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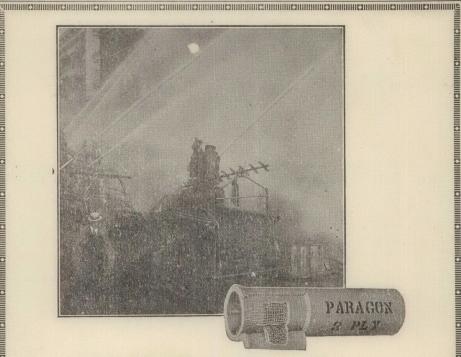
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Seventh Annual Convention

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Seventh Annual Convention OF THE

New England Association

of__

Fire Chiefs



June 25, 26 and 27, 1929

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PROCEEDINGS OF THE SEVENTH ANNUAL CONVENTION OF THE

NEW ENGLAND ASSOCIATION OF FIRE CHIEFS HELD AT

NEW HAVEN, CONN., JUNE 25, 26, 27, 1929

TUESDAY, JUNE 25

Morning Session

9 A. M.

PRESIDENT SANBORN: The time has arrived when it becomes my pleasurable duty to call to order the Seventh Annual Convention of the New England Association of Fire Chiefs. Will you all please rise while the State Chaplain, Rev. M. J. Ryan, leads us in prayer.

INVOCATION

STATE CHAPLAIN, REV. M. J. RYAN

Our Father Who art in Heaven, hallowed be Thy name, the great Judge of the living and the dead, omnipotent Administrator of the affairs of men, we Thy faithful sons, who are gathered here this morning beg abundant blessings from Thee, the Giver of all good gifts, upon all our deliberations for the good of mankind and the betterment of our communities. Every man of us dedicated to public service begs His further blessings upon all our labors. Bless, Lord God above, also those who are near and dear to us, that our career may be unalloyed with any care or worry or trouble. Amen.

Star Spangled Banner—Orchestra.

INTRODUCTORY ADDRESS BY PRES. SANBORN

In 1923 the first Annual Convention of this organization was held at Bridgeport, Connecticut. During the intervening years we have held conventions in practically all of the states in New England, and we return now once more to the state of Connecticut, which I hope has prospered during these years as much as our Association has. In 1923 we had a membership of about 119. Today our membership is 650, and our finances are in a good, healthy condition. I trust the future will be as kind to us as it has been in the past.

It is indeed very gratifying to me to see such a large attendance here this morning. Your officers have endeavored to map out a program of topics and speakers that should prove both beneficial and interesting to you, and I would like to urge all of the active members of this organization to kindly attend the

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meetings promptly. We know it is hot, and we know you may be slightly uncomfortable, but you owe it to the speakers who are here, to be here on time in order that we may get the meetings over with as soon as possible.

Your efficient Exhibit Committee has performed its duties so diligently that it became necessary to procure additional space to care for all of those who wished to exhibit. I know that if you will put your time in looking over these new appliances and apparatus it will not only be of benefit to you, but you owe it to our exhibitors to do so.

We will now have an address of welcome from His Honor, the Mayor, Mr. Tully.

ADDRESS OF WELCOME

BY THE

Honorable Thomas A. Tully, Mayor of the City of New Haven

Mr. President, Members of the New England Association of Fire Chiefs, and Ladies: That is rather an unusual form of address to put the ladies last, but in this case it is an ascending climax, for the presence of ladies at a convention of this sort is, I think, a distinct addition to this convention.

It is real pleasure for me to extend to you the official welcome to the City of New Haven. We feel that we have here a city of which we have a right to be proud, and there is no part of this city in which we take a greater pride than in our fire department and we are delighted to have you come here and see what we have.

We feel that our city has various things to offer you in the way of historical interest, of scenic interest, and of course the university with its splendid buildings is well worth the spending of some time in sightseeing in that particular place.

It is always very gratifying to me to have an opportunity to welcome a convention to New Haven, for I think gatherings such as yours are of inestimable value to the people who share in them, and particularly so, when the subjects under discussion are those which are of so vital importance to the general public as the matter of efficient fire protection. There probably is not any field of public service in which developments have been more rapid in the last few years than in the matter of meeting the fire peril. It is one subject which has been before the public eye and in the public mind with increasing interest in recent years, and it is only by a gathering such as you are assembled for here that you as individuals find out what other people are doing, what methods have been tried in other places and which methods have proved successful and which not worth wasting time on.

I realize this is a warm morning and you have a long speaking program, so I will not attempt to go further into the advantages of a convention meeting, but I will say this,—that New Haven extends to you a hearty and sincere welcome to this city. We trust your stay here will be helpful and profitable to you in the advance of your chosen profession, and in addition to that, we hope you will find



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your leisure moments enjoyable. I have not made any provision to give you ladies and gentlemen keys to the city. No fireman needs keys to get into it, and I am sure in looking over this assemblage that there is nobody in the crowd who isn't going to get into any place where he needs a key.

PRESIDENT SANBORN: When your officers came to this beautiful city of New Haven last December to arrange for this convention, they were met at the station by a very enthusiastic gentleman who was greatly interested in our mission. He is known to you all. He is none other than our genial host, Chief Reif, who has labored so hard for the success of this convention, so with your permission I will deviate from the set program and call on Chief Reif for a few remarks.

CHIEF REIF: Mr. President, Mayor, Chaplain Ryan, Fellow Members, Guests and Ladies: It is indeed a great pleasure for me to be here to welcome you after the Mayor's address saying that you had the freedom of the city. I have had a committee of 162 working with me as a general committee. I have had several ask me their duties, and I said that all we asked of them was to give the guests and members a good time. It certainly is a pleasure to have you here in our city. We are going to try to make your stay here an enjoyable and profitable one.

At one o'clock, two o'clock Daylight time, the ladies are to meet in the hotel lobby for a trip through Yale. The trip will wind up at Woolsey Hall, where cars will be waiting.

The Mayor informed you firemen that you do not need keys to get into places. We expect to have a punch bowl downstairs for the ladies, and you may ask downstairs where 270 Crown Street is. I hope you will all have a good time.

Selection—Orchestra.

PRESIDENT SANBORN: We will now have an address by Chief Moran ^e in response to the Address of Welcome by His Honor, the Mayor.

RESPONSE TO ADDRESS OF WELCOME

BY CHIEF JOHN C. MORAN, HARTFORD, CONN.

Mr. Mayor, Chaplain Ryan: In response to the very cordial welcome extended to the members of this Association, I know that every member here feels as I do that your welcome is sincere, and in behalf of this Association I thank you most heartily for your kind words of welcome.

This Association is composed of chiefs from various fire departments throughout New England. They are organized for the purpose of advancing and encouraging any information or knowledge regarding improved methods of extinguishing or preventing fires. Now, while we are in session in your city, Mr. Mayor, we invite you, and through you, any citizen in your city who is interested in the work of the fire department to sit with us in our meetings.

These many conventions held during the year throughout New England,

WE THANK YOU!

Faithful, vigilant guardians of life and property, your task is no easy one, but you have done it well. To the officers and men of the New England fire departments, the Ætna Insurance Company extends its thanks for a trust kept, a job well done.



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each group represents some particular business or profession, and unity of personal interest goes with each one of these groups. Some have exhibits of goods, an excellent example of which you may notice at the exhibit of appliances and equipment at the Armory in your city, and the opportunity to witness this apparatus and equipment along with the full, free discussion and exchange of thought among the members, has a tendency, and it does, advance the welfare and efficiency of every member, and it better qualifies a man to engage in his business, a business which is a never-ending battle with man's never-ending enemy—fire.

For a great many years now we have been hearing about world disarmament, but still nations devise ways and means for destroying property, for there are still many people that, as men and nations have from time immemorial fought, will continue to destroy property and each other, every succeeding one getting more destructive. So, with man's greatest enemy—fire. We have always had it and probably will continue to have it; but this body of men, representing the army of firemen in New England, are not meeting here devising ways and means for maiming and destroying lives and property and bringing misery into the world. They are here, rather, to plan how to meet that common enemy which is annually consuming many millions of the accumulated earnings of the people of this country.

For several years now it is becoming evident that the results of those who are engaged in the effort to reduce this enormous fire waste is beginning to show results. One great factor in this work are the preventive methods now being urged by fire agents. So, while we continue to have fires, instead of becoming more terrible and destructive, it is sincerely hoped by us that this trend downward will continue.

These few days we will be in convention in your city we hope to be greatly helped, and as we leave you, we hope to leave behind us some commendable evidence of our work. So, permit me in conclusion to tender to you in return, in behalf of the New England Association of Fire Chiefs, our sincere thanks.

MEMORIAL EXERCISES

Selection—Quartet.

PRESIDENT SANBORN: We will now have the Roll Call of deceased members by the Secretary-Treasurer.

SECRETARY O'HEARN: Peter S. Byrnes, Chief of North Kingsford, R. I., Fire Department; died November 9, 1928.

Ernest F. Grant, Deputy Chief, Fire Department, Amesbury, Mass., died January 22, 1929.

Lowell C. Grant, Ex-Chief, Burlington, Vermont, Fire Department; died May 13, 1929.

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In Memoriam

RESOLUTIONS ON THE DEATH OF

Peter S. Byrnes, Wickford, K. I.

CHIEF OF NORTH KINGSTON, R. I. FIRE DEPARTMENT DIED NOVEMBER 9, 1928, AGE 71.

The members of the New England Association of Fire Chiefs have learned with feelings of deep regret of the death of our fellow member, Peter S. Byrnes, Chief of the North Kingston Fire Department.

Chief Byrnes was very active and interested in public affairs, having served at different times in the capacity of Town Sergeant, Overseer of the Poor, Commissioner of the Town Asylum, and Chairman of the Republican Town Committee. He was also a member of the St. Francis Council, Knights of Columbus of Wakefield. At the time of his death, he was Vice-President of the New England State Firemen's League and Past President of the Narragansett Veterans Association.

Be It Resolved: That in the death of Chief Byrnes, this Association has lost a valuable member and Associate, and in fond remembrance of his earnest devotion to service, we wish to express to his Widow our sympathy in her bereavement.

Be It Further Resolved: That the above be printed in the records of this convention and that a copy be forwarded to the family of the deceased.

John A. Savage Thomas Almond Irving F. Patt Committee on Resolutions.

RESOLUTIONS ON THE DEATH OF

Ernest F. Grant, Amesbury, Mass.

DEPUTY CHIEF OF AMESBURY, MASS., FIRE DEPARTMENT

It is with extreme regret that this committee brings to the attention of this convention the death of a highly valued fellow member, Deputy Chief Ernest F. Grant, of Amesbury, Mass.

He was a member of the Board of Engineers for twenty-five years, two of which were served as Deputy Chief, and

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Whereas, it has pleased the Almighty to remove our esteemed Associate and friend; and

Whereas, in his passing, the Association has lost a most valued, true and devoted member, the Community an upright citizen, whose character and industry counted largely in the affairs of the City, his family a fond husband and indulgent father, to whom we extend our sincere sympathy;

Be It Resolved: That a copy of the resolutions be spread upon the Records and a copy sent to his family.

Chas. H. Cage
William H. Hawkins
Homer B. Whiting
Committee on Resolutions.

RESOLUTIONS ON THE DEATH OF

Lowell C. Grant, Burlington, Vermont

Ex-Chief of Burlington, Vermont, Fire Department 1853-1929.

Ex-Chief Lowell C. Grant for thirty-four years Treasurer of the City of Burlington and three years Chief of the Fire Department died at 9:15 P. M., May 13th, 1929.

Ex-Chief Grant was born in Tolland, Conn., March 22, 1853, and was educated in the public school of his native place. Mr. Grant always was a friend to the firemen and his loss will be felt deeply by all.

Resolved, that we hereby record his death with sorrow, pay our respect to his memory, by rising and remaining silent and that these thoughts of a departed brother be noted in our records.

Carl D. Stockwell Alfred H. Koltonski John C. Heney Committee on Resolutions.

Taps.

Selection—Orchestra.

PRESIDENT SANBORN: We will now listen to the Memorial Address by State Chaplain, Rev. M. F. Ryan.

MEMORIAL ADDRESS

BY STATE CHAPLAIN, REV. M. F. RYAN.

Mr. President, Fire Chiefs of New England and Ladies: For many years it has been my proud privilege to address the Connecticut State Firemen's Asso-

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ciation at its traditional and loyally observed memorial service held in connection with each annual convention. Today, we esteem it high honor indeed to have part in the memorial services of the Fire Chiefs Association of New England. Different as may be the membership in several respects of these two organizations, yet there is absolutely no difference at all when it comes to the idea of remembering brothers who have crossed that bourn whence no traveler ever returns, of brothers who have fallen in the ranks, of brothers who have answered to the last general alarm, of brothers who have reported forever to the great High Chief above.

There is nothing more beautiful in the world's history, nothing more consoling in all the experiences of mankind, nothing that adorns the doings of the human race more than the practice and the custom of remembering the dead. It is a fact of nature that whether he wills it or not, there is not a man in all this earth who can completely forget a brother lost or entirely erase from the slate of memory the name or the face of someone who was near and dear. It is a recognized fact of every-day history that recollection of those whom we loved and lost never dies out. It seems to be a God-given part of the duty of the human heart to inspire the human mind to recall from time to time loved ones lost.

That, my friends, is the foundation and the spirit of this memorial service, and you do well, Fire Chiefs of New England, in the very beginning of your annual convention to pause for a moment or two to resurrect the names and to pay a sweet tribute of remembrance to brothers who have crossed the Great Divide; and you do well to indulge these moments in fond recollection of those absent brothers with whom you were well acquainted, with whom you perhaps once labored side by side, with whom you shared the hazards and ran the dangers of a fireman's life, and with whom perhaps also you once faced the same fate but were spared the same fate as they.

And today, as taps are reverently sounded for the missing ones and as their names are read from the roll call, the lips of men may pronounce the answer to each name read off the sad word, Absent; but out from your loyal hearts, Fire Chiefs of New England, there goes forth the cry that that is not the complete answer, that it should be, it must be and it will always be,—Absent, but not forgotten.

SELECTION—Quartet.

PRESIDENT SANBORN: You will all please rise while the Chaplain pronounces the benediction.

REV. M. F. RYAN: May the blessing of Almighty God, the Father, the Son and the Holy Ghost, descend upon us and remain with us always. Amen.

* * *

PRESIDENT SANBORN: Just a moment before you go, I have one or two announcements here. Here is one which may interest the Rotarians. There will be a meeting of the Rotary Club in this hotel at 11.15 standard time.

There will be a meeting of the Auditing Committee directly after the adjournment of this session.

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Please bear the time of the meetings in mind and be present promptly. We have so arranged the program that we are having three sessions today, but in order to get square with the chiefs, we will not have any session tomorrow, so please attend those today.

The meeting stands adjourned.

TUESDAY, JUNE 25.

Afternoon Session

2 P. M.

PRESIDENT SANBORN: The meeting will please come to order. If you gentlemen will kindly move forward and take these seats in the front part of the hall, and also remove your coats and be as comfortable as possible.

The first business this afternoon is the appointment of the Committee on Registration, and I appoint

P. Hildreth Parker George W. Austin Herbert K. Pratt

Also, the appointment of the Committee on Courtesies extended, and I appoint

Chief Charles E. Fortin, Lewiston, Me. Chief Charles H. French, Manchester, N. H. Chief W. F. Noble, New Britain, Conn.

The next in the order of business will be the reading of the records by the Secretary.

SECRETARY'S REPORT

The first meeting of the Directors for the year 1928-29 was held at New Haven, Connecticut, December 20, 1928.

The meeting was called to order at 2.30 P. M., by President Sanborn with the following in attendance: President Sanborn, Directors Casey, Koltonski, Cote; Traffic Manager, George Cobb; Press Representative, Harry Belknap; and Secretary, John W. O'Hearn.

On motion of Chief Casey, seconded by Chief Cote, it was voted to hold our 1929 Convention on Tuesday, Wednesday and Thursday, June 25, 26, and 27th respectively.

On motion of Chief Casey, seconded by Chief Cote, it was voted that Headquarters of the Association be established at the Hotel Taft and meetings be held in the hall of the Hotel. Division of Crane Co.

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The committee visited the Second Regiment Armory and voted to use the Armory as the Exhibit Hall for the Convention.

On motion of Chief Reif it was voted that a committee on exhibits be appointed and the following were appointed:

Chief John S. Pachl, Annex F. D., New Haven, Conn. Chief F. P. Dunnigan, Westport, Conn. Chief Wm. C. Mahoney, Peabody, Mass.

On motion of Chief Cote it was voted to use the same method of reporting our Convention as in previous years.

It was voted that the Secretary look into the cost of a flag or pennant to be used in connection with Conventions or place of Exhibits.

The Secretary reported the death of Chief Peter S. Byrnes of Wickford, Rhode Island, since our last meeting.

After a general discussion concerning the organization and our coming Convention it was voted on motion of Chief Casey to adjourn at 3.55 P. M. subject to the call of the President.

John W. O'Hearn Secretary.

The second meeting of the Directors for the year 1928-29 was held at the Parker House, Boston, Mass., March 20, 1929.

The meeting was called to order by President Sanborn at 10.15 A. M. with the following present: Chiefs Sanborn, Stockwell, Koltonski, Veit, Savage, Reif, Spring, Mahoney, Fortin, Casey, Allen, Pachl, Superintendent Thompson, George Cobb, Harry Belknap, P. Hildreth Parker, Herbert Pratt, George Austin and the Secretary. This comprised all the officers except Chief Cote who notified the secretary that it was impossible for him to attend.

The records of the previous meeting were read and approved.

The secretary reported the death of Deputy Chief Ernest P. Grant of Amesbury, Mass., stating that the usual floral tribute was sent.

A letter was read from Mrs. Wm. F. Daley thanking the Association for what had been done because of the death of her husband the late Chief Wm. F. Daley of Brockton, Mass.

Chief Tierney opened the discussion of topics for the Convention by stating the desirability of again submitting rules for oil burners and garages to the convention for consideration, and having uniform rules throughout New England. The topic was discussed at length by Chiefs Veit, Spring, Allen, Stockwell, Koltonski, Mahoney, Reif, Casey and Pachl. On motion of Chief Tierney it was voted that Chief Allen present oil burner regulations at the Convention for such action as might appear desirable.

On motion of Chief Casey it was voted that Chief Tierney present a paper covering the handling of gasoline including transportation.

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On motion of Chief Mahoney it was voted to have as a topic First Aid and Its Importance to the Fire Department presented by a good speaker.

On motion of the Secretary it was voted to invite a speaker from the National Board of Fire Underwriters.

On motion of Chief Tierney it was voted to invite Assistant Chief Thomas F. Dougherty of New York to speak on the subject of Electric Refrigeration.

On motion of Chief Spring it was voted to invite State Forester John H. Foster to speak on the subject of Forest Fires and their prevention.

On motion of Chief Allen the secretary was instructed to consult with the New England Insurance Exchange and if possible have a report or speaker with information concerning the recent explosion at Lynn, Mass.

On motion of Chief Stockwell it was voted to invite our member, Walter Wedger to talk on the subject of explosives with demonstrations.

On motion of Chief Allen it was voted to invite Fred Shepperd to address the Convention.

It was voted to instruct Chief Spring of Laconia, N. H., to invite Gov. Charles W. Tobey to address the Convention.

It was voted to instruct the secretary to get out a letter to be sent with application blank to prospective members explaining our object and urging them to become members. This was voted as there are many Chiefs throughout New England who have not yet joined but who should be members of the Association. The missionary work covering this campaign to be done through the State Vice-Presidents.

After constructive discussion and an urgent appeal from President Sanborn to make our next Convention the best ever, which was already promised by Chief Reif, the meeting adjourned at II:55 A. M. to meet with the Massachusetts Fire Chiefs' Club.

After dinner with the Club the members enjoyed the proceedings of the Chiefs' Club meeting during which many topics of interest were discussed.

John W. O'Hearn Secretary

Since our last meeting of the Directors death has claimed another of our members, Ex-Chief Lowell C. Grant of Burlington, Vermont, who at the time of his death was City Treasurer, a position he had held for many years. He was a regular attendant at all of our past Conventions and was always ready to do all he could for the service. A floral tribute from the Association was sent.

Through the generosity of our member Mr. John Campbell, Supt, Special Service Department of the Edison Electric Illuminating Company, a bound pamphlet was presented each member containing extracts from a speech of Walter Wedger given before the Massachusetts Fire Chiefs' Club at its March meeting containing valuable information relating to certain common gases and vapors.

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6 CENTRAL ROW

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On April 15th we received into our Association our first Life Member in the person of Mr. Herbet H. Winslow of Lynn, Mass., Commissioner of the Firemen's Relief Fund of the State of Massachusetts. Mr. Winslow was given a Life Membership badge.

On May 25th Ex-Chief Jesse Barrett of Peabody, Mass., celebrated his fiftieth wedding anniversary and on vote of the Directors a beautiful basket of fruit with best wishes to Jesse for fifty years more of continued happiness with his good wife who always attends Conventions with him. On June 5th a letter of acknowledgment was received from Jesse wishing us continued success and prosperity.

On June 5th our member Ex-Chief Edwin D. Moore of Bennington, Vermont, set sail with Mrs. Moore from New York on the Berengaria to celebrate their 36th wedding anniversary by attending the International Firemen's Exposition at Paris, June 27th to July 7th. This is the first Convention Ed has missed and requested the Secretary to express best wishes for a successful Convention and while they are far away their thoughts will be with us in our deliberations. A bouquet of flowers was presented to Mrs. Moore on board after the boat set sail in response to which the following wireless was received: Our heartfelt appreciation to New England Association of Fire Chiefs for lovely floral remembrance, absent, but not forgotten cheers our voyage. Mr. and Mrs. Ed. Moore.

John W. O'Hearn Secretary.

PRESIDENT SANBORN: You have heard the report of the Secretary. What is your pleasure to do with the same?

It is moved and seconded that the report be accepted.

(Motion carried.)

We will now listen to the financial report by the Treasurer.

SUMMARY REPORT OF THE SECRETARY-TREASURER

TREASURER O'HEARN: Mr. President and members of the Association, as in previous years I have prepared a brief summary report of financial transactions during the past year or since our last Convention. We have passed through what is probably the best year of our existence as the report will indicate.

Our membership has increased substantially. Our balance shows an increase over previous years even though we had paid a large amount to the International Association for dues, made a contribution of one thousand dollars to the family of a deceased member, and have met all other obligations.

The receipts from advertising amount to better than three thousand dollars which with the exhibition receipts and dues from the members assure us of a sound financial standing.

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As your secretary it has been a pleasure for me to be of assistance in the collection of dues. The members of the Association are to be congratulated for their co-operation as prompt payment of dues shows an interested and enthusiastic membership. But fifty-four members out of a total of six hundred and thirty-eight owed more than one year on June 15th and none owed over two years.

I submit the following report for your approval.

On June 15, 1928 the total membership was 559 classified by states as follows:

Maine50New Hampshire50Vermont21Massachusetts301Rhode Island39	New York Pennsylvania Ohio New Jersey California	I 4 I
Rhode Island 39	California	I

On June 15th of this year the total membership was 638, classified by states as follows:

Maine 54	New York 20
New Hampshire 44	Pennsylvania 2
Vermont 33	Ohio 3
Massachusetts342	Deleware 1
Rhode Island 43	California I
Connecticut	Louisiana :

Since our 1928 Convention we have lost by death three members and 34 by withdrawals, dropped for non-payment of dues or otherwise.

On June 15, 1928 the cash balance was \$11,990.21.

On June 15, 1929 the cash balance was 14,133. 75. \$775.90 of this amount is deposited in the Union Market National Bank, Checking Acct. Watertown, Mass., and the balance \$13.357.83 in the Savings Department of the same bank.

The secretary suggests that the members keep in closer touch with the officers notifying them at once of any illness or injuries of members as we are ready at all times to render any assistance that will be of comfort to those who at times may find themselves in need.

In connection with the report and financial statement of last year I hold a copy of the report of the last convention and I move you this report be accepted as the last annual report of the meeting and convention.

Chief Reif: I second the motion.

(Motion carried.)

SECRETARY O'HEARN: Mr. President, in order to give the members an idea of how much money has been received and paid out during the past

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year, we received for all purposes \$6,861.71 and our expenditures were \$4,718.19; and during the year we have made a net gain of \$2,143.52.

PRESIDENT SANBORN: Have the auditors audited the treasurer's report?

CHIEF CASEY: The auditors have looked over the books and found them correct.

PRESIDENT SANBORN: What is your pleasure to do with the Auditors' report?

It is moved and seconded that the report be accepted.

(Motion carried.)

What is your pleasure to do with the Treasurer's report?

It is moved and seconded that it be accepted as read.

(Motion carried.)

SECRETARY O'HEARN: Mr. President, About the time I was leaving Boston yesterday, or leaving Watertown for Boston, I received a telegram notifying me of the death of one of our Ex-Chiefs in Massachusetts, Frank Gunther, chief of the little town of Dracut, and the telegram said, "Can you give us any financial assistance?" I have been in touch with the family but didn't realize that death was going to occur so soon. About six weeks ago I received a letter, and at that time they said that another fraternal organization was helping some. It was so late yesterday when I got the report and I had to come down here, that I sent a telegram back and asked how much financial assistance they believed would be necessary and to wire me at this hotel yesterday. Up to date I haven't heard anything.

Now, my object in bringing this before the convention at this particular time is to have this matter referred to the Board of Directors, in whom you can put your faith, and when we got back home, we can go out and use our own judgment, and I make a motion that this matter of this request be referred to the Board of Directors.

(Motion seconded and carried.)

PRESIDENT SANBORN: Are there any communications?

SECRETARY O'HEARN: I have a communication dated June 20th, but was pretty late getting to me, so we couldn't make any other arrangements. It is addressed to me, and says:

"Owing to a previous engagement which will prevent my attending the convention session next Tuesday afternoon, my only alternative is to request the privilege of exchanging with someone and placing my subject on the program for Wednesday forenoon or afternoon, or if desired for Thursday. Scottish Union & National Insurance Company

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Yours very truly, J. H. Howland, Engineer."

He was on the program for this afternoon.

I received this telegram:

Chief O'Hearn, Fire Chiefs Convention, New Haven, Conn.

See you this evening. (Dated today.)

Daugherty

He was on for this afternoon but won't be in until this evening.

PRESIDENT SANBORN: Our first topic for this afternoon will be a paper on "Forest Fires and Their Prevention" by Mr. John H. Foster, State Forester, Concord, N. H.

ADDRESS

FOREST FIRES AND THEIR PREVENTION

By John H. Foster, State Forester of New Hampshire, Concord, N. H.

Mr. President, members of the Association: It gives me great pleasure indeed to have the privilege of addressing this convention on a subject which I imagine perhaps you have not had many talks on, but knowing that you have certain important duties, at least some of you with reference to forest fires, I think perhaps this paper presented to the Association may have some interest to you.

I ordinarily would perhaps give you an extemporaneous talk, but I didn't dare to today, gentlemen. I thought I better write down what I had to say. I hope you will pardon me if I give it to you the other way.

