

PAGES

MISSING



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Club ..
OF CANADA

OFFICIAL PROCEEDINGS

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MEETING OF THE CENTRAL RAILWAY AND
ENGINEERING CLUB OF CANADA

COMMITTEE ROOM, HOTEL CARLS-RITE,

TORONTO, May 26th, 1914

The President, Mr. T. J. Walsh, occupied the chair.

Chairman,—

Gentlemen: We will call the meeting to order. As you have all had a copy of the minutes of the previous meeting, it will, therefore, be in order for someone to move that they be adopted as read.

Moved by Mr. G. Baldwin, seconded by Mr. T. B. Cole, that the minutes of the previous meeting be adopted as read. Carried.

Chairman,—

In connection with our picnic; I don't want you to forget that we are holding the picnic on the 20th of June to the same place as last year, Erin, Ont. The tickets may be had from any member of the Executive or Reception Committee or from the Secretary on the morning of the excursion, at \$1.50 each. The increase in the price of tickets, I may say, is due to the increase in railroad rates.

Might say that Mr. Baldwin and myself had the pleasure of visiting Erin one day last week, making arrangements in connection with the picnic and it is almost the same old town. One of the hotels has been burnt down, however, and I was told that it was only on account of the heroic efforts made by the town constable, with whom you are all acquainted, that more damage was not done.

We met several gentlemen, who were pleased to learn that we were coming back again this year.

The next order of business is the announcement of new members.

NEW MEMBERS.

Mr. P. F. McCarthy, Engineer, Toronto.
 Mr. Fred. S. Heming, Supt. Filtration Plant, Toronto
 Island.

MEMBERS PRESENT

G. C. Keith	Alf. Tory	Geo. Smith
N. A. Davis	Riley Schenck	L. L. Lloyd
Jas. Wright	A. M. Wickens	Jas. Reid
A. E. Price	J. W. McLintock	Chas. Russell
J. Jackson	Hugh Paton	Jno. Anderson
E. A. Wilkinson	T. A. Abraham	J. Barker
Wm. M. McRobert	Jno. M. Clements	Fred. G. Smith
A. J. Lewkowicz	F. S. Harrod	W. E. Mackenzie
Geo. W. Magalhaes	W. S. Cowan	Jas. Herriot
J. H. Morrison	W. R. McRae	J. F. H. Wyse
H. M. Paton	Wallace H. Robb	J. Bruce Robb
T. B. Cole	S. L. Pearson	Geo. Baldwin
T. J. Walsh	W. Evans	C. A. Jefferis
J. Dodds	W. C. Sealy	C. DeGrouchy
E. Logan	C. L. Worth	and others

Secretary,—

I would like to draw attention to the following members who have changed their addresses, and not advised me of their new address:

Messrs. H. Biffin, R. W. Bennett, G. Carter, J. Chipchase, W. Crossley, H. Hughes, W. Harvey, L. H. Keller, C. Laeon, H. O. Phillips, D. Russell, H. Sayer, L. M. Watts.

If any of the members can inform me of the addresses of these gentlemen, I shall be pleased if you will kindly do so, as it will save considerable trouble.

Chairman,—

Mr. Baldwin will now make report of committee who visited Erin in regard to Picnic Arrangements.

Mr. Baldwin,—

With reference to the Picnic Committee's report, I suppose the only thing we can do is to report progress. We cannot give you full particulars yet.

I might say that it will be absolutely necessary for those

members who wish to have meals on the grounds to notify us in some way or other beforehand.

We were unable to get a definite promise from anyone there in reference to the meals. The lady who supplied us with meals last year demanded a guarantee from us in regard to the number there would be, which of course we were unable to give her. She claims that she lost money on us last year.

We, however, promised to try and let her know beforehand the number she will have to cater to and that is why I wish to impress on you the absolute necessity of our knowing in advance the number who will require meals.

The park and surroundings, and the boats, are all in excellent condition.

Chairman,—

We have Mr. Schenck with us this evening who will read us a paper and afterwards show some lantern slides in connection with the Safety First Movement.

"THE HOW AND WHY OF SAFETY FIRST."

BY MR. RILEY SCHENCK, MANAGER, CANADIAN SAFETY
ENGINEERING BUREAU, TORONTO.

Mr. Chairman and Fellow Members of the Central Railway
and Engineering Club.

Your presence here to-night shows your interest in the subject of "Safety First" in a very patent way; as many of you are in the employ of the Grand Trunk Railway, the pioneer of railroads in Canada to take up safety work all along their lines, as a definite policy of their management, you are by this time more or less familiar with the length and breadth of the subject; Mr. George Bradshaw, Safety Engineer, who has charge of this campaign, and whom I claim as a friend is eminently fitted for the work; coming to your road after ten years of success with the New York Central and the Chicago North-western lines. The magic sign "safety first" stares both the employe and the traveling public in the face all along the lines of your road.

The slogan "Safety First" is taking on a national character having started a few years ago in the United States and spreading so rapidly in Canada, that it is almost impossible to keep up with it. It is used by bankers, and bakers, and candle-stick-makers; by automobile and rubber tire builders, by dealers in all kinds of goods, by manufacturers and by sellers alike, for advertising purposes, drawing attention to their lines, by appropriating the well-known slogan "Safety First."

What does "Safety First" mean to you? Has it caught you in the grip of its great underlying principles? Have you grasped the full meaning of the term? or do you just look at the words, and smile at the silliness of the crank who put them there and go on in the same careless indifferent way, without a thought of your own danger, or safety, and no thought of the other fellow. What is the meaning of this term? In my mind it can be covered by the term "personal consideration for others." Personal safety, as well as community safety, is a habit, and one that can be easily acquired, and I am sorry to say just as easily discarded. "Safety First" is applied common sense.

It is the acquired habit of the individual, *not* to take the chance. It is the realization of the individual's responsibility for his *example* upon those around him. It is the making it

a fixed habit on your part to think of your own safety at all times, never to forget the other fellow, and your responsibility for his sake.

