption and use. At that time California, Montana and Idaho weren't too interested, but Oregon, Washington and British Columbia each had a representative appointed and the move was on.

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All of you know that changes don't come about overnight and I suppose many of us know how frustrating such an assignment can be. The committee consisted of Joe Lebo from Oregon, Jim Roughton from Canada and me from Washington. In a couple of years we had managed, with the help of every member of our conference, to see the adoption by our three governments of the standard set of hand signals and whistle signals which we have brought with us for your consideration today. A look at the list of names and organizations on the original mailing list in 1949 will indicate the scope of the study made at the beginning of this project.

The long-range plan for the signals committee included similar projects for sawmills, private railroads and other phases of operation of the wood products industry.

As in other areas of endeavor, interest lagged slightly after the logging signals were presented and the committee was inactivated for several years. In April of this year when our Forest Products Safety Conference met in Aberdeen, Wash., under the chairmanship of J. K. Lewis of Rayonier, Inc., the executive committee of the National Safety Council's Wood Products Section asked that this project be presented to this group with the idea in mind that these signals might be given further consideration. With your interest and promotion they

could become material for data sheets for all our industry.

The companies and organizations who have participated in this endeavor are many. My company has been extremely liberal with both time and money in its effort to make absolute safety in our industry a reality rather than an idealistic dream.

Our Forest Products Safety Conference and the signal committee of that conference are sincerely grateful for the opportunity of presenting these signals to this congress and especially to this joint session of the wood products sections represented here. We do not offer them as a cure-all for the toll of accidental injuries which continue to plague our industry, but we certainly do offer them as an effective tool to be used in our continuing effort to achieve our goal of accident-free harvesting and processing of one of our most important and most plentiful and most versatile natural resources.

In closing, may I humbly add that any tool we may use, no matter what its nature or origin, to reduce injuries in our industry is surely deserving of the consideration of every one of us. May it never be said again, as it has so many times in the past, that someone was injured—or killed—because a simple signal, intended to start a log moving toward a productive end use, was misinterpreted or misunderstood and caused, instead, the loss of a life or even an injury to one of our people.

COORDINATING THE SAFETY PROGRAM WITH THE INDEPENDENT CONTRACTORS

By MERRILL D. ELY.

Chief, Safety Branch, U. S. Corps of Engineers, Portland, Ore.

It is a great honor to address the joint session of the Pulp and Paper and Woods Products Sections. While I am from the Northwest where timber and timber products are a very substantial part of our economy, my background and experience are in construction. Therefore, I approach my subject with some hesitancy. I am reminded of the minister who told me one time that the greatest compliment he ever received was

from a man who told him his sermons had a handle on them so you could pick them up and take them home. I only hope that at least some part of what I have to say will have a handle on it for you.

I think we should take a look at the relationship that exists between the parties entering into a contract. Webster's Dictionary defines a contract as follows:

"An agreement, one legally enforceable, between two or more persons to do or forbear something."

That sounds very simple, does it not? If it is simple, then why is the relationship between parties entering into such agreements so often strained? Why do we have trouble in our contractual agreements? The party on one side agrees for a certain consideration to do or not do something and the party on the other side expects for the consideration he is paying that he will receive the benefits for which he is contracting.

In my opinion the difficulties, where both parties have integrity, can be summed up in one word, "misunderstandings."

Our language and the way we use it can play tricks on us, and there are things that are extremely difficult to put into words.

Did you ever try to tell a person, or write out instructions, on how to tie a knot in a line? In the *Boy Scouts' Manual* they don't try to tell you. They draw pictures and sketches. You can show a person how, but if you try to tell him how it becomes extremely complicated.

Queer as it may seem, words have different meanings to different people, and to complicate it a little further, the way words are put together can give and imply different meanings and understandings.

Sometimes when we say what we mean the party addressed will interpret in terms of what they are thinking.

A statement may be direct and to the point and still be misunderstood.

Now a few words about another area of misunderstanding in the use of words. We have a clear impression in our own minds as to what we want, and because it is so clear we assume the other party will recognize what we want. We fail to make ourselves clear because we short-cut and leave out details.

Certainly a contractor is entitled to know what he will be expected to do under a contract. On the other hand a contractor is obligated to do the things he contracts to do.

I can let a contract to build a house and can specify that in building the house all of the contractor's employees will wear green bow ties and stovepipe hats. If the contractor understands the requirement and enters into such a contract, I can reasonably expect him to see that green bow ties and stovepipe

hats are worn by all employees on the job. If he does not it is a breach of his contract. If, however, I write a contract and specify that all workmen will wear distinctive clothing and then insist, without further clarification, that they have bow ties and stovepipe hats, I will probably get an argument.

Where then do we stand with respect to contracting for safe operations? If the observations I have made are sound, the first essential is to insure that the contractor understands what is going to be required of him with respect to accident prevention. For him to understand, the contract requirements are going to have to be specific. It will accomplish little to write into our specifications some general terms such as:

"The contractor will perform his work safely." or

"Safety will be recognized in the work to be performed under the contract."

Such statements can mean anything and resolve into matters of opinion, misunderstanding, arguments. They generally end up as meaningless words.

If we want something done under a contract, we must spell it out in such detail that our meaning is unmistakable.

The next logical question is how can we possibly develop specific requirements covering all the ramifications of accident prevention—and if we could, how impractical it would be to attach the voluminous document to contract specifications!

Perhaps we can't cover the field, but we have found in the Corps of Engineers that much can be done with a considerable degree of success.

Before I go into details let me briefly outline to you the history of accident prevention in the Corps of Engineers. I believe the problems we have faced are parallel with and identical to yours.

In 1933 the safety program was initiated among government employees of the Corps of Engineers. After some four years it was obvious that the program was not complete without attention to the contract work which the Corps of Engineers was supervising and on which the Government was spending millions of dollars. We were showing a remarkable improvement in the frequency of accidents among government employees but the injury frequency on our contract work was above 100. So the program was en-

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larged to include contract work and we were faced with the problem of "how to put it over." That it was "put over" is exemplified in the fact that the injury frequency rate on Corps of Engineers contract work, world wide, is now less than 10.

How was it done? It was accomplished by making accident prevention a contractual obligation. Safety was made a part of every construction contract.

While over the years many changes have been made, our basic accident prevention requirements today are very similar to what they were when the program was initiated. These standard requirements read as follows:

"In order to provide safety controls for protection to the life and health of employees and other persons; for prevention of damage to property, materials, supplies, and equipment; and for avoidance of work interruptions in the performance of this contract; the contractor will comply with all pertinent provisions of Corps of Engineers manual, EM 385-1-1, dated 13 March 1958, entitled *General Safety Requirements*, as amended, and will also take or cause to be taken such additional measures as the Contracting Officer may determine to be reasonably necessary for the purpose."

"During the performance of work under the contract, the contractor shall comply with all procedures prescribed by the contracting officer for the control and safety of persons visiting the job site and will comply with such requirements to prevent accidents as may be specified under the Special Conditions of these specifications or issued by the Contracting Officer.

"The contractor will maintain an accurate record of, and will report to the contracting officer in the manner and on the forms prescribed by the contracting officer, exposure data and all accidents resulting in death, traumatic injury, occupational disease, and/or damage to property, materials, supplies and equipment incident to work performed under this contract.

"The contracting officer will notify the contractor of any noncompliance with the foregoing provisions and the action to be taken. The contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the contractor or his representative at the site of the work, shall be deemed sufficient for

the purpose. If the contractor fails or refuses to comply promptly, the contracting officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop order shall be made the subject of claim for extension of time or for excess costs or damages by the contractor."

"Compliance with the provisions of this article by sub-contractors will be the responsibility of the contractor."

As time passed the bugs in our requirements began to show up. We found that our safety requirements manual needed revision. To date it has been revised three times. We found that general safety requirements were not always sufficient to obtain the standards we desired so for certain types of work additional special conditions were developed.

And then we found that regardless of what we wrote or how carefully we wrote it, our intent and purpose was not clearly understood. Our language failed to put over our intentions. We found that contractors had many ideas on what a safety program was and what we expected of them with respect to the administration of an accident prevention program.

To offset these deficiencies we placed the following in our contract specifications:

"Prior to commencement of work the contractor will—

"Submit in writing his proposals for effectuating the provisions for Accident Prevention.

"Meet in conference with representative of the contracting officer to discuss and develop mutual understandings relative to the administration of the over-all safety program."

These requirements were first developed and tried out in my division of the Corps of Engineers in the Pacific Northwest. They proved successful and are now used throughout the Corps of Engineers.

In practice it works as follows: After a contract is signed the contractor is given a notice to proceed with the work. In the notice to proceed his attention is invited to the contract requirements on safety and he is told that the first thing he must do is submit his safety program. When his program is received he is contacted and a conference is

arranged. At the conference the contractor and his staff sit down with the Corps of Engineer personnel who will supervise his work. The contractor's safety program is discussed in detail. The contractor is advised where we think his program is deficient. He is invited to ask questions regarding any of our requirements and he is told exactly what we will expect him to do in detail. We tell him how we will administer the program and who will be responsible, and we ask him how he proposes to administer the program in his organization. All understandings and agreements are recorded and the document is signed by the contractor and a representative of the Corps of Engineers. It is then retained as a supplement to the contract by both the contractor and the Corps of Engineers.

I have given you a brief outline of the Corps of Engineers approach to contracting accident prevention. I recognize that your problems in contract work may be dissimilar to ours. In many instances our contracts are large. We have direct supervision of the work and can watch the contractor as he performs.

Your contracts, particularly in logging, may involve small crews scattered in the woods with operations that it would be both expensive and impractical to supervise in detail.

Notwithstanding these differences and the difficult aspects that your contract operations present, I firmly believe that much can be done in your industry to improve your contractual safety relationship.

I would suggest the following approach:

1st—Through your Association as Pulp and Paper Manufacturers issue a general notice to all contractors in your area that contracts in the future will contain accident prevention requirements and that in the future successful bidders will be required to submit an outline of their safety program.

2nd—Place a requirement in your contracts that will provide that prior to commencing work the contractor will submit to you a written outline of his safety program and that he will meet with you to discuss it in detail.

Perhaps you will say that such provisions would serve no purpose—that they are broad and general and that they are contrary to

the observations I have made regarding misunderstandings and vague statements.

Let me invite your attention to two specific things that you are asking for—a written program and attendance at a pre-work meeting. To comply the contractor must give safety some thought, and if the conference held with him is conducted properly, he will receive a liberal education in what accident prevention means to him.

Our experience has been that the safety program, particularly the first one that a contractor prepares, is often deficient and perhaps of questionable value. It does, however, offer a medium for discussion that is so essential in constructive understandings where contract relations are involved. It becomes the basis on which your conference discussion revolves and most important, of all, it is something the contractor *brings to you* not something you *present to him*.

These suggestions are the initial steps that could be taken. Study of your experience with these requirements in your contracts and the degree of success you obtain through them will dictate what further action is required.

I can visualize an early determination that specific requirements are desirable. The areas of need for example might be:

- (a) Requirements on equipment standards such as well equipped trucks.
- (b) Standards for loading and securing loads.
- (c) Requirements covering regular safety inspections.

It may be found desirable to obtain and keep records on the contractor's accident experience.

As such requirements are placed in your contracts, the need for enforcement will grow, and it may be found desirable to place in your contract a penalty clause for non-compliance. Initially the penalties should not be too severe. If they don't work they can be tightened up later.

The supervision of isolated and dispersed contract operations presents administrative difficulties. We have found however that good understandings regarding operational practices prior to the commencement of work, inspection of equipment before it goes to work and periodic spot field inspections goes a long way in obtaining satisfactory control.

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I believe that initially, some of your contractors will look upon contract accident prevention requirements with some apprehension. They will bring all manner of objections into the picture such as costs, labor problems, inability to obtain materials or equipment, enforcement difficulties and many other actual and imaginary problems.

The pre-work conference is the place to pull all of these matters into the open and then mutually find the means to overcome the real problems and once and for all discredit the imaginary ones.

We have found in the Corps of Engineers that it is not a matter of being arbitrary over requirements. Concessions can be made for real cause but where justifiable cause is lacking we are firm in our demands for full and complete compliance, always recognizing that voluntary acceptance is far better than enforced compliance.

As we know, and as has been proven, accident prevention is more than an ideal or a religious and a moral obligation. Worthy and justifiable as such motives are, there is an economic advantage that accrues from accident prevention.

While it is regrettable that the moral obligation does not carry more weight, it must be conceded that the talking point that gen-

erally turns the non-believer into the believer is dollars and cents.

Both parties in contractual agreements have a mutual financial interest in accident costs. It matters little whether the contract is for construction or for logging; accident costs become a part of the cost of the work being performed. The contractor feels them first, but if he stays in business they have to be reflected in his bids.

The accident prevention problem in contractual relationships is certainly not insurmountable. There must however be a sincere desire by the parties concerned to do something about it. The best team is the team that pulls together—not because they are forced to but because they want to for their own mutual benefits. This holds in contractual relationships, and the best way of developing such attitudes is by mutual understanding of the objectives desired and the means by which the objectives will be obtained.

We cannot overlook the time proven fact that—

"No safety program regardless of its perfection has the smallest chance of being a success if top management of the organization is not completely sold on the idea that accident prevention is a necessity."

PRINTING AND PUBLISHING SESSIONS

JOINT SESSION WITH SMALL BUSINESS AND ASSOCIATIONS DIVISION

Ray Ellis, Jr. (National Safety Council): Approximately eight years ago the American Mutual Insurance Alliance decided upon a grant to the National Safety Council in order that they might reach the small businesses. The initial efforts were in the area of bringing small businessmen together in a conference type of activity. We found that this was notably unsuccessful because most of the small businessmen ran the plant themselves, or had John or Joe, their brother, or someone assisting them, and they didn't have the time.

So we began to look about where we might find a contact that was geared to the individual businessman. Generally, this was the association, because here was the person with the know-how in areas of new techniques, new equipment, and they had the latest on legislation, taxation, better accounting systems for a particular business; and we felt that perhaps here was where an effective effort could be made. Consequently, we have worked in that area and some of the material before you is tied in with that effort.

One of our most recent surveys of the U. S. Department of Commerce indicates there are 4,700,000 businesses in America. Approximately 87 per cent employ four or less. There are only 3,100 that employ more than 1,000 in a plant. Consequently, we have 87 per cent of the businesses of America that are small and that do need some assistance in this area of safety, because they aren't about to hire a safety director or establish a full blown safety program.

There are 12,500 associations in these United States. We have 300 of them participating. We have an additional group, a mailing list of some 900. So we are short by a figure well up in the thousands of getting the story out and about, which is one of the reasons we are happy to meet with you today.

Showing further contact and real effective safety activity, from the period 1952 through 1960, there are 52 associations that received the National Safety Council Association award. The Can Manufacturers Institute just received Award No. 7, which indicates that we are very much in the business of doing something about it. There are a lot of things to do if we are going to expand this type of a program.

We feel that there must be some initial contacts made. There has to be a selling job. We must convince the individual association executive that here is a service that is of great value and great importance to him.

Our association consultant, John Curry, had the experience of working with a folding paper box association in the initial steps of organizing a program. They sat down in a meeting room and kicked the thing around, and decided they really had a problem. After a period of some six years, their executive director spoke to one of our meetings about two years ago, and advised that they had 98 per cent participation of the companies, and that they had been able to reduce accident experience to the tune of 14 to 16 million dollars in savings.

We have to sell the association executive that here is a service, so that when the irate member says, "What have you done for me recently?" The executive can say, "We have been assisting you in a program that is saving in premiums" or whatever it may be, "somewhere in the neighborhood of X number of dollars."

We found that in addition to these contacts, one of the important things that must be accomplished is the survey. This is a dirty word on the American scene today, but unfortunately it is the only way we can get the facts. And if we decide to kick off a program by having a big contest, we are going to be in trouble, because the

little guy who needs the most help isn't about to enter a contest. If we decide to go into a program with reports and he doesn't have the time, he may later, if he realizes that it is an important factor in developing safety and having a better experience in saving dollars.

Once these surveys have been accomplished, they are forwarded to the National Safety Council and the statistical department analyzes them. We review them and then make some recommendations as to what we think should be done.

You have before you this little brochure "Small Business." Under "Suggested Solution" on page 3, we suggest that one of the first things that should be accomplished after you have the facts, is to organize an association safety committee, headed by somebody who is respected within the association, someone who is recognized as being a good operator, someone whose word means something to the particular industry. If he already has a good safety program, he can be a key man in assisting.