In the United States 202 million acres of forest land are under organized fire protection while 170 million acres and over have no such protection. Of the total forest land area of our country, therefore, 46 percent receives no protection from fires. In 1927 there were 35,000 fires on the protected areas, amounting to 2,784,000 acres burned over with a damage of \$4,297,000. Estimates for the unprotected areas show that 123,000 fires burned over 35 million acres with a damage of \$29,000,000. The total forest fire damage in the United States annually is at least \$33,000,000.

The situation is quite different in New England which has a forest land area of 28 million acres, all of which is under systematic protection by the several states. In 1927 there were 3500 fires burning 78,000 acres with a damage of \$744,000. The preceding year 1926 there was a larger number of fires and

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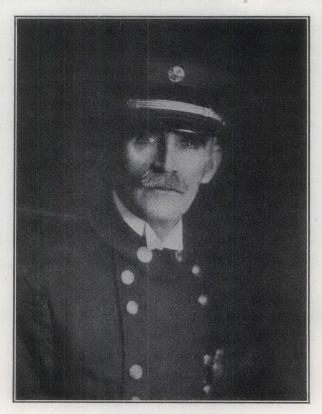
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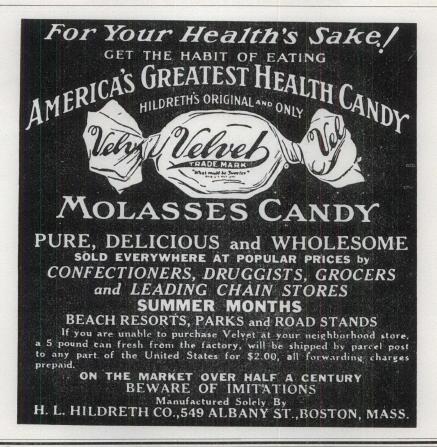
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A Slight but Sincere Acknowledgment of a Debt of Gratitude Due to the Brave Fire Chiefs of Our Country a much smaller damage although about the same area burned over. The 1927 figures may be considered as an average of recent years. Figures for areas burned over during earlier years are not entirely reliable, particularly on unprotected areas.

New England spent in 1927 for the prevention of forest fires \$357,000 and in 1928 \$421,000. The average is about 1½ cents per acre. The Federal Government shares in the cost of forest fire prevention but does not share in the cost of fire suppression. Government aid amounts to about 15 to 20 percent of the expenditures. Fire protection plans worked out by the government and the states for an adequate system of protection for New England call for the expenditure of \$800,000 annually. We are therefore spending not over one-half what an adequate system would be expected to cost.

Fire prevention is more or less clearly distinguished from fire suppression. In round numbers the New England states spend perhaps \$100,000 annually to extinguish forest fires. Suppression costs vary greatly from to year depending on weather conditions and fire hazards. Prevention costs are more uniform since they result from the operation of budget policies laid down by the several states with the aid of the government. These will be discussed later on in some detail. Maine has a fire fund obtained from a special tax on forest property in the wild land towns of the state which makes available some \$75,000 or more when and if needed. In other New England states suppression costs are paid from appropriations which may or may not average high enough to take care of the situations in unusally bad years. In any event suppression costs must be paid since the work of extinguishing forest fires is in accordance with the laws and politics of the different states.

Fire prevention measures consist of posting notices, newspaper articles, talks before schools, clubs, etc., patrol of the woods and roadsides, disposal of slash, control of brush fire burning by permits and conditions surrounding the operation of steam mills and such other legal safeguards and policies as tend to prevent forest fires from starting.

That it pays to prevent fires rather than to rely on extinguishing them when they occur is proven by demonstration and experience. In Massachusetts an experiment carried out over three years on Cape Cod showed that with 20 percent less money spent for education and other prevention measures together with suppression costs than had previously been spent for suppression alone, the fire losses in acres burned over have been reduced by 79 percent. In other words, it is cheaper to spend money for preventing fires than for extinguishing them, to say nothing of fire damage resulting.

For the United States as a whole, especially the South, intentional burning and incendiarism is probably the leading cause of fires and one of the big problems as more and more sections of the country come under systematic protection. In New England this cause is of little importance and smoking is the leading cause followed probably by brush burning although railroads in some of our states are responsible for more fires than either of the others. Camp fires and lumbering as separate cause of fires are taking less important places as education and regulation becomes more effective.

The damage caused by forest fires is too generally thought to be confined to losses of merchantable or partly mature timber. Fire losses should take into account seedling trees as well as the more indirect damages resulting from forest

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fires, such as retarded growth, decay in partly damaged timber, reduction in soil fertility, insect damage due to weakened resistance of trees, loss of wild life, injury to stream flow, etc. It has been proven definitely that fires in grass lands and pastures lead to inferior grass cover and poisonous plants. Fires destroy breeding grounds and the food of game so that eventually game will disappear as well as streams dry up and soil become useless for even purposes of tree growth for generations ahead. To these various indirect results of fires people are exceedingly complacent.

I am reminded by that word "complacent" of a story of a northerner visiting the South. This northerner was watching some wild hogs roaming around in the woods, and he said to a native who was going by and who presumably owned these hogs—You know the southern hog is called a razor back because he is so thin—The northerner said, "Why don't you feed these hogs? You would save a lot of time." The southerner looked at the northern tourist in disgust for a moment or two then said, "Hell, what is time to a hog!"

The public does not realize and it is hard to convince them that all present forest and idle lands will be needed by future generations for timber production. Lumbering itself is capable of infinitely less serious consequence in timber depletion than the burning of forest land.

Adequate forest fire protection is a business necessity. Without it there is little hope of supplying our wood needs of the future. We have the necessity of restoring our waste and abandoned lands to productive forest, to make them and all other forest lands real tangible, tax paying, wealth producing units of our communities. The forest industries in thirty-five states employ a million wage earners and contribute nearly four billion dollars annually to our national wealth. Our recreational instincts, fishing, hunting, and camping, the means of living for many, the wealth and joy of our woods and mountains are dependent upon fire protection. Ninety percent and over of all fires in New England are due to this human element and carelessness is responsible for most of them.

In each of our New England states there is a Conservation or Foresty Department whose primary work is the prevention and suppression of forest fires within the boundaries of the state. These State Commissions cooperate with individual towns by varying methods with this end in view. In New Hampshire the state and towns share equally the cost of forest fire suppression, in Connecticut the state and counties share this cost. In Maine the state pays for suppression in all wild land towns. In Massachusetts the towns pay for suppression under the general guidance and supervision of the state. Vermont shares the cost with the towns according to valuation, more being given the towns of large area and low valuation. In each state it is the plan to bring the state protective influence into each town and determine the methods and policies pursued.

Costs of fire prevention which are educational or in the nature of law endorsement are paid largely by the states themselves. Each state is divided into fire districts with a district chief in charge. Local town and deputy wardens are generally appointed by the state and they are responsible for the suppression of forest fires in their towns, have powers to summon help needed and settle the fire costs. Often other deputies such as railroad section foremen, highway patrolmen, etc., are appointed. All these local wardens and deputies under a state district fire chief have a part in carrying out preventive and regulative measures such as posting fire notices, inspecting and regulating hazards at steam mills, slash along highways as well as such other duties as may be required under the

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state laws. Permits to burn brush are required of each land owner or agent. These permits are issued for relatively short periods, indicate the place and condition of the burning and enable the warden who issues them to be conversant with fires burning under control and ready to respond if fires get out of control.

Each town is a separate unit but working with adjoining towns and in accordance with a state wide plan. Town lines count not at all in the actual work of extinguishing fires. Conferences of wardens are held from time to time. In Massachusetts and Connecticut there are county fire warden associations which have frequent meetings of instruction and for social purposes.

Special patrol is employed when and where needed in time of unusual fire danger. Regular patrol, particularly in wild land sections, is a part of the policy of the more northern states where large timber holdings prevail. In Maine, New Hampshire and Vermont there are Timberland Owners Associations and more recently such Associations have been formed in Connecticut working with the state organization for patrol purposes.

Airplanes for patrol and to transport men and investigate remote fires are extensively used in Canada and the far west. They have been tried in New England and undoubtedly have future possibilities, especially during short periods of extreme danger, as in the spring dry period which is coming to be looked upon as an annual hazard of great seriousness, because of the dry grass, desire of people to burn up accumulated debris and high winds. Airplane patrol as an educational measure and to drop messages to those building fires in dangerous places would be of great value. The cost of it and the fact that we already have an excellent system of lookouts, makes the use of airplanes at present of doubtful expediency.

It is part of our New England forest fire system to close by proclamation of the Governor all woodlands to hunters, fishermen or other individuals at times of unusual fire danger. It is proven beyond question that this is the most effective means of fire prevention in emergency.

The fire lookout work has become standardized and widespread in our New England as well as many other states. Even state lines are disregarded and certain lookouts as between Maine and New Hampshire and between Massachusetts and New Hampshire are maintained jointly by the states. Over one hundred fire lookout stations are in operation during the fire season in the six New England states. These stations are generally built of steel with enclosed observation rooms, map stand, range finder, telephone connection to the outside world and facilities for the watchman to live nearby the tower. Many hundreds of miles of telephone line are maintained by the states. The number of stations is increasing from year to year with the object ultimately of having them not more than 20 miles apart and so placed as to furnish the best possible outlook of the country about. Watchmen are employed by the month or on a per diem basis. He should be acquainted with the country so as to accurately describe locations of fires or smokes to the wardens whom he calls. Unless able to reach his warden ahead of anyone else who might detect and report the fire, the watchman renders no service. In well populated communities he must be alert in order to be the first to report a fire. In remote forest regions his report of a fire might be the only one received for many hours. A check on brush burning without permit is in effective operation wherever the fire lookouts work closely with their local wardens. Watchmen on lookout stations are indeed the eyes of the forest fire service. The warden relies upon the watchman who overlooks his particular

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town. As each warden makes a report of the fires he attends, the district chief is able to check up watchmen who fail to report fires which should have come within their vision. In cloudy or very hazy weather, however, the lookout station may be unable to render service. For this reason lower summits rather than high mountains make the best stations. The educational value of lookouts is very great. In New Hampshire alone some 30,000 visitors register at the different stations and a great many of them receive some inspiration to help prevent fires through understanding the operation of the fire lookout system.

A great deal is now being learned about forecasting forest fire conditions, the two prime requisites being a knowledge of moisture conditions in the air and in the forest floor and the trend of the weather. If the surface duff falls below 15 percent of moisture content, extremely hazardous conditions exist. If the relative humidity of the air falls below 30 to 40 percent, fire conditions are likewise serious. The problem is of course made difficult by the diversity of conditions which influence these factors, such as wind velocity, changing forest types, slope, etc. Sufficient investigation has already been made, however, to warrant the taking of weather and soil records daily and being doubly prepared when dangerous conditions approach. The United States Weather Bureau based on these daily records from over New England now sends a telegraphic fire weather report to each State forest fire headquarters.

It is not the purpose of this paper to give minute description of forest fire protection work. Rather it is the desire to bring out certain points of contact between those responsible for the protection of our forests and the chiefs of fire departments which this meeting represents. You fire chiefs are doubtless familiar with the system of forest protection in your home states and have certain, if not close associations with it. There are specific problems it seems to me I can best try to make clear to you. We can get closer together in this way. As chief or deputy of your city or town fire organization, and although principally concerned with the matter of building protection, you are nevertheless an important factor in our New England state system of forest protection. We want to work closely with you, and we want you to be interested in our work. To some of you, no doubt, forest fires such as occur around the outskirts of towns and cities are merely brush fires, but to the locality, the state and the nation these very fires are making land idle and unproductive, a burden for the public to carry without hope of revenue and in the aggregate they constitute a serious menace to the future welfare of our country.

If the land has real estate value and will in time be built up, the future forest value may be small indeed. Nevertheless, these brush areas either adjoin lands which do have future forest value or else they endanger buildings or improvements and must be suppressed. Did it ever occur to you how beautiful the approaches to our cities and towns would be if instead of acres of fire scarred ridges and brush lands we had lovely stretches of forest growth. Between bill-boards and brush areas most of our town and city outskirts are anything but lovely today.

Chiefs of fire departments are usually the forest fire wardens in the cities and large towns where organized fire departments exist. This is the logical arrangement because fire chiefs are, or can be, organized for all kinds of fire fighting work and have the equipment needed. No other appointee, not in a fire department organization, could do as well. Some times the assistant or deputy chief of the fire department is the local forest warden. They can have at city expense special forest fire trucks and equipment, and a system of call men to

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respond when needed. In New Hampshire it is our policy for the state to pay for the extra help and transportation needed by a city chief if the regular paid force is not sufficient to take care of a brush fire. I am certain that in the larger towns and cities of Massachusetts, Rhode Island and Connecticut it is the duty and the practice of the fire chiefs to take prompt action in response to brush fire calls.

Forest fire protection is educational, and we must resort to propaganda to put our program over. It is necessary to take advantage of every educational feature because of the fact that the public is not as yet sufficiently fire minded to regard brush and forest fires as a serious importance.

Investigations of causes and the placing of responsibility are problems which must be considered in forest protection work. In New Hampshire our laws makes persons who cause fires in violation of law responsible for the cost of suppressing their fires. As soon as a fire is under control, the warden should investigate the cause, and if evidence is sufficient, should so state in his report to the state. If brush burning without permit is the cause and the fire gets away, the party should pay the cost. If the warden is called by a fire lookout to investigate a fire or smoke and finds a party burning without permit, such party should pay the cost of investigation. Since brush burning is one of the leading causes of fires, every effort should be made to see that the brush burning laws are enforced and that all burning where woodlands are endangered is controlled. In order to properly report fires, it is necessary that the warden examine the burned area to ascertain the area of different types burned, the damage in detail, and he should put down the various times from the first call to the time when the fire is under control as well as the help needed, etc. Such report should be submitted immediately after the fire and the bill rendered as soon after as it may properly be made out.

We find it very difficult to get fire department chiefs who are town wardens to make out reports required by the state organization. Wardens who are not fire chiefs generally do a better job and are more painstaking in the preparation of the report and in the investigation of the fire. I believe it is because the fire chiefs are not in the habit of investigating other fires, looking for offenders or acting in a capacity of a police or prosecuting officer. They have many small fires and think they are too busy to bother with state report forms. In case of a serious fire in building property, where arson is evident, the chief undoubtedly makes a more careful report to the police department or the state fire marshal. We need the same painstaking effort in making investigations and reports of forest fires.

It is my earnest desire not to give offense, but I am going to speak plainly. In New Hampshire, and I believe in Massachusetts and other New England states, the state forest fire organization not only desires but must have the cooperation of larger town and city fire departments. Yet these departments fail us in one of what to me seems a most important aspect, that of properly investigating and reporting the forest fires they respond to and being willing to take legal action or by their reports, enabling the state to take legal action in cases of violation. For instance, a party burns brush without permit, fire gets away, city department responds, puts out the fire, no report and no cost to the party violating the law. As a result there is no action. Another fire over the line in an adjoining town whose warden is not a fire chief has a brush burning fire of the same character. The warden is called with men, finds the fire was caused by brush burning without permit and so reports it to the state. In the meantime,

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his fire bill is made out and sent to the party responsible who is required by law to pay the bill. The brush burning offender residing on one side of the line gets off while a similar party in the next town pays. One is freer to violate the law with impunity than is the other.

As the New Hampshire Fire Insurance Company says in a recent printed statement, "A man steals a few dollars and is sent to prison, but when a man through carelessness and indifference causes a fire which results in the loss of thousands of dollars worth of property, and sometimes human life, he is not punished. Which is the greater criminal?" The situation calls for adjustment.

The state fire organization is constantly receiving fire reports stating "No Damage Done", but such reports are better than no reports at all. Statistics and records of fires mean, if accurately and completely made, that we can check from year to year our progress toward improved service. Ultimately we hope to accomplish forest fire protection to a degree which will enable land owners to insure forest property at reasonable rates. Insurance companies are watching our progress toward more uniform and more complete protection of forest lands. We have had conferences with them and know they are interested. Within a few years the several New England states have revised their forms of fire reports so as to make them more nearly uniform as to information to be secured and with a view to better records and making an insurable risk of forest property.

Foresters and forest minded wardens have drilled into them the habit of keeping down the acreage burned over. They will spend every reasonable effort and funds to attack fires as near the front as possible in order to limit the area burned. The National Forest rangers carry this principle to the highest degree, considerably farther than we can go with the average town wardens. I am sorry to say that it is our experience with city fire departments at outlying brush fires that there is much less effort or desire to hold the fire to the smallest possible size, but rather to find somewhere a road from which to back fire and let the fire burn up to it, unless by chance some building, stacked wood or exceptionally good standing growth intervenes and warrants more drastic effort.

There is a serious lack of fire tool equipment in most of our small towns. Although many small towns are now purchasing chemical tanks and pumps for use, especially on building fires but available for certain forest fires, most of the towns remote from population centers are without adequate means of protection for any kind of fires. It is the policy of most of our state forest fire protective organizations to supply various kinds of small tools such as shovels, water pails, fire rakes, water pump tanks and chemical extinguishers to the town at half the purchase cost, as far as state appropriations permit. Every effort is being made to urge larger amounts of equipment for the better protection of all towns. Tool boxes containing an assortment of suitable tools for woods and grass fires are to some degree being acquired and placed at strategic places within the towns.

With the development of portable power pumps more and better protection is being afforded by means of water. Unfortunately even the smallest and cheapest of these pumps are expensive to finance in small communities. The states as a rule keep such power pumps at the headquarters of their various district chiefs available for use for particular fires, especially burning deep in the ground, upon the call of any local warden. Certain towns are acquiring them with a view to building protection as well as forest protection where water is available. The fact that forest fires can be fought with water is coming more and more to be recognized. No state has made more progress in this regard than Massachusetts.

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Chiefs of city and town fire departments can help greatly by having at least a light truck equippel with a water tank, portable power pump with at least 1000 feet of linen hose, hand pumps and other small tools, especially for use with forest and brush fires. If such an equipment can be made available to adjoining country towns at a low cost or without charge, there is a distinct benefit to forest protection over a considerable area about such centers. Most cities with a surrounding rural population find it worth while to render such fire service to outside communities without cost or at a very low cost because of good will engendered toward the city by a rural population. Calls for city or town help may well be answered only when received from wardens, selectmen or others in authority, in this way avoiding needless trips where calls come from excited individuals without justification.

In conclusion, city and town fire chiefs can render conspicuous service to the cause of forest fire protection and the welfare of their states by:

- I. Accepting appointments and performing the duties of forest fire wardens. Among these duties are the responsibility of investigating each fire and reporting promptly on the form provided by the state as to the cause and if in violation of law, acreage burned by type, damages of different kinds and other general information.
- 2. Handling the brush burning permit requirements of the state and undertaking to enforce obedience to the provisions within his jurisdiction.
- 3. Extinguishing each fire so that as little acreage as possible may be burned over.
- 4. In cases of violation of law, taking such legal action as the state law requires of the forest fire warden as the representative of the town or city and the state.
- 5. Taking a friendly interest in the welfare of small adjacent towns in the matter of responding to their fire calls when received from wardens or other town officers, and it is evident they have not the equipment and help necessary to handle the situation; also by encouraging the building up of a better organization and more equipment in these outlying towns.
- 6. Entering into the general educational effort to prevent forest as well as other fires by newspaper articles, talks before club organizations and in the schools. This field is large and no other person can accomplish as much as a fire chief, who stands well in his community, and to no small degree is the idol and the envy of the young people.

All hail to you fire chiefs! May you prosper and render to the public these further services which you are so well fitted to perform.

Thank you, gentlemen.

PRESIDENT SANBORN: What is your pleasure to do with this paper?

CHIEF REIF: I move that this paper of Mr. Foster's be printed in our proceedings and a vote of thanks be extended to him.

(Motion seconded and carried.)

PRESIDENT SANBORN: Next we will have an address by Mr. James T. Delaney on "Automatic Fire Control.

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ADDRESS

AUTOMATIC FIRE CONTROL

By Mr. James T. Delaney, Bridgeport, Conn.

Mr. President, Chief Reif and Chiefs of the New England Association: In appearing before you to talk on automatic fire control, I would like first to tell you the peculiar pleasure that I have in the work that I am devoting my life too. The speaker preceding me has just said that the fire chief was the envy and the idol of the boy and the girl in school. Gentlemen, that statement should be absolutely true to every citizen in every state and town in the United States of America. The fire chief of the cities and towns of this United States takes a peculiar responsibility onto himself in the fact that he holds, figuratively speaking, in the hollow of his hand the lives of the sleeping people of his community, as well as the safety of the property of that community.

One of the great regrettable things in my work traveling all over this wonderful country of ours is the distance between the citizen and his fire chief and fire department. I have found that there is a great, honest, serious interest and intent on the part of the citizen to aid his fire department and his fire chief in every way possible, and yet when we analyze this interest, he knows little or nothing about his relationship to the fire question. My work is talking, gentlemen, more to clubs and gatherings interested in reducing the staggering losses by fire that this country is suffering year after year.

John Kenlon,—his very name thrills me, of course, because as you know, he is at the head of one of the largest fire departments in the world, a real fireman. John Kenlon was called to a large million dollar fire the other day, and the first remark he made as he approached this burning structure is what you men have made countless numbers of times to yourself, if not to the public, and that is this, "We were licked before we started;" and this is the weak link in the wonderfully strong chain that the American fire chiefs and the American fire departments are forging in this handling of fires.

It is within the memory of most of us here the days of the volunteer apparatus, the horse drawn apparatus, the poor roads, the slow and faulty alarm service, the time it took to get to the scene of the fire; and the progress has been wonderful along these lines, made by the earnest, honest study of the fire question by the American fire chief.

Now, the citizen, to me, is the weak link in this strong chain that you have forged. You have today motor driven apparatus, highly trained departments and excellent personnel to work with. You have fine fire alarm systems. You have done every single thing within your power to bring the losses down, and yet they are exceptionally and exceedingly large. In analyzing this problem, there is just one answer. The reason for these heavy losses, with such facilities as you now have to respond to and handle fires, is tardy notification.

You get a gathering of men together, as I often do, and ask a man, "Will you kindly volunteer to be the goat for the time being?" I want to tell you what I find. A man stands up and I say, "I presume you are a patriotic citizen of this community. I presume you realize that you own this New Haven fire de-

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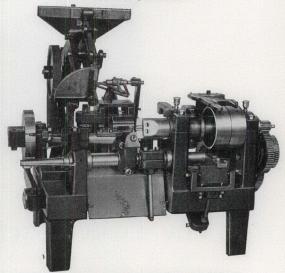
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AUTOMATIC SCREW MACHINES RIVETERS AND DRILLING MACHINES partment. I presume you are familiar with how it operates. If your house took fire tonight and you were without telephone service, which way would you turn when you went to go out your front door, up or down the street, to the nearest fire box? And he says, "I don't know." Ask that man how his children are housed in the schools, what kind of a school they go to, whether wood or brick?" And he says, "I don't know."

I believe that the greatest progress, the greatest assistance, the greatest help that the fire chiefs of this country can have is by teaching the citizen his proper relationship to the fire question, encouraging that citizen to consult his fire chief, to know how to operate a fire box, to know where that fire box is, to know how to keep his premises so it is safe for firemen to enter those premises.

I often cite this to some of my listeners. Just take, for example, that you have a book, place it on a table in your living room, go upstairs to bed, turn out all the lights, and then come downstairs, and get that book. The average man wouldn't go fifty feet before there was a string of profanity which would knock you over, and yet that same men expects the fire department to respond to his call of help and to enter a roaring furnace and save those that are dear to him.

Now, it is the duty of the citizen to give to the fire department prompt notification, and I have spent a great deal of time and study on this one particular subject. I am telling the story of how you men feel, how you feel responsibilities and what you are willing to do for the citizen, and I am asking the citizen to inform himself more fully on what he can do to cooperate with us. I say to him, "Mr. Citizen, I have called on a number of chiefs in the North, South, East and West, and I have asked those chiefs, 'What is the most important thing to know in a fire?' 'To know that there is a fire,' 'And what is the next important thing?' 'To know where that fire is.' And those chiefs have told me that with prompt notification and location, you will have very much smaller losses than you are now suffering from." 'This is the message that I am giving to the people over the country.

Now, at the Armory there is displayed a small device that is intended to give this prompt notification and location. It is a device that in the home goes in the cellar, kitchen, laundry, attic and garage, in such places as hazardous closets; and in event of a dangerous rise in temperature it sounds a warning gong that gives people ample time to take care of the fire or leave the premises, and gives the fire chief reasonable opportunity to save the place. I would like to ask you gentlemen that visit the Armory to give this little device your close inspection. I believe it is well worth your seeing, and I believe you will see fit to welcome its installation in your community, because it does a two-fold thing. It watches over sleeping people. It will reduce the number of lives lost by fire and also reduce the property loss, and this is the aim of each and every one of you men here, and I know you will assist in doing that if it is generally adopted.

I have been engaged for quite a number of years in this work, and I would like before I leave this platform to tell you that while I have been doing it, I have met some very discouraging, disheartening conditions, but I have been encouraged by one of your members and I would like to acknowledge from this platform the deep appreciation that I feel for the kindness that he has extended to me and the encouragement,—and that is Dan Johnson of Bridgeport.

I don't know that I want to keep you any longer in the heat, for you know

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the subject of fire well enough. It is simply to call your attention to the fact that I am doing this work with the citizen, telling the citizen what you are willing to do for him and asking him to cooperate with you more fully and more completely, and to realize that the fire department belongs to him.

Thank you.

PRESIDENT SANBORN: Has any member any question to ask Mr. Delaney? If not, what is your pleasure to do with this talk?

CHIEF REIF: I move you, Mr. President that the same course be taken, that it be printed in the proceedings and Mr. Delaney be thanked.

(Motion seconded and carried.)

PRESIDENT SANBORN: The next speaker we have this afternoon is a man who needs no introduction. He has appeared before this organization several times in the past and has always left very valuable thoughts with us, and I know you will all be interested in hearing his address on "Fire Department and Insurance Company Co-ordination in Fire Prevention," by Mr. John S. Caldwell, Assistant Secretary, New England Insurance Exchange.

ADDRESS

FIRE DEPARTMENT AND INSURANCE COMPANY CO-ORDINATION IN FIRE PREVENTION

By Mr. John S. Caldwell, Assistant Secretary, New England Insurance Exchange.

Mr. President, Members of the Association: I was very glad to accept your invitation to talk to you this afternoon, mainly for the fact that it was going to give me an opportunity to renew a lot of old acquaintances whom I haven't seen for quite a few years, and I will probably make new ones. I am frank to say that it is a source of regret within the last few years that I haven't been brought more in contact with you. I miss it and hope you do, too.

