

TWENTIETH ANNUAL REPORT



1942



# MAXIM MOTOR COMPANY

MIDDLEBORO, MASS.



We, too, are observing the 20th Anniversary of the  
New England Association of Fire Chiefs by inserting  
our 20th Annual advertisement

**1922 - 1942**

Our entire effort and output this year is our contribution to the Government for the successful termination of the war!

---

**BUY DEFENSE BONDS AND STAMPS!**

---

ERNEST W. MAXIM, Pres.





# Will **MASTER LIGHTS** *Protect You Tonight?*

The fire you may have to fight tonight will probably be covered by insurance. How about you? Will you have insurance — MASTER-LIGHT insurance — the kind that **prevents** accidents to you?

## MORE SAFETY GOING TO THE FIRE

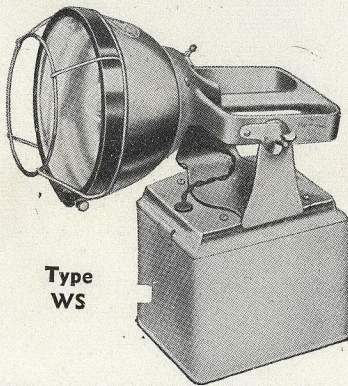


WIG-WAG REDHEAD

At the left is the New 05 MASTER LIGHT Wig-Wag Redhead. When you're speeding to that fire tonight, your safety **demands** that you have this powerful warning signal on your car. For 500 feet ahead of you, the Wig-Wag sweeps a red beam back and forth across the street. Every driver in your vicinity knows you're coming — for the distinctive red beam shows where you are! You'll get to night fires quicker, more safely, **more quietly**, when your Wig-Wag Redhead clears your way!

## MORE SAFETY AT THE FIRE

You must have a portable searchlight you can trust — a light that smoke or steam won't baffle — a light that lets you SEE! MASTER-LIGHT WS, pictured here, gives you the high-powered, penetrating, convenient light you need for safety. Your WS shoots an intense beam of 250,000 candle power, with a range of one mile. Perfect balance — you point it in any direction with just a flick of your wrist. Best of all, your WS weighs only 12 pounds complete — you can carry it anywhere **easily** and **swiftly**! Your WS helps you find the fire while it is still small and easily controlled.



Type  
WS

## WRITE NOW FOR FREE FOLDER

THE POWERFUL LIGHTS YOU NEED FOR SAFETY—CHIEF, THAT'S WHAT WE MEAN BY "MASTER-LIGHT INSURANCE!" MASTER-LIGHTS WILL GIVE YOU EXTRA PROTECTION FOR MANY YEARS TO COME. LET US TELL YOU MORE ABOUT THEM. WRITE NOW FOR OUR ILLUSTRATED MASTER-LIGHT FOLDER FOR FIRE CHIEFS.

*Any MASTER-LIGHT will be sent you for 30 days free trial*

**CARPENTER MFG. CO.** 179 Sidney St., Cambridge, Mass.



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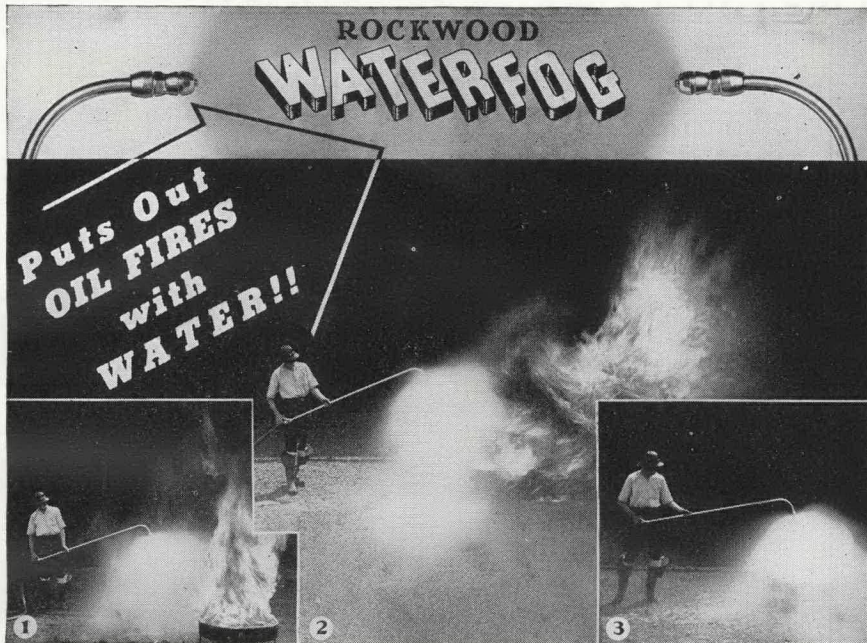


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Economical

Can be used on most types of fires. No expensive chemicals needed. Only plain water is used.

**WATERFOG**  
Nozzles and Applicators available for  
**GARDEN BOOSTER**  
1 1/2 inch  
2 1/2 inch  
**HOSE Lines**



The new Rockwood WATERFOG Applicator quickly subdues tough fires in flammable liquids, by the use of **ordinary** water which is generated into **low velocity** WATERFOG. Just connect the WATERFOG Applicator to a regular hose line, turn on the water—and you produce WATERFOG. Greater protection to

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Write for our new bulletin on Rockwood WATERFOG Equipment

**ROCKWOOD SPRINKLER CO.** 38 Harlow St.  
WORCESTER, MASS.

**T**HE New England Association of Fire Chiefs wish to thank our advertisers and friends for their support by advertising in our annual report.



## MEMBERS, PLEASE

*The Advertisers* IN THIS BOOK ARE OUR FRIENDS. WITHOUT THEIR CO-OPERATION, THIS WORK WOULD NOT HAVE BEEN POSSIBLE. WHEN YOU ARE PROVIDING FOR YOUR NEEDS, PLEASE PATRONIZE THESE, OUR FRIENDS, WHO HAVE SO WILLINGLY HELPED TO MAKE OUR REPORT A SUCCESS.



## WARNING TO ADVERTISERS

Again we warn our advertisers against fraudulent solicitors. REPORT SUSPICIOUS PERSONS TO YOUR FIRE CHIEF, OR TO THE SECRETARY.



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or at any of *Sears*

**59 RETAIL STORES**

**59 CATALOG ORDER DESKS**

**33 CATALOG ORDER OFFICES**

*Conveniently located throughout New England to bring you Sears Money-Saving Values. . . . There is one near your home.*



Make it a habit to shop and save at Sears by Mail or at your nearest Sears Retail Store, Sears Catalog Order Desk, or Sears Catalog Order Office. This Sears combination is the answer to your shopping problems bringing you over 100,000 items for your home and family at Sears savings.

*Purchases of \$10 or more may be had on Sears Easy Payment Plan.*

**SEARS, ROEBUCK AND CO.**

**BOSTON**

**Tel. KEN. 7350**

**MASS.**



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*Twentieth Annual Report*  
OF THE  
**New England Association**  
of  
**Fire Chiefs**



**1942**



## PLACES AND DATES OF PAST CONVENTIONS



- No. 1 BRIDGEPORT, Conn., June 20-21-22, 1923  
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- No. 3 PITTSFIELD, Mass., June 23-24-25, 1925  
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- No. 4 MANCHESTER, N. H., June 22-23-24, 1926  
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- No. 5 PORTLAND, Maine, June 21-22-23, 1927  
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- No. 6 BURLINGTON, Vermont, June 26-27-28-29, 1928  
PRES. WILLIAM C. SHEPARD, Pittsfield, Mass.
- No. 7 NEW HAVEN, Conn., June 25-26-27, 1929  
PRES. OLIVER T. SANBORN, Portland, Maine
- No. 8 RUTLAND, Vermont, June 24-25-26-27, 1930  
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- No. 9 BOSTON, Mass., June 23-24-25-26, 1931  
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- No. 10 NEWPORT, R. I., June 21-22-23-24, 1932  
PRES. JOSEPH LAWTON, Newport, R. I.
- No. 11 LEWISTON, Maine, June 20-21-22, 1933  
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- No. 12 BURLINGTON, Vermont, June 26-27-28-29, 1934  
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- No. 13 NEW BEDFORD, Mass., June 25-26-27, 1935  
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- No. 14 HARTFORD, Conn., June 23-24-25, 1936  
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- No. 15 THE BALSAMS, Dixville Notch, N. H., June 22-23-24, 1937  
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- No. 16 BURLINGTON, Vt., June 21-22-23, 1938  
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- No. 17 PROVIDENCE, R. I., June 20-21-22, 1939  
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PRES. SAMUEL J. POPE, Boston, Mass.
- No. 19 BOSTON, Mass., Aug. 18-23, 1941  
PRES. THOMAS H. COTTER, Providence, R. I.
- No. 20 Cancelled because of the War  
PRES. WILLIAM C. MAHONEY, Peabody, Mass

## NEW ENGLAND ASSOCIATION OF FIRE CHIEFS



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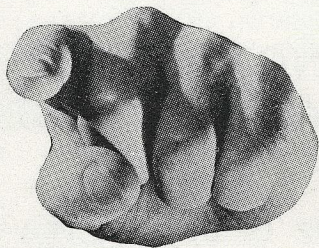
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### **To Whom It May Concern:**

For over ten years our fire department has been gradually replacing all of our soda and acid extinguishers with the **Smith Indian Fire Pump** until today we do not carry on any of our apparatus soda and acid extinguishers.

We have found the **Smith Indian Fire Pump** to be adaptable and doing the best job on all types of fires formerly controlled by the soda and acid extinguisher.

About 80% of our fires are extinguished by firemen equipped with the **Smith Indian Fire Pump**. We find that it is easier to refill. It extinguishes twice as much fire as any soda and acid extinguisher and the convenient back-pack gives faster service.

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As the Chief of the Fire Department of 35 years' experience I am glad to recommend the **Smith Fire Pump** for use in extinguishing all types of fires which, in the old days, were controlled by soda and acid extinguishers or pump tank extinguishers.

Very truly yours,

J. N. SULLIVAN,

Chairman,

N. Y. S. Fire Defense Committee

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## **20th ANNUAL REPORT NEW ENGLAND ASSOCIATION OF FIRE CHIEFS**

Sept. 17, 1941.

The first meeting of the Directors for 1941 and 1942 was held in Boston at the Parker House on above date at 4:00 P.M.

This was the regular meeting day of the Massachusetts Fire Chiefs' Club at which our members were present. Our meeting was called to order by President Mahoney with the following in attendance: Chiefs Sanborn, French, Koltonski, Scanlon, Mr. Stanley and the Secretary.

After discussion and remarks concerning our last Convention in Boston, together with plans for the months ahead for ourselves, the Secretary reported that since our August Report, Chief W. B. Lewis of Wiscasset, Maine, had passed away on August 24. Flowers were sent by the Association.

The following were voted Honorary Membership at this meeting:

Past President Patrick Hurley of Holyoke, Mass.

Past President Carl Stockwell of Burlington, Vermont.

Albert C. Melendy, Nashua, N. H.

Henry A. Fox, Boston, Mass.

On motion of Chief French, it was voted that Chief Daniel B. Tierney of Arlington, Mass., be appointed Chairman of Exhibit Committee for our 20th Convention, and that he appoint his assistants.

On motion of Chief Koltonski, it was voted that the International Association be granted free use of our Exhibit booths for their Grand Rapids Convention; they to pay all cost of transportation both to and from Grand Rapids.

Chief Koltonski reported progress in Rutland by the Chamber of Commerce and others, with much enthusiasm being shown for the coming Convention.

On motion of the Secretary, the dates of the Convention were adopted as of June 23, 24 and 25.

Voted to adjourn at 5:15 P.M.

JOHN W. O'HEARN,  
Secretary.

December 17, 1941.

The second meeting of the Directors for 1941-42 was held on above date at the Parker House, Boston. This was the regular meeting and Ladies Day of the Massachusetts Fire Chiefs' Club, in which our members took part in a most enjoyable dinner and entertainment.

Our meeting was called to order at 11:45 by President Mahoney with the following in attendance: Chiefs Shea, Sanborn, French, Koltonski, Scanlon, M. W. Lawton, Happny, Mr. Stanley and the Secretary.

The minutes of the September meeting were read and accepted. Letters were

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read from Chiefs A. J. Cote, Stuart M. Potter, which advised of their inability to attend the meeting.

The Secretary reported the good news that Bill Dooling, Past Director, had entered the Government Service on Fire Prevention Work in the First Corps Area.

The Secretary read a letter from Ex-Fire Commissioner Horace B. Clark of Hartford, Conn., announcing a banquet to Ex-Director Keena at the Bond Hotel on December 18th, and that the Secretary expected at least one table for Mike's friends would be taken, but with recent announcement of War, all engagements were cancelled and the Secretary in behalf of the Association was sending a telegram to Mike and flowers for Mrs. Keena.

Here followed discussion as to the advisability of holding our 1942 Convention at Rutland because of the War. The question of attendance and possibility of exhibits was discussed, and as a result of the discussion Chief Koltonski offered a motion which was accepted unanimously that we defer any action on the Twentieth Annual Convention until a later date, and then depending upon conditions and the probable duration of the War.

JOHN W. O'HEARN,  
Secretary.

October 15, 1941.

At a meeting of the Massachusetts Fire Chiefs' Club at Holyoke, Mass., our Past President Thomas Cotter of Providence was present, it being the first real gathering he was able to attend since his serious operation in August which prevented his attendance at our 1941 Convention.

Chief Cotter was accompanied by his usual enthusiastic "Pals," Chiefs Callahan, Cote, Savage and Taupier of Rhode Island. Following out our unfinished business at Boston, President Mahoney presented a Past-President's badge to Chief Cotter, and the genial Ex-Chief Johnson of Waltham presented Tom with a traveling bag, together with best wishes for continued good health.

Representing our Association, the other officers present in addition to the President and Secretary were: Chiefs Scanlon, Shea, M. W. Lawton, Koltonski and Keena.

JOHN W. O'HEARN,  
Secretary.

February 5, 1942.

The third meeting of all officers was held at the above date at the Parker House, Boston, at the request of President Mahoney. The meeting was called to order at 11:30 A.M. with the following officers and friends present: President Mahoney, Vice Presidents Lawton and Happny; Directors Sanborn, French, Koltonski, Cote, Potter; Chiefs Shea, Allen and Tierney, and P. C. Charnock, Engineer of New England Fire Insurance Rating Association. Chief Scanlon sent word by the President that he would be unable to attend. Mr. Stanley also was unable to attend.

Minutes of the December meeting were read and accepted. President Mahoney stated he called the meeting principally to take action on our 1942 Convention as per decision at the December meeting, "that we defer any action on our 20th Convention until a later date." He believed at this time, in fairness to all concerned, definite action should be taken.

Chief Tierney, Secretary-Treasurer of International Association, who attended recent meeting of International Directors at Grand Rapids, reported that the Direc-

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- Do not allow hose to remain in wagons or on reels if wet or muddy. Remove all mud by washing or brushing. To dry, expose hose to air in towers or on racks—preferably at full length. When outdoor racks are used, hose should be properly protected from sun and rain.
- EUREKA FIRE HOSE is antiseptically treated and will not mildew or rot if given ordinary fire-department care; but continued dampness is injurious to cotton fabric. Mud often contains metallic or other substances that are chemically injurious to hose, if permitted to remain on it.
- Do not permit hose to remain on apparatus for any great period of time when not used. It should be removed, hung up in towers or on racks and replaced with a fresh supply. Avoid short bends in hose that is stored away. When necessary to store hose in folds change the folds occasionally to prevent permanent set of hose.
- When new hose is received do not allow it to remain packed in cases until it may be required, but remove from cases and loosen coils. TRY OUT COUPLING THREADS AS SOON AS HOSE IS RECEIVED.
- All rubber-lined hose should have water passed through it at frequent intervals to moisten the rubber, and then should be thoroughly drained and dried before being returned to service. When hose must be kept in hot and dry places, it is best to pass water through it monthly.
- Acids and many other chemicals, oils, iron rust, and fumes arising from many processes are injurious to hose and contact with them is to be avoided.
- Be careful that the gasoline tank on your apparatus is perfectly tight against drip and vapor. A small deposit of gasoline leakage will separate the rubber from the fabric of fire hose and produce subsequent rupture when hose is placed in service.
- When fire hose is being used, see that section nearest engine or hydrant is not being chafed by vibration at point of contact with the ground. Afford hose the proper protection at this location.
- Under no conditions should vehicles be permitted to cross fire hose lines unless hose is properly protected by the use of bridges available for this purpose.

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**SEARS ROEBUCK**



**MIDDLETOWN**

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NEW ENGLAND ASSOCIATION OF  
**FIRE CHIEFS**

We also extend our congratulations  
to their departments for another  
year of distinguished service to  
the communities of New England

EDWARD J. GALLAGHER,  
President

tors voted to hold the 1942 Annual Conference in August, on the 4-5-6-7 with Exhibits and other usual business.

Chief Tierney expressed the opinion regarding possibilities of our Convention going through successfully and that we should meet for two days only, in Boston with just an Educational Program, omit Exhibits, as it was a question of being able to get anything to exhibit.

Chief Allen, our Representative to International, stated that the possibility of an Educational Program at this time was questionable. Because of war conditions all are busy, and perhaps the education we gain by experience at home will serve us best, so we better stay at home and protect our municipalities from fire caused by possible bombing.

Mr. Charnock supported Chief Allen and said "we should not hold a Convention this year." Every officer present expressed himself as opposed to holding a Convention this year, which would cause a large group of our members to leave their home town and assemble elsewhere for a period of two or three days.

Chief Cote, Director of Woonsocket, R. I., expressed himself in no uncertain terms as being opposed to holding a Convention this year. He asked "Is it better to go to Convention and learn something, or stay at home and do something?"

Chief Sanborn, Director of Portland, Maine, offered a motion that was unanimously adopted, that we defer any action on our Annual Convention because of the very uncertain conditions due to war.

Here followed a general discussion in which all present expressed themselves regarding the very unsatisfactory priority ratings on fire apparatus and equipment, as it appeared almost impossible to secure essential supplies and equipment. With all but one of our New England States on the seacoast, and with tremendous governmental properties and other war industries, it would appear that all possible consideration should be given us.

On motion of Chief Allen it was unanimously voted that the Secretary be instructed to write Donald M. Nelson, Director of the War Production Board, and advise him of the action taken this day by the Officers of this Association in adopting the following resolution which I now offer:

"The lives and property of the citizens of the New England States and their numerous defense industries are being jeopardized by the failure to grant to the fire service the necessary priorities to secure essential fire apparatus and equipment. We urge that the fire service be given priority ratings which will correct this situation."

On February 6, 1942, the Secretary wrote Mr. Nelson as follows:

Mr. Donald M. Nelson,  
Director, War Production Board,  
Washington, D. C.  
Dear Sir:—

The Directors of of The New England Association of Fire Chiefs, representing cities and towns in every New England State, assembled in Boston on February 5th, 1942, to discuss fire problems in this area.

We hold a Convention annually in some one of the New England States. This is really an educational gathering, but because of uncertain war conditions this year, we voted unanimously to defer any action on our Annual Convention. As one Di-



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NEW ENGLAND ASSOCIATION OF FIRE CHIEFS

---

rector put it, "Is it better to go to Convention and learn something, or stay at home and do something?"

The following resolution was unanimously adopted, and I was directed to send a copy to your office:

"The lives and property of the citizens of the New England States and their numerous defense industries are being jeopardized by the failure to grant to the fire service the necessary priorities to secure essential fire apparatus and equipment. We urge that the fire service be given priority ratings which will correct this situation."

Respectfully yours,

JOHN W. O'HEARN,  
Secretary-Treasurer  
New England Association  
of Fire Chiefs.

Under date of February 16, the Secretary received the following reply to his letter to Mr. Nelson:

February 16, 1942.

New England Association of Fire Chiefs  
99 Main St.,  
Watertown, Massachusetts.  
Attention Mr. John W. O'Hearn

Dear Mr. O'Hearn:—

Your letter of February 6 addressed to Mr. Donald M. Nelson, Director, War Production Board, and quoting the resolution adopted by your organization has been handed this Department for reply.

The War Production Board recognizes the great importance of fire protection and in every way possible is cooperating with various organizations in obtaining such protection.

We are at a loss to understand the intimation in your resolution that lives and property of citizens are being jeopardized for the failure to grant priorities for the purchase of fire protective equipment.

If you know of any cases in which the communities or industrial plants are having difficulty in obtaining such protective equipment we would appreciate your advices.

Very truly yours,

Signed: GEORGE W. ANGELL,  
Chief, Fire Equipment Section  
Division of Industry Operations.

The Secretary reported to the Directors of having invested \$700.00 of the Association's money in Defense Bonds, and was further permitted to invest more as the funds accumulated.

Meeting voted to adjourn, subject to the Call of the President at 3:15 P.M.

JOHN W. O'HEARN,  
Secretary.

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1144 So. Main St.

Springfield, Mass.  
18 Osborne Terrace

Providence, R. I., 630 Broadway



April 15, 1942.

The fourth meeting of officers of the Association was held on April 15 at the Highland Hotel, Springfield, Mass.

This was the regular meeting day of the Massachusetts Fire Chiefs Club, with whom we joined at dinner.

After lunch and enjoying the topics as presented by capable speakers on subjects that interested all, as it related to various types of apparatus and apparent inability to receive any apparatus and equipment.

The subject was well discussed by many members who were not able to get equipment. Mr. Percy Charnock spoke at length as Fire Coordinator for the State of Massachusetts, stated he had attended many meetings in Washington on this subject and stated that he believed conditions will not be improved to any extent until more material can be procured for the manufacture of fire equipment and apparatus.

Wesley E. Monk, former Insurance Commissioner, and Charles F. J. Harrington, present Insurance Commissioner, were present as guests of the Club, both spoke at length. Their remarks were very encouraging, and after paying high tribute to the fire service, were given a fine reception.

Our business meeting was called at 3:45 P.M. with President Mahoney in the Chair and the following in attendance: Chiefs Sanborn, French, Koltonski, Scanlon, Potter, Lawton, Happny, Shea and the Secretary.

The minutes of the third meeting were read and accepted.

The Secretary reported the following deaths since the publishing of our 1941 report:

Raymond J. Neil, Chief, Barnstable, Mass., Feb. 24, 1942

Edward C. Minehan, Ex-Chief, Marlboro, Mass., Feb. 25, 1942

Reuben E. Estes, Ex-Chief, Lewiston, Maine, Mar. 15, 1942

Leonard Dawson, Gamewell Co., Newton Upper Falls, Mass., Apr. 4, 1942

Joseph P. McCosker, Ex-Chief, Bangor, Maine, April 8, 1942

The meeting then voted to adjourn.

Respectfully yours,

JOHN W. O'HEARN,  
Secretary-Treasurer.

LAFayette 6716

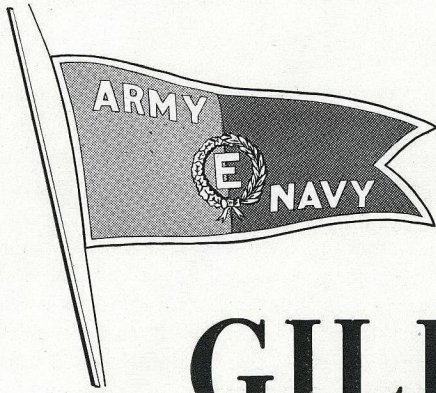
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# NEW ENGLAND ASSOCIATION OF FIRE CHIEFS CONSTITUTION

## ARTICLE I.

Section 1. The officers of this Association shall consist of a President, First Vice-President and Second Vice-President, a Secretary and Treasurer, and a Vice-President for each state, who shall hold their offices for one year or until their successors are elected. All of said officers shall be elected by ballot at the annual meeting. None but active members "Chiefs or Ex-Chiefs" shall be elected to office.

Section 2, as amended 1936 convention. There shall be a Board of Directors, consisting of the President, First Vice-President, Secretary and the Vice-President from each state. The board shall meet at the time and place designated by the President. Only the actual expenses of the Board shall be paid by the Association.

Section 3. Three members of the Board of Directors, selected by the President shall constitute the auditing committee.

## ARTICLE II.

### Duties of Officers

Section 1. It shall be the duty of the President to preside at all meetings of the Association, and perform such other duties as may be incident to his office.

Section 2. It shall be the duty of the Senior Vice-President to perform the duties of the President during his absence.

Section 3. It shall be the duty of the Secretary to keep a complete record of the proceedings of the Association, the Board of Directors and the standing committees; of which he shall be an ex-officio member; to receive and answer all communications pertaining to the Association; cause to be prepared a full report of the proceedings of each annual convention, which report shall be printed in pamphlet form, and one or more copies mailed by him to each member of the Association within 90 days of such annual convention. He shall receive all communications, contributed papers on topics, etc., designed to be presented to the convention. He shall collect all moneys due the Association and pay the same over to the Treasurer previous to the final adjournment of the annual convention and at all other times when the funds in his possession amount to one hundred dollars (\$100.00) taking his receipt therefor and shall keep a correct account of same. He shall also employ such assistance as he may need for the collection of dues at the annual conventions and reporting the proceedings of the same and such other expenditures for clerical assistance at other times as may be approved by the Auditing Committee, and he shall execute a bond to the Association in the sum of Five Hundred Dollars to be approved by the Board of Directors, the expense of procuring same to be borne by the Association. The salary of the Secretary to be fixed annually at the meeting of the Association. He shall also perform such other duties as shall be assigned to him by the President and Board of Directors. He shall at all times retain a sufficient sum in his possession to defray the necessary incidental expenses of his office, but he or any



*Best Wishes*

**FIRST NATIONAL STORES**



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other officer shall not assume an indebtedness exceeding twenty dollars without the approval of the auditing committee.

Section 4. The Treasurer shall have the custody of the funds of the Association; he shall receive all moneys from the Secretary except what is necessary for the expenses of the latter's office, giving his receipt therefor; keep a true account of all moneys received and disbursed; pay all bills after the same have been approved by the Auditing Committee, signed by the President; and countersigned by the Secretary, and at the annual convention of the Association make a full and correct report of the same, and he shall execute a bond to the Association in the sum of One Thousand Dollars, to be approved by the Board of Directors, the expense, if any, of procuring same to be borne by the Association. The salary of the Treasurer shall be fixed annually by the Association at its annual convention.

Section 5. It shall be the duty of the Board of Directors to transact all the business of the Association during the time intervening between the annual meetings and to assign a list of topics to members of the Association. They shall have full power to expunge from the minutes, before printing, anything that is objectionable to the Association or its members. They shall make arrangements with railroads and steamship companies for carrying members to and from the place of holding the annual meetings of the Association, following their appointment, and communicate such arrangements to the members by letters, circulars and otherwise.