Then we have an education job. We will find consistently, as we work through this survey, that there might be as much as 80 to 90 per cent that didn't even answer. They didn't answer because they didn't know how or they didn't care, or they didn't have the facts and were a little afraid of the whole thing, or they didn't think it was really important. You would be amazed how many people say, "I sent my check and paid my insurance premiums. I have a safety program." This isn't so. It just isn't so. There is more that has to be done.

So we go through almost a year feeding them with bulletins, preferably a one page bulletin that will hit them each month, talking about cost, talking about success—for instance, where one small operator went into a safety program as one of his management responsibilities, and what it has meant to his little company, what it has meant in profit and in the fact they have not lost people who should have been on the job doing a job.

Then we finally reach the point where we start getting some accident data to them. We get their interest. They begin to say "what should we do?" We suggest, "If you have an accident, put in an extra carbon when you report to your insurance company

so the association can get the facts." We can use this for further bulletins. We don't identify the company, but maybe there is something, say, a piece of equipment that we ought to alert everybody about, or an inspection program to be started on a specific item. Perhaps there is a strange accident, one in a million, that we ought to alert people about: "Here is something that can happen and you'd better check and see that your plant is in such a condition that it won't happen on your premises." So get the how and the what, and get some cost information. We found in many associations that it takes: 5000 lines of bowling to get enough profit to pay for 100 accidents; or 1,740 cases of carbonated beverages to get enough profit to pay for 100 accidents; there are 10,000 gallons of milk that go down the drain for every 100 accidents. There is one national food chain that studies accident experience among the public, and found that they had to sell \$30 million worth of food to pay for six months' of public claims. This is big business. So it becomes important.

Once we have done a selling job, we are up to the point where the industrial department moves in. We look to them for technical aid. This is when you have been going for perhaps two or three years and you finally feel that now we should do something, we ought to start feeding additional information, technical aid, accident facts, contests. There are a number of organizations today that have co-sponsored safety contests with the National Safety Council.

Now, moving over to exhibits. Many times we provide material to the safety committee. This very day in Washington, D. C. the American Nursing Home Association's annual meeting is being held at the Mayflower Hotel. Their safety committee is manning a National Safety Council booth and are distributing material. This was a cooperative effort with that group and the Council.

Visuals. When we get to working together, we use film strips, slides, movies, trying to get something that will be of value in extending safety to the member organization.

Manuals. There is a tremendous cooperative effort going on at the present time in the area of training. The American Meat

Institute, the National Independent Meat Packers Association, held their first training course, a two day course, in September at the offices of the National Safety Council, a cooperative effort involving the industrial department and the associations reaching out and teaching management supervision how to do a more effective safety job. This member of the industrial department may serve as an advisor to the committee of the association.

Then the association awards which we mentioned earlier. This year for the first time we are following a policy, on the recommendation of our Small Business Association Committee, of presenting the award at one of the biggest meetings of that association. This gives a pat on the back, as it were, to the individual association executive in front of these people. It also recognizes the fact that the award would not have been made if it had not been for the members and the effective job they had done on behalf of safety. So it becomes an excellent device for public relations, for association relations with the public, and recognition of not only the association but the member organizations.

Now we turn to the association, because they help us reach the small business, as I mentioned before. They enhance the public image not only of the Council but of the association. All too often the Council is known throughout the nation as "that government agency that gives information on holiday accidents." We've got to sell a different image of the National Safety Council because we are concerned across the board as you gentlemen well know.

We were chartered specifically by the Congress of the United States to prevent accidents, and the association helps us in attaining the objective. The thing we like about the association is that it involves top management, because it is only when top management says "Here is something important. Let's get up and go," that you are going to have an effective safety activity. This occurs whether the fellow has three people working for him or three thousand.

It gives a long term dollar gain, as I mentioned a little earlier, in talking about the experience of the folding paper box association. It strengthens the National Safety Council so we can do a better job

and work with other associations to continue to extend this work.

We get involved with government encroachment. Approximately two years ago the marine industry, because of an extremely high frequency, encountered legislation which today has placed 114 men from the U. S. Department of Labor out in the field working with the marine industry. They are assisting several states in organizing training programs. They are working with the unions in training programs, and we have a situation where they can go in today and can actually close the plant. This, by the way, was the reason that the American Meat Institute and the Independent Meat Packers have gotten up and moved. One of the assistants of the president of a local packing company was talking to Mitchell during the President's Safety Conference in March and was told "You boys are next." So they are trying to clean house in a hurry so they can reduce the accident experience.

We think that government should be concerned, but we also are of the opinion that the individual management should still have the option of electing and doing a job in the area of safety. We are not making idle threats on the thing. These are some of the facts that have occurred. We do feel that this is one of the reasons there ought to be an effective effort and a cooperative effort to do something about it.

Those are pretty much the facts and our story. We have a little booklet and a little leaflet that can be used by the association and given to the actual company so that they will have in a brief form some of the steps that might take to organize safety within the small business. Then from the association point of view, we have a rather long, involved report, but it gives an idea of some of the kinds of activities in which associations have engaged in the past, that have permitted them to receive recognition. These are actually the points on which they are evaluated for participation in the National Safety Council's annual awards.

Chairman Bernard J. Taymans (Printing Industry of America): Those of you who have been working in this field recognize that Mr. Ellis has covered practically every element that has to be thought of in association safety development and I think it is a wonderful facility to have a department

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such as Ray Ellis's available to us in de-
 veloping what we want to do in the graphic
 arts.

While Ray was talking I was fingering
 through this list of associations, and the
 interesting thing is that most of the ones
 associated with the graphic arts have a
 blank line across from them with a note,
 rather than X marks, which shows that we
 have much to do in our field.

I think it would be nice if we were to
 open it for questions, Ray. This is a service
 of the National Safety Council which we
 can take full advantage of in our local areas
 and at your national level.

Here in Chicago, for example, you have
 in mind a program for the Chicago printers,
 and I would imagine that some of the fa-
 cilities of the Association Committee, par-
 ticularly in your creating an awareness on
 the part of management, might be a very
 useful thing, wouldn't you think?

Member of group: Yes, I think it would.
 We haven't worked very deeply into it, but
 I had some thoughts on it prior to our
 meeting. A professional organization could
 give us a great deal of help in getting our
 basic organization started. I think probably
 from the insurance company standpoint, too,
 we should get a lot of information that
 would be useful.

I don't know whether you could help us
 or not. Just what money can be gained
 from some of the large printing organiza-
 tions getting active in a state-wide safety
 program, in their own insurance rates?

Mr. Ellis: One is somewhat reluctant to
 give a promise that you are going to cash
 in on the program. What we certainly found
 to be consistently true—and there are some
 insurance organizations' representatives here
 this morning that I think will bear me out
 —is that once a program gets rolling and
 you begin to change the experience in an
 individual plant, it is certainly going to be
 reflected in the total program. Some pro-
 grams are currently being sold across the
 board and they are working with an in-
 dustry; and then you start to get a national
 picture that can be affected over a period
 of time, where you actually reach the point
 where it affects the manual rate. This is
 established by the experience of your small-
 est, as well as your largest plants.

After a period of concerted effort, you

finally reach the point where you can go to
 your national board on compensation in
 New York and can obtain a reduction in
 rate. This has been accomplished by several
 associations, where the national picture was
 involved. We have representatives here from
 that type of program.

Chairman Taymans: Do you work in
 Canada?

Mr. Ellis: Yes. As a matter of fact, the
 vice chairman of our Small Business Asso-
 ciation Committee is very much from the
 Canadian scene. He is up in British Colum-
 bia and has the paper and pulp, the lumber-
 ing end of the thing. So we work in Canada
 as well.

Chairman Taymans: I think this is an
 opportunity to work with your Canadian
 group, sometime to invite someone from
 the Association Committee to come up. I
 think it is wonderful when you can pick up
 a piece of paper which organizes the thing
 A, B, C, right down a check list. I was
 talking to Ray on the phone and asked him
 if there was such a thing, where you can
 pick up something that does all your think-
 ing, and all you have to do is run down
 the track. It saves a tremendous amount of
 time. I would think that someone from
 their operation, talking to your top manage-
 ment people, would be wonderful.

H. Burt Wallace (Montreal Star): There
 is no Canadian association list. This is an
 American association in essence. I think
 we've got a lot to gain from the National
 Safety Council, even in Canada, and I cer-
 tainly will try to push this thing with our
 local industrial accident prevention associa-
 tion.

Mr. Ellis: This is one of the things that
 happened. A number of your provinces have
 received awards, but two years ago, by ac-
 tion of the Committee on Awards, they
 eliminated the professional safety groups.
 So we do have considerable contact with
 the groups. Unfortunately, they are no
 longer in a position to qualify for recogni-
 tion and awards. I am hoping that there
 will be something accomplished at the Na-
 tional Safety Council level that will give
 some recognition to that type of associa-
 tion or the local safety council.

Chairman Taymans: That would not in
 any way interfere with the type of organiza-
 tion that you are working with?

Mr. Wallace: No. I think this particular association gets none of its material from the National Safety Council. They have it printed with their association name. But I find in this particular case—and I suppose it is the case in similar organizations—that there is a tremendous lack of drive in many respects. I am not trying to make them look silly, but they hold meetings once a month and discuss certain matters and depart. That is, for the rest of the month. I feel if we are going to achieve anything in the accident prevention field in Canada, we've got to have a more forceful approach to this thing. If I can do anything, I certainly shall.

Chairman Taymans: I am constantly amazed at what you find in the organization of the National Safety Council that you can just pick up and use. When I was talking to Harry Johnson about this meeting, I asked him about something like this for associations. Like many other things that you inquire about, you find everything professionally developed and all ready for your use. You just look around a bit and you will find out what there is to make use of.

Walter McArdle, who is our President, is not able to be here because certain other things came into the picture.

This was intended as an informal discussion session, in a sense, a task force, where we would identify the things that might be most helpful in terms of trying to get safety organization—I won't say started, because I think we've got a good start—reactivated in some areas. I think what we want to talk about is:

What materials are available?

What aids can we draw on that we don't have to develop for ourselves?

What are the facilities available from the insurance companies and other sources?

What procedures would be the best to follow in our local areas, or in our national associations?

Who are the people, what levels are we trying to reach in the graphic arts? I think we want to reach management with an awareness of a program. We want to reach personnel and administrative type people, who do the purchasing of equipment, and who control the personnel activities. We want to reach our supervisors and front line management people and then, finally, through them, reach the people on the job.

So I think we are talking about the whole package of safety, with the recognition that it is going to be sometime before we get into all of the aspects of it that have to be tackled.

We have here today some representatives from some of the insurance field. I think it might be nice to start with an indication of what might be available from insurance groups or insurance companies.

John L. Pickens: I am with Hartford Accident but I am representing the Association of Casualty Insurance Companies. Let me say that as an association of about 140 stock insurance companies, we are prepared to counsel with your group. There might be certain materials that we might suggest to you, or assist you with. But the bulk of our activity would have to be conducted by our member companies; in other words, as an association, we would simply advise our member companies. We would keep them informed of things that they might do. We would stimulate them a bit, but the actual work with any of your establishments or your association, whichever level you are talking about, would have to come through the individual company, some 140 stock insurance companies.

We work with other associations. We sit on their committees, and we advise our people to put them in touch. When all is said and done, I think the pay-off is going to come from what is done in your individual establishments, not what is done on an association level. You as an association are trying to get this down into your various plants and locations; and at that point, if we happen to be the company that is insuring that operation, that is where we should step in and reinforce the program that has been established. But we are reluctant to go into a plant and work on that level unless we are carrying the insurance, for obvious reasons. We are not cutting anybody's throat and we don't want them cutting our throat. I am sure the mutuals feel the same way.

We will be most happy to make suggestions to you. We have a great amount of material that might be applicable. You would have to secure them probably through your carriers.

I would hesitate to commit the association to the provision of this type of material to

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your association, although they probably would be willing to make it available on a purchase basis. But if our company, for example, insured a particular operation, we then would, without question, make this available without cost, to those we insure. We aren't going to make it available to anyone we don't insure on too large a basis, obviously.

We work with the Associated General Contractors of America, and with the New York Hotel Association. I work with the Private Truck Council of America. There are a great many associations we work with, but we carry this to the point where we stimulate our member companies to do something to help the companies that they are insuring.

Chairman Taymans: Would the method of working-together possibly be through your alliance? We would make known the kind of assistance we would like to have and then perhaps they would communicate with their affiliated companies?

Mr. Pickens: Yes, by consultation with your association people, representatives of the stock companies; probably representatives of mutual companies. I don't know if you have anybody from the mutuals.

Member of group: It is reciprocal and mutual?

Mr. Pickens: In all segments, whatever segments of the insurance industry you can get. You could sit down and agree that this is the program, and this is the type of assistance that you might look to your insurance carrier to receive. Then the insurance associations will see that all their member companies are advised and stimulated to do something.

Chairman Taymans: You mentioned one thing which we are quite interested in. We would like to tell our companies who take an interest in insurance what they might ask their insurance carrier for. Not all the carriers have the same facilities or same information. But, in any event, we can get our people to begin to use what they can get from their carrier. That would be a step forward.

Mr. Pickens: Right. You might encourage them to say to their insurance carriers, "Are you in a position to help us with this?"

Chairman Taymans: In a local area we are interested in getting engineering speakers, or other people who are qualified, to assist the association at the local level in developing and conducting classes. This doesn't mean that they work full time in handling the class, but work with them and assist them, the alliance perhaps taking over some of the sessions of selected subjects.

Mr. Pickens: We would do that. We've worked for years with the National Committee for Motor Fleet Training Committee. In that case we provide lecturers, let's say, to assist in every part of the country any university that wants to put on a course of this type. They have someone they can turn to, representing insurance. They turn to them for counsel in preparing a program, serving as lecturers, or providing material, or whatever else is needed. We can do the same thing here.

Chairman Taymans: Then I think the third main area is that, as we develop industry-wide information, we would like the assistance of the insurance companies in reviewing and perhaps improving the program. We presently have a manual for training with a teacher's guide, and this group of people for the Printing and Publishing Section have developed certain technical aids in this field. I think our insurance people could be of great assistance to us, particularly from the standpoint of knowledge of the frequency of accidents, or the kind of things that we might work on, to avoid the most costly or the most severe accidents. In the area of technical information, I think you could help us. This would be on a national basis.

So I gather from what your opinion is, that in these three areas you could work with us as an alliance?

Mr. Pickens: I see no reason why we couldn't, as long as we made it clear that on the actual individual company level it would have to come through our member companies, rather than through the association.

Chairman Taymans: There we would be looking for communication from the alliance to those companies to interest them in, first of all, knowing what we are doing and encouraging their cooperation.

Harry C. Johnson (National Safety Council): I was wondering if you were

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acquainted with Roy Falkner's story in regard to the insurance alliances that have been brought up at our executive committee from time to time? Roy Falkner was talking for all types of insurance when he was at our executive committee meeting.

The Association of Casualty Companies organization is separate. They work together occasionally but there is no one overall group. The mutual alliance is a national group of mutual companies. The casualty group are a national association. I am sure they can both help you. I think they gave some help on the program you spoke of.

I have Falkner's report here if anybody cares to see it.

Chairman Taymans: To clarify Harry's point, there is an Association of Casualty and Surety Companies, which is a national stock company group. There is an organization which is called Alliance of Mutual Companies, which Mr. Falkner represents. He was designated by them for representation at this meeting but he was not able to be here. I am hoping he sent you here as his representative.

We have two district organizations. There were two safety councils and some one person couldn't represent the two.

Mr. Johnson: I understand that. At our meeting, just to make my point clear, he made the statements in our minutes that he was sure that the casualty stock companies and the mutual companies would be more than happy to go along and work this thing out, because we were talking about our training course that this committee has set up. There is a 21-week training course and it is necessary to get some engineers from the various insurance companies, whether they be casualty or mutual companies, all to come in and give their services wherever these courses are to be put on. That was his pitch at the time that we were talking about it.

Mr. Pickens: I am sure that the mutuals, the stock companies, the independents, the reciprocals, as a matter of principle, would all endorse the same type of assistance we give. I'm sure Mr. Dodge would agree. We are trying to do what we can and if there is something we can't do, we will just say we can't do it. We are certainly happy to

sit down and do what we can to work it out.

D. H. Grothaus (McCall Corp., Dayton): They did aid in some program in Washington, this mutual company.

Chairman Taymans: Ray Falkner of the Liberty Mutual participated in a training session—I think it was put on in more than one city.

Mr. Grothaus: Russ Thompson was quite interested and was on this committee.