In the Secretary's letter to me which he read in the transaction of the Director's meeting he asked me to speak on a subject which I know you would be interested in, but still at the same time, as I felt that it was a subject of a controversial nature and was more or less involved in the courts, I thought we better keep away from it. He did add in his letter that I might "kindly" select any subject that I thought appropriate if I didn't want to talk on the other; but before I finally arrived at the selection of a topic which I thought might be somewhat out of the ordinary I felt that the word should have been "unkindly!". In selecting my subject of

FIRE DEPARTMENT AND INSURANCE COMPANY COORDINATION IN FIRE PREVENTION

it was with the idea to keep away from anything of a controversial nature and to select something which would be informative and a subject which I sometimes

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think some chiefs do not fully realize and I am sure the general public does not appreciate in its understanding of one of the phases of fire insurance and fire department activity.

GROWTH OF FIRE PREVENTION

Paths were the first roads of travel in pioneer countries; time and progress have widened them into broad highways. And so it is with fire safety which is now a general fact. We should conserve industry and democracy by safeguarding today's wealth for tomorrow's prosperity.

The last half century has seen great industrial expansion in this country and fire prevention and fire protection engineering should keep pace with this development so as to safeguard this growth.

FIRE INSURANCE COMPANIES

Let us first consider the part which insurance companies take in this campaign of conservation. Fire insurance is one of the cheapest of all present day necessities and the price of fire insurance has continually and substantially declined in a period when war conditions have materially advanced the cost of other necessities. The voluntary measures of hazard elimination, conservation, systematic prevention of fire, and protection of life and property inaugurated by the Stock fire insurance companies are almost entirely responsible for this unusual result. Unthinking persons have sometimes attributed a selfish motive to the activities of these companies in fire prevention as above described and their general contribution to the conservation of life and property.

It has been said that this work is sponsored by them for the purpose of reducing losses and increasing profits. The best answer to this, of course, is the fact that the average rate for fire insurance in the United States has declined practically every year for the last twenty. Furthermore, in fire underwriting, low rated structures and localities offer a more uniform and satisfactory experience with less fluctuations than is the case when numerous hazards, poor construction or inadequate protection necessitate higher rates. Then it must be remembered that approximately one-third of the insurable property in this country is uninsured. Still another small part is insured by companies not affiliated with the National Board of Fire Underwriters.

RECOGNITION OF DUTY TO PUBLIC

Nevertheless the measures and services of these companies are available to all communities and owners of property regardless of insurance. This was aptly expressed recently by a leading daily newspaper as follows: "When insurance companies combine and cooperate in fire prevention campaigns they do not take into consideration whether the property to be protected is covered by their policies or not, or even whether it is insured or not. They have assumed the function of public duty of safeguarding property and lives anywhere and everywhere, regardless of the profits aspect, against fires, storms, inundations, in fact all forms of disaster which pray upon society."

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Suppose the stock fire insurance companies had not fostered fire prevention. Suppose they had followed the selfish principal that no matter how great the destruction of property, rates must necessarily be adjusted accordingly and the companies be no worse off even though the public would be. What then would be America's record of loss by fire?

BETTER PUBLIC UNDERSTANDING

Insurance companies desire that the public have a better understanding of the business of fire underwriting, greater public use of their facilities in the prevention and control of fire to the end that they may render an even greater service to the insuring public. To the individual who closely studies the situation it will be seen that fire underwriting is much more than paying losses, measuring hazards, and collecting premiums. Its conservation of life and property involves extensive research, engineering, laboratory tests, actuarial compilation and educational work. The insurance companies seek greater public use of these facilities for conservation and reduced probability of fire loss through the following channels.

FIRE PREVENTION WEEK

The inauguration of Fire Prevention Week is an activity originated by the insurance companies and has for several years been an occasion for Presidential proclamation. It is a time when the general public gives thought to the prevention of fire with well known results in the saving of life and property.

ENGINEERING SERVICE

The engineering work of the National Board of Fire Underwriters and local insurance organizations is well known to most of you chiefs. The improvements brought about in water supplies, fire departments, fire alarm systems, and safety ordinances have been a great public benefit and a decided factor in the constant reduction in the average rate of fire insurance. New hazards growing out of new inventions and processes call for prompt engineering treatment. These engineers are always on the alert to provide the necessary measures of safety. This service is free to all municipalities as well as to individual property owners, architects, builders and contractors through either the National Board or the territorial organizations of the stock fire insurance companies.

UNDERWRITERS' LABORATORIES

These same companies organized in 1901 what is today the world's largest privately operated testing laboratory, located in Chicago with branch offices in New York, Boston, Pittsburgh and San Francisco, together with engineers and inspectors in all the principal cities of the United States and Canada. Everywhere its labels of approval are recognized as symbols of safety. By means of the most exhaustive tests the Underwriters' Laboratories render the best obtainable opinion on the merits of appliances, devices, fire fighting apparatus, machines, building materials, heating apparatus, etc., in respect to life and fire hazards as well as in theft and accident prevention. The comprehensive equipment maintained by the

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ARSON BUREAU

The Arson Bureau maintained by these companies through the National Board wages relentless war against the arsonist. Squads of trained men work quietly and without noise or show in cooperation with local authorities in every state of the Union to guard the people of America against this crime of arson and the practice of incendiarism by pyromaniacs and other irresponsible persons. The results have been gratifying and will be even more so when the American people realize the menace and cost of incendiary fires.

BUILDING CONSTRUCTION

A Department of Building Construction is maintained by these companies through the National Board of Fire Underwriters. There has been a sad lack of foresight in providing defence against fires, especially in the construction of buildings for mercantile and industrial use and in buildings where large numbers of people are housed, but this Department is working persistently with public officials and others in authority to change this condition. For many years it has been the clearing house of information in safety construction of homes, schools, business houses, office buildings, and all other structures. The information in its possession is based upon scientific and engineering facts and is supported by the experience of more than fifty years of fire underwriting as conducted by the stock fire insurance companies, who transact about ninety percent of the fire insurance business of this country. Few indeed are the municipal building codes that have not used in whole or in part the information and service of this Department. The acceptance of its Suggested Buildings Code for Towns and Cities indicates that it represents the very best thought in safe and sound fire resistive construction.

FIRE DEPARTMENTS

We now come to the fire department side of the picture which we have been constructing and I will attempt to show that the ultimate goal of your activities is identical with that of the insurance companies.

VALUE OF FIRE DEPARTMENT INSPECTION

Advance from doubt to certainty is a sign of true progress. Therefore fire is no longer a scourge which strikes at random; it follows the law of cause and effect. Clear and sound principles of prevention and protection are governing the control of the fire risk in every city and town which you chiefs represent. To use a common saying, "If you wait to make roof repairs until rain comes and discloses the leak, the consequence will probably not be serious", but if a fire

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PREVENTIVE RATHER THAN PROTECTIVE

All knowledge is not in books, much of it is in the minds of just such men as you who are taught by the field of experience. In darker ages people waited until illness had overtaken them before they consulted a doctor. Then with impaired energy they tried to regain health through medical assistance. In these enlightened days people with foresight retain their good health through periodical visits to specialists, using preventive rather than curative measures. So it is with the modern fire department of today. While its work is still and always will be of a protective nature, it is generally recognized that the department engaged actively in inspection or fire preventive work is one of the best agencies for reducing the tremendous fire waste in this country.

ETERNAL VIGILANCE NECESSARY

The exact time when fire is to break out in your locality cannot be predicted. Will it occur tomorrow, next week, or it may be in progress at this present minute. No one should know better than you fire chiefs that to be prepared for the emergency requires eternal vigilance. The fire department inspector helps to point out needed safeguards for special hazards and weaknesses in construction and protection. He should check existing safeguards and give practical suggestions for the proper maintenance of fire protection equipment, or in other words the advice he gives is constructive and is based upon thoroughly practical knowledge and experience.

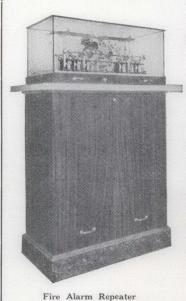
I think you will all agree with me that I have shown to a reasonable degree a similarity in the aim of both the insurance companies and our public fire departments in the work of fire prevention, and there is now only one thing remaining—the connecting link of coordination between the two.

COORDINATION

Many of you are undoubtedly aware that our services are at the disposal of you chiefs, and in many instances in the past have been taken advantage of. Now, how can we be of additional assistance to you in the furthering of your fire prevention activities?

There are cases undoubtedly arising from time to time where local conditions are such that hazardous conditions of either construction or occupancy exist, which for some reason or other you find cannot be readily corrected, and the continual existence of these hazards may constitute a menace to the property and surroundings. Why not call upon us in cases of this nature and see if by combining our efforts we cannot bring about an elimination or safeguarding of the hazard.

To illustrate this point, I will tell you of an instance which was recently brought to our attention by the chief of the fire department in a certain New England city. We were advised by the chief of a condition in a certain property



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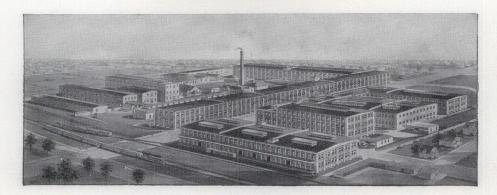
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which in his judgment was serious and exposed surrounding buildings. The ownership being in doubt, he appealed to us for assistance. We investigated, found that his fears were justified, and we then located the agents controlling the insurance, advising them of the condition, and at the same time bulletined all insurance companies relative to the risk involved and also rerated the property, which naturally brought about a condition whereby it was difficult to obtain insurance coverage for the risk. The mortgagee then took control of the property and eliminated the hazard.

This case, which is by no means unusual, typifies coordination between the insurance interests and fire departments to an extent which not only is to the advantage of both parties but a benefit to the public and is a worthy contribution to the cause of fire prevention.

Great institutions are dedicated to great principles; their cornerstone is Service for the Public Good. So it is with our public fire department whose cornerstone is dedicated to the Prevention of Loss. It should endure and grow because its basic principle is sound and vital.

PRESIDENT SANBORN: Has any chief any question to ask Mr. Caldwell? If not, what is your pleasure to do with this paper?

CHIEF REIF: I move you the same procedure be followed, that Mr. Caldwell be given a vote of thanks and his paper be put in as part of our proceedings.

(Motion seconded and carried.)

PRESIDENT SANBORN: Before we take up the next topic, I think the Secretary has a report which is self-explanatory. I will call on him to read it.

SECRETARY O'HEARN: Mr. President and Members of the Association, this is a communication I received from Chief Tierney of Arlington, Massachusetts, in relation to his paper for the convention. His paper is on the program tonight. This paper is short, and I am going to read it.

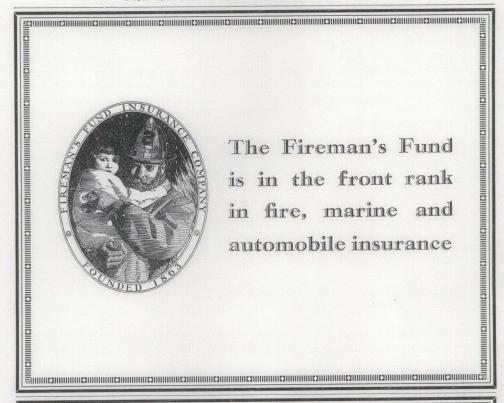
To the members of the New England Association of Fire Chiefs,

GENTLEMEN:

Your officers knowing that many of you regard the Rules and Regulations governing the location, construction, occupancy, and operation of garages and the transportation and storage of flammable liquids as inadequate, incomplete, and in some cases the meaning so vague as to cause doubtful interpretation, that we set out to formulate a uniform code that might be accepted by this Association and recommended for adoption by each of the New England States.

Through correspondence with the Chiefs of the several States it was found that what ever discrepancies occurred in the Rules and Regulations pertaining to garages was generally supplemented by ordinance or Building Code, and it was agreed that this matter, if the Convention so desired, would furnish a topic for "Round Table" discussion.

Concerning the flammable fluid problem it was learned that the National



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Fire Protection Association, a New England Institution of thirty-four years experience in the science of fire protection, had made an exhaustive study of this subject, in fact had already in print a suggested Ordinance regulating the use, handling, storage, and sale of flammable liquids and their products.

After an interview with the officials of this organization they not only agreed to furnish each member of this Association with a copy of this ordinance free of charge, but very kindly sent us a representative well qualified to handle the subject, Mr. H. D. Walker. I am sure you will be interested in his talk and at the conclusion he will answer any question you may wish to ask.

Chief Tierney refers to this pamphlet which, as he says, they have furnished free of charge and it was supposed to have been given at least to every active member when they registered, and there are some on the platform here now if anybody desires to take one home. As I understand, these suggested regulations have already been discussed in one other organization. This is signed by Daniel B. Tierney, Chief of Department, Arlington, Mass. And Mr. President, I move you, sir, this be received and placed in our records as part of the proceedings of this convention.

(Motion seconded and carried.)

PRESIDENT SANBORN: Our next speaker will be Mr. H. S. Walker of the National Fire Protection Association.

ADDRESS

THE N. F. P. A. SUGGESTED ORDINANCE ON FLAMMABLE LIQUIDS

By Mr. H. S. Walker, Engineer N. F. P. A.

Mr President and Members of the Convention: Your Secretary wasn't quite as generous with me when he told me what I was to talk about, because he said, "Here is your subject, and I think you can do it all right." It is a difficult subject to handle and keep within limits, but I hope I have done it.

In his book "Fires and Fire Fighters" published in 1913, Chief John Kenlon of New York wrote as follows:

"The advent of the motor car has not proved an unmixed blessing to the fire fighter and it is no exaggeration to say that the general adoption of motor traction has enormously increased the fire risk. Gasoline is an extremely dangerous liquid to handle, though that familiarity which breeds contempt has robbed it of its sinister significance.

"Of all careless persons, chauffeurs and garage employees may justly claim pre-eminence. In spite of printed regulations and orders prominently displayed they will smoke at every possible opportunity absolutely heedless of the fact that they would be just as well advised to smoke in a powder mill.

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New England Department: 4 Liberty Square, Boston

WALTER ADLARD, Vice-President & Mgr. JOSEPH A. TUFTS, Assistant Secretary

HENRY F. LAWRENCE, Asst. Secretary CHARLES H. PHILBROOK, Special Agent "And the owners are not much better. Unless compelled by municipal ordinances, they are sublimely indifferent to effective fire protection in their garages both relative to storage of flammable liquids and relative to structural factors."

The book goes on to speak of the use of flammable liquids in dry cleaning and other industrial processes and at the end of the chapter sums it all up in two brief sentences:

"It is an interesting commentary on the philosophy of life that those elements which are of the greatest general use to society are nearly always fraught with an irreducible minimum of risk, if applied without caution. Gasoline and other volatile flammable liquids have been termed 'unseen enemies', but like many other potential adversaries, careful handling may transform them into useful servants and trusty friends."

These remarks are probably just as true now as they were in 1913 and the use of flammable liquids, not only gasoline but other liquids used in industrial processes has increased by leaps and bounds. It is easy then to see that the interests of public safety call for a decidedly definite knowledge of the properties of these liquids, and proper and adequate ordinances and regulations for their storage and use.

To meet these conditions there has been developed by the National Fire Protection Association Committee on Flammable Liquids a suggested model ordinance regulating the use, handling, storage and sale of flammable liquids and products thereof. This ordinance was first published in 1913, but has twice been revised to keep it in accord with the new developments and modern practice. We believe that the provisions of the ordinance represent the best thought available on the subject and it proposes to give you the necessary authority to control the hazards of all flammable liquids—not just one. Copies of this ordinance were furnished all active members of this association on registration.

Before I go into a discussion of the details of the ordinance itself, let me just explain in a brief way the makeup of the technical committee which has been responsible for its development. The chairman is Mr. H. L. Miner, Manager, Safety and Fire Protection Division of the du Pont Company in Wilmington, Del., and the personnel of the committee is made up of representatives of oil refining industries, petroleum and oil burner associations, Bureau of Explosives, United States Bureau of Mines, Underwriters' Laboratories and fire insurance engineers.

The first chapter of the model ordinance is, for the most part, given over to definitions. Flammable liquids have been divided into three classes according to flash point—those with a flash point below 25° Fahrenheit, those with a flash point between 25° and 70°, and those with a flash point of over 70° and up to 190°. The flash point of a liquid is the lowest temperature at which it will give off ignitable vapors and for the purpose of concentrating enforcement on the more dangerous liquids we may, I think, for the purpose of this discussion consider Class I and II liquids together, thus considering those liquids having a flash point of less than 70° as highly flammable. This does not infer that liquids having a higher flash point will not burn, or that they will not give off ignitable vapors, nor does it mean that there is no danger involved in handling them. What it does mean is

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that Class I and II include the principal troublemakers and those liquids which will flash at ordinary room temperatures or lower.

Liquids included in Class I and II are gasoline, naphtha, benzol, acetone, ether, alcohol and other liquids of similar characteristics. Kerosene, turpentine, and fuel oil are typical examples of Class III. The hazards attendant upon all burnable liquids vary in degree rather than in kind and those hazards belonging to gasoline, the worst offender of all, are in a greater or less degree applicable to any flammable liquid in inverse ratio to the flash point of the liquid. Naturally it follows that the lower the flash point, the greater the hazard.

Chapter II of the model ordinance covers general requirements for the storage, use and handling of flammable liquids which are applicable to the regulation of the storage of petroleum products, the manufacture and storage of paint and varnish, garages, filling stations and dry cleaning establishments.

This chapter contains provisions prohibiting storage and handling in buildings where safety to life would be jeopardized. It provides for proper construction of storage rooms and for adequate ventilation. It requires fire appliances and prohibits smoking and the use of open lights.

In connection with the prohibition of smoking in buildings where flammable liquids are present it is interesting to note that of 1911 garage fires occurring in Massachusetts from 1919 to 1927, 318 or 16.6% were caused by careless smoking or careless use of matches.

The third section embraces the regulation of storage tanks—their capacity, location and restriction to certain areas or districts. This subject has long been controversial in some of its details, but the provisions of this chapter as appearing in the present edition of the model ordinance are reasonably acceptable to the petroleum industry and any company would have no real reason to object to the enactment of such an ordinance.

To briefly indicate the trend of the practical application of these provisions, let me cite several examples. The Richmond, Va., fire prevention code is slightly more restrictive in its limitations for underground storage, less restrictive in regard to the minimum distance of outside above-ground tanks to line of adjoining property which may be built upon, and in reference to minimum distances between above-ground tanks it agrees with the model ordinance. In the Wilmington, Del., code the requirements as to above-ground tanks are considerably more restrictive than the N.F.P.A. ordinance, while requirements for underground tanks are slightly more liberal. The rules and regulations of the State of Illinois are far more stringent as to minimum requirements for distances of above-ground tanks to property lines and are in agreement with the N.F.P.A. ordinance as to distance between tanks and in the case of underground tanks. Similarly, Detroit, Pittsburgh and Duluth follow the model either exactly or with slight variations.

Chapter four covers the prohibition of drain connections, eliminating the danger of sewer explosions, provides for proper and adequate venting of tanks for the removal of flammable vapors, and indicates essential requirements for valves, piping and pumping or other equipment for drawing-off

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liquids for use. The various sections of the chapter cover in detail the requirements and due to their technical nature it does not seem pertinent to discuss them in detail at this time.

Chapter five particularly covers the hazards of petroleum, both in refineries and in distributing stations, not covered in chapters two, three and four of the ordinance. References are made in this chapter to sections of previous chapters which are to be applied in establishments handling petroleum.

Under this chapter heading reference is made to tank trucks and I would like at this point to call your attention to recommended good practice for the construction and operation of gasoline tank trucks which was adopted at the May meeting of the N.F.P.A. in Memphis. The adoption of the regulations should be a factor in safeguarding the hazard involved in the transportation through our streets.

This point seems an appropriate place to digress for a moment and make a brief suggestion relative to the transportation of gasoline and other flammable liquids through the congested areas of cities and towns even though it may not be within the scope of this ordinance. This is a problem with which every fire chief is being confronted, and I believe it can be solved by conference with the officials of oil distributing stations. The petroleum industry no more desirous of accidents such as have recently occurred in Pittsburgh and Boston than are the fire chiefs, and I am sure it will be willing to consider routing trucks away from congested areas where possible. In this connection I think Chief Fortin of Lewiston might be able to give you some interesting information.

Now to get back to our subject. You will note in the pamphlet which was handed you on registration that regulations governing filling stations were included in an appendix. This is due to the fact that they have been only tentatively adopted by the Association as a whole and are subject to possible changes. They will eventually be incorporated as part of chapter five and as such cover the hazards incidental to filling stations not covered by sections on storage and handling.

Chapter six is intended to cover those specific conditions relative to paints and varnishes not covered by general provisions of other chapters and proper reference is made in the sections of this chapter to other sections. Chapter seven provides for penalties for violations and for the proper legal adoption.

There is also included in the pamphlet in which ordinance has been printed an appendix (B) covering regulations for the construction of rooms, cabinets and outside houses for the storage of flammable liquids. This is not a part of the ordinance, but is included rather as a matter of information, helpful in its application of some of the provisions of chapter two.

As I previously remarked, it is the purpose of this ordinance to give you the necessary authority to control the hazard of all flammable liquids. It may be adopted in full or in part, being workable from a practical standpoint in its entirety as it is, or forming a guide in framing a local ordinance of your own. Sections of it may also be incorporated in other ordinances relative to garages, dry cleaning establishments, paint shops, etc.

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Hoboken, N. J. Richmond, Va. Wilmington, Del. Pittsburgh, Pa. Detroit, Mich. Duluth, Minn. State of Illinois

I want to call your attention to the various regulations as recommended by the various standard making committees of the National Fire Protection Association. These regulations are, I know, familiar to you and represent standards for fire protection and are readily adaptable for ordinances governing fire hazards, and are being used as such in many municipalities. Of especial interest in this connection are the National Electrical Code and regulations covering Motion Picture Films, Photographic and X-Ray Film, Pyroxylin Plastic Manufacture, Pyroxylin Plastic Sale, Dry Cleaning, Installation of Acetylene Equipment, Paint Spraying, Finishing Processes other than Spraying, Oil Burning Equipments, and others. There are also available suggested ordinances for the construction of chimneys, flues and fireplaces; for the fire safety of small municipalities, embracing building laws, garages, motion picture machines, inspections and other details; for the control of fireworks; for the adoption of fire-resistive roofing; and for the establishment of a bureau of fire prevention.

The field service of the National Fire Protection Association is at your service to assist you in any way possible to secure fire safety for your community. We are ready and willing to assist you in your problems and in closing I want to urge you to feel free to call on us at any time.

PRESIDENT SANBORN: What is your pleasure to do with this paper?

CHIEF ALLEN: I move that the address be printed in the proceedings of the meeting and Mr. Walker be extended a vote of thanks.

(Motion seconded and carried.)

PRESIDENT SANBORN: Is there any further business to come before this session? This concludes the list of speakers. If not, we will adjourn until seven o'clock this evening, standard time. At that time we expect to have Chief Daugherty with us, and he brings us an interesting talk, so try to get around here at seven o'clock.

TUESDAY, JUNE 25
Evening Session
7 P.M.

PRESIDENT SANBORN: The meeting will please come to order. I regret there are not more members here this evening, but in justice to those who are here, I feel we should go ahead with our program.

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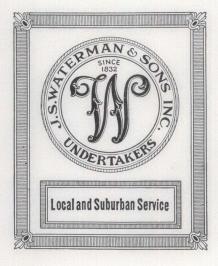


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The first speaker this evening will be Mr. Fred Shepperd, who will give us an address on "Large Streams—Their Possibilities and Limitations."

ADDRESS

LARGE STREAMS—THEIR POSSIBILITIES AND LIMITATIONS

By Mr. Fred Shepperd, Managing Editor, Fire Engineering.

Mr. Chairman, Fellow Members of the Association: It is indeed a pleasure for me to be here again this year and to present a short talk on "Large Streams—Their Possibilities and Limitations".

To begin with, we have had during the past year quite a number of large fires that have been called to our attention, and in many cases in checking up, we have found the departments in handling those fires have been somewhat lax in the use of large equipment. It is on that basis, around that particular basis, that the paper I am giving is made.

One of the most commonly made mistakes in connection with handling spreading fires is the failure to employ large streams. This may be due to lack of appreciation of the capabilities of the larger stream, or it may be the result of lack of familiarity in making the layouts necessary to provide satisfactory supply for large nozzles at good pressures.

In any case, it is quite a common error and is one which deserves attention.

Water has one prime function in extinguishing fire—it cools the burning materials to a point below their re-ignition point. The so-called quenching effect might be said to combine what small smothering effect there is of water thrown on burning materials with the cooling effect.

Other fire extinguishing agents may acomplish their result by smothering almost entirely, such as carbon dioxide and foam, while a newer type of extinguisher on the market is said to extinguish fire chemically.

But with water the only function we ordinarily consider is that of cooling.

With this point in mind it is easy to appreciate that where we have very high temperatures created, particularly where large quantities of material are burning, it is going to require large quantities of water to produce the desired result. The choice then lies between employing a large number of small streams or a few large streams.

Of course, there are other advantages than capacity to large diameter streams, such as greater range, greater ability to retain their continuity in the presence of wind and the ability to concentrate large quantities of water at one point.

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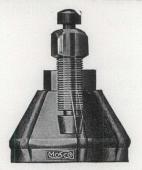
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but there are certain uses in which they excel, and to which they should be put as a matter of course.

During recent years you have noticed departments are procuring equipment, apparatus with a large number of appliances for producing large streams. I have only to mention two to bring this point out. First is the Duplex water tower which we employ in New York at certain times. You can't put two waters side by side or end to end, so to accomplish the best result we have a double water tower, one half way down the main tower and one at the top. That gives us two large streams from an elevation instead of one. It merely doubles the quantity in time of fire.

The second illustration is in the case of Pittsburgh where they are using four or five large nozzles. They concentrate at one point a large numer of streams of large caliber, and where the fire is going fast, are mighty effective, due to the effect of getting a large quantity of water on the fire in a short time.

INSIDE FIRES WHERE LARGE STREAMS ARE NEEDED

In connection with inside fires large streams are required where there are large areas and where fire is spreading fast; where great stocks of combustible material are involved; where a full floor of a comparatively large building is fully involved; where it is necessary to operate from the street, across streets or alleys or from distant points on a fire which is burning within the building.

In this connection, it should be mentioned that when a floor is fully involved the department is faced with the serious task of preventing the extension of fire by interior shafts as well as lapping up the face of the building on the outside. The quicker the fire on the fire floor is cooled, the less chance there will be of fire extending to floors above. For this reason large departments bring into play heavy streams to knock down the fire at the front and rear of the building, and to otherwise prevent further extension.

Where the fire is not above the range of streams from the street, a deck gun is placed in front of the building, and this service to drive the fire back on the fire floor as well as prevent its extension up through elevator or other shafts inside the building and within reach of the stream. Such a stream from a deck gun can very effectively cover external exposures as well.

Incidentally, a deck gun is far more effective than the street pipe in such an operation, due to its ease of control and manipulation.

OUTSIDE FIRES

In connection with outside fires, large streams are used on a wider scale. They are absolutely necessary where large volumes of combustible materials are involved, where the property afire is of considerable area, where the burning materials are at some height and where the heat intensity at the fire is such as to prevent men approaching within effective range with smaller lines. The greater range of the larger stream makes it possible to work from a distance, such as would not be possible with small hand lines.