### ARTICLE III.

#### Meetings

Section 1. The annual meeting of the Association shall be held at such place as the convention shall designate at its annual meeting, and upon such date as the Board of Directors and Chief of Fire Department of the city in which the convention is to be held shall determine, and twenty members shall constitute a quorum to transact business.

Section 2. Chiefs inviting the Association to hold its annual meetings in their cities shall understand that the Association expects and requires that their cities shall furnish, without cost, a hall suitable for holding the sessions of the Association, an exhibition hall of ample size to accommodate the apparatus, equipment, etc., that may be reasonably expected to be offered for exhibition, and suitable grounds for the testing of pumpers, trucks and other apparatus and appliance. The necessary fire engines, hose, nozzles and a sufficient number of men to carry out the test as may be required by the Exhibit Committee. The exhibit hall and the testing grounds shall at all times be under the sole control of the Exhibit Committee and under such rules as they may adopt. Badges for members, visitors and ladies shall be furnished free to the Association in such numbers as the directors may deem sufficient to accommodate the expected attendance. The material, design and workmanship of badges to be entirely in hands of local Chief. Entertainments, such as the local Chief may wish to arrange for, must not interfere with the business program of the Association.

Section 3. Nothing in Section 1 shall be construed as prohibiting the Board of Directors in case of extraordinary emergencies from changing place of meeting.

### ARTICLE IV.

#### Membership

The membership shall consist of: A—Active; B—Associate; C—Honorary Life; D—Life; E—Contributing.

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When you buy a home, you demand a title guarantee to safeguard your investment; you provide yourself with locks and bolts to protect your possessions against burglars; the business man keeps his money and valuables in a safe and bonds his employees for added protection. But what about fire, windstorm, explosion and other hazards that constantly threaten your ownership? They can rob you of your belongings as effectively as a thief . . . and locks and bolts cannot keep them out.

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**Surplus to Policyholders over \$71,000,000**



A. Active Members—Chiefs and Ex-Chiefs of Fire Departments, Fire Commissioners, Chiefs or Superintendents of Insurance Patrols and Chiefs of Private Fire Departments. Dues, \$3.00 annually. B. Associate Members—City or Town Officials, Assistant or Deputy Chiefs or members of fire departments, Individuals representing firms and corporations interested in the protection of life and property against fire. Dues, \$3.00 annually. C. Honorary Life Members—Honorary Life Membership may be conferred upon active members upon their retirement from office, provided they have been members of the Association for a period of five years immediately preceding the date of their retirement, and provided further that they are not identified with fire protection from a commercial standpoint. Honorary Life Membership carries all the privileges of active membership without dues. D. Life Membership—First. Individuals, firms and corporations interested in the protection of life and property against fire shall be eligible to life membership upon the payment of \$100.00. Second. The Association may, by a majority vote elect any associate member to life membership without the payment of any fee; and any member so elected shall thereafter be exempt from dues for life. E. Contributing Members—Individuals and firms manufacturing and dealing in fire apparatus, supplies and fire prevention appliances and materials, exhibiting at the annual meetings shall pay an annual membership, of such sum as the Directors may determine from year to year, based upon the number of square feet required and used by them for their exhibit, provided that the membership for any one year shall not be less than ten cents per square foot of space used.

## ARTICLE V.

### Amendments

Section 1. This Association shall have full power, at any time or meeting, to alter, amend or revise the Constitution and By-Laws, but the same shall not be altered, amended or revised, except by a vote of two-thirds of the members present and entitled to vote, but no amendment shall be considered that has not been presented and read at a previous session.

### BY-LAWS

Section 1. All members of this Association shall be required to pay a membership fee of Three Dollars (\$3.00) in advance.

Section 2. The Association shall have (through its Board of Directors) full power to levy an assessment and collect from the members an amount sufficient to cover the entire expense of said meeting.

Section 3. Any question coming before the convention for which no provisions are made in the Constitution and By-Laws, the presiding officer shall be governed in his decision by the rules laid down in Cushing's Manual.

Section 4. The President shall appoint all committees, and all standing committees shall be appointed at the first session of each annual meeting.

Section 5. The second day of each convention shall be reserved for exhibitors to display their various articles and improvements in fire apparatus.

Section 6. The exhibition hall shall be closed during the business sessions of the convention.

Section 7. The Secretary and Treasurer of this Association shall receive for his services or their services such sum annually as may be fixed by the Association.

Section 8. All papers to be presented at any meeting of the Association shall

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Chiefs for twenty years of public service



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be forwarded to the Secretary thirty days prior to date of such meeting; and he may cause them to be published without expense to the Association in the Fire journals of the country.

Section 9. No member who is in arrears for dues and assessments for one year shall be entitled to vote and any member who is in arrears for two consecutive years, his name shall be dropped from the roll.

Section 10. Associate and Life Members shall be entitled to all the privileges of the Association except the right to vote.

Section 11. Applications for all classes of membership shall be approved by the Credentials Committee, and a majority vote of the Association shall elect.

Section 12. The Secretary shall not register or give a badge, or extend any courtesies of the convention to any one, other than ladies accompanying members, representatives of the press, Honorary Life Members and Life Members, except upon the payment of the regular membership fee.

### RULES OF ORDER

Section 1. The presiding officer shall preserve order and decorum. All questions of order shall be decided by him, subject to an appeal by any member.

Section 2. Every member, when he speaks or offers a motion, shall rise in his place and respectfully address the presiding officer and when finished shall resume his seat. He shall confine himself to the question under debate, avoid all personalities and indecorous language.

Section 3. When two or more members shall arise to speak at the same time, the presiding officer shall decide who shall have the floor.

Section 4. A member called to order by the presiding officer shall immediately cease speaking on the question before the house, and shall not resume his remarks until the question is settled.

Section 5. No member shall leave the convention meeting when in session without permission from the chair.

Section 6. The evening of the first day of the annual meeting shall be set apart for the holding of services in memory of deceased brothers.

Section 7. The election of officers and selection of place for holding next annual meeting shall take place on the last day of the convention each year.

### ORDER OF BUSINESS

1. Call to order.
2. Roll call.
3. Appointment of committees.
4. Reading of record of last meeting.
5. Reading of Communications.
6. Topics and essays.
7. Report of Secretary.
8. Report of Treasurer.
9. Report of committees.
10. Unfinished business.
11. Designation of place for holding next convention.
12. Election and installation of officers.
13. Adjournment.

NEW ENGLAND ASSOCIATION OF FIRE CHIEFS

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STAMPS**

# ORGANIZING AND TRAINING THE INDUSTRIAL FIRE BRIGADE

By **FRED SHEPPERD**

*Published through the courtesy of*

THE EDUCATIONAL COMMITTEE INTERNATIONAL ASSOCIATION OF FIRE CHIEFS

CHIEF DANIEL B. TIERNEY, *Secretary*, Arlington, Massachusetts

The Milwaukee County (Wisconsin) Association of Fire Chiefs, under the guidance of Chief Peter Steinkellner, of Milwaukee, has carried out a very successful program in organizing and training fire brigades in industrial plants in the County.

Believing that our membership would be interested in details of the program, an outline of the course of instruction, as well as reproductions of enrollment and other forms, are presented herewith.

Appreciation is expressed to Chief Steinkellner who has made this material available to the International Association of Fire Chiefs.

F. S.

The testing of rope is not a difficult matter, as the rope is subjected to only one kind of stress, namely, tension.

The test merely amounts to fastening the rope to a proper support, and loading it to what is considered a safe load. If the rope breaks, or is damaged, under the test load, it should be rejected.

Safety Test for Manila Rope—Editor.

Circumference Inches	Diameter Inches	Load in Pounds
1	$\frac{3}{8}$	120
$1\frac{1}{2}$	$\frac{1}{2}$	250
2	$\frac{5}{8}$	360
$2\frac{1}{4}$	$\frac{3}{4}$	520
$2\frac{3}{4}$	$\frac{7}{8}$	620
3	1	750
$3\frac{1}{2}$	$1\frac{1}{8}$	1,000
$3\frac{3}{4}$	$1\frac{1}{4}$	1,200
$4\frac{1}{2}$	$1\frac{1}{2}$	1,600
$5\frac{1}{2}$	$1\frac{3}{4}$	2,100
6	2	2,800
$7\frac{1}{2}$	$2\frac{1}{2}$	4,000
9	3	6,000

## The Four Essentials of Industrial Fire Protection

1. Procure the right type of extinguisher.

Fires differ, and so do fire extinguishers. A fire in a pile of rubbish may be easily extinguished with one type of extinguisher, but the same type of extinguisher used on blazing paint or grease may not be successful. No one type of extinguisher is a "cure-all" for all classes of fires. Each type of extinguisher will, however, effectively control one or more classes of fires. To procure the best type of fire protection best suited

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to take care of the particular fire risk present in your plant, you should have the advice of an expert—that is, the recommendations of men in the fire service, who have studied fire in all its various forms, and who have studied the advantages and limitations of each type of fire extinguisher, and who will prescribe for you—the right extinguisher for each type of fire risk which you may be confronted with in your particular plant.

2. Place the extinguisher in the correct location.

The placing of extinguishers in a plant cannot be correctly done by guesswork. Fire extinguishers should be so located that they are readily accessible, for an extinguisher that cannot be reached in the excitement of a fire is of no value. Firemen who are trained in fire protection and fire prevention work can survey your plant, then decide on the type of extinguishers needed, and also determine the correct location for the extinguisher.

3. Be sure that the extinguisher is properly charged.

Some type of extinguishers should be completely recharged at least once each year. There are other types of extinguishers which require only partial refilling. Others do not need recharging until they are used. All types of extinguishers should be inspected at least once each year as to their condition. When a fire occurs a fire extinguisher is needed immediately, and no time is then available to see if it is in good condition, and correctly charged. Remember that only a properly charged fire extinguisher can do a good job of fire fighting.

4. Confidence in the extinguisher is necessary.

Since it is the first five minutes of a fire that count, it is very important that every employee, who might possibly have an opportunity to use an extinguisher, should understand thoroughly the method of operation of all types of fire extinguishers, and have the confidence in its fire extinguishing value. At least once a year—or more often if possible—you should conduct a demonstration of all your fire fighting equipment, and instruct every employee in its use. If your employees are acquainted in the proper use of all types of extinguishers, and note how easily those extinguishers can hold in check, and in most instances extinguish incipient fires, they will have confidence, when fire occurs, to stand by and fight it.

### **How to Procure the Right Type of Fire Extinguisher**

Modern fire extinguishing devices are correctly designed to embody any one of the principles or methods perfected by the science of fire protection. They are approved and labeled by the Underwriters' Laboratories which is maintained by the National Board of Fire Underwriters for the examination and testing of appliances which have a bearing on fire hazards. But it is very important to know that there are several different kinds of Underwriters' "approval" for fire extinguishers, and that each one definitely indicates the type or class of fire for which the extinguisher is effective.

For all practical purposes, the Underwriters' Laboratories have classified fires into three general classes, which are known as Class "A," Class "B," and Class "C" fires. Briefly, Class "A" fires may be defined as fires in ordinary combustible materials; Class "B" fires as those of inflammable liquids, greases, etc.; and Class "C" fires as those in electrical equipment.

On each Underwriters' approved extinguisher you will find the Underwriters' rating.

The Underwriter's rating "A-1" on an extinguisher means that one such extinguisher is considered a unit of protection for Class "A" fires. The letter "A" signi-

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**Fire Retardants**—for flameproofing fabrics, paper and other cellulose products.

**Wood Preservative**—"CZC" for pressure treating lumber against decay and termites. It also adds fire retarding properties.

**Explosives**—for cutting forest fire lanes, excavating emergency water basins, sometimes for checking conflagrations.

**Du Pont Safety Film**

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**Refrigerants**—"Freon" safe fluorine refrigerants made by du Pont for Kinetic Chemicals, Inc.

**Paints, Varnishes and Lacquers**—for improving building lighting and housekeeping, and for maintaining fire fighting apparatus and equipment.

**Anti-Freeze Products**—"Zerex" permanent-type anti-freeze made of ethylene glycol—flash-point approximately 260°F. open-cup, hence relatively non-hazardous.

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fies the class of fire against which the extinguisher is effective; the absence of letters "B" and "C" is a warning that the extinguisher cannot be expected to give suitable protection for Class "B" or Class "C" fires. The numeral "1" means that one such extinguisher makes a unit of protection. An "A-2" rating signifies that two such extinguishers are required to make up a unit of protection against Class "A" fires. Similarly the "B-2, C-2" ratings on an extinguished mean that two such extinguishers are necessary to make up a unit of protection for Class "B" or Class "C" fires—the absence of the letter "A" is a warning that the device cannot be expected to give suitable protection for Class "A" fires.

## Portable Fire Extinguishers

### Principles of Fire Extinguishment

A large proportion of all fires are extinguished in their incipency by some type of hand fire extinguisher. As each type is built for a definite purpose and firemen are frequently called upon for advice on their maintenance and placement, a knowledge of the various types of extinguishers in use and their proper maintenance is very important. To better understand the problems involved in fighting fire, it is necessary to understand what fire is. Combustion or fire (see my note) is defined as "A chemical reaction attended with light and heat." When substances are heated to their temperature of ignition, they combine with the oxygen of the air, resulting in combustion or fire. Three things are necessary for a fire: (1) A "Combustible" or the substance which burns; (2) The "Supporter of Combustion," that is the oxygen in the air; and (3) "Ignition Temperature" of the combustible, a temperature at which the reaction becomes self-sustaining. Fire extinguishment or "suppressing the combustion" of a burning substance can therefore be accomplished by either cooling the substance below its "temperament of ignition" or by excluding the oxygen from the combustible and thus smothering it.

When the cooling method is employed, extinguishers are used whose discharge is largely water. They are particularly suitable on fires in wood, textiles, paper, rubbish and similar combustibles. The smothering method of extinguishing a fire is accomplished by using either a foam type extinguisher or a type which employs free gas or vapour that will not support a combustion. The foam type extinguisher discharges a foam that forms a blanket on the burning substance, thus excluding the oxygen from the material on fire. They are particularly effective on fires in oil, gasoline and other flammable liquids, but usually not on alcohol and certain lacquers because most types of foam dissolve or disintegrate when applied to these liquids. The smothering types use either a vaporizing liquid or carbon dioxide gas or a dry chemical (powder) which, when directed toward the base of a fire, dilutes the surrounding air to a degree that there is insufficient oxygen to support combustion. The powder, when forcefully applied in a cloud, also releases carbon dioxide gas in the presence of heat.

For dealing with incendiary bombs, on no account should extinguishers with carbon tetrachloride be used as their application on any very hot metal, such as burning thermite, evolves phosgene gas. For ordinary household fires not involving oil or electricity, the type of chemical extinguisher using carbon tetrachloride or methyl bromide is not recommended because of the lack of cooling qualities and the dangers of toxic

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fumes in confined spaces. Dumag, G-1 and magnafite extinguishing agents should be applied to burning magnesium as directed.

### Classification of Fires

There are three general classes of fires:

Class "A" Fires—Those in wood, paper textiles, rubbish or other ordinary combustible materials where the quenching and cooling effects of quantities of water, or solutions containing large percentages of water, are of first importance.

Class "B" Fires—Those fires in flammable liquids such as oil or gasoline, greases, etc., where a blanketing effect is essential.

Class "C" Fires—Those fires involving electrical equipment, where the use of a non-conducting extinguishing agent is of first importance to avoid hazard to the operator.

Common hand fire extinguishers on the market on this continent and approved for various purposes by the recognized testing laboratories are divided into eight general classes according to the characteristics of the extinguishing liquid or material used, these being:

- (a) Plain water.
- (b) Anti-freeze solutions.
- (c) Chemical reaction solution (soda-acid).
- (d) Foam solution.
- (e) Vaporizing liquid (carbon tetrachloride).
- (f) Inert gases (carbon dioxide).
- (g) Loaded stream (solutions with a chemical reaction upon fire as well as a quenching effect).
- (h) Dry chemical (powdered chemicals with a reaction upon fire).

In order to propel an extinguishing agent effectively to the seat of a fire, it must be expelled from the container in some suitable manner. Three methods are employed for this purpose:

- (1) Hand-generated pressure (hand pumps).
- (2) Internally generated pressure (pressure created by chemical reaction within the container).
- (3) Stored pressure (CO<sup>2</sup> gas cartridge or confined air pressure—nitrogen cartridges are used in some of the larger units).

### Types of Fire Extinguishers

(a) Plain Water Extinguishers—There are two kinds of plain water portable extinguishers in general use, the pump tank type and the stored pressure or cartridge type:

(i) The pump tank variety is made in sizes of 2½ gallon and 5 gallon capacities. They may be carried to the fire by a handle attached to the tank and are operated by movement of the pump in an up and down motion. The hose leading to the nozzle should not be less than 6 feet in length. The stream is most effective if used close to the fire but if the pump is operated vigorously, it may be directed from a distance of thirty feet. They should be checked at intervals by operating the pumps several strokes and discharging the liquid back into the tank. The advantages of this type are that it requires no periodic servicing, it can be refilled during fire-fighting operations, and



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**FIRE — THEFT — COLLISION**

the contents do little damage. It is therefore strongly recommended for use in Class "A" fires, when stored in buildings where the temperature does not go below freezing.

(j) The stored pressure cartridge water extinguisher is of 2½ gallon capacity. The liquid is expelled by pressure of carbon dioxide gas released into the tank from the cartridge. The gas is stored in a sealed cartridge which is suspended in a cartridge, held in position by the screw cap of the extinguisher. The cap is provided with a puncturing needle so placed that when the extinguisher is inverted and the cap struck lightly on the ground, the sealing disc of the cartridge is ruptured, releasing the gas into the chamber containing the water and expelling the liquid. The extinguisher should be examined and the cartridge weighed annually. If the cartridge shows a reduction of one-half ounce (weight is stamped on neck nut) it should be replaced. Plain water extinguishers are effective on Class "A" fires where a quenching and cooling effect of water is of first importance.

(b) Anti-freeze Extinguishers—Water type extinguishers may be converted into "anti-freeze extinguishers" by the addition of calcium chloride. Only the charges supplied by the manufacturers of the equipment should be used. A solution of two gallons of water and ten pounds of calcium chloride (free from magnesium chloride) will protect a 2½ gallon extinguisher from temperatures of 40 degrees below zero F. They are effective on Class "A" fires where a quenching and cooling effect of the extinguishant is of the first importance. In recharging, both water type and anti-freeze extinguishers should be examined carefully for deterioration or injuries due to misuse, and the orifice of the hose nozzle examined to see that it is not clogged.

(c) Soda and Acid Extinguishers—"Soda and acid" extinguishers are intended for use on Class "A" fires where a quenching and cooling effect is of first importance. The agents used are sulphuric acid and bicarbonate of soda dissolved in water. The extinguisher is operated by inverting the container and allowing the liquids to mix, the reaction liberating carbon dioxide gas which creates a pressure within the chamber and thus expelling the liquid.

Anti-freeze salts must not be added to the solution to render it anti-freeze, as such salts may reduce the effectiveness of the reaction. The extinguishers should be emptied for recharging by actual discharge once every year, and the date of refilling recorded on a card attached. At this time the cap-gasket and hose should be examined for deterioration or injuries due to misuse and to see that the orifice of the nozzle is not clogged. If the hose has perished, a "crimp" is usually formed just below the fitting by bending the hose in directing the discharge. This crimp serves as a shut-off and interferes with the effective discharge of the stream. This extinguisher must be protected from frost, as an extinguishing agent it is no better than plain water, and the acid contents may be quite damaging to property.

(d) Foam Extinguishers—The principle of foam type extinguishers is the application to fire of a blanket of foam containing bubbles of carbon dioxide. The outer chamber contains a bicarbonate or soda and a foam stabilizing agent dissolved in water, and the inner chamber contains a water solution of aluminum sulphate. To be used, the extinguisher must be inverted, which operation causes the chemicals to mix, creating carbon dioxide gas which permeates the liquid and forms a tough, durable foam. The 2½ gallon extinguisher produces about twenty gallons of foam. When discharged, it will pile up against a wall and because of the gas bubbles it is lighter than liquids and floats on top. On flammable liquid fires, best results are obtained when the foam stream is played against the inside wall of the vat or tank just

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above the burning surface and the foam is allowed to spread over the surface. If this cannot be done the operator should stand back a distance and lob the foam onto the burning substance with as little force as possible so that it will not break the surface and stir up the liquid. The foam extinguishers are effective on both Class "B" fires and small Class "A" fires. They must be recharged yearly and also must be protected from frost.

(e) Vaporizing Liquid Extinguishers—The extinguishing agent used in the vaporizing liquid type of extinguisher is a specially treated non-conducting liquid having a carbon tetrachloride base with components for depressing the freezing point to 50 degrees below zero F. and to avoid corrosion. The liquid is expelled by hand pump pressure or by stored air pressure within the extinguisher. They are mainly a smothering type of extinguisher as the liquid is transformed to vapour upon contact with fire or a heated substance. The vapour is heavier than air and settles around a fire, excluding the oxygen supply. A very important property of the liquid is that it does not conduct electricity and can safely be used on live electrical equipment. For fires in flammable liquids, the stream should be directed against the inside of the containing vessel, and not at the burning liquid itself, so as to avoid splashing and spreading of fire. Lengthy exposure to concentrations of the created vapours and gases should be avoided as they are harmful, having an anaesthetizing effect as well as possibly being toxic.

Carbon tetrachloride extinguishers should be inspected periodically and at least once a year they should be tested by discharging a portion of the contents and refilling to the designated mark.

(f) Carbon Dioxide Extinguishers—These extinguishers consist of liquefied carbon dioxide gas contained in steel cylinders under high pressure, with a specially designed valve for controlling the flow. The liquefied gas is discharged to the air through a horn-shaped nozzle. The gas expands rapidly to many times its liquid volume and a little of the discharge appears as "snow," but most of it as free carbon dioxide gas. As this gas is heavier than air and will not support combustion, it has the effect of smothering the fire. However, as the gas tends to rise with the heat of the fire and the resulting air currents, the discharge should be aimed at the base of the flame and on the burning surface of flammable liquids. The horn should be moved slowly in a sweeping motion, killing fire as the operator progresses. Hot metal and glowing embers should be cooled by continued application to avoid possibilities of re-ignition. In fires involving flammable liquids leaking from a ruptured, elevated tank, the liquid fire at the lowest point should be first extinguished and then the operator should follow up the burning stream with the carbon dioxide discharge. The liquid gas does not freeze at the lowest climatic temperatures and it will not conduct electricity, making its use desirable on both Class "B" and Class "C" fires. The gas will not deteriorate, and it is not toxic, but in sufficient densities it is suffocating and its application to the bare skin should be avoided because of its coldness. The cylinders must be weighed semi-annually so as to determine any loss of the gas by leakage. Those showing a loss of 10 per cent by weight of the contents should be re-charged.

(g) Loaded Stream Extinguishers—Loaded stream extinguishers are designed for use on both Class "A" and Class "B" fires and in addition, have anti-freeze qualities.

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Parties**



Either the calcium chloride anti-freeze solution or, a solution of potassium salts is employed. When the stream comes in contact with fire, the solution reacts under heat, liberating a vapor that tends to smother the fire. In addition, the extinguishant has the same quenching and cooling effect as water. The stream is propelled by means of puncturing a cartridge of carbon dioxide gas, or a chemical reaction may be established by the use of a special solution in the extinguisher and an acid bottle suspended, as in the soda-acid extinguisher. The mixing of these chemicals, by inverting the container, sets up a reaction, producing the gas which expels a solution which still retains a chemical effect on fire as stated. The stream should be directed at the base of a Class "A" fire as with the water or soda-acid type. On Class "B" fires best results are obtained when the discharge is played against the sides of a vat or tank containing burning liquid and where possible the operator should walk around the fire while directing the stream so as to get the maximum coverage during the discharge period. The jet should not be directed against the surface of a burning liquid.

(h) Dry Chemical Extinguishers—Dry chemical extinguishers consist of a specially prepared dry sodium bicarbonate powder in a steel cylinder, with a cartridge of carbon dioxide gas to provide the expelling force. The powder is discharged in a cloud, the effective range of the cloud being approximately ten feet. When the powder comes in contact with heat or settles on a burning substance it gives off additional carbon dioxide gas which has a smothering effect on the fire. The discharge should be directed at the base of the flames and on fires in flammable liquid a slow sweeping motion of the nozzle as with the carbon dioxide extinguisher, gives the best results. It should be directed first at the near edge of a flammable liquid fire, gradually progressing forward and continuing to cover the surface of the liquid after the fire is out in order to prevent a flash back. These extinguishers are effective on fires in flammable liquids, greases, etc. (Class "B") and also on fires in electrical equipment where a non-conducting extinguishing agent is of importance (Class "C"). They do not need protection from freezing. The extinguishers should be examined at frequent intervals and the cartridge weighed. Only the refills of the manufacturers should be used in re-charging.

### **Emergency Extinguishing Agents**

Most homes and industrial premises have water taps and garden hose, and it should be remembered that garden hose, permanently attached to a tap and preferably with a shutoff nozzle so that the hose line itself can be kept filled with water, provides a very ready and effective means to fight fire, as long as the water system is in operation. Snow also is an excellent extinguishing agent. If conditions permit applying it directly on the seat of the fire, it is better even than water, for it has a considerable cooling effect and has the advantage of staying in place on the fire without the waste commonly associated with the use of water in fire-fighting. Likewise any incombustible liquid may be used, for instance many rural fires have been extinguished with milk or with vinegar, which are not ordinarily thought of as fire extinguishing agents. As well as sand, earth may be used to smother the flames, and so may ordinary Portland cement, gypsum plaster, talc, or almost any dry powdered non-combustible material.

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## Ropes and Knots

### The Need for Ropes at Fires

Rope is one of the most necessary and important of the many items of equipment on a fire truck or on any other emergency apparatus. Yet many fire departments are not equipped with the proper complement of rope, and others neglect what rope equipment they have. Still others fail to take advantage of their ropes in the many uses to which they may be put to save both time and labor. Every piece of fire apparatus carries good ropes. Ladder trucks carry three sizes. Each rope is 125 feet in length, one of 1-inch and another of  $\frac{3}{4}$ -inch diameter, while the third is  $\frac{1}{2}$ -inch in diameter. Ropes for fire service should be of the very best grade and should be soft and flexible. A rope should be put up in such a manner that it can be easily carried and so that when dropped from a roof, it will uncoil without becoming tangled and without "jumping around" as it opens up in its descent.