F. J. Dodson (Liberty Mutual Insurance Co., Boston): This is a report Mr. Falkner wrote last year and it answers most of the questions I just heard. I will try to spot that.

The Washington chapter conducted the program in February of 1957. It was considered a successful meeting and an engineer from our company conducted a course.

The Los Angeles chapter expressed interest and our engineer attended a planning meeting but got insufficient members to make it worthwhile and they dropped it.

In the Southwest Division, when approached by Houston, San Antonio and Oklahoma City, only the Houston chapter decided to go ahead. They organized a program and as the time drew near, the interest appeared to be only present within the organization, and the executive secretary said the larger members in Houston had either just completed a program or their insurance carrier was starting a program. They suggested that it be postponed and reconsidered at a later date.

We were approached in Cincinnati and we had a conference with Mr. Rockaway on this subject. He indicated he would present the idea to his people and later advised that there was not enough interest. The same thing occurred in Los Angeles after two attempts to start. It was dropped again. In Detroit there was considerable discussion but it was never undertaken.

In Boston it was decided to work through Boston University, which expressed interest in putting it on as a course in the adult extension program in the second semester of 1958. They advertised it widely, and after the course was about to start they found there were only three registrants, so they dropped it.

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Mr. Falkner in this report said it seems evident to him that in the individual areas it was difficult to get together a sufficient group to justify the time of the organization people, who would have to do the preliminary work for arranging the program, making the necessary reservations and doing all the detail work.

In every one of these cases there was an engineer on hand available to do the work if it were undertaken. But, as you can see, Washington was the only chapter that actually completed the course. We stood by to help on any future occasion, but we have heard nothing further since that time.

Chairman Taymans: I think that is evidence of the fact that we as an industry did not do the necessary preparatory work to take advantage of the facilities you offered.

Mr. Dodson: I think Mr. Falkner was of the opinion that good work was done at the chapter level but they weren't successful. He didn't undertake to say why, but they didn't succeed in getting enrollments. But he did feel there was real work done. In some places he was highly complimentary.

Chairman Taymans: I didn't say there wasn't, but we don't do enough to get the interest to justify utilizing the facilities you made available to us.

The first thing we have to do is quite obvious—create an interest in and an awareness on the part of management that this is something they should take advantage of. Unless we do that, there isn't much point in lining up engineers or facilities to meet with these people.

Mr. Dodson: You might be interested in what we did in each case. When we learned of the chapter's interest, we instructed our senior engineer what his responsibilities would be and directed him to contact the chapter, make himself available. And then we offered to give him further assistance by supplying guest lecturers.

One part of that program includes a discussion of industrial hygiene, occupational disease exposure. We proposed in each case to have a hygienist take over that lecture. There was another subject—I think it was mechanical guards, where we were to supply another lecturer. So the local engineer would conduct the educational phase

and the technical phase would be handled by men of more specialized background.

I would like to know, because he doesn't say exactly, what you consider a fair appraisal of the Washington performance?

Chairman Taymans: I am not familiar with that. But I would like to ask you this question, which is the purpose of our discussion this morning.

If we are able to interest and attract an adequate number of people at the local level—let's take Chicago as an illustration. The Chicago association I understand has under consideration the conducting of a training course of some type in this area. Assuming that we get adequate enrollment and adequate interest, is it still so that your company, and maybe other companies in the mutual field, would help the group at the local level by making engineers and other people available to help in this training program?

Mr. Dodson: Yes, indeed. And the alliance wants to cooperate, too.

Chairman Taymans: I think this is the important factor. If all local organizations do the necessary work to get the management people interested, they have a wealth of material already developed, and if they can have professional help from a group such as yours, I see no reason why they don't have a training program.

Mr. Dodson: In our case we have additional material, which we propose to supplement the course with, as extra reading material and extra reference material that we are going to supply the classes. Just to round it out, the stuff that we use with all our policy holders is just as pertinent to your industry as to many others.

Mr. Grothaus: I think this Washington thing is sort of vague, but some of you remember we did have a Washington representative from the executive committee, from printing. There was a Rusty Thompson who was with the Navy Department. He was hot on this. But during the time we had this and it was going good, he dropped out of this executive group. We sort of lost out. We had heard, or it was reported to us, that this was fairly successful in Washington. That is about all we know.

Chairman Taymans: I gather the mutual people are standing by to help us?

Mr. Dodson: Yes.

Alfred A. Jasser (Anchor Chemical Corp., Brooklyn): I think there is one very pertinent fact. Maybe this is a silly question, but how do we get the rank and file of management to continue their interest after an initial meeting.

Stu Mansfield ran a meeting in New York City in 1952, I think, and had 300 to 400 people. Many of them were hot, and then slowly it petered down to just the people who are members of PIA and National Safety Council. I think the failure there, in my talking to people in the field, was that there wasn't enough to follow-through.

Perhaps if Chicago is going to try the same thing, it might be necessary to filter down to the individual members a little more, perhaps get them off their lackadaisical attitude. I don't know whether it should be done in the form of more meetings, or whether it is necessary to have literature come to them. But I think PIA can help in the bulletin that comes out to all of the members, who are not members of the National Safety Council, to be aware of the program. They may not be pushed enough.

It might be interesting to perhaps get some of the unions, and most of the plants have unions who have a committee on safety, such as the Amalgamated; perhaps the Craftsman movement is involved in this. In that way, push them toward this feeling that something has to be done.

Mr. Dodson: May I offer a suggestion. We are very close to the Paper and Pulp Trade Association, and I think they do an outstanding job of keeping the interest of their members. I think it is largely through a quarterly publication, which is devoted to safety, that goes to management and the people who are responsible for the safety program.

I think the most interesting thing that they report in it are some statistics. They divide the country into zones. They have a reporting procedure. They report severity and frequency, and they report specific discussions, descriptions and solutions for all of the major high cost accidents that are reported. These are a little dramatic because sometimes they are fatalities and quite often they involve major disarrange-

ments of the plant or interruptions, reductions.

This does not involve a great deal of time on anyone's part because they have a permanent trade association safety committee which is the publication committee for this quarterly.

Mr. Jasser: One of the factors we were told as you came in this morning is that 87 per cent of the businesses in this country are small business firms, and I dare say that figure is even worse for the printing business. I guess perhaps 90 per cent or 95 per cent are small business people. And, unlike the pulp field, where the figure might be reversed, where it requires a tremendous capital to get into the pulp end, printers have to be approached, I think, in a different way.

First, there is no organized safety committee among the vast majority of printers. PIA and the National Safety Council have an association. I am a member through my company, and I dare say this is one of the smallest industry-wide committees of all. We've got to get out to the people who, Ellis said, are the bulk of the small business in our field. We have to find another way, other than an established quarterly, other than the established National Safety letter which I find interesting, we have to interest the others who don't receive this.

Mr. Dodson: I won't pursue or argue for it. I do believe if you had a good section of the industry reporting its experiences it would be fairly typical of both large and small accident experiences. We, for example, have a report coming into our home office on every accident that is estimated to cost \$5,000 or more. And I looked it up before I came and so far this year we have 17 such cases in your industry, which is just Liberty Mutual. Other companies don't do it, so we don't combine. We would be glad to pool it, if you had it. If you had as many as 100 accidents, major accidents, in your industry, regardless of the size of the plant, I think it would be very educational to the small people.

Chairman Taymans: I would like to come back to your point. One of the purposes of this morning's meeting is, how do we organize to accomplish this? But getting back to something else that was said, which gets over into the area of incentive and

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motivation for management, Stu has some information which I wish he would tell us about, whether there is a cost relationship here between what you do and what others do. This may be applicable in the large company but I think we can show that it is applicable to a group of companies in the local areas.

G. Stuart Mansfield (Western Publishing Co.): This is a survey that I made of our own operation in the Poughkeepsie area. With all due respect to the carrier representatives, we have found that it is cheaper for us to be self insured in New York State because of the high rates.

We have found that in 1948 the average compensation cost per claim (this takes in the serious cases and the lost time cases, etc.) was costing us somewhere around \$94.52, and the medical charges were running around \$20.04 per case, and the combined cost was \$32.80.

In 1959 the average cost per claim—this takes into consideration there was an increase in rates because the compensation rate from 1948 went from 32 to 150; and also the fact that the hospital costs in New York State have been increased by some 58 per cent and medical cost by 45 per cent—so the average cost in 1959 per claim for compensation payment alone was \$379.20, and the average medical was \$47.71, and the combined average compensation and medical is \$94.44.

So you can see that these things, and these are not what we call loaded figures in any way—the insurance men know what I mean—these are actual dollars and cents that have been paid to individuals for medical care and treatment that has been rendered.

It is interesting to note that in 1959 the total cost in monies paid to the injured worker was about \$6400; the money paid to the hospitals and the doctors was \$6500. It is the old story, who is getting hit in the head with a brick?

Of course, there has been an increase in the number of claims, probably higher in proportion to our particular population; but again we are faced with a social insurance program in New York State, where, if we listed our accidents only, under a definition of accident, the number of claims that we had would be reduced by better than 80 per cent. However, as you know, we pay

for anything, any pain or ache or disability that is alleged to have occurred while a person is working.

Of course, we charge ourselves an annual premium, the same as if we were insured with an insurance carrier, and we base it upon the prevailing rate. We keep our experience and we rate ourselves each year, based upon the past three years' experience, operating it the same as the insurance companies do.

You will notice that the combined totals of medical and compensation paid over the entire period, from 1948 to 1959, is around \$87,000 as against \$500,000 that we have charged ourselves. So you can see why perhaps we are self insured. The outstanding reserves that we are carrying on open cases at the present time amount to approximately \$45,000. But the difference that we have saved between what premiums we would have paid and what actual losses we have paid, and the reserves we now have on our books, has given us quite a bit of money to play with in the way of promoting a safety program.

Chairman Taymans: Here you can see that a company that has its own operation is quite conscious of every penny it spends in that field.

Lloyd L. Lott: In certain of the local associations, a city-wide workmen's compensation plan has been established which I understand has the potential, if the experience is good, of saving money for the printers in this area. Is that right?

Chairman Taymans: You have started with several of our associations a program where, if they are successful in reducing the experience in that area, the printers are going to realize a savings, is that not correct?

This is one of the incentives that I think we must consider in doing what you have in mind, which is getting management interested. Would you like to say a few words about what your program is?

Mr. Lott: I'm Lloyd Lott with Bruce Dodson and Company of Kansas City. We are small potatoes in the insurance business, but we have four small reciprocal and mutual companies. Through the reciprocal exchange we have offered this plan to a number of printing groups. I think we have four or five perhaps.

Basically, it works on this plan. We take a certain per cent for the cost of doing business. I can't mention the figure because there is some conflict with state laws, but, roughly, a third is the amount that we get for doing business in providing insurance. Then the balance of that dollar, the large segment of the pie-shaped dollar, is available for two things: Paying losses, claims, compensation claims, and what is not paid out for claims is returned to the members as savings at the end of the year. It could be up to 70 per cent. If they had a perfect year, they would get 70 per cent of their premium dollar back.

Now, all premiums go into one pot, and all losses into another pot, and they are balanced at the end of the year. That means they have to have a common expiration date, and policies are cancelled and rewritten at no charge for that, to get that common expiration date.

That, basically, is the plan and incentive. As for the members, their first interest is to get a large savings. Naturally that is the thing that seems to appeal to them most. Of course, it is important, but we try to make them understand that that perhaps is even one of the least benefits they can have from having a good accident record. The efficiency that they achieve, the production that they build up, are of even more benefit to them than the direct dollar savings.

Chairman Taymans: You do have an engineering service to associations that goes into the program. What is that?

Mr. Lott: I am manager of the loss prevention department of our companies and our engineers call upon our policy holders. We wait until they are members, usually, before we give any service, although there are exceptions to that. As this gentleman here mentioned, there are quite a lot of them that are small companies with very few employees. We don't offer the same plan for them that we would a large company that had two or three large plants and hundreds of employees. Actually, the incentive is the same, the objective is the same, but we approach it differently, naturally, since a small company with 10 or 15 employees wouldn't need a safety committee.

If they have several hundred, we would meet the president of the company and ex-

plain our objective. Then we would probably have a meeting with all of the department heads, supervisors, foremen, people of that level, at which time we would, if they hadn't already done so, help them organize a safety committee and work with them on that level, making sure that they understood that our service was advisory and planning almost exclusively, that it was up to them to carry out their own program within their plant. For the smaller companies we would have the same objective, but naturally it has to be more flexible, more acceptable.

For instance, I suppose most of you here are familiar with the safety manual for the graphic arts industry, prepared by the National Safety Council and the Graphic Arts Council. Well now, that is a fine manual but it has 91 pages. When we went into the printing group, I bought a number of these and gave them free to our larger policy holders and asked them to use them, and they were glad to get them. But I found very few that actually used them or actually read them. They thumbed through, "That's fine. We could sure use that." And a month later I'd go back and inquire what they had done with it. They had done nothing. I'll tell you the truth, that in very few instances had they done anything more than thumb through it, and just a very brief once-over. We know that is always a problem, more or less.

We have condensed that whole manual into a one-page, six article thing. The title is "A Basic Safety Program—To Prevent Injuries to Employees." They get the picture quickly. We do find that they will at least read and perhaps go along with a one-page deal. There are six points and I'll just highlight them.

The first is selection of employees. The second is teach and train employees; the third is supervision. This is the place where foremen either make or break your safety program, right here, by their supervision and the one above. Then the fourth is, institute a safety educational program; the fifth, make plant inspections; and sixth, study and analyze past accidents. Then there is a little subhead under each of those six main points.

We found that for the small printer, this is acceptable. They have time for this. They can see the value of it.

Our engineers work along that line, judging the needs they may have, but basically to put across those six points, whether they have 20 employees or 2,000 or more. They make regular calls as many times a year as they can. Oftentimes it is only a couple of times a year. But we do keep in touch with them in the meantime.

We have a monthly safety letter. It, too, is a short thing that will get read.

Chairman Taymans: Would you be willing to personalize that to the printing industry?

Mr. Lott: I think so. We certainly make it available to our members associations. We have a special letterhead and we try to get it all on one page. This is a monthly thing that we send out. We try to cover only one point at a time, something that is easy to read, interesting, informative and suggestive. So although we might have a company insured that had only 20 or 30 employees, they would get at least one or two calls a year from our safety engineer after they had made their original call, and they would get monthly letters of this nature to tie in with anything unusual, or anything common to the industry, anything that is timely and of interest to you. I think that sums it up very generally.

Chairman Taymans: The purpose of what we have done so far in our meeting was, first, to show what was available from the National Safety Council, and there is substantial material, and assistance there; what is the potential working with the stock and mutual companies, and Bruce Dodson, as I understand, is more over in a brokerage or independent field. I think we can agree, if we want to gear ourselves to use this, that there are tremendous facilities available for use to make sure of, if we will just organize ourselves to do it. The purpose of this meeting is, how do we do that?

To answer your question as to one of the things we are doing. We wrote to each of the associations in the country several letters. I am going to say we got back quite a few replies. We asked them if they would appoint a safety representative, contact man, chairman of the committee, whatever you want to call him.

Here is a form that came back from the Louisville Association, for example.

Charlie is our safety contact man with the Louisville Association. As far as we are concerned, we are going to look to Charlie to see that safety gets started in the Louisville territory. We know that we have to give him a lot of help and a lot of assistance. We are going to work with the president of his association, and with the manager of his association. We are also going to endeavor to educate the two board members of his association to our board.

If we make the thing simple in terms of procedure, materials available, and facilities available, someone like Charles in Louisville and like Jack in Illinois can become enthusiastic about this at the local level. All it needs is one person who is going to be forceful and enthusiastic about it in each city. If we give him the backing he needs, if we keep him stimulated and make him part of the picture, we will solve the problem of organizing safety and get training started. It will take ten years to do the job we really want to do. It will take forever to keep it going. I think the first step is to be sure of what is available, to be sure to know how to take advantage of it, to find one man in each state.

In New York City we need a man, like any other city. I think in these replies we have the beginning of it. To my knowledge, we never before had a man from Nashville at any of our meetings, and that is one of the areas that started this group on workmen's compensation.

Would you say that the printers in Nashville are beginning to realize if they do something in this area next year, and the year after, they might save some dollars? There isn't a thing that makes more incentive for management than something that is going to cost less. That is not said in a detrimental way. That is the way business people think.

I would like to have a discussion now as to what we individually and collectively think about the best steps to take. We have taken the first one. We have a number of cities that have indicated their representatives.