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Always bear in mind that the greater the "volume" of heat, the greater quantity of water that will have to be discharged on the fire to bring the materials down below their re-ignition point. All the while the fire is gaining in intensity, so that the quicker this quantity of water can be dumped on the fire the quicker the fire can be brought under control and thus checked from growing in intensity. The heavy streams thus have a double purpose—they get large quantities of water on the fire quicker and they prevent its increasing in size, thus reducing property damage.

COVERING EXPOSURES

Large streams are invaluable for covering exposures. They have greater range, and greater cooling power.

They are used for covering internal exposures as well as exposures to neighboring property.

Checking of external exposures on the fire building include driving the fire back in on the fire floors and thus preventing its lapping to floors above.

Covering neighboring structures in an operation which is now commonly performed in all fire departments, and is considered of first importance in holding a spreading fire.

HOW ABOUT LARGE STREAMS IN SMALL FIRE DEPARTMENTS?

Large streams have an important place in small departments as well as large. In spreading fires, whether they be in frame dwelling areas, lumber yards, or even in the large town garage, require streams with great range and great cooling power. Of course, many towns have not sufficient water supply nor the apparatus available to provide a number of big streams. But there are many instances where one large stream is far more effective than a large number of small streams discharging the same total quantity of water.

Each town should have at least one deluge set with several different size tips; if possible, two deluge sets. Not only should they have them, but they should know how to use them. The lack of familiarity with these appliances as well as other large stream appliances has probably more to do with the failure to use large streams than any other single factor.

Just as a matter of interest, I was at a large fire a number of years ago in a neighboring town. They had plenty of apparatus, plenty of men, plenty of hose. The fire was burning in a building three stories in height, and across the street was a nine story building of fairly good construction. They hadn't a single large appliance in operation. It was mostly 1½-inch hose, and it had very little pressure. The men would take the nozzle and throw it up into the air. As a result, it ran across the street and they called on New York for help. In that case, if they had large apparatus—as a matter of fact, they had deck guns but nobody seemed to know how to use them. If they had put on a heavy stream from the deck guns, it would have helped.

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FAST WORK ESSENTIAL

Fast work is just as essential in getting large streams in operation as in putting small streams to work. As a specific example, consider the garage mentioned above. Assume it covers an area of possibly 100 by 100 feet. Fire starts at any point, and quickly flashes over the entire area. If the department is not on hand promptly and is not quick in operation, the roof is going to fall through and the building with contents will be a complete loss. If a heavy stream can be gotten into operation at once, with plenty of pressure behind it, it can sweep over the entire interior of the garage, which is usually an open space without partitions, and possibly check the fire.

As mentioned previously, deck guns are invaluable at spreading fires, whether they are in buildings or in such establishments as lumber yards, coal pockets, etc. In the industrial sections of cities, as well as in the mercantile sections, several two piece companies should be available, consisting of pumper, and a hose car with deck gun. The value of double companies is not fully appreciated until you have a large fire and get multiple layout for it. Such a layout brings to the fire more hose than is carried by the single piece company and, in addition, the deck gun is available for use in the event that it is needed. Time is saved by the two piece company over the single company by the hose wagon stretching the hose while the pumper is getting in position and preparing for operation.

The method employed in Providence of mounting deck guns on pumpers is the next best arrangement to the two piece company. While it does not enable the department to carry as much hose, and while it makes necessary the operation of the pumper directly in front of the fire building, it has the feature of enabling one man to perform two tasks in an emergency—operate the pumper and direct the deck gun. For rolling into first alarm fires in high value districts at night, where the fire is apt to have secured considerable headway and is ascending the upper floors by way of lapping, or passing up through shafts in the front of the building, a single piece company of this sort can do a lot of work. The deck gun can be used for covering exterior exposures and preventing the fire from rising in the shafts, as well as operating on the fire, while available members of the company can stretch in a line for inside operation.

Even in suburban sections the deck gun is valuable. Take for instance a well built up residential district of frame construction with wood shingle roofs. If fire is being driven along by a strong wind, deck guns can be placed at the leeward along the sides of the probable path of travel of the fire and streams directed vertically, the spray from the streams being carried by the wind over the roofs of exposed structures. This is a very practical operation and has proven itself in many fires as a very capable means of wetting down exposed structures and checking the fire. The spray in the air, too, helps kill the heat wave and dampen a large proportion of embers which are being carried by the wind, thus effectively contributing to the control of the blaze. I have here a sketch we have made which I think will show about the point I have in mind. (Explanation made of sketch.)

The water tower also has a very definite place in fire fighting. It is becoming more and more recognized as a necessary adjunct to all modern

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departments where buildings of a height of five stories and greater are encountered. Someone will question that five stories. If you have five stories, you have an entirely greater area which gets involved and have not the same flexible hose as you get from a water tower. The water tower enables the department to place water right on the floor where it is needed, securing good penetration of the stream. The control of the tower enables the men to readily change the direction of the stream either horizontally or vertically,

Where water towers are available, they can be used for other purposes than fighting high fires. An example may be cited in the use to which Chief Daugherty has effectively placed such towers. A short time ago the New York Department was called on to fight a fire in a lumber yard which was surrounded by a high wall. The heat from the fire was intense and it was not possible for the men to operate streams from the top of the wall, and operating from across the street streams of any power at all would not do effective work. Chief Daugherty placed a water tower outside the wall, and by directing the stream downward was able to sweep over a large area, and very promptly bring the fire under control. Thus the water tower may make it possible to direct a stream from a point of advantage whether the fire be a high one or low one. I have a sketch here showing how the tower was used at that fire. (Explanation made of sketch.)

PRODUCING LARGE STREAMS

Efficient layouts to produce large streams of satisfactory pressure require good judgment on the part of the officer. By "good judgment" I mean a pretty fair knowledge of what streams will do. You can't sit down with a paper and pencil and figure it out, but if you do know what different pressures will produce, what layouts will produce, you will know which is the best to use. There is always a possibility of overloading the pumper or getting a stream with too low a nozzle pressure.

The following figures may serve as a guide in determining the number of lines of hose required for a given size of nozzle and the desired pressure.

DISCHARGE FROM NOZZLES AT DIFFERENT PRESSURES

Nozzle	Pressure	Discharge
$1\frac{1}{2}$ in.	90	633 gals. per minute
$1\frac{1}{2}$ in.	100	667 gals. per minute
$1\frac{1}{2}$ in.	110	699 gals. per minute
$1\frac{1}{2}$ in.	120	730 gals. per minute
13/4 in.	90	862 gals. per minute
13/4 in.	100	909 gals. per minute
13/4 in.	110	954 gals. per minute
13/4 in.	120	996 gals. per minute
2 in. 2 in. 2 in. 2 in. 2 in.	90 : 100 110 120	1128 gals. per minute 1189 gals. per minute 1247 gals. per minute 1303 gals. per minute

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3 in. hose	300 gals. per minute 400 gals. per minute 500 gals. per minute 600 gals. per minute 700 gals. per minute 800 gals. per minute	8.2 14.1 21.2 29.9 39.5 50.5
3 in. hose	1000 gals. per minute	96.5

Now as an example assume that the average length of stretch for supplying a stream at a fire is 400 feet.

With a $2\frac{1}{2}$ -inch nozzle at 100 pounds nozzle pressure we will have approximately 80 pounds friction loss, for a single line of $2\frac{1}{2}$ -inch hose.

For $1\frac{3}{4}$ -inch nozzle, 100 pounds nozzle pressure, we will have 184 pounds friction loss for a single $2\frac{1}{2}$ -inch line.

With a 2-inch nozzle at 100 pounds pressure, we will have approximately 300 pounds friction loss in the 400 feet of $2\frac{1}{2}$ inch hose.

These figures show very clearly the limitations of a single line of $2\frac{1}{2}$ -inch hose for supplying large nozzles at high pressure.

On the basis of the figures given previously, we arrive at the following conclusions:

If we are using a $1\frac{1}{2}$ -inch nozzle, at high pressure, two lines of $2\frac{1}{2}$ -inch hose should be used to supply it. (Average length 400 feet.)

If a 1¾-inch nozzle is used, three lines of 2½-inch hose are needed, while if a 2-inch nozzle is being employed, four lines of 2½-inch hose are necessary.

Where 3-inch hose is used, we have a much less friction loss and for that reason as many lines are not required as in the case of $2\frac{1}{2}$ -inch hose.

For example, $1\frac{1}{2}$ -inch nozzle will require but one line; a $1\frac{3}{4}$ -inch nozzle, two lines; and a 2-inch nozzle three lines (where the length is 400 feet).

All of these layouts are on the basis of approximately 400 feet stretch from the engine or hydrant to the nozzle.

Even with the layouts given for 3-inch hose, we have better results than with the layouts indicated for $2\frac{1}{2}$ -inch hose, due to the greatly reduced friction loss in the 3-inch hose as compared with the $2\frac{1}{2}$ -inch.

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ARTHUR E. TEINER President and Manager GEORGE C. TORNGREN Treasurer In the layout suggested above, engine pressure would range from 175 pounds to 225 pounds.

It is unnecessary to add that apparatus for controlling streams, such as Eureka, Paradox, Perfection or other pipe holders, are required where large street streams are used; in the case of deck guns and water towers equipment is provided to handle high pressure safely and easily.

In each case I have cited here 3-inch hose has given much better results than $2\frac{1}{2}$ -inch hose because in $2\frac{1}{2}$ -inch you are given the absolute limit and in 3-inch hose you have a desirable layout.

Now, so much for the advantages of large streams; here are some limitations.

LIMITATIONS FOR LARGE STREAMS

Large streams are not universal in their application.

Small streams remain best for small fires, as well as fires in comparatively small areas. They are also best where mobility is an important factor.

One of the chief disadvantages of the large stream is its immobility—the difficulty of moving it quickly from place to place.

Furthermore, more men are required in the operation of large streams than in handling small streams. A greater supply of water is needed, and thus more pumping equipment. In many cases the water distribution systems are not capable of providing sufficient flow, and in such a case the large stream might be impracticable.

The comparatively complex layouts required in producing large streams make it necessary for the fire department to be thoroughly drilled in connecting up such layouts, in order that it (the department) may perform the work efficiently and fast.

Now, that is a very important factor. Even where departments have large equipments, very few of them, advisedly, understand the efficient and fast connection of those devices. In only large departments, where they have drill schools as part of the work, can you expect fast and efficient work.

While on that subject, I want to point out just one thing here. I have a chart drawn up here which shows the effective range of streams photographically. (Explains chart.)

In conclusion, let me state again that one of the commonest faults in modern fire department operation is the failure to use large streams where they are necessary. Every department should be familiar with such streams and the layouts necessary to produce them. The men should be fully drilled in siamesing layouts employing two, three or four lines. They should be given sufficient instruction in such layouts to enable them to avoid serious

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mistakes which might prevent the development of satisfactory nozzle pressures or which might impose unnecessary burdens on the pumping equipment.

Now if there are any questions you would like to ask me on this and which I can answer, I will be mighty glad to do so.

PRESIDENT SANBORN: Anybody wish to ask Mr. Shepperd any questions? If not, what is your pleasure to do with this paper?

CHIEF REIF: I move it be accepted, the paper spread on our records of the meeting and a vote of thanks be extended to him.

(Motion seconded and carried.)

PRESIDENT SANBORN: We will next have an address on "Uniform Oil Burner Regulations for New England" by Selden R. Allen, Chief of Fire Department, Brookline, Mass.

ADDRESS

UNIFORM OIL BURNER REGULATIONS FOR NEW ENGLAND

SELDEN R. ALLEN, CHIEF OF FIRE DEPARTMENT, BROOKLINE, MASS.

Mr. President and Gentlemen of the Convention: At the Pittsfield Convention of this organization held in 1925 there was a very pronounced opinion among the chiefs that the oil burner regulations in existence at that time were entirely inadequate. As a result of that condition, a committee was appointed of chiefs and members of this Association, headed by a man who is probably without a peer in his line in New England, Walter Wedger, a chemist of wide repute and who had served the Commonwealth of Massachusetts as chief chemist. The rest of the committee was made up of chiefs from all over New England.

They figured the best way was to call in the chiefs who had had experience with oil burner fires, so there were many meetings held, the majority of them in the office of Chief Johnson of Waltham. The men presented their problems, and what they believed an adequate solution was at last found, and the conclusion of that committee was presented to the Manchester Convention in 1926. They were thoroughly debated and finally adopted and were recommended for adoption throughout the various states of the New England Association.

I am not going to read these in detail, for they are published in the proceedings of the Convention of 1926, and when it came to the application of those oil burner regulations, some of us feel that a mistake was made, and I will read you the vote that was passed at that meeting.

The vote was that the Secretary prepare copies of these regulations and send them in the name of the Association to the governors of the New Eng-

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This incurred the displeasure of some of the departments of public safety. When the governors—we will take the particular case of the Governor of Massachusetts. When the regulations were received by the Governor, he immediately referred them to the Department of Public Safety. They very logically stated they were unnecessary, that already the State of Massachusetts had sufficient regulations covering the installation and regulation of oil burners. So no ground was gained that year, and now the committee feels a new point of attack should be presented.

We feel it should be presented to the different bodies of the New England states who have the immediate control of this matter, and so, Mr. President, this committee would recommend this whole subject matter to be taken up again and recommitted to the proper body in each state having it under control, rather than incurring the displeasure of that body by presenting it to their superior, the governor of the Commonwealth, and we make that recommendation.

PRESIDENT SANBORN: What is your pleasure to do with this address by Chief Allen?

It is moved and seconded that it be incorporated in the records and Chief Allen be given a vote of thanks.

(Motion carried.)

SECRETARY O'HEARN: I think the purpose was to have these regulations passed again and presented through some other body beside the governors. Was that your idea?

CHIEF ALLEN: It was, rather than to put it through their superior and incur their displeasure.

CHIEF MORAN: I move the recommendation be adopted.

(Motion seconded and carried.)

PRESIDENT SANBORN: Our next speaker on the program is Mr. Dejon, Supervisor, who will give an address on "First Aid and Its Importance to the Fire Department."

ADDRESS

FIRST AID AND ITS IMPORTANCE TO THE FIRE DEPARTMENT

Mr. E. R. Dejon, Supervisor of Health and Safety of the Southern New England Telephone Co.

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50 Remer St. Bridgeport, Connecticut aid program. The program has been very successful in that most communities have taken on first aid work—the Boy Scouts; the Campfire Girls; the Public Utility companies, such as I represent, are strong for it, and we find it valuable in our safety work. Originally, we thought by carrying out a first aid program it would just help our accident prevention campaign. As a matter of fact, we have gone way beyond that.

Last year in Connecticut telephone men had the necessity to resuscitate four people. Two were gas asphyxiation and two were drowning. Police departments are taking it on and some fire departments.

I have helped one or two within the radius of New Haven to take up first aid work. I thought tonight I would bring up a team of supporters who last year received gold medals, and demonstrate things in first aid work. Unfortunately, I don't know the hazards of firemen. I suppose they are somewhat like those of line men. At any event, I am going to ask the boys just to show you a few simple demonstrations, first, with the triangular bandage to show you how to do up a dislocated shoulder. (Illustration.) The idea of this is to hold the arm in this position firmly against the body with cravat tied around the elbows. Now, we find that a man with a dislocated shoulder can very comfortably be transported a long distance to a doctor. The first aid work of the Red Cross in no way interferes with the doctor. We are likened to a bridge between the scene of the accident to the doctor or nurse who does the dressing.

The Red Cross course takes about twenty hours of demonstrations and lectures. If any departments are interested, I know if you get in touch with your local people they would arrange for lectures and instructors. If you have not a local chapter, headquarters in Washington would be glad to send an instructor. When we first started, we had an instructor come from Washington who trained sixteen men, and they in turn went out into the field and instructed a great many.

The boys will now demonstrate an ordinary sling. You will note that they took the peak of the bandage and put it in back of the elbow and the two ends over each shoulder, and tied a knot called a pigtail knot in the peak of the bandage, and that makes a good elbow sock in there. Of course, the whole theory of the sling is to have the whole arm in the sling.

Another bandage which we have had during the war is a head bandage. It is made with a triangular bandage rolled up in a cravat. You will notice he splits the knot at the top of the head, bringing one side of the bandage at the back of the head and one in front. That makes a good bandage for the dislocated jaw or fractured jaw, or if you want to hold a compress on the side of the face.

I am going to ask you to do one fracture splint job (speaking to the boys helping). I am going to ask you to notice what they do first. A man had a compound fractured thigh with a wound about six inches below the knee, and you will notice they apply to the fracture point to stop the bleeding and one other man will apply the tourniquet. You will notice they went through the motions of applying iodine to the cut. You will notice they put plenty of padding on the splints, running the splint from the thigh to the armpit to the leg, with a larger splint on the outside and a smaller splint

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on the inside. I am going to ask them to stand their patient when they have finished putting the splint on so you can all see. (Patient is stood up.) That is a lot of dressing, but that is the Red Cross course.

I had occasion to investigate some cases of first aid that were performed by a lay-first aider around the state, and a short time ago made an investigation of conditions where a certain gang of men, all knowing artificial respiration were in a cave-in, and they didn't appreciate that artificial respiration was practical in all cases. I think one thing I ought to strongly emphasize is that it is good for all types of suffocation. Of course, a man who is electrocuted is suffocated, and in more cases than not, he actually dies from suffocation rather than electrical burns. When a man drowns, he dies of suffocation. The old theory of rolling a man on a barrel has gone by. I think it is safe to say that never does any water ever get into the lungs. Some gets into the windpipe, and the thing to do is to shake the victim vigorously and then go to work on artificial respiration.

I think there are two or three things you ought to rember in suffocation, and that is, the first and most important, get going as promply as you possibly can. It is very essential. When a person gets suffocated with electricity, it leaves the muscles taut, and you may come along at that critical time to reinvigorate the muscular system and diaphragm, which you push up in artificial respiration.

I suppose some of you have seen it demonstrated, but it is important to know where the diaphragm is. If I should cut myself in half, I would see a big cone-shaped muscle. When we breathe, we merely lower that muscle and raise the chest; that gives a vacuum and allows the breath to come into the lungs. The diaphragm is not to raise the floating rib. With your little finger over the floating rib, with arms stiff and good inward, upward pressure, you will give good respiration. You have got to give good respiration. You have got to try in order to do it right. You will notice he has his hands over head so the lung capacity is at the whole capacity. That is important, too. The rate of pressure is one to twelve a minute or one every five seconds. We usually count one, two, three, release, and four, five, straighten shoulders and get back to position.

Now, you will notice he has his fingers together. The natural tendency of students seems to be to have the thumb out up against the backbone. You will not get as good results as if you have your fingers together.

There are two things to do. One is to give an ammonia stimulant and the other is thumping. One is to hit the patient hard over the feet every half minute. I suppose that is supposed to snap them out of it. Keep the body warm. Get all the heat to the body that you possibly can. Build a fire; keep blankets around him. Don't stop. I can't tell you as I haven't any authority of information on the longest artificial respiration applied with desired results obtained. I read an article a short time ago where they resuscitated a man after four hours. At any event you want to keep it up for at least three hours, and if the man is dead, you certainly are not doing any harm if you keep on for four hours. At any event, don't stop.

The respiration squad I have seen in police departments have one man

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work for awhile and then another man steps in and takes his place. If you work on a patient thirty or thirty-five minutes, you will find it is very hard and tiresome work, and it is very good to teach somebody how to apply it who is around. I am going to ask the fellows to demonstrate one of the shifts.

You will see in looking over the literature in the posters that we see in connection with the method of artificial respiration that you will find several different theories as to the proper release. You will see it doesn't make any difference whether you give a quick release or a more slow release. In any event, give a good release which gives the diaphragm an opportunity to slip back.

In a good many cases when the patient starts to come to, he starts vomiting, and when they do, you have got to stop working on them. Sometimes they will start to get up before breathing becomes normal; and do not turn them on their back until breathing becomes normal. Give them tea or aromatic spirits of ammonia. Before you give a stimulant, be sure they can swallow.

PRESIDENT SANBORN: Anyone any questions he would like to ask?

CHIEF ALLEN: I would like to ask about the H and H Inhalator in conjunction with artificial respiration.

MR. DEJON: Frankly, I think it is more than generally recognized by the experts that carbon dioxide with dioxygen is the proper thing to use as a subsidiary. It has been rather forcibly demonstrated with any muscular apparatus that forces air into the lungs that it is conducive to the patient's recovery. I don't think anybody goes wrong when he buys and H and H Inhalator. That is merely my personal opinion.

CHIEF SENNOTT: Don't you think it ought to be used by a doctor instead of a fireman?

MR. DEJON: No, I don't think so. There is an experience I had not so long ago with one of the ambulances which went down to the beach with an H and H and the doctor did not know how to run it. We have a great many cases where doctors come along and discourage the layman from applying artificial respiration. Another thing I had in mind was where we investigated when a doctor was glad for the services of a layman for services of artificial respiration. There is no question but what in half an hour you can teach a layman to run the H and H Inhalator.

CHIEF SENNOTT: Do doctors approve of it?

MR. DEJON: I think they do generally. Of course, that is a personal lay opinion I am giving you.

PRESIDENT SANBORN: It is moved and seconded that we give Mr. Dejon a vote of thanks for his very capable talk on First Aid.

(Motion carried.)

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SECRETARY O'HEARN: Mr. President, I have asked the President for the privilege of the floor for just a minute before the next speaker, and he doesn't know why I ask that privilege, but I am going to take this opportunity while there is a fairly good number present to announce to you what, because of the modesty of the President of this organization, he will not tell you. He is a candidate for Second Vice-President at the coming convention of the International Association of Birmingham, Alabama, in the Fall, and I think it is no more than right to give the President the endorsement of this Convention. I hope somebody from the floor will endorse his candidacy for Second Vice-President of the International Association. I don't know when we have had a President from this part of the country, not within my memory; maybe Johnson here knows. But it is about time we started someone for President from this part of the country. You will remember last year we endorsed Chief Sullivan of New York, and following him in two years would be our own President, Chief Sanborn.

CHIEF JOHNSON: You have asked a question and I will answer it. I think the last President we had from Massachusetts was Harry Marston in 1916. Is that so?

CHIEF SENNOTT: You are right for once.

CHIEF JOHNSON: I want to make a motion, and it is with a good deal of pleasure I make the motion that this Convention and the members of this organization in Convention assembled endorse the candidacy of our President and recommend every member of this Association give his endorsement.

FIRST VICE-PRESIDENT REIF: It has been moved and seconded that this Association go on record as endorsing our President, Chief Sanborn, as Second Vice-President of the International Association.

(Motion carried.)

PRESIDENT SANBORN: The next speaker on our program is Mr. David Leerburger who will speak on "Carbon Dioxide Fire Protection Illustrated."

ADDRESS

CARBON DIOXIDE FIRE PROTECTION ILLUSTRATED

By Mr. David Leerburger, Fyre-Freez Corp.

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Quoting from the October issue of the National Fire Protection Association in an article written by Arthur S. Norton, wherein he says: "The use of carbon dioxide for fire extinguishing is not new, and the principles of its application have been known for some years, but it is only recently that this method of fire protection for industrial hazards has been generally recognized.

Carbon Dioxide, otherwise known as carbonic acid gas, with chemical formula CO2, is a product of combustion or oxidation of any carbonaceous matter, and is normally present in a small percentage in the atmosphere. We exhale it. Commerically it is principally obtained from the combustion of coke under controlled conditions. For convenience in storage and shipping, the gas is compressed to a pressure of from 700 to 1,000 lbs. per square inch and is handled in steel cylinders designated I. C. C. 3 by the Interstate Commerce Commission.

These cylinders are designed with reference to safety and provided with safety discs made to rupture at about 2,400 lbs. pressure. They are manufactured and tested according to the specification as laid down by the Bureau of Explosives. The pressure in the cylinders varies with the temperature. A 70 degrees F it may be kept in its liquid phase under pressure of approximately 850 lbs. per square inch. At minus 40 degrees F this pressure drops to about 135 pounds per square inch and at 140 degrees F a pressure of 2,400 pounds per square inch is exerted and which is the minimum burst pressure of the safety discs with which the cylinders are equipped.

When compressed in the cylinders the gas is largely liquefied; this is an important factor in its use for fire protection, as we shall explain.

One factor which has perhaps retarded the introduction of carbon dioxide fire protection is a popular misapprehension as to the properties of the gas from the viewpoint of life safety. This probably arises from confusion between carbon monoxide (CO) and carbon dioxide (CO2). Carbon monoxide is the much advertised poisonous constituent of automobile exhaust gases and is rightly feared. This, despite the similarity of the name and chemical formula, has no relation whatsoever to the properties of carbon dioxide, which is absolutely harmless to life except as it may reduce the oxygen content of the air below that necessary for breathing.

The popular idea of the role of CO2 in impure air is greatly exaggerated, for neither the presence of CO2 nor the absence of oxygen explains the harmful effect of the air in ill ventilated rooms. It has been demonstrated by the experience of entombed miners that a smaller proportion of oxygen in the air is necessary to support human life than is necessary to support flame and it is possible to live in an atmosphere so reduced in oxygen content that a match will not burn. In any event, the ill effect of carbon dioxide

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on the atmosphere seems small in comparison with that of the fire itself which generates suffocating gases in large quantities.

It may be safely assumed that there is no life hazard involved in the use of carbon dioxide fire extinguishers in open rooms, or in the operation of fixed systems protecting individual dip tanks, spray booths, or the like. The characteristic noise and appearance of the discharge are such that there seems to be small likelihood of any one being unknowingly enveloped by the gas. However, where the gas is applied to flood an entire room or area the space should be evacuated before the CO2 is introduced, and for such flooding systems alarm bells may be used in connection with the system to warn the occupants.

Carbon dioxide is an inert gas incapable of supporting combustion. Its gravity is 50% heavier than air and it will penetrate into the smallest crevice. It is a non-conductor of electricity having a dielectric strength superior to air and can be applied to high voltage without removing the potential.

It is harmless to anything it touches and can be sprayed over the finest fabric or mechanism without causing the slightest damage; it sublimes to a gas and not to a liquid, therefore, it has no moisture and is not corrosive. Carbon dioxide or CO2 as it is commonly known is used in the canning industry as a preserver of food stuff. You can spray it over eatables, it is tasteless, odorless and non-poisonous. It is used in the bottling industry for charging carbonated beverages such as are served at soda water fountains and like places. It is thus a commodity already in common use and available at moderate cost.

It differs from other extinguishing mediums inasmuch as it deposits a layer of dry carbonic snow over the fire and the gas displaces the oxygen. Without oxygen flame cannot exist and dies. Immediately after the fire is dead, you can proceed with your regular duties, there is no mess to clean away, no spoilage of fabric or materials; there is no smoke; there are no fumes or gases—the only damage sustained is the actual fire damage. Unlike other extinguishing mediums now in common use, it leaves no residue, neither will it break down chemically or physically when coming in contact with the burning liquid or its vapors.