If the words "Safety First" have not meant something definite to you before if they have not taken a strong vital grip upon your imagination, thought, and actions, if they have not become a very part of your daily life, then I hope that my words to-night may have the power to awake you from your indifference and persuade you to study the whole question, and to positively decide that from this night on, you will both practice and preach "Safety First."

In railroad work especially you will come across the proverbial "one thousand and one" different ways and times where the habit of thinking "safety first, last and all the time," will help you to do the safe thing, when it might be far easier to run the risk, or to take the chance. The time was when the man higher up would wink at the risk taken by the reckless engineer, conductor or switchman; provided he got away with it; and only slightly punish the man, when an accident did happen. Now there was "Fake" Maloney, the boss of the yard crew in my native town, one of the most reckless railroaders I have ever known, but he had the proverbial luck of the Irishman, and would generally slip through by a hair's breadth. The Chicago, Milwaukee and St. Paul Railroad had just had a special vestibule train built by the Barney & Smith Car Co., of Dayton, Ohio. They had sent a locomotive and crew from their own lines to run the full train around the country as an advertisement of their new overland equipment. They left Dayton, Ohio, going south, the middle of the afternoon with orders giving them "right of way," through to Cincinnati; as they neared Middletown, Ohio, "Fake" was making one of his reckless flying switches, with a cut of cars and the yard engine. He got on the siding, but too late to throw the switch, I happened to be on top of a factory building, not far away, and viewed the wreck that followed. The C. M. & St. P. engine followed the yard engine in on the siding, and crashed into the rear of the other train. "Fake" and his crew jumped, and were not hurt. The engineer of the St. Paul train and his fireman were both pinned in the cab and were seriously hurt, and that fine train that had left Dayton only two hours before, was a jumbled mass of broken cars. "Fake" got a *thirty day* lay off, but it cost the Big Four over thirty thousand dollars, before the matter was cleared up. Happily those days are passing, and now there is more heed being taken of the passengers and employes.

Railroading, in fact all business, these days is dangerous. Speed is the mania of the age, and there seems to be more or less of the gambling instinct, in most of us, which leads us to take the chance, when our judgment would advise against it. It is the *needless risks* that are so frequently taken that we deplore. Not long ago, on the Pere Marquette R. R. in Northern Indiana, the crew were backing a cut of cars to the ice houses a couple of miles out; the brakeman was in the cab with the engineer. A prominent citizen of the town was in an automobile, with his wife, her sister, and a lady friend from Philadelphia. He was coasting down the grade with the railroad crossing at the foot. He afterwards said that he noticed the box car, but as there was no brakeman on the rear end, did not think that it was moving, until too late. He jumped; his three companions were all killed. There was in my mind criminal carelessness, on the part of the railroad crew, and also the man in the automobile, but such accidents frequently happen yet; in spite of our safety leagues, safety first campaigns, safety engineers, and rules and regulations. Both sides it seems to me are absolutely indifferent to the risks they are running. Of course the engineer pulling the limited mail train with his hundreds of passengers; or the engineer on the local freight with his slower engine and thirty or forty cars cannot stop every time they see any one or anything, on the track a few miles ahead. He must keep moving, blow the whistle, and trust to luck that the man or the wagon will get clear of the track in plenty of time; but all persons connected with the moving of trains, should cultivate caution, and play safe. Safety engineering is becoming recognized as a business of itself, but each one of you ought to be safety engineers in your own place, in the office, shop, round-house, cab or on the right of way. As engineer, fireman, conductor, brakeman, oiler, machinist, track-walker, or on the construction, repair, or wrecking crew, as superintendent, manager, or any other line of the business; as such you should never make a condition, or permit a condition, that would expose another to danger. In fixing up the track you should be sure that it was properly fixed, and that no obstructions, or refuse were allowed to remain in such a position as to be dangerous to others. In the freight shed, or in loading cars, handle, pile, and secure everything, with the safety of the other fellow in your mind. I have many views from the safety literature of railroad safety men, showing safe and unsafe ways of piling freight, in the cars, on the platforms, and in the warehouses, photographs of actual conditions that seem incredible.

It has been said that self preservation is the first law of

nature, but our experience leads us to doubt it, as in nearly every case of accident investigated, it is apparent that the injured rarely thought of the consequences of his act upon others, and from the bare facts shown, rarely thought of himself. The gamble of life; the almost invariable taking of the chance, is shown in so many of the cases, under the Safety Department investigation, that we get more or less callous. We try to make the inanimate machine as near fool proof as it is possible for human ingenuity to make it, for we have found that the human element is not to be depended upon. The same principles, and rules, will apply in the machine shop, the round house, or on the road. A man that has acquired the *safety habit* and that habitually, thinks about the other fellow, as well as himself, will be as safe in one place, as in the other. I do not favor the plan of sticking warning signs all over the shop, every place that there is a danger point; but I do think that a few good large posters, with shop rules, that the foreman sees are enforced, is very advantageous. Remember that the most important factor in this endeavor is the right spirit. Without a spirit of progressiveness, without co-operation between the officers and members of organizations, without harmony and co-operation between yourself, your superintendents, foreman, and workman, it is useless to attempt a campaign of safety. Safety devices should be as important a part of the plant's equipment, as steam in the boiler, and roofs on the building. Our men are the most important part of our plant. I believe it was stated by Mr. Westbrook in his paper before you March 24th, that the men would invariably discover any laxity of the foreman in enforcing the safety rules. My experience has been that more depends on the stand of the foreman, than on any other authority. It is true that the men seem to have a *sixth sense* that tells them when the foreman is not very particular about their obeying the rules, as long as no one gets hurt, and whenever I run against such a condition, I realize that my work is "laid out for me" to secure any definite success in a safety campaign. That is a very dangerous condition in any circumstance, but especially so when you are trying to establish "Safety First" as a fixed policy for their plant; as I said before, the very first essential is for the highest officials to adopt "Safety First" as a fixed policy for their plant, and then to see that all under them are not only in sympathy with the policy, but do all they can to help carry it out. My advice is, in every case, where a foreman is *not* in sympathy *change the foreman*, and not change the policy.