Joseph E. Brown (Hartford Accident & Indemnity Co.): This might not be quite on that subject because I am not a member of your group. But I have two thoughts that I would like to inject in regard to what is available.

We were talking about the stock companies and the mutual companies and the reciprocals. Perhaps you should also consider the ASSE, the American Society of Safety Engineers. They have local chapters in a good many cities. I am not prepared to say offhand what their stand would be, but I am quite sure they would cooperate in connection with any training program you might have. There are a lot of very qualified local safety engineers in those local chapters. That might be a source of technical training personnel for you.

The other thought is, here in Illinois we have an Illinois Manufacturers Association, and I think that probably is true in many other states. Russ Bartley here at the association is very much interested in the small business man. They had some activity in the Illinois Manufacturers Association several years ago in regard to safety programs in the small plants. This was not limited to printing, but you mentioned how many of the printers are small. It seems that the problem there was, as you said, to get management back of this thing.

In trying to initiate the program, I'm sorry to say, it was not too successful. We sure tried hard. We had local meetings in different areas of the cities and some down-state areas, but the thing sort of petered out. I think what you have to do at the beginning is to get management genuinely interested. You would be in a better position to do that within your own industry, through your activities. You can have a lot of fancy programs but they are not going to be worth a hoot unless you get the man in the establishment really interested in doing something. That seems to be your major problem in the beginning.

Chairman Taymans: Our percentage of companies isn't what Ray Ellis said here. The majority with five or less employees amounts to 25 per cent.

Mr. Jasser: This is in PIA.

Chairman Taymans: This is what we are dealing with. As far as I am concerned, adding the newspaper which is not in the figure, and including Canada, we are talking about between six and seven thousand companies that we are trying to work with. If we ever get something going in the six or seven thousand companies, it will seep down to the others. In those six or seven

thousand companies, the five employees or under run something like 25 per cent. We are dealing, I think, more with a medium size company, and the large.

Mr. Brown: There I don't think you will have nearly the problem.

Chairman Taymans: Would you say that in the very small company—we are talking about three or four or five people—if we could get management in that company maybe once a month to put up a safety poster, if we did nothing in the first year or so other than that, we would be taking a step in the right direction?

Mr. Brown: Certainly.

Chairman Taymans: If he becomes part of some kind of a local area group, he doesn't have the time to go to training classes and he doesn't have time to assign someone to safety; but I do think there are little things we can do, even with the very small companies, that won't take any of his time but begin to create an idea of awareness to safety. In that area I think this off-the-job literature which the Council has, and that kind of things, are things that are easy for him to use. He doesn't have to study a book to find out what is going on.

Mr. Brown: In those smaller operations, I think this gentleman who had the idea of making something simple, had the right idea. You can't expect a man with five employees to take a book like that one that the Council publishes and digest it. He is just too busy to do it, he has so many other interests and accidents to him are not the major problem. I mean, if you have five employees, it is a much longer time between accidents than it is where you have 500 employees. He doesn't give it the same category of importance as the manager of a plant with 500 employees. You have to get something simple down to him, the basic things. And usually you will find that he is the manager, the superintendent and the foreman and everything all wrapped in one. He is everything. You don't need any committees or anything like that because you are dealing with one man who perhaps has four people working for him. If you make it too complicated, it just dies because it doesn't make sense to this man.

Chairman Taymans: I think we have had good initial discussion. I would like to go around the table and see what the different

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people think. And then, finally, if these people will go back, like Jack and Charlie, and others, and get the local association started, we will work out the details of how we support them.

Stanley L. Juroff (New York Times): We have started at the local association, in the New York Publishers Association. I think in New York the *Times* is the only New York paper that is a member of the Council. However, there is an exchange of safety information that we have started through the New York Publishers Association. That is a start. Whether they will become members of the Council, I have no idea.

Paul L. O'Neill (Rand McNally): Bernie, don't we in the PIA have some program that we have talked about which never got very far?

Chairman Taymans: My understanding is that Jack has been appointed the official man in Illinois to get safety underway. Is that right?

Mr. O'Neill: He is in Illinois and will work with Ray.

Chairman Taymans: I believe if Jack succeeds in his intentions and efforts, there will become established an active safety program in the printing industry of Illinois that will encompass several aspects of activities. What problems or objections he has ahead of him will have to be determined. Unfortunately, we are not in an area where people are clamoring for something. You have to go and work it out.

Mr. Grothaus: In Dayton the Chamber of Commerce is very strong and we don't stick to printing alone. It is the Dayton Area Chamber of Commerce. But we do have a wonderful set-up in Dayton. Mel Clark from Reynolds and Reynolds has worked on this and I have worked with him. We do get a little out of him. They don't stick strictly to printing. Naturally, we work through various sections, but we have had a printing section in the Chamber of Commerce for several years. The state of Ohio is a little weak on the printing end of the thing. I was in that section 30 years ago there. The pulp and paper is naturally very strong. They have at their meetings 125 or 150 people.

Chairman Taymans: Do you think Mel

Clark would get some of the printing people together?

Mr. Grothaus: I don't know. It has been tough. We have worked on it. But he would be the person. There are a lot of small printers in Dayton.

As I said, the Chamber of Commerce is pretty strong. I don't know about the insurance companies there. Some of our companies are self insured. Others go along. The state of Ohio is very strong in the State Industrial Commission. It has been very strong for 40 years and they have sessions in Columbus for three days. It is for the purpose of bringing us together and trying to cut down accidents as well as the compensation end of it.

Thirty years ago I was chairman of the State of Ohio Printers and Publishers; vice chairman first. Then I got out of safety for 23 years and went back seven years ago. They had a wonderful program and I was the whole audience. Then I was the head of a committee for two years in Dayton. Then lost interest. It was mostly McCall and pressmen in this group. Reynolds and Reynolds refused to register, and that dwindled down. So we changed it and made a combination out of it. Now we are working on other things. It has been tough. I haven't been stocking to the printing as much as I probably should. I don't know about Dayton. But I think a younger fellow like Mel Clark would be a good person. Reynolds and Reynolds is a nice outfit, a little more of an average.

Sam B. Richardson (Baird-Ward Printing Co., Nashville): There has been no effort to form a program for coordinating efforts in safety. The city itself has under way now a city-wide program for safety. I would like very much to see if we couldn't include the local association and have what you just mentioned, something like Louisville, someone to head this up and organize it. But we have nothing.

Mr. Wallace: As you probably know, there is quite a large number of Canadian companies that are affiliated with the National Safety Council. We do appreciate the fact that the National Safety Council is naturally more concerned with the American accident record than the Canadian. This reflects itself quite often in many of the booklets you put out and many of the statistics

that are issued from time to time. You may not be particularly interested in the Canadian side of things, as I said, because you have your own problems in the United States here.

Chairman Taymans: I think our interest is equal from the standpoint of safety training.

Mr. Wallace: We do gain a lot from being members of the Council. I suppose 90 per cent of the information we get from the Council is of equal value to us and to you. It is often argued that some of the publications or letters or other information that is sent to Canadian companies is not directed to Canadians, because they have various problems which you don't have down here. For instance, in Quebec you have 90 per cent French speaking population. I am not suggesting that you should open a French language bureau or anything like that.

But I would like to see, if it is at all feasible, a Canadian representative on the National Safety Council, which would perhaps stimulate interest in Canada. I think one of the reasons why a large number of companies don't join the National Safety Council is because there is a feeling of nationalism in Canada, as there is in so many other places.

Mr. Mansfield: The chairman elect of the industrial conference is a Canadian.

Mr. Wallace: For instance, the accident facts book put out doesn't tell Canadians much about their statistics. This is possible because you don't get reports.

Mr. Mansfield: Are they submitting them?

Mr. Wallace: That is it. How are we going to submit them?

Chairman Taymans: Stu, you are on the board of directors. I believe we should suggest to Stu that as an expression of this meeting, he explore through the proper channels of the National Safety Council the idea of proper Canadian representation in the National Safety Council, which is not a matter we can deal with. But we can refer it to Stu and let him use his judgment in dealing with that. I think on the printing and publishing literature, except for the fact that it is not in French, there is nothing in it that identifies it as being dif-

ferent for the United States or Canada. What you are talking about is the general operation.

Chairman Taymans: I think over in this area, you have a Canadian Graphic Arts Association that has changed its name to something just a little different. Its headquarters are in Montreal, I'm sure. I think you could help us interest them in this printing and publishing safety, and if you could interest the other newspapers in Canada in this printing and publishing safety, we could help you, and you could help us. This doesn't deal with your other overall question. I think Stu will perhaps be willing to explore that.

Mr. Wallace: Certainly, I feel that it would help us a lot in getting the smaller printing establishment interested.

Chairman Taymans: I think we should try to develop interest to justify using posters in line with each other. We have a hard time getting people to read and use what we now have. I don't think it is outside the realm of possibility. I am surprised that in some manner or other over the years there hasn't been developed a sort of Canadian division of the National Safety Council.

Mr. Wallace: I think the general consensus of opinion among the Canadian members of the Council is that they would like to see that eventually.

Chairman Taymans: We will leave that to Stu. I think in his good judgment he could explore it. As far as our own printing and publishing is concerned, can you help us get some additional people working with us from Canada?

Mr. Wallace: I shall do my best.

Mr. Jasser: I am a member of the New York Printers Safety Committee. When Ed Blank heard I was to attend, he asked me to take notes and to officially represent him, or the committee, rather, to report back to the committee on what was done here. Unfortunately, none of the officials of the organization could be present to handle this.

We have done many things over a number of years and I think you are aware of some of the activities that the New York Printing Association has performed. We haven't a training course; here again I think an effort was started several years ago, but

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there wasn't enough interest to follow through. We have meetings and we try to engender the thinking of safety in our members.

I am here on another basis. Anchor Chemical Corporation, for whom I speak, has safety as part of its selling program. I go around the country speaking for various groups. For example, I spoke to the Atlanta Craftsmen on safety. I spoke to the Washington group and to Erie just this past year. I find that there is a very deep interest among craftsmen. These are the men who are in supervisory positions in the printing business, in safety, and they want to know more. Usually in my talk I stress the point that the National Safety Council is looking for members and that we can make room for them. Unfortunately, I haven't had information available which I could give them. We do buy some booklets which we pass out, but this has nothing to do, frankly, with the training course, although I hold that graphic arts book of Charlie Shapiro's. We do pass out material which we believe is pertinent to the kind of talk we give.

Chairman Taymans: Will you unfold one of those posters? Many people do not seem to know of the availability of the graphic arts kit, which is a complete kit of material developed specifically for the printing and publishing industry. I think that you could be a tremendous help to us.

Mr. Jasser: I have the posters which were officially given several years ago which depicted incidents in the printing shop, showed you printing pressmen, one with a bucket of solvents. Those are the ones I could use many more sets of I believe with the safety chairman and the craftsmen.

Chairman Taymans: The posters are rather inexpensive, if I remember the price.

Mr. Jasser: I thought they were out of print.

Chairman Taymans: No. This whole kit sells for \$21, and if you could think how to accomplish this—

Mr. Jasser: You want to take some orders on this?

Chairman Taymans: I am quite serious—you would be rendering a tremendous service. I don't know whether Mr. Richardson of the craftsmen organization has done anything on this—

Mr. Richardson: Unfortunately, no.

Chairman Taymans: If we could find a way for each craftsman's club in the United States, and if there are any in Canada, to take one of these kits and post it, display it, at their meetings once or twice a year—if it is only once a year—this would be a tremendous aid to us, because the craftsmen organization should be sitting at this table with a representative. If their organization would become interested in this, it would push our program much more rapidly than we can do it without them.

Mr. Jasser: Yes, I think so. We started a couple of years ago with a safety crusade.

Chairman Taymans: Earl Oakes is their executive director. You must know him from the manner in which you work with their organization.

Mr. Jasser: I am a member of the craftsmen but I am not on their safety committee.

Chairman Taymans: Would you try to undertake for us the appointment of a representative to this group from their national organization? And, second, how can we get a copy of this kit into the hands of every local club so they might display it periodically, or at least once a year. Those two things will be of great assistance to us, because a foreman or supervisor, seeing this on the bulletin board, may be interested in that one problem and he will write and get copies of this poster and begin to get interested in what this program is. Obviously, you are of real assistance to us in what you are doing.

Mr. Jasser: Frankly, I would love to have better action taken as a result of what I do at these meetings. I only speak at three or four a year, but I will increase my efforts in this section, if perhaps after this meeting we can get together and find out how I can put a more pertinent bit of information in the hands of the chairman or the educational committee.

Chairman Taymans: I don't know of a better way, in terms of getting interest, than for them to say they will get kits and put them in front of their membership. The kits are \$21.50 each, and 10 per cent less for members.

If you would help us get interest over in the craftsmen organization and the New

York Employing Printers. We believe we could help New York's PEA to get a safety program started with us like the one that we hope will start in Illinois.

Mr. Mansfield: It is important for New York to get top management interested, then see that these men attend every session. You certainly can get all the help you need from ASSE. Men from the university would devote their services, but the thing you have to have is the top management of printing companies saying to the supervisors, "This is a must and you will attend."

Victor B. Davis (J. W. Clement, Chicago): I am only a chairman of the safety committee, compared to all you oldtimers that have been in the business for a long time. I have worked for the company for approximately 38 years, and about two and a half years ago a man from Buffalo took over the company. Prior to that we actually had no safety program, other than posters and things along that line, over all those years that I have been connected there.

But since then this new organization has a safety committee of eight members from each department. We meet once a month. I believe they have been in operation for about a year and a half.

I am interested in posters and I have taken a lot of notes. It has been very helpful to me.

Chairman Taymans: There are a group of men much like yourself who meet several times a year under the auspices of the printing and publishing executive committee. I am sure Mr. Rodhaus would be happy to have your participation.

Member of group: I'm probably echoing someone else about the simplification of a manual or program which would work not only for the five or smaller plants, but for a great many of them that are up in the two, three, four or five hundred group. I don't think a lot of these people go through a 90-page booklet. For the most part, they wouldn't be full time safety men. I would imagine that very few of the printing companies have a full time safety man; probably a personnel manager or an insurance manager handles the safety side. He has a great deal to do other than go through a fairly complicated booklet.

Chairman Taymans: You are in favor of a simplified one, two, three page kind of

handout for people who cannot devote too much time to safety in our industry?

Member: Even the relatively large companies can't do it. Probably the biggest printing companies, a lot of which are represented on the executive committee, have full time safety men. Even some of those are beginning to gain additional duties. The literature is much too long.

Another member of group, from Federal Printing Company: I find these discussions here very interesting.

The only reason we have a safety program is because top management is behind it. But I think there is another thing to that, too. I have had training in work simplification, and the approach is used in that. I don't think the only answer is having top management walk in and say, "We're going to have a safety program." It wouldn't work in our place. We've got what I think is a pretty good safety program. Actually, it is run by the people in the plant. We try to operate on the philosophy of consulting first and then selling, and telling last. I don't think that top management can just walk in and say "We're going to have a safety program. This is the material." I think it will soon fade away. We have had personnel managers who have handled safety and they always seem to be of the lecturing type, where we had a lecturing session and it wasn't a full 100% participation.

Of course, I am mostly concerned with production. If I had to carry the load myself we wouldn't have a very good safety program. So I appointed a letterpress man as chairman and let him pick his safety committee and, of course, I work with him, advise him wherever I can, and I think we have a very good safety program. We use posters from the National Safety Council, which we are very glad to get, they're always welcome. We use a lot of the pamphlets and booklets that are sent out each month, and they are accompanied with a letter that is written by one of the people on this safety committee, which might be a bindery girl or a press operator or someone in the shipping department. Of course, I like that approach. That is the way I like to get this thing down to the people who are actually out on the job. We have a safety committee of nine or ten people who, during the day, are thinking and talking safety. I don't think you can beat that.

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Chairman Taymans: You have a letter from one of your people in the plant transmitting one of the handouts?

Member: We've got some samples here. For instance, fire prevention might be the theme of the month. One of those people will write a safety letter to send out with the pamphlet. That is the monthly function of the safety committee. One of the people is responsible for the clipping service. We have a safety bulletin board and we use current newspaper and magazine safety news. One person is responsible for doing that. We have been approached here recently by some company who supplies that service, but I like this better. I think the gal in the composing room who is looking for interesting news events in the newspaper and is maintaining this—I think that is the kind of thing that is really hitting the core of what we are all talking about.

Chairman Taymans: Frank, wouldn't you say that there are still untapped resources to use in the field of the manufacture of equipment and the suppliers of materials which we can take advantage of if we organize ourselves better?