The refrigerating effect of the rapid expansion of carbon dioxide, while a valuable factor in its application to fire extinguishing was the principal difficulty to be overcome in the development of this form of protection, for unless specially designed equipment is used the expansion takes place inside the cylinder instead of outside, freezes and clogs the passage, so retarding the discharge of the gas as to render the device ineffective.

In the modern CO2 equipment this difficulty has been entirely overcome. The means employed include: Firstly, the use of a syphon tube to take liquid CO2 from the bottom of the cylinder instead of gas from the top; secondly, large discharge passage to mimimize the pressure drop inside the apparatus and thirdly, specially designed cone-shaped nozzles.

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The carbonic gas when released from the cylinders expands through the cone to solid form 500 times its stored volume. This rapid expansion solidifies to dry carbonic snow which has a temperature of 110 degrees below zero. This snow gives the discharge a characteristic appearance somewhat resembling steam. This snow in subliming back to gas absorbs heat from the burning area in great quantities, leaving an inert gas to displace the oxygen. From 25 to 30 percent saturation of carbon dioxide is considered sufficient to extinguish flames.

Carbonic gas will not deteriorate with age. It will not evaporate, neither will it freeze of itself in the coldest climate; it requires no renewals as the contents in the container will remain good until used. Weighing at least every three months is all the attention needed as a check against leakage or tampering.

The carbon dioxide fire extinguisher can well take its place as a standard first aid fire appliance for class B and C fire hazards as it has been tested and approved by all recognized laboratories for such purposes.

First Aid fire appliances are essentially what the name implies, apparatus provided close at hand for immediate use when needed. They are designed to cope with fires in their incipient state and are not intended to act as a substitute for a sprinkler system or the Fire Department.

There are four classes of incipient fires:

Class A fires may be defined as incipient fires in ordinary combustible materials, such as wood, paper textiles, excelsior, rags and the like materials where the quenching effect of quantities of water is of first importance.

Class B fires may be defined as incipient fires in small quantities of inflammable liquids such as gasoline, oil, paints, varnishes, lacquers, alcohol, and liquids of a similar nature where the blanketing effect is essential.

Class C fires may be defined as incipient fires in electrical equipment where the use of a non-conductor of electricity as the extinguishing agent is of first importance.

Class D fires are fires in motor equipment such as automobiles, motor boats and the like, where the use of a quick extinguishing agent is necessary.

There are three recognized scientific principals of fighting fires—Cooling the fire by wetting the burning material below ignition or re-ignition point, smothering the fire by eliminating the oxygen necessary to support combustion, and by detonation or snuffing out fires. But! today, Science

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We are going to give you a moving picture demonstration of carbon dioxide as a scientific method of extinguishing alcohol, gasoline, oil, lacquer, inflammable chemicals or electrical fires. The moving picture represents some of the Underwriters' Standard tests for First Aid Appliances.

In giving this demonstration we use other types of extinguishers in order to show how CO2 differs from them in speed, smoke, fumes, gases, or residue. We recognize the fact that all first aid fire extinguishers have their merits as well as their limitations. Carbon dioxide, or CO2, is practically a new and distinctive method of extinguishing fires entirely different from any of those already in the field.

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- 2—Making snow in a hat demonstrating carbonic gas in solid form by throwing snow balls in the air.
- 3—Showing carbonic "smoke". This "smoke" is finely divided carbonic particles which has a temperature of 110 degrees F minus.
- 4—(Moving pictures of demonstrations.)

Do any of you gentlemen want to ask me a question?

SECRETARY O'HEARN: I know from experience that this extinguisher will do all the things you say it will in regard to extinguishing fire, but what has impressed many of us is, What is the explosive danger of one of these pieces falling off the apparatus?

MR. LEERBURGER: Chief McKenna reported that he has some on his rescue squad, and in going to a fire, two fell off the truck, and the only thing that happened was the valve was damaged.

SECRETARY O'HEARN: Do you believe there is any explosive danger?

MR. LEERBURGER: No. There is a safety cap. It is the only thing for a manhole fire. You had some experience with that the other day.

CHIEF CASEY: I would like to ask a question. You say it will put out gasoline and alcohol, etc. How about fuel oil like what comes out of the ground?

MR. LEERBURGER: It isn't the oil that burns; it is the vapor that burns.

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CHIEF CASEY: Will this have any effect on refineries such as the Beacon Oil?

MR. LEERBURGER: It is very effective. It will put it out before it is beyond control.

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CHIEF JOHNSON: Will it operate on celluloid fires?

MR. LEERBURBER: No, it will not. Celluloid generates its own dioxygen and it will not put out the fire.

Mr Chairman, I want to thank you very much.

PRESIDENT SANBORN: What is your pleasure to do with this talk on Carbon Dioxide?

CHIEF REIF: I move you, Mr. President, that it be printed in our minutes as a part of our records, and a vote of thanks be given Mr. Leerburger, assisted by Mr. Armstrong.

(Motion seconded and carried.)

PRESIDENT SANBORN: That concludes our papers for this evening. After this meeting there will be a demonstration out in front of the hotel by the Kohler Company of the self-operating power and light unit.

We have no business sessions throughout the day tomorrow. Tomorrow forenoon will be devoted to the exhibits, and tomorrow afternoon at 3:30 there will be demonstrations at Waterside Park. Busses will run from the exhibit hall to the demonstration place.

At 4:15 Chief Reif is putting on a drill at Engine 6, and busses will take you down from there to where we have the banquet tomorrow night. Kindly bear these in mind.

CHIEF REIF: Also, will you please be on the Green at 8:30 tomorrow morning for the group photograph, and bring the ladies along.

(Meeting adjourned.)

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Let us return thanks. Almighty and gracious giver of every good and perfect gift, we pause for a moment to acknowledge Thy loving kindness. Bless Thou our gifts of which in Your bounty we partake, and help us to partake with a deep feeling of thankfulness and of fellowship for one another, and to Thee by the glory. Amen.

Banquet.

(During the banquet community singing was led by Miss Elfreda E. Voos, Director Women's and Girls' Activities, Recreation Commission, New Haven, Conn.)

(At the conclusion of the banquet, the following program was enjoyed, with Chief L. E. Reif acting as Toatmaster.):

CHIEF REIF (continued applause as he rises to address the guests): Mr. President, Mayor Tully, Rev. Maurer, Officers, Members and Guests of the New England Association, I certainly feel very proud here tonight to see such a gathering as this. It has been one of my thoughts for the last few weeks,— Would we be able to put it over? This was not a one man's job by any means. I started and picked out 162 to help me and got 100 ladies to go on with them, and 337 officers and members of the fire department, and it was not only with their assistance, but I find every one of our members and guests helped to make a success of this occasion. If we have given you a good time and satisfied you, that was our main object. We are tickled to death to have you with us and glad everybody seems to be enjoying themselves.

They picked me out because I am a man of few words, and I know everybody wants to get out and enjoy the fresh air outside. Thanking you all who have made a success of this I will call on a man who has done a lot to make a success of the New England Association of Fire Chiefs, our President, Oliver T. Sanborn of Portland, Maine. (Applause.)

PRESIDENT OLIVER T. SANBORN

PORTLAND, MAINE

Mr. Toastmaster, Your Honor, Ladies and Gentlemen, the Seventh Annual Convention is drawing to a close. Any words that I might utter would absolutely fail to express the deep appreciation of the New England Association for the

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wonderful time that has been given us since we have been in the beautiful city of New Haven. I have always known from my geography that New Haven was in the New England states, but since coming here and enjoying the warm hand of friendship that has been extended to us, I feel rather that New England is a part of New Haven.

It is with deep regret that we leave here, but we want everybody in New Haven that have in any way been connected with the wonderful time we have had here to know we will take away with us and always cherish the thoughts of friendship we have for the citizens of New Haven. I thank you. (Applause)

CHIEF REIF: I now have the honor to introduce one who, when we first thought of having the convention in New Haven, offered most hearty cooperation and put his shoulder to the wheel for success. The Board of Fire Commissioners also voted their hearty cooperation to the success of this convention and would do everything in their power. The man I am going to call on now not only helped, but went into his pocket financially to make this a success. That is his Honor, Mayor Tully of New Haven. (Applause)

THOMAS A. TULLY

MAYOR OF NEW HAVEN, CONN.

Mr. Toastmaster, Chief Sanborn, Reverend Maurer, Ladies and Gentlemen, it is rather a surprise to me to be asked to make a second speech of welcome to this Association of Fire Chiefs. I don't know whether somebody thought I didn't do it properly yesterday morning or if some think I didn't mean it and want me to say it again. At any rate, I am very glad to see so many people gathered here this evening in connection with the New England Association of Fire Chiefs.

Now, the other function of a speaker at a convention is to talk on something of the character of the organization that is meeting. It is rather difficult for me to address a gathering of fire chiefs on any technical subject of fire fighting, but I want to take this opportunity to pass on a hint to the visiting gentlemen in connection with your work. It is based on my personal experience in New Haven. I know all of you are afflicted with the enthusiastic layman who is interested in fires. He likes to see them and to follow the fire apparatus, and he usually gets under the firemen's feet and gets in the way.

I was always interested in fires, and when I was elected to the Board of Aldermen I thought I had special privileges, so I went to Chief Reif and asked how to get on the inside of the fire system. He said, "You get a badge." I handed him two dollars and he gave me a silver badge; and then for two years they never had a fire or set up a fire line. Finally they had one and I pinned on my badge, and I found that every police sergeant for blocks around was a man I knew and would have passed me without the badge.

When I became Mayor, I thought I had better privileges, so every time there was a fire I got around the neighborhood and put my nose in things which were none of my affairs. One day one of the lieutenants selected me and said, "I would like to show you around." He took me around, showed me where the fire was, showed me where the fire had been and showed me how the fire worked and where the water was and where the smoke had been and the soot still was, and I

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came out a much wiser and sorrier gentleman than when I went in. The same thing happened about three times in succession. I have got so now that when the New Haven firemen are in session I go around the block and not near the fire. If you have anybody you want to discourage take him in where it is wettest and dirtiest, and he will get sick of it.

Speaking seriously, I want to congratulate you on the splendid organization you have. You members of the Fire Chiefs Association are engaged and devoting your lives to a profession which is in my opinion the most important in American community life—the saving of property, and in many cases, the saving of life is directly in the hands of the fire department. American cities are growing more and more complex the construction of buildings is becoming more and more difficult. There are continuously increasing problems to be met in meeting this menace of fire. The manufacturers of fire fighting equipment are meeting that problem with more and more elaborate and complicated equipment and you men who have banded yourself together are showing a spirit of cooperation to fit yourself to meet these problems, both in seeing to it that the proper construction methods are followed for the prevention of fire, and familiarizing yourself with the newest and most effective devices for extinguishing fire when it has started.

It is a splendid thing for a group of men to gather together in numbers such as you have here. It shows that you are alive to your responsibilities, that you are interested in the development of your profession, and the communities of New England may well be proud to be represented by the type of men who have come here to New. Haven. We are particularly glad that you have chosen New Haven for your convention city. I hope you have enjoyed your stay here and hope you have not only found it enjoyable but also profitable. I hope you will come back for some future convention. If you do and when you do, I assure you that we will give you as good as time, if not better, the next time because we have had this experience. (Applause)

CHIEF REIF: Ladies and Gentlemen, we have a new pleasure here tonight, an unexpected pleasure, so to speak, and the next gentleman on whom I am going to call is the pastor of one of our Episcopal churches in this city. I know we are all glad to hear from Reverend Maurer.

REV. OSCAR MAURER,

CENTER EPISCOPAL CHURCH.

Chief Reif, Mayor Tully, Ladies and Gentlemen, I don't know how it is with the rest of you, but my family has just recently annexed a new radio, and the trouble with me tonight is that all my family are doubtless lined up in front of the loud speaker in my house and will check up on me when I get home tonight.

I was tremendously pleased when the invitation came this morning to be a fellow guest with you, and I wondered why I was so favored by my brethren to be given this honor and sit at the guest table, and then it occurred to me, after all, why not? These are my colleagues. We are engaged in the same profession. I only hope that as representative of the clergy, the body of men I do represent are as successful in saving people from the fire as you are. (Laughter) We are not always able to put the fire out, and you almost always are.

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I didn't know there were so many fire chiefs in the world as I have seen here tonight, and I find out these are only the fire chiefs of New England. Every time I see Chief Reif in his uniform, representing in every sense of the word that fine authority for which he stands, and when I see his colleagues, of whom I am always proud, I have a curiosity to know just who the boss behind the throne is. I think I see him tonight. It is fine to see these fire chiefs, a group of genial men, and it seems good sense in bringing mother along tonight, and I believe there is the real authority behind the throne. I often wonder how the chief feels when he comes home, and she tells him how he should have handled the fire. You can't get along without the ladies after all, even in fire fighting.

I grew up in the Middle West and there is a story of a Kansas farmer who drove into town with his daughter to do some marketing. On the way home, about ten miles from home, a couple of men jumped out from the thicket and held the farmer up. They made them get down from the wagon. They took his clothes and money, and then got into the wagon and drove off. The old man began to lament. He said, "What will we do now? Here we are ten miles from home, and my horse and money gone." The daughter said, "It is not so bad. They didn't get my money." He said, "How is that?" The daughter said, "When I saw them going through your pockets, I put my pocketbook into my mouth." He said, "That's a good girl, a bright girl. I only wish your mother might have been here. We mgiht have saved the horse and wagon." (Laughter.)

The farther along in life I get and the more I study this tremendously fascinating problem in which we are all engaged of building up a splendid social life and establishing a real democracy here in this country, the more impressed I am year after year that the best and finest things that men do are not done for wages at all.

Now, no man is superior to the desire for a just reward for his service. That is natural. That is human. That is right, and yet, when you stop to think about it, ladies and gentlemen, the finest service that human beings render is not rendered for pay at all. It is rendered from a sense of duty. It is rendered from a sense of civic spirit. It is a contribution of the best that is human within us, and it is on that kind of service that real democracy rests, and I never hear the firemen sounding through our streets, especially of a cold winter night, and I know the firemen of our town are on their job and going to their dangerous tasks, but this thought comes to me. These men receive pay—perhaps it is enough, perhaps it isn't—but the work they are doing is something that cannot be paid for. It is a service over and about any compensation that the municipality may grant to them. That is the service the firemen of our land are rendering, and we owe you a debt of gratitude which we can never repay. (Applause)

CHIEF REIF: The next gentleman that I am going to call upon I heard talk at our convention in Burlington. I do not think it will be necessary to put the microphone in front of him. We had a very noisy room there and few could be heard in that hall. This gentleman made himself heard above all the noise. I am going to call on Ex-Fire Commissioner Glynn of Boston, Massachusetts.

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me. I was yelling for those students at the drill school today until my voice is just a little bit hoarse, and it will be necessary to use the amplifier for a few moments.

I am pleased to come here, both with the Fire Chiefs of New England and their wives and daughters and sweethearts, paying tribute to official New Haven. I have enjoyed with them one of the best conventions the New England Association of Fire Chiefs has held during its seven years of existence, and I want to convey to the Mayor of this thriving city of New Haven the thanks of this entire assemblage and invite him with the boys he sees before him tonight to Boston in 1930. (Applause)

Connecticut has had the New England Association of Fire Chiefs on two different occasions. Boston has had it once. I would like to see the old warriors that New England looks to for protection in time of war and in time of peace,—I would like to see them assemble on the three hundredth anniversary of the founding of the City of Boston with all of New England in 1930. I would like to have you come to Boston, and I would like to have you as delegates to this convention leave it entirely with the Directors of this great body of men as to where they shall meet in 1930; and if you do, I am positive that you will come to Boston and visit with me. Come and see Boston's historical shrines. We want you to come to Bunker Hill. We want you to visit Faneuil Hall. We want you to come to Boston proper. We want you to come to Lexington and Concord, where the first shot was fired that was heard around the world. We want you to come to the real parent-place of freedom and join not only with the people of New England but all America who will visit this city, and make possible the banner convention of this Association.

I would be glad to divert a moment from those historical shrines, and if you are not content with visiting the shrines, we have other attractions. We have seashore resorts that almost equal those of New Haven. (Applause) And I had a long distance swim here today that almost brought me back to L Street, Boston, only I had my bathing suit on. If you are not satisfied with those attractions, I will mention one more. We have the entire middle floor of the Hotel Lenox for that occasion, as well as the Copley Square and the Statler.

I am glad to be considered one of this Association. I am actively interested in your work, whether as a private citizen or a public official. I follow the activities not only of my own fire department, and, incidentally, we have a good fire department. It has stood the test wonderfully. The last four years has made no difference with the department since I left it, four years ago. They still rank high with the fire fighting forces of America. Fire fighting is typified by the gentleman sitting at the head of the table, Chief Sennott and he has placed the department on a par with any metropolitan department. I am sure if you investigate it today you will find it in as excellent condition as when I left it four years ago.

Now then, from what authority do I invite this progressive organization to the City of Boston? I have the authority first of the Boston citizens interested in having come to our shores America's best. You will find America's best within the confines of this organization, and if you don't find it there, you will find it in the worthwhile auxiliary that follow us year after year, and this is said without fear of truthful contradiction. There is no problem successfully solved, there is no worthwhile object attained without the aid of the ladies. God bless them. (Applause) And I think Mrs. Glynn is listening on the other end. If not, I hope she is.

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Now then, as an American citizen and citizen of that worthwhile progressive city, I invite the Fire Chiefs of New England to convene there in 1930. I think I can promise a real convention. I think I can promise at least one equal to the one we held some five or six years ago, and I think I will be in a position to guarantee sufficient funds to entertain in a most lavish manner a crowd equally as large, if not larger, than those I see before me tonight. I don't think anybody could question the signature of Theodore Λ . Glynn as Mayor of the City of Boston. And I hope the Directors in their wisdom will select Boston as the next meeting place, and I promise you a real live convention with plenty of action.

I can't help but tell a story before I conclude my few remarks, a story I think I have told at every convention, and it comes more forcibly to me than ever tonight when I see seated at this head table the official light of New Haven, when I see the fire leaders of all the New England cities and towns, when I see the aggregation representing the New Haven Fire Department, and the various fire fighters of New Haven and nearby cities and towns. An old Hebrew gentleman was drawing his last breath, and he lay in anguish on his bed. He called his wife to his bedside and said, "Becky, I want you to get all the members of the family here." She said, "I think they are all here." He said, "Is Ikey here?" "Yes, father, Ikey is here." "Is Jakey here?" "Yes, father, Jakey is here." "Is young Becky here?" "Yes, father, young Becky is here." "Are you sure they are all here?" "Yes, father, they are all here." "Well, who in the Hell is attending to the business?" (Laughter) I think that the fire department system is in force in practically every city and town, and I think the public are safe from the menace of fire.

I am glad to be here tonight and to be considered one of the active members of this organization, and I am glad to have heard the human element mentioned here by the Reverend Doctor who preceded me, and I have been glad to have heard at one or two previous conventions that the fire fighting force, regardless of the high pressure system, regardless of the high powered apparatus and the money you put into a progressive department, there is no success, no possible success, without the aid of man power, without the human element with the fire fighting force, with that courage and that vigor that the boys in blue and the boys in khaki used on the other side of the water, that made possible the continuance of freedom in the United States. The human element must be encouraged from the fire fighting chief to the newest recruit. Encourage him with action. Place him on a par with fire fighters of the world. Give them sufficient wages to know that you appreciate that courage and that valor that the display for you at all times and that life that they risk every minute of the day when in action. I am glad to pay my tribute to the fire fighters.

I am glad to point out to you men and women of New England here tonight and proclaim to the world that this truly American Association will go on and on and grow with leaps and bounds, when you come to Boston in 1930 to convene.

I thank you. (Applause)

CHIEF REIF: I don't know why he got the amplifier. I told you when the Commissioner gets started he needs no amplifier. When he got started, the thing was in his way. After receiving this kind invitation to Boston, I think it is a good thing to have good Chief Sennot come up here and say "Hello."

CHIEF DANIEL F. SENNOTT, Boston, Mass.

Mr. Toastmaster, Brother Firemen, I am pleased to be here. I have enjoyed New Haven, I must say, better than any convention I have been to. I had a

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young man with me today, a member of the department in New Haven, and I was taken all over the place. When I first came to New Haven, I looked and condemned it, and today I owe an apology to New Haven because I saw your beautiful parks here.

The Fire Commissioner has asked you to come to Boston. I may not be chief then, but whether I am chief or not, you will be given the best time you have ever had. I will give you the best time when you come to Boston if it is within my power, and I am glad the Fire Commissioner has come in and told you.

I have been forty-seven years in the fire department, and I want to say I owe my promotion in every way, shape and manner to my good wife. She is the one who has stuck to me through thick and thin. The ladies are the ones that make the firemen. I have sat in the fire house for forty years, and I didn't have to get up and walk the floors. When I went home in the morning, there might have been something of the kind in the night. I didn't have to take care of it. I had a good wife to take care of it all right. I take my wife to all the conventions, and I will say right now that she is one of the best sports there ever was. She said when we left Boston, "Go ahead and have a good time. Don't bother about me", and I haven't. I have got two daughters at home. One of them came with me. I haven't seen her since she came in the car with me. I thought so much of this convention that I had my son come up here. He is here tonight.

I told the Fire Commissioner when he asked me when I was coming back, "I will be back Thursday night or Friday." He said, "I don't believe it."

Come to Boston. I will give you the best time in my power.

One thing more. I want to congratulate the fire department of New Haven. If I was Fire Commissioner, I would make the salary seven thousand dollars a year. (Applause)

CHIEF REIF: After listening to Dan's warm welcome, he said in forty odd years he had never walked the floor at night. I am blessed with the same thing. The people in this city know why I don't have to walk the floors at night, but you others have got to guess.

Time is getting late, so I am going to call on the next speaker, Charles "Sandy" Chapman, who will entertain you and whom you will enjoy very much.

ADDRESS

THE FIREMEN'S STANDING IN THE COMMUNITY

By Mr. Charles "Sandy" Chapman, Gamewell Fire Alarm Company, Boston, Mass.

Mr. Toastmaster, Reverend Sir, Officers and Members of the Organization, Ladies and Gentlemen, Visiting Guests, I wondered for a while just why Chief Reif called on Chief Sennott and it was all explained in that last sentence, I would see that you get seven thousand dollars a year. (Laughter)

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I am a stranger, and it is only fair that I introduce myself to the organization I am going to address tonight. It is only fair that you should know just who I am. Being a stranger in the organization or the convention, someone found out I was from Cambridge, Massachusetts, and they all made up their minds I was the son of Chief Casey. In fairness to Chief Casey, I will say that is not a fact. There is only fifteen years difference in our ages, and you can judge who has the greater amount of years.

My name is Chapman, and that doesn't mean a great deal to this organization assembled, and to me it was only a common, ordinary name until recently. I was sent by the American Legion to the western part of Massachusetts to create sentiment on the part of the citizens for the lives of the men who had lost their lives in France. I was very successful in the Kiwanis, Rotary and civic organizations; and before I left, we raised enough money to create the entire statue.

When I went to the State House, a gentleman I had never seen before met me. He said, "That was a wonderful, a delightful speech. But I am going to tell you something. During your speech you didn't make enough of your own name." I said, "What is the matter with this name?" "Why," he said, "my name is Chapman, and we come of royal parents." I knew my father was a carpenter, and I had seen him crowned at home several times (Laughter)—and you will notice I am the only speaker tonight telling the truth about the women. (Laughter) I have a wife also, but she is not here. And I said, "Tell me, how does royalty come in the Chapman family?" "He said, "Look up the genealogy. There was a king of Scotland of that name." I had been looking for a king for seven or eight nights, and here I had got a king and I wasn't even playing. (Laughter) "There was a king in Scotland by the name of Chapman, but before he became king, he went to gather pots and pans, and they called him—cheap man—and when he became king, they left the "e" out of the name and called him And to satisfy myself, I looked in Webster's Unabridged, and imagine my pride in finding again he is right, and you, dear friends, can find it also. Look in Webster's Unabridged and you will find the word "Chapman" means cheap tin peddler. (Laughter)

My dear friends, if there is one organization in New England that deserves and should receive the moral and financial support of all of the citizens of that district, it is the New England Association of Fire Chiefs. (Applause) And for many reasons, dear friends, this is a grateful nation, and no deed of heroic public service ever goes unnoticed if brought to the attention of the proper people.

We are proud indeed of the history of our great nation. Since the honored hands of Betsy Ross fashioned our flag of freedom, through the courage and skill of our soldiers and sailors its folds have never fallen into the dust of defeat. Let us give honor to the heroes who have so nobly defended our flag. Let their names be inscribed on the Roll of Honor forever. It is our duty to honor the soldiers, for they have preserved the flag. It is also our duty to honor the soldier of today, who preserves and protects and defends everything that the American flag represents—the fireman. The fireman, dear friends, is the hero of today, and while the soldiers and sailors of the universe enlist for service, he does so for a specified time, and at the expiration of that time he returns to home and peace and war is forgotten; but when a man puts on the uniform of the fireman, he enlists for life and his war against man's greatest enemy is never ended until the Supreme Chief of the entire universe calls him from his post of duty and grants him the reward he so sincerely deserves.

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It was a touching tribute when your Secretary, Mr. O'Hearn, called the names of your departed comrades and the requiem of taps was sounded, and as the Reverend Chaplain said, they are absent but not forgotten. It is fitting, dear friends, that on each soldier's Memorial Day the hands of their comrades with tender love will place on their resting place wreaths of memory that mean they are absent but not forgotten. While it is your duty, dear friends, to look after the dead, it is also your solemn duty to care for the living.

Yours is a great fraternity. What a wonderful slogan I heard at that great testimonial to one of your respected members, Chief Tracey of Woburn, Massachusetts, when forty-two fire chiefs gathered to pay tribute to a brother chief and to do so while that brother was still living and able to appreciate the great honor, when I heard you men say—No night too cold, no run too long, to come to the assistance of my brother chief. Yours is a great calling. Your bonds of fraternal feeling are greater than others. Other organizations join fellow groups that they may enjoy entertainment. Your bond sends you to your brother that you may attempt to lift a part of his burden of sorrow, his burden of care, and help in your gracious manner to protect life and property in his jurisdiction; and it is fitting on occasions like this that the clasp of friendship means everything to each member.

While there is a general movement on the part of the different fire districts to improve conditions for the fire fighters, still as yet it is far from perfect, and while there is a feeling of just pride and great satisfaction when you have saved some valuable property, the pay for that great service is not at all satisfactory.

In New York City, my dear friends, I am informed that the fire private receives \$2500 a year and today expects an increase of \$200 a year, and yet in dollars and cents your service can never be measured.

The fire chief and his department today are a body of reliable, skilled and courageous men who are willing to do everything within human power to help their fellow men. Knowing this, it is only fair to expect the citizen to assist in every possible way these unselfish, sacrificing public servants.

It must be a source of a great pride when returning from a fire to think of the work you have accomplished, but is the fireman appreciated in his town or city? Lawyers and Doctors receive wonderful fees, and their duty is to try to save the property and lives of a few. The fireman's work is to save the property and lives of all, and while the professional men sit in comfortable chairs while performing their duty, the fireman must respond under every condition, winter or summer, hot or cold, stormy or pleasant. When the alarm rings, he must go.