If a rope is to be used intelligently and safely, every fireman should be sufficiently familiar with standard fire service knots to be able to tie them in the dark. The reason for this is both clear and simple. The fireman should be able to tie a knot that answers the following requirements:

- (a) The best knot for the job in hand.
- (b) A knot that can be tied quickly.
- (c) A knot that will not untie or slip.
- (d) A knot that will not pull tight under strain or when wet.
- (e) A knot that can be easily untied by hand.
- (f) A knot that any other fireman can untie.
- (g) A knot that the other man expects to find if in the dark.

A rope evolution that is very often neglected is the art of throwing a rope. It takes considerable practice to throw a rope accurately and this should be a part of the training program of every fire department.

Good ropes are essential to the fire service. A fireman may be placed in a position where he must trust his life to a rope to effect an escape. It is obvious, therefore, that ropes should be reliable and in good condition at all times. A careful check on all ropes carried on apparatus should be made at frequent intervals.

### Knots On Tools

Axe, Flogging-tools, Cutting-chisel, Mall, Wall-pick, use:

Loop-knot over handle and tool-head and a half-hitch on handle near end.

Brooms alone, or Brooms and Shovels together, use:

Loop-knot over handles and around straw and shovel ends and a half-hitch on handles near end.

Wire-cutter and Bolt-cutter, use:

Loop-knot, single part between handles and loop over cutting end.

Hose-patch (Cooper Leak Stopper), use:

Loop-knot placed in open patch and same closed on knot.



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Loop-knot around jack and folded hose at butt end and a half-hitch around jack and folded hose at pipe end.

Battering ram, use:

Eye end over butt end and a half-hitch over head end.

Squeegee, use:

Eye end through crutch and over handle.

2½ gallon Foamite Tank, use:

Eye end passed through handle and over inner chamber ring.

Pipe and Jack (3½" line), use:

Eye end passed over lower cross-bar and then on one leg, then a half-hitch placed on jack at top end.

Drag-hook, use:

Eye end through handle and over hooks and down again to handle and then a half-hitch at hook end.

Portable Chemical, use:

Clove-hitch and half-hitch on tank, opposite valve, with one turn above and one turn below valve.

Shovels, use:

Clove-hitch in handle, finish with a half-hitch.

Hose Roller, use:

Clove-hitch around rollers, finish with a half-hitch. (Hooks of roller turned down while tying.)

Hand-pump, use:

Clove-hitch on handle, finish with a half-hitch.

Crow-bar, Wrecking-bar, use:

Rolling-hitch on handle end and a half-hitch on pry end.

Door-opener, use:

Rolling-hitch on pry end and a half-hitch on handle end.

Pike pole, for hoisting, use:

Rolling-hitch on handle end and a half-hitch at hook end.

Pike Pole, assistance in pulling, use:

Rolling-hitch over iron and wood at hook end and a half-hitch at handle end, for a short pole; two half-hitches for a long pole, one at center and one at handle end.

Cellar or S. Pipe, use:

Rolling-hitch on butt end and a half-hitch between two bends, nearest the bend at pipe-tip.

Improvised cellar pipe:

To fasten hose, with pipe attached, to bottom of ladder, using a rope. Place hose line on ladder as above, then with coupling to which pipe is attached against 3rd rung, put a clove hitch over rung and around hose, keeping one turn of hitch on each side of rung, finish with a half-hitch. Then place 2 half-hitches around pipe and over shut-off handle, tying same open. Place hose and ladder in position as above.

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Syphon, (Ball):

Clove and half-hitch around syphon, at base, and half-hitch around top.

Syphon, (T):

Clove hitch around basket of syphon, then carry end of rope to inlet throwing half-hitch around same, following across to other side and throw another half-hitch around outlet, then tie one half-hitch to main rope.

Ladders, to hoist:

Place ladder along side of building, tie clove and half-hitch around ladder, one-third the length of the ladder from the top.

## Salvage Operations and Overhaul Practices .

### The Need for Salvage Operations

Direct salvage or prevention of damage begins with entry to the building. Reckless smashing of doors and windows should be discouraged. Efficient tools have been designed to open doors with a minimum of damage, and the men should be trained in their use. Ruthless breaking seldom saves much time, and it is cheaper to replace a lock or a single panel than a complete door. Too many men rushing into a building with all kinds of equipment before the exact conditions have been determined and the plan of procedure decided upon sometimes results in unnecessary damages from breakage and the soiling of household furnishings, merchandise and fixtures.

Removal of Contents—After entrance to the building has been gained, valuable and perishable articles and goods that are likely to be exposed to water and smoke can often be removed outside (and covered in wet weather) or to a neighboring building, where they will be safe from damage and molestation.

Stream Control—After the seat of a fire has been discovered, it should be opened up if it is not already accessible, and should be attacked as directly as possible, but two gallons of water should not be used if one will safely suffice, nor should a heavy stream be turned on when a lighter stream would be enough. There is sometimes an eager tendency to drown the fire in a few seconds when the circumstances do not demand such haste and when a more considered attack would bring about the same results with safety and with a mere fraction of the damage. Throwing water blindly or indiscriminately into smoke is poor practice as the stream is much more likely to miss the fire than to hit it under such circumstances. Smoke often issues from points far removed from the seat of a fire or from any actual burning. Pouring water into smoke may easily be a waste of time that should be devoted to ventilating the premises and locating the fire. Misdirected fire streams, particularly heavy streams, are likely to cause heavy water damage before the fire has been really attacked at all.

The water that is essential for extinguishing purposes, when properly directed, will do enough damage without throwing water to no good purpose. When one realizes that a standard fire stream discharges about one ton of water per minute, he can form some appreciation of what damage can be caused in a short time, not only by the volume of water but by the force behind it. Admittedly, there are occasions when stream control is not important for the reason that water damage is not a factor, due to the nature of the building and contents. There are also occasions when all available streams are necessary and water damage becomes secondary to fire damage, but at the average fire, judicious control and application of water may well be considered the second step in order of importance in avoiding loss. Excessive use of

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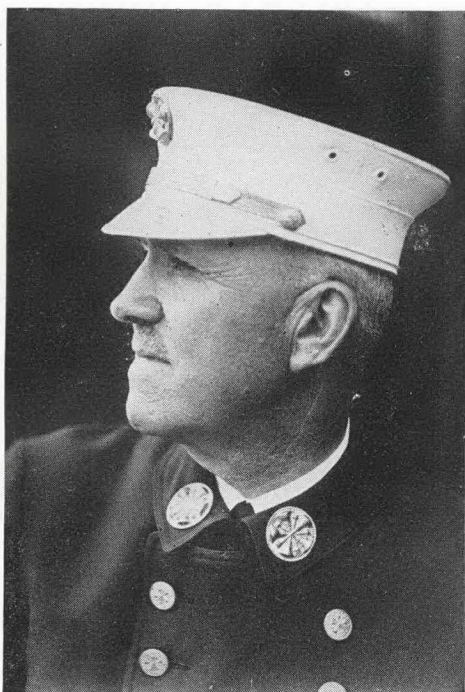
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water, without adequate drainage, will also overload the floors and upset the structural stability of the building.

When large quantities of water are used and drainage facilities are not provided through scuppers or drain pipes, it can often be directed to the outside down stairways or wall openings and elevator shafts at the floor levels. In this way widespread damage on lower floors can be relieved and tons of water are removed from the floor that is immediately involved. Only occasionally is this practicable but when it is warranted and can be done, the saving in salvage is likely to be very great.

### **Care of Property After Fire**

The opportunity for the salvaging of values does not always cease with the extinguishment of a fire. In warehouses and other buildings where the contents are liable to damage by frost, the owner should be instructed to cover openings and maintain heat to prevent unnecessary loss. Unless heat is provided, floors will swell and buckle and many contents will continue to deteriorate on account of the dampness. Plumbing fixtures, tanks and boilers should be drained in cold weather when heating of the building is not practicable. Holes in the roof should be temporarily protected from the elements until permanent repairs can be made. The use of rolls of tar paper, lathing strips, and nails for the temporary repair of roofs is a good practice.

With the use of brooms, mops, squeegees, et cetera, considerable loss can be avoided by the removal of water that remains after the job of extinguishing has been completed. Similarly, much can be saved by turning over or opening the merchandise to dry, or by removing it to other premises where it will be safe and not liable to further deterioration. This may even apply to some types of furniture and furnishings when the conditions following a fire are such as would result in further damage if proper housing were not provided.

Furniture, particularly if crated, is liable to serious damage unless the wrappings are removed immediately to let the upholstering dry out and to prevent spotting of the wood finish. Pianos and even hardware are susceptible to damage if left in damp places although they may not have come in direct contact with water. Certain machines, such as printing presses, electric motors, et cetera, may be put out of commission unless they have been protected with consequent loss to the owner through interruption of production. Other articles are subject to breakage if handled carelessly or subjected to the force of fire streams.

Once the firemen become salvage minded, they will be impressed with the amount of needless destruction that is caused at many fires, and will take a genuine interest in the salvage phase of their work. It not only saves losses, but it pays dividends in public good will, an important factor in the welfare of any fire department.

## **Industrial Defense No. 5**

### **Firemen's Gas Masks**

The gas mask is an essential piece of equipment for rescue work. Electric refrigeration being in universal use, the failure of refrigeration mechanism frequently occurs, allowing the refrigerant to escape into the surrounding atmosphere. As many of these refrigerants are either toxic or explosive when mixed in proper proportions with the air, it is essential that the flow of escaping gas be stopped at the earliest possible moment. Gas masks must be donned before entry can be made to a building where any quantity of refrigerant has been liberated. Likewise, when a burning building is

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charged with gas and smoke, the use of masks permits entry of the building by firemen so equipped without causing undue injury to themselves by inhaling the smoke and fumes which in many instances are very toxic.

There are four types of masks used by firemen:

The all-service or all-purpose type mask which provides protection for the user against all poisonous gases including carbon monoxide. It also removes the carbon particles in smoke-charged buildings and can be used in any atmosphere where there is sufficient oxygen to support life. This type of mask is of special value to fire departments. Under fire conditions, the number and kinds of different gases likely to be encountered is impossible to anticipate and the type of mask that provides protection against all gases is therefore of great value. The assembly includes a dial timer that indicates to the wearer when the canister should be replaced, and the universal type canister contains several layers of chemicals and filters that remove or neutralize the poisonous gases and carbon particles from the air passing through. It must be borne in mind that canister type masks do not supply oxygen and therefore cannot be safely used in an atmosphere deficient in oxygen.

The industrial mask is designed for protection against specified gases. The same face piece and assembly is used for all industrial gases, it merely being necessary to change the canister. Each canister is designed to give protection against certain gases and in no case should it be used for other than the gases specified on the canister. This mask is not recommended for firemen because of the multiplicity of cannisters.

The fresh air mask consists of a face piece attached to a hose, through which is forced fresh air by means of a hand-operated blower, located far enough from a building so as to not pick up any of the smoke coming from the fire.

The self-contained oxygen mask—carries a steel bottle of oxygen and filters for revivifying the exhalation of the wearer. With this mask a man may enter any atmosphere.

Gas masks require frequent examination to assure their being in proper working order. All connections should be tight to prevent leakage around the gaskets. The rubber face piece should be clean and pliable so as to fit tightly around the face of the wearer. In putting on a mask for use, the canister is supported in front of the wearer by means of web harness, hung from the neck and held against the chest by a strap around the body. The chin is thrust into the face piece and the straps drawn over the top of the head. Adjustment of the face piece to the head of the wearer is made by means of the adjustable straps, the lower straps being tightened first and those on the top of the head tightened last. The test for a proper fit of a canister, and then inhale. If the face piece collapses it indicates there is no leakage of air between the face piece and the face of the wearer.

When the respirator is in use, moisture from the breath will condense on the inside of the eye pieces and prevent clear vision. The application of a thin film of toilet soap, lightly smeared upon the inside of the eye pieces will prevent misting to a large extent. Anti-mist compound is procurable for this purpose and is very effective. Application of the compound can be made to the pieces when the mask is removed after use and remains effective for at least a week. It is recommended that firemen equipped with masks, when entering a smoke-filled building, should go in pairs if possible, and always have a life line attached to their belt. Should they become confused when inside the building, safe exit may be made by simply following the line to the outside.

Frequent practice with masks under smoke conditions is absolutely essential. Masks should not be put on by a man out of breath from any exertion, and it should

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always be remembered that as far as work is concerned, a man in a mask is only 50 per cent effective. After use, the face piece of a gas mask should be thoroughly washed with an antiseptic solution, avoiding the use of formalin or formaldehyde as these liquids attack rubber.

#### **Auxiliary Filter**

An auxiliary filter for protection from toxic chemical warfare smokes has been perfected by Mines Safety Appliances Company, and is now available for use in connection with the all purpose canister. This attachment is merely a filter composed of cellulose which offers protection against Diphenylchlorarsine (DA), and Diphenylamine-chlorarsine (DM). This filter is attached by means of tape to the bottom of the All Purpose Canister, and may be removed and put in service on a new canister whenever necessary, since the life of the filter exceeds the life of the canister.

## **Fire Brigade Organization**

### **Chief**

A Plant Fire Chief should be provided for. For large plants he should preferably be full paid. The Chief must have full charge at a fire, until the arrival of the municipal fire department. He should be responsible for the training and drilling of the members of the Fire Brigade. He should be charged with the maintenance of all fire apparatus at all times. He should test all fire appliances.

### **Assistant Chief**

This Officer should have similar qualifications to those required for Chief, and be able to take full charge in the absence of that Officer. Arrangements should be made so that the Assistant Chief will always be present in case of the absence of the Chief.

### **Captains of Companies**

A large Fire Brigade should be organized in the form of Companies, with a Captain in command of each Company. A Captain should be appointed from among the heads of several Departments of the establishment. The Captain should be a responsible person who is capable of taking charge at a fire in the absence of a senior Officer. Such Captains should rank first, second and third so that their order of succession may be clearly determined in the absence of superiors.

### **Companies**

The men should be selected from among the regular employees of the various Departments as may seem desirable. In general, the men should be familiar with the various processes, arrangements, exits, etc. of the entire property.

The strength of a Company should not be less than ten men. No less than four men should be assigned to a line of hose. It is desirable that one Company be made up of men in the maintenance department and should include millwright, steamfitters, electricians, etc.

In plants having fire pumps, the Engineer or his chief assistant should be a member of the Fire Brigade..

All firemen must realize the importance of absolute discipline and the necessity of instant response to a fire alarm.

Special Fire Department regulations should be prepared in which special features of hazard, the extinguishment of fire due to some unusual process, etc., can be incorporated.

Special duties should be assigned to the various members of the Department.

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Information as to the location of valves, standpipes, fire extinguisher equipment, etc., should be included. These regulations should be posted in the Fire Department Headquarters of the plant, and printed on a card and placed in the hands of each employee.

Maximum efficiency cannot be expected from Officers or firemen unless they are kept fully informed on all phases of fire prevention and fire extinguishment. They should be afforded every opportunity for improving their knowledge of this specialized subject, and should be encouraged to attend drill schools of the local Fire Department.

### **Alarm System**

An approved fire alarm system, covering the entire premises, provides a means for quickly summoning the Fire Brigades to the fire. Prompt action means smaller fires. Therefore, it is essential that a proper fire alarm system be installed with a suitable code devised to designate the location of the fire. This Code should be printed and posted in conspicuous places throughout the plant.

Suitable arrangements should be provided for promptly calling the nearest municipal Fire Department, by means of a fire alarm box, or by other method appropriate to local conditions. At all times, the municipal Fire Department should be summoned immediately.

Arrangements should be made whereby members of the Plant Fire Brigade can be reached while off-duty.

For the purpose of identification of plant Fire Brigade members, a badge should be furnished by the management, to be used in addition to other identification as ordered by the plant and the Federal Government.

### **Drills**

Drills should be held twice a month, or oftener as necessary, and held during paid time. An assumption should be made that a fire is progressing in a certain location, and dealt with as required. The location of drills should be changed each time so that the men will become familiar with all conditions and parts of the plant, and be able to cover every conceivable emergency that may arise.

Various systems may be used, e.g., (a) Always giving a regular alarm as for a fire; (b) Regular drills at fixed times, with periodical alarms for test purposes.

The latter system is usually better, for it is less likely to disorganize work, or interfere with production, which tends to bring the Fire Department into disfavor with the management.

Drills should always be carried out under discipline, and at a very moderate pace, and with accuracy. This will insure speed when required at a fire.

It is essential that all members of the Brigade be regularly examined as to their knowledge of the location of fire alarm boxes, and the meaning of the various fire alarm signals.

Drills should embrace the making of hose connections with hydrants, unreeling and stretching hose without kinks, coupling and uncoupling, attaching play pipes, carrying hose up ladders, over roofs, and through the interior of buildings, reaching inaccessible and out-of-the-way places, including basements, sub-basements, attics, etc. It is important that the men should become practiced in holding the play pipes, also moving and carrying the hose lines while under pressure. As a general rule, water should be turned on for all practice work, except during freezing weather. At times when conditions are favorable, a sufficient number of hose lines should be stretched to test the maximum capacity of the water distribution system and pumps.

Firemen should all have a good knowledge of knots and their use.

In general all firemen, regardless of the Company to which they belong, should be trained to handle any and all of the fire apparatus provided; also to act in any

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desired capacity either in handling first aid fire appliances, hose, chemical engines, or doing salvage work.

It is very desirable that firemen be proficient in first aid to the injured, fully understanding how to resuscitate persons suffering from electric shock, or asphyxiation. Where smoke helmets are provided for emergency use, a certain number of men should be trained in their use. Certain industries require special gas masks to deal with various specific gases which may be encountered.

For department stores and other places where the public assemble, the sounding of a fire alarm may result in a panic, and should be avoided. For such places fire drills should be held outside of regular business hours.

When shops or other industrial plants are operated at night, provision should be made for fire drills similar to that of the day force. In large plants remote from public fire protection and operating only a day shift, efficient night fire brigade service may be had by organizing and drilling the watchmen, cleaners, and repair men who may be regularly employed at night. These men should be subject to the same general rules as govern the day Brigade, and be regularly drilled in the efficient handling of all apparatus.

At the conclusion of practice drills and on order from the Chief, the Companies should return to quarters with their apparatus, and promptly place it in readiness to respond to a fire call. If hose has been wet it should be thoroughly dried before being placed upon the reels, and replaced with dry spare hose.

### **Fire Methods**

A department should be organized, drilled and maintained with the idea that fires shall be quickly controlled. The person nearest to the fire should give the alarm immediately. The first officers to arrive in the area should take immediate charge, putting available men to work on the fire, using the local first aid apparatus, ascertain whether an alarm has been turned in, and delegate men, previously selected, to attend to the salvage, such as covering stock, preventing water damage, ventilating, etc.

In sprinklered plants, Brigade Officers should delegate men to the sprinkler valves to make sure that they are open, that the fire pump (if there be such) is immediately started, see that the Brigade is assembled, and hose laid from hydrants.

All members of the Brigade should be instructed in the operation of the automatic sprinkler system, and have a knowledge of the location of all water control valves. They must be instructed that in case of fire, sprinkler control valves must be examined to see that they are open wide.

In case of fire in a sprinklered building, hose should always be laid ready for use, but judgment used as to whether water should be turned on. In the majority of cases the sprinklers will distribute the water better than is possible with a hose stream.

In case of large sprinkler pipes breaking, through collapse of the roof or other cause, the water should be shut off the sprinkler system, if necessary to maintain the water pressure for hose streams which will then have to be used.

The fire chief or person in direct charge of the system should be the only person to authorize the closing of any valve that controls water for fire apparatus.

Certain men from each division should be delegated to remain in their several departments, closing fire doors, shutting down power, closing fire shutters, skylights, and taking other necessary precautions to guard their particular departments in case the fire shall spread. Captains and men in departments immediately adjoining the fire should carry out these duties carefully, and in addition get their hose and other apparatus out and take position behind fire doors or other points of vantage; to protect their departments in case the fire should approach.

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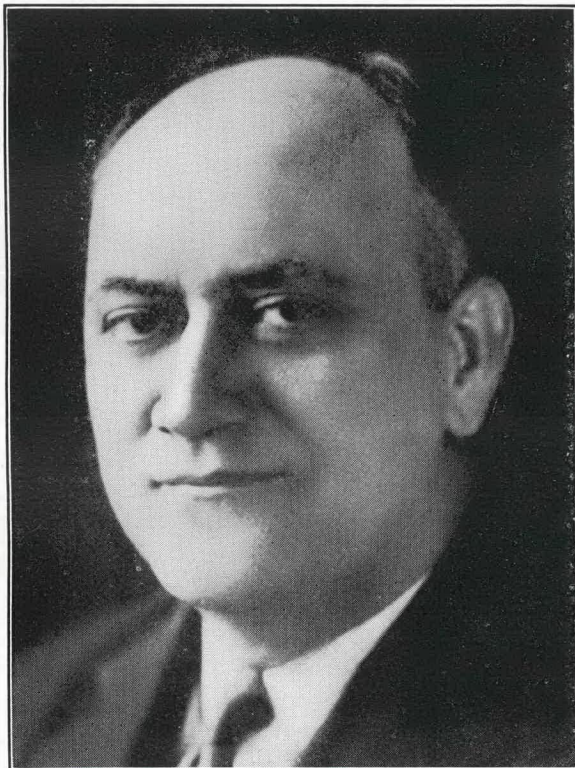
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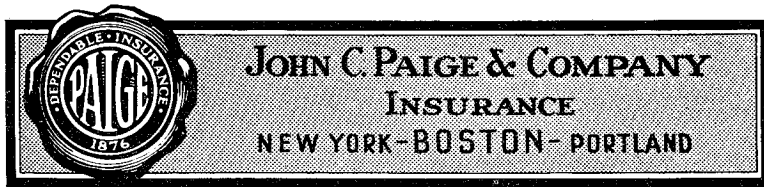
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Certain men should be assigned the definite duties of shutting off oil lines and gas mains, covering dip tanks, etc., in case of emergency. The control valves for these should be labeled conspicuously.

The Chief should know whether there are any high voltage wires near any of the buildings to be protected. The presence of such wires may tend to hinder the work of the fire brigade through fear of electric shock through accidental contact or through hose streams. The playing of water on electric wires should be considered dangerous to life unless members of the Brigade have been instructed and shown by test that hose streams may be played upon such wires without danger.

It may be necessary to cut electric service wires. Such work should be done only by persons familiar with electric work.

NOTE. Special care must be taken that cables supplying current to electric driven fire pumps are not cut or disconnected.

### **Fire Pumps**

At plants having fire pumps, the engineer in charge and his assistant should remain on duty at the pumps until relieved by order of the Fire Chief. Where steam pumps are installed they should see that sufficient steam pressure is maintained at all times to operate the pumps. Provision should be made for extra men to respond to the boiler room during severe fires.

Where electrically driven pumps are used an electrician should stand by at switchboards controlling the electric current for the fire pump motors.

Pumps should be started immediately upon an alarm sounding, and if water is obtained from an outside source men should be delegated to see that the control valves are full open.

### **Procedure After Fire**

After a fire it is of extreme importance to replace all fused sprinkler heads at once and restore protection as quickly as possible.

Immediately after any fire all water mains and sprinkler valves should be carefully examined to see that no valves have been closed by mistake.

Many times considerable loss can be avoided by proper ventilation of the buildings and removing the water discharged by hose lines or automatic sprinklers as quickly as possible. Waterproof covers are of exceptional value to keep the water off of the stock or machinery on the floors below, or in the vicinity of the fire.

### **Maintenance**

**HYDRANTS.** Hydrants are for fire service only and their use for any other service should not be tolerated; otherwise they may be found out of order when wanted. They should be kept in good repair, drained properly, and be protected from freezing.

Hydrants should be properly drained after use, leather washers should always be maintained in the caps, and caps replaced snugly, but not with a wrench. Stems and caps should be lubricated at least twice per year.

Some definite system should be adopted as regards rigid control of the water main valves.

**STANDPIPES.** After use the hose should be immediately dried and observation made as to whether water is leaking past the valve into the hose.

**HOSE.** Cotton rubber lined hose should have water run through it at least four times per year. Jackets should be thoroughly scrubbed and dried after use. Hose should be replaced in its customary position. Pressure tests should be applied to cotton rubber lined hose at least once per year, and all hose found in a leaky condition im-



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mediately replaced. Linen hose does not need to be tested but should be kept thoroughly clean and dry.

**HOSE COUPLINGS.** Couplings should be kept in first class order, and each time after the hose is tested, the threads should be examined and any injured or defective couplings should be removed or turned over to a machinist with proper facilities for making repairs. They should be so adjusted that they can be easily screwed up by hand. Couplings should not be greased or oiled if found to be stuck. Ordinarily, they can be satisfactorily freed by immersion in warm water.

Where the couplings used do not conform to those of the municipal fire department, it is urgently recommended that both parties concerned use every effort to secure the standardization of the hose couplings. The National Standard coupling for 2½ inch hose is 3 1/16 inch outside diameter of the male coupling, with 7½ threads to the inch. This is the standard used in the Milwaukee Fire Department.

### **Inspections**

It is just as essential that the Fire Department organization of a plant be charged with the prevention of fires as it is for them to be proficient in extinguishing them after they have once started. The officers and members of the Fire Brigade should familiarize themselves with the various fire hazards throughout the plant and see that they are protected in accordance with various regulations available. Carefulness and housekeeping are the two most essential features in fire prevention.

Large plants should maintain a regular full time inspector carrying on a continuous system of inspection.

Regular inspection and reports of the fire equipment should be made, noting the condition of hose and guarding against misplacing play pipes, axes, spanners, crow bars, etc. Hose couplings and play pipes should be handled carefully, as injured threads or couplings out of round may seriously delay the work of coupling hose, and seriously delay the work of putting out a fire.

### **Equipment**

**FIRE STATION.** The fire station should be, if possible, an isolated fire resistive or sprinklered building, centrally located with respect to quick access to all parts of the plant.

The doors should be very carefully made and open out, with latch inside. A small glass panel should be provided for gaining access to the latch from the outside; locks are undesirable for the main doors.

There should be a small door with lock and key for every-day use.

A deep sink with hot and cold water for cleaning and recharging chemical extinguishers is recommended.

Plenty of racks and shelves for spare hose and equipment should be provided.

Coats, helmets and rubber boots should be suitably arranged so that there is no crowding which may delay the men in responding to fire. All should be suitably stenciled with the fireman's number. Coat hangers will prolong the life of rubber coats. A bench should be provided for dressing purposes. This may be used to hold the boots when not in use.

