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MONTHLY, VOLUME III,
NO. 10, OCTOBER 1921. COME
TO CHICAGO, PP. 515-576**

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ENGINEERING



Vol. III

No. 10

October, 1921

Come to
Chicago

Let us
Promptly agree
Among ourselves
As to what
The Gas Industry needs;
Then,
As one man,
With our shoulder
To the wheel,
Let's get it.
It can be done.



WE began the year with the determination to agree among ourselves as to what the gas industry needed and then, as one man, to get it. In all essential particulars, the members of the American Gas Association have agreed. In the effort to advance and improve the condition of the gas industry, they have—as one man—put their shoulders to the wheel and their enthusiasm into the task and the gas industry has moved forward under the force of united effort and with the incentive of high purpose. We will meet in Chicago not so much to review what has been done, as to blaze the trail for further progress. To you loyal A. G. A. men who have made the Association the strongest factor and the

acknowledged leader in the development of the industry, I express my warmest gratitude and appreciation for the unstinted support and encouragement that has been given to our efforts. To those—both gas companies and individuals—who have yet to become members, I say that no more worthy cause commands your support and interest than the upbuilding of the profession of which you are a part through the National Association which is so efficiently accomplishing that object.

The gas industry is in the front rank of the nation's essential enterprises. Let your presence at the Chicago Convention show your faith and determination to make for it an even higher place. Let us go forward together!

A handwritten signature in cursive script that reads "Charles H. Murray". The signature is written in dark ink on a white background.

PRESIDENT

AMERICAN GAS ASSOCIATION MONTHLY

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OCTOBER, 1921

No. 10

A Bill Payable in Human Life

MELVILLE W. MIX, In The Nations Business

ABOUT eight years ago a handful of men got together at Milwaukee and organized what they then called the National Council for Industrial Safety "to promote the conservation of human life and its incidents in the industries of the Nation." The growth of this little organization to the National Safety Council of to-day is proof of the fact that there are in this Nation's business such things as true co-operation and self-sacrifice, for only such spirit could have made possible the growth of a non-commercial association devoted to accident prevention and industrial health work from a membership of 14 in 1913 to a council of some 4,000 employers who operate more than 8,000 factories, mines, railroads, public utilities, and other industrial enterprises and employ more than 7,000,000 workers.

Industry is
fast learning
the cost of
carelessness
and that the
cheapening
of life is a
most expen-
sive thing.

The movement, born and developed in America, is now spreading to every other country on the globe. England, France, Belgium, Norway, Sweden, Japan, China, Australia, Palestine and even South

Africa have asked and secured America's help in organizing industrial and public-safety movements.

As far back as 1893 the subsidiary companies of the United States Steel Corporation employed safety inspectors and utilized what crude safety devices were then known. In 1904 the steel corporation issued the first safety rule book published in America and two years later the first standard safety device book. But it was not until 1906, when Steel Corporation's plants met for that purpose, that an attempt at an exchange of information and ideas regarding accident

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prevention was made. Two years later the first central safety committee was organized among the executives of the steel corporation and the first intensive investigation into the causes of accidents was undertaken.

Then came twelve years of discovery for the men engaged in organized accident prevention work. The Steel Corporation, the Chicago and North Western Railway, the International Harvester Company, and the other pioneers in safety work got together first to exchange ideas, and finally to organize a clearing house which would bring all the available information on accident prevention to their fellow employers and competitors alike. The pioneers in the movement, far from looking upon such information as a valuable trade secret, shouted each discovery to the world.

What were some of the discoveries?

First, that accidents can be prevented. Eleven years ago the pioneers in railroad safety work were told "it cannot be done" and to-day an analysis of railroad accident statistics made by the National Safety Council discloses the fact that in ten years 37,000 lives have been saved by safety work on the railroads of the country. And railroad safety men say, "We are just scratching the surface. The next ten years will show a 50 per cent improvement over the record of the last ten years."