It is a mistake to think that the most effective safety devices

consist of complicated machinery and expensive appliances. Rubber tips and sharp points attached to the feet of ladders, prevent more accidents, than costly guards attached to intricate mechanism. Falls from ladders are responsible for more accidents in the industries, on the farms and in the homes, than any other source according to 25 years of German statistics. Experts claim that it is possible to prevent 300,000 painful accidents and the loss of \$40,000,000 annually in the United States alone, by proper precaution in the construction and use of ladders. That would mean in Canada by the same proportion, 50,000 painful accidents prevented and \$6,600,000 annual losses saved.

Most people have the idea that the railroads are the most dangerous of all occupations; but it may be well to say that this is not so. According to the best statistics obtainable, the farms, (agricultural employments), are responsible for 43% of all the accidents, and 30% of all the deaths. No one will dispute the fact that the railroads are dangerous, but we must also admit that a great many of the accidents happen to people who are trespassers on the right of way. Take for instance a report of the Interstate Commerce Commission of the United States for the year ending June 30th last. 318 passengers killed, 16,386 passengers injured, 3,635 employes killed, 142,442 employes injured, 6,632 trespassers and others killed, 120,710 trespassers and others injured. You will see from this that the trespassers killed were nearly twice as many as the employes and over twenty times that of the passengers. Do you, as railroad workers, realize that in Canada and the United States, that your ranks are being called upon daily for an average of 15 dead and over 600 injured men. Don't you think it is about time that we should all get together and try to prevent this wholesale slaughter? In February there were 68 fatal accidents in Canada, 38 furnished by the railways. In March, 402 accidents, 55 fatal, 347 serious injuries. The pictures that I will show this evening will no doubt interest you and ought to make you think deeply on this subject. As I said before everybody is using safety first now, and the attempt to read all the articles being published by trade magazines and the need of more time to keep up with them, reminds me of an old colored man in the South. "Uncle Mose owned an old mule, with one great failing he would balk; one day as Uncle Mose was hauling a small load of wood home, the mule, as usual, balked at the foot of a hill; Uncle Mose used all the kinds of persuasion that he knew about, moral, physical and intellectual. He coaxed and cussed and beat without results; just as he gave

up in disgust, the old country doctor came along. Now the doctor was noted as much for his jokes as for his medicine, and he saw a chance for some fun. 'Morn'n Uncle Mose,' 'Morn'n Massa Doctor.' 'What seems to be the trouble Uncle Mose?' 'No trouble, Massa Doctor, this yere mule jess won't go, dat's all.' 'Well, now' says the doctor, 'I think that I can fix him so he will go,' and getting down from his old carryall, he took out his hypodermic syringe and injected a load of dope in the mule's rump. It must have been hot stuff for the mule looked around with a pained expression, lay back his ears, switched his tail, and was off up the hill, faster than Uncle Mose had thought that any mule could go, much less his old mule. He watched the fast disappearing cloud of dust that hid the cart from view, and just as it was topping the hill, said excitedly to the doctor, 'Massa Doctor, how much that stuff wo'th you stick in dat mule's laig,' The doctor, who was having a hearty laugh at the success of his joke, stopped long enough to say, 'O, about ten cents, Uncle Mose.' 'Massa, Doctor, you jess better stick 'bout thirty cents wo'th that stuff in my laig, I jess gotta' catch that mule.' 'Any of us that tries to read all that is being written about "Safety First" these days, would appreciate some of Uncle Mose's accelerater.

The best way to carry on a safety campaign is to have some one high in authority to start, and be responsible, for the conduct of a safety department. Safety committees to be appointed in each shop, or section, composed of the superintendent, master mechanic (or engineer), a foreman, and two workmen. It is a good plan to have these latter serve for a short period. Each month, or period, appointing others from the force to replace them, making the appointment as a sort of reward for interest shown in "Safety First" by the men; after a man has served on the safety committee, he should be recognized as an honorary member, consulted occasionally and always invited to the meetings of the committee which should be held at least once a month. In the railroad work the safety engineer would be the directing head of all these various safety committees. The local committee would have charge of the inspecting of the machines and conditions, in their section, and the carrying out of their recommendations should be promptly attended to by the proper authorities. They should direct the first aid department, look after the records; keeping a complete record of every accident however slight, and remedy the conditions immediately to prevent their recurrence. I have always found it an advantage to secure the ideas and assistance of the workmen themselves, and wherever I have placed safeguards re-

commended by the men, I have found them looked after better and more generally used than those I have suggested. It reminds me of the system of the National Cash Register plant, Dayton, O., where there were a great many improvements suggested for the registers and the work in the shop, through their suggestion boxes. Whenever a suggestion was adopted, and orders issued that it be embodied in the building of the register, the party making the suggestion was notified, and asked to keep track of the work, and if the part was not used, or not properly used, to notify the office; thus insuring the continued interest and co-operation of the man making the suggestion. The Safety Committee should go over all points of their section every week, or have a competent workman appointed to make these inspections and report to the committee.