Frank K. Neidhart (The Miehle Co., Chicago): I would say so.

Chairman Taymans: You have a tremendous engineering staff. When we come up with a problem that perhaps you didn't think of in the design, or some other technical matter, you certainly have a wealth of technical personnel to help us.

Mr. Neidhart: We are always happy to consult with you.

Charles Shapiro (Lithographic Technical Foundation, New York): I am thinking of a narrower area for that material. Mr. Lott pointed out two things that have been on my mind for a long time, and that is this matter of simplifying the material and making it easier to use the published material. You all know that when we first published the manual, the basic criticism from the beginning was that we hadn't considered the newspaper field. That brought to my mind the fact that the manual would be less useful as such. That is why I want to get hold of material so badly that we can use.

For instance, if we could design a format so that departments of all kinds in printing plants had the material written up in a small monograph, like a two page, or one might

be a ten page, then a man who wants a safety program and has maybe a flat press and a hand guillotine cutter could just get the three monographs to take care of his little plant. And the newspaper plant would get a series of monographs that take care of the newspaper operations, and so on down the line. If the stereotype wants to put in a program, they would get the section that applies to stereotype, or they could have them all, of course; but they could put together a training package, instructor's material, self teaching material, text material, and of course all of the material coming from the Safety Council that applies to their operation. I think then we might get some work done in the smaller plants.

Chairman Taymans: I think that idea should be passed on to the committee in the replanning of whatever we are going to do with our safety training.

Mr. Johnson: Charlie, the folding paper box association, through Carl Simpson, have made up a series of rules and regulations type of thing for the paper box industry. Where it is a small outfit, they just give them certain cards for that particular type of thing, such as you were speaking about. Some of them are departmental things, and he can give you an explanation of what they are doing, which is a tremendous thing.

Mr. Jasser: I think much of this is printed in American Box Maker as a monograph or one or two sheets. It is perforated and you can pull them out.

Mr. Dodson: I saw something in the literature here that reminded me of one further thing. We try to impress on these smaller companies—I think this is your greatest concern, how to help them—that the insurance carrier has a lot of services available that are not going to appear in front of him monthly or weekly because of the infrequency of contact. We try through a one shot attempt, which wears off, I know, to inform them of what services are available to them, so they will ask when they have a problem.

I should think it would be helpful if somewhere in your educational program you could point out to them that their insurance carrier is a standby service that is available to these smaller companies when they have special problems. I don't mean problems of bulletins or education, but there are some

technical problems, problems of ventilation, problems of matrixes, or electrical installations, material handling, or fire protection, where you need a highly trained engineer. Most of the big carriers, and I'm sure the smaller carriers will respond too, and have a staff. We have an enormous staff of specialists. These are just as available to the small company as the big one, as needed. We can't afford to send them around on a routine basis, because, first of all, there is not too much interest; and, secondly, there are not that many people.

The other thing I would like to comment on is this. You seem to be interested in incentives. I think that all the casualty and mutual companies have an incentive form of casualty insurance that you may not be aware of. Self insurance is one approach for the large company. For the small company, I think the only protection, the only advantage is on some group basis. But the medium size company should be aware of a form of insurance called "retrospective rate" which is an incentive plan where you get almost a cost-plus form of insurance.

But, like the group plan, the retrospective plan, as in any incentive plan, also involves a penalty. You don't get an insurance program where you get money back when you have a good record, unless you take on the added risk of an increased charge when your losses become excessive. Sometimes you can take care of this with the form of stop loss. But the point of this is that the good companies that have good experience take the gamble on incentive. The poor company, which is very unsure of itself, had better not get involved in a plan that has two sides to the coin.

Chairman Taymans: Frank, I would think that this would be quite a useful thing if we could get from Liberty Mutual, or someone else, a simple statement about the advantages if you really go into a safety program or accident prevention program.

Mr. Dodson: I should think you could get a non-partisan view of the various forms. We could help you, but I think everybody would suspect we were writing it for our own advantage. The better way might be to get some representatives of the several groups.

Just as a brief rebuttal to this gentleman on the self-insurance program, I want to

point out that he did make a lot of money but he didn't charge any costs. You are talking about losses. You know, it is not fair to compare losses alone to premium, because premium might involve a return in the form of dividends in retrospect insurance. Then the insurance company has some expense, which you have, but they don't call them losses.

Mr. Mansfield: We have another figure where we charge off certain expenses that we have for handling the safety and the claims, and so forth. All I did this for was to show what accidents are costing in dollars and cents. That is why I said at the beginning this was not loaded.

Mr. Dodson: Self insurance is a wonderful program for some companies. We actually recommend it when they confront us with their interests. I don't want to make it appear that I am opposed to it. But when you actually finish all the computations, it will probably come out as a less severe program.

Chairman Taymans: We use the same principle in arguing with customers from private plants.

You brought one point in which suggests that we ask you this question. Could we, if we put together a simplified listing and statement, get the insurance companies to distribute information about the printing literature that is available, so that their contact people in the field might encourage printers and newspaper people and publishers?

Mr. Dodson: The alliance companies; I think so, yes.

Mr. Lott: I don't think you will have any problem getting help. You might start with your insurance carrier. Then the affiliation with the National Safety Council. We recommend it. We think it is fine. Then locally you usually have a local safety council, where you have not only materials but personnel to help you who will come out on invitation and speak or make plant inspections. One of the gentlemen mentioned the American Society of Safety Engineers. All large cities or average cities have a local chapter of that. And every year every one of us has a project of some kind, I mean an association project, and they will be glad to help you with that. Then there is the Veterans of Safety, which is mostly a social group, but they have a very compe-

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tent safety man and they really are looking for opportunities to help. They really sincerely want to help.

I don't think the problem is getting people to help you. Our problem is getting the insured to want the help and do something about it.

Chairman Taymans: Our problem is organizing ourselves to use it.

Mr. Ryan, this meeting was called as an informal discussion work session, to deter-

mine what we might do to get the printing and publishing industries to take greater advantage of the benefits of safety training and accident prevention programs. What we have been doing this morning is getting ideas and information that we might bring together; and while this hasn't been said today, it would be my assumption that when we have this information together, the officers of the Printing and Publishing Section should sit down and together come to a conclusion about what we do about it.

PRINTING AND PUBLISHING SECTION

Tuesday Afternoon Session

Chairman Dan Grothaus: This is the 48th National Safety Congress of the Printing and Publishing Section. It is the duty of

your general chairman to report activities of your Section for the past year.

REPORT OF GENERAL CHAIRMAN

I flew to Chicago on July 14, 1959 to help decide the fate of this section. I am now positive that the committee that existed that day was not complete enough to represent this group. We decided at that meeting to merge with the Pulp and Paper Section. But this decision was reversed later on, and we have struggled this last year on our own power, and I think have done very well.

As your general chairman of the executive committee, I presided at all meetings this last year. I attended the other meetings of the National Safety Council as an officer of my section.

We had our first executive committee meeting in New York in January, which followed the industrial conference.

I attended the industrial conference in Chicago in March that laid the plans for this Congress. I also attended the industrial meeting the first part of May in Chicago. That was a two day meeting of the entire group of the Industrial Commission and committee meetings. I also attended the spring meeting at the PIA headquarters in Washington in May. Most of you have received the highlights of these activities from your chairmen, in letters directed to the entire membership, and also to the committee. You have had all these letters and you have had them in your newsletter.

This brings us up to the election of officers. Paul O'Neill is our Nominating Chairman.

REPORT OF NOMINATING COMMITTEE

Mr. O'Neill: During the past year we have had some difficulties, as Dan already has pointed out to you. Our normal procedure was somewhat changed, and we had to prevail upon some of your officers of last year to hold the line, so to speak, because we needed this help to continue the activities.

On behalf of the committee, I respectfully submit the following slate of officers for the 1960-1961 year:

D. H. Grothaus, General Chairman, who will succeed himself.

Stanley Juroff, Vice Chairman and Membership Chairman

Homer Clevenger, Secretary

Frank Neidhart, Newsletter Editor

Ladies and gentlemen, I submit this slate of officers to you. If there are any other nominations from the floor, we will entertain them. Otherwise, I will entertain a

motion that these officers be accepted and installed. (Accepted)

(Jack Straube, of R. R. Donnelley, assumed the chair for remainder of session.)

Chairman Straube: I hope that within the next couple of years we can double the size of our room. There is a lot of work we have to do and I think a lot of information that one or more of us has will be useful to somebody else.

The afternoon session is going to follow

along the same general lines that it did last year, because it turned out very well and was very well received as a question and answer session. Because of a few people being added to the committee, and because of the newspaper field entering our printing and publishing movement, we have some new faces up here, and some new information, I hope, that we can use.

Since I have a short bit first I am going to have my say and then introduce the next speaker.

LEGISLATION AND DISCIPLINE

By J. R. STROUBE

R. R. Donnelley & Sons Co., Chicago, Ill.

It has been said throughout safety programs that you can't legislate safety into any good safety program. However, somewhere along the line there is a definite place for some legislation, for some discipline within your safety program. A lot of fancy rules and good talk go only so far.

We have made an attempt just recently to put a little meat into some of our safety rules with a practice for penalties for violation of safety rules. Basically, it is intended to do one thing, and that is to try to prevent the accident before it happens. Too often when you go to investigate an accident, you will find an unsafe act or a violation of a rule was at least one of the causes, if not the basic cause. We don't restrict investigation of unsafe acts or violations to situations where there has not yet been an accident. If an individual has had an accident, and after investigation we find that he was injured because he out-and-out violated the rules, he also will be penalized for this. The form of it is merely an explanation of an established reprimand procedure which we already have for tardiness, lateness, poor working attitude; and all we have done is to explain it in the light of our safety program.

We have one formal piece of paper that goes along with it, which is probably the hardest thing to get around because too many people figure it is a traffic ticket, in the form of a pad of tickets. A supervisor, seeing a man violating a safety rule, will fill out the form, give the individual vio-

lator a copy, put a copy in the departmental file, and I get one copy to keep a permanent record of.

The benefits of it, if it can be worked correctly, for one thing, will be to eliminate at least a good percentage of the simple violations of rules which shouldn't occur. In addition, it gives me, and anyone else who requires it, a permanent record and history of an individual who may not otherwise come into our records, since quite a lot of these violations very luckily did not end up in his having an accident. In this way, when a man goes to get transferred, or is being considered for a more difficult job, one portion of the investigation of the individual can be what his accident record is as far as compliance with our rules is concerned.

There is a lot of work to be done in something like this before you can actually utilize it. You have to have, first of all, I think, a good set of safety rules; not just a long set, and not just a well worded set, but something that is workable. A great many of our safety rules look beautiful. They were printed with all the quality that can be mastered. They were framed and hung on the wall. They were taken out of the best text books on safety you could find. But a great many of them were completely impractical, in that they were not followed. The department supervisors knew they weren't.

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an individual set of rules for each department. They have to be fairly specific within the department and, as I said before, they must be short. You have to set out what you want your men to do in about ten rules. Then stick to it and enforce them. They cannot violate any established work practice. If either the rule or the practice should be changed to conform so they are both equal, then of course you have to give your employees notice both of the rule and of your intention to enforce them.

Next, and probably the hardest job, is the fair application of it. If the application varies too much between individual departments or between individual forms, the manual ends up with a practice that doesn't work. The thing is to have something the supervisor can have that is established and approved by his bosses within a framework in which to guide his employees for safety—and not just a long set of fancy talking rules.

NURSING CARE IN THE NEWSPAPER PLANT

By MRS. JOYCE BENOIT, R.N.

Supervising Nurse, New York Times, New York, N. Y.

It has been demonstrated that there is a profound relationship between health, both mental and physical health, and accident frequency. It is estimated that the majority of accidents on and off the job are attributable to the man factor and not the machine. I am sure you are all familiar with that. The medical staff in industry are specialists in man—just as you are specialists in machines. Machines change, but man, though adaptable to change, does not really change.

The role that the industrial physician and industrial nurse play in safety varies according to the type of plant, as well as the organization of the company. An important determining factor on the role that the nurse or physician plays is the size of the plant.

The first job I had in industry was in a small plant in Long Island. It was a small subsidiary branch of a large company and had a population of from 125 to 300 persons. When I took the job I was a novice in industry. My responsibilities included

This may not be the final answer for discipline in your safety program. We don't know yet that it will be the answer for our own, but we are giving it a try, and if we come up with some good results we will let you know in the future.

We have a couple of people in the newspaper industry who are going to talk.

This is Mrs. Joyce Benoit. She is supervising nurse for the *New York Times*. She has a membership in the American Association of Industrial Nurses, the New York State Association of Industrial Nurses, she is Director of the Greater New York Association of Industrial Nurses, she is a lecturer, has had experience at Bellview Medical Center, nine years experience in industrial nursing, a graduate of Newman Hospital School of Nursing, Emporia, Kansas, has a B.S. in nursing from Adelphia College in Garden City and a Master in nursing from New York University.

nursing, relief switchboard operator, secretary to several engineers, as well as accident investigator. I really got an education. I had never heard of a punch press or a die-maker or tool maker, but I learned.

In large industries there is the possibility that there is a minimum of communication between safety and medical personnel. However, steps should be taken, and are being taken, to improve the communications between safety and medical. Each is somewhat dependent upon the other in order to carry out any safety program to its highest levels.

In many industries the pre-placement or pre-employment physical examination is the medical department's first contact with the new potential employee. In the newspaper business this is a little bit different, because of the substitute situation and the casual workers. We will go along and assume that our first contact with all employees is at the time they have their pre-placement or pre-employment examination.

The medical department must provide a

warm, friendly atmosphere. After all, this individual has gone through several interviews, had his references checked and I'm sure has been sitting home, biting his fingernails, wondering what is happening. The telephone rings and someone from the personnel department says, "Well, success. We are going to employ you, providing you pass the physical examination." This can be a real hurdle and some become very frightened by it.

The prospective employee should be made to feel comfortable. His fears should be quieted as much as possible. I have seen new employees sit down and fill out a physical examination blank and say "There must be an easier way to get a job." Every company has different medical set-ups and a different routine, but I shall tell you a little bit about ours.

When they come into the medical department, they have a card with them, which is an appointment given to them by the personnel department. They come to the receptionist and present the card and are escorted to the desk where they are given their examination form to read, which is a quotation from the workmen's compensation laws, and told to sign after they fill it out. They are informed that if they can't remember certain things not to fret, because one of the nurses will go over the entire history with them.

The next step we feel is vitally important. This is the nurse's interview. One of the nurses takes the employee to the quietest place in the department for an interview. Sometimes we wish this could be the bathroom, because there isn't a quieter place. A complete history is reviewed, with the nurse quietly encouraging the employee to talk about his health, both past and present, and we wish we could talk about the future.

The first line on the form clearly states "Name, department and job." All during the interview the employee's job, what this man is to do in the company, is kept in mind. It is surprising how much one can learn about an individual during such a process. Also how suddenly this person remembers about his past medical history and health history. Following the history and eye examination, audiogram, chest X-ray are done and a urine sample collected. The nurse summarizes the positive findings for

the examining physician. If a history of heart disease is given, an electrocardiogram is done. We don't necessarily wait for a doctor's order. If the person is obese and has an elevated pressure, an E.K.G. is done. If he has a long history of many accidents, we will concentrate our history on this area. And we have learned some surprising things—sometimes too late. Both the nurse and the doctor must know about this man's job because here is where we can be of help to the safety people and to management.

Any healthy person may have temporary job limitations, such as convalescence from pneumonia or surgery, but have no permanent role in what he will do in the company. However, such permanent disabilities or limitations, such as even vision, hearing, artificial limb, heart disease, diabetes, epilepsy, can be part of the history and part of the physical findings. But it doesn't mean that he is not going to get the job with the company. The important thing is we want to know about it. These limitations need not exclude him from his job. Naturally, an epileptic should never work on a moving machine, never work as a guard alone. However, he may do well as a clerk or proofreader or on certain types of porter jobs. It would be ideal if we could just fit the man to the machine, and the machine to the man. Unfortunately, this is not practical for any industry.

Emotional and psychoneurotic tendencies are brought to the attention of our medical director, but we feel, as nurses, and most of our staff physicians, that we do not have the full know-how as to how to handle these people properly. If we get a fidgety, nervous girl, we know she is not going to be a good switchboard operator. It is not the nurse's part or the examining physician's to inform her of this. The medical director is psychologically oriented and well trained in this area, so he is the one that convinces them in such a way that they decide they are not suitable for the job. Don't ask me how he does it because I don't know.