The discovery that accidents can be prevented brought a flood of legislation requiring the guarding of this, that, and the other thing and for a while employers felt that when all the belts, guards, set-screws and the casualty managers of all the United States flywheel pits in their

shops had been guarded their safety work was done. But they were soon disillusioned, for accidents continued—true, not in such great numbers.

The second discovery was more remarkable and, unbelievable as it may seem to-day, was a great surprise to the industrial executives of ten and fifteen years ago. It was the discovery that the great majority of accidents are caused, not by unguarded belts and gears, but by carelessness or ignorance of workmen and their supervisors—the discovery that mechanical guarding can be relied on to prevent only a third or a fourth of the total number of accidents and that for the prevention of the remaining two-thirds or three-fourths we must rely on education, training, and supervision.

Then came a third discovery, that safety work is not only humanitarian but good business. No one man claims credit for this discovery. It is something that every employer who puts in an efficient safety department realizes in his own way. This is how one of the pioneers of the movement says the realization came to him.

"One of our best workmen had been killed by the explosion of a high-speed emery wheel. A large piece of the wheel struck him in the chest and killed him outright. A simple guard that we might have made in our own shop at a cost of five dollars, would have prevented the accident. The death of this workman cost the company \$4,000 and left a widow and three children who promised to become public wards because of the inability of the mother to hold the family together. This accident haunted my mind for months—not only the hideous

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injustice done the mother and children, but the utter stupidity of the thing from the standpoint of cold-blooded business efficiency. That inquest marked the beginning of my interest in safety and was one of the things which finally aroused my employer to organize safety."

When the safety director of the International Harvester Company rushed into the office of the manager of their steel plant one day and said that he had just been over at the Illinois Steel Company and had learned that in their first two years of organized safety work they had reduced deaths and serious injuries 65 per cent, his chief replied, "It can't be done. I don't believe it." And when the safety director insisted on telling just how the steel company was bringing about this reduction, his chief sent men to make three independent investigations. He found that what his safety director had said was true and immediately followed suit, with these results in the first twelve months:

Deaths were reduced from 4 to 1.

Serious injuries were reduced from 59 to 28.

Lost time was reduced from 92,000 hours to 49,000 hours.

And the saving in two years paid for the entire safety equipment costing \$46,000. Employers everywhere found that—crude as the safety work of those days was—it not only paid its own way by reducing lost time and labor turnover, but cut down compensation costs, insurance costs, and hospital bills.

Another giant stride toward the elimination of accidents was the fourth adventure, the discovery that "engineer-

ing revision"—the redesigning of machines or manufacturing processes—would eliminate exposure to accidents. Safety men realize that, while it is well to put a guard on a dangerous machine or to teach the operator to be careful it is better to eliminate the dangerous element of the machine. They realized, for instance, that while a punch-press guard may greatly reduce the number of fingers and hands cut off by the press, engineering revision—which, in this case, might mean merely the installation of an automatic feeding device or an automatic kick out—would make it unnecessary or impossible for the workman to get his hands under the plunger.

Engineering revision opened up still new and vast accident prevention possibilities which have been utilized by thousands of progressive manufacturers and it led to the fifth great adventure in accident prevention—discovery of the fact that accident prevention increases production. When manufacturers who use punch presses by the thousands equipped these machines with automatic feed devices—as a rule, simple homemade affairs—they had in mind only saving the punch-press operators' hand and fingers, but they found that in addition they had made it possible for the operator to turn out ten to 50 per cent more work. And so throughout industry safety men began to find that what had been considered merely as accident prevention was really an efficiency device. This was one of the most fortunate discoveries of all, for it did a great deal to break down the workman's opposition to safety devices—an opposition based on the mistaken theory that the safety device or revised process would interfere with

his work or that it would cut down his output and thereby his wages.

