Wednesday Afternoon Session
October 14, 1931

R. E. DONOVAN, Chairman
Standard Oil Company of California, San Francisco, Cal.

The second session of the Petroleum Section convened with General Chairman R. E. Donovan presiding.

CHAIRMAN DONOVAN: It gives me great pleasure, at this time, to introduce Mr. H. J. Larsen, of the Willson Products Company, Reading, Pa.

Eye Protection in the Petroleum Industry

By H. J. LARSEN
Advertising Manager, Willson Products, Inc., Reading, Pa.

I am going to ask you to go back twenty years. We will call that the beginning of the industrial safety movement. At that time, if men wanted to wear goggles, it was thought to be weak and effeminate. Many hard-boiled men thought it was smart to confront all dangers with physical strength. That opinion has rapidly changed. Industry has spent thousands upon thousands of dollars, through you men, in doing educational work, both from a humanitarian as well as from an economic standpoint, to stop accidents. I think it has arrived today at a point where the labor of this country not only expects safety, but it seems to be a socialistic tendency to demand it; not ordinary safety, but the best safety that science and money can produce.

Just as scientific research and development have played a part in the petroleum industry and other industries, they have played a great part in the manufacture of safe appliances. For instance, in the early days, goggles were made with ordinary glass. The intensity of the hazard largely determined the thickness of the glass. The greater the hazard, the thicker the glass, and vice versa. Industrial operations, however, became so intense that ordinary glass wouldn't do. Finally a little optician up in the state of New Hampshire, in the year 1912 discovered a process for hardening glass, a process similar to that of case hardening steel. It seemed to be such a boon to the safety movement that it was accepted by all manufacturers and by all industries as a great thing. We and others went around the country with ball dropping machines, dropping little steel balls on the glass to show the great improvement in strength.

It seemed to be such a help at the time that no one ever questioned the character of a thing that could do so much good. In the goggle field, there were hundreds of thousands of dollars spent in buying goggles. The money has been spent largely by you men in doing educational work. Yet I think no one will deny that the results were hardly commensurate with all the money spent. Accidents kept increasing. The National Safety Council and the Society for the Prevention of Blindness estimated, that in the year 1929, there were more than 200,000 eye accidents. This is at the rate of two every three minutes, night and day for 365 days.

Getting back to glass, up to the year 1924-25, every industry had rather a bad eye accident experience. Probably the largest user of goggles in this country is the United States Navy, in ships and yards and docks throughout the world. Their eye accident experience had been so sad that it was finally called to the attention of the Secretary of the Navy. They had been buying hundreds of thousands of dollars worth of goggles in one year, and had about the worst eye accident experience you could imagine. They decided to make a survey and see whether they could find the reason for it. They sent questionnaires to yards and docks throughout the world and asked why, in spite of the goggles they purchased, they continued to have so many injuries and lost eyes.

The answer was, as you have had it in every industry, "We cannot make our men wear goggles." Men complained of headaches, poor ventilation, ill fits, and everything that goes with the wearing of goggles. The major complaint was that of eye strain and headaches.

The Research Department of the United States Navy then decided to investigate all types of manufactured goggles in this country, particularly clear glass goggles. They found they were hard enough for all practical purposes but when they came to optical clarity and quality, they found this heat treating process had introduced a strain or poor quality in the glass that had not been there before heat treating. In heat treating of glass, we set up two strains, one in the exterior surface and one in the interior. The strain on the exterior is caused by the quick chilling of the glass after it is heated, and is known as strain of tension. The inside strain is known as the strain of compression. If those two strains don't balance, the glass becomes warpy and wavy causing eye strain and headache, and eventually leading to the need for correction spectacles.

The Government found this out in the year 1926. They called in leading manufacturers. In order to make sure we were on the right track, my own company consulted the leading men of this country and two of the leading men in Europe, all agreed.

The First Code Published

The Research Department of the Navy then laid down certain tolerances within which glass must come to be acceptable. I believe the first code was published in 1927. Later this was revised by the Federal Specifications Board, who on December 9, 1930, published a code on clear glass goggles, known as GGG-G501. It is mandatory for all government branches today to purchase in accordance with that code. Since that time, many large individual corporations have either accepted it in whole or in part, either as their own, or have embodied the essential parts of it in their own specifications.

Beside taking into account the quality and hardness of the glass, they also decided that the safety goggle should be somewhat larger. The old type of cup goggle had set inside the optical cavity, not resting on the bone but resting on the sensitive part of the eye. A man could be struck with a fast flying obstacle without breaking the glass or goggle, without hurting the eyeball, but seriously impairing the sensitive nerves around the eye. They specified that a fifty millimeter lens must be used (two inches in diameter) against the old one of forty-five or forty-seven. They also specified that cups must be molded right and left instead of made interchangeable.