The main qualification for the safety inspector, is the ability to see things, that, connected with ordinary mechanical ability ought to make a good inspector. The inspector should see that every gear is protected no matter where it may be situated. Many a time an overhead gear or one under a machine, is left unguarded and the man oiling the machine, or by slipping and throwing his hand out to steady himself, may get caught. There is being an attempt made to standardize these guards, but most of them can be made by the general repair man in your own shop to great advantage. I prefer a wire mesh cage to completely enclose the gear, a piece of tin, or galvanized iron can be bent and fitted so as to make a very serviceable guard. A band guard is frequently used, but wherever possible the sides should be bent up at least to the bottom of the tooth. All set screw heads should be removed or securely covered. In this case allow me to recommend the "Mac-it" hollow set screw. It is made of a special steel, and is guaranteed not to split or crack. It is handled in Toronto by the Fairbanks-Morse Supply Co. All belts, shafting, or motors on the floor should be protected by railing, or wire mesh fences at least $3\frac{1}{2}$ feet high, if the guard can be placed 15 inches or more from the belt. If necessary to get closer than 15 inches it is better to make the railing 6 feet high. All overhead belts, 6 inches or wider, should have a guard underneath the belt. These can be made from wood, bar iron, or wire mesh. I think the wire mesh is preferable in all cases. Wherever you have a line of shafting fifteen or more feet from the floor, it is both more economical and safer to have a permanent drop platform, securely railed, with 6-inch toeboard, and permanent iron ladders. Elevators, if not properly protected and properly operated, are the most dangerous thing

about the place. The well should be completely boxed at every floor at least six feet high. The gates should be semi-automatic making sure closing of gate when elevator leaves any floor. If possible there should be no projection on the inside of the well; if there are any, they should be protected by beveled boards underneath the projection, to prevent the shoulder or toes of persons from being caught and crushed. Heavy wire screens should be placed over the top of the elevator to catch anything falling down from above. Very few of us realize the tremendous loss by fires, and besides the monetary loss, many lives are also lost by fire. In Toronto the financial loss since the first of January has been nearly as large as the total loss of any year excepting the big fire in 1905. It would be far better for you to have too much fire protection than not enough. All buildings should have the sprinkler system if possible; plenty of chemical extinguishers should be kept in accessible places; and water buckets, preferably enclosed in metal tanks, are also valuable when there is anyone around to use them. Frequent inspection should be made to see that the buckets are full of water, that the chemicals are properly charged, that every section of hose is in its proper place, and in good condition; that no rubbish, or loose papers, or oily waste is allowed to accumulate. Keep the spaces under the stairways and in the corners clean. See that all fire escapes are easy of access; and have fire drills often enough to ensure that every one knows where the exits are, and where the fire apparatus is located; and what to do when the emergency arrives. In places where oils or volatile materials like varnish, or paint, are used, there should be iron tanks holding 3 or 4 bushel of common sawdust in which it is better to mix a couple of pounds of bi-carbonate of soda. This mixture is better to use than sand on an oil fire, as it will spread out on top of the flowing oil and smother out the fire. In fires caused by electric wires, or arcs, use sand, or the small hand extinguishers known as the "Pyrlene," "Electrine," or the "J. M. Fyro." These small extinguishers form a very heavy dioxide gas, and are safe to use, as this gas is not a conductor like water. It is claimed that a blanket one-eighth inch thick of this gas will resist a current of 10,000 volts. It is better for your own good, never to throw water on a fire caused by electric wires. I remember a factory in Southern Ohio, where the crossed wires caused a blaze in the elevator shaft. When I discovered it the blaze was not bigger than your hand. I ran to the cellar to shut off the motor. Before I had got that far, a young German fellow, who had seen the fire caught up a fire bucket which was handy, and dashed

the water up the side of the elevator walls, when a connection was formed and he got a pretty good shock, that knocked him over backwards on the floor. At first he thought that somebody had hit him, but when he found out that there were "bumble bees" on the wire he declared the building could burn down next time, before he would try to put it out.

You all remember the Binghampton, New York, fire. It came across these startling statements made at the coroner's inquest. The proprietor said: "He did not have any knowledge of the factory laws. He allowed waste to accumulate in the basement. He did not think it was dangerous. He thought fire buckets better than chemical extinguishers. He had never thought about using automatic sprinklers or other devices for fire control. He considered the ladder equipment of the fire department as sufficient means of escape from the upper floors. He did not know that cotton goods are easily ignited." As a result of this man's ignorance, carelessness, and lack of interest, 30 lives were lost.

Great Britain has 23,500 miles of railroad tracks, 56% of which is double track, 44% single track.

The United States has 245,000 miles of railroad tracks, 10% of which is double and 90% single tracks.

On her 23,500 miles of track Great Britain hauls 1,300,000,000 passengers per year.

On the 245,000 miles the United States hauls 1,000,000,000 passengers per year, but as the average trip of each is about four times as great in the United States, the average is nearly the same.

In freight, Great Britain hauled 13,000,000,000 ton-miles per year for her 23,500 miles of tracks.

The United States hauled 264,000,000,000 ton-miles on her 245,000 miles.

Thus you can see that the United States, with a little over ten times the trackage hauled over 21 times the amount of freight, and considering that 90% of the track was single against 44% single in Great Britain, you railroad men can see that the problem was much more hazardous in this country than in England.

Great Britain had employees	killed	991
	injured	8,017
United States had employees	killed	3,235
	injured	50,079
Great Britain had passengers	killed	20
	injured	383
United States had passengers		
and others	killed	7,265
	injured	120,020

That is, in the United States one man out of every twelve employed was injured.

One man out of every 181 employed was killed.

Further, reliable statistics show that in the United States over one million dollars were spent per week as a result of accidents, that is for damage to rolling stock, to the right-of-way, to freight losses and for claims of injured persons.

SAFETY SLOGANS.

It takes less time to explain why you were late than to make out an accident report.

Do not take short cuts over dangerous places. Take time to be safe.

Acquire the safety habit. It is the only habit that will never injure you.

A preventable accident is a disgrace to the foreman in whose gang it happens.

Yes, we agree with the fellow who said that "Safety First" is a joke. But let us all enjoy the joke.

Better to have fingers on the hand than dollars in the pocket.

Accidents mean cripples, widows, orphans, poverty and despair. Why not avoid them?

Don't think that because an accident has not happened, it *wont* happen.

When you scent danger, stop, look, listen—something may drop.

You do not want to be a cripple—be careful.

A foreman who fails to boost for safety should not be a foreman.

