come a definite attitude or habit, and we know of no better way to accomplish this than by an adequate program of education and training. The employee must be taught that there is a right and safe way to do every job, and that this right and safe way is the only way the job should be done. I am sure that every company has some sort of training procedure for its employees. There has been no end of suggestions for training methods, and the subject has certainly been widely discussed. The training program which is most likely to succeed is the one that fits the particular type of industry and the caliber of its personnel. In our St. Joe operations, we are seeking the type of educational program which will do a more efficient job of teaching the employee to think, to remember and to acquire a proneness to convert that knowledge into effective action. We are also trying to find some sort of a check-up method by which we will be appraised of the results, if any, that are being attained.

Safe Practices in Foundry Operations

By F. W. SHIPLEY
Foundry Manager, Caterpillar Tractor Co., Peoria, Ill.

We have always considered a progressive safety program just as essential in the operation of our foundry as the making of quality castings. Most of you are familiar with the rather unsatisfactory reputation foundries have had in the past relative to production methods, working conditions and safety measures. These conditions were more or less accepted as a part of the industry's environment.

Up until the early twenties foundry production was of a wide variety of castings and small quantities, however, when the popularity of the automobile began to grow the problem of production became apparent and new foundries were built and old ones expanded. These foundries were specifically designed to latest engineering principles of planning and operational procedures, embodying efficient handling and production methods with proper consideration to working conditions and safety.

We at Caterpillar were confronted with those same problems and a new foundry was built and started operation in 1930 and at that time the very latest design of mechanical equipment for producing and handling castings was installed together with latest methods of ventilation. These have been further improved through the years to keep pace with developments. Realizing that a progressive safety program was an essential in the operation of our foundry, safety equipment manufacturers were consulted to design equipment which would give maximum protection to workers in all phases of operations. Employees were trained in safe practices as an important part of their jobs.

The results of this progressive program were indeed gratifying. Increased efficiency of production, lowering of operation costs, reduced labor turnover and improved employee morale were the benefits derived from this program.

For the last ten years we have been pouring 450 tons of grey iron and alloyed casting per day on a five day basis. Very frequently, in order to meet production requirements, we have worked six days per week.

Quoting from the National Safety Council injury rates for 1948, the national average for grey iron foundries is listed as: frequency—13.87 and severity—1.43. Caterpillar foundry's safety record for this period was: frequency—8.4 and severity .095. From the same source, the three year average for foundries for the years 1947-49 lists: frequency—17.21 and severity—1.49. Caterpillar foundry's figures for this period read: frequency—7.78 and severity—.071. Naturally, we are very proud of these comparisons, but we have no illusions that we have arrived at the point where improvement can no longer be accomplished. To the contrary, we will continue to stress safety in the operation of our foundry.

Safety Equipment for Foundry Workers

By PHIL OLSON
Safety Supervisor, Waukesha Works, International Harvester Co., Waukesha, Wis.

Let's talk about some of the safety equipment used to protect our foundry workers. First on my list is goggles. Goggles of all types should be provided. It is important to get the right type of goggles for the job. I believe one of the most important things is first to sell the employee on the idea of wearing eye protection rather than to emphasize the compulsory wearing of goggles. If you do have the proper goggles for the job the employee is doing, then and only then can you expect your employees to cooperate with you, rather than think up a million and one excuses why they cannot wear them.

Goggles must also be fitted, always feel comfortable, and be kept in good repair. Fitted and scratched lenses should be replaced, so that they do not interfere with the employee's vision. Speaking of goggles fitting properly, I personally know of plants where goggles are provided, and where, in ordering frames, they overlook such important items as ordering different size bridges. Unless you have these different size bridges you surely cannot get a proper fit, because you must have frame sizes to fit various face sizes.

More and more employers are providing corrected lenses or prescription goggles for employees with defective vision. This in itself is a great help to the safety supervisor, as you seldom have trouble with employees, who cannot see properly without glasses due to defective vision, when corrected lenses are provided. One of the biggest objections I have encountered is to sell the employee on wearing goggles with side shields. Many excuses are made. The most common being the excuse that they retard ventilation and cause the lenses to fog. Secondly, side shields create a blind area on either side of their vision, and they cannot see such things as cranes, trucks, and other moving hazards approaching from the side. I think they may have something there, but I haven't found a substitute for side shields to prevent an object from entering from the side of the face and probably causing an eye injury. The greatest salesman for goggles is a few so called "eye saved" cases, and we have had plenty of these.

With the wide variety of goggles offered by the safety equipment companies today, I don't believe it is much of a problem to get the right type of goggles for any job, but regardless of this, you still have a selling job to do on your employees. Incidentally our company like many others furnishes corrected lense goggles to employees at no cost if they are required. If the employee leaves our company he has the privilege of paying one-half the cost price of the goggles and retaining them for his own use. By doing this you help the employee safeguard his eyesight no matter where he finds employment. We require the use of goggles by all employees in the plant except our molders, and we are arranging for coverage in that department now. We have not required our molders to wear goggles as they do no pouring or shifting, since we have a highly mechanized foundry. Our molders only make molds, and place them on conveyors next to their benches from where they are then conveyed to a pouring area. However, we know an eye injury hazard still exists, and we hope to have our employees completely equipped with goggles soon.

Our next important piece of safety equipment is leggings. We require that all employees such as shifters, who are working near the molds being poured, and of course the pouring crew, tappers, etc., wear knee type leather leggings at all times. We have tried several kinds of leggings and have found the knee type most serviceable in our foundry. Some of the reasons we finally decided on the knee-type, chrome-leather legging is that you can quickly jerk it off in an emergency. We did use a hip-type chrome-leather legging, but our experience has been that when carrying hand ladles, they are carried and raised in pouring a little above the knee, causing the leather to harden and shrink between the knee and the hip. We have been unable to bring back the original texture of the leather from its shrunken condition, and it does