## **Industrial Plant Questionnaire**

**Prepared by**

**Milwaukee County Association of Fire Chiefs**

In order that employees of industrial establishments may become familiar with the importance of first aid methods in fire fighting, the Milwaukee County Association

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of Fire Chiefs has extended an offer to assist in organizing such employees into plant fire brigades, and to train them along the lines of industrial fire protection, for it believes that such steps are essential to the defense program as adopted by these United States. To make this offer possible, the Milwaukee County Association of Fire Chiefs has organized an Association of Industrial Fire Chiefs for the purpose of laying plans for the training of plant fire brigades.

If you approve of the above program, will you please fill out the following questionnaire.

Date .....

1. Name of firm .....
2. Address .....
3. Name and position of Official filling out questionnaire .....
4. Number of persons employed ..... Number of shifts operated .....
5. Number employed on each shift: 1st shift.....2nd shift.....3rd shift.....
6. Number of hours plant in operation daily .....
7. Do you have a plant fire brigade .....
8. Are employees trained in fire fighting....., if so, how many.....
9. How many 1st shift.....2nd shift.....3rd shift.....
10. If answer to question 7 is no, do you desire to have the fire department assist in organizing and training a fire brigade .....
11. If answer to question 8 is yes, do you desire to have the fire department assist in further training of such brigade .....
12. If your firm does not have sufficient employees to warrant the maintenance of a fire brigade, would you object to the fire department giving instructions and training to some individuals for first aid fire fighting and rendering of assistance to the fire department .....
13. Are fire fighting appliances, such as portable fire extinguishers, standpipes, hose, sprinkler systems, fire pumps, regularly inspected....., if so, how often.....
14. Do you wish a check to be made of your fire fighting appliances .....
15. Do you desire to have the fire department make an inspection of your plant.....
16. If your answer is yes, do you wish to have the fire department make recommendations for improvement for fire safety conditions if deemed necessary .....
17. Have you any objections to the fire department offering suggestions for the installation of additional fire fighting equipment if upon inspection this should be deemed necessary .....

Approved by,

(Name) .....

(Position) .....

## Civilian Fire Defense

### Inspection Report

1. Location of Plant .....
2. Name of Plant .....
3. Owner of Building .....
4. Use of Plant .....
5. Number of Buildings .....

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# NEW ENGLAND ASSOCIATION OF FIRE CHIEFS

6. Construction .....Bldg. No.....Dimensions.....Stories.....  
Construction .....Bldg. No.....Dimensions.....Stories.....  
Construction .....Bldg. No.....Dimensions.....Stories.....
7. Number of employees: 1st shift.....2nd shift.....3rd shift.....
8. Number of hours worked daily: Working Hours: From.....To.....
9. Is there a Plant Fire Brigade: Yes.....No.....
10. No. each shift trained in fire fighting: 1st.....2nd.....3rd.....
11. Is fire fighting training desired: Yes.....No.....
12. Is Plant engaged in the manufacture of war materials: Yes.....No.....
13. Is Plant enclosed by fence: Yes.....No.....
14. If not, will fence be built: Yes.....No.....
15. Is there a lighting system for the premises: Yes.....No.....
16. Is Fire Alarm Box located on premises: Yes.....No.....
17. If so, state location of Fire Alarm Box.....
18. Is Watchman service employed: Yes.....No.....
19. Are other services such as A. D. T. used: Yes.....No.....State type.....
20. Are fire fighting appl. such as portable fire exting., standpipes, hose, sprinkler systems, fire pumps regularly inspected: Yes.....No.....
21. If so, how often .....
22. Is water supply sufficient: Yes.....No.....
23. Sprinkler System: Bldg. No.....Type.....Supply.....  
Sprinkler System: Bldg. No.....Type.....Supply.....  
Sprinkler System: Bldg. No.....Type.....Supply.....
24. Fire Pumps: Type.....2½" outlets available.....
25. Standpipes: Bldg. No.....Inside.....Outside.....Wet.....Dry.....  
Standpipes: Bldg. No.....Inside.....Outside.....Wet.....Dry.....  
Standpipes: Bldg. No.....Inside.....Outside.....Wet.....Dry.....
26. Fire Hose: Kind.....Size.....Quantity.....Condition.....
27. Foam Powder available: .....Pounds
28. Explosives stored: Kind.....Quantity.....
29. Acids stored: Kind.....Quantity.....
30. Volatiles stored: Kind.....Quantity.....
31. Oils stored: Kind.....Quantity.....
32. Gases stored: Kind.....Quantity.....

Note: If there is not sufficient room on this sheet to properly answer any question, attach a rider.

Questions 28 to 32: State location of these materials on the sheet for Hazards and Defects.

To avoid asking questions already answered in Industrial Plant Questionnaire, all information available shall be copied on Inspection Report.

During this inspection, observation of all things checked in a regular fire inspection shall be noted.

All Hazards, Defects and Recommendations shall be entered under proper heading on the attached sheets.

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## EMERGENCY WATER SUPPLIES

*A Paper Presented at Fourteenth Annual Fire Department Instructors Conference  
Memphis, Tennessee, January 6-9, 1942*

**By SANFORD HERBERG**

*Engineer, Fire Underwriters Inspection Bureau, Minneapolis, Minnesota*

*Published through the courtesy of*

*The Educational Committee, International Association of Fire Chiefs*

**CHIEF DANIEL B. TIERNEY, Secretary**  
*Arlington, Mass.*

### **Emergency Water Supplies**

In this very excellent paper by Sanford Herberg the author discusses the subject of emergency water supplies. Such emergency supplies are vital where the water main system of a municipality has been damaged by aerial attack.

It will be appreciated that there is little danger of such a destructive attack on cities inland, but in the coastal area the use of high explosive bombs may be resorted to by the enemy.

It is certain that such sustained and destructive attacks as were experienced by British cities will never happen here unless the enemy secures bases near our shores for operation. Such a development is not in the offing at the moment.

But sporadic attacks, employing high explosive bombs, may be carried out, and some damage to water systems may result.

It is in anticipation of such development that this paper was prepared. It deserves careful study.

F. S.

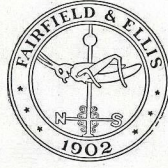
This is not a new subject, although new interest in it has been engendered by the present national defense effort.

Many municipalities, especially the smaller ones, have in years past given considerable thought to the development of water supplies auxiliary to the regular water main and hydrant system and in some instances valuable emergency supplies have been made available. This effort was generally motivated by the realization of the fire department officials that the regular waterworks system was inadequate in either pumping or storage capacity or in the carrying ability of the underground system to furnish the necessary fire flow. In others, the unreliability due to lack of duplicate power facilities, lack of duplicate pumping equipment and the dependence on single supply lines was appreciated.

These fire departments have taken the initiative in providing for emergencies by arranging for runways and pumper landings adjacent to conveniently located rivers, streams, lakes and ponds and also by establishing connections to private reservoirs and wells. The arrangements made by these fire departments are commendable and suggest several methods of providing for auxiliary water supplies although for the present national emergency the need of additional means is recognized.

Before making preparations for establishing emergency supplies, a brief analysis of the subject will be of advantage. Why do we need emergency supplies? To what extent does the present national emergency influence the extensiveness, the distribution and the capacity of these supplies? Who can best arrange for these supplies and be held responsible for them?—and finally, what needs to be done?

In the present emergency water supplies may be needed for fighting fires started as a result of aerial attack or from fires started by sabotage through subversive activi-



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ties. In either case the fires can be expected to be extensive, numerous and scattered. Also, in either case destruction of portions of the regular waterworks system can be expected.

In the case of cities or the larger municipalities, the emergency supplies, at their best, will be small in capacity as compared with the usual supply available from the regular system and conservation in its use by the fire department will be necessary. Let us, therefore, consider that the emergency water supplies will be relatively small in capacity.

The fires can be expected as being numerous and scattered. Therefore, the emergency supplies, emergency connections and arrangements must also be numerous and properly distributed.

Who is best qualified to arrange for and to supervise the emergency supplies? It is obvious that the fire department is most interested because these supplies will be their principal tool in fire fighting. Consideration must also be given the fact that generally much needs to be done in the regular waterworks system to minimize as far as possible the area affected by possible water main interruptions. Emergency arrangements of this nature definitely involve the waterworks department and can best be accomplished by that department with advice and suggestions from the fire department as to probable fire fighting needs and the probable number and capacity of fire department pumpers that may be available for use at any certain locality.

At the very beginning, therefore, emergency water supply arrangements call for an "All-Out" cooperation between the fire department and the waterworks department. There must be complete coordination between these two major divisions in any emergency defense setup.

Then, what needs to be done?

If a local civil defense program has been set up as is the case in most cities and a portion of the smaller municipalities at present, a definite place in the program will have been delegated the fire and waterworks departments. If for some reason a defense program has not been established, there is no reason for the fire and water departments delaying in setting up their own organization so designed that it will fit into any general defense program established later.

The most logical procedure is first to make a comprehensive survey of the existing waterworks system. This work can be best done by the water officials after which a thorough study of the data would be made in cooperation with the fire department officials. Action should then be taken to correct such weaknesses as may be decided upon by making improvements so far as consistent with the prevailing priority regulations governing the availability of materials for repairs, extensions and improvements. In the matter of improvements, reference should be made to the reports and recommendations made in connection with surveys of cities over 25,000 population by the National Board of Fire Underwriters and those recommendations made by the various fire insurance rating bureaus for the municipalities below this population.

This work will involve bringing the waterworks map fully up to date with respect to location and size of water mains, location of hydrants and gate valves. Separate data on gate valves in book or card form showing exact location, size, direction of operation, number of turns required to close and their present condition is necessary. Valuable recommendations on distribution system records have been made by sub-Committee 7 G of the American Waterworks Association on waterworks practice. These recommendations were published in the monthly journal of the association issued in February 1940.

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Study of the water system map will indicate points or sections in the city which are dependent on single supply lines and the most practical way of eliminating these deficiencies can be decided upon. Until the necessary underground reinforcements can be made, emergency use of fire department pumpers serving as booster pumps in the system may be possible.

Complete maps of the distribution system should be furnished each battalion chief in the larger cities and the chief officers in the smaller municipalities. Similarly these fire department officials should have complete records of all the gate valves and valve keys should be carried on apparatus responding on first alarm. Until adequate auxiliary waterworks crews are provided for repairs and emergencies, it must be borne in mind that ruptures to the underground system may be numerous and scattered which may result in serious delays in shutting off the necessary valves to conserve water. The fire department can help in this respect if furnished with valve data and valve tools along with proper training in the operation of gate valves. The possible waste of water from pipes which are completely ruptured is enormous and the pressures at the near-by hydrants will be so reduced that little or no water will be available for fire department use. In a system having a normal pressure of 60 pounds, an 8-inch pipe completely ruptured at a point 1,000 feet or a distance of about 3 average city blocks from the supply source or this distance from its connection to larger feeder mains may lose 2,000 gallons every minute; a 10-in pipe under the same circumstances may waste 4,000 gallons in a minute and a 20-inch pipe, 20,000 gallons per minute.

These figures emphasize the advisability of making arrangements for quickly shutting off gate valves.

In connection with this survey every gate valve in the system, especially the larger and the most important should be operated and tested to determine their condition and repairs made if necessary. The survey may also show the need of installing additional valves at important locations.

A study of the data may also show the possibility of effecting adequate emergency water main connections to the system of an adjoining city or municipality. Until such a connection can be completed, plans for emergency above ground connections by use of fire hose and fire department pumpers can be made.

A study should be made of the possibility of using fire department pumpers for pumping from tested water reservoirs into the supply lines in the event of interruption to the power supply or the high lift pumps. Records show that fire department pumpers have been used for this purpose in a number of instances during normal times.

Along with such a survey, consideration should be given possible means of duplicating the power supply, installation of standby or emergency pumping equipment, duplication of water intakes and providing auxiliary supplies from wells.

In addition, of course, is the need of a stock of repair materials, need of portable chlorinators and chlorinating chemicals, need of additional motor driven equipment for quick closing of the larger gate valves, protection from floods resulting from possible rupture of elevated tanks and reservoirs, plans for proper fencing and protective lighting of the water plant grounds, the control of visitors and the posting of guards.

The establishment of strictly emergency water supplies will now be discussed.

A complete survey should be made of all possible emergency supplies. The location, capacity and the nature of these should be shown on a convenient map prepared for that purpose. Each responsible fire department officer should be furnished with this data. The types of emergency supplies are numerous. The most common is the utilization of natural bodies of water such as rivers, creeks, lakes and ponds through the construction of runways and landings for fire department pumping apparatus.

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In many cases the pumpers can be set on bridges crossing streams provided the suction lift is not too great. In general, the lift should not exceed 18 or 20 feet for efficient operation of the pumpers although the permissible lift will vary with different elevations above sea level.

Many municipalities, during normal times, have made use of this type of supply and its further development offers possibilities in the present emergency. Usually these supplies are at a distance from districts which need protection and require that plans be made by the fire department for setting pumpers in relay. It is also advisable to discuss with the local health authorities the possibility of pumping from these supplies into the nearest fire hydrant of the regular water system and to follow their recommendations for emergency chlorination or treatment if they consent to such emergency use.

Another common emergency supply is that furnished by cisterns either public or private. Abandoned cisterns generally can be readily repaired, recemented and water-proofed. New cisterns advantageously located can be reconstructed at fairly reasonable costs. These can be filled from the regular waterworks system or by pumping from a nearby lake or stream and the responsibility of keeping them filled and in condition should be placed on a designated official.

Prior to the installation of a regular waterworks system, some municipalities depended on cisterns for fire supply. Many of these cisterns can now be reconditioned and placed in emergency service.

During the construction of one of the defense production plants in the middle west prior to the completion of the waterworks system, wooden tanks of 1,000 gallons and larger capacity were buried underground near important construction areas to serve as supply for the fire department pumpers. The basement of an abandoned house, near one of the construction areas, was converted into a water reservoir. This was filled by a pipe from a small portable pump set at a shallow creek. Two motor trucks, previously used in connection with highway work, each with a 1,000 gallon tank were obtained. These trucks were used for filling the underground tanks and were kept near the fire station, loaded and in readiness to respond on fire alarms. These emergency arrangements are being maintained as auxiliary to the regular waterworks system which is now in service.

A survey of municipalities also may show the possibility of converting basements of abandoned buildings into water reservoirs. A 30 foot by 40 foot basement has a capacity of about 70,000 gallons.

The use of motorized tank trucks is another possibility.

A scrutiny should also be made of all abandoned reservoirs at industrial plants. In one city a quick reference to fire insurance reports on industrial plants revealed three abandoned reservoirs. These, although not now used, apparently are in good condition and can be readily filled and placed in service. These are located in industrial areas relying on rather small capacity dead-ended water mains. These reservoirs have capacities of 255,000, 75,000 and 50,000 gallons. Undoubtedly many more abandoned reservoirs in the same city will be found.

The survey should also include examination of swimming pools both inside and outside of buildings, condensing ponds, private tanks, all private well supplies with a study of arrangements for fire department pumper connections.

These suggestions are perhaps merely a start. It is doubtful that new suggestions and ideas for emergency water supplies will ever be exhausted and many of them will be practical and can well be given consideration.



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DR. DAVID J. PRICE, *President*  
National Fire Protection Association

### FIRE PREVENTION WEEK, OCTOBER 4-10, 1942

*Reprinted through the courtesy of the*  
NATIONAL FIRE PROTECTION ASSOCIATION  
INTERNATIONAL  
60 Batterymarch St., Boston, Mass.

## Fire Prevention Week, 1942

***Fire Prevention Week is always the Calendar Week including October 9, the anniversary of the great Chicago fire of 1871.***

The material supplied in this pamphlet is for the use of those who are endeavoring to acquaint the general public with the seriousness of the loss of life and property by fire in the United States and Canada. These articles on conservation of property and life may be used in preparing addresses to be delivered before civic clubs, chambers of commerce, safety councils, agricultural associations, parent-teacher associations, women's clubs, schools, and all other gatherings during Fire Prevention Week and throughout the year. The data should be supplemented by references to local fire statistics and similar data wherever possible.

Editors will find the data thus compiled valuable in the preparation of editorial and news copy.

This pamphlet is published as a supplement to the N.F.P.A. Fire Prevention Week Handbook (New Seventh Edition), which contains complete suggestions for Fire Prevention Week programs. This, and other material in the form of posters, pamphlets, etc., is available upon request from the National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

The N.F.P.A. Committee on Fire Prevention and Clean-Up Campaign expects to receive the hearty cooperation of all interested in fire prevention work. In making the campaign for 1942 most productive of permanent results, please do not fail to forward reports of the work accomplished in your community during Fire Prevention Week to T. Alfred Fleming, Chairman, Committee on Fire Prevention and Clean-Up Campaign, 85 John Street, New York.

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## Facts About Fire

By T. ALFRED FLEMING

*Director of Conservation, National Board of Fire Underwriters,  
85 John Street, New York, N. Y.*

*"Every Fire Today is an International Calamity"*

Civilian Defense is at least 50 per cent fire defense. Therefore, the leaders in "Fire Prevention Week" should have the help of all loyal citizens in the program arranged. It is a most important activity in our present National Defense program.

We are or will be rationed on important products necessary to present-day living. We must not allow needless fires to cheat us out of the meager supply available. *Such losses would be criminal.*

Fire Prevention Week, October 4th to 10th, should be only a starting point for a year of united action in "National Defense Through Fire Defense." Planning should begin early and include a positive program for all cooperating organizations. It should take into account every town and city and reach out to the most isolated farm in surrounding areas.

This year of all years you will find all organizations ready and willing to help. It is a *patriotic duty*, as well as a *privilege*, to save accumulated necessities for our forces overseas. To do anything less than our best, *would be unworthy of our citizenship.*

Working as a unit in this campaign are the National Fire Protection Association, the National Board of Fire Underwriters, Chamber of Commerce of the United States, National Fire Waste Council, National Junior Chamber of Commerce, American Red Cross, Western Actuarial Bureau, Boy and Girl Scouts, 4-H Clubs, International Association of Fire Chiefs, International Association of Fire Fighters, Fire Marshals of States and Canadian Provinces, Insurance Organizations, Women's Clubs, Parent-Teacher Associations, Schools, Credit Men, Railroads, the National Grange, as well as radio stations, motion picture theatres, periodicals, and the weekly and daily press.

If you want these organizations to cooperate in your community, prepare a live program with plenty of originality and punch. Introduce local incidents and color. Encourage competitions, essay, slogan, poster, and oratorical contests, and script writing of fire prevention playlets, all under the sponsorship of your general committee.

Many cities are favored by a complete inspection of their homes in October, by members of their city fire department. This is a splendid method of educating the home owners in fire prevention and protection. It is a fine patriotic action by the Fire Department as this inspection work is often done voluntarily by the firemen when off duty, but under full direction of the Chief.

*Fire Loss is National Loss*

Fire loss is the people's loss. It is paid by all citizens in increased cost of living, higher insurance rates, higher taxes and in economic disruption. Everyone pays a part of the fire loss in the price of each purchase. Relief agencies are frequently called on by families of workers when the pay check stops. Buildings burned pay no taxes. Priorities preclude building construction other than for war time projects. We must save what we have.

*Life Loss From Fire*

The estimated life loss for 1941 was over 10,000 persons in the United States and 323 in Canada, with at least double that number injured by fire. Many persons

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on upper floors of buildings succumbed after breathing super-heated gases from fires which were burning in the basement or lower floors. Too frequent are the reports of death resulting from the use of kerosene on home fires—or the fatal application of gasoline for home dry cleaning. Smoking still takes its toll—chiefly because of the insane practice of “smoking in bed.” Many are burned to death because their clothing took fire from a fireplace, bonfire or stove. We ought to emphasize in all our conferences the importance of knowing what to do immediately to extinguish such a fire—and the reason for every move.

*Property Loss From Fire\**

1911 .....	\$217,004,575	1935 .....	\$235,263,401
1921 .....	495,406,012	1936 .....	266,659,449
1931 .....	451,643,866	1937 .....	254,959,426
1932 .....	400,859,554	1938 .....	258,477,944
1933 .....	271,453,189	1939 .....	275,102,119
1934 .....	271,197,296	1940 .....	285,878,697
		1941 .....	305,895,000

\*Estimated by National Board of Fire Underwriters.

## Our Forests—Our Fault—Our Loss

By C. E. RANDALL  
U. S. Forest Service

With regular fire-fighting forces seriously depleted by the call for men for war industries and armed services, forest protection agencies this year must rely largely on the voluntary aid of civilians in all walks of life to help defend the nation's forests from fire. Under wartime conditions, the forests are threatened by a greatly increased menace that not only can wipe out, in a few brief hours, the results of years and years of conservation work, but also can directly aid the enemy by crippling the country's war effort.

Forest fires can disrupt or destroy transportation facilities, communication lines, aqueducts, and power lines; they divert manpower needed for war work, and they destroy timber resources needed for implements of war. Dense clouds of smoke from forest fires could also seriously interfere with our air raid warning service and give cover to enemy planes. The War and Navy Departments have stated that forest fire control is of vital importance from a military standpoint.

In June of this year, the Office of Civilian Defense established a volunteer Forest Fire Fighters Service to aid in the emergency. Organized through State and local councils of the OCD, the new army of citizen volunteers is trained and directed by the U. S. and State forest services or other local forest protection agencies. For thousands of folks anxious to have a more active part in the war effort, the Forest Fire Fighters Service offers an opportunity to perform a vitally important service on the home front.

In addition, volunteer pilots and planes of the Civil Air Patrol aid forest protection agencies through an agreement with the Office of Civilian Defense, under which CAP is organized. The Forest Service provides training for cooperating CAP personnel in the special types of work involved in forest protection, including detection, reporting and dispatching practices, forest communication methods, packaging, loading, and dropping of cargo, familiarity with terrain, local weather and behavior of mountain air currents.

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Despite the fire-control efforts of forest protective agencies—the U. S. Forest Service, State forestry departments, and private associations—the number of forest fires in 1941 was nearly 5,000 greater than in 1940, reaching a total of 199,702. The area burned in 1941 was nearly 26 million acres—somewhat less than the annual average of recent years, but more than in 1940. The direct monetary damage, as far as could be determined, amounted to more than 37 million dollars, or two million more than in 1940. But this figure is exclusive of the losses suffered in interruption of work, watershed protection, wildlife, recreation values, and potential timber production—which cannot be calculated adequately in dollars and cents.

In the spring of 1942, bad outbreaks of forest fire occurred in the eastern and southern states; in some cases acts of incendiarism were responsible. The law is catching up on incendiaries, however, and fines or prison sentences are imposed.

Bad enough in peace time, the starting of forest fires in war time can be classed with sabotage. Even fires started by negligence or carelessness may cause as much damage or interfere as greatly with the war effort as actual enemy sabotage or direct enemy bombing.

The Forest Service recommends breaking matches in two before discarding them, to make sure they're out. If you can break the match without burning your finger, you know it's out. As for the cigarette butt, the Forest Service has a slogan: "Chaperon your cigarettes—don't let them go out alone."

In building a camp fire, a safe procedure is to scrape away all flammable material from a spot at least five feet in diameter, after which you dig a hole in the center and in it build your fire. A camp fire should be kept small. Never leave it burning unattended. To put it out, stir the coals as you soak them thoroughly with water. Pipe heels, like cigarettes and cigars, should be knocked out in a safe place and then stamped dead.

Another common cause of woods fires is clean-up burning of brush or debris. Some states require anyone burning brush to procure a permit. Many people who otherwise take precautions with fire, thoughtlessly pick a windy day for grass or brush burning. The fires spread quickly and soon get out of hand, causing great damage.

Foresters realized they had a big problem on their hands this year because of the danger of attack on our shores, when forest fires caused by incendiary bombs could aid the progress of the enemy and cause serious confusion. Co-operation of the public in aiding organized fire control forces was first manifested early in the year when a number of local groups volunteered for training in the West and many volunteers assisted in putting out fires in the eastern and southern states. This spirit, which has since been in evidence throughout the entire United States, has proved most heartening to Forest Service officials in the campaign to combat the increased forest fire damage in wartime.

## First Aid Fire Protection In Wartime

By L. W. HUTCHINS

*Director, Safety Research Institute, Inc.*

Fire extinguishers have gained a new importance. Useful as ever in putting out small fires due to ordinary causes, they are now readily available weapons the nation has for fighting the light magnesium incendiary bomb and the fires it may start.

Just when their value is becoming more generally recognized, however, approved extinguishers are becoming difficult for the average consumer to obtain. Much of the production of the fire extinguisher industry is being absorbed by the armed forces and

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by new defense plants with high priority ratings. The extinguishers in existence, therefore, should be well cared for until replacements are possible. Water pails and garden hose may, of course, be used if extinguishers are not available. However, it is well to bear in mind that these fire fighting weapons are only as dependable as the available water supply, and are not suitable for all classes of fire, such as those in flammable liquids or in live electrical equipment.

Looked at broadly, fire safety consists of two major elements, prevention of fire, and protection against those fires that do start. The beginning of fire protection is the security afforded by approved extinguishers.

These are their virtues: They are portable and can be carried easily to the scene of a fire. If properly inspected and recharged, they are always ready for safe and instant use. The various types of extinguishers provide protection against all classes of fire, whether in ordinary combustibles, flammable liquids, or live electrical equipment. Because of their known capabilities, the protection they afford can be measured against the severity of a hazard so that more than one extinguishing unit can be provided if it is needed.

In the event of an attack by enemy planes, water type extinguishers can be used effectively to fight the light magnesium incendiary. The U. S. Office of Civilian Defense, in its recently revised instructions, recommends that a stream of water be directed onto a bomb as quickly as possible to eliminate it as a source of fire. This results in a flash of light and some scattering of fragments of the bomb, but the force of the stream drives the fragments away from the operator. Moreover, using a stream of water permits the operator to remain at a safe distance.

If a bomb falls amid highly flammable materials where fires might be started by the scattering fragments, a coarse spray can be directed upon the bomb. This speeds up its burning, but does not dispose of it as quickly as the solid stream. The spray may be formed by "thumbing" the stream of an extinguisher.

Water type extinguishers include the pump tank, soda-acid, foam, and gas cartridge types. Non-water types, the vaporizing liquid and carbon dioxide, and dry chemical extinguishers, are not effective on the bomb but can be used on any fires started by the incendiary.