A minute of judgment is sometimes worth a day of energy.

A bed at home is worth two in a hospital.

Any fool can take a chance—it takes some brains to be careful.

If you don't want to use a crutch, be careful.

Some men beat runaway horses—others tie them.

Danger is a banana-peel—keep away.

Don't kid about safety—you may be the goat.

The Safety movement is putting the Ax into Accident.

Thinkers will not drink. Drinkers cannot think.

It is better to play safe a thousand times than to be caught once.

Angels may preserve fools and drunkards who take chances; but do you care to qualify?

Never cross the track by night or by day, without stopping to listen and look each way.

Never walk along the railroad ties—you can't always trust your ears and eyes.

Never hop a freight, for nothing quite heals the wounds received under grinding wheels.

Never, on a hot or sunny day, sit beneath box cars to rest or play.

Never crowd under a car of freight when the crossing's blocked—play safe and wait.

Never board, or alight from, a train that is moving, accidents, daily, its dangers are proving.

Never play games 'round the tracks at the station—there are much safer places to seek recreation.

Your family wants you to play safe all the time.

Your employers are trying to look out for your safety. See if you cannot outdo them in looking out for yourself.

Always keep your eyes open for danger, you may step over it going and into it coming back.

It is better to lose a minute in avoiding an accident than a month in nursing an injury. Get the safety habit.

When you see a man do a careless thing, "Call him down," and don't be afraid that you will hurt his feelings.

You have no right to take a chance—The other fellow may have to take the consequence.

"Carelessness begets cripples."

"Sanitation means safety."

The chance-taker is not only a widow and orphan maker, but also helps to support the undertaker, doctor, and artificial leg maker. Why not get rid of him before you become his victim?

Every sign placed in the plant means that the danger pointed out is really there, so be on your guard.

Some men do not believe in safety devices—they want to learn by experience.

Never attempt to make a coupling, or work between the cars, on the short side of a curve.

The prevention of accidents is a duty I owe myself, my family and my fellow workman.

Remember the wife and babies at home—and be careful. Safety means more than property—it means life—perhaps your life, or one of your family.

Specimen Accident Reports from Chicago & Northwestern Railroad.

A flagman on Chicago pickup, southbound, which had stopped to do switching, was killed. After engine had made several moves, train was backed about two car lengths to clear switch, and, shortly after, the flagman was found under way-car with both legs crushed. Instead of going back to flag it is supposed that he either leaned up against the caboose or

else sat down at the rear of the caboose and went to sleep and when train was backed up, he was run over. Rule 99 says, etc.

A switch foreman working on track, coupling up empty cars was killed. He was attempting to go between moving cars or push over a draw-bar which was off-center; other cars were backed up and he was caught and killed.

Between September 1st and December 1st, 1913, five other men were killed and thirty-five other men injured in the same way. Why not stop going between moving cars, and prevent accidents of this kind in the future? Rule 717 prohibits, etc.

A car repairman was pulling sheathing off a car when he stepped on a nail protruding from a piece of sheathing he had thrown on the ground.

From January 1st to November 1st, 1913, we had 118 men injured in this way.

KILLED AND INJURED ON RAILROAD TRACKS.

The accompanying statement shows loss of life and the number of persons injured each year for the last twelve years as a result of trespassing on the property of the Pennsylvania Railroad System in violation of law:

Year	Killed	Injured	Total
1900	518	659	1,177
1901	662	689	1,351
1902	637	719	1,356
1903	764	714	1,478
1904	777	738	1,515
1905	887	794	1,681
1906	874	794	1,668
1907	916	775	1,691
1908	743	691	1,434
1909	633	683	1,316
1910	585	582	1,167
1911	527	447	974
1912	463	442	905
1913	497	556	1,053
	9,483	9,283	18,766

The Pennsylvania Railroad makes the further statement that in twenty years, 25,000 young people, minors—trespassers—have been killed and injured on railroads—enough to make a milepost for every mile of travel in a trip around the world.

During the last few years of the twenty-five year period fourteen trespassers were killed and fourteen injured every day of the 365 days of the year.

Some people are properly excited about grade crossings, but in the United States only 1,125 were killed at crossings, and the total of trespassers was 5,343 killed and 5,536 injured.

The Pennsylvania Railroad paid out \$5,143.40 in 1913 on account of accidents to passengers who tripped over other passengers' grips.

Mr. Adamson, Fire Commissioner, said carelessness caused a fire every eighty minutes in New York.

We had last year 12,955 fires with a loss of \$7,467,997.

Carelessness with cigars and cigarettes.....	1,079
Carelessness with matches.....	1,175
Carelessness in use of gaslights, ranges, and radiators.....	753
Carelessness with bonfires, brush fires and fences.....	1058
Children playing with matches, or fire.	588
Carelessness with candles, tapers, etc.	351
Overheated stoves, pipes, furnaces, etc.	696
Carelessness in handling gasoline and benzine.....	394
Mischievousness of boys and others...	311

6,405

THE FIRE-TRAP HOTEL PERIL.

According to records kept by *Safety Engineering*, 162 hotels in the United States and Canada burned during the first ninety-two days of 1914—January 1st to April 2, inclusive.

Every twenty hours a human being was killed or injured in a hotel fire. Deaths were more frequent than injuries.

Every thirteen hours and thirty minutes a hotel fire occurred.

Every night fifty to a hundred hotel guests were rudely awakened by a fire alarm.

Eighty per cent. of the hotels were commercial hotels, the remaining twenty per cent. were in resort hotels.

In the United States, 144 fires in hotels.

In Canada, 18 fires in hotels.

Property value of losses reached \$4,500,000. \$1,500,000 per month; \$50,000 a day.

The average loss was \$28,000, showing that most of the buildings were totally consumed.