The women, my dear friends, are the ones who should be interested in this valued organization, for there isn't a woman in this Association who would not hesitate if she were going on a vacation of an extended period before sending her furniture to a storage warehouse unless she knew the equipment was guarded with a fire alarm box; and yet, dear friends, we send our children to schools that are veritable fire traps. Sixty-two percent of the schools in the United States of America are wooden buildings, and in the elementary grades fifteen children meet their death every day during the year. Fire cost this United States of America \$301,000,000 in the year 1928 and 15,000 lives, which means during that year every day you lost \$275,000, every hour you lost \$34,000, every minute you lost \$3,735 and every second the loss was over \$9.

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Realizing the importance of the work of the firemen, the senators and representatives of the different states have taken a keen interest, and we are pleased to see that legislation has been enacted in several states making it necessary for the owners and operators of public buildings, such as hospitals, almshouses, schools, hotels and theatres, to place fire alarm boxes on these buildings, and failure to do so will adjudge the owner guilty of misdemeanor and fined \$100.00 or sentenced to three months in jail. New York State has passed this bill, and it becomes effective July 1st of this year. Sponsored by the Rhode Island Chiefs Association, the bill was passed in that state recently. It is effective in several states and will be introduced in Massachusetts this coming year. Connecticut will soon fall in line and give you valued men the assistance you greatly deserve.

You are an important part of each district—yes, the most important part, and for the first time in many years the public are beginning to realize and appreciate what you mean to them. Your very appearance creates confidence. We read some time ago that 581 yearly lost their lives in fires where the property loss was small. There was no firemen there to assure the frenzied folks that they were safe if they would be calm. In Boston recently we were fortunate that we did not have a panic of the same kind when a fire occurred at a theatre in the afternoon when the place was crowded with children, but there was a fireman there who stepped forward and assured the children that they were safe, and thanks to that cool, calm, efficient fireman many lives were saved. Firemen are drilled to handle people in emergencies, and many, many lives have been saved through the efficient action of a man in the fireman's uniform.

My work, dear friends, is for the Gamewell Fire Alarm people. I go from one town to another in New England, speaking to the Rotary, the Kiwanis, the Chamber of Commerce, the business organizations, telling them of the debt of gratitude they owe to the fire departments in that district and urging them to give their moral and financial support so that they may have and maintain an adequate system. When a chief asks for an appropriation, it is not to buy jewelry and dinners for you men; it is to buy equipment and boxes to protect and save the lives and property of the citizens of his district.

If you desire to have my services in any of your towns, write to my organization and they will gladly send me, with no expense to you. The Gamewell Company has asked me to say that they are doing this in return for your many favors in the past, and we hope our pleasant relations will be continued indefinitely.

I may be old-fashioned, my friends, but I heard a song the other day, dedicated to the fireman, which was written many, many years ago, that I think tells a fine story, and I will attempt with the kind assistance of the pianist to tell you the story of The Man with the Ladder and the Hose.

When we close our daily cares
And the folks have said their prayers,
Kissed little ones and tucked them in their beds,
And we lay us down to sleep,
Who will then the vigil keep?
Though an aching heart and head,
When the fire bells ring at night
Filling timid hearts with fright
And the sky is red with fiery glare,
When you hear a pleading cry
From a window up on high,
Who is always there to do or dare?

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(Applause)

CHIEF REIF: Just one moment, President Sanborn has a message before you go.

PRESIDENT SANBORN: I wish to agree with the words of the Reverend gentleman that it is a lady that is the power behind the throne, and now in behalf of the New England Fire Chiefs Association it is with the greatest pleasure I present Mrs. Reif, the power behind the throne of the New Haven Fire Department, this bouquet of roses, and want to assure both Mrs. Reif and the Chief that while these will die and fade away, yet the warm spot we hold in our hearts for them will always remain until the end of time. (Applause)

MRS. REIF: I am sure I thank you, and if you have all had a good time and I have meant anything, nothing else matters.

CHIEF REIF: In conclusion we will sing "Auld Lang Syne."

THURSDAY, JUNE 27 9 A. M.

MORNING SESSION

PRESIDENT SANBORN: The meeting will please come to order.

Our first speaker this morning is Major J. H. Howland, Engineer, National Board of Fire Underwriters, who will talk on "The Organization of State Training Schools for Firemen."

ADDRESS

THE ORGANIZATION OF STATE TRAINING SCHOOLS FOR FIREMEN

By Major J. H. Howland, Engineer, National Board of Fire Underwriters.

Mr. President, Fellow Fire Fighters and Friends, I want first to apologize to your President of this Association for being what my wife sometimes delegates me as Johnny-on-behind. I was delegated to be here on the first day of the session,

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but being notified rather late, I was unable to arrange it and wired back that I would be able to be here at any session after Tuesday.

As you know, as a member of the National Board, I have to attend a great many state conventions and conventions all over the country, and I don't think it is out of place at all to say that when you come to a real live body the New England Association of Fire Chiefs is second to none that I have anything to do with.

I have been assigned this morning a subject which is comparatively new and creating a great deal of interest, starting particularly in the Middle West and now coming East and Southeast, and that is the organization of state training schools for firemen; and I am sure that you are going to be interested, because I know New England is always in the front ranks on constructive movements. It isn't a long paper, so you can breathe easy.

Prior to 1900 there was little evidence that our organized fire departments were operating along scientific lines. It was during the first decade of this twentieth century that the officials of our larger city departments first recognized the advantages of systematic drills and training and the urgent need of uniform fire fighting practices and operations.

For a number of years New York, Boston and other large cities had been sending all their recruits to 30-day drill schools; others followed until today almost every large city department conducts such schools not only for recruits but for the entire membership. The great majority of our small city or town departments could not be expected to maintain the drill towers, equipment and other necessary training facilities so that a number of our state universities in cooperation with fire marshals, firemen's associations and others inaugurated short annual courses of instruction, drills and training with a view to benefitting a great many firemen that could not otherwise be reached.

The idea was first promulgated by the Iowa State College which held its first course at the request of the Iowa State Firemen's Association at Ames, Iowa, in October 1925, four months after a similar course had been staged under the auspices of the University of Illinois and under the direction of John C. Gamber, State Fire Marshal. The success met with in these first two courses resulted in an awakening of interest, first in the mid west and northwest sections of the country and more recently extended to some of the eastern and southeastern states. At this date there are twelve states that have these short courses well organized and under effective headway or have such procedure under consideration. The majority of these courses thus far established are conducted under the sponsorship of state educational institutions in cooperation with state fire marshals, fire chiefs and firemen's associations, leagues of municipalities, industrial commissions or other closely allied interests.

Recognizing the importance of increased efficiency in combatting fire as a part of its general fire prevention campaign, the National Fire Waste Council through its parent body, the Chamber of Commerce of the United States, recently appointed a Fire Service Extension Committee to perfect plans for the introduction of short extension courses for firemen, initiated by the several educational institutions and others, in all states. The committee, of which George H. Parker, Manager of the Kentucky Actuarial Bureau, is chairman, has just issued a suggested procedure for organizing, operating and conducting such courses, some twenty copies of which have been forwarded for distribution at this convention.

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Now, I have what they sent me, some twenty copies of this procedure, which they forwarded for distribution at this convention, and I would like, with the permission of the President and Secretary, to have these twenty copies go to the larger cities. You will see my reason for it, for giving to the chiefs of the larger cities who are members of this Association, later on when I tell you some of the plans adopted in these schools.

Briefly, the plan is to have local committees made up of five to seven outstanding leaders in public welfare movements take full charge and sponsor the work in each state, with the assurance of full cooperation on the part of all trade organizations affiliated with the National Chamber of Commerce. The fire Service Extension Committee plans to keep in close touch with the developments in the several states, aid in securing the services of experts from various government departments, insurance organizations and others to assist in the work, help to develop from time to time the best thought with reference to lecture subjects, demonstrations, evolutions, methods and practices and otherwise cooperate with each and every state.

At a joint meeting of the New York State Fire Chiefs' Association and the Conference of Mayors and other Municipal officials held at Albany in March of this year, plans were completed for starting fire training schools. The state is divided into fourteen zones each with a centrally located city having a drill tower and other necessary facilities for instruction and training. A school for instructors was held at Utica and conducted under the direction of Chief J. N. Sullivan for a week this last April. It was attended by a total of thirty odd picked men sent from each of the fourteen established zone centers. The speaker as a representative of the National Board of Fire Underwriters was in attendance at this school for instructors and delivered six out of ten lectures which were embodied in the adopted programs of instruction.

It has been my privilege to be present at a great many conventions and meetings with firemen's organizations, and I have never seen a greater measure of interest and enthusiasm made manifest than at this Utica school, and it is evident from advices just received from the Secretary of the Mayor's Conference that the plan adopted is already bearing fruit. Seven of the zone schools are already in operation and the remainder are to be underway by the first of July. The zone training schools are to be conducted under the direction of the instructors that attended the Utica school and the sessions are arranged so as to give to an estimated total of over 2000 firemen scattered over the entire state, all of the ten lectures and twenty evolutions previously taken up in the school for instructors.

As an indication of how extensive this movement is being entered into, it would be of interest to mention that after being endorsed and approved by the Governor, sponsored by the State University, and receiving support through Legislative appropriation and the State Firemen's Association, Kansas has just completed its first course. We have been advised on good authority that this was one of the best conducted schools thus far held in the country.

I don't know how much time I have, but I was going to give as an example a brief lecture on "Ventilation" that was delivered at this Utica School, to give you an idea of how we try to make it plain to every fireman. You must realize this state-wide school is to reach the small villages and towns, but unless you have got plenty of time, I won't take the time to read this paper on "Ventilation."

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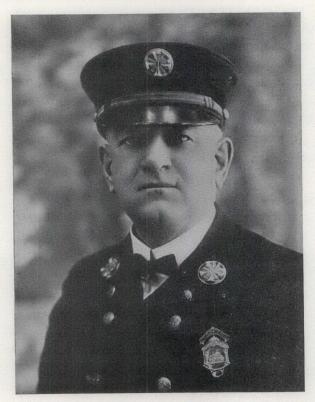
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I hope this very brief paper—I could talk much longer—has interested the New England Fire Chiefs, for we certainly want you in the front ranks.

In closing, I just want to remind you that I am proud of being born and bred a New Englander, and it is always pleasant to lend a helping hand to keep this association in the front ranks in a forward or constructive movement.

Let me extend to you the felicitations and best wishes of the National Board of Underwriters, and our services are at your disposal, as you know. We are going to look forward as we always have with confidence to getting solidly behind this Association and hope it will be instrumental in inaugurating short courses for the firemen in every one of the New England states in the very near future.

The National Board has always felt kindly toward this association, and I was speaking this morning of our first meeting in Bridgeport where there was comparatively a handful at that first meeting, and to see the attendance last night, —particularly, at that banquet, one can see how this organization has grown. It is marvelous how it has grown.

I thank you very much Mr. President and gentlemen for this opportunity of saying these few words to you. I hope the chiefs of New England will give this some thought and that the states will get behind the state training schools for firemen. It is a splendid bet. Thank you very much.

PRESIDENT SANBORN: Anyone any questions they wish to ask Major Howland? If not, what is your pleasure to do with this paper?

CHIEF ALLEN: Mr. President, I move this paper be spread on the records of the Association and the Major be given a vote of thanks.

(Motion seconded and carried)

PRESIDENT SANBORN: Our next speaker this morning needs no introduction. He has appeared before our convention in the past, he is an honorary member of this organization, and he always has a word of interest to us. I will next call on Assistant Chief Daugherty of the New York City Fire Department who will give us a talk on "Electric Refrigeration."

ADDRESS

ELECTRIC REFRIGERATION

By Mr. Thomas F. Daugherty, Assistant Chief, New York City

Mr. President and Members of the New England Fire Chiefs Association: I am glad to be with you this morning because, as Major Howland has just

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remarked, I think that it is one of the most progressive organizations I have ever come in contact with in attending conventions of fire fighters.

Your worthy Secretary, Chief John O'Hearn, some time ago asked me to come here and give a talk on "Electric Refrigeration." In New York we have considerable trouble with mechanical refrigeration. It is a big subject, for that method of refrigeration is rapidly coming into general use. We have a great number of large plants, and the number is increasing from day to day.

In so far as household refrigeration is concerned, I don't think there is any great danger attached to the individual unit, that is, the little refrigerating box used for domestic use. We have them in apartment houses in what is called the multiple system. Now the multiple system implies that the owner of that property has a refrigerating machine in his basement or cellar and that he supplies the refrigerating element to the box or compartment in each apartment. There might be a little more danger attached to that type than in the one used in households, which is the individual unit, for the reason that a much greater volume of refrigerating gas would be liberated if a defect developed in the system.

Where do we find refrigeration today? We find it in the large warehouses where perishable foodstuffs by the thousands of tons are stored—cold storage warehouses we term them. You might get 45,000 or 50,000 pounds of ammonia gas in some of these structures. We also find refrigerating machinery in your large ice plants. We also find it on steamships; we find it in fur storage; we find it in wholesale and retail confectioneries; we find it in retail butcher establishments; we find it in large meat abbatoirs; we also find it in hotels, and restaurants; and we are coming down to the day when you will find it in all your large theatres, where they utilize it for air cooling purposes.

I am not an alarmist, and I am talking to you from the standpoint of a practical fireman, as I view mechanical refrigeration. I say that it is up to every fire chief, if he has not already taken a deep interest in this subject, to do so without delay for the protection of his community, and not alone for the protection of his community but for the protection of his officers and men who may be called upon to act in an emergency where a leak on a mechanical refrigerator occurs. I say to you, dig down deep in this subject.

· As I said before, I am not an alarmist, but I have sufficient common sense to know that at some time you are going to have trouble of one kind or another.

I am going to mention some of the refrigerating compounds that are used. Some of the names, as far as the names go, or as far as the compounds themselves are concerned, are away over my head. They are better fitted for a man who is a qualified expert in chemistry, who may glance at such a name and know exactly what it represents. I cannot do that but I have tried to get a lot of information that may be of value to you.

First we have ammonia gas which is the more generally used; carbon dioxide; ethane; propane; methul chloride; sulphur dioxide; iso-butane; butane; ethyl chloride; dichloromethane; dichloroethylene; trichloroethylene.

When you have stuff like that to handle, it is tough stuff. Ammonia gas is a strong irritant and a suffocating gas; it forms an explosive mixture in the air; the explosive range being 13 per cent to 26 per cent of gas by volume. It

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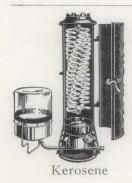
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is more easily explosive when the gas is impregnated with small particles of lubricating oils which it picks up while circulating through the system.

With reference to the hazard to firemen at a fire, the high pressure found in ammonia apparatus is increased where fire is within the structure, and such increase in pressure may cause mechanical rupture or a leak. When any structure is filled with this liberated gas, if the building is fire-involved, who knows whether or not an explosion will occur? The chemists tell us ammonia is explosive when mixed with air. In New York we have considerable to do with ammonia troubles but rarely do we get an explosion. That may possibly be due to the fact that we have not just the right mixture to cause an explosion. That is the only reason that I can account for the small number of explosions that occur in ammonia refrigeration plants.

Now at a fire in New York, because of regulations that we have covering them, we always have the advantage of utilizing pressure releasing devices; our regulations compel the installation of these devices on refrigerating plants, especially in plants which have a capacity of three tons or over. A refrigerating plant with a capacity of three tons or over must also have what we call a "mixer", and that mixer consists of a siamese connection placed on the front of the refrigerating structure connected to a pipe which leads to the public sewer. In conjunction with the pipe which leads to the sewer, there is a pipe connected with the ammonia system, and right close to where the siamese is located there is a locked box, and in that locked box are emergency valves. The box has a lock on it which is similar to that on the fire box in the city of New York, and the key used to open the fire box also opens the locked box connected with the mixer.

There is a standing order in the New York Fire Department that whenever a fire occurs in an ammonia refrigerating plant it is our duty to liberate the gas that is within the system, so that when we recognize the building as being a refrigerating plant, we lay a line of hose from the pumper to this siamese connection and start pressure at 50 pounds. Just as soon as the water is running, a man opens the box and opens the emergency valve and the ammonia in that system is liberated and mixed with water and carried into the sewer.

In ammonia plants where the capacity does not exceed three tons we have a pipe connected with the system and a valve that permits of our liberating the ammonia gas. In this case we do not connect any line to it, but that pipe is extended above the roof of the structure and the gas passes out into the outer air.

I want to tell you a few experiences I have had as well as two or three with which I had no connection, but with which men in our department did.

A big cold storage warehouse on Horatio Street: a fire broke out in the structure, in which men were operating. Conditions were not good, and suddenly there was an explosion, a very forceful explosion. A later investigation showed it was ammonia gas which had exploded, owing to presence of an open light or flame.

At a retail butcher establishment in Brooklyn: business going on; customers in the store. It was equipped with a small refrigerating plant. Suddenly there was an explosion of ammonia gas, or else a mechanical rupture, I don't know which. Several lives lost. At another I went to one night, a very large ice

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making plant, a leak or rupture occurred. We couldn't get within one block of that structure for a time. It was in a thickly congested neighborhood, a tenement neighborhood. We saw women with babies staggering out of the tenements, young men, old men, children, all breathing that irritating gas. A condition that I hardly realized could occur in the city of New York was what I witnessed on that particular evening, until such time as some of our men who were masked got to the valves and made a proper shut-off of the valves controlling the system. At that particular plant, I am sorry to say, one of the big corporations of the city of New York, the American Ice Company, in putting in the siamese connection some one of their engineers had run a 10" or 8" pipe up from the siamese connection and it wasn't capped over; it was open on top. There is one of them still in existence in New York today, and when one of our men in trying to bring in a condition which might make it livable for the people in the vicinity, opened these valves, instead of the ammonia gas going down into the sewer and mixing with the water, it was coming out of the opening in the top of this 8" or 10" pipe I speak of, and that is what created the unusual condition in that district. On that particular evening I know some friends of mine who got the odor of ammonia ten blocks away from the refrigerating plant.

Another instance, in a retail butcher shop, a leak developed, a leak that permitted the escape of gas in considerable volume. An employee on the premises went down in the basement to handle the situation. He was gassed so quickly in attempting to shut off the valve that he died right at the spot where he stood as he tried to open the valve.

I could tell you a number of cases of ammonia gas out of control that might be interesting, but I think that I have told you sufficient.

Any man, any fireman, who has to act in an emergency where a leak of ammonia gas occurs has to have certain protective devices before he enters those premises. He should have an efficient mask, but there is one other thing he must have for his own physical well-being: He must have wading boots to protect him from the irritating effects that this gas has on the body. Even with the efficient measures employed in our rescue companies, the men who enter these ammonia refrigerating plants where something has gone wrong, usually come in contact with concentrations that will burn them around the back of the neck, around the ears, and in any place where there is moisture. They should have wading boots and the proper masks to enter any of these buildings.

In handling the ammonia situation, all men should be instructed as to the layout of these systems. I would like to offer a suggestion, that you may utilize if you see fit to do so, and that is in the event of not having a mixer, if you are interested at any time in the installation of a pressure releasing device, have this valve that will control the system for release of the pressure located on the outside of the building, in a locked box, and in addition to that have a diagram of the mechanical appliance that will plainly show the location of each valve in the system that will bring any leak or mechanical rupture under control. I think this is a good plan to follow. I have spoken to a few of the members regarding the point whether they have any trouble with ammonia plants, and I didn't hear any of them refer to any valve that will liberate the ammonia in the event of trouble. As I say, train your men to get to the valve that will liberate the gas in case of fire and also instruct them in the layout of the plant, in addition to having a diagram in an accessible place for their use in time of emergency.

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Now we come to another gas—carbon dioxide. Carbon dioxide is used in many refrigerating plants, but not as extensively as ammonia. In my opinion, the great danger of that gas is due to the excessively high pressures at which it is used. It is a highly expansive gas. Of course, I know the cylinders and other containers have certain safety devices, but regardless of what the manufacturer may do to have their plants perfect sometimes things go wrong. We are not sure whether those pressure releasing devices are going to operate or not.

First, I will tell you what test is made on these systems. The test is put on them (for the high pressure side) at 1500 pounds to the square inch; on the low pressure side, if the safety valve is on that side of the system, they put a pressure of 750; without the safety valve there is a pressure of 1,000 pounds to the square inch. Just imagine 1500 pounds to the square inch. Do a little bit of calculation on this basis and it will bring home just what 1500 pounds to the square inch means. Now here is a condition where 1500 pounds to the square inch means you have the equal of 216,000 pounds of dead weight on a square foot.

As mentioned previously, carbon dioxide is an expansive gas, but it is not an explosive nor an irritant, but the cylinder pressure will be easily raised by the application of heat. Take one of those cylinders, which are filled at a pressure of 65 or 70 atmospheres, approximately 1,000 pounds, and put it out in the rays of the sun and you are apt to have a mechanical rupture. It has occurred before and it will occur again. If placed too close to any heated body where the heat may affect the gas in the cylinders, it may cause an explosion. So, I say the only reason by which we might have trouble with this gas is excess pressure.

Just to illustrate what may happen, in one of our large theatres which has installed a carbon dioxide plant for cooling the air, the engineer got a little bit of a souse on and he failed to open the necessary valve which should be opened, permitting circulation with the result that there was a mechanical rupture in that large theatre. There was no panic, but there could have been.

One danger in a carbon dioxide plant mechanical rupture would be pieces of flying metal thrown by that great pressure in the cylinder. Somebody might be injured, for the metal is thrown a great distance in a very forceful way.

Now, regarding refrigeration in a theatre, I wish to tell you an incident regarding a plant, a small unit, that was taken into a theatre, containing sulphur dioxide, that might have caused a panic when the house was crowded. We got knowledge of it quickly and it, was removed from the premises. You may have a condition like that to contend with. I refer to it that you may think of it later on. It will bring something home to you regarding these places of amusement in your own locality. In this particular place of amusement there was a confectioner who sold ice cream cones. He was always needing more ice, so he installed a sulphur dioxide plant to keep the ice cream from melting in the theatre. As I said, our people got wise to it with the result that it was immediately removed. Imagine what would happen if sulphur dioxide gas was liberated in a theatre, where there was a large number of people. I don't need to say anything more about it, I will leave it to your own imagination. But be on the alert to discover such conditions where they exist.

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There is on record a case in Jersey where multiple system was used, and something went wrong with the piping connecting with the system in one of the apartments. Of course, if either you or I get up against sulphur dioxide gas we are going to move quickly, but in this particular case they didn't move so quickly and I believe they had to take the occupants of that apartment by way of fire ladders. This gas gives a warning by the odor, and you should get out as quickly as you can if you live in an apartment where they have a multiple system. If it is individual refrigeration, it doesn't amount to much, but if you have fifty or sixty families on a multiple system there is a great deal more gas. The individual units, I believe, have between five and seven pounds of refrigerant. It is usually sulphur dioxide, or a mixture of ammonia and water.

We have also ethane gas used for refrigerating purposes. It is a product of petroleum. It, too, is highly expansive. It is explosive, and is used at high pressure, 1,000 to 1,500 pounds on the high pressure side and on the low pressure side without safety valves, 760. No person can volunteer what the results might be if a leak in the system allows this gas to escape. It is explosive in mixture with air where any open light, flame or spark might be present. Of course, in all such cases you have got to have an open light, flame or spark to have an explosion.

Now, coming down to these hard ones, something we hardly ever hear about but some of which are products of petroleum also. They are used at low pressures but retain the same explosive hazards as petroleum gases and they are inflammable.

Ethyl chloride is made from grain alcohol. Ethyl chloride forms an explosive mixture with air, and is inflammable. Methyl chloride is made from wood alcohol. Dichloromethane, dichlorolethylene, trichloroethylene are compounds of petroleum and chlorine gas. The last two form explosive mixtures with air and the same hazards also exist.

Any information that I have given you as to the explosive character of the gases used in mechanical refrigeration plants comes from our depart-

ment chemist, who is a qualified authority on these things.

It may be that you would like to get some information from somebody in your home locality regarding compounds used in chemical refrigeration, or at any other time, and I say to you, always, go to a disinterested party, a man who is not apt to have any interest in the compound you are asking him about. If you don't get your information there, such information is always available to you at any time at the Bureau of Mines at Washington. They will gladly furnish you with the information and it is worthwhile information because it comes from disinterested sources.

I have in my pocket here a small book—a copy of the rules and regulations governing mechanical refrigeration in the city of New York, and I was going to suggest to your President—in order that each and every mem-

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ber of this organization could have a copy of it—that it be printed in the minutes of the proceedings of this convention. Then when you get your copy you can read the regulations governing mechanical refrigeration in the city of New York, and if any section or paragraph in it appeals to you, it is there for your use.

As I said before, all fire chiefs should dig down deep into this subject of mechanical refrigeration; and in an emergency we should make careful estimate of the conditions that exist. We won't be able to make this careful estimate if we don't dig down deep beforehand and get all the knowledge that we can regarding the subject. We never know what will happen. You know as well as I do that you can always reconstruct a building, that you can always install a new refrigerating plant, but don't forget that you can't bring back the life of any member of your department who may lose it in the discharge of his duties in these days of emergency.

I thank you, gentlemen.

CHIEF MURRAY: I would like to ask Chief Daugherty if it isn't a fact that at certain times it is almost impossible to get complete ventilation. For instance, when the humidity is at a certain point, particularly filled with ammonia below the street level. Isn't it a fact that a small amount of water neutralizes ammonia? Would you not recommend then a spray nozzle be used under the condition where access to the building is difficult?

ASST. CHIEF DAUGHERTY: Yes, if you hadn't anything else, if you didn't have a mixer or anything else. Ammonia has a great affinity to water, and it would be a good plan to follow. In fact, in a good many of the gases in New York our chemists and other people say it should be liberated to a tank of water on the roof. I would say that using a spray nozzle would absorb some of the gas, but whether it would reduce the concentration to any great extent or not, I don't know because I have never had occasion to do it. As I say, New York is lucky in the fact that this thing has been taken in hand in time and we have regulations governing it, and regulations should be had in every city, large or small, governing this refrigeration subject.

PRESIDENT SANBORN: Any further questions?

SECRETARY O'HEARN: If there are no further questions, I move you, sir, that Chief Daugherty's talk be spread upon our records and our Secretary be authorized to include within the records of this convention this code of ordinances relating to Refrigerating Systems in the city of New York.

(Motion seconded and carried.)

PRESIDENT SANBORN: The next in order of business this morning is the report of committees. Is the Committee on Courtesies ready to report?

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REPORT OF COMMITTEE ON COURTESIES (Read by Chief Fortin)

New Haven, Conn. June 27, 1929.