The medical department is in a position of knowing some of the personalities in the company and frequently, not frequently but once in a while, we can tip off the personnel department that we just don't think Miss Jones is going to get along with Mr. Smith, and vice versa. Perhaps in this way we have avoided not only future trouble in the de-

partment but perhaps some injuries and accidents as well.

Unless there is a safety indoctrination program for new employees, rarely does the safety engineer or director meet a new employee until an accident has occurred. Again, the medical department is the first individual to see this employee following the accident. This is the golden opportunity for a first-hand story, fresh and non-fabricated, to be obtained. It isn't always practical for the safety person to interview every individual following an accident and, usually, the lost time accident becomes the focus of investigation. Here the medical department can do a real service by bringing to the attention of the safety men the "almost serious" accidents. It might be said that it was only the grace of God, or an employee's quick reflexes and action, which prevented a more serious injury. But unless attention is drawn to such "near misses," the possibility of a more serious accident in the future is there.

Dermatitis, as you all know, is one of the most prevalent occupational diseases. The medical department can help, but they must know what chemicals are used in the plant and what the potential dangers are for the employees. We asked our purchasing department to send us a list of the chemicals purchased in the last six months, and Dr. Goldstein goes over these carefully.

Another way we help safety personnel that is when a man comes up with dermatitis, we ask him what had he been doing. He might say "I have been working with pentatone." We ask if he uses it diluted, and this is when Dr. Goldstein gets the solvent and checks whether the men are using it undiluted or improperly. Of course, there is the individual who can be sensitive to it.

But this is working hand in hand with our safety man to prevent the dermatitis that can occur in the plant. Substitutions are frequently brought in for harmful chemicals and time is spent investigating new solvents that are harmless. We are also constantly aware of whether an individual is wearing the correct protective clothing. I thought of this as our friend was telling us about the rules of safety and common failures to observe them. Sometimes it is difficult to make certain rules mandatory and it is very difficult to educate people to use their safety protections. We will get there if we just keep at it, I'm sure.

Another way where the medical department can help is with the angry, or alcoholic, or the insecure individual who comes into the medical department. A few moments of the nurse's time, devoted to this individual, can frequently prevent an injury. We can't always prevent it but at least we can help. I don't think it happens too often that we actually prevent by listening and being aware. We have no way of evaluating the people we listen to, nor are we able to say, "He didn't have an accident because I listened to him."

I would like to say that I feel strongly, and my boss feels strongly, that the one technique we feel accident investigators should learn—I learned it backwards because I went to school and got my extra work in counselling after I was an accident investigator—is the technique of non-directive and directive counselling interviewing, letting the individual just talk about his accident. Unfortunately, I'm afraid some of you are as harrassed for time as I am; but these particularly structured counselling techniques can tell you more about an accident, and why it happened, than all of the Questions No. 1, 2, and 3, which really have no meaning and don't tell us how the man felt when the accident occurred.

We play an active role in the safety committee at *New York Times*. Dr. Goldstein is a member, and I've never decided what my status was, whether an ex-officio or a sidekick to the boss, but I'm there. We go to their meetings and discuss possible new programs. We have participated very actively in the supervisory training program. One of the most stimulating sessions was the medical department session, where the foremen reported back on the health of their people. We tell them what not to do in the case of a sick person, and give them basic information on bleeding and resuscitation—just the very elements; and, for goodness sakes, how to use the telephone and get hold of us. We have coverage 24 hours a day.

One of the biggest and greatest roles that the nurse has is her individual contact with the employee. If we can teach employees the importance of using their safety protection, teach them the importance of taking care of their wounds, minor or otherwise—it doesn't make any difference how minor they are—and taking care of them early,

the chances are they are going to prevent injury and secondary infection. We can help by talking to them and ridding them of the wrong beliefs they may have about certain rules of the company. At times their interpretations have been wrong. Somebody has said something to them and they pass it around, and by the time so-and-so gets it, it is quite a distortion. This is where the nurse in her individual contact with many employees can help in the safety rules and safety regulations of the company.

Our safety record—I don't know how it compares with other newspapers, but we are not as proud of ours as we could be. I know the medical department handled 26,000 cases and a little over 3000 pertained to occupational injuries; and this is about 12 per cent. So the minority of the medical department's work pertains to the occupa-

tional injury, which is at a minimum. But we still have a very great role to play in it, and we want to help, and we want to learn from you too.

Chairman Straube: Thank you, Mrs. Benoit.

To get into the details of one phase of the usefulness of a medical department in a safety program, Dr. John Pohlman of R. R. Donnelly is going to talk for a short time on strictly how the pre-employment physical enters into our safety program.

Dr. Pohlman received his doctor's degree from St. Louis University in 1939. He is a member of the Industrial Medical Association and has been at Donnelly's for about thirteen years. Seems like everybody has been at Donnelly's. He is now associate medical director.

PRE-EMPLOYMENT PHYSICAL EXAMINATION

By DR. JOHN POHLMAN

Associate Medical Director, R. R. Donnelley & Sons Co., Chicago, Ill.

The real reason for our physical examination, the pre-placement or pre-employment examination, whichever you'd like to call it, is to try to adjust that person to his work environment, both mentally and physically. I think if we could do that there would be a lot less accidents. Of course, I realize that the safeguards that are put on the machinery are very important also. But, after all, you could put a fellow in a steel cage, with nothing to do but push buttons, and he would probably end up with sore fingers and claustrophobia. We will have an angle on this thing too.

First, when a prospect comes in, he sees the employment manager where wages are discussed and various job classifications, shifts, and so on. From there he goes to the testing department, where we have a psychologist who goes into the aspects of the aptitudes for certain jobs, and personality tests, to see if he is suited for that type of environment. Does he work well with a lot of people? Does he work better by himself? Just what kind of environment is he best suited to? If he passes both of those areas he comes into the medical department for his physical examination.

At Donnelly's we have have a staff of two full time doctors; one part time doctor who does the periodic examination, (we have a regular periodic program); and seven nurses on three shifts. We have an x-ray and laboratory technician.

In general, you can divide these physical examinations into office group and the factory group. Naturally, we can be a lot more lenient with people on a physical basis in the office category than we can in the factory.

Probably one of our most stringent examinations is the one that we give to apprentices, for the reason that the company is investing a lot of time and money in these people. They have about a three year course. If they finish this course and fail us physically, then all is lost. So we give them the "works," probably as complete an examination as any of the other groups.

In our examination, as Mrs. Benoit mentioned, the history is very important. It is probably one of the most important things in the pre-employment examination. Unfortunately, it is one of the hardest things to get and get it all, for the simple reason

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that people try to protect themselves from losing the job, because they don't know what I might reject them on. So, naturally, they don't tell you anything if they can get by. You stare them in the face and they say, "No, I never had that. That never happened to me." It is a hard job sometimes to get all the history out of them. They have various ways of concealing defects. A lot of times we don't see a defect until perhaps we pick up a clue on the laboratory test.

Our number one fellow—speaking of the fact you can't take anything for granted—had three fingers off one hand; and naturally I figured anybody coming to work would have all his fingers. You just take it for granted. But you can't. He held it in his lap and concealed it beautifully. It wasn't until the examination was almost completed, that I noticed he didn't have all his fingers. He didn't mention it on his history. The first thing we started with was, "Have you had any operations or injuries?" I said, "That sort of thing you have is an amputation that required surgery." He said, "I didn't have surgery. That was cut off in the machine."

So I don't care what kind of a question you ask, there is always an alibi. Or if you say, "Have you ever had in your life such and such a disease?" "Oh, no." You see them later and they say "When I was six years old I had this disease." "But you didn't tell us that." "Oh, I thought you meant recently." So history, as important as it is, isn't always easy to get. Sometimes we don't get the full information until several years later when they come in for something that makes it show up.

In our physical examination, one of the important tests—I won't go into all of them, because I think you have had a physical examination at one time or another and know what the general routine is. But I might mention vision. At our plant we use one of these metal boxes that you put up to your eyes and various optical designs go before your eyes and you read them. This is very important. For instance, in somebody who is a hoist operator, not only must his vision be good, but he must have good depth perception. If he were walking up the aisle, and his depth perception was off, he might not stop soon enough.

For an engraver, there we might make

a leeway for such a fellow if his near vision is good and his distant vision isn't so good; that would be all right. You have to fit each man to the job. If his distant vision is good enough to get into the department and sit at his desk, that is really all he needs. But if he has good near vision—the two work pretty much together—we give him a little leeway on the distant vision, whereas with a hoist operator, we wouldn't.

Another thing: in factory work we wouldn't hire anybody who was blind in one eye. It seems unfortunate. There are probably places where he could be used; but according to the rules, it seems that if he comes in with one eye and loses that one eye, then we are charged with total blindness, not with half blindness. So we make it a practice not to hire anybody in the factory with one eye. However, we have hired them in the office category, and they have worked out very well. They can see their figures all right and do book work and that sort of thing and get along very well.

We also have temporary employees and permanent employees. Our business in many respects is a very seasonable thing, where we might put on quite a lot of people for six weeks' time and then lay them off. Then months later put them on again and lay them off. Most of those people are the jogger girls. Most of them are colored girls who work for short periods. They are just interviewed and we don't do a physical. We used to, but when the time came, it was wicked, believe me. They would come through so fast they didn't know whether they were coming or going. Now they are giving a short interview as to whether they have had any recent illness or injuries. Many of these girls are rehired from previous sessions so that we get to know them. There are not very many new ones included in that group.

However, with permanent employees, if we know they are going to be permanent, we go into an x-ray of the chest, cardiograph, urine analysis, blood test and so forth.

I might mention also a few special conditions, such as diabetes. Now, those with diabetes can work in the factory, providing they are well controlled, their blood sugar is kept normal by following their diet and taking insulin. However, they can't work

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in a group that changes shifts. A great part of the factory changes shifts every three months. You take a diabetic and change his shift, his meals go off, he gets all fouled up on the thing. It just doesn't work out for us. As long as he stays on the same shift, he can work in the factory. And, naturally, we take him in the office too. Incidentally, their folders are all marked in big red letters "Diabetic"; in case one comes down in a coma and needs an insulin shot, we at least have a clue. So we are warned right off.

As for epileptics, we don't hire them at all, because there is so much machinery around and so many opportunities for them to have an accident. And we don't even hire them in the office because very often they will forget their medication, and it is peculiar how people react to medical things like that. It isn't very good for the morale of the people working around them. I don't think the epileptic is very happy once he has had an attack in a particular department, because the average person still doesn't understand it and is not too sympathetic. People would rather not have epileptics around: "Let them work in another room, not with me." So we have found that it just doesn't work out too well for us.

Naturally, we don't hire anybody we know is pregnant. Of course, those can slip by on you too. They just won't talk. You ask when they had their menstrual period, and the answer is "Oh, yesterday," or "Just a week or so ago." Maybe it hadn't been for a couple of months. We don't do pelvic examinations on women. It is just a company policy, unless there is an emergency and it becomes necessary to do that. The employees in the factory are allowed to work until their fourth month of pregnancy. In the office they are allowed work until

five months. Some of the girls I know have gotten beyond that point, but they seem to have tighter girdles than the rest of them and they can hide them better. Finally the forelady says, "I think somebody ought to look at this girl. I think she is pregnant." Then a month or so later she has her baby at home. So we have to keep watching for that sort of thing all the time.

Cardiacs require special treatment. Even with a severe attack of coronary, people can be brought back to work. We limit their work to begin with, but they are still useful and can carry on with their jobs.

We have a book of standards which is a rough guide to go by in these job classifications, but the thing I would like to point out is that no matter how good a classification is set, you can't follow it right to the letter. People are individuals and every case is different. Our big job is to try to make that person, regardless of what his handicap is or his assets are, fit the particular job that he is expected to do. If he doesn't work out in that job, put him in one that will work.

Chairman Straube: The next speaker is going to be Stanley Juroff. He is the safety coordinator for the *New York Times*, and is a member of our executive committee and the Publishing Section. He is a graduate of Brooklyn College with a bachelor's degree in psychology. He was a sergeant attached to the records service section, U. S. Marine headquarters. He was employed by the *Times* in February 1948 as a temporary in the news department, transferred to the personnel department and was appointed safety coordinator in February 1959.

Stan is going to talk on general accident prevention in the newspaper field, and I think he has a movie for us.

ACCIDENT PREVENTION IN THE NEWSPAPER FIELD

By STANLEY JUROFF

Safety Coordinator, The New York Times, New York, N. Y.

It has been said at many meetings I have attended that newspapers provide excellent public service by publishing data pertinent to industrial and off-the-job safety, but fail to recognize the necessity of accident pre-

vention in their own plants. This of course is a generalization, and like most industries there are groups that do not actively participate in industrial safety programs.

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paper safety in general, only the safety program we have in effect at the *New York Times*.

The *Times* has had an accident prevention program in effect since 1929, but only since 1959, 30 years later, has it been placed on a full time basis. It became evident over the years that the number of disabling accidents had been steadily increasing, and increasing at a frightening rate. It became essential to formalize a new safety program, put it on a full time basis, to take positive means to prevent accidents.

The program as such was not specifically designed, though, as a means of reducing cost. Principally, it was designed for the welfare of the employees as an individual. Everybody knows what accidents cost in dollars and cents, but very few really know, unless they are involved, what it costs in suffering and hardship.

The accident prevention program, as currently set up, revolves about a safety committee which assists in the formulation of safety policy. Since at the *Times* we feel that industrial safety is a function of management, the committee is composed of management personnel; the assistant to the general manager, personnel manager, medical director, engineering director, assistant production manager, assistant manager of the mail and delivery departments, plant protection officer, and the safety coordinator comprise this committee.

The first step in our program at that time, back in 1959, was to find where we stood safety-wise in conjunction with the rest of the industry—30 years late. Fortunately, in New York State we had and still have at our disposal, at no cost, the services of the State Department of Labor, Division of Industrial Safety, on a consultative basis.

Their survey of our physical plant revealed that we were in fairly good shape. They did, however, recommend a number of modifications to eliminate existing hazards. All of their recommendations, without exception, were accepted and changes were made immediately.

In addition, a survey of our own disclosed hazards that were quickly remedied. For example:

Our upper press platforms were unguarded. They stand about 10 feet off the press floor. We put chains and railings in.

Additional stop buttons were installed on the former frames of several presses.

Additional lighting and drip pans were installed in the reel rooms.

Safety devices were placed on the linotype and intertype machines to prevent burns from hot lead squirts caused by tight lines.

Safety devices were placed on wire typing machines to prevent breaking wire from striking personnel.

We took care of engineering things first. Where we were lacking was in the area of employee education. Who were we going to educate and what aids were available to us?

Since our first line supervisors, the foremen and their assistants, are responsible for the prevention of accidents and damage to equipment, it was obvious that they would have to be the first people to train.

As far as training aids are concerned there are many available through the National Safety Council, but to our dismay none dealt specifically with newspaper safety. We investigated the possibility of utilizing the excellent safety manual prepared by the Education Council of the Graphic Arts Industry, but felt it did not cover the needs of a newspaper. This is the material in that kit, by the way, that is along the table and on the board. I might add at this point that your executive committee is currently considering a revision of the manual to include newspaper operations.

Instead, we turned to the Supervisors Safety Manual published by the National Safety Council, and have been using it as a guide in our training programs, along with a series of sound slide films dealing with the role of the supervisor in a safety program. To date, in little less than a year's time, we have completed training for more than 100 of our foremen.

As an outgrowth of a suggestion made by one of our foremen at one of these meetings to use films that are more applicable to our own industry, the *Times* produced as a pilot project, the film you will see shortly. This was done as an experiment. And in view of the acceptance of this film by employees, the safety committee will undertake in the future the preparation of films dealing with safe work practices in all of our operating departments. In addition to using the film as a training aid, a visual aid, it played a great role—a greater role than we thought

it would, because we got all our people actively involved in producing this film. It has left a lasting impression, not only on the photoengravers, but our promotion people, our art directors: everybody got involved in the act. So it had a tremendous effect on our personnel, safety-wise.

In a year's time we could not expect spectacular results from a program of this kind—Mrs. Benoit bore me out with her statistics—but there has been a consistent decline in the number of disabling accidents, a gradual but consistent decline.

At the *Times* every accident, no matter how minor, must be reported immediately. To insure prompt reporting the *Times* has a written policy, and I would like to read this to you:

"No disability payments are made under the *Times* disability plan to any employee who fails to notify his department head immediately after an on-the-job accident, or who has received payment for three previous on-the-job disability absences in the preceding five years. In such cases the employees may appeal through the safety coordinator to an appeals board composed of the employee's department head, a representative of the medical department and the safety coordinator. Fraudulent claim for or acceptance of disability benefits shall be cause for dismissal.