I will now show you about fifty lantern slides that I have had made to-day, at considerable trouble, and I hope that you will realize the necessity of co-operation in "Safety First" work, and that these pictures will impress what I have said in a more forcible manner than the words have done

Mr Schenck,—

If there are any questions which you would like to ask, I shall be pleased to answer them, as far as possible.

Chairman,—

I assure you, Mr. Schenck, that we are very pleased to have had you read your valuable paper here this evening. The subject of "Safety First" is one that is interesting to everybody, and certainly is something worth studying.

Have any of the members any questions to ask or remarks to make?

Mr. McRae,—

Mr. President and gentlemen: I do not know that I have very much to say about the subject of "Safety First" because I am not very far advanced in the matter. I have taken considerable active interest in the formation and work of the "Ontario Safety League," and have been largely instrumental in arousing the enthusiasm of the men in the employ of the Toronto Railway Company in the matter, particularly those employed in the shops. I have succeeded in persuading a number of the men to join the Ontario Safety League, and have endeavored to impress upon them that it is no use merely joining the League, but that they must take an interest in the prevention of accidents, both to themselves and to others.

I have noticed as a result of our Safety First campaign that in the few months we have been paying particular attention to the matter of safety in our works, the accident records show a considerable decrease in the number of injuries to men each month.

One thing we have put a stop to is the practice of everyone prodding into a person's eye to remove pieces of steel, emery, etc. This was a very common thing prior to the introduction of "Safety First." Now, of course, the safety goggles which have been given the men who are working on jobs requiring them, have almost entirely done away with the necessity of this practice. However, where it is necessary for a man to have something removed from his eye, we have two men who have been trained in the use of metal instruments whose duty it is to do this class of work.

The first pair of goggles we procured was about a month ago. Since then, we have purchased several dozen similar pairs to those Mr. Schenck has shown you this evening. Only one pair of goggles have been broken, up to the present, and then the piece of steel did not enter the eye.

We recently had a case where a man whom we had sup-

plied with goggles had left them on the bench and was wearing his ordinary spectacles. He had gone into the blacksmith shop and was kneeling over an air compressor, working. There were two men working up above him, and one of them had a hole in his hip pocket, in which pocket he had a few large nails. One of these nails dropped out, and struck the machine, bounced off, and hit the man below, right close to the eye, breaking his glasses, but fortunately none of the pieces of glass entered his eye. However, as it was, I have never seen a wound bleed so profusely as this did. Had this man worn safety glasses, he would not have been injured.

I am satisfied that we can save a good deal of suffering if each and every one of us will do what we can in this matter.

I increased a man's wages $2\frac{1}{2}$ c. per hour the other day for what may seem a very small act, but it impressed me deeply.

Some of the men were unpacking material out of a box, the lid of which they left, meanwhile, laying on the floor with the nails protruding upwards. The man I speak of was passing, and noticed this; he stepped over, and with his heavy boots bent the nails downward, at the same time taking the men to task in a gruff, friendly manner for allowing such a thing.

I am very enthusiastic over this Safety movement, and if every man present here to-night will go out after this meeting with his mind made up to practice and preach "Safety First" wherever practicable, a great deal of good will be accomplished.

I do hope and trust that the members, when they get this paper in printed form, will make it their business to see that the points contained therein which they consider are applicable to their shop, are brought to the attention of their employers, or superiors.

I look upon Mr. Schenck and his Safety First work as a God-send to the workingmen of this city and province.

I do not think I have anything more to say upon this subject.

Mr. H. M. Paton,—

Mr. Chairman and gentlemen: Since the introduction of the Safety First movement on the Grand Trunk Railway System, for whom I work, I have been one of the Safety Committee, Stratford Division, under Mr. Chas. Forrester, Superintendent, Stratford, Ont. We leave your city to-morrow on our first inspection trip over Mr. Forrester's division, which consists of a mileage of 235. Since the inception of this movement, the accident rate on this division has decreased 72%. Last month on the division, there was only one case of personal injury.

Mr. Schenck has said that some of the employes do not

take the suggestions which an advocate of safety will make to them in a kindly manner, but are inclined to snub you off. I may say that since last November when this matter was first taken up, I have spoken to anywhere from fifty to a hundred men on the subject, and I have never yet been rebuffed, nor had an unkind work spoken to me.

Our meetings are held once a month in the superintendent's office; we also have our reports to send in, of any irregularities we may find, but we, however, do not give the name of the man at fault. The member of the committee who makes the report is the only person who learns the name of this man. The man at fault is put right by the member, and is not taken to task by the company.

The committee has now been in service six months, and this month two new members will be appointed, and two more monthly hereafter until an entire new committee is in office. After a man has served on the committee and his term of office has expired he is invited to attend the meetings just the same and keep an interest in the movement.

We are supplied with "Safety" buttons by the railway, and after we have served on the committee, instead of having a button with a blue rim we are furnished with one with a red border.

I must say Mr. Schenck's paper this evening has been very instructive and interesting.

Mr. A. M. Wickens,--

This matter of Safety First is one that is before the people very strongly just now.

I look back over a few years, and find that the Province of Ontario passed a set of laws and appointed some Factory Inspectors.

These factory inspectors went about among the factories looking for irregularities such as unsafe places, etc. They accomplished considerable good this way, but probably not as much as possibly could be.

Some factory employes carry Employer's Liability Insurance.

I have observed some machines that guards have been applied on, and the men who operate them will throw back the guard to enable them to see their work a little better. One of the difficulties seems to be to get the men interested in taking care of themselves, even when good, safe equipment has been supplied for their use.

An employer is very seldom found who is not willing to spend the money for the safe equipment. The difficulty as far as I can see, is to get the employes themselves interested

in the matter. However, as the Safety First movement is getting popular, undoubtedly the men will take it to heart, and will begin to think of their own safety.

The more this matter is stirred up, the more it is talked about and the more statistics in connection with it that are published, the sooner the workingmen will appreciate the good that can be accomplished by practicing it.