The majority of extinguishers are found in factories, shops, and mills. Industry, particularly large corporations with huge plant investments, always has taken the fire problem more seriously than any other division of our economic structure. Over a period of years, the concentration of extinguishers in industry has provided an opportunity to observe how effective they can be when provided in adequate numbers and where workers are trained to use them.

In one huge plant, where there are 34 factory units, representing an assessed valuation of about ten million dollars, adequate and intelligent use of fire extinguishers has enabled the director of fire safety to keep losses down to \$8,760.49 in 1,459 fires occurring over a period of six years. This is an average loss of only \$6.02 per fire. Throughout industry, according to some estimates, 70 per cent or more of all the fires that start are put out with first air fire appliances.

Public buildings, hotels, institutions, mercantile establishments, and schools are generally well equipped with extinguishers. There are two reasons for this, as in industry. The need for the protection they provide is recognized, and fire insurance companies allow a reduction in rates for having them properly installed. Private dwellings, however, seldom have the benefit of the protection of extinguishers. Yet in normal times, fires in dwellings constitute the most acute phase of the national fire problem.

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There are said to be about ten million "approved" fire extinguishers of all types in the United States. The approval is granted by three testing laboratories, Underwriters' Laboratories, Inc., the Factory Mutual Laboratories, and the U. S. Bureau of Standards. Approval is indicated by labels appearing on the extinguishers, and the labels are evidence that in construction and performance the extinguishers conform to certain standards.

Approved extinguishers are in service throughout the country. To supplement those in the target areas, the U. S. Office of Civilian Defense has ordered 2,200,000 pump tanks of special design, made of substitute materials. These tanks have been given a temporary wartime approval by the Underwriters' Laboratories, Inc. They will be distributed to the air raid warden service and allocations have been completed for most communities. The pump tank is unique among extinguishers because it can be refilled while it is being used. Its contents are plain water.

Because it is important to keep all existing extinguishers in service for the duration, special care should be given to the servicing of them. When they are recharged, only materials obtained from the manufacturer should be used, and the same applies to replacement parts.

Inspect all extinguishers frequently to make certain they are properly filled and ready for use. Examine the orifice of the nozzle to make certain it has not become clogged. On each extinguisher is a plate on which appear directions for inspection and recharging and these directions should be followed to the letter. If this is done, extinguishers will be ready for use in a fire emergency whether it arises from enemy attack, sabotage, or any of the ordinary circumstances which permit fire to start.

## Controlling Fire Hazards By Ordinance

By J. M. FRANCIS

*National Board of Fire Underwriters*

Confronted with the urgent necessity of safeguarding manufacturing plants, raw materials and finished products against destruction by fire, communities throughout the country are seeking every possible means of preventing needless fires. They no longer are concentrating their attention on factories producing the implements of war and the materials used in their manufacture. They are broadening their efforts to take in every type of industry and every kind of material, for they realize that all buildings and all materials are essential if we are to win this war speedily.

With the production of fire fighting apparatus and hose for civilian purposes severely curtailed, all communities are seeking additional means of controlling fire. Many of them are realizing for the first time that a complete, up-to-date fire prevention ordinance, properly enforced, is almost as essential to the fire department as are pumps and hose.

The awakening to this fact during the past year, and particularly since Pearl Harbor, has been remarkable. Approximately 25 cities, ranging in size from small communities to metropolitan centers, have adopted modern fire prevention ordinances in the past twelve months, and scores of others are in the process of doing so.

The reasons for this interest become obvious when the provisions of a modern fire prevention ordinance are examined. Such an ordinance enables the fire department chief to assign men to a fire prevention bureau which is empowered to enforce all laws and ordinances covering the following:

1. The prevention of fires.
2. The storage and use of explosives and flammables.



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6. The investigation of the cause, origin and circumstances of fires.

The educational value of a fire prevention ordinance is one of its most important aspects. The ordinance authorizes firemen to ferret out fire hazards in all types of properties, including homes, upon request. These inspections give firemen the opportunity to make suggestions to the occupants for correcting conditions which may cause a fire or contribute to the spread of one. Many fire department officials consider this educational work to be equal in importance to the police powers which are granted to the department by an ordinance.

There is no more appropriate time for communities to launch drives for enactment of fire prevention ordinances than during Fire Prevention Week. A number of cities which have adopted ordinances during the past year began their work during Fire Prevention Week in 1941, thereby giving to the movement the benefit of the interest in reducing damage and destruction by fire which is annually generated at that time.

## Protect The Nation's Bread Basket

By RUSH W. CARTER

*Chairman, Agricultural Committee National Fire Waste Council*

In 1917 the cry was, "Food will win the War"; so, food and still more food was produced, and conserved, that our Nation might be strong.

Once more the cry is for production, production, production; in the factory; on the farm; throughout the Nation; and, as in days gone by, the response is of a magnitude that may only be had from a free people who are determined to remain free.

As we view the magnificent accomplishments of our productive ability, we are filled with both pride and confidence. We should also be filled with determination—determination that the goods thus produced will be conserved to fill the need for which they were intended.

From early morn to dark, and sometimes far into the night, the productive might of rural America is rolling on and on to produce the food we will need both at home and abroad. This food, and the equipment needed for its production, are vital to the success of our war effort. They should be carefully guarded at all times from enemies within and without. Of the enemies within, none is more destructive than *FIRE* which annually takes a deadly toll of both life and property.

Every one interested in rural America will be pleased and encouraged to know that the trend of destruction by fire was downward last year, as it has been for the past few years.

Rural Fire Preventionists are elated at this success, but realize the victory is not yet won. The trend of the battle is running favorable to the forces of conservation, but we must continue our offensive against the common enemy, National Fire Waste, if we are to obtain full scope for our productive genius.

The National Fire Protection Association points out that the majority of farm fires are due to just seven causes—all largely preventable. In the approximate order of their importance, they are:

1. Defective Chimneys and Heating Apparatus, 2. Combustible Roofs, 3. Light-



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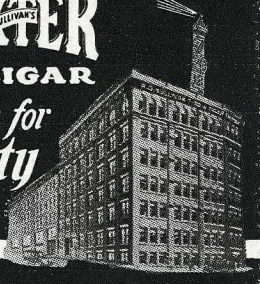
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ning, 4. Spontaneous Ignition, 5. Misuse of Electricity, 6. Matches and Smoking, 7. Gasoline and Kerosene.

After considering the above list, it is readily apparent that the one great contributing cause to almost all farm fires is carelessness.

Our armed forces are "On the Alert" wherever they are stationed and we on the "Home Front" should likewise be on the alert, that our common enemy, fire, may not creep in and destroy that which we have so painstakingly accumulated to add to our national strength.

Here is a fight in which every man, woman, and child, living on a farm, may enlist. So our plea is that you join the forces of conservation today. Go into action at once on your own home front, fully determined that all reasonable precaution will be taken to prevent the destructive hand of fire from falling on the lives and property within your keeping.

## What Price Carelessness?

By W. L. CLAIRMONT

*Dominion Fire Commissioner, Ottawa, Canada*

It has been repeatedly said, and no doubt rightfully so, that the people of the United States and Canada are wastrels. The necessity for correcting this condition is becoming more evident each day as the need for vital war materials increases. Perhaps in no other phase of our national existence have our wanton habits of waste been shown to greater disadvantage than in our fire loss record. Year after year these records are emblazoned on the pages of our national history and they spell only one word "carelessness." They tell us that we have maintained an utter disregard for the safeguarding of lives and property from the dangers of fire. They should tell us that it is high time we buckled down to the realization of what fire losses mean to our countries, particularly in this time of peril.

A glance at the Canadian fire loss figures reveals an alarming increase in fire losses in 1941 in Canada over 1940. It is quite true that much of that increase is due to the greatly increased industrial activity coincident with which we find an increase in mercantile losses, but we still find "peacetime" fires in large numbers. An outstanding feature of the 1941 fire loss record in Canada is the increase in fires where the loss exceeded \$50,000. These numbered 56 in 1941 as compared to 46 in 1940, while the property loss in 1941 amounted to over \$7,000,000 compared to \$3,745,000 in 1940. Reports in connection with these fires show that in many of them the large loss was due to the same conditions which have characterized our fire loss record for decades—sprinkler system shut off, inadequate water supplies, delayed alarm, etc. In the words of the poet, "Someone had blundered."

The table that reveals our national habit of carelessness in its true light is that showing the causes of fire. Fires from smokers' carelessness (and in this the female is as deadly as the male smoker), fires from defective chimneys, flues, electrical apparatus, fires from the careless use of gasoline, and in fact fires that originate from nearly all causes indicate a laxity in habits that in many countries is regarded as criminal negligence. In our democratic way we are content to make excuses and to express the pious hope that next year there won't be so many of this kind or that kind of fires.

"Sweet are the uses of adversity." The war has brought home to us the value and importance of sacrifice in many things. We can well do without so many fires! Let us therefore prepare to undergo that sacrifice by being more careful in our daily

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lives. By wasting less in fires, we can help the war effort and speed that day when the sword can be transformed back into the plough and when we can look into the blue of the sky without thinking of the death and destruction that may be lurking in the billowy clouds. And along with other forms of post-war planning let us resolve to deal a blow to our worst peacetime enemy "Fire" in the same manner as we propose to do to "der Fuehrer"—a real knock-out and no come-back.

## Fire Prevention Education In Schools

By CHIEF JOHN W. O'HEARN  
*Fire Department, Watertown, Massachusetts*

Fire prevention education in the schools is of vital importance. In many cases its possibilities have been overlooked and a fire prevention opportunity of great value has been lost. Teaching fire prevention in the schools is most profitable to the fire department because any message given to the children will be carried home and discussed. I do not hesitate to say that I have sold the fire department to the people of my town through our school system. The 8,100 school children in our town provide a wonderful field for fire prevention. A child in school is alert and easily grasps a subject, especially if it leans toward the spectacular. I find that the fire service has an appeal to children above other subjects with the possible exception of the movies.

Watertown is an industrial town of 36,000 population and has grown rapidly. With the entrance of industries about 40 years ago came a large foreign population, many of whom spoke no English and knew nothing of fire prevention. In their own countries there were few fire departments and when a fire occurred they just moved out and let it burn. That is what they were doing to me.

My first attempt at fire prevention in the schools was in a section of the town comprising about one-third of the population and made up almost entirely of foreigners. Sixty per cent of our fires were occurring in that small area. About 1913 I found that a means of communicating information to these people was through their children in the schools with the result that our troubles in that section were cut to the minimum.

From that time organized fire prevention education has been extended to every school in the town. The results over a long period of years speak for themselves. Had it not been for our continuous work of fire prevention among the school children, the story would have been entirely different as with a large increase in population and an increase of alarms the losses have actually been reduced.

To obtain success at teaching fire prevention in the schools a fireman does not need any exceptional training or ability. I believe that in doing this work you should have a love for children, and be convinced that their safety from fire is your personal responsibility.

You must be able to talk to the different groups in accordance with their ages. The work can be done from their first year in school until they leave, ready to take up life's burdens and create homes for themselves.

Always appear in uniform, well groomed, as this makes a lasting impression; all children are hero worshippers. The uniform holds their attention, without which your talk is wasted. You may gain their confidence at once by causing a laugh through a short funny FIRE story, as your talk will be lost if you continue in a serious way. Never quote laws, except the most simple ones, to the small children as they are not yet of an age to understand them.

Since you are talking to children, have your talk apply as much as possible to

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the home. Talk to them as if all were your own children without trying to make a speech. Speak from your personal experience of fires occurring in homes and cite for them occasions or circumstances (without mention of names). Tell them the causes of some home fires and how they could be avoided. All of us can do this. Avoid mention of heroism except by those unfortunate enough to be forced from their home. Tell them the hazards of the ever present rubbish in home basements and explain briefly what is meant by spontaneous ignition. Explain the dangers of hot ashes. Tell them of the hazards of careless storage and handling of oil for stoves and range burners and the danger of oil leaking or being spilled about. After you get going, many thoughts will come to you of incidents in your own town. Tell them to the pupils in your own way and you will be surprised at the results.

Impress them with the dangers of children playing with matches by pointing out a concrete case that has come to your attention. Tell them of the dangers of home cleansing with naphtha or gasoline, how easily it is ignited by the smallest spark, or by friction caused by rubbing clothing in order to remove the dirt. Tell them of the explosive power of gasoline. Mention the hidden vapor of gasoline and tell how it may travel unseen along the floor.

Point out to the children the number of lives lost by fire annually and compare it with the population of your own town. Tell them that the money losses for the country in a year sometimes exceed the value of an entire town. Tell them how insurance is collected and how it is paid out when a fire occurs. Tell them that even though we may never have had a fire, we are paying our share of losses because our rent includes the cost of insurance on the house we live in as does the cost of our clothing and food.

False alarms are practically eliminated in my town. The dreaded night-before-the-Fourth or Hallowe'en have no terrors for us. This in a great measure was eliminated by talks describing the danger to persons on the streets as well as the firemen and by the story that the fire department can only be in one place at a time. Should some child sound a false alarm, at the time another child's home was on fire, there might be no fire company to respond, making a loss of life possible.

Warn them of the electrical hazards in the home. Tell them that fires start because of poor, cheap electrical equipment and from overloading of the electrical system. Explain to them what you mean by overloading. Tell them why the numbers are on the fuse. Tell them the fuse is the safety valve of the electrical system and should never be replaced with a penny as here we change the old adage from one of "Penny Wise" to "Penny Foolish." Children love this story as many are mechanically inclined, especially the boys.

As an incentive for further study and to give the talks a lasting effect, prizes are awarded for essays or compositions. The response and enthusiasm is surprising. The best aid I have found in printed form for pupils up to the seventh grade is a book entitled "Sparks" by Valine Hobbs. I frequently distribute this book as an award or prize for a composition written by the pupils after a fire prevention talk.

Publications of the National Fire Protection Association, especially the Quarterly reports, are used in the schools. Proclamations of Fire Prevention Week by the President and Governor can be used to good advantage and are usually read by some pupil. These can be used to good advantage as you can express the importance of fire prevention as stressed by the leaders of our government.

We try to make inspections of every building including homes twice a year. The first is usually the week including April 19, as this is a fine week for outside cleanup,

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and again during Fire Prevention Week. Before these inspections, the press is notified with an advance warning. The schools are visited and the pupils are requested to carry the message home.

Speak to High School pupils in groups in the assembly hall. You will find that they look forward to your coming. Here the children are older and you are now able to talk fire laws, hazards, the organization of fire departments and the part these big boys and girls can take in fire prevention. Change your program each time.

One of the most interesting talks you can give is to have the stage filled with fire tools and appliances of every nature. Neither the children nor their parents know that all these things go to make up the equipment of a fire department. Lay out a length of 2½-inch hose and tell them how much it weighs filled with water. Then the 1½-inch hose with small nozzles. Tell how it is used to save water damage. Show all the various chemicals and how they are used. Have the various tools and their uses explained by firemen on the stage. Have the children try on a gas mask. It makes a good show. Another excellent demonstration is to throw salvage covers over the furniture on the stage. If you want the cooperation of your school children, do these things. They are in school to be taught and then they go home and say, "The fire chief was at our school today and said this or that." They believe these things because the fire chief said them.

Above all, never forget to thank the children for what they are doing for you. Tell them that the success of your department is due to the things they do as an aid to fire prevention. If anything unusual breaks, or a fire that is of interest to the whole community occurs, get to the schools as quickly as possible; use every means you can to get your message across. You must also impress upon the pupils that unless the story as told by you is carried into the home, your efforts are in vain. Make this just as strong as possible. Do all you can to get the children talking about fire prevention at home.

Close all talks with a question period and you will at once come to the conclusion that even though they are only children, they are rapidly becoming an aid to the service through fire prevention. Don't fail the children because the boy who is listening to you may some day be in your place. That is the way I put it to them and then they will know the seriousness of fire. No city is too large nor is any town too small to avail itself of the field that is open for fire prevention through twenty million children in our schools.

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## Information for Editors

**Fire Prevention Week, October 4-10, 1942**

### 1. Loss of Life by Fire.

During this last year, it is estimated that at least 10,000 lives have been lost as a result of fires. The largest percentage of these persons died in or about their own homes when their clothing became ignited from burning rubbish, bonfires, open fireplaces, burning matches or cigarettes. Many died as a result of smoking in bed. The careless use of flammable liquids such as cleaning with gasoline and kindling fires with kerosene took large tolls as usual. Hundreds died when they became entrapped by fire in their homes.

### 2. Annual Fire Losses by Causes—Approximate Estimate from State Fire Marshals' Reports for 1940.

Cause	No. of Fires	Loss
Chimneys, flues—defective or overheated .....	58,000	\$15,000,000
Sparks on roofs .....	79,500	14,000,000
Defective or overheated heaters .....	19,000	8,600,000
Rubbish .....	26,000	4,000,000
Combustibles near heaters .....	15,000	4,500,000
Open lights, flames, sparks .....	7,500	1,700,000
Hot ashes, coals .....	16,000	2,500,000
Oil burners .....	7,000	2,000,000
Smoking .....	87,000	14,000,000
Children and matches .....	23,000	2,500,000
Matches .....	22,000	3,200,000
Electrical .....	55,000	26,000,000
Electrical appliances, motors .....	10,000	1,500,000
Flammable liquids, misc., home dry cleaning and starting fire	20,000	4,000,000
Torches, welding .....	8,000	2,700,000
Films (Nitrocellulose) .....	1,000	150,000
Lamps and stoves .....	22,000	5,200,000
Gas and appliances .....	4,000	1,900,000
Grease, tar, etc. ....	10,500	2,000,000
Spontaneous ignition .....	19,500	15,400,000
Fireworks .....	1,500	200,000
Lightning .....	24,000	8,500,000
Thawing pipes .....	1,000	350,000
Sparks from machinery, friction .....	3,000	1,300,000
Incendiary, suspicious .....	8,500	11,000,000
Miscellaneous .....	11,500	6,800,000
Unknown .....	78,000	114,000,000
Explosions .....	10,500	9,000,000
Exposure .....	37,000	18,000,000
Totals .....	685,000	\$300,000,000



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3. *Annual Fire Losses by Occupancies—Approximate Estimate from State Fire Marshals' Report for 1940.*

Occupancy	No. of Fires	Loss
(a) Public Buildings ..... (including hospitals, schools, churches, theatres)	13,300	\$19,650,000
(b) Dwellings (hotels, apartments, homes, etc.).....	393,000	92,000,000
(c) Mercantiles (stores, offices, warehouses) .....	72,000	70,100,000
(d) Manufacturing Buildings .. .....	23,700	52,900,000
(e) Miscellaneous (barns, lumber yards, railroad and wharf properties, power plants, automobiles, etc.) .....	183,000	65,350,000
Totals .....	685,000	\$300,000,000

**Typical Fires Causing Large Loss of Life**

		Dead
March 4, 1908	Collinwood, Ohio .....	175
May 17, 1923	Camden, S. C. ....	77
December 24, 1924	Babbs Switch, Okla. ....	36
January 9, 1927	Laurier Palace Theatre, Montreal, P. Q. ....	78
September 19, 1927	Beauval Catholic Mission, Prince Albert, Sask. ....	20
December 14, 1927	Hospice St. Charles, Quebec. Children burned to death..	40
November 8, 1928	Preble Box Toe Co., Lynn, Mass. ....	20
May 15, 1929	Cleveland Clinic Hospital, Cleveland, Ohio .....	125
September 20, 1929	Detroit Study Club, Detroit, Mich. ....	22
April 21, 1930	Ohio State Penitentiary Fire, Columbus .....	320
June 24, 1931	Home For Aged, Pittsburgh, Pa. ....	48
March 24, 1934	Municipal Lodgings, Lynchburg, Va. ....	22
September 8, 1934	S.S. Morro Castle, off New Jersey Coast .....	125
February 12, 1936	Resort hotel, Lakewood, N. J. ....	16
April 6, 1936	Cloth working factory, Gainesville, Ga. ....	57
March 18, 1937	Natural gas explosion in school, New London, Tex. ....	294
May 6, 1937	Zeppelin Hindenburg fire, Lakehurst, N. J. ....	36
January 18, 1938	Sacred Heart College, St. Hyacinthe, P. Q. ....	46
May 16, 1938	Terminal Hotel fire, Atlanta, Ga. ....	35
March 2, 1939	Queen Hotel fire, Halifax, Nova Scotia .....	28
January 3, 1940	Apartment hotel fire, Minneapolis, Minn. ....	19
April 23, 1940	Dance hall fire, Natchez, Miss. ....	207
September 12, 1940	Powder plant explosion, Kenvil, N. J. ....	49
December 17, 1940	Explosion in tenement, Cincinnati, Ohio .....	14
February 7, 1941	Lodging house fire, Dallas, Texas .....	13
March 10, 1941	Theatre fire, Brockton, Mass. ....	13
July 7, 1941	Mine explosion, Leeds, Ala. ....	10
August 18, 1941	Pier and wharves, New York, N. Y. ....	34
October 26, 1941	Bus fire, Clanton, Ala. ....	17
October 27, 1941	Mine explosion, Daniel Boone, Ky. ....	15
December 25, 1941	Bus fire, St. Louis, Mo. ....	10
January 11, 1942	Construction camp, Shipshaw, P. Q. ....	15
January 29, 1942	Mine explosion, Mt. Harris, Colo. ....	34
March 4, 1942	Ordnance plant, Burlington, Ia. ....	22
May 12, 1942	Mine explosion, Osage, W. Va. ....	56
June 5, 1942	Ordnance plant, Elwood, Ill. ....	51

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YEAR	CITY	REMARKS	APPROXIMATE LOSS
1900	Hoboken, N. J.	Steamships, 326 lives .....	\$4,600,000
1900	Hull, P. Q.	800 acres burned. Spread to Ottawa	4,500,000
1901	Jacksonville, Fla.	Business section .....	11,000,000
1902	Paterson, N. J.	525 buildings .....	5,500,000
1904	Baltimore, Md.	Business section .....	50,000,000
1904	Toronto, Ont.	Business section .....	12,000,000
1906	San Francisco, Calif.	28,000 buildings .....	350,000,000
1908	Chelsea, Mass.	3,500 buildings .....	12,000,000
1911	Bangor, Me.	55 acres of buildings burned .....	3,188,000
1912	Houston, Texas	140 buildings .....	12,000,000
1913	Hot Springs, Ark.	518 buildings .....	2,250,000
1914	Salem, Mass.	1,600 buildings .....	14,000,000
1916	Paris, Texas	1,440 buildings .....	11,000,000
1916	Nashville, Tenn.	648 buildings .....	1,500,000
1916	Augusta, Ga.	682 buildings .....	4,250,000
1916	Black Tom, N. J.	Waterfront property .....	4,000,000
1917	Kingsland, N. J.	Munitions plant .....	12,000,000
1917	Atlanta, Ga.	1,938 buildings .....	5,500,000
1917	Halifax, N. S.	2,000 killed, munition ship exploded....	5,000,000
1918	Kansas City, Mo.	21 buildings .....	2,000,000
1918	Morgan, N. J.	Munitions plant .....	5,000,000
1918	Minnesota forest fire	599 lives lost .....	25,000,000
1920	Grandview, Texas	136 buildings .....	2,000,000
1922	Chicago, Ill.	13 buildings .....	5,500,000
1922	Norfolk (Berkeley), Va.	100 buildings .....	1,000,000
1922	Arverne, N. Y.	141 buildings .....	2,000,000
1922	Astoria, Ore.	30 blocks destroyed .....	10,000,000
1922	Northern Ontario	Forest fires, 44 lives lost .....	6,000,000
1923	Berkeley, Calif.	584 buildings .....	6,000,000
1925	Shreveport, La.	196 buildings .....	1,000,000
1926	Newport, Ark.	280 buildings, 1 life lost .....	1,500,000
1926	Lake Denmark, N. J.	Munitions plant .....	93,000,000
1927	Montgomery, Ala.	22 buildings .....	1,500,000
1928	Fall River, Mass.	107 buildings, 1 life lost .....	2,514,000
1929	Mill Valley, Calif.	130 buildings .....	1,500,000
1930	Nashua, N. H.	350 buildings .....	2,000,000
1931	Norfolk, Va.	60 buildings .....	1,250,000
1931	St. John, N. B.	Waterfront property .....	5,000,000
1931	Spencer, Ia.	39 buildings .....	1,000,000
1932	Coney Island, N. Y.	4 blocks destroyed .....	2,000,000

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1933	Auburn, Me.	250 buildings .....	1,500,000
1934	Chicago, Ill.	Stockyard conflagration .....	4,617,280
1936	Bandon, Oregon	400 buildings, 13 lives lost .....	1,250,000
1937	Cincinnati, Ohio	Conflagration during flood .....	1,225,000
1938	New London, Conn.	Conflagration during hurricane....	1,000,000
1938	Southern, California	Forest fires, many buildings .....	3,000,000
1939	Chicago, Ill.	5 grain elevators, 9 lives lost .....	3,500,000
1939	Pine Ridge, Ore.	Plant buildings, town site, forest..	2,000,000
1940	Camden, N. J.	Factory, several city blocks .....	2,000,000
1940	Kenvil, N. J.	Powder plant, 49 lives lost .....	1,000,000
1940	Baltimore, Md.	9 acre cork storage yard .....	1,000,000
1941	New Orleans, La.	Large warehouse .....	1,500,000
1941	Marshfield, Mass.	450 summer resort buildings .....	1,000,000
1941	Jersey City, N. J.	Large waterfront area .....	5,000,000
1941	Boston, Mass.	4 railway freight sheds .....	1,575,466
1941	Fall River, Mass.	5 factory buildings, adj. properties..	11,000,000
1941	Seward, Alaska	13 business buildings .....	500,000
1942	Philadelphia, Pa.	20 dwellings and business structures	1,000,000
1942	New York, N. Y.	U.S.S. Lafayette (Normandie) (?)	60,000,000

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# WHAT FIREMEN SHOULD KNOW ABOUT ELECTRICITY

By **H. O. SPRINKLE**

*Manager of Operations, Monongahela West Penn Public Service Company  
Fairmount, West Virginia*

*Reprint of paper presented before Fire Service Extension School  
West Virginia University*

*Published through the courtesy of*

THE EDUCATIONAL COMMITTEE INTERNATIONAL ASSOCIATION OF FIRE CHIEFS

CHIEF DANIEL B. TIERNEY, *Secretary*, ARLINGTON, MASSACHUSETTS

I. The subject of my talk is, "What the Fireman Should Know about Electricity," and after some consideration it is apparent to me he should know all about it, but since he can't possibly do this he should at least know enough to protect himself, his fellow firemen and the public from dangerous contacts with energized wires and equipment.