"The spirit of the *Times* plan is one of mutual obligation for employee health and safety. The *Times* accepts the obligation of strengthening the employee's security by making benefits available in accordance with the plan. In turn, your obligations under the plan include the following:

"1. Notify your department head immediately after any on the job accident you suffer, whether or not it results in an absence.

"2. Furnish fully and accurately whatever data about the accident the *Times* or the law requires.

"3. Observe safety rules established by the office."

That in essence is our policy. The actual net payment made by the *Times* to an eligible employee under the plan for an on-the-job accident is the amount needed—as a supplement to payments he is entitled to under workman's compensation—to bring his total disability income up to full pay.

All accidents are recorded on IBM cards according to ASA Z16.2. Every accident in which there is even the remotest possibility of disability is investigated by the foreman concerned and a complete report is in the hands of the accident prevention office within 24 hours.

The IBM system has helped us to pinpoint the cause of most accidents and pinpoint the shift and hour of work in which most of our accidents seem to occur. Strange as it may seem, most accidents occur the first hour of the man's first day back from a weekend, or from his two days off—the first hour of the first day back.

The *Times* for years has provided personal protective equipment to employees at company expense. This includes a safety shoe program for all operating departments. The signature of a member of the safety committee is necessary before any new equipment can be purchased. This is to insure that adequate safety devices are attached before the equipment is brought into the plant.

Mrs. Benoit mentioned chemicals before, and, again, before any new chemical is brought into the plant it must have the okay of the medical director, the plant chemist and myself. Semi-annually a list is furnished (Mrs. Benoit went into that and I won't repeat it.)

Another hazard we are faced with in New York State as in Wisconsin, the only two states that now have legislation regarding noise. Eventually, like most other compensation laws of various states, the other 48 states are going to follow suit in this. The one advantage we might have at this point is that we can get after manufacturers of presses to see if they can do something about suppressing some of the noise they create. Start with the manufacturer; he has the answer. They tried it with jets, and they have been able to suppress the noise on jet engines. We will have to also.

In 1958 the New York State Legislature added a new article to the state's occupational law, and it began with this paragraph:

"The compensability of claims for loss of hearing resulting from exposure to industrial noise has created a problem in this state which is a matter of grave concern to the legislature. The legislature, therefore, finds and declares that the public interest

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can best be served by providing that com-
pensation for occupational loss of hearing
shall be paid only as provided in this article
and subject to the conditions and limitations
hereinafter set forth."

I won't go further into it because the
next speaker will cover that. I will say
that the *Times* in February 1959 called in a
team of acoustical engineers to analyze noise.
The results of their study showed that in
the pressroom the noise exposure for most
operating personnel under normal conditions
was a marginal hazard to hearing. But in
the vicinity of the folder mechanisms the
exposure was somewhat greater, and the two
or three men stationed in this region were
exposed to noise levels that were considered
on the borderline between marginal and
moderate hazards to hearing. This meant
that a small percentage of those people
might be expected to incur enough hearing
loss in 10 to 20 years of exposure to have
slight difficulty in understanding normal
speech.

The cost of reducing sound levels in our
pressroom to a non-hazard level would be
prohibitive, unless the press manufacturers
can develop equipment that operates at lower
sound levels. And because of the small re-
duction that could be achieved in sound
level that would be a meaningless gesture.

Part of our pre-placement examination in-
cludes an audiometric test and an annual
follow-up to employees who work in noisy
areas, where we have our white color guild
area.

While the revitalized safety program at
the *Times* is less than two years old, we
think we have come a long way in a short

space of time. We still have a long road
ahead. At the *Times* we certainly won't be
satisfied until we have a record we can be
proud of. It's a challenging job and it is
one that we are confident we are eventually
going to win.

Chairman Straube: I think the New York
Times is to be congratulated for that film.
This is the first effort I've seen of a graphic
arts or newspaper trying to do something
very definite in the safety field. I hope we
can get a lot more.

We touched on noise a little bit in the
last talk. I think this is something that
should be of interest to all printers, and as
was said, sooner or later you are going to
be involved and the time to try to do some-
thing about it is now. We have an advantage
over New York, in that we can try to
safeguard against this problem before we
have to start paying out good money for it.

Stuart Mansfield is going to give you a
little more information on the subject of
noise. He is the director of safety and em-
ployees benefit for Western Publishing Com-
pany in Poughkeepsie. He is a member of
the American Society of Safety Engineers,
Trustee of the Veterans of Safety, past gen-
eral chairman of the Printing and Publish-
ing Committee Section. He is a member of
the Safety Advisory Committee, of the As-
sociated Industries of New York State, a
member at large of the Industrial Confer-
ence, National Safety Council, a member of
the New York State Compensation Board.
He was born in Denver, attended Columbia
University and has been in safety and acci-
dent prevention work for the last 30 years.
This man ought to know what he is talking
about.

NOISE IN THE PRINTING PLANT

By STUART MANSFIELD

Director of Safety and Employee Benefits, Western Publishing Co.
Poughkeepsie, N. Y.

Apparently the noise problem will be much
like any other disease: where you have it in
a crowd, it spreads. The state will begin to
enact legislation to pay people for loss of
hearing. There are cases perhaps that are
well justified, but those cases are in the mi-
nority. It is going to be something that will

develop into what I call a political compen-
sation racket.

A board of consultants in the state of
New York have come up with a formula
whereby a noise level above 80 D.B. is
prima facie evidence that the noise is dan-
gerous and will damage a person's hearing.

Now, if you have ever come home in the middle of your wife's bridge party, or if you have ever gone into a room when the children have the television on, or if you have ever stood on the corner of your busiest street at the high peak of traffic, and you took noise level measurements, you would find that they were running between 85 and 87 D.B.'s. If we suddenly decided that everyone in this room should turn and start to talk in a normal voice to the man alongside him, and we recorded the noise level, we would see that it would go above 85 D.B.'s.

One of the interesting facts is that labor isn't satisfied with the 80 D.B. noise level, so they now have legislation proposed to reduce it to 75 D.B. And, of course, we take into consideration old age when people lose a certain percentage of hearing. But they have gone ahead and said that when a man retires at 65, if he has worked in a noisy area and has been out of that area for a period of six months, he can file a claim for loss of hearing; and if it develops that he has 30 per cent loss of hearing, they will allow him 5 per cent loss due to natural causes, and the balance will be paid for by the employer.

I think it behooves any safety man, or any company, or any industry, not necessarily the printing industry, to watch when you have legislation coming up that may enact such a law. We did manage to get in a stopgap to the effect that a man has to be out of that noisy environment for a period of six months before an award can be made to him for loss of hearing. There are a great many cases where people work in noisy environments and do suffer a temporary loss of hearing; but it is not uncommon for them, after they have been out for a period of two or three months, sometimes only a matter of weeks, to have their hearing again restored.

You also have a problem of a man who may have worked in a foundry. The foundry closes down and he comes to work for you, and he may at that time have a 50 per cent loss of hearing that is due to his previous employment. If you do not have an audiometric test to determine that he has that loss of hearing at the time he starts to work for you, and he works in a noisy environment where the noise level is above 80 D.B.,

and then at the time he leaves your employment he files a claim for that loss, you pay the entire loss. The only adjustment that can be made is that if you find the loss before he starts to work for you and you notify the former employer, you may have some chance of recovery. That is a very complicated problem, and who knows where an employer is going to be in 10 or 20 years, or his insurance carrier. And there is really not any factor of reimbursement that we can take into consideration.

I had a noise level survey made throughout our plant. We have some newspaper presses but they are not as large as those of the *New York Times*. But they do have folders on them, and we found that the noise level in that particular area, at the folder, where the packer boys work, runs about 110. At a distance probably of 20 feet from the folder end of that press or the delivery end of the press, the noise level is about 97 D.B. A distance of 50 feet away from the other areas, other than the folder, it runs about 85 D.B.'s. So we know that we do have a potential noise level and it behooves us to check the hearing of these men on an annual basis.

There has been some opposition by the union, but I think that we will eventually accomplish what we want. If we find that it is our liability, then the man should be paid for it. If, however, it is due to some condition that is not at all related to his work, then we don't feel we should have to pay for it.

In our offset areas, at a point within two or three feet from the unit, we found that the noise level was about 82. On the three knife trimmers, the guillotine cutters, most of the bindery equipment, I would say that there, at the point of operation and at the position in which the employee stands, the average noise level varies from about 79 to 85.

At the time the tests were made, we also made an analysis of a particular type of machinery where the frequency is rather low, and I think that most doctors will agree that it is the high frequency noises and the continuous noises that perhaps do more damage to the hearing system than the lower frequency noise levels.

That is what we are faced with. It is a problem. We in New York State have op-

posed this legislation very strongly, until such time as insurance carriers and self insurers have an opportunity to set up reserves to pay for some of these losses. After all, there has been nothing included in any premium charge to any employer for this potential loss. And even though the labor people claim that the loss is not as great as industry claims, and we are hollering wolf, I noticed that on the calendar each month there are more and more claims for loss of hearing.

So I think for everyone who has a plant, if they are not in a position to give the audiometric test themselves and keep records, it certainly would pay them to have it done perhaps by some competent otologist so they know exactly where they stand.

Chairman Straube: We have had some sound level tests run in our plant. The industrial-hygienist is doing it for us and doing it not on a political rule of the 80 decibels, but on the basis of the report of an organization of otorhinolaryngologists. He is working more on the basis of 100,

not 80. This puts a little different light on the rule we've got. From 90 to 100 has been his basis. I don't know if we are going to drop it to 80 or to 75. We've got problems everywhere in the pressroom. This is going to be great fun.

We have one other field in our safety hazard that we are going to hear about from two speakers, the problem of solvents and some of the resulting losses you can have from the use of them.

The first man is H. Burt Wallace, who came to us from Canada this year. He is the safety coordinator for the *Montreal Star*. In England he served with the Royal Navy from 1943 to 1946 and immigrated to Canada in 1952, and is now a Canadian citizen. He joined the *Montreal Star* in the personnel department in 1957, took an active interest in safety, and was appointed safety coordinator in August of this year. He is now in his fourth year of Bachelor of Commerce degree at George Williams University in Montreal and has decided to make accident prevention his profession.

USE OF SOLVENTS IN THE NEWSPAPER PLANT

By H. BURT WALLACE

Safety Coordinator, The Montreal Star, Montreal, Quebec

Sometimes I wonder why I took an active interest in safety. I thought personnel would be sufficient for any person to have to handle. But it seemed that at the *Montreal Star* people were continually being injured. Accidents continued to happen year after year and nothing seemed to be done about it. Being an idealistic sort of chap, I did begin to take an interest. The company, either because they wanted somebody to chase around or blame for any future accidents, decided that I was the guy that should bear the brunt of future operations.

We have now been working on an organized safety program for approximately a year. But it wasn't until I was actually appointed safety coordinator that we could really say that things began to move. The most unfortunate part if it is that our accident rate seemed to move too—but up rather than down. It was rather distressing. One of the big challenges as far as the

Star was concerned was that we were just in the process of building a new plant. As you can imagine, moving all of the various equipment from the old building to the new plant, installing new equipment, and the hundred and one other problems that come with such a move, was perhaps one of the reasons why our accident record increased rather than decreased.

But the thing I want to talk to you about at the present time is the use of solvents in the newspaper industry in particular, and I imagine in the printing industry as well.

I did a survey throughout the plant of the types of solvents that were in use in the various departments. I came up with a list which could be as long as your arm of some of the most dangerous and hazardous solvents that you could wish to meet with. I mean by that, from the safety point of view, they were physically harmful. From the fire point of view, they were definitely

a fire hazard and an explosive hazard. Our method of using these various solvents, benzine, and the other more toxic solvents, were such that there seemed to be practically no control over the handling of them.

We did use safety cans, but found after an inspection of the safety cans that some of them leaked, some of the caps didn't fit properly, that the stores departments were supplying solvents in bottles to anybody that asked for them, and then the union came out with a demand that they be allowed to smoke in these various departments. I had a devil of a time trying to convince the powers-to-be that smoking while using benzine was not the thing to do. After quite a lot of persuasion and after talking about other solvents which I felt were less toxic and flammable, we did manage to arrive at a solvent which we feel does the job just as well as any of the other more toxic solvents. The union got their way, and the foreman is quite happy with his type because he can wash it nice and clean, and the employee is protected from a health standpoint.

But this isn't all. In the engraving department they also use solvents. I was plugging this particular solvent right down the line when I got a call one time from the engraving foreman, "This stuff is no good. Give us benzine back again. All I do is get dirty plates, dirty engravings when I wipe it with this solvent." Well, we called in the experts. They went through the plant and they came to some of the conclusions I had already come to as regards to the handling of the solvents, the method of application of the solvents. We went down to the stores to see how they issued this particular solvent to the various departments.

It seems they had three 20-gallon cans of various solvents—one of benzine, one of coal oil and the other of trichlorethane. But what the stores boy was doing was to use the same measuring can for all three solvents. So, of course, he would issue coal oil to one department, and then go and fill the can with trichlorethane for another department, the engraving department in this instance. And it would get up to the engraving department, the trichlorethane would evaporate and leave a nice film of coal oil on the engraving. This is the sort of problem we met. That too was rectified.

I think newspapers in general are like that as far as the use of solvents are concerned. I have visited quite a few plants in the last few months, and it makes your hair stand on end to watch them use benzine. Sometimes they even use gasoline and they smoke in the department. I can't understand why newspapers don't burn down every day. Also as far as the use of dirty rags is concerned, I don't know whether they are trying to save money or what it is. They seem to love to get a nice dirty rag and keep it for a couple of months before they decide to throw it away, which doesn't help to get a nice neat, clean looking newspaper.

All I want to say, if you do use any of these solvents in your operation, for heaven's sake, get around and make a good check on what is being used, how it is being used, and see if you can't find a solvent which will solve your problems.

The one particular solvent we are using at the present time, and I think they are using at the *New York Times*, is trichlorethane, which has no flash point and is much less toxic than benzine. It is more expensive, so you will have quite an argument with your purchasing agent. But I think if you read the National Safety Council Data Sheet D-456, it gives you a good lowdown on the properties of trichlorethane and may lead you to decide to purchase it.

Chairman Straube: To go a little deeper with some of the problems you have with the use of solvents, and especially in the lithographic field, this is quite a problem from a dermatitis standpoint. We at Donnelly's have been able to reduce our dermatitis exposure considerably. However, occasionally we still come up with a very bad case. Bichromitis is one of the hardest things to eliminate, one of the worst cases of dermatitis.

We have Robert F. Reed, who is the senior research consultant for the Lithographic Technical Foundation. We was the first manager of the L.T.F. Research Department when it was established at the University of Cincinnati in 1924. He is author of the L.T.F. book "Occupational Dermatitis." This was when dermatitis was a lot more serious a problem.

We will now hear from Mr. Reed on this subject.

DERMATITIS IN THE GRAPHIC ARTS

By ROBERT F. REED

Senior Research Consultant, Lithographic Technical Foundation

The first publication that was gotten out by us was this "Prevention of Occupational Dermatitis." Incidentally, I was not the author of that, but the authors were Dr. Louis Schwartz of the U. S. Public Health Service, and Dr. Leon Goldman of the Kettering Laboratory of Applied Physiology in the College of Medicine at the University of Cincinnati.

Dr. Goldman made quite a number of tests on personnel in the lithographic industry around Cincinnati. The conclusions were that about the only prevention was care on the part of the individual, but that there were some people who, regardless of the care that they exercised, could not avoid dermatitis. So this bulletin suggests methods of identifying it, what the causes are, whether it is purely irritation or whether it is actual sensitization, and what to do and how to prevent it. There are no solid answers to this problem. Authorities vary in their figures about the people who are sensitive to bichromites. It is like poison to some, but the great majority of people seem to be quite immune to it. Men have worked in the plate making department and on the presses for 25 to 30 years without any difficulty whatever.

In 1952 a new treatment for chronic dermatitis came out which concerned a material called Bell Ointment. Now Bell stands for British antilucite. Dr. H. N. Cole of the university in Cleveland apparently has had some success in using it in the treatment of dermatitis. The Great Britain Technical Foundation put up some funds for a study—it was the Amalgamated Lithographers Association and Lithographers Foundation that put up the funds for the study at the university hospitals, that is, in the development of this Bell Ointment.

