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OF THE

National Safety Council

FOURTH ANNUAL SAFETY CONGRESS

HELD AT THE
BELLEVUE-STRATFORD HOTEL
PHILADELPHIA, PA.

October 20 and 21, 1915*

* The volume indicates that the Business Meeting and the General Session were held October 19.

PLAINTIFF'S
EXHIBIT

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NSC-45

THE NATIONAL SAFETY COUNCIL

When the history of the Safety Movement is written the employers of the country will be given a large measure of credit for taking the initiative in working out the practical problems of preventing accidents in the industries, in the homes, and in public places.

Previous to the annual meeting of the Association of Iron and Steel Electrical Engineers in Milwaukee, 1912, no unified national effort had been made to collate the facts and experiences of industrial accidents. Many agencies had made investigations and some of the leading industries had done constructive and demonstrative work. More than two hundred employers attended the first meeting of National Safety Congress and a pronounced expression of opinion was made as to the need for a national clearing-house of information which would be independent of politics and have as its sole aim the establishment of a bureau of information to which the employer could go for the cumulative experience of the industries in methods and practices for eliminating accidents in the plants.

The Second Annual Safety Congress took place in New York in September, 1913, and launched a national association, coöperative in form, and composed of safety men and the more progressive employers of the country. Headquarters for the Council were established at Chicago and business was commenced October 13, 1913. During the first year eleven hundred and thirty-one members were secured.

The Third Congress was held in Chicago in October, 1914. Here the work of the organization was perfected and a campaign of safety work inaugurated which soon made the National Safety Council the most important body of its kind on the continent. The Fourth Congress was held in Philadelphia in October, 1915, with almost a hundred per cent increase in the membership, representing approximately one hundred and fifty industries, many associations, governmental bureaus, and individuals. At the present time the Council has a membership of nearly seventeen hundred industries

Fourth Safety Congress

and associations, included in which are over fifty-six hundred representatives. The Council serves over 2,500,000 workmen.

The Council is supported entirely by annual dues.

Every Monday the members receive four or five bulletins, service letters, and material designed to advance the science of accident prevention.

Twenty-three Local Councils have been organized, and thirteen Sections have been inaugurated to study the particular hazards of specific industries.

The Council knows that employers are interested in practical methods for solving the accident prevention problem and as it has the facilities to promulgate these methods and supplement them by its own sectional and other activities, the prospects for its future are exceedingly bright.

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*The Prevention of Accidents Is
a Duty I Owe Myself, My Fam-
ily and My Fellow Workman*

National Safety Council

Public Utilities Sectional Meeting

Philadelphia, Pa.

October 20, 1915

DR. E. B. ROSA, Chairman

Acting Director, Bureau of Standards, Department of Commerce,
Washington, D. C.

W. J. CANADA, Secretary

Electrical Engineer, Bureau of Standards, Department of Commerce,
Washington, D. C.

WEDNESDAY MORNING SESSION

THE meeting was attended by about two hundred, the capacity of the room, with many standing. Dr. E. B. Rosa, Chief Physicist of the Bureau of Standards, Washington, D. C., acted as chairman, and Mr. W. J. Canada, Electrical Engineer of the same bureau, as Secretary. The following papers were presented:

"Linemen and Their Hazards," by Mr. Charles B. Scott, General Manager, Bureau of Safety, Chicago, Ill.

"Danger of Low-Tension Shocks," by Mr. H. S. Warren, Electrical Engineer, American Telegraph and Telephone Company, New York City.

An additional paper on the same subject, by Mr. Elam Milier, also of this company.

"Hazards of High-Tension Lines," by Mr. B. E. Morrow, Chief Engineer, Utilities Mutual Insurance Company, Schenectady, N. Y.

"Hazards of Gas Works," by Mr. James B. Douglas, Manager, Claim Department, United Gas Improvement Company, Philadelphia, Pa.

"Hazards of the Street," by Mr. Edward C. Spring, Manager, Philadelphia Division, Lehigh Valley Transit Company, Allentown, Pennsylvania.

The papers brought forth considerable discussion, among those taking part being the following:

On Mr. Scott's paper Mr. Gannett of Chicago, Mr. Ash of Pittsfield, Mr. Vincent and Mr. Spencer of Philadelphia, and Mr. Clements of New Haven, Mr. Warner of Youngstown, and Mr. Burton of Chicago. Mr. Scott's paper brought out the fact that the most serious hazards in the electrical industry are those of the lineman, and that a large proportion of these accidents are due to the human element and principally on account of physical and mental unfitness for the work, lack of effective rules, indulgence in dangerous practices and the misunderstanding of orders. Numerous instances and some statistics were given in support of this statement, and suggestions were given as to the selection, the discipline, the detailed instructions, and the guards and protective equipment which might reduce the hazards of linemen.

The points particularly emphasized in the discussion were the necessity for the foremen's constant attention and the importance of getting men to use the safety devices provided and to take sufficient interest to abandon dangerous practices. The great importance of proper instruction and supervision by foremen was particularly emphasized.

Considerable discussion also developed relative to the merits of the prone-pressure method of resuscitation as compared with methods employing mechanical breathing devices. The general experience appeared to indicate that the use of mechanical devices is of less moment than the immediate adoption of the prone-pressure method by men familiar with its application and directly at hand, since the mechanical devices usually are somewhat delayed in arrival on the scene of accidents and such a delay may be fatal. Various

methods of arousing interest in safety among linemen were also discussed.