I am now going to ask every one of you to imagine for a moment that you are an employer and the defendant in a civil court action, brought by a man whom you have hired who has been doing work which was eye-hazardous. You have provided the man with goggles. You have advised him of the danger in the work he is to do and the hazard to the eyes. The man has deliberately gone into the plant and has removed the goggles, and lost his eyes. Claiming negligence on your part, not his own, he brings suit in the civil court for $25,000. He is represented by a shrewd lawyer.

The defendant, in court, states that he has hired this man to do work which is eye-hazardous, that he has provided him with goggles and the man failed to wear them. The counsel for the plaintiff admits all this freely but points out to the court that the goggles the man was wearing had bad lenses, and that no man could wear them without contracting a headache caused by eye strain. The cups were ill fitting and didn't provide as much ventilation as they should.

We will say you selected those goggles. All of the goggles from which you had to choose were the same price, one dollar and one-half apiece. The manufacturers all held them up to you as good goggles, all widely in use, and you used your own ordinary judgment, not knowing the technical side, in selecting the one you finally purchased.

When the counsel for the plaintiff points out to the court that you had selected those goggles and had entirely overlooked, either through ignorance or wilfully, specifications laid down by the highest authority we have in this country today, he immediately proves your negligence. Most of the juries are comprised of men who work with their hands, and there is not one out of a hundred, in a case of a poor plaintiff against a wealthy corporation, which would not render a good substantial verdict.

Take an actual case; a brilliant lawyer had as one of his clients a man who was said to have a cancer of the throat which again was said to be the beginning of silicosis. They couldn't prove, however, that he had silicosis. The case was tried in Newark, New Jersey. The employers spent nearly $30,000 in defending the suit. They stated they purchased a respirator, one of a number held out to them by manufacturers as being in wide use and being a good respirator. It happened to be a few cents less in price than some others and they took it. They gave it to this man to wear.

In this court action, they were being sued for a large amount of money. They stated they had purchased what they thought to be a good respirator. They were fully aware of the hazards that existed in the industry, knowing the dangers of silicosis, that it was a progressive disease, and when once acquired could hardly be stopped. In view of this, the lawyer for the plaintiff brought to the jury the fact that this company knew a latent hazard existed in their plant, a serious one, yet they had not taken the time and trouble to find out how efficient the device was which they purchased for the protection of their men. This man, with a wife and family, was appearing in court in the most abject state of misery, suing for this amount of money. He was incapacitated, probably could not live more than two years. They had the ordinary jury and went through two or three weeks of testimony. The biggest point brought out was entirely apart from the merit of the case. I know of the safety appliance in question, personally, and think it good enough so if it had been worn the man would not have contracted the disease. Furthermore, they couldn't prove he had silicosis.

A Court Case

Let me read to you extracts from the judge's charge to a jury in a State Supreme Court: this related to another but similar case. "It was the duty of the defendant company to exercise reasonable care, that the place in which it set the deceased at work and the system or method adopted by it for doing the work should be reasonably safe for the plaintiff, and free from latent errors known to the defendant company, or discoverable by an ordinary prudent master under the circumstances. It was also the duty of the defendant company to exercise reasonable care and skill to provide safe machinery and appliances in which the deceased was employed, in keeping such machinery and appliance in a reasonably safe condition for such use, including the duty of making inspections and tests at proper intervals while he was so employed. If the defendant failed to perform this duty and the plaintiff contracted the disease from which he died, by reason of such neglect, the plaintiff can recover."

As I stated before, the counsel for the plaintiff proved that the company had been guilty of neglect. He proved that they had not taken reasonable care of the employee in seeing that the safety device given him was fit for the job. The jury came back with a verdict for that man for ten thousand dollars. This same company has pending against them in the state of New Jersey, between 190 and 200 cases of similar character.

If you are guilty of the same kind of neglect, you may suffer as this company did. Entirely aside from the merits of the specifications of the Government about which I told you, you have the duty of protecting your employees and saving their lives and limbs. You have to protect the pocket-book of your employer, to see that unfair advantage is not taken either way. You can do that without any additional cost to yourselves. It merely means becoming familiar with things as they are.

There may be peculiarities in your industry which may warrant a change from the specifications put out by the government. But there are certain basic principles involved which apply in all cases. No manufacturer has a monopoly on them and there are similar specifications for welding goggles, welding helmets, hand shields, and all kinds of head and eye protection devices, with the exception of respirators.

CHAIRMAN DONOVAN: I am sure we have all gained much from this paper. The members of our nominating committee include Mr. Smith, Mr. Prussing, and Mr. Currie, and we will ask the chairman to report at this time.

(Mr. Smith presented the report whereupon the following officers were elected:)

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CHAIRMAN DONOVAN: We will now hear from Mr. Walter B. Murphy, of the Atlantic Refining Company, Philadelphia.