It has been well said that a little knowledge is a dangerous thing. We in the utility business find this is particularly true of electricity, because so many people use electricity, and a number of them know something about the simpler applications of it. However, so very few know enough about it to work with it intelligently and safely. A great many people get hurt with electricity because they assume more knowledge than they really have.

Electricity is nothing to fool with unless you know what you are doing. It is like fire, it must be properly controlled, or instead of being of great use and a blessing to humanity, it can become a serious hazard.

II. The purpose of this talk is to present some ideas and information which may be helpful to the fireman when he encounters electric wires or equipment in his occupation of fighting fires. There are two parts to this subject.

1. Overhead outside wires and equipment.
2. Inside wiring and equipment.

This talk is almost exclusively concerned with the outside overhead wires and equipment, such as are to be seen on the streets and alleys of practically all communities, except the very largest cities. In the very large populated centers it is necessary to put most of the electric wires underground, particularly in the down-town districts, but in most of the communities in West Virginia the wires are overhead.

III. Many agencies use overhead wires. These are telephone and telegraph companies, electric light and power companies, police and fire alarm circuits, and street railways. Each of these agencies has wires strung on poles in a number of our communities, but of course the electric light and power companies and the telephone companies are by far the greatest owner and user of overhead wires. Their service is much more universal than the other agencies.

In the uses made of overhead wires, voltage is the characteristic that makes them hazardous. Voltage is a characteristic of electricity that can be compared to pressure in a pipe, except that electricity can be taken from a wire at any contact, whereas pressure in a pipe can only be released through some hole or valve. There are very wide variations in the voltages that are to be found on overhead wiring. The following

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classification of voltages is not definitely set up in any standard, but is generally accepted as representing reasonable definitions.

- (a) Low voltage circuits from "zero" to 600 volts. In general this includes all circuits of telephone companies, telegraph companies, signal circuits of all kinds, railway trolleys and feeders and the secondary circuits of electric companies. These secondary circuits of electric companies supply power to residences, small commercial establishments and small power users.
- (b) Distribution voltages from 600 to 10,000 volts. This is not a fixed limit, but is in general usage. The higher limit should perhaps include 12,000 volts in order to take in an extensively used rural line voltage, but such circuits are very rarely encountered in urban communities. The voltage to ground on such 12 KV circuits is 6900 volts, and perhaps could still be classified as coming under the 600 to 10,000 limits. Circuits of these voltages are the kinds normally used for the distribution of power from the large substations. For instance, here in Morgantown the voltages coming from the main substations are at 2300 volts, and they carry the power from the substation to all of the areas served by our company. Transformers are connected to these 2300 volt circuits which step the voltage down to 115/230 volts, which we term secondary voltages and which connect directly to the wiring in houses, stores, etc.

Some companies buy power directly at 2300 volts where considerable power is used. For instance, West Virginia University at Morgantown, buys power at 2300 volts and distributes it underground over the campus to several distribution vaults located in the basements of some of the buildings. In these vaults are the transformers that step the voltage down to 115/230 volts for use in the wiring systems in the buildings. Some customers take these higher distribution voltages, such as 2300 or 4000 volts, and use them directly to operate motors and other equipment.

In rural areas the distribution voltages range from 2300 to 12,000 volts. As explained previously, these 12,000 volt circuits have a grounded neutral, and are actually 6900 volts to ground. Our rural voltages include 2300 volts, 6900 volts and 12,000 volts.

Street lighting circuits are of two kinds, multiple and series. The multiple circuits are supplied directly from some individual transformer, and do not exceed 230 volts, which is about the same voltage as is used in a great many residences, especially where ranges and water heaters are located. Multiple circuits have only minor use and are seldom used in the larger communities.

The series street lighting systems are more common, and have a variable voltage that ranges as high as 6000 volts. Of course all street lighting circuits are only energized at night, but they should always be considered as energized at all times because you can never tell in a case of trouble but what the street lighting wires might be crossed up with some of the distribution circuits.

- (c) Transmission voltages, from 10,000 volts up. The highest transmission voltage used today is about 220,000 volts. On our system we have voltages that range from 11,000 to 132,000. This new line that we are building to supply power to the Morgantown Ordnance Works just across the river is a 132,000 volt line that will run from Lake Lynn to Rivesville. Most of our high voltage circuit mileage is at 22,000 volts. Circuits of this voltage are about as high as any fireman would have occasion to come in contact with, because circuits of higher voltage are quite isolated from buildings of all kinds, and seldom run through thickly populated areas. Substations to handle voltages above 22,000 are nearly always on the outskirts of towns, such as our Granville Substation

down the river from Morgantown, where we take power at 66,000 volts and step it down to 22,000 volts for distribution to the City of Morgantown, all of the adjacent coal mining areas, etc.

22,000 volts, and in some areas in the State, 33,000 volts are likely to be encountered by the fireman in his work in urban communities, although very rarely in comparison with the number of times he will have to deal with circuits of the distribution voltages given above.

IV. One of the most important things a fireman should know is how to recognize various kinds of circuits and their voltages.

- (a) The size of the wire is no criterion at all. The size of the wire or even the material of which the wire is made, is no evidence at all of its voltage.
- (b) The best means of determining the kind of circuit and particularly its voltage, is to be thoroughly acquainted with the insulators used, and the location and spacing of the conductors. Of these the insulators afford the most quickly recognized means of identification.

You can't always say definitely, but at least you know that an insulator 3" high is not carrying voltages above 10,000, particularly when you take into account the shape and material of which the insulator is made.

It shouldn't be difficult for all of you, with a little study, to become quite familiar with various sizes and shapes of insulators and the voltages they are expected to carry.

- (c) The spacing of circuits is a big help in determining their approximate voltage. You can almost depend upon it that the higher voltage circuits are at the top of the pole. This is in accordance with National Safety Code Standards. In fact the location of circuits and their minimum allowable spacings have been determined by many years of practical experience, and are quite definitely set out in the National Electrical Safety Code, which is used as a standard throughout the United States.

It is a little too much to expect firemen to become thoroughly familiar with circuit spacings, but in general it isn't hard to learn the approximate spacings between conductors and the location of circuits on a pole where several different voltages are carried, in order to form a good idea as to what you are up against in any particular location. A study of spacings, clearances and of the insulators themselves should give you a good working knowledge by which to recognize the voltage of electric circuits.

V. Hazards from electric circuits arise when firemen have to work near such circuits while performing the following jobs—

- (a) Throwing streams of water or other fire extinguishing liquids on fires.
- (b) Erecting aerial ladders.
- (c) Clearing persons who have come in contact with energized wires.
- (d) Protecting the public from wires that have come down.

In the above list the first one (a) is certainly the most frequently met, and probably the most important to consider. A lot of experimental work has been done in determining how much ground will be caused from different voltage circuits through various liquids used in fighting fires, and in determining how much ground a man can stand without serious injury. These investigations have been carried on by a lot of independent investigators, and from a number of these tests we can arrive at some safe figures. Some of these tests, particularly the earlier ones, were rather heroic in that a man actually took hold of the nozzle of a hose and moved toward an electric conductor continually squirting water on it until the amount of ground became too great

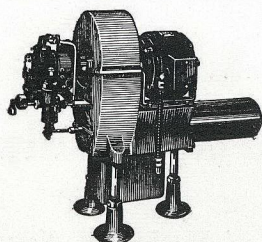


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and he couldn't stand any more. This, of course, was very hazardous and could easily have resulted in serious if not fatal injury, because not all people can stand the same amount of ground.

In addition to tests made for the benefit of firemen there have been a lot of investigations on the amount of ground human beings can stand in setting up safe standards for electric fences. As you know, electric fences consist of a strand of wire energized with a rather high voltage but very low ground electric charge, which is used to shock animals and keep them within the enclosure. After being shocked once or twice very few animals will even approach the wire afterwards. A number of fatal accidents have occurred through children making contact with improperly designed or faulty electric fences, and very rigid standards are being set up for this type of equipment.

The absolute safe limit of continuous uninterrupted ground for a human being has been set as 5 milli-amperes, or 5/1000 of an ampere. This will not injure a small child making perfect contact with the wire and a perfect contact with the ground, or the other side of the circuit. This value of ground is very, very low, and much higher values have been established in practice for adults by a great variety of experiments. At the present time many very reliable authorities say that 5/100 of an ampere is safe for an adult in good health.

In the experiments that have been made to determine safe distances for water streams from fire hose nozzles, the following tables are submitted as evidence of the results obtained.

#### TESTS BY PROFESSOR F. C. CALDWELL OHIO STATE UNIVERSITY

Using ordinary city water, 2½" hose  
and 1⅛" and 1½" nozzles.

#### TEST AT 30,000 VOLTS

Distance of Nozzle from Wire	Resistance of Stream	Amperes
8 feet	70,000 ohms	.43
12 feet	100,000 ohms	.32
16 feet	135,000 ohms	.22
20 feet	200,000 ohms	.15
22 feet	430,000 ohms	.07
24 feet	770,000 ohms	.04
26 feet	1,100,000 ohms	.03

It can be seen that the above table recommends a minimum safe distance of around 24 feet if we accept .05 amperes as a safe value of current.

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5 MILLIAMPERES.

Current of 5 Milliamperes

Distance from Nozzle to Wire in Feet	Voltage
2	440
7	1,100
12	2,200
20	4,400
25	6,600
31	13,200
33	22,000

SAFE DISTANCES FROM HIGH POTENTIAL LINES

(C. S. Sprague and C. F. Harding)

Assumed maximum current, 3 milliamperes; zero resistance for man holding nozzle. Nozzle pressure, 50 pounds per sq. in. Nozzle size, 1¼ inches.

MINIMUM SAFE DISTANCES IN FEET

Water Resistivities (ohms per cu. cm.)								
Volts	500	1000	1500	2000	3000	4000	5000	6000
400	11	7	5.5	4.5	3	3	3	3
1,100	30	18	14	12	8.5	6.5	5.5	5
2,200	*	30	23	20	15	12	9	8
4,400	*	35	31	28	23	19	16	15
6,600	*	*	34	33	30	26	23	22
13,200	*	*	*	*	33	31	29	28
22,000	*	*	*	*	*	*	*	*

\*At these resistivities, for the respective voltages, and for all voltage above 13,200 volts, the fire stream should not be allowed to strike the line.

OHIO STATE UNIVERSITY in 1923

50 lbs. per sq. in. in nozzle  
pressure—1½" nozzles.

(Water from city mains)

Voltage	Safe Distance in Feet
1,100	9
2,200	16
6,600	22
11,000	30
22,000	33
33,000	38
90,000	50

This table does not state what current was considered safe. Water in Ohio generally is more conductive than the average water over the United States.

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There are a number of factors that affect the conductivity of water streams other than just mere distance. For one thing one of the most important factors is whether or not the stream is continuous. The stream as discharged from a fire nozzle remains a continuous flow of water for only a part of its entire travel, and it is affected by nozzle design, pressure, wind and angle of elevation. As soon as the stream of water breaks up it becomes a non-conductor for all practical purposes.

Another factor in safe distances for water streams is the conductivity of the water. This depends upon the season of the year, and whether or not the water comes from wells, rivers or lakes. In general well water has the highest conductivity, and lake water the lowest. In real dry weather water from rivers goes up very noticeably in conductivity. The conductivity, of course, depends upon the amount of minerals and salts in solution in the water, since pure water is only very slightly conductive. A factor which has a great bearing on the amount of current that will pass through a fireman's body depends very greatly upon his physical condition at the time. For instance, a fireman may be standing on a dry wooden platform or other material which is dry and has poor conductivity, or he may be wearing rubber boots which add very materially in preventing the flow of current through him to ground. Even the physical condition of the man himself has a great deal to do with whether or not he would get hurt by an electric current. Some people can withstand heavy shocks, whereas others are quite susceptible to shock.

Taking everything into consideration, we believe the following summary is a good set of figures to keep in mind.

- (a) Up to 600 volts, 3' and over is safe under practically all conditions.
- (b) From 600 up to 2300 volts to ground, which is ordinary city distribution voltage, 15' and above is safe. The average clearance of the wires of this voltage above ground provide this distance from any one standing on the ground.
- (c) From 2300 to 10,000 volts requires distances of around 25'.
- (d) From 10,000 to 25,000 volts requires 30' to 40' distance, and should be avoided if at all possible.
- (e) Above this voltage it isn't safe to touch with a stream of water.

Another hazard to firemen when working near energized circuits is in the erection of aerial ladders. In this connection the recognition of circuits is of the greatest importance. By all means avoid placing ladders where any one on the ladder would come in contact with circuits of 2300 volts or above, until after the circuits have been de-energized. Metal ladders are much more hazardous from the electrical standpoint than wooden ladders. This is obvious, of course, because metal is a conductor. A good dry wooden ladder is really a very good insulator, but most wooden ladders have metal reinforcement, and sometimes they are wet. Therefore, one should be very careful about the condition of the ladder before depending upon it as an insulator.

Most aerial ladders are erected from trucks, and some firemen feel that the rubber tires on the truck are sufficient insulation against most any distribution voltage. Truck tires can be fairly good insulators if they are clean and dry. In nearly every instance, however, the truck tires around a fire are wet and splashed with dirt, which makes them very poor conductors.

The third class of hazards to firemen is in clearing persons who have come in contact with energized wires. This is in almost the same category as the fourth hazard of protecting the public from wires that have come down. I would like to cover these two hazards by discussing them together.

Wires come down when they are broken due to storms, fires, automobile collisions,



ice loads on the wires, etc. It quite frequently happens that such wires remain energized even though they are touching the ground, and any one who touches such wires is very likely to be shocked.

The following summary will indicate what I would recommend as the procedure to be followed in various cases—

1. Where the electrical circuits are encountered in such fashion that human life is not involved and property is not likely to be damaged, the following action should be taken.

- (a) Keep everyone away from the fallen wires.
- (b) Call a utility service man.
- (c) Stand guard and stay in the clear.

2. Where human life is not at stake, but property is in danger.

- (a) Keep everyone in the clear.
- (b) Call a utility service man.
- (c) Cut the wires if you have proper equipment and have been instructed how. Be sure you know what you are going to cut, and that you recognize the voltage of the circuit you are dealing with. Be careful of the possibility of the ends of the cut wires flying about due to the strain that is on them, and contacting some one.

3. Where human life is at stake.

- (a) Keep people back from the immediate surroundings.
- (b) Send for a doctor and a public utility service man.
- (c) Remove victim from the wire or the wire from the victim, depending upon the circumstances. In doing this you should know how to perform the job safely. Use a stick of dry wood, a dry pike pole, a dry wooden ladder or some similar insulating medium.

If you are sure the voltage is below 5000 volts, use approved electrician's rubber gloves if you have them available. In our territory we furnish the major Fire Department trucks with approved rubber gloves, which we test regularly.

As an emergency job you can lay a short wooden ladder parallel to the wire and stand on the rails to cut or handle wires under 5000 volts. Be sure your ladder is dry.

- (d) As soon as the victim is in the clear, give artificial respiration until the doctor arrives to take charge.

VI. There are a number of other liquids and fire extinguishing mediums besides water which must be considered. I will list these with brief comments as to their various qualities, which I am quite sure all of you know better than I do, but this will be a handy summary.

1. Soda-acid extinguishers (bicarbonate of soda and sulphuric acid). This liquid is good for Class "A" fires, but is not effective on Class "B" fires. It should not be used on Class "C" fires, especially if equipment is energized because the liquid is a very good conductor. Also, insulation saturated with this solution can seldom be restored to a useable condition.
2. Foam extinguishers (aluminum sulphate, bicarbonate of soda, stabilizer and water). This extinguisher is good for Class "A" and "B" fires, but not for Class "C". It is a good conductor and should not be used on energized equipment. It makes a bad mess and is very hard to get properly cleaned up. Foam is very good for oil fires.
3. Loaded stream (Karbaloxy-water solution of potassium carbonate with CO<sup>2</sup> under 500 lb. pressure).

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This medium is good for Class "A" and "B" fires, but is not recommended for Class "C" except when equipment is de-energized. It is also a very good conductor.

4. Vaporizing liquid (carbon tetrachloride plus some other ingredients).

This is fair for Class "A" and "B" fires, but is excellent for Class "C" fires. It is a non-conductor and can be used on energized equipment at very close range. It evaporates quickly and does not leave the equipment in such a messy condition that it can't be very nicely cleaned up. Insulation that is wet with carbon tetrachloride can generally be restored to a useable condition.

5. Carbon-dioxide gas.

This is fair for Class "A", and good for Class "B" and Class "C" fires. Its handicap, of course, is its short range. It is quite extensively used, to be automatically discharged into closed vaults or rooms when fire breaks out, and for this use it is most excellent as it eliminates the oxygen around the fire and puts it out. Being a gas it does not leave any mess, nor does it affect insulation.

6. Dry powder (bicarbonate of soda with some means of expelling it).

This is a fairly new type of extinguisher, and is fair for Class "A", and very good for Class "B" and "C" fires. Being a dry powder it can only be used over short ranges, but it is quite effective when it can be applied right on the fire itself. Being a powder also makes it a non-conductor in so far as its use is concerned.

## SUMMARY

To sum up with the recommendations that I would make as to what a fireman should know, I would list them as follows—

1. Get in touch with the various utilities that have overhead wires in your communities, particularly with the electric light and power utilities, and have them send you a competent man to show you all about the overhead circuits throughout your territory. At that time you can learn to identify the various circuits and know precisely what voltages you may encounter. This knowledge will almost certainly save you trouble sooner or later.
2. Have the electric utility representative teach you how to cut wires with safety to yourself and to the public. In this connection, of course, you should have the proper equipment, you should be able to identify the voltage of the circuit you are cutting, and you should certainly keep in mind that the cutting of wires by anyone other than a utility representative should be done only in emergencies. Things in particular to be sure of when you do cut wires are—
  - (a) Voltage of the circuit. Do not try to cut wires of voltages over 5000.
  - (b) Watch for the flying ends of the wires when cut. This is exceedingly important because a number of serious accidents occur every year through forgetting to take care of this point.
  - (c) Be sure that when the wires are cut that the strain on adjacent structures is not going to cause trouble. If it looks like a heavy strain would be placed on adjacent structures when the wire is cut, I would suggest that you wait until the utility men get on the job.
3. Keep in mind the approximate safe distances from energized circuits when it becomes necessary to play streams of water or other liquids on them.
4. Always try to get a utility service man on the job as soon as possible. Most utilities are already set up to get some one to the scene of the fire as soon as an alarm is given. If this is not the case in your community, try to get it established at once.

## GASOLINE IS DYNAMITE

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"Gasoline hoarding was blamed by Middletown fire and police officials for the explosion and fire which demolished a home and garage at 52 Second Street last night."

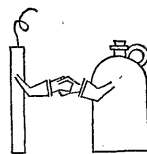
Newspapers the country over might well keep a skeleton of that news story standing, ready to use at a moment's notice, unless we all stop to think before trying to beat the gasoline shortage and rationing. Now that rationing is in effect in some states and later may be extended to all the others, our first thought is of "putting some gasoline away for an emergency." It may be just that "putting some away" that will *cause* the emergency!

Would you knowingly store, in your garage, under your porch or in your cellar, 100 or more pounds of dynamite, with cap set and fuse leading out where any passerby might drop a match or a cigarette butt on it and blow your garage or your house sky-high, perhaps with you or your family inside? You would not!

But, you ask, what harm can possibly come of the storing away of a few gallons of gasoline? Why this talk about dynamite?

Why? Because, under certain conditions, over which you have little control, one gallon of gasoline and 100 pounds of dynamite have almost the same destructive explosive power. And, worse, it is almost axiomatic that a raging fire immediately follows and completes the destruction begun by a gasoline explosion.

We all know what gasoline is. We know how it looks and how it smells. We also think that we know how to use it but sometimes facts prove that the opposite is true. Certainly, it can be said that familiarity has bred carelessness. Ask your gasoline dealer or anyone who handles gasoline as a commodity, what precautions they take with this innocent-looking liquid whose energy engineering skill has harnessed, so that only a few drops will drive your car—a ton or more of steel—hurtling over the road with the speed and power of a hundred wild horses. You'll be amazed to discover how much you have either forgotten or never learned about this liquid dynamite you use every day.



The flash point of gasoline, the lowest temperature at which it will vaporize in sufficient quantities to create an explosive mixture with air, is—5° Fahrenheit—five degrees below zero! And how much gasoline vapor is necessary to create an explosive mixture with air? We know that a concentration of only 1.5 per cent to 6 per cent by volume is enough. That means that in an average-sized room—a room

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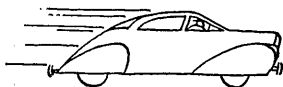
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12 x 12 x 9—vapor from only three quarts of gasoline would make every cubic foot of the air in that room explosive. Usually, however, only about one cubic yard of air near to the gasoline container need be so charged to result in an explosion; and to charge that cubic yard, only about two ounces of gasoline must vaporize. Those two ounces of gasoline would, in controlled explosions within a motor, move a large sedan about 500 feet along a level road. Imagine the power released when that same vapor-air mixture is exploded all at once! Gasoline vaporizing in air gives off more than one hundred times its bulk in vapor, and converts more than 1,500 times its volume of air into an explosive mixture. Any igniting agent will cause that explosive mixture to expand, literally “in a flash,” to 4,000 times its volume.

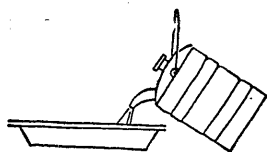
Well, you may say, who would be so foolish as to light a match or to do anything else to ignite that explosive mixture?

Certainly, you would not, if you could possibly help it. But you have little or no control over the conditions that may cause ignition from a spark of static electricity or some other unforeseen factor. A static spark may result from no more than the pouring of the gasoline from one container into another. The contact of the two vessels, the friction of the swirling gasoline, or the unintentional and slight friction of two nearby non-conducting substances, may cause enough of a static spark to result in ignition.

Gasoline vapor is heavier than air and will concentrate near the floor, or in depressions, below the line of windows and usual streams of ventilation. Under certain conditions, the vapor has been known to actually flow, retaining its explosive concentration, for a distance of more than a hundred feet. In one instance, an explosion and fire resulted from the ignition of vapor by a bonfire situated 150 feet from the source of the vapor. Logically, any inclosed or poorly ventilated space, particularly a cellar, where the vapor may collect and remain for a considerable time, is not only a poor place to store gasoline, or even to use it and thereby expose it to evaporation—it is a downright dangerous location, as well.



The records are not entertaining. A young housewife, using gasoline in a pan on her kitchen table to clean some clothing, forgot about the pilot light on her gas stove, which ignited the vapor—she was seriously burned and permanently disfigured. The owner of a roadside refreshment stand, cleaning a wall with a sponge soaked in gasoline was seriously injured and his stand demolished—some of it blown seventy-five feet in the air. A young woman was fatally burned and her husband critically injured when the vapor



from a leaking can in which they had stored two gallons of gasoline ignited—the explosion blew the door shut and trapped them in the burning cellar until the husband broke down the door. Three families driven from their homes when gasoline, stored in drums beneath the front porch of their dwelling, exploded and turned the building into a raging inferno. No, the records are not entertaining. They're far from it. The flip of an electric switch, a small spark of static electricity, a spark from the scuffing of a nail in a shoe or from a carelessly dropped tool on a concrete



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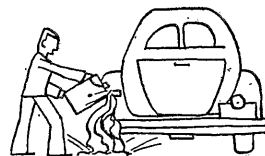
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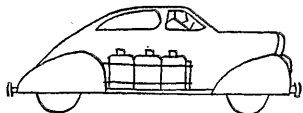
cellar floor, a nonchalantly flipped match or cigarette, the sometimes inexplicable ignition—each can cause that searing flashback, the rending explosion, and the raging fire that kills or horribly disfigures or maims anybody and demolishes anything within range.

It is said that history repeats itself. In the early days of automobiles, it was a common practice of car owners to store and to carry with them extra quantities of gasoline, but only in specially designed containers. In spite of all precautions, the hazard in storing and handling it soon made itself known. Today, the risk is even greater. According to the National Board of Fire Underwriters, one of the greatest hazards in this "putting some gasoline away" lies in the danger to life when the act of pouring the gasoline from its container into the gasoline tank of your car is performed. "The tank inlets are designed to permit the ready delivery of gasoline through a nozzle attached to a hose. It is practically impossible to pour gasoline into these inlets from bottles, cans, and other containers unless a funnel is used, and proper funnels are seldom available. Even with a funnel, it is not at all uncommon for a considerable amount of the gasoline to be spilled over the car and in some cases onto the clothes of the person doing the pouring. In the days when this was common practice, there were not infrequent cases of the delivery of gasoline in this way producing a spark of static electricity which ignited the vapors. Many persons were seriously and sometimes fatally burned."



Ultimately, there are certain responsibilities, legal and moral, to others and to ourselves, that not one of us can afford to ignore merely for the sake of storing away some gasoline for some future and imaginary emergency.

In many urban localities, ordinances existing solely for the common good specifically prohibit the storing of gasoline, or allow it only upon certain conditions. Storage then, for some future emergency, is direct violation of the law and a thumbing of the nose at the moral responsibility underlying. You endanger not only your own life and property but also your neighbor's.



You have a further responsibility to yourself. You have probably insured your property against fire. The storage of gasoline within insured structures, in excess of the amount allowed by most standard fire insurance policies, is then a violation of that insurance contract and automatically renders it invalid. Needless to say, in event of a fire or explosion resulting from the storage of an excessive quantity of gasoline, the burden of the property loss incurred might revert to you alone. In times such as these, the loss of your home or other property, even with insurance paid in full, would be a serious calamity.

And last, but far from least, we all must assume today a share of a responsibility greater than any most of us have ever known. Beside it, our personal and individual cares and responsibilities pale into utter insignificance.

The men in the fox-holes of Bataan and shattered Corregidor assumed their full share and more. We at home can certainly shoulder and carry our smaller shares. The preservation of life and property; the saving of all things vital to victory, and the re-establishment of the rule of right over might is our common goal. Can we say that our small share of that responsibility is too much?