Mr. J. F. H. Wyse,—

Mr. President and gentlemen: I haven't the honor of being a member of the Central Railway and Engineering Club and I want to take this opportunity to thank you for the pleasure of being here to-night to listen to Mr. Schenck's paper and see the lantern views.

This subject of "Safety First" is a great big subject, and one that has spread wonderfully of late. If every man would be a safety engineer himself, he would not only insure his own safety, but also that of the other fellow. Another thing that is going to help "Safety First" is someone in authority taking an interest in the work.

Mr. Schenck explained what steps have been taken in this matter, but he did not mention what results had been forthcoming. He referred to the Chicago and North Western Railway, and the number of accidents which they have had. In a forty months' campaign, based on the number of accidents which occurred during the previous period, they saved 117 lives and 7,517 minor accidents on that railway alone.

There were 300 women injured last year in Toronto by getting off cars backwards. These could all have been avoided.

Mr. McRae, here, is practically the pioneer in the Safety First movement in Toronto. Although his modesty does not permit him to say it, his efforts have been particularly instrumental in the formation of the Ontario Safety League.

For an instance of what can be accomplished by Safety First. Just before the holiday, Victoria Day, we had the papers publish a notice "Safety First on the Holiday" and the results have been marvellous as to the decrease in the number of accidents on that day as compared with other years.

I feel that if we get co-operation in this movement, we will not only save numbers of lives but also a great many minor accidents.

I again thank you for having had the pleasure of attending this meeting.

Mr. Jas. Wright,—

I would like to say a word in connection with the Safety First movement.

One day recently I was in conversation with a gentleman who told me of a plant in this city where they had contracted with a firm to have guards placed on a number of their machines. The way the guards were placed, the men could not accomplish the same amount of work as before. The foreman came along, and was grumbling about not getting the work out. The men explained to him what was the cause, and he said, "Take the d— things off and put them to one side, and get out the work."

Safety First is a grand institution, but when people in charge of a factory will sink so low as to do a thing like that, how can they expect results from it?

Mr. Schenck,—

I was instrumental in getting a number of factories in this city, as well as in other cities, to equip their machines with these guards. I had a case at Massey-Harris' plant where a man said he would not work on the machine if that "thing" was put on it. The foreman told me this, and I said, "Just leave this matter to me." So I went to him and said: "We are going to put a guard on this machine, and I want you to give it just three days' good trial. If you lose anything in piecework, I will make it up to you myself, but I want you to give it a fair trial." He agreed, so I left him for three or four days, and then went to him and said: "Well, Bill, shall we take it off?" "Oh, no," he said, "now it's on there you might as well let it be." "Well" I said, "how much have you lost?" and he replied sheepishly, "I don't think I have lost anything. I guess when I found out I could not get hurt with this appliance on, I could work faster without fear of accident."

Mr. Keith,—

There must be someone here who is the manager of a manufacturing plant, and this might interest him.

I was connected with a manufacturing industry in eastern Ontario a few years ago. We manufactured binders, mowers, reapers, etc., and were trying to work up an export business, and maintained an office in London, England. Most of the business we obtained came from Great Britain, but we could not persuade Continental buyers to purchase our machinery. We sent men over to Europe to investigate the reason, and they stated that the trouble was unprotected gears on our machines. We put men to work designing guards for these and when they were completed the machines were sent out with the guards applied. The desired business then began to materialize.

This winter when I visited the plant the superintendent

told me that eighty-five per cent. of the work that has gone out during the past winter was for Russia, Germany and Italy. The success of this scheme so interested the superintendent that he put his assistant to work designing guards for the machines about the shop. These were applied. In conversation with some of the machine hands recently they stated to the writer that they were able to turn out their work much more quickly now because since the safety devices had been applied they were not afraid of being hurt.

As editor of several technical papers I have had the occasion to visit a great number of factories and railway shops recently, and I find that the Safety First idea is catching. A fortnight ago I was talking to J. H. Long, Safety Engineer of the Intercolonial Railway, Moncton, and he stated that he had never seen such enthusiasm as the men on the Intercolonial Railway had shown in this movement.

In closing, Mr. President, I would like to move that a vote of thanks be extended to the author of this valuable paper.

Mr. J. F. H. Wyse,—

Relative further to what Safety First has accomplished. The results have been marvellous. The United States Steel Corporation, employing 200,000 men, since they started it in the latter part of 1907, and based upon the accidents of 1906, have saved in the years 1907, 1908, 1909, 1910, 1911 and 1912, 9,000 lives as well as a large number of minor accidents.

Mr. G. W. Magalhaes,—

I have not the pleasure of being a member of your Club, but had the privilege of hearing Mr. Schenck deliver a paper on "Safety First" to the company that I am connected with; so I was interested in hearing him further on the same subject.

I am with the Toronto Electric Light Company, Limited, in their general offices, and although not directly in touch with the mechanical part of our business, I would like to show how we utilise the principle of Safety First in connection with the routine of our orders, so as to ensure efficiency while working at top speed.

As most of you are aware, we are in keen competition here in the city, and in most cases the first company to install their service in any particular house gets the business. That means that all of our departments are working at top speed, and orders are apt to get mislaid in the rush.

An order for service involves several departments. We send through duplicate orders and also hold in the order department a copy in a pending fyle. This fyle is reviewed

frequently, to see what orders have not been completed. This double routing of orders, and the pending fyle, have the same effect as protection on a high speed machine. The men actually doing the work can work at top speed, and if they overlook anything they know that it will be checked up.

Chairman,—

I think we have discussed this question very fully, and as the hour is getting late, it will be in order for someone to second Mr. Keith's motion for a vote of thanks to be tendered to Mr. Schenck.

Seconded by Mr. Baldwin. Carried.