Mr. President and members of this Association, having been assigned to the task of fulfilling the requirements of this Committee, we wish to take this opportunity at this particular time to make the following report:

The Seventh Annual Convention of the New England Association of Fire Chiefs is about to come to a close, and we will all soon be heading towards our various ways home, after one of the best and most successful conventions ever held by this Association. Business of the most vital importance has been transacted. The speakers and their topics were very instructive and interesting, and we know without a doubt every one will benefit who has had the pleasure of hearing them. The exhibits were the best ever, and the committee headed by Chief John Pachl of the Annex Fire Department of New Haven, are to be congratulated on their efforts and deserve the thanks of every member of this Association.

To the general committee headed by His Honor Thomas A. Tully, Mayor of the City of New Haven, the members of the Fire Department of this fair city, the Manager and Assistant Manager of Hotel Taft, Mr. LaVin and Mr, Kavanaugh, the Managers of the Roger Sherman, Olympia, Fox-Poli, Bijou and Globe Theatres, the Officials of the Yale University for their courtesies, the management of the Elks and Dorcht Clubs for their kind invitation and treatment of our members and guests, to the ladies' committee for all they have done to make our Association feel at home, to the different representatives of the press including Mr. Wm. Tigue, Mr. Harry Belknap, Mr. Geo, Cobb our Traffic Manager, Messrs. P. H. Parker, Geo. Austin and Herbert K. Pratt, our registrars who gave up their time as usual without any remuneration to the registration of members and guests, to the citizens and business men of New Haven for their generous contributions, and to all others who assisted in any way to make this convention a success, we are indeed very grateful and the only way we can show our appreciation is by the usual way of saying, "Thank you."

We also extend our heartfelt appreciation and thanks to Chief Lawrence Reif and to the Officers and Members of the New Haven Police Department and also Superintendent of Public Parks, Mr. Amryn, for their efforts to make our stay a most pleasant one. HUDSON

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We also wish to thank Miss Voos for the very pleasant entertainment at the banquet, and also are very grateful for the booklet issued by the Southern New England Telephone Company.

This Committee feels that its duty would not be fulfilled if they did not include in this report the sincere appreciation and thanks to the citizens of New Haven for all they have done for us during our short stay in this most pleasant City.

Chief Chas. French, Manchester, N. H. Chief Wm. Noble, New Britain, Conn. Chief Chas. E. Fortin, Lewiston, Me. Committee on Courtesies.

PRESIDENT SANBORN: You have heard the report of the Committee on Courtesies.

It has been duly moved and seconded that the report be accepted as read.

(Motion carried.)

We will next hear the report of the Exhibit Committee.

SECRETARY O'HEARN: Mr. President, the Exhibit Committee sends in the following report: It is not complete as to the financial statement, but it gives a general idea of the business transacted. It says:

As Chairman of the Exhibit Committee it is my duty at this time to make a report on the work assigned to our Committee.

Through the courtesy of Gen. J. A. Haggerty we obtained the 102nd Regt. Armory and through the coutesy of Major P. B. Foster and Capt. Chas Lockhart we obtained the use of the Foot Guard Armory. The main Armory floor was used for the exhibition of rolling stock and the sides were divided up into booths exhibiting accessories. You are all familiar with the splendid exhibition and the only reason we go into detail here is to give you an idea of the keen interest the Manufacturers took in our Convention by exhibiting their products. Herewith is a list of the Exhibits and some interesting information relative to them. The writer wishes to state right here that due to the fact that he tried to take in some of the various things arranged in the program and at the same time tried to get this data, perhaps some Exhibitor will be left out. If so, this report will gladly stand for any corrections. Furthermore, no attempt has been made to place the list in any particular order. You are getting them just as I took the inventory.

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The amount represented in apparatus was practically of the value of \$150,000. The amount represented in accessories and auxiliary supplies was \$100,000., making a total value of the exhibit of practically \$250,000.

In closing we wish to thank the officers and members of the New England Association of Fire Chiefs for their fine co-operation. We also wish to thank all the members of the 102nd Regiment for having given up their drill nights to accommodate us. Likewise, we thank the State of Connecticut, through Gen. Haggerty, for the use of the Armory and the Gov. Foot Guard, through Major Foster, for the use of the Foot Guard Armory. We are indebted to Chief of Police Phillip Smith and Capt. George Spencer of the Police Department for their assistance, to Captain Lockhart, to the Engineering Dept. of the City of New Haven and to Chief Reif and the members of the New Haven Fire Department for their splendid assistance, and we also appreciate the kindly services of Master Mechanic Frank Blatchley. To Sergeants Brown and Black we are likewise indebted for their unfailing courtesies during our exhibit.

Since we are passing out these complimentary bouquets, it is not out of place at this time to go on record and express our gratitude to these exhibitors who have displayed here the most up-to-date and efficient line of fire fighting equipment that it has been our pleasure to inspect in all the years of our experience, and in saying this, I am sure that we reflect the opinion of every member of our Association.

In regard to the financial statement, it was impossible to get everything in detail because some of the expenses connected with it we would not get in for the Convention, but I assure you there will be a financial statement in detail printed in the Annual Report.

Exhibitor	Sq. Ft. _e	Amount
C. G. Braxmar Co.	້85	\$8.50
American Fire Equipment Co.	220	22.00
Samuel Eastman Co.	110	11.00
American LaFrance Co.	1940¼	194.03
Gamewell Fire Alarm Co.	231	23.10
H. K. Barnes Co.	275	27.50
C. S. Mersick & Co.	1371/2	13.75
Mine Safety Appliances	95	9.50
Fabric Fire Hose Co.	1151/2	11.55

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 Built for Green Village, N. J.
 Value 7650.
 Weight 9000 lbs.
- 3. Type 99
 500 gal. per min. (Rotary Gear)
 Sold to Stowe, Vt.
 Value \$5000.
 Weight 8400 lbs.

3 19

34

4. Type 14

Combination Service Truck
240 ft. ladders
Sold to Hannibal, Mo.
Value not given
Weight not given

American La France Sundries.

Foamite Foam Generator.
Foamite Foam Tank Equipment
Foamite Chemical Tank Equipment
Foamite Foam Extinguishers
LaFrance Shut Off Nozzle
LaFrance Carbon Dioxide Extinguishers
Fire Dept. Tools
Deluge Sets and Guns
Inhalators
LaFrance Electric Lantern

Valuation of Sundries Exhibit \$20,000 Salesmen attending 10

Ahren-Fox Corp. 3 pieces 1595 sq. ft. Floor Space

- 1. 800 Gal. per min. Rotary Value \$12,750 Weight 13000 lbs.
- 2. 1000 Gal. per min. Piston Pump Value \$13,500
- 3. Double Bank Hook and Ladder, 1000 ft. Hose 100 Gal. Booster Tank Value \$10,500 Weight (not given)
 No. Ft. Ladders 268 ft.
 Personnel 8 men

Seagrave Corp. 5 pieces Floor 1595 Sq. Ft.

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- 2. 500 Gal. per min. Stock Pump Value \$6,500. Weight 6600 lbs.
- 3. 600 Gal. per min. Wakefield, Mass. Value \$8,750 Weight 8600 lbs.
- Fire Patrol Sound Beach, Conn. Value \$5500.
 Weight 5500 lbs.
- City Service H. & L. East Portchester, Conn. Value \$6500
 Weight 7000 lbs. 2 19 ft. ladders Personnel 7 men.

Maxim Motors
Floor Space, 957 Sq. Ft.
1000 Gal. per min. Sold to Webster, Mass.
Value \$13,000
Weight 12,000 lbs.

500 gal. per min. Sold to Scituate, R. I. Value \$7,000 Weight 8750 lbs.

City Service H. & L. 70 gal. Booster 319 ft. Ladders Value \$10,000 Weight 12,000 lbs.

Personnel 5 Factory men and 3 Territory men.

Mack Motors
1000 Gal. per min. Sold to Portland, Me.
Value \$15,000 (with extras)
Weight 14,000 lbs.
Personnel 7 men

American Fire Equipment Co., Boston Turret pipes, Foam Generators, Sirens, Flashing Lights. Cellar Pipes, Fire Hose, etc. Value \$15,000 Personnel 3 men

Peter Pirsch 330 Sq. Ft. Floor Space 600 Gal. Per Min. Stock Car Value \$7,500 Sundries and Patented Ladders Personnel 2 men

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Mack Motor Truck Co. Seagrave Corp. Fire Engineering H. H. Blanchard Co. Eureka Fire Hose Co. American Fomon Co. Automatic Fire Locator Co. Canton Battery & Ignition Co. Wilbur Fire Extinguisher Co. J. A. Hooban Automatic Hose Coupler Boston Coupling Co. Smith-Gray Kilsoot Chemical Co. Frye-Freez Corp. American Electric Co. Ahrens-Fox Fire Engine Co. Peter Pirsch Fire Engine Co. Federal Electric Co. Knight-Thomas Winchester Rept. Arms Co. Cameron N. Y. Herald-Tribune Maxim Motors Co. Miscellaneous Receipts	637 1/2 1595 64 230 146 100 115 1/2 120 22 27 1/2 95 95 81 1/2 41 85 110 1595 330 190 95 95 55 20	63.75 195.50 6.40 23.00 14.60 10.00 11.55 12.00 2.20 2.75 9.50 9.50 8.15 4.10 8.50 11.00 159.50 33.00 19.00 9.50 9.50 9.50 2.00 95.70 4.10
33 Exhibitors	100111/4	\$1015.23
Expenses Mack & Noel, Printing United Illuminating Co., Lighting DeForest & Hotchkiss, Renting Lumber Joseph Ahern, Two Signs Sergeant Black, Extra Time Major P. B. Foster, Lights	\$30.00 42.20 33.82 37.50 25.00 30.00 \$198.52	
Refund Mine Safety Appliances Fire Engineering -Auto Hose Coupler	1.50 2.10 .50	
Respectfi	\$4.10	\$202.62 \$821.61

Respectfully submitted,

JOHN S. PACHL, Chairman, CHIEF MAHONEY, CHIEF DUNNIGAN.

Exhibit Committee.

I move you, sir, that the report of this Exhibit Committee be accepted and printed in our Annual Report.

(Motion seconded and carried.)

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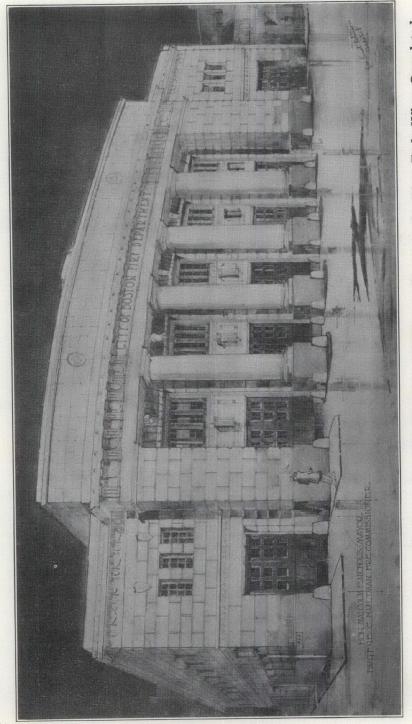
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The exterior of the building as shown is to be of limestone, steel and concrete with steel casement window sash.

In the basement will be located a bowling alley room with six alley, a pool and billiard room for the accommodation of four or more tables, a kitchen and dining room, a barber shop, a tailor shop, several rooms for stores and supplies, a smoke room, a hose rack room with sufficient racks to accommodate the hose companies quartered in the building. In the basement but entered from outside the basement will be the boiler room, coal pocket and ash hoist. There is provided four means of egress.

The first floor front 126 feet wide and 68 feet deep will be for the housing of the apparatus. This great area will be without posts or other obstructions. In the center front is located a stand with megaphone for announcing the location of fire alarms. In the rear of the apparatus room, with an entrance from Bulfinch street, at the right, is a lobby 12 feet by 25 feet off of which is a watch room overlooking the apparatus room, and a work space 11 feet 6 inches by 48 feet, with two work benches and a boot pool for washing dirty rubber boots. This work space has three large doors for the entrance of apparatus room and one large door to the drill court in the rear of the building. At the left of the lobby is a reception room, a waiting room and the stair hall to the second floor. In the rear of the apparatus room to the right is a vestibule, stair hall leading to second floor, a toilet room, soda and acid room, and a mop and broom closet. In the rear is the hose chute, hose and drill tower and a spacious drill court with entrance from Bulfinch and Bowdoin streets.

The second floor front to be occupied by six dormitories and a rescue company room, each being about 16 feet by 32 feet, and in the rear of these is a corridor the entire width of the building its width admitting on each side individual lockers and entrance to the dormitories and other rooms. There are corridors leading to what is called the officers' corridor. Between the main corridor and the officers corridor are eight cedar closets and eight drying rooms for wet clothing. In the rear of the second floor there are seven officers' rooms each 8 feet by 12 feet, 6 inches and a spacious officers' toilet. In the rear right hand side is a men's toilet 16 feet, 6 inches by 36 feet, 6 inches with five shower baths several lavatories, urinals and water closets. Next to the toilet is the stair hall. On the Bulfinch side are two deputy officers' rooms about 14 feet by 16 feet with a toilet between, and an officers report room 20 feet by 24 feet, 6 inches and a stair hall.

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SECRETARY O'HEARN: Mr. President, I have a telegram from Ottawa, Ontario, addressed to John W. O'Hearn, Secretary, New England Association of Fire Chiefs, Hotel Taft, New Haven, Conn.

"Regret unable to attend convention. Chief Burnett Ottawa joins me wishing good luck.

John Campbell, Chateau Laurier."

John Campbell is the man who gave us that pamphlet on explosive gases, etc.

PRESIDENT SANBORN: Is the Press Representative ready to make a report?

MR. BELKNAP: I have no report, except that I have had very good cooperation from the Associated Press.

SECRETARY O'HEARN: Mr. President, our Press Representative is more modest with us than he is with the papers, and they will be printed in our Annual Report.

REPORT OF HARRY BELKNAP, PRESS REPRESENTATIVE

Below will be found a detailed report of the activities of the Press Representative, together with a list of the newspapers to which material was sent.

Arrangements were made to have the busses of the Shore Line and also the trolley cars on this route carry stickers of the convention similar to those used on windshields of motor cars.

The speeches at the banquet were sent out over the radio and enjoyed by a large but invisible audience. Several persons spoke of listening in and said the reception was clear.

The convention was thoroughly covered by the New Haven newspapers and generous space was given throughout the state and New England by the Associated Press which sent out telegraph accounts furnished by the press representative.

Reports were also sent out by the United Press and international and Universal News Services.

Photographs were taken by The New Haven Register and by the New York Times. Reporters were present from the New York Herald, Boston Globe, New Haven Times-Union, New Haven Register, and New Haven Journal-Courier.

On the Sunday preceeding the opening of the convention a special story with photographs was published in the New Haven Register feature section.

The Southern New England Telephone Company had a special souvenir booklet printed giving the convention program and telephone toll information.

227



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The detailed report follows:

- Oct. 14, 1928—Visited Boston Globe, Traveler, and American to see about having photographer cover departure of chiefs for Philadelphia convention.
- Oct. 15—Left story on convention trip with Boston Herald, Post, Globe. Mailed story to Boston Transcript.
- Oct. 16—Arranged party group for camermen from Traveler and American at South Station. Gave list of those in party to American and Traveler.
- Oct. 16—Distributed copies of convention number of Fire Engineering on train.
- Oct. 17—Gave list of those in New England party to reporters from the Philadelphia Public Ledger and Philadelphia Bulletin, also to Fire Protection and Fire Engineering.
- Oct. 20—Took numerous photographs of party on fireboat trip at New York.
 - Oct. 25-Sent story and pictures of fireboat to "Fire Engineering."
- Dec. 20—Gave story of Directors' Meeting to Boston Post, Boston Globe, Boston Herald and to Associated Press.
- Dec. 21—Sent story of Directors' Meeting to "Fire Protection" and to "Fire Engineering."
 - Jan. 18, 1929—Sent notice of convention dates to "The American City."
- March 22—Sent story of Board of Directors' meeting to "Fire Engineering" and to "Fire Protection."
- April 19—Sent story of convention plans to "The Modern Fire Chief"; also sent photographs of President Sanborn, Secretary O'Hearn, Chief Shepard, Chief Reif, and Traffic Manager Cobb.
- May 1—Made out list of all newspapers, daily and weekly, in state of Connecticut. Mailed photograph of Hotel Taft, convention headquarters, to "The Modern Fire Chief."
- May 2—Sent photographs of President Sanborn, Chief Reif, and Mr. Cobb and convention story to "Fire Protection."
- Sent convention story and photograph of Hotel Taft to "Fire Engineering."
- Wrote history of the Department of Fire Service, New Haven, for Convention Number of "Fire Engineering."
- May 9—Sent photographs of Chief Pachl, Hotel Taft, and Armory to "Fire Engineering."

Sent photographs of Chief Pachl, Hotel Taft, and diagram of exhibits space to "Fire Protection."

Sent photographs of Assistant Chief Redmond and New Haven fire houses to "Fire Engineering."

June 12—Mailed photograph of armory and convention program to "Fire Engineering."

Mailed photograph of armory and convention program to "Fire Protection."

June 14—Mailed advance story on convention to all newspapers, both daily and weekly, in Connecticut and to principal newspapers throughout New England.

June 17—Visited offices of New Haven Journal—Courier, New Haven Register, and New Haven Times-Union and left stories and photographs.

June 25, 26, and 27—Arranged press table in convention hall. Wrote stories of each session for the Associated Press and assisted reporters for local newspapers in getting facts desired and obtaining group photographs. Provided banquet tickets for reporters covering convention.

June 28—Mailed story on demonstrations and officers elected to "Fire Protection."

June 29-Mailed complete convention story to "Fire Engineering."

July 12-Mailed copies of papers and convention story to "Safety Engineering."

THE DEMONSTRATIONS

The demonstrations took place on Wednesday afternoon, June 26, at Waterside Park. Busses were run to the scene from the hotel and armory.

Under direction of the American Fire Equipment Company, of Boston, tests were made of the Baker revolving turret pipe and of the Fomon fire department type foam generator.

The Baker pipe was used first with a $1\frac{1}{2}$ inch tip and then with a $1\frac{1}{3}$ inch tip. A very powerful stream of water was sent high in the air, the power being furnished by three $2\frac{1}{2}$ inch hose lines siamesed and leading from a 1000 gallon Seagrave motor pumper of the New Haven department of fire service. J. T. Corley, of the J. M. Baker Pattern Co., of Providence, R. I., assisted Hubert W. Tracy, of the American Fire Equipment, in these tests.

Under direction of George O. Robinson and Cyrus H. Robinson, of the Samuel Eastman Company, Concord, N. H., a demonstration was given of an Eastman deluge gun with a 2 inch nozzle.

The Akron Brass Company, through its New England representative, J. J. Barker and J. C. Schellin, of the Boston Coupling Company, exhibited the Grant multiversal turret pipe with a 2 inch tip.

For the Fomon test 100 gallons of gasoline, 50 gallons of kerosene, and 150 gallons of crankcase oil were poured into a pit of 23 ft. diameter and ignited. The fire was allowed to burn for 1 minute and 30 seconds and then the Fomon was applied and extinguished the blaze in 50 seconds from the time the signal was given.

David Leerburger and F. N. Armstrong had charge of the Fyre-Freez demonstrations and showed how easily these extinguishers will put out alcohol, oil, and gasoline fires.

Walter Kidde Co., Inc., represented by Howard Bard, showed the Lux fire extinguishers in use on gasoline and lacquer fires.

The Federal Electric Company had a large "Fedelcode" siren mounted on a truck and showed how powerful its blasts are as a fire call.

THE EXHIBITS

The exhibition of apparatus and accessories held in the Second Regiment Armory on Meadow Street, New Haven, in connection with the convention of the New England Association of Fire Chiefs was one of the largest and most complete ever assembled.

Chief John S. Pachl, chairman of the exhibit committee, who is head of the Annex Fire Department, New Haven, worked long and hard and his efforts were well rewarded by the generally expressed opinion that the exhibits were the best on record.

All space in the Armory was sold out several weeks before the date of the convention and in order to obtain additional floor area it was necessary to secure the wardroom of the Governor's Foot Guards where accessories were displayed.

The American-La France and Foamite Corporation showed a 1000 gallon motor pumping engine of the Metropolitan type which is to be delivered to Yonkers, N. Y.; a type 91, 500 gallon motor pumper for the Green Village Volunteer Fire Department, of Green Village, N. J.; a type 99, 500 gallon pumper for Stowe, Vt.; and a type 14 combination service hook and ladder truck for Hannibal, Mo. This firm also showed Foamite generators, Foamite tanks, Alfite extinguishers, Ross thawing devices, Baker wagon guns and cellar pipes, Davis inhalators, nozzles, and electric lanterns and hand lamps.

The Ahrens-Fox Engine Company displayed a 1000 gallon motor pumping engine of the piston type for the Fort Lee Fire Company, of Fort Lee, N. J.; and an 800 gallon rotary type pumper. There was also shown a city service ladder truck equipped with a booster pump. This piece of apparatus has been sold to Warren, R. I. The Ahrens-Fox Company was represented by Fred E. Benson, Harry Carlow, and E. G. Moulton.

The Mack Motor Truck Co. displayed a 1000 gallon triple combination motor pumper that is to be delivered to Portland, Me. Chief Sanborn took great pride in pointing out the fine points of this machine to his friends who congratulated him upon such a powerful addition to his department.

The Maxim Motor Company, of Middleboro, Mass., exhibited a triple combination motor pumper for North Scituate, Mass.; a motor pumper for Webster, Mass.; and a city service ladder truck. The Maxim firm was represented by Ernest Maxim, C. W. Maxim, Theodore Alger, Albert Carey, and Russell G. Brown, the Connecticut distributor.

The Seagrave Corporation, of Columbus, O., showed a 600 gallon triple combination motor pumper for Wakefield, Mass.; a Suburbanite ladder truck for Sound Beach, Conn.; a squad wagon for Sound Beach; a 500 gallon Suburbanite pumper; and a 750 gallon triple combination pumper. The Seagrave staff consisted of Frank E. Taft, of Boston; Howard Ensign, of New Haven; Lester Stevenson, sales manager; Harry Lovell, Philip Putney, and H. A. Scott.

Peter Pirsch & Sons Company, of Kenosha, Wis., making an initial appearance at a New England convention, showed a 600 gallon triple combination pumper, and a line of supplies including lapless ladders, folding ladders, nozzles, sirens, chemical tanks, and extinguishers. The representatives were H. F. Oldack and E. A. Oldack.

The American Fire Equipment Company, of Boston, showed the Baker revolving turret pipe, Fomon foam generator, Baker cellar pipe, Davis inhalator, Whiting signal flasher, B and M siren, Siro drift siren, and fire department supplies. Hubert W. Tracy and John J. Scully were in charge.

A. H. Blanchard Company, of 25 Hampshire St., Cambridge, Mass., showed the Blanchard adjustable nozzle tip, Niagara portable pump for forest fire service, LeBaron compressed air whistle, National foam system projector, Plummer's adjustable tourniquet, Blanchard angle nozzles, flexicot stretcher pump tanks, and the fire hose manufactured by the Boston Woven Hose and Rubber Company.

The Samuel Eastman Company, of Concord, N. H., exhibited wagon guns, deluge guns, Perfection holders, play pipes, siamese connections, couplings, and nozzles. George O. Robinson and C. H. Robinson were in charge.

The Fabric Fire Hose Company showed wax and para gum treated fire hose including 500 feet of hose for the Thomaston fire department, 1000 feet for East Haven, 500 feet for West Haven, 500 feet for Watertown, and 300 feet for North Haven. Robert Many, New England manager, was in charge, assisted by William H. Lewis, W. F. Abbott, and R. M. Wood.

The Gamewell Company, of Newton Upper Falls, Mass., displayed a Peerless transmitter for telephone alarms, a two circuit main line register for use in engine houses for receiving primary and secondary alarms; a 1929 model Peerless firm alarm box, Codewell siren, transmitter box, Gamewell school house Dualarm system, connections for sprinkler alarm system, and fire alarm gongs. The Gamewell representatives were Frank M. Tiffany, Leonard Dawson, J. J. Ryan, Bert Toone, W. J. Carroll, and Charles "Sandy" Chapman.

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Chief OLIVER T. SANBORN, Past President, Portland, Maine

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BROCKTON MASS.

Wilbur Extinguishers, Inc., of New York, and Waterbury, Conn., exhibited the two quart size Wilbur extinguishers. A new thermostatic device for detecting fires and automatically giving the alarm by ringing a bell was shown by the Automatic Fire Locater Corporation, of New Haven, represented by Frank J. Sherer, vice-president, and by J. T. Delaney, the inventor.

The Canton Battery and Ignition Co., of Canton, Mass., showed the King-Lite, a safety flashing signal for fire apparatus and officers' cars. Chief C. K. Endicott, of Canton, and G. H. Eaton were in charge.

The Eureka Fire Hose Manufacturing Company showed the well known Paragon three play fire hose. Samples were displayed of Paragon, Trojan, Blue Diamond, Uncle Sam, Barclay, and Ranier hose. W. A. Barry, John T. Dwyer, and Mr. Cowles were in charge of the exhibit.

The Fyre-Freez Corporation, a division of the Liquid Carbonic Corporation of New York, showed carbon dioxide fire protection systems.

The American Electric Company, of Boston, exhibited a fire detecting system for home installation.

The C. G. Braxmar Company displayed a complete line of badges and coat insignia.

Fire department supplies were shown by the Henry K. Barnes Company, of Boston, Mass.

Gold Seal firemen's boots were shown by the Goodyear Rubber Company.

Fire extinguishers were shown by C. S. Mersick and Co., of New Haven.

James A. Hoben showed spanners and the P. W. Cameron Co., of West Haven, showed the Cameron Sparkless Incinerators.

The Smith-Gray Company showed firemen's and officers' uniforms.

"Fire Engineering" distributed copies of the magazine that is read by all the fire chiefs.

The Federal Electric Company showed the Fedel coding siren.

The Winchester Repeating Arms Company, of New Haven, exhibited helmet lights for firemen, also knives, axes, and flash-lights.

The Automatic Hose Coupling Company, of Leominster, Mass., showed the Reed Automatic Coupling, being represented by F. H. Viele, George E. Tylee, Freeman A. Shippee, and Thomas F. Williams.

The Mine Safety Appliance Co. showed the Burrell all service gas masks, H and H inhalator, McCaa oxygen breathing apparatus, and the

M.S.A. waterproof first aid kit. Alfred Kinsella and Harold J. Seagrave had charge.

The Akron Brass Company, through its New England representative, the Boston Coupling Company, showed nozzles and fire equipment.

Walter Kidde & Company, Inc., of New York, showed the Lux fire extinguishers and Knight and Thomas, Inc., of Boston, showed the Underwriters' fire extinguishers, Frothex, and Protex extinguishers, the latter being the anti-freeze type for general protection where temperatures as low as 40 degrees below zero may be encountered.

There was a good attendance at the exhibits and much interest was shown. The armory was crowded at times and many sales were reported. The hall was tastefully decorated with streamers and banners and the signs were neat and effective.

HARRY BELKNAP, Press Representative.