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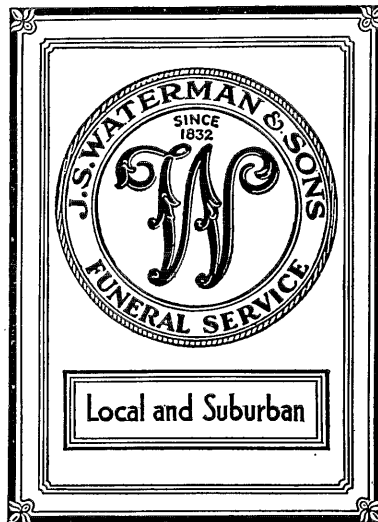
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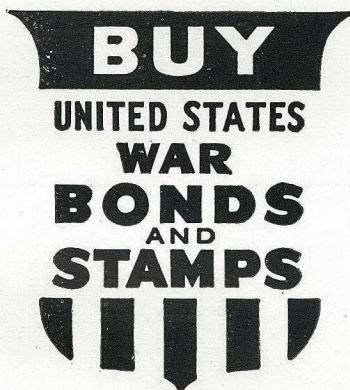
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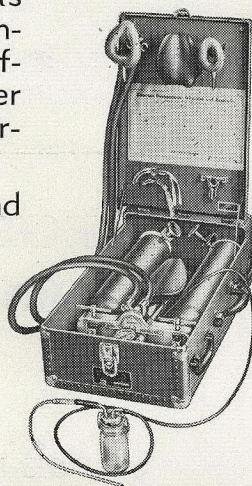
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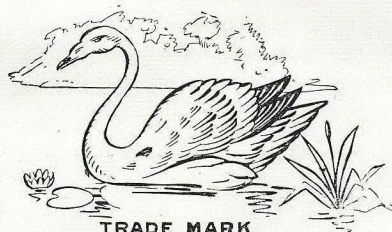
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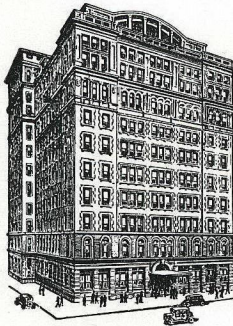
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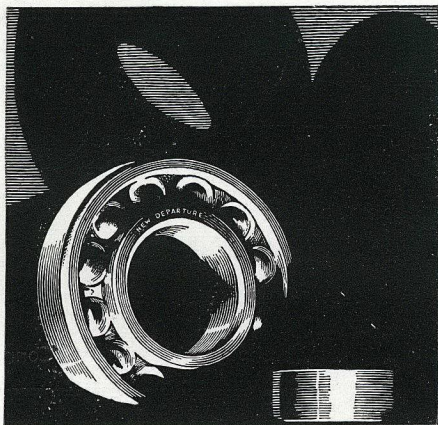
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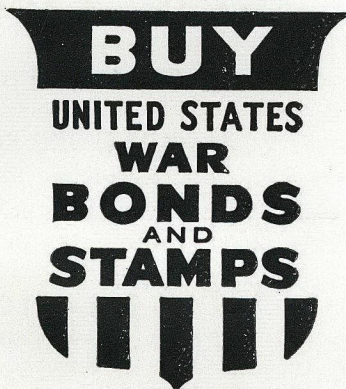


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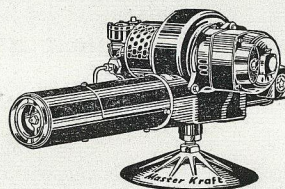
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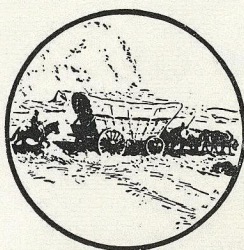
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BODGE ARTHUR, Asst. Chief, Peabody, Mass., May 5, 1923.  
 SAMSON, WILFRED J., Chief, Lewiston, Me., February 17, 1924.  
 RANDLETT, WALTER B., Chief, Newton, Mass., March 3, 1924.  
 McCORMICK, W. S., Chief, Singer Manufacturing Co., Bridgeport, Conn., November, 1924.  
 TABER, JOHN OTIS, Chief, Boston, Mass., December 16, 1924.  
 SMITH, JAMES, Chief, Dover, N. H., February 8, 1925.  
 TIGHE, JAMES J., Chief, Willimantic, Conn., April 22, 1925.  
 FIFIELD, LESTER G., Chief, Ashland, N. H., July 31, 1925.  
 CHASE FREDERICK E., Ex-Chief, Northampton, Mass., November 3, 1925.  
 BROWNING, ROBERT, Chief, Central Falls, R. I., November 20, 1926.  
 ROBINSON, C. E., Concord, N. H., April 16, 1927.  
 WHITMARSH, FRANK O., Chief, Braintree, Mass., July 30, 1927.  
 FOWLER, ALBERT A., Ex-Chief, Gardner, Mass., September 11, 1927.  
 SEAVERN, ERNEST R., Chief, Scituate, Mass., October 1, 1927.  
 BAKER, ELLSWORTH, Chief, Seekonk, Mass., January 16, 1928.  
 PACKARD, HIRAM R., Ex-Chief, Attleboro, Mass., March 27, 1928.  
 DALEY, WILLIAM F., Chief, Brockton, Mass., May 13, 1928.  
 BRYNES, PETER S., Chief, North Kingsford, R. I., November 9, 1928.  
 GRANT, ERNEST F., Deputy Chief, Amesbury, Mass., January 22, 1929.  
 GRANT, LOWELL C., Ex-Chief, Burlington, Vt., May 13, 1929.  
 GUNTHER, FRANK H., Ex-Chief, Draeut, Mass., June 24, 1929.  
 BARRETT, JESSE, Ex-Chief, Peabody, Mass., July 13, 1929.  
 HUNT, JOHN Q., Chief, Weymouth, Mass., October 8, 1929.  
 WEBSTER, WADE U., Chief, Willimantic, Conn., October 27, 1929.  
 TUFTS, HARRY W., Chief, North Attleboro, Mass., October 30, 1929.  
 NEAL, GEORGE C., State Fire Marshal, Mass., December 14, 1929.  
 DANAHY, TIMOTHY J., Chief, Hopkinton, Mass., December 21, 1929.  
 PITTE, GEORGE S., Chief, Middletown, Conn., January 2, 1930.  
 KING, WARREN D., Peabody, Mass., January 5, 1930.  
 GUERTIN, WM. H., Supt. Protective Dept., Worcester, Mass., March 19, 1930.  
 THOMPSON, HENRY E., Supt. Protective Dept., Boston, Mass., April 2, 1930.  
 PRATT, EARL H., Deputy Chief, Auburn, Maine, May 1, 1930.  
 HARDY, JOHN M., Brookline, Mass., May 2, 1930.  
 MEAD, ALFRED L., Chief, Quincy, Mass., May 27, 1930.  
 DONOVAN, JOHN F., Chief, Meriden, Conn., May 28, 1930.  
 EGGER GEORGE, Chief, Westerly, R. I., July 29, 1930.  
 PATTEE, P. W., Chief, Goffstown, N. H., September 1, 1930.  
 THURSTON, RALPH E., Chief, Putnam, Conn., October 16, 1930.  
 ERICKSON, JOHN O., Ex-Chief, Newburyport, Mass., December 17, 1930.  
 ROSE, CHARLES H., Ex-Chief, New London, Conn., January 8, 1931.  
 NICHOLS, GEORGE W., Supt. Fire Alarm, Woburn, Mass., February 10, 1931.  
 CARBERRY, WILLIAM F., Ex-Chief, East Walpole, April 6, 1931.  
 SMITH, JAMES E., Chief, Nashua, N. H., April 9, 1931.  
 MALLORY, HOMER J., Stamford, Conn., April 21, 1931.  
 MARTIN, H. M., Ex-Chief, Enosburg, Vt., July 2, 1931.  
 CLARK, W. F., Ex-Chief, Naugatuck, Conn., July 25, 1931.  
 HOOBEN, JAMES A., Taunton, Mass., September 5, 1931.  
 JOHNSON, DANIEL E., Ex-Chief, Bridgeport, Conn., September 17, 1931.  
 TOONE, GILBERT G., Gamewell Co., Needham Heights, Mass., October 12, 1931.  
 CONEENY, JOHN T., Chief, Dupont Co., Wilmington, Del., October 14, 1931.  
 FLEMING, JOHN R., Chief, Saylesville, R. I., December 22, 1931.  
 LABENSKY, IRVING F., Supt. Fire Alarm, New London, Conn., December 25, 1931.  
 BROWN, HENRY A., Ex-Chief, Marlboro, Mass., January 6, 1932.  
 GALE, C. DAVID, District Chief, Orange, Mass., January 21, 1932.  
 DORAN, ANDREW T., Chief, Greenfield, Mass., February 18, 1932.  
 LEWIS, WM. H., Fabric Hose Co., Worcester, Mass., April 1, 1932.  
 BLETHEN, CHESTER H., Ex-Chief, Auburn, Me., April 11, 1932.  
 HYATT, HENRY J., Chief, Fitchburg, Mass., May 2, 1932.  
 FURGANG, LEONARD, West Roxbury, Mass., May 5, 1932.  
 FULLER, CHARLES H., Chief, Pawtucket, R. I., May 15, 1932.  
 GARDINER, WARREN B., Chief, Saylesville, R. I., July 11, 1932.  
 FOX, JOHN C., Fire Commissioner, Rutland, Vt., July 23, 1932.

## Our Roll of Honor

(Continued)

DOLAN, JOSEPH A., Deputy Chief, Boston, Mass., August 25, 1932.  
 GREEN, WILLIAM C., Chief, Concord, N. H., October 27, 1932.  
 O'CONNOR, THOMAS, Battalion Chief, Washington, D. C., November 20, 1932.  
 ESTERBROOK, WILLARD W., Fire Commissioner, Brookline, Mass., December 3, 1932.  
 RICH, SEWELL M., Ex-Chief, Somerville, Mass., December 9, 1932.  
 SPALDING, HOWARD C., Augusta, Me., January 27, 1933.  
 CRIBBY, JOSEPH A., Ex-Chief, Somerville, Mass., February 17, 1933.  
 WARD, THOMAS G., Chief, Shelton, Conn., March 9, 1933.  
 LaCROIX, CHARLES, Ex-Chief, Millis, Mass., March 17, 1933.  
 McPHEE, MICHAEL, Ex-Chief, Lawrence, Mass., April 25, 1933.  
 KING HERBERT E., Ex-Chief, Mansfield, Mass., May 15, 1933.  
 HOAGLAND, IRA G., Nat. Auto. Sprink. Assoc., New York City, August 5, 1933.  
 WHEELER, A. D., Gamewell Co., Newton Upper Falls, Mass., August 17, 1933.  
 KIMBALL, HOWARD C., Ex-Chief, Salem, Mass., August 27, 1933.  
 SULLIVAN JOHN E., Ex-Chief, Plymouth, Mass., December 16, 1933.  
 KOEN, JAMES S., Chief, Salem, Mass., December 21, 1933.  
 PERSONS, VANEY P., Chief, Montpelier, Vt., February 6, 1934.  
 COMBER, EDWARD, Ex-Chief, Narragansett Pier, R. I., March 7, 1934.  
 AHERN, WILLIAM A., Fire Marshal, Brantford, Conn., April 28, 1934.  
 FISKE, HOWARD, Ex-Chief, Framingham, Mass., May 30, 1934.  
 PARTENHEMER, PHILIP, Ex-Chief, Greenfield, Mass., July 9, 1934.  
 AMBROSE, GEORGE C., Boston, Mass., July 18, 1934.  
 BARRY, W. A., Eureka Fire Hose Co., Boston, August 13, 1934.  
 HEITMAN, HENRY H., Chief, Waterbury, Conn., September 19, 1934.  
 MONTMENY, ARTHUR, Ex-Chief, Chicopee, Mass., October 1, 1934.  
 MANY, ROBERT, Fabric Fire Hose Co., Boston, Mass., October 13, 1934.  
 KEANE, JOHN W., Ex-Deputy Chief, Marlboro, Mass., December 11, 1934.  
 MOORE, EDWIN D., Bennington, Vt., March 25, 1935.  
 TORREY, ARCHIE W., Chief, North Scituate, Mass., April 2, 1935.  
 HAYES, JOHN H., Ex-Chief, Bristol, Conn., June 13, 1935.  
 McLAUGHLIN, DANIEL F., Ex-Chief, East Providence, R. I., June 22, 1935.  
 JOY, MELLEEN R., Chief, Saugus, Mass., July 31, 1935.  
 MAXIM, CARLTON W., Ex-Chief, Middleboro, Mass., August 27, 1935.  
 STANTON HOWARD L., Ex-Chief, Norwich, Conn., August 30, 1935.  
 MASON, W. S., Chief, Bangor, Me., November 12, 1935.  
 TITUS, WILLIAM E., Ex-Chief, Pawtucket, R. I., February 26, 1936.  
 MILLER, DEAN H., Chief, Ashland, Mass., April 25, 1936.  
 WEDGER WALTER L., Belmont, Mass., June 2, 1936.  
 PATT, IRVING F., Ex-Chief, Central Falls, R. I., June 17, 1936.  
 WOODWARD, A. P., Ex-Chief, Danielson, Conn., June 27, 1936.  
 KELLEY, JOSEPH B., Pawtucket, R. I., July 1, 1936.  
 LUBY, JOHN J., Chief, Wallingford, Conn., July 12, 1936.  
 FERNBERGER, HERMAN W., Philadelphia, Pa., July 18, 1936.  
 HARRISON, FRANK R., Chief, Onset, Mass., August 4, 1936.  
 MAINZER, ROBERT H., Hon. Dept. Chief, New York, August 6, 1936.  
 PALMER, JOHN A., Chief, Torrington, Conn., December 7, 1936.  
 HILL, CHAS. E., Chief, Cape Elizabeth, Maine, December 28, 1936.  
 McGRATH, PATRICK J., Ex-Chief, Meridan, Conn., Died January 8, 1937.  
 SCANNELL, DR. JOSEPH W., Fire Comm., Lewiston, Me., January 16, 1937.  
 NEARY, JOHN H., Chief, Natick, Mass., January 18, 1937.  
 CASEY, JAMES M., Ex-Chief, Cambridge, Mass., January 25, 1937.  
 SEARS, C. E., Chief Engineer, Claremont, N. H., May 5, 1937.  
 WHITING, HOMER B., Ex-Chief, Hampton Beach, N. H., May 26, 1937.  
 HOADLEY, G. W., Ex-Chief, Naugatuck, Conn., June 9, 1937.  
 DUGAN, ARTHUR W., Chief, Vergennes, Vt., July 5, 1937.  
 HUBBARD, ISAAC M., Chief, Greenwich, Conn., August 15, 1937.  
 HAINES, FRANKLIN W., 57 Gardner St., Peabody, Mass., August 28, 1937.  
 LYNCH, THOMAS J., Chief, Waterbury, Conn., October 1, 1937.  
 MIGUEL, MANUEL S., Chief, Manchester, Mass., October 3, 1937.  
 PICKETT, E. W. S., Ex-Chief, Fairfield, Conn., November 1, 1937.  
 KNOWLES, C. H., Ex-Chief, So. Hamilton, Mass., November 11, 1937.  
 DALLAGHER, JAMES M., District Chief, Fall River, Mass., December 11, 1937.

## Our Roll of Honor

(Continued)

SCULLY, JOHN J., American Fire Equipment Co., Boston, Mass., December 29, 1937.  
 WARE, LEWIS A., Chief, Hanover, N. H., February 2, 1938.  
 WHITE, FRANK M., Chief, Guilford, Conn., June 4, 1938.  
 RUSSELL, WM. G., Captain, Waterbury, Conn., June 29, 1938.  
 HURLEY, ROBERT T., Hartford, Conn., August 30, 1938.  
 HANMER, H. F., Ex-Chief, Wethersfield, Conn., September 9, 1938.  
 STEVENS, HENRY J., Chief, Nantasket Beach, Mass., September 13, 1938.  
 PERCEY, M. S., Chief, No. Bennington, Vt., October 15, 1938.  
 ADAMS, JOHN T., Ex-Chief, Marblehead, Mass., December 19, 1938.  
 ATKINS, W. H. H., Chief, Marblehead, Mass., December 20, 1938.  
 SHERWOOD, WM. D., Ex-Chief, Southport, Conn., December 27, 1938.  
 HUDSON, DAVID M., Chief, Chelsea, January 2, 1939.  
 KINSELLA, ALFRED, Captain, Belmont, Mass., January 23, 1939.  
 WARE, LEWIS A., Chief, Hanover, N. H., February 2, 1939.  
 EATON, FRANK L., Deputy Fire Marshal, Waterbury, Vt., February 27, 1939.  
 QUINLAN, ROBERT T., Ex-Chief, Needham, Mass., March 20, 1939.  
 SHANNON, WALTER E., Chief, Wakefield, R. I., April 00, 1939.  
 WAITE, IRVING C., Chief, Bedford, Mass., July 16, 1939.  
 SULLIVAN, JEREMIAH F., Ex-Chief, Fall River, Mass., August 8, 1939.  
 SHEPARD, W. C., Ex-Chief, Pittsfield, Mass., September 2, 1939.  
 HOWLAND, J. LESTER, Chief, Hyannis, Mass., November 3, 1939.  
 CARTY, WM. E., Ex-Chief, Burlington, Vt., November 22, 1939.  
 MARTIN, FRANK F., Ex-Chief, Cohasset, Mass., November 29, 1939.  
 MORRIS, F. J., Ex-Chief, Lawrence, Mass., December 3, 1939.  
 OLSON, ALBERT T., McNeil and Olsen Co., Walpole, Mass., December 6, 1939.  
 FLYNN, DANIEL W., Ex-Chief, Great Barrington, Mass., December 9, 1939.  
 McGLAULFIN, FLOYD E., Chief, Presque Isle, Maine, January 28, 1940.  
 GALVIN, MILTON, Chief, Naugatuck, Conn., February 21, 1940.  
 CRITTENDON, RUFUS A., Chief, Haverhill, Mass., February 24, 1940.  
 BRODY, GEORGE F., Marlboro, Mass., March 8, 1940.  
 DAGGETT, W. H., Ex-Chief, Springfield, Mass., May 13, 1940.  
 CHASE, EDWARD E., Ex-Chief, Lynn, Mass., May 30, 1940.  
 WALSH, PETER E., Ex-Chief, Boston, Mass., August 24, 1940.  
 NARY, THOS. M., Captain, Roslindale, Mass., July 24, 1940.  
 SHANNON, FRANK J., Chief, Stonington, Conn., August 26, 1940.  
 YOUNG, DANIEL F., Chief, Cranston, R. I., August 29, 1940.  
 REILLY, WILLIAM J., Capt., Cambridge, Mass., September 4, 1940.  
 DAVID, FRED M., Ex-Chief, Damariscotta, Me., September 24, 1940.  
 BURNS, THOMAS F., Chief, Bridgeport, Conn., October 9, 1940.  
 HARRIGAN, HENRY J., Chief, Dedham, Mass., October 19, 1940.  
 FARRELL, MORGAN B., Chief, Bristol, Conn., October 19, 1940.  
 MANSFIELD, LUCIUS R., Ex-Chief, Rehoboth, Mass., October 8, 1940.  
 WHITNEY, JOHN W., Belmont, Mass., January 3, 1941.  
 NEWHALL, TERRY A., Swampscott, Mass., January 9, 1941.  
 McKENZIE, GEORGE A., Asst. Chief, Westerly, R. I., January 21, 1941.  
 DAMON, J. F., Ex-Chief, Milford, Mass., March 7, 1941.  
 REYNOLDS, CHARLES A., Chief, Willimantic, Conn., June 14, 1941.  
 NEIDNER, ALBERT L., Malden, Mass., July 23, 1941.  
 LEWIS, W. B., Chief, Wiscasset, Maine, August 24, 1941.  
 MAURER, ROBERT L., Chief, Westport, Conn., September 20, 1941.  
 DONOVAN, LAWRENCE, Quincy, Mass., December 4, 1941.  
 SMITH, GEO. W., Ex-Chief, Wakefield, R. I., December 7, 1941.  
 NEIL, RAYMOND J., Chief, Barnstable, Mass., February 24, 1942.  
 MINEHAN, EDWARD C., Ex-Chief, Marlboro, Mass., February 25, 1942.  
 ESTES, REUBEN, E., Ex-Chief, Lewiston, Maine, March 15, 1942.  
 DAWSON, LEONARD, Gamewell Co., Newton Upper Falls, Mass., April 4, 1942.  
 McCOSKER, JOSEPH P., Ex-Chief, Bangor, Maine, April 8, 1942.  
 SALSMAN, WILLIAM, Chief, Saugus, Mass., April 25, 1942.  
 DAY, JOHN H., Capt., 1 Lynn Shore Drive, Lynn, Mass., May 2, 1942.  
 MAHONEY, THOMAS H., Ex-Chief, Westfield, Mass., Sept. 7, 1942.  
 MORAN, JOHN C., Ex-Chief, Hartford, Conn., October 13, 1942.  
 CORNELL, BERT H., Allston, Mass., November 27, 1942.

## RESOLUTIONS, 1942

WHEREAS: Another year has passed away and during that year Our Divine Lord has seen fit, in His wisdom, to call unto Himself members of the New England Association of Fire Chiefs, and——

WHEREAS: During their lifetime we were privileged to know them, work with them and come to respect and honor them, and——

WHEREAS: Now that they are gone from our midst the words of Holy Scripture come to our minds—"Have pity on me, at least you my friends, for the hand of the Lord hath touched me."

BE IT RESOLVED:

That we, the members of the New England Association of Fire Chiefs, realize that we have sustained a great personal loss in their passing, and——

BE IT RESOLVED:

That we extend to their families and to the Community that they served so well and faithfully, our sincere sympathy on their loss, and——

BE IT RESOLVED:

That as the years go on we will always keep their memory fresh and their deeds inspiring.

*Eternal rest grant unto them, O Lord,  
and may their souls rest in peace. Amen.*

REVEREND MICHAEL F. COLLINS  
*Chaplain.*

## **New England Members Known to Be in the Military Services of the United States**

- \*Adams, John F., Chief, Milford  
Aikman, Lewis R., Service Mgr., Heil Co., 43 Horne Rd., Belmont, Mass.
- \*Beaupre, Augustus J., Lieut. Boston Fire Dept., 74 Central Ave., Hyde Park, Mass.
- \*Bigelow, Edward F., City Treasurer, 22 Pleasant St., Marlboro, Mass.  
Bishop, Clayton W., Chief, Fire Dept., Onset, Mass.  
Bolger, Vincent A., 100 Richmond St., Dorchester, Mass.  
Borgen, Thos. S., Mayor, Quincy, Mass.  
Cairns, Robert T., Special Agt., Providence Washington Ins. Co., Boston, Mass.  
Campbell, Luther B., Lieut. Fire Dept., 64 Archer St., Lynn, Mass.  
Clifford, Wm. H., 3rd, Chief, Cape Elizabeth, Maine.
- \*Czine, John J. Chief, Wallingford, Conn.  
Deane, David G., Buffalo Fire Applia. Corp., 104 Washington Rd., Springfield, Mass.  
Dean, Gardner, "Boston Sparks Assoc." Turner St., Brighton, Mass.  
DiRocco, Patrick, 92 Litchfield St., Brighton, Mass.
- \*Doyle, Frank J., Lieut, Fire Dept., 106 Queensberry St., Boston, Mass.  
Garner, Bronson S., 3 Summitt Ave., Winchester, Mass.  
Grinnell, Chas. W., American Fire Equip. Agt., Ipswich, Mass.  
Goguen, Leo J., Ex-Chief, Fire Dept., Fort Ethan Allen, Vt.  
Hamill, Walter L., Mgr. Homelite Corp., 36 Douglas Ave., New Haven, Conn.  
Henig, Dr. F. G., Physician Firemen's Home, Boonton, N. J.
- \*Hunt, George W., Jr., Deputy Chief, Fore River Shipyards, Quincy, Mass.  
Lemoine, M. Gale, Homelite Corp., 1 Chickatabot Rd., Quincy, Mass.  
Light, Francis P., Clerk Board of Fire Eng., Dover, Mass.  
Madden, John H., 69 Montclair Ave., Roslindale, Mass.
- \*Magee, Richard A., Chief, Truro, Mass  
Magner, William J., 5A Mapleton St., Brighton, Mass. (Capt. Boston Fire Dept.)  
Mansfield, George O., Chief Fire Inspector, Dept. Public Safety, Boston, Mass.  
Miller, George J., Fire Commissioner, West Haven, Conn.
- \*Pring, Donald T., 20 Vine Brook Rd., Lexington, Mass.  
Robichaud, Philip J., Chief, Hanson, Mass.  
Rogers, Roland D., 105 East St., Chicopee, Mass.
- \*Spear, Chas. O., Jr., Ex-Chief, South Portland, Maine
- \*Tower, Gilbert S., Chief, Cohasset, Mass.  
Watson, Charles, Deputy Chief, Hopedale, Mass.
- \*Wells, Ray D., Chief, Falmouth, Mass.
- \*Williams, E. W., Ex-Asst. Chief, 40 Central St., Lynn, Mass.  
Wisentaner, Leo A., Boston Fire Dept., 13 Linwood Sq., Roxbury, Mass.  
Vanderbilt, William H., Ex-governor, Chief Fire Dept., Oakland Farms, R. I.

## New England Association Fire Chiefs, 1942

### MAINE

- \*Alden, Ira C., Chief, Gorham
- \*Allen, Curtis S., Chief, Sanford.
- Anderson, Edwin A., Chief, Thomaston
- Black, George W., Chief, Easton
- Blanchard, Donald N., Winthrop
- \*Bradish, F. L. Chief, Eastport
- Brown, Walter H., Chief, 15 Iredale St., Bridgton
- \*Butler, James H., Chief, Berwick
- Carll, Willis G., Asst. Chief, Gorham
- Constantine, Herbert P., Chief, Bangor
- \*Corliss, Harold L., Bath Iron Works Corp., Bath
- \*Denison, Clifford D., Chief, Harrison
- Doyle, Irving T., Chief, 165 North Main St., Brewer.
- Drouin, Z. F., Chief, Central Fire Station, Lewiston
- Eldridge, John F., Chief, Kennebunkport
- Fiel, Fred W. Chief, North Berwick
- Finch, Ralph B., 90 Ocean Ave., Portland
- \*Flynn, Joseph A. P., Chief Supervisor, Ins. Dept., Augusta
- Frates, Richard, Chief, 12 North St., Bath
- \*Fullerton, Cecil L., Chief, Bath Iron Works Corp., Bath.
- Goding, S. J., Fire Comm., 120 Howe St., Lewiston
- Gould, Richard K., 192 Middle St., Portland
- Hart, Forrest L., Chief Auxiliary Fire Dept. & Fire Patrol, Bath Iron Works, Bath
- \*Herman, S. A., Chief, S. D. Warren Co., Westbrook
- Hutchinson, Edward J., Chief Engineer, Boothbay Harbor
- Jose, Horace S., Chief, No. 4 Simonton St., So. Portland
- Lang, Harold D., Box 548, Portland
- Liscomb, John I., 1 Woodbury St., South Portland
- Longtin, Joseph O., Fire Commissioner, Lewiston
- \*Mercier, Solomon A., Chief, Rumford
- Miller, Edward F., 2nd Asst. Engineer, Bath
- \*Morse, Scott, Ex-Chief, Bath, 15 Andrews Ave.
- Noyes, Erlon S., Eastern Fire Equipment Co., 24 Plum St., Portland
- \*Nutter, Robert, Deputy Chief, Pleasant Hill Fire Co., Scarsboro
- \*Payson, Allen F., Chief, Camden
- Peters, Edward L. Chief, Orono
- Putney, P. N., York Beach
- Ramsdell, Edgar E., Reserve Deputy Chief, 569 Main St., Lewiston
- \*Randlette, J. W., Chief, Richmond
- \*Reny, Edward A., Chief, Westbrook.
- Ricker, Eugene T., Chief, Saco
- Robinson, Wallace W., M.D., Amer. Standard Tourniquet Co., Portland
- Rutledge, Charles B., Fire Apparatus and Equipment, 95 Smith St., So. Portland
- \*Sanborn, Oliver T., Chief, Portland
- \*Scott, Thomas J., Chief, Alfred
- \*Smith, Guy F., Chief, Houlton

- Smith, Walter B., Chief, Freeport  
\*Strong, Albert E., Ex-Fire Comm., 16 West Elm St., Yarmouth.  
\*Tinker, George L., Chief, New Portland  
\*Turner, Stanley G., Chief, Springvale  
\*Williams, Capt., Edward E., 485 French St., Bangor.