The paper by Mr. Warren on "Danger of Low-Tension Shocks" discussed briefly the difficulty of securing reliable data on injuries by low-tension circuits and the doubt frequently existing as to whether a higher voltage did not actually supervene in cases of fatality assigned to low voltages. The factors involved in the severity of shocks were outlined, including the character of the body surfaces, the portion of the body included in the circuit, the internal body resistance and the duration of the shock. The physiological factors were also mentioned, and the suggestion made that in most cases it seemed probable to the speaker that persons in a normal physical condition would rarely be subject to injury by low voltages.

In the paper presented by Mr. Miller on the same subject, some outline was given as to the sources from which our present information on physiological results of electric shock and the voltages from which serious shocks or burns may result, are based. The doubt as to the voltage concerned in the accident was emphasized by this speaker also. In the newspaper reports of low-voltage fatalities the use of resuscitative measures is not reported to have been attempted in a majority of cases. In many cases the conditions were favorable to the fatality; that is, the person was standing on a damp floor or had his body wet with perspiration or otherwise. In over a third of the cases, however, resuscitative measures were reported to have been used, and in one-half of these a mechanical appliance. Some data was given by Mr. Miller as to the body contact resistances and assertion made of the probability that these will usually be high with accidental contacts. A quotation was also included from the report of the Commission on Resuscitation from Electrical Shocks, showing that the nervous effect on the muscles of respiration can usually be counteracted by prompt measures, whereas any interference with the regular beating of the heart is more likely to result in fatality.

Additional data was given with regard to relation of voltage to severity of shock, as shown by experiments on dogs, but no inferences were drawn with respect to ability of the human body to withstand electrical shock. A series of experiments made in England was referred to, with the conclusion of the experiments that

Safety Habit

Safety, Security,
Success—Safety af-
fords Security to all
who work under its
rules. Success fol-
lows.

the dangers of electric shocks at 500 volts have been misunderstood and exaggerated, and resulting in the further conclusion that in most instances of fatal accidents occurring from voltages under 500 volts unusual conditions must have existed, either external to the person or physiological.

The final conclusion drawn by the speaker was that low-voltage fatalities are very infrequent, except where quite special conditions exist. The discussion was

taken part in by Dr. E. B. Rosa, Mr. B. E. Morrow, Mr. Ash, Mr. Gannett, Mr. Vincent, Mr. Cannon, Mr. Canada and others, and brought out the fact that a considerable number of accidents do actually occur from low voltages and that the frequency of "unusual" conditions is sufficient to warrant attention to the protective measures against such accidents. Special locations, such as boiler-rooms, laundries, bathrooms, etc., were noted as particularly liable to cause good contacts should the human body be made a part of an electrical circuit in these locations. Certain experiences were cited in which linemen had been subjected to circuits of 28 volts d. c. to 36 volts a. c., these proving as high as they would with good contacts be willing to endure. Instances of physical examination showing apparently excellent physical conditions in persons injured by moderate voltages, were given. The discussion brought out the point that safety from low-voltage hazards is usually readily obtained by the grounding of external metal surfaces and the suitable guarding of live parts—two means of protection in which the manufacturers of electrical apparatus and devices can largely assist and in which the value of standardization of future practice is very apparent.

In his paper on "Hazards of High-Tension Lines" Mr. Morrow brought out the great differences existing in different sections as to what is considered high-tension. The advantages of strong line construction in preventing line failures were submitted, and the necessity was shown of providing sufficient working space to permit

line work to be carried on in comparative safety. The usefulness of tags and grounds was also mentioned as a means of safeguarding work on normally live parts. The advantages of portable lights for emergency work on overhead lines and the disadvantages of portable telephone sets, on telephone lines carried on transmission pole lines, were mentioned. The speaker also brought out the point emphasized in the paper by Mr. Scott, with relation to the great advance in accident prevention by the proper instructions and by close supervision of linemen, in the same way as is now becoming common for station men, was urged.

The discussion was taken part in by Mr. Sells of Atlanta, Mr. Spencer, Mr. Scott and others. The difficulty that comes from the nomadic tendencies of linemen was brought out, together with the great advantage that would result to the linemen themselves and no less to employers by the training of linemen in all parts of the country in reasonably uniform safety methods, such as are provided by suitable nationally adopted safety rules, since in emergencies resulting from considerable line failures or other causes, linemen need to be brought into one section from many others and the first few days is frequently a period of numerous accidents.

In his paper Mr. Spring emphasized the necessity for more actual work toward producing greater safety on public streets. The use of warning signs, barriers, and watchmen on guard about street excavations, pole work, and similar operations likely to increase the hazard to the public, was brought out. The necessity for establishing zones for loading and unloading passengers was mentioned, and the advantages of school instruction of children in street precautions was advocated. Playgrounds were also advocated as a means of keeping children off of streets as well as of organizing their play. The dimming of headlights was shown to have its disadvantages, as well as advantages, in making possible certain types of grade crossing accidents.

The Safe Course

When in doubt
take the safe course.
If you don't understand
your work,
don't attempt it.