Mr. Schenck,—

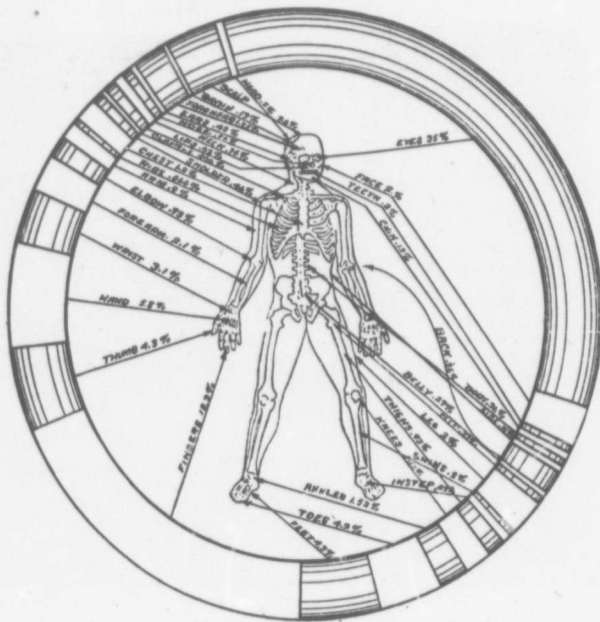
I am sure I appreciate the honor of being allowed to read a paper before this Club, and it is all for the good of the cause.

We see the number of accidents that are occurring every day, and it is a good work to try and reduce the number, and be able to feel that there are some people walking the streets to-day, who, were it not for your efforts, would be in their graves.

Mr. McRae,—

Just before we adjourn, I want to acquaint the members with a new term which has been coined and introduced in Houston, Texas, and some of the other cities in the States, as applicable to people walking across a crowded thoroughfare between the regular crossings without observing where they are going or what is coming. The term is "jay-walking." This is, of course, in connection with Safety First. Nobody wants to be a "jaywalker."

The meeting adjourned at 10.45 p.m.



Anatomical Distribution of Accidents for the year 1913 in the plant of The Pullman Co., Pullman, Ill.



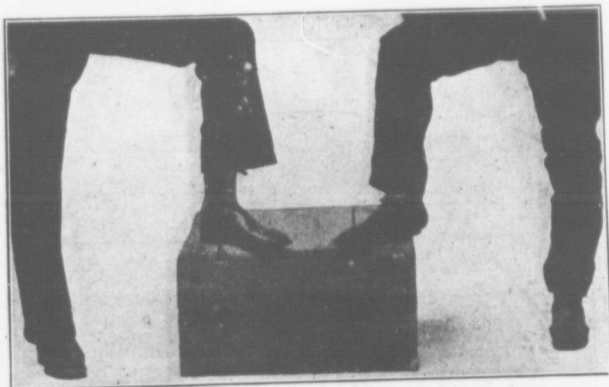
The result of using water to extinguish a fire in a motor.



Right way to catch iron. Cutting the stream in towards the furnace.



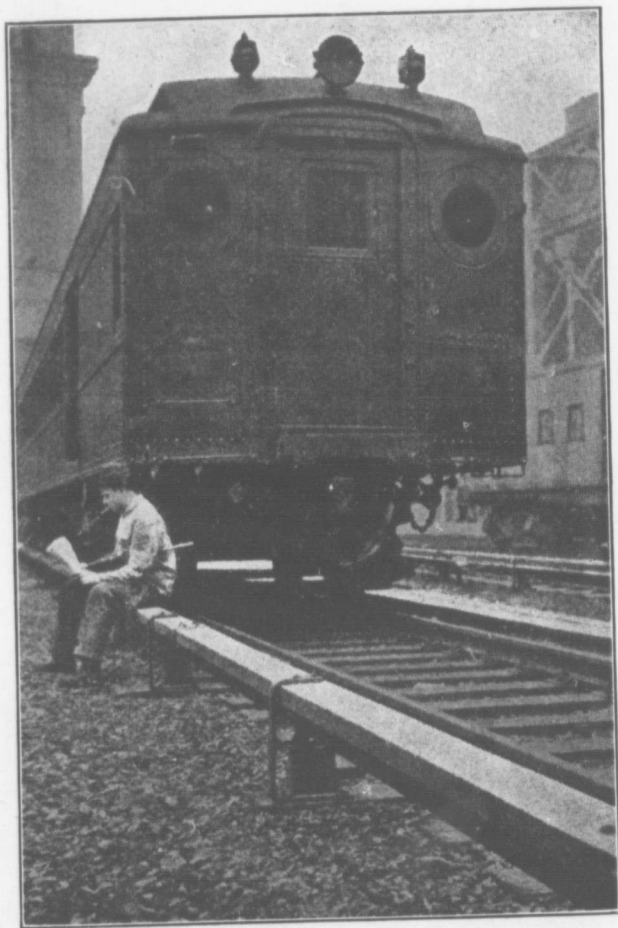
Wrong way to catch iron. Cutting the stream away from the furnace.



Right and wrong kinds of pants and shoes for foundrymen to wear; hard cloth (jean) pants and congress shoes protect the legs and feet from burns.



Inviting an Explosion. This illustration shows the extreme carelessness of an employe seated on a can of gasoline lighting a cigarette.



"Flagging" His Train. The third rail makes a comfortable seat, but who protects the train?

Pledge of the Safety Patrol

I WILL work for the Safety of others as I would want them to work for my Safety.

I will work for the Public Safety as I would want those appointed to safeguard our city to work for my Safety and the Safety of my family and friends.

I will try to protect myself and those with whom I come in contact from the risk of unnecessary chances.

I will do **MY PART** to help reduce the number of accidents for 1914.

NOTICE

The Seventh Annual Outing of this Club will be held at Erin on

SATURDAY, JUNE 20th.

Special train leaves Union Station at 8.30 a.m., via the Canadian Pacific Railway. Train will stop at North Parkdale. The fare for the round trip is \$1.50, and tickets may be had from members of the Executive and Reception Committees, the Secretary, or at the Union Station on the morning of the Excursion.

C. L. WORTH,
Secretary-Treasurer.