#### NEW HAMPSHIRE

- Barrow, Wm. H., Chief, Candia  
\*Cogan, George T., Chief, Fire Dept., Portsmouth  
Connell, Harry J., Chief, Hudson  
Cote, Philip T. J., Chief, Gorham  
Crowley, Roger, Chief, International Shoe Co., Manchester  
\*Cushing, Gordon G., Chief, Rochester  
Dill, Frank A., Maxim Motor Company, 72 Granite St., Manchester  
\*Dodge, Fred M., District Chief, Concord, Pres., N. H. Fire Chiefs Club  
Dolley, Herbert A., Chief, Tilton  
Doudera, Capt. Frank, Fire Commissioner, Dixville Notch  
\*Ely, Wm. B., Chief Auxiliary Fire Dept., Pittsfield  
Fox, P. A., Chief, Raymond  
\*French, Charles H., Chief, Manchester  
\*Gunn, Theodore W., Eng. Board of N. H. Underwriters, Concord  
\*Happny, William T., Chief, Concord  
\*Haskel, Robert W., Fire Dept. Equip., 260 Pleasant St., Claremont  
Hathorn, R. C., Chief, West Lebanon  
Hecker, Fred H., Fire Commissioner, Manchester  
Hight, Gerald H., Chief, Weare  
Hildreth, Albert F., Ex-Chief, Hollis  
Holland, James J., Member Fire Commission, 39 Carpenter St., Manchester  
Hough, Willis F., Chief, Lebanon  
\*Lamott, G. H., Chief, Hampton Beach  
Larow, Kenneth, 507 Central Ave., Dover.  
Lary, Geo. L. Senior Warden, Gorham  
LePage, Edward, Chief, Berlin  
Lewis, George E., Chief, Box 453, Newport  
Mansfield, L. P., Chief, Wolfboro  
\*Molloy, Anthony J., Chief, Nashua  
Monahan, H. J., Ex-Chief, Berlin  
Montgomery, Harry E., Chief, Pittsfield  
Nott, Carlton H., Chief., 22A School St., Hanover  
Noyes, Russell, Chief, Navy Yard, Portsmouth  
\*Palmer, Allen L., Chief, 24 Sullivan St., Claremont  
Pitney, C. E., Capt., Fire Dept., Navy Yard, Portsmouth  
\*Riley, E. B., Chief, Keene  
Robinson, Chester, Chief, Suncook  
Robinson, George E., Samuel Eastman Co., Concord  
\*Sargent, Fred M., Chief, Sunapee  
Spring, Arthur W., Chief, Laconia  
Stevens, Geo. B., Chief, Kingston  
Wheeler, E. H., Chief, 39 West Bow St., Franklin



### VERMONT

Adams, W. H., Sec. Treas., Vt. State Firemen Assoc., Vergennes  
 Bean, C. A., Chief, Newport  
 Blair, Willard C., Chief, Vergennes  
 \*Burt, Earl C., Chief, Fire Patrol Messissquor Corp., Enosburg Falls  
 Chapin, George, First Asst. Chief, White River Junction  
 Ferguson, F. Howard, Supt. Fire Alarm, 234 Grove St., Bennington  
 Gillette, Waters, Ex-Chief, Springfield  
 \*Hannah, Charles A., Chief, No. Springfield  
 Heney, John C., Chief, Barre  
 Hoyt, Frank, Chief, So. Shaftbury  
 Hurlbut, Charles H., Chief, Richford  
 \*Hutchinson, Fred A., Chief, White River Junction  
 Jordan, Miland H., Chief, 96 Main St., Springfield  
 Keery, Thomas D., Chief, St. Albans  
 \*Kelley, Donald J., Deputy Chief, Burlington  
 Kingsbury, Harold H., Chief, Norwich  
 Kinney, F. J., Chief, Orleans  
 \*Koltonski, Alfred H., Chief, Rutland  
 \*Latshaw, Marvin, Chief, Alburgh Fire Dept.  
 Lavery, C. Newton, Chief, Burlington  
 Lawson, Sidney F., Chief, Montpelier  
 Mooney, Gordon R., 1st Asst. Chief, 20 Bay View Ave., Newport  
 Nelson, John E., State Director, Vocational Education, Montpelier  
 Parmenter, F. C., Ex-Chief, Chester  
 Potter, Albert D., Chief, Poultney  
 Ruscoe, Charles, Vergennes  
 Sass, Carl M., 2nd Asst. Chief, White River Junction  
 Sears, Lawrence H., Chief, Bennington  
 Shepard, Harley, Chief, Bethel  
 Wakefield, George H., Ex-Chief, Lower Plain, Bradford  
 Wilson, Norton, 93 Pine St., Brattleboro

### MASSACHUSETTS

Abbott, William F., Eureka Fire Hose, 257 Lincoln St., Worcester  
 \*Abel, Henry F., Chief, Westwood  
 Adams, John S., Chief, 2 Ocean Ave., Marblehead  
 \*Alburn, Walter E., Chief, Rehoboth  
 Alger, Fred B., Middleboro  
 Alie, J. P., Lieut., 140 Nonotuck St., Holyoke  
 Allen, E. W., Medfield  
 Allen, Ellwood B., Dep. Chief Mass. Vol. Fire Dept., 3 Myrtle St., Belmont  
 \*Allen, Selden R., Chief, Brookline  
 Angier, Everett L., Gamewell Fire Alarm Co., Newton Upper Falls.  
 \*Austin, George W., Box 52 Assoc., U. S. Gauge Co., 170 Summer St., Boston.  
 Babson, Roger W., Wellesley.  
 \*Backman, Henry W., Ex-Chief, Hingham.  
 \*Baer, Louis, Jr., 36 Orchard St., Marblehead.

- \*Baggs, M. C., Chief, Belchertown
- \*Barker, Clifford H., Boston Coupling Co., 293 Congress St., Boston  
     Barker, John J., Boston Coupling Co., 293 Congress St., Boston  
     Barker, Horace R., 87 Sherman St., Springfield  
     Barnes, Harold A., 42 Ellis St., Brockton.
- \*Bartlett, Ernest N., Chief, Billerica  
     Batchelder, Fred M., 120 Harrison Ave., Boston  
     Belcher, Warren H., Ex-Chief, 115 Pauline St., Winthrop  
     Belknap, Harry, 1110 Beacon St., Brookline
- \*Belmore, Arthur, Chief, Webster  
     Bengston, N. B., Asst. Mech. Supt. Colonial Beacon Oil Co., Everett  
     Benson, Merle C., Bryantville  
     Berry, W. A., Ex-Chief, School St., Danvers  
     Bills, Louis W., Supt. Fire Alarm, Lexington  
     Blackington, Alton H., 9 Hamilton Place, Boston  
     Blair, William J., Chief, Nantucket  
     Blanchard, Arthur H., 25 Hampshire St., Cambridge  
     Bliss, Philip W., 147 Longwood Ave., Brookline
- \*Blois, W. C., Chief, Westboro  
     Blood, Geo. Leslie, Chief, Littleton
- \*Boland, John W., Chief, Southboro
- \*Boles, James G., Ladderman, 46 Victory Rd., Dorchester  
     Boston Sparks Association, 1039 Commonwealth Ave., Boston
- \*Bourne, Edward L., Chief, West Bridgewater
- \*Bowers, William F., Chief Protective Dept., Boston
- \*Box 52 Association, 80 Federal St., Boston  
     Breck, Robert G., Chief, Longmeadow
- \*Brennan, Francis F., 189 Everett St., Wollaston  
     Brennan, Ralph A., Dr., Fire Comm., Holyoke
- \*Brewster, Edward A., Asst. Chief, Headquarters Co., Fort Devens  
     Briggs, David M., Chief, Halifax  
     Brigham, Harold L., Supt. Water and Sewage Comm., Marlboro  
     Brown, Lyman G., Chief, Natick  
     Brown, Russell G., 80 Central St., Foxboro  
     Brownell, Clarence H., Chief, District No. 1, South Dartmouth
- \*Buchan, Charles E., Chief, Andover
- \*Buchanan, L. B., Ex-Chief, 10 Bennett St., Woburn
- \*Bugbee, Percy, N.F.P.A., 60 Batterymarch St., Boston.  
     Bumpus, William W., Vol. Asst. Chief, Ayer  
     Bunyan, Albert, Chief, Chicopee  
     Burke, Thomas F., Chief, Pittsfield  
     Burke, Thomas J., Asst. Chief, No. 18 Lura St., Lowell
- \*Burke, Thomas J., Lieut., 1086 Morton St., Dorchester  
     Byron, George E., Engineer, Hudson  
     Cahill, John E., Fire Dept., Sea St., Hopkinton  
     Calhoun, W. J., 403 Sherman St., Canton  
     Campbell, John, Con. Eng., 127 Prospect St., Reading  
     Carey, John H., Ex-Fire Commissioner, Bennett Building, Fall River  
     Carlow, Harry, 60 Church Green, Taunton

## NEW ENGLAND ASSOCIATION OF FIRE CHIEFS

---

- Carolan, Lawrence, Jr., American La France Co., 28 Brighton Ave., Boston  
Carroll, William J., President Rockwood Sprinkler Co., 36 Harlow St., Worcester  
\*Cartier, John B., Chief, Sturbridge Fire Dept.  
\*Casey, John L., Chief, Abington  
Chapman, Chas. "Sandy," 10 Pier View Ave., Beachmont  
\*Charnock, P. C., Asst. Mgr., New Eng. Fire Ins. Rating Asso., 89 Broad St., Boston, Mass., Mass. State Fire Coordinator, Chairman, Mass. Fire Advisory Mobilization Board, 18 Tremont St., Boston  
Chase, Benjamin L., Chief, Haverhill  
Chase, C. Hastings, 365 Union Ave., Framingham  
\*Chase, Robert R., Chief, Cheshire  
Chick, Wm. C., Jr., 317 Commonwealth Ave., Boston  
Childs, Alexander S., Ex-Chief, Cotuit  
\*Clapp, George V., Chief, Paxton  
Clark, Fred A., Chief, Attleboro  
\*Clark, L. N., 29 Richardson St., Newton  
Clark, Robert A., Maxim Motor Co., Middleboro  
Clark, Wm. M., Ex-Chief, National Fire Works, West Hanover  
Clark, Wm. W., Chief, Westfield  
\*Clougherty, Chas. H., 67 Ceylon St., Roxbury  
\*Cobb, George F., Commissioner Firemen's Relief Fund, 572 Rutherford St., Boston  
Coleman, M. James, Chief, Hudson  
\*Coleman, John R., Lieut., 43A Carruth St., Dorchester  
\*Collins, Rev. Michael F., Chaplain N. E. Assoc. Fire Chiefs, Marblehead  
Comins, Charles E., Chief, P. O. Box 591, Warren  
Connors, Chester, 195 Brook St., Medford  
Conron, Harold J., Chief, North Reading  
Cook, Alton L., Chief, Georgetown  
Copeland, Frank H., Chief, Raynham  
Corkill, John, 39 School St., Charlestown  
Cotton, Carl H., 80 Sutherland Rd., Brighton  
Cowles, A. Lee, Eureka Fire Hose Co., 560 Atlantic Ave., Boston  
Cram, Geo. D., Pres. Prot. Society, Fire Dept., New Bedford  
Crandall, Leroy H., 6 Northampton St., Boston  
\*Creamer, Gordon H., Lieut., Holden  
Creaser, L. J., Amer. LaFrance Co., 28 Brighton Ave., Boston  
\*Crehan, Capt. John J., 10 Bonad Road, W. Roxbury  
Cremins, Christopher C., 1222 Cambridge St., Cambridge  
\*Cressy, John, Chief, Beverly  
\*Crosby, Arthur H., Laminated Sheet Products Corp., Everett  
Cross, Gordon, Chief, Hopkinton  
\*Crouch, Walter E., Capt., 12 Gayland St., Dorchester  
Crowe, John P., Ex-Chief, Westboro  
Crowley, Chas. P. B., 111 Poplar St., Watertown  
Cummings, Merrill A., Chief, Hamilton  
Curley, Stephen A., Capt. General Elect. Co., 2 River St., Lynn  
Curtaz, Charles J., Box 52 Assoc., 10 Linnet St., West Roxbury  
Curtis, William F., Chief, Canton  
\*Cushing, Edward L., Jr., Instructor American Red Cross, 23 Dickinson Rd., Brighton  
Cutter, John F., Ex-Chief, Newburyport

- \*Dahill, E. F., Chief, New Bedford
- Daley, Warren F., 60 Montvale St., Roslindale
- \*Dailey, Cornelius P., Chief, North Easton
- Daniels, Albert W., Box 52 Assoc., 147 Brighton Ave., Allston
- \*Daoust, Samuel, Chief, Marlboro
- Davis, Ernest W., 61 Brantwood Rd., Arlington
- Davidson, William E., Chief, Sudbury
- DeCourcy, D. H., Ex-Chief, Winchester
- \*Deslauriers, Theodore, Chief, Ware
- Devaney, Lieut. John J., Watertown
- deVeer, Harold W., 818 Park Square Bldg., Boston
- Dever, James J., Mine Safety Appliance Co., 585 Boylston St., Boston
- \*Dickinson, Frank F., Chief, Brockton
- Dodge, Richard S., Chief, Bedford
- Doherty, M. H., Chief, Lincoln
- Dolan, Wm. C., 14 Holbrook St., Jamaica Plain
- \*Donnell, Chester L., Chief, Walpole
- Donovan, J. A., Asst. Chief, Lynnfield
- Dooling, William J., Ex-Chief, 36 Clinton St., Malden
- Dow, Thomas, Chief, 75 Union St., Methuen
- \*Dow, Walter W., Sec. Met Fire Assoc., 21 Fairmount Ave., West Somerville
- Dowd, John F., Chief Chicopee Field Fire Dept., Chicopee Falls.
- \*Downing, Dewey P., Chief, Fort Devens, Ayer
- Drew, C. R., Ex-Chief, 109 Summer St., Kingston
- Drew, Ernest L., Jr., 57 Carlton Rd., Belmont
- Driekorn, Otto M., Fire Commissioner, Holyoke
- \*Ducey, Henry M., Lieut., 140 Wilmington Ave., Dorchester
- Duchesneau, Joseph E., Ex-Chief, 84 Sayles St., Southbridge
- Dyer, S. B., Ex-Chief, Whitman
- \*Eames, Hugh L., Chief, 7 Village St., Reading
- Earle, Alonzo N. Chief, Norwood
- Earley, Charles G. Chief, Turners Falls
- Eaton, Lieut. Geo. M., 38 Stanley St., Dorchester
- Egan, John H., Ex-Chief, 88 Spruce St., Milford
- Elliott, Otis W., Ex-Chief, Senior Firefighter, Fort Devens
- \*Ellis, Benjamin M., Ellis Fire Appl. Co., 79 Cambridge St., Boston
- \*Engborg, Herbert C., 65 Bay State Ave., West Somerville
- Endicott, Charles K., Ex-Chief, 319 Sherman St., Canton
- Estabrook, Harold M., 10 Iverness Rd., Arlington
- \*Evans, James J., Chief, 32 Belmont Park, Everett
- Evans, Walter H., Lieut., Fire Dept., 15 Chase St., Lynn
- \*Fallon, Thos. E., Chief, Heywood-Wakefield Co., Gardner
- Farrar, Clarence, Hopkinton
- Farrell, Henry F., Chief, Hull
- Farrell, James J., 7 Elwyn St., Dorchester
- Fay, C. Norman, Chrysler Motor, 730 Commonwealth Ave., Boston
- Fay, Robert E., Box 52 Assoc., 36 Park Ave., Winchester
- \*Fears, F. Clifton, Ex-Chief, Board of Engineers, Rockport
- Ferrin, Bernard J., 16 Clinton St., Woburn

- \*Ferris, Herbert, Chief, Greenfield
- Field, Sidney C., Chief, Melrose
- \*Fisher, Ernest A., 109 River St., Waltham
- \*Fisher, E. F., A.D.T. Co., 60 State St., Boston
- Fitzgerald, Jas. B., 43 Buswell St., Boston
- \*Fitzgerald, James J., Lieut., 491 Broadway, Cambridge
- Flanagan, Joseph J., 21 Messenger St., Canton
- Fleming, Wm. B., Chief, Barre
- Fletcher, Albert P., 64 Putnam Rd., Somerville
- \*Floyd, William A., Chief, Winthrop
- \*Flynn, Arthur L., Salem
- Foster, Frank W., Ex-Chief, 10 Elm St., North Brookfield
- \*Franklin, Lester W., 873 Huntington Ave., Boston
- French, Victor M., Chief, Palmer
- \*Gagan, Jas. A., Dist. Chief, 11 Allston St., Dorchester
- \*Garrity, Stephen C., State Fire Marshal, Boston
- Gately, John J., Chief Hood Rubber Co., Watertown
- Geyer, John, Chelsea Fire Dept., Chelsea
- Gilbert, L. A., Capt. Fire Dept., Retired, 1537 Riverdale St., W. Springfield
- Goodwin, Fred M., 15 Avondale Rd., Newton Center
- Gorey, Edward F., Chief, Taunton
- \*Gorham, Joseph T., Gorham Fire Equip. Co., 136 Broad St., Boston
- Gorham, Jos. T., 196 Sixth St., So. Boston
- Gorman, John J., Chief, Winchester
- Graham, Fred D., Chief, Wakefield
- \*Gravelle, Charles L., 12 Marion Rd., Woburn
- \*Grouse, Wm. A., 112 Columbia St., Brookline
- \*Gutheim, Herman E., Chief, Cambridge
- \*Haddock, Henry, Asst. Chief, 65 Victory Road, Lynn
- \*Hall, Ralph S., 61 Plymouth Ave., East Milton
- Hammond, Harvey, Chief, Holden
- \*Hammond, Richard A., Chief, Manchester
- Hammond, Wm. J., Call Fireman, 25 Franklin St., Woburn
- \*Hanna, James F., Chief, Milton
- Hannan, John H., Ex-Fire Comm., 37 Ivy Road, Malden
- Hapgood, Leslie A., Bedford, P. O. Box 15
- Harding, Harry J., Hutchinson Lumber Co., Lynn, Ex-Fire Comm., Revere.
- Hardy, Patrick, 117 Saratoga St., East Boston
- Hargreaves, James, Chief, No. Andover
- Harrington, Daniel A., 322 Lebanon St., Melrose
- \*Harrington F. D., 75 No. Beacon St., Allston
- Harrington, James J., Dist. Chief, 26 Wilcox Rd., Dorchester
- \*Hartnett, John B., Chief, Dedham
- Havender, Harold L., Chief, Watertown Arsenal, Watertown
- Hennessy, Maurice, Chief, East Bridgewater
- \*Hill, William H., Chief, Belmont
- Hiller, Albert E., Ex-Chief, 193 Court St., Plymouth
- Hiser, Charles, Chief, Adams
- Hodges, Frederick J., 166 Essex St., Boston
- \*Hoffmann, Louis H., 40 Broad St., Boston

- \*Holmes, Dennis D., Ex-Chief, 353 Linden St., Fall River
- Holmes, Geo. P., Chief, 232 Main St., Kingston
- Hooper, Norman C., Dist. Chief, Lexington
- \*Hopkins, John A., Boston Fire Dept., 9 Blanvon Rd., Jamaica Plain
- Horne, William D., Chief, Millbury
- Hoyt, Rev. H. Chester, Fairview, Holyoke
- Hutchins, M. C., State Fire Warden, 20 Somerset St., Boston
- \*Hutchinson, Oscar R., Chief, Lenox
- Ickrath, W. M., Eagle Signal Corps., 15 Glenham St., Springfield
- Inkley, Clyson P., Chief, Rockland
- Jameson, Frank J., 4 Mellen St., Dorchester
- Jeffery, J. Orville, Ex-Chief, No. Vassalboro, Me., 43 Chatham St., Pittsfield
- Jenks, Fred A., Ex-Fire Commissioner, Plymouth
- \*Johnston, Walter A., Engineer Employers' Fire Ins. Co., 481 Pleasant St., Malden
- Jones, Mellen W., Capt., 281 Essex St., Beverly
- Kavanaugh, V. T., 15 Flood St., Waltham
- \*Keane, James M., Town Engineer, 10 Jason Court, Arlington
- Keddie, L. A., Deputy Chief, Malden
- Kelley, Joseph E., Chief, Danvers
- Kellogg, Samuel E., Chief, Hopedale
- Kellough, Willard P., 35 Swan Rd., Winchester
- Kendall, Frank L., Deputy Chief, Canton
- \*Kennealey, Wm. T., "Boston Sparks Assoc.," 36 Kempton St., Roxbury
- Kennedy, Thos. W., 65 Chelmsford St., Dorchester
- Kenney, John J., Deputy Chief, 181 Hillside St., Roxbury
- \*Kiessling, Carl J., Chief, Fire Dept., Worcester
- Kimball, Albert W., Chief, Hingham
- King, Everett F., Chief, Lever Bros., 164 Broadway, Cambridge
- \*Kingman, Stanley R., Box 52 Assoc., 21 Gould Road, Arlington
- \*Kingman, Edward R., "Box 52 Assoc.," 21 Gould Road, Arlington
- Kingsbury, Allen A., Ex-Chief, Medfield
- Kleinfelder, Henry C., 3 Park St., Boston
- \*Lampard, Charles H., Chief, Swampscott
- \*Lane, Charles E., Chief, 64 East Main St., Orange
- Lane, Edward B., Chief, Wellfleet.
- Laurie, Ralph D., Supt. Fire Alarm, Hingham
- Lawton, C. R., General Equip. Co., 261 Franklin St., Boston
- Leonard, Wm. H., Capt., 75 Central Ave., Hyde Park
- LePage, A. L., Capt., Southbridge
- \*Lewis, Eugene, 305 Walnut St., Brookline
- Lewis, T. Julian, Chief, 348 Commercial St., Provincetown
- Libby, Warren B., Supt., New Eng. Fire Prev. Bureau, 57 Spring St., Lexington
- Lindh, Arthur E., Justin A. McCarthy Co., 176 Federal St., Boston
- \*Linscott, Wentworth F., 306 Main St., Hingham
- Litchfield, Gordon H., Am. LaFrance 28 Brighton Ave., Boston
- \*Looney, Daniel J., Sec. Mass. State Firemen's Assoc., 448 Old South Bldg., Boston
- Loring, Mason L., Ex-Deputy Chief, Hingham
- Lovell, Harry Joseph, B. F. Goodrich Rubber Co., 1055 Comm. Ave., Boston
- Lyons, C. W., Room 1100 Statler Office Bldg., Boston
- \*MacCullagh, Chester A., 17 Stearns Rd., Brookline

NEW ENGLAND ASSOCIATION OF FIRE CHIEFS

---

- Mahoney, Ivon P., Chief, Walworth Co., 800 First St., So. Boston  
\*Mahoney, Jeremiah E., 103 W. 9th St., South Boston  
\*Mahoney, William C., Chief, Peabody  
Mallalieu, Wm. E., Jr., Spec. Rep. Liverpool & London & Globe Ins. Co., 55 Battery-march St., Boston  
Maranville, Clifton H., Box 158, Brookline.  
\*Marchant, Homer R., Chief, Gloucester  
\*Maraggia, Albert F., 173 Everett St., Allston  
Marley, Frederick H., 239 Princeton St., E. Boston  
Martin, Bert L., Supt. Fire Alarms, 100 Union St., Mansfield  
Martin, Winfred A., Deputy Chief, 74 Wellesley St., Weston  
Maxim, E. L., Maxim Motor Co., Middleboro  
Maxim, Leighton L., 23 Webster St., Middleboro  
Mayers, Robert F., Deputy Chief, Greenfield  
McCarrick, Thomas J., Chief, Revere  
\*McCarthy, E. J., Gamewell Fire Alarm Co., Newton Upper Falls  
\*McCarthy, Co., Justin A., 176 Federal St., Boston  
McCarthy, Philip F., Deputy Chief, Malden  
McCarthy, Timothy G., Chief, Fire Dept., Weymouth  
\*McCue, Henry J., Lieut., 36 Courtney Rd., West Roxbury  
McGaw, Geo. E., Chief, Fall River  
McGonigle, Michael, 448 Old South Bldg., Boston.  
\*McIntire, Edward F., McIntire Brass Co., 221 High St., Boston  
\*McIntire, Frank N., McIntire Brass Co., 221 High St., Boston  
\*McIntire, Thomas S., McIntire Brass Co., 221 High St., Boston  
McLaughlin, J. A., Amer. Fire Equip. Co., 45 Broad St., Boston  
McLean, Hugh D., Ex-Fire Commissioner, Holyoke  
McLean, Walter E., Mack Motor Truck Co., 75 No. Beacon St., Allston  
\*McNally, John C., Chief, Somerville  
\*McNamara, John F., Lieut., 9 Gene St., Dorchester  
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Meade, John Paulding, 60 State St., Boston  
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\*Meunier, O. J., Chief, Southbridge  
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\*