When the United States entered the war safety came into its own. Then as never before did the cry go out for maximum production and minimum labor turnover. All sorts of experiments were tried and many varieties of research in industrial management conducted. Then it was that the companies which had enjoyed well-organized safety departments for years before the war found themselves in a much more advantageous position than their fellow employers. It was during the war that manufacturers realized that safety work offered the first common ground on which employer and employee could meet without possibility of controversy and with inevitable profit to both. In fact, in many of the big industries the most effective industrial management organizations were built up on the foundation laid by the safety department. The employer who, by making his plant a safe and pleasant place in which to work, had demonstrated to his men that he was interested in them as human beings did not find it difficult to put in improvements in labor management. He already had his workmen's committees, his training schools for foremen and his mediums of contact between management and men.

By this time accident prevention work had become pretty well specialized; some of the best engineers of the country had been attracted to the field; and definite plans for installing and operating a safety department in any sort of an industrial organization had been developed and thoroughly demonstrated. Posters, prepared at the headquarters of the Council and distributed weekly to its

members, began to appear regularly on plant bulletin boards. The Council began to distribute Safe Practices pamphlets—symposiums of the actual experiences of the companies which were doing the most successful safety work. Moving pictures, plant publications, and other means of bringing safety propaganda to the workmen were developed.

Then came the realization that the accident experience of a plant depends not entirely on the workmen, but more largely on the foremen and the management. Employers discovered that to most workmen the foreman represents the management; they began to realize that unless the foremen are really won over to the safety movement the workmen never would be. Safety men, themselves, began to realize that until the management of the plant was whole-heartedly behind safety work—not merely in the matter of supplying funds, but in respect to personal interest as well—superintendents and foremen never would be.

Safety men began to discuss "How to sell safety to the big boss." Some said it could be sold best on the basis of economic considerations, others, on humanitarian considerations. Both were right. The fact is that in the last five years the executives of American industry have become thoroughly convinced of the value of organized accident prevention, some because of the dollar-and-cents possibilities, others because they hated to see their men killed or injured.

Even to-day discoveries are being made in the science of accident prevention. Within the last year, for instance, there has been enunciated the principle that *every accident is the symptom of an inefficiency*; that everything which is really

efficient is safe; and that every machine or process which is really safe is efficient. The truth of this theory has been demonstrated in actual practice by E. I. du Pont de Nemours & Company, the National Lead Company, and other members of the National Safety Council.

The story of the safety movement in America is a story of the success of co-operation where coercion had failed. A decade ago very little was being done to prevent accidents. That little was done reluctantly. And the reluctance was to a great extent due to prosecution by state labor authorities. Because of the policy of using the club and star, then universal among factory inspectors, there was no cooperation between employers and governmental agencies. The belligerent attitude of inspectors had the effect of discouraging employers and leaving a bad taste in their mouths, a taste which remains to this day in some states.

Contrast with that the conditions of to-day which make possible a happy family of 8,000 men and women—factory

managers, city, state and federal officials, educators, and civic, commercial and industrial leaders—all working together on a cooperative basis for the prevention of accidents on their own properties, in the other fellow's plants, and in the country at large. Picture policemen mixing with truck drivers for the prevention of traffic accidents; picture school teachers meeting with business men in the interest of educating the child to avoid accidents; picture state factory inspectors and factory owners in an amiable conversation; picture employer and employee getting their feet under the table to talk over reduction in injuries, lost time, and other forms of industrial waste. Picture these things, then you have some idea of what the safety movement has done to American industry.

Rosy as this picture is, however, it includes not more than 25 per cent of American industry. Seventy-five per cent—the employers of twenty million workers—have yet to see the light.

"It is the Industry's Fight"

THE American Gas Association has come into its own. . . . It is of the utmost practical assistance to its company members who are in need of information as well as oral testimony in cases which are of vital importance to the industry. This feature of the Association's service should be given as much publicity as possible."

The foregoing expression of appreciation of one of the features of the Association's service comes from one of our company members which has been fighting for the cause of reasonable and economic heat value standards.