PRESIDENT SANBORN: Is there any unfinished business to come before this convention? The next in order is the designating of the place of holding our next Convention.

CHIEF ALLEN: Mr. President, in view of the fact that there is no definite invitation before this organization, I move that the question of location and time of the next meeting of this organization be left to the incoming President and the Board of Directors, and that they have full authority.

(Motion seconded and carried.)

PRESIDENT SANBORN: The next in order of business is the election of officers. First is the office of President. Nominations are open for President.

CHIEF PACHL: Mr. President, I am going to nominate a man who needs no introduction. I therefore place the name of Chief Reif as President.

CHIEF KENNEDY: I second the nomination.

PRESIDENT SANBORN: It is moved and seconded that the Secretary be instructed to cast one ballot for Chief Reif as President for the ensuing year.

(Motion carried.)

The Secretary has fulfilled his duty, and you have elected Lawrence E. Reif as your President for the ensuing year. (Applause.)

PRESIDENT REIF: Gentlemen, I wish to thank you for this high honor you have bestowed on me. I haven't a megaphone this morning, so I can't make much noise. It will be my effort during the year to maintain the high honor as done by the preceding Presidents and I know I will have the hearty cooperation of the other officers, and by that inspiration I know I will succeed.

I will ask Past President Sanborn to step over here. In behalf of your efforts for the Association and for what you have accomplished during the past year, it is my pleasure and privilege to pin on this Past President's badge.

PAST PRESIDENT SANBORN: Chief Reif, Members of the Association, it has indeed been a pleasure for me to have been able to serve you during the past year. I am very grateful for the support given me by every member of this organization, and I assure you I will always cherish this badge which you have given to me this morning.

PRESIDENT REIF: Gentlemen, the next business in order will be the election of First Vice-President. Nominations are now in order.

MEMBER: Mr. President, I place the name of Seldon R. Allen of Brookline.

MEMBER: I second the nomination.

PRESIDENT REIF: It has been moved and seconded that the nominations for First Vice-President be closed.

(Motion carried.)

It has been moved and seconded that the Secretary cast one unanimous ballot for Selden R. Allen as First Vice-President for the ensuing year.

(Motion carried.)

The Secretary has performed that duty, and it is my privilege to announce that you elected Selden R. Allen of Brookline, Mass., as First Vice-President for the ensuing year.

FIRST VICE-PRESIDENT ALLEN: Mr. President, Friends, above any honor which might accrue to me from this office I value the friendship of the members of this organization, and I want to serve notice at this time that before the expiration of my period I will reply to Chief Sennott's speech last night.

PRESIDENT REIF: Nominations are open for Second Vice-President.

CHIEF PIERCE, Arlington: Mr. President, I wish to place the nomination of a chief who is no stranger to this body of men, and I am not going to waste any words or time. I now present the name of Chief A. J. Cote of Woonsocket, R. I., for Second Vice-President.

CHIEF COTE: I decline the nomination.

PRESIDENT REIF: Is that satisfactory to the brother, or do you wish it to be put to a vote?

CHIEF PIERCE: I wish it to be put to a vote.

PRESIDENT REIF: It is moved and seconded that the Secretary cast one ballot for Chief Cote as Second Vice-President.

(Motion carried.)

The Secretary has performed his duty, and you have elected Chief A. J. Cote as Second Vice-President for the ensuing year.

SECOND VICE-PRESIDENT COTE: Mr. President and Brother Chiefs, I am very much surprised this morning because this is the first I have heard of it that I was going to be presented for second Vice-President. I don't know, I don't feel like accepting the nomination, but I will try to do my best and help all I can as I have always done.

PRESIDENT REIF: The next business before the Convention is the nomination of Secretary-Treasurer for the ensuing year. At the present time we are served by Brother John W. O'Hearn of Watertown.

MEMBER: Mr. President, I nominate the present incumbent.

MEMBER: Mr. President, I make the motion that you cast one ballot for the present incumbent, John W. O'Hearn, for Secretary.

(Motion seconded and carried.)

PRESIDENT REIF: I have performed my duty and you have elected John W. O'Hearn as your Secretary-Treasurer for the ensuing year.

SECRETARY O'HEARN: Mr. President and Members, I want to thank you for again electing me your Secretary, and I trust that the coming year will be as successful as the past and it is only going to be made successful by your cooperation. That is the only way we can get along successfully. I will continue to do what I can to assist the officers and the entire organization, and trust that everybody will give me their assistance. And this is particularly in reference to dues. I take pride in the way dues are paid. Once in a while they drift away in two or three years, but they are usually out of the department and have lost interest. But there are chiefs who have not lost interest, and they are here. Again I thank you for again electing me to the office of Secretary.

PRESIDENT REIF: The next business before the Convention is the election of State Vice-President for Maine. Chief Fortin is now the present incumbent.

MEMBER: I nominate Chief Fortin for State Vice-President of Maine. (Nomination carried.)

PRESIDENT REIF: The next is from New Hampshire, Chief Arthur W. Spring. Nominations are in order for New Hampshire.

MEMBER: I would so move that Arthur W. Spring be nominated.

(Nomination carried.)

PRESIDENT REIF: Now you have Burlington, Vermont, Carl D. Stockwell. Nominations are in order for Vermont.

MEMBER: I nominate Carl D. Stockwell.

(Nomination carried.)

PRESIDENT REIF: Now you have John B. Savage of Valley Falls, Rhode Island. Nominations are in order for Rhode Island.

MEMBER: I move that Chief Savage be nominated for Vice-President for Rhode Island.

(Nomination carried.)

PRESIDENT REIF: Now we have Connecticut. At present we have Chief Victor H. Veit of Stamford.

MEMBER: I move you, sir, that the name of Victor H. Veit be placed before the Convention in nomination as State Vice-President for Connecticut.

(Nomination carried.)

SECRETARY O'HEARN: I don't now why you should forget Massachusetts.

PRESIDENT REIF: We are going up there so we do not need it. Chief Daniel B. Tierney of Arlington is the present one.

CHIEF TIERNEY: Mr. President, I place in nomination the name of Charles McCarthy of Worcester.

(Nomination carried.)

SECRETARY O'HEARN: Mr. President, unless there is some objection, I move that the following be our officers for the ensuing year: Sergeant-At-Arms, Henry E. Thompson; Traffic Manager, George F. Cobb; Press Representative, Harry Belknap; Registrars, P. Hildreth Parker, George W. Austin and Herbert K. Pratt. I nominate them to fill these offices.

PRESIDENT REIF: Any objections to these nominations? Then I declare them elected.

CHIEF HARFORD: Mr. Chairman, I move that the Secretary be instructed to cast one vote for the Vice-Presidents.

SECRETARY O'HEARN: One of the members retires each year and that vacancy is filled by the incoming President.

CHIEF HARFORD: The State Vice-Presidents is what I had reference to.

PRESIDENT REIF: They were nominated and elected.

CHIEF HARFORD: By approbation?

(Motion seconded and carried, and the State Vice-Presidents were declared elected.)

SECRETARY O'HEARN: Another matter of importance which mustn't be overlooked and must be voted at each annual convention is the salary of the Secretary-Treasurer.

MEMBER: How much is he getting now?

SECRETARY O'HEARN: The Convention voted last year to pay eight hundred dollars, and I said that at the end of the year the eight hundred dollars would probably be there. I don't take any salary until after the Convention is cleaned up. You remember at Bridgeport we hadn't any money, and you said to give the fellow one hundred dollars for the first year. I said, "All right, if after the expenses are cleaned up there is one hundred dollars there, I will take it." I make it a practice after the business is cleaned up to take my salary. Somebody voted eight hundred dollars last year, but I didn't take it. You can vote whatever you want, and I will use my own judgment about the money. (Applause.)

CHIEF KENNEDY: As I made the motion last year to increase the salary of the Secretary-Treasurer, I will make the same motion again this year that his salary be eight hundred dollars.

CHIEF ALLEN: I take great pleasure, knowing the amount of work the Secretary has to do, in seconding that motion.

(Motion carried.)

PRESIDENT REIF: Has any brother anything to bring before the Association before we close?

CHIEF ALLEN: May I call attention to the fact that the Registration Committee hasn't reported yet.

MR. P. HILDRETH PARKER: Mr. President, Officers, Members of the Association, in behalf of the Registrars it gives me pleasure to submit the following report for the Seventh Annual Convention.

The total amount received for membership dues during this Convention was \$756.00, from new members \$108.00, making a total of \$864.00.

We also received \$7.00 for the sale of the New England Association buttons, making a total of \$871.00 received since Monday.

You may be interested to know how this compares with previous years. We received five years ago at Pittsfield \$492.00, at Manchester \$570.00, at Portland \$864.00, at Burlington \$835.00, and at New Haven \$871.00. We have received more money at this Convention than at any previous one.

For attendance, we have had present during the Convention 197 active members, that is, chiefs of departments; 103 associate members; 194 gentlemen guests; 141 lady guests; a grand total of 635. Comparing those figures with previous years, we find that at Boston in 1924 we had 426, at Pittsfield in 1925 we had 459, at Manchester in 1926 we had 634, which has been our peak; Portland in 1927 ran them a good second with 632. Burlington in 1928, although we were up in the northern part of our district, gave us 621, but New Haven has beat them all by one, 635.

That is the report, Mr. President of the attendance and receipts, submitted by P. Hildreth Parker, George W. Austin and Herbert K. Pratt, Registrars.

PRESIDENT REIF: Gentlemen, what is your pleasure to do with the report of the Registrars?

CHIEF KENNEDY: I move that the report be accepted and printed in the minutes, and that the Registrars be given a rising vote of thanks in token of our gratitude for their work.

(Motion seconded and carried.)

(Rising vote of thanks given.)

PRESIDENT REIF: I would like to say to the members in behalf of New Haven that we might have beaten you a little more but we had a special badge for the general committee and our commissioners did not register as guests, they registered as the committee and were not in this registration.

MAJOR HOWLAND: May I just take a minute. I want to express my congratulations to the board of outgoing officers and the newly elected officers and wish the New England Association of Fire Chiefs God-speed, because I can't remain any longer.

CHIEF HARFORD: If congratulations to this Convention are in order, I as Secretary wish to extend the greetings to the Association from the Connecticut State Firemen's Association.

PRESIDEN REIF: If there is no further business, this meeting stands adjourned until the Eighth Annual Convention.

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Hartford Times

Hartford, Conn.



Chief CHARLES E. FORTIN, State Vice-President, Lewiston, Me.

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MEMBERSHIP OF THE

NEW ENGLAND ASSOCIATION OF FIRE CHIEFS

TOTAL MEMBERS 646

Maine	. 52
New Hamphire	. 44
Vermont	. 31
Massachusetts	.340
Rhode Island	. 41
Connecticut	.110
California	. 1
Washington	. 1
Delaware	. 1
Louisiana	. 1
New York	. 19
Ohio	
Pennsylvania	. 1

Allen, Herbert M., Ex-Chief, 673 Prospect Avenue, Rumford, Maine.

Berry, W. W., Ex-Chief, 103 Main Street, Waterville, Maine.

Blethen, Chester H., Ex-Chief, 19 Goff Street, Auburn, Maine.

Bowker, Charles W., Chief, South Paris, Maine.

Bradish, F. L., Chief, Eastport, Maine.

Buckley, John A., Ex-Chief, Augusta, Maine. Cantara, Frank, Ex-Chief, Biddeford, Maine.

Cargion, V. E., Chief, Auburn, Maine.

Chadbourne, Charles C., Chief, Sanford, Maine.

Coleman, George H., Chief, Fryeburg, Maine.

Cooke, Harry E., 38 Willow Street, Bath, Maine.

Cumming, G. R., Chief, 63 Franklin St., Houlton, Maine. Currier, John H., Chief, South Windham, Maine. Densmore, George M., Chief, Hallowell, Maine.

Doyle, Irving T., Chief, 165 No. Main Street, Brewer, Maine.

Edwards, William B., Chief, P. O. Box 452, Brunswick, Maine.

Elliot, Daniel S., Fire Protection Work, 536A Congress Street, Portland, Maine.

Fortin, Charles E., Chief, Lewiston, Maine.

Freeman, H. D., Asst.-Chief, So. Windham, Maine.

Frost, Giles F., Chief, Norway, Maine.

Griffin, Charles, Chief, Skowhegan, Maine.

Hamor, Roy, Chief, Bar Harbor, Maine.

Hayes, Timothy A., Central Fire Station, Biddeford, Maine.

Hill, Charles E., Chief, Cape Elizabeth, Maine.

Hinkley, J. A., Asst.-Chief, Richmond, Maine.

Hogan, Walter E., Chief, Orono, Maine.

Hurd, G. Walter, Chief, Oldtown, Maine.

Hutchinson, Edw. J., Ch-Eng., Booth Bay Harbor, Maine. Kerrigan, T. Martin, Fire Comm., Lewiston, Maine.

Lewis, W. B., Chief, Wiscassett, Maine.

Libby, Oscar C., Chief, Westbrook, Maine.

Liscomb, John I., 1 Woodbury Street, So. Portland, Maine.

Lovejoy, Grover D., Chief, Waterville, Maine.

MacQueid, W. H. V., Chief, Wilton, Maine.

Mason, W S., Chief, Bangor, Maine.

McCarty, George S., Ex- Fire Comm., Lewiston, Maine.

McCurdy, George R., Chief, Augusta, Maine.

McKay, H. L., Chief, Presque Isle, Maine.

Mercier, Solomon A., Chief, Central Fire Station, Rumford, Maine. Milliken, Elbridge H., Box 52 Asso., 27 Elm Street, Saco, Maine.

Murphy, James J., 94 Harriet Street, Brighton, Mass.

Newick, Albert E., Chief, York Harbor, Maine.

Parent, Al., Wade & Dunton Motors Inc., Lewiston, Maine.

Pate, Edmund, 2nd Asst. Chief, Biddeford, Maine.

Pendleton, John L., Chief, Saco, Maine.

Pratt, Earl E., Dep.-Chief, Auburn, Maine.

Ramsdell, Edgar E., Ex. Asst. Eng., 569 Main St., Lewiston, Maine.

Randlette, J. W., Chief, Richmond, Maine.

Ricker, Eugene T., Chief, Biddeford, Maine .

Sanborn, Oliver T., Chief, Portland, Maine.

Small, Roy K., Ex-Chief, Augusta, Maine.

Stewart, Elmer E., Chief, North Berwick, Maine.

Turner, Harry M., Chief., Springvale, Maine.

Winship, Daniel R., Central Fire Station, Biddeford, Maine.

NEW HAMPSHIRE

Adams, George F., Chief, 34 Auburn Street, Exeter, N. H.

Austin, C. H., Fire Comm., Nashua, N. H.

Beudle, Nelson J., 1st. Asst.-Chief, Colebrook, N. H.

Colby, Harry E., Chief, Franklin, N. H.

Connell, Harry J., Chief, Hudson, N. H.

Crowley, Roger, Chief, Manchester Tannery, Manchester, N. H.

Crowell, Wendell D., Ass't.-Chief, Hancock, N. H.

Dauphney, Charles A., Chief, Gorham, N. H.

Dolley, Herbert A., Chief, Tilton, N. H.

Driscoll, Timothy E., Chief, P. O. Box 33, Peterborough, N. H.

Emerson, Harry D., Dep.-Chief, Hudson, N. H.

Estabrook, A. Ralph, Chief, Newton, N. H.

French, Charles H., Chief, Manchester, N. H.

Goodrich, Ralph S., Chief, Epping, N. H. Green, William C., Chief, Concord, N. H.

Hathorn, R. C., Chief, West Lebanon, N. H.

Henderson, Josiah N., Chief, Merrimack, N. H.

Hilchey, Harry D., Chief, R. F. D. #7 Manchester, N. H.

Hildreth, Albert F., Chief, Hollis, N. H. Hough, Willis F., Chief, Lebanon, N. H.

Jones, Eleazer L., Ex-Chief, 295 Central Ave., Dover, N. H.

Lewin, Charles H., Chief, 3 Pleasant St., Hanover, N. H.

Lewis, George E., Chief, Newport, N. H.

Lewis, Percy R., Chief., Ashland, N. H. Lintott, H. C., Fire-Comm., Nashua, N. H.

Nash, Carroll M., Chief, Dover, N. H.

Newman, William E., Ex-Chief, Hillsboro, N. H.

Pattee, P. W., Chief, Goffstown, N. H.

Post, A. H., Chief, Spoffard, N. H.

Reynolds, Charles W., Dept.-Chief, Hudson, N. H.

Riley, E. B., Chief, Keene, N. H.

Robinson, George E., Samuel Eastman Co., Concord, N. H.

Robinson, George O., Samuel Eastman Co., Concord, N. H.

Rumrill, Eugene C., Chief, Hillsboro, N. H.
Sargent, Fred M., Chief, Sunapee, N. H.
Sears, C. E., Ch-Chief, Claremont, N. H.
Smith, James E., Chief, Nashua, N. H.
Spring, Arthur W., Chief, Laconia, N. H.
Stevens, George B. Chief, Kingston, N. H.
Thomas, Patrick J., Chief, 263 Main Street, Berlin, N. H.
Whiting, Homer B., Chief, Hampton Beach, N. H.
Wiswell, A. J., Chief, Colebrook, N. H.
Woods, William F., Chief, Portsmouth, N. H.
Young, Fred S., Chief, Littleton, N. H.

VERMONT

Baraw, Perle F., Chief, P. O. Box 446, Lyndonville, Vt. Burt, Earl C., Chief, Enosburg Falls, Vt. Carthy, Wm. E., Ass't-Chief, Burlington, Vt. Cassidy, Earl, 1st. Ass't Chief, Enosburg Falls, Vt. Cowels, H. R., Lyndonville, Vt. Dix, Ernest A., 4 Marlboro Street, Brattleboro, Vt. Dutton, J. M., Ass't-Chief, White River Jct., Vt. Dwinell, James E., Chief, Wells River, Vt. Ferguson, F. Howard, 234 Grove St., Bennington, Vt. Gunther, Paul, Chief, Winooski, Vt. Harrington, T. C., Chief, Barton, Vt. Heney, John C., Chief, Barre, Vt. Humphrey, E. F., Chief, Newport, Vt. Hurlbut, Chas. H., Chief, Richford, Vt. Hutchinson, Fred A., Chief, White River Jct., Vt. Kerry, Thomas D., Chief, St. Albans, Vt. Koltonski, Alfred H., Chief, Rutland, Vt. Martin, H. M., Ex-Chief, Enosburg, Vt. McGill, John C., Chief, St. Johnsbury, Vt. Moore Edwin D., 700 Gage Street, Bennington, Vt. Morton, Edward A., Pres. V. S. F. A., St. Albans, Vt. Persons, Vaney P., Chief, Montpelier, Vt. Pike, Edward S., Chief, Middlebury College, Middlebury, Vt. Preble, A. G., Fire-Marshall, State House, Montpelier, Vt. Putnam, William W., Chief, Essex Jct., Vt. Rubles, R. J., Ex-Chief, Enosburg Falls, Vt. Shepard, Harley, Chief, Bethel, Vt. Stockwell, Carl, Chief, Burlington, Vt. Stone, Leo H., Capt., Fire Dept. Hdqrs., Rutland, Vt. Way, R. E., Chief, Manchester, Vermont. Whalen, Richard T., 78 Front Street, Burlington, Vt.

MASSACHUSETTS

Abel, Henry F., Chief, Westwood, Mass.
Abbott William F., 1018 Comm. Ave., Boston, Mass.
Adams, Delmont C., Chief, Millis, Mass.
Adams, John T., Ex-Chief, Marblehead, Mass.
Airola, John B., Sup't of Wires. Revere, Mass.
Alger, Fred B., Maxim Motor Co., Middleboro, Mass.
Allen, Franklin B., Chief, Marion, Mass.
Allen, Ralph O., Chief, West Brookfield, Mass.

Allen, Selden R., Chief, Brookline, Mass.

Ambrose, George C., 100 Arlington St., Boston, Mass.

Andrews, H. E., Shrewsbury, Mass.

Atkins, W. H. H., Chief, P. O. Box 243 Marblehead, Mass.

Austin, George W., Box 52 Asso., 170 Summer St., Boston, Mass. Avery, Geo. L., 1265 Boylston St., Boston Mass.

Bacon, J. R., 204 Washington S., Weymouth, Mass.

Ball, Chas. H., Greenfield, Mass.

Barker, John J., 297 Congress St., Boston, Mass.

Bartlett, Ernest N., Chief, Billerica, Mass.

Barton, R. W., Chief, Foxboro, Mass.

Belcher, E. Foster, Winthrop, Mass.

Belcher, Warren H., Chief, Winthrop, Mass.

Belknap, Harry, Box 52 Assoc., 1185 Boylston St., Boston, Mass.

Belmore, Arthur, Chief, Webster, Mass.

Berggren, Karl R., Asst.-Eng., Oxford, Mass.

Berry, W. A., Ex-Chief, School Street, Danvers, Mass.

Bills, Louis W., Supt. F. A., Lexington, Mass.

Blackett, Alexander H., 962 Park Square Bldg., Boston, Mass.

Blair, William J., Ass't-Chief, Nantucket, Mass.

Blaisdell, Harry E., Chief, Rowley, Mass.

Blake, Frederick, Bx. 52 Assoc., 30 Huntington Ave., Boston, Mass.

Blanchard Arthur H., 25 Hampshire St., Cambridge, Mass.

Blossom, Fred C., Ex-Chief, Cohasset, Mass.

Bond, Everett O., Chief, Hyannis, Mass.

Bousquet, Peter D., Chief, East Brookfield, Mass.

Bowen, George H., Sect. Eastern Asso., 141 Milk Street, Boston, Mass.

Box 52 Association, Room 230, 30 Huntington Ave., Boston, Mass.

Breagy, Richard T., Chief, Dover, Mass.

Breslin, Charles J., Bx. 52 Asso., 45 Shattuck Road, Watertown, Mass.

Breslin, Jas. E. Jr., Bx. 52 Asso., 45 Shattuck Road, Watertown, Mass.

Breck, Patrick J., Chief, Woodland Rd., Southboro, Mass.

Brown, Albert T., Chief, Hingham, Mass. Brown, Henry A., Chief, Marlboro, Mass.

Buchanan, L. B., Ex-Chief, 10 Bennett Street, Woburn, Mass.

Bugbee, Percy, 40 Central Street, Boston, Mass.

Caldwell, John S., 18 Oliver Street, Boston, Mass.

Campbell, John, Supt. 100 Boylston St., Boston, Mass.

Carberry, William F., 68 Carberry Road, East Walpole, Mass.

Carlow, Harry, 60 Church Green, Taunton, Mass.

Carolan, Lawrence, 241 Webster Ave., Chelsa, Mass.

Carr, Peter E., Fire-Comm., Lawrence, Mass.

Carroll, William J., 1022, Commonwealth Ave., Boston, Mass.

Casey, James M., Chief, Cambridge, Mass.

Charnock, P. C., 18 Oliver Street, Boston, Mass.

Chase, Edward E., Chief, Lynn, Mass.

Clair, Alfred W., 30 Huntington Ave., Boston, Mass.

Clark, Fred A., Chief, Attleboro, Mass.

Cobb, George F., Box 52 Asso., 774 Albany Street, Boston, Mass.

Codman, Russell Jr., 50 Congress St., Boston, Mass.

Coffin, J. A., 1265 Boylston Street, Boston, Mass.

Collins, Waldo A., Chief, Holliston, Mass.

Comins, Charles E., Chief, P. O. Box 591 Warren, Mass.

Cook, Frank L., Ex-Chief, Rowley, Mass.

Corcoran, Edward T., Oxford, Mass.

Cowles, A. Lee, 1033 Old South Building, Boston, Mass.

Coyle Jr., Philip Edward, 138 Mountford St., Brookline, Mass.

Cram, William Bartlett, 273 Pleasant St., Arlington, Mass.

Creeden, C. Frank, Chief, Newburyport, Mass.

Crossett, Willard E., Chief General Electric Co., Pittsfield, Mass.

Crowe, John P., Ex-Chief, Westboro, Mass.

Cuneo, M. J., Captain, Woburn, Mass.

Curtaz, Charles J., Box 52 Asso., 10 Linnet Street, West Roxbury, Mass. Daggett, W. H., Chief, Springfield, Mass.

Dahill, E. F., Chief, New Bedford, Mass.

Damon, J. F., Ex-Chief, Milford, Mass.

Danahy, Timothy, Chief, Hopkinton, Mass.

Daniels, Albert W., Box 52 Asso., 127 Harvard Ave., Allston, Mass. Daub, H. H., Chief, Bryantville, Mass.

Dawson, L., 1022 Commonwealth Ave., Boston, Mass.

Day, Edwin L., Chief, Wilmington, Mass.

Day, Hardee G. V., 47 Florence St., Malden, Mass.

Day, John H., Captain, 47 Ocean St., Lynn, Mass.

DeCourcey, D. A., Chief, Winchester, Mass.

Deibel. Andrew F., 1022A Comm. Ave., Boston, Mass.

Dickinson, Frank F., Chief, Brockton, Mass.

Dobbratz, Fred L., Lieut., Pittsburg St., Boston, Mass.

Dolan, Joseph A., Dept.-Chief, 16 Tyndale St., Roslindale, Mass.

Dolan, William E., Box 52 Association, Boston Herald, Boston, Mass.

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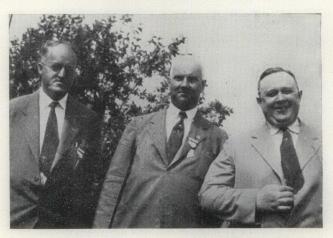
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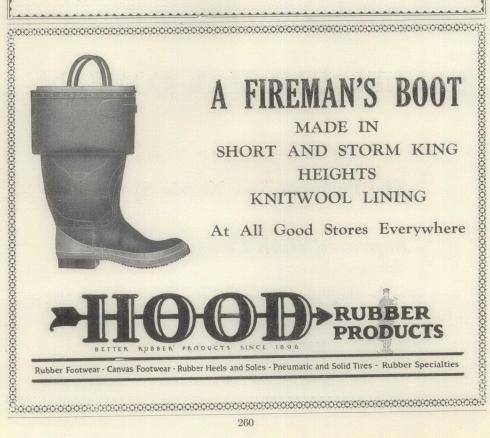
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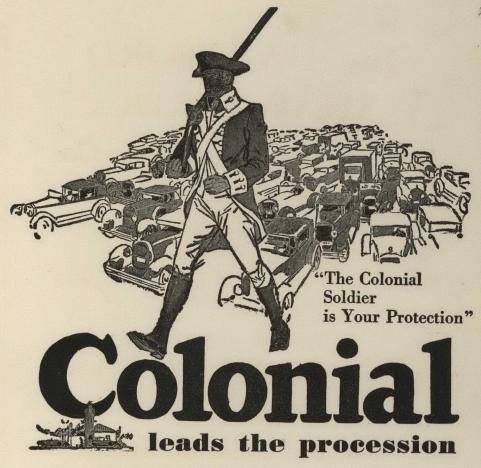
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