It is not a 100 per cent cure or prevention. They studied it on 100 patients, men who were employed in the industry, most of whom had a history of dermatitis, but about one-fourth had none. Three of these men submitted to hospital treatment; four submitted to treatment on office call. Those that were hospitalized or stayed away from

work for two weeks were completely relieved. The dermatitis cleared up completely; but it returned on their return to work. Those who remained at work and submitted to continuous treatment were estimated to be approximately 75 per cent improved.

So that was at least some help. Dr. Cole would not give the information about this treatment to the lithographers in general. But he offered to give the information to dermatologists who were confronted with this problem of dermatitis.

In 1959 there was an article by Drs. Levine, Bruner and Rattner of Northwestern University. They conducted a study with funds provided by the Chicago lithographers association and the local Amalgamated Lithographers Association, in other words, the union. This article was published in the *Journal of American Medical Association*, and also in the *Electrotypers and Stereotypers Bulletin* July, 1959. The point of the article is not very helpful, because they got their items somewhat confused. They used unreasonable concentration of materials and some materials probably should not have been used. Maybe some should have been used in their patches, but they came up with some information that should be helpful.

Lithographic pressmen have the highest incidence of dermatitis, and the platemakers were next. Approximately 53 per cent of the cases among those that had dermatitis were pressmen. Among platemakers only 23 per cent. Both the pressman and platemakers do come in contact with bichromites or chromic acids in their work, but platemakers, you would expect, have the greatest exposure. So there is more to this dermatitis in lithograph than just bichromites. The pressman also deals with solvents. The platemakers do too, in fact. Alcohol is the main problem there. But the pressman uses benzine or some solvent for press cleaning, washing up ink, and so forth, and he continually has his hands in the water. He puts them in the fountain water occasionally. He is handling inks and solvents. So it isn't clear just what it is that causes his dermatitis. You can't pin it down to one single thing. It is a combination of factors.

This article by Drs. Levine, Bruner and Rattner calls attention to the fact that contributing factors are skin injuries, the solvents, the soaps and primarily the irritants such as acids and alkalis. I might mention that the lithographic pressman used slightly acid fountain water which may contribute to that. They classify bichromites as the sensitiser. In the history of these cases the pressman, on the average, took five years of press experience before he developed this dermatitis, before he became sensitized. And the platemaker required about 15 years. Those of course are averages. There are some people who are so sensitive that they get the bichromite dermatitis practically immediately. There are some people who never operate presses or make plates, for instance office people, who are so sensitive that they seem to get it by just walking through the shop. I ran across a case like that in Cincinnati. The man in the office simply had to stay out of the shop or he would break out with dermatitis.

There is no preventive or cure. The recommended preventions are, of course, to minimize the contact with these materials, and to eliminate, if possible, all irritants and sensitizing materials. The Lithographic Technical Foundation has done a great deal of research along those lines. It developed a material to take the place of turpentine, because we feel that turpentine was not only a strong irritant but also could cause sensitization. I think most of you know what 'painter's itch' is. It used to be more prevalent when painters used turpentine more, but less now since they use other substitutes. We have done a great deal of eliminating of bichromites. We have published formulas for fountain etches and plate etches to be used by pressman that have little bichromite.

As far as platemaking is concerned, many plates are still made by bichromited gum or bichromite aluminum or bichromite casing, materials that can cause dermatitis. But now we have the presensitized plates which are coming into pretty general use which use a compound for desensitizing, and we haven't found any dermatitis as a result of the use of the material. The plates come already coated and there is really not much that the platemaker needs to do, except to expose the plate and develop it. The development means handling solvents, but we

haven't run into any particular trouble with those plates.

We have gotten away from bichromites largely because of the decrease of the use of zinc plates which in many cases seem to require a bichromite etch to keep the name printing areas clean. Aluminum plates do not require bichromite plates. The long life copper plates do not require bichromite in their development or etching.

That is about all I have to say, except that we are continuing our work at the Lithographic Technical Foundation to try to find ways of avoiding these materials. We have developed the use of carbon cellulose. That is somewhat a better desensitizer than gum arabic, and it is possible to use etches for keeping the non-printing areas of the plate clean. We use it to a certain extent. A great deal needs to be done in the industry in the way of education in the use of these materials. But the trouble is not altogether bichromites. There are many factors involved other than the solvents and the bichromites. In other words, irritants and sensitizers, but also the fact that abrasions of the skin can cause trouble, enabling the irritation to be much more severe.

Chairman Straube: I for one have seen a report on dermatitis in lithography, but I was wondering if there is some sort of a package work that you have done on the thing that perhaps we could get if we wish to send for it?

Mr. Reed: The only book we have is available from the Foundation, and the only other information is in our booklets on platemaking.

Chairman Straube: We have gone through a lot of details of the specifics on safety problems. We have one last speaker who would like to talk to you about something which perhaps everybody feels they know about, and yet there are always a lot of people enrolling in classes to find out how to do it better.

Gordon H. Rosberg is safety director of Richter McCall and Company. He graduated from Northwestern University in 1940 with a B.S. degree in economics, and graduate work in marketing and business administration. He is a Naval Air Reserve Commander at Glenview in his spare time. And he is also a salesman for this organization. The title of his talk is "Organize—To Promote Safety."

ORGANIZE! . . . TO PROMOTE SAFETY

By GORDON H. ROSBERG

Safety Director, Richter McCall & Company, Chicago

There is ample evidence that there is a need for better organization of the safety effort in the printing and publishing industry. Too often there is no clear appointment to the job of safety director. Too often the job of the safety director is not clearly defined. Too often the safety director is not correctly placed organizationally. Too often the safety director is expected to perform his mission without proper equipment and training materials. Too often the safety director lacks backing of management. The statement of the need helps to suggest a solution to the problem.

Clear Appointment—If your organization does not have a person or persons performing the function of safety director (or whatever you may wish to call him) or if this function is now scattered to the four winds within your organization, pull this job together into a definite, specific appointment given to a single individual. Give him the title he deserves as safety director. Let your organization know of your appointment. See that this individual uses his title.

Clearly Define Job—A complete job description of the safety director will do a world of good. Others in your organization will know what management expects and demands of the safety director. (This strengthens the position of the safety director in doing investigative work and suggesting changes.)

Correctly Place Organizationally—Practices vary widely in different organizations relative to the positioning of the safety director within the organization structure. The Chicago Tribune has a safety director named Bob Monnel who is placed in the insurance department. Lloyd Hollister in Wilmette, a publisher and printer of several village newspapers, has no specific safety director by title, but Bill Selby, the plant superintendent, performs the function of safety director and does a wonderful job of it as his accident record will testify. Be sure your safety director is properly placed within your organization to perform his job most effectively.

Proper Equipment and Training Materials—If you need help in this department, contact the National Safety Council. They have every conceivable kind of aid for those who wish to start and maintain a safety program. For the printing industry the National Safety Council has a complete kit for safety training which has a safety manual, an instruction guide, posters, data sheets, training cards, and really all that is required by even the biggest printing plant for getting into the safety swim efficiently and economically. Make a note to get this material for your safety director. In addition, please see that he has equipment needed, a place to work, and the opportunity to work his mission of humanity.

Backing of Management—Your safety director needs the understanding of management of his vital role in the organization. Management should back this individual in word and deed. The safety director should be brought into those conferences within management which involve safety considerations (which are more frequent than often thought). He should be sent all materials and data which will enable him to do his job better. In short, your safety director should be "built up" within your organization.

Compare the usefulness of your safety director to the sales manager of your organization. It takes a lot of sales to make a profit. But you can also make a profit as a result of a lot of no accidents!

QUESTIONS AND ANSWERS

Question: When a person comes in for his pre-employment examination, can you tell definitely what he can hear and what he can't hear?

Mr. Mansfield: We give him an audiometric test.

Question: Do you know, or do they tell you?

Mr. Mansfield: the test reveals where there is a loss of hearing, whether it is normal or not.

Question: Should that be part of a pre-employment examination?

Mr. Mansfield: Yes, if you are faced with a loss of hearing problem, it should be.

Question: We are not now, but you say we will be. Measuring sound is old in itself, but this industrial measuring of sound is new, isn't it?

Mr. Mansfield: No, I don't think it is.

Question: Where would we get some information on it?

Mr. Mansfield: There are any number of services. I would suggest that you contact your insurance carrier and their engineering department will bring in the equipment and do it for you. If, however, they are a small carrier, without the equipment, they can either give you the names of a consulting concern who will do that.

Member: We had a man who dropped in on us the other day and he said he performed that service on a consulting basis.

Mr. Mansfield: I'm sure in the size of your community down there you certainly can find other industrial firms.

Question: If we have no problems, no one is talking about it, the unions are not talking about, no one is talking about it, we have no complaints of noise, should we stir it up?

Mr. Mansfield: No. I don't know whether you are all set or not. I don't know what is in the minds of your legislators down there, but once they decide to put that in as a compensation law, then you are going to be faced with it.

Chairman Straube: Then it is too late to start.

Mr. McDonald: We are servicing several newspapers so my questions are on the newspaper end. I am going to be fair. I bring these questions up because I don't know, I am not versed in newspaper safety programs, so whatever you can give me will help me out.

Number 1, what programs do you have for pressmen who fail to use the safety buttons? For instance, in this particular case they have a white light which says the press is out of order or shut off, but they fail to turn the safety button, and somebody else pushes a button and so it is on. Do you have any precaution to remind

them of the signal system or warning sign? And why is the button white when it matches the other lights?

Mr. Juroff: We use a system of red buttons. When you push that "Stop" you have a red light and you have a bell. When you push the start button, before the press will start you have a few seconds where a bell is going to ring, and you have a green light when she starts.

Mr. McDonald: I made that suggestion and I was thrown out, practically. The lights have always been white. They will be white for the next year because that is the printing code. If you get a man from San Francisco to come to Chicago, he is only used to white lights. When the lights are turned, all the lights light up white. and for a layman like myself you think they are turning on lights for illumination.

Chairman Straube: We have about the same condition in the general printing field. But they use a system of flashing lights, rather than a bell.

Member of group: It is the American Standards code.

Chairman Straube: You have a system of flashing lights when a safety button is not in that will tell you it is not in. When the safety button is in, the lights are constant. Before you can start the press there is enough of a time delay to allow two or three flashes of light before it will go. It is the American Standards Association for printing.

Member of group: The National Safety Council, I'm sure, can tell you the number, because there was a bulletin on that in the newsletter.

Mr. Juroff: All of the New York papers used the red signal system. In analyzing our accident experience in the pressroom, we have not had one accident that involved a press, except when a man walked into one.

Question: We don't manually fix our safety buttons on the presses.

Members of group: It depends on the interlocking. It isn't something you have to lock. You can make sure it is going to stay. They never interlock the same. Your lights and the button will follow the same.

Mr. Lott: I have two short questions for the doctor over there. In your physical examination of prospective employees, are you

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able to detect an epileptic if they don't admit it?

Dr. Pohlman: Unfortunately, we are not. The only way to pick it up is by an electro-spectrogram, which is a rather involved process of applying electrodes to the scalp and taking a reading. It is not practical for an industry to do it. We would have to have somebody interpret it. It is expensive machinery to install.

Mr. Lott: My second question applies to a diabetic person. If they suffer, let's say, a relatively minor injury, how much more serious is their recovery than that of a normal person?

Dr. Pohlman: Not at all, providing they are regulated and you watch them a little more closely than somebody else. If they are regulated, they will do just as well as anyone else. But you have to watch them pretty closely.

Question: I'm also a consultant to newspapers. In checking the ages of the people in our composing rooms and pressmen. I find we have a predominant average age of 58 years. Where a man has been out on a disability and he comes back we can't examine him because the union squawks, "You can't examine that man." We have about 40 to 60 per cent of our current force, the mechanical force, walking around waiting for a coronary attack. Can you tell me what we can do with these people?

Dr. Pohlman: Coronaries occur even earlier than 58.

Chairman Straube: Are these people who have been tested previously?

Member: We have tested all of those who have been out on disability in New York State. We have half in New York State and the other half from Binghamton and Portland.

Chairman Straube: You know they have heart conditions?

Member: There have been disability benefits paid in other states where we haven't been able to get our there to nab the man. The union hasn't allowed us. Our unions take a very dim view of it. On the whole examination picture, we know we've got these fellows. And just what the devil are we going to do before they keel over?

Mr. Juroff: I would assume the possibility exists where you can put some of

them in the proof room or in some sedentary job.

Dr. Pohlman: They have to have limited work. That is understood.

Member: A steady follow-up would be the answer there. That is what we use at the *New York Times*, depending on the cardiac evaluation.

Chairman Straube: What do you do at a certain point?

Member: If we feel the man is able to work and is a known cardiac, he carries a card with him. We place him in a job if we have a job for him, with limited duties. If he is a pressman and has been on the job for quite a while, we will keep him on.

Chairman Straube: Can you separate them?

Member: No.

Mr. Mansfield: I have one suggestion for this gentleman. In New York State, you approach your union with the idea that you are going to prolong this man's life by having a cardiac specialist evaluate his physical condition. We have had the same problem and when we have approached them with that idea, that we would then give the man work that was in keeping with the physical findings, it has been acceptable to them.

The second thing that you definitely want to do is alert the employers you service and make sure that the condition of these known cardiacs is registered.

Question: Dr. Pohlman, we have quite a fluctuation of employment. Do you have any standards as how long a person is on a lay-off status before he has to get a physical, before he returns to work?

Dr. Pohlman: We handle that pretty much as an individual problem. It depends upon what their record was when they previously were employed, from a physical standpoint, what kind of work they are going into. If they were going to come back and go into a temporary job, we might just interview them and not give them a full physical. If they come on as permanent employees they would get the works.

Sam Richards: I would like to ask the doctor, in your talk you made reference to identifying a diabetic. What means of identification do you use?

Dr. Pohlman: Usually you pick it up in the urine specimen. Diabetics are reluctant to tell you.

Mr. Richards: But it may not be known to the plant, to the safety man, that this individual is a diabetic. That was not what you had reference to?

Dr. Pohlman: Ordinarily, the safety man doesn't know that he is diabetic. We have his chart marked in the medical department. We know and have it marked on the outside of the chart in large red letters, so anyone pulling his chart would know it.

Mr. Richards: If you do know he is diabetic, what precaution should you take?

Dr. Pohlman: You wouldn't have to take any particular precaution, unless the man appeared to be in shock or in a coma. Then naturally he would have to have medical treatment.

Mr. Richards: First aiders are safety people. There is nothing for us to know?

Dr. Pohlman: Only be careful in the application of heat or in the recommendation of heat to the party.

Chairman Straube: As I understand it, a diabetic, when injured, is much more subject to infection, to gangrene, to a great many things, than a normal person. You would have to be careful.

Dr. Pohlman: In five minutes they are in the hands of the medical people.

Mr. Richards: That is the way it should be.

Dr. Pohlman: There is no reason to identify a person.

Mr. Richards: What I meant was, if the people involved in the department knew that the individual was diabetic, and if anything happened, the information could be passed on to the hospital or to the doctor.

Mr. McDonald: Where you call for people to come from the union, what do you do to control the situation? Is there any particular program you have to establish?

Mr. Juroff: You mean for using substitute help? We have to accept what the union sends.

Mr. McDonald: It seems that the news-

papers are very generous to their employees on this accident or safety program. They have these employee benefits so they are never losing money, but it seems to be abused. Are there any controls on that or any special provisions?

Mr. Juroff: In my talk I mentioned fraud as a cause for dismissal. If a man does not report the accident immediately, disability benefits are withheld. Or if a man suffers three lost time accidents in a five-year period, on the fourth such accident, during that period his disability benefits are withheld.

Mr. McDonald: We are looking for a cross-over conveyor that will be light enough—

Mr. Juroff: A cross over for a conveyor belt, for plates?

Mr. McDonald: For mailing operations. The way they are built you have to have a bridge to move it.

Mr. Juroff: We have a small one that crosses over the plate conveyor. It is sort of a semi-circular affair.

Mr. McDonald: What about posters? We are taking photographs of right and wrong operation. Any way we can send them to the section and get a few from the printing industry or the newspaper industry?

Mr. Johnson: I think, George, that we can work that out by coming up to the office and going in to the art department and have our art people look over the information. And I'm sure the newspaper people will have posters from here on in because we certainly are getting an influx of newspaper people and they must be taken care of. Therefore, I am sure there will be something done.

Mr. McDonald: I mean, is it possible for a kit to be made up for the newspaper?

Mr. Johnson: I think there will be.

Chairman Straube: I can't quite understand why we have to talk about newspapers on the one hand and printing on the other. Don't you print a newspaper?

(The Chair was resumed by Mr. Grothaus, and the meeting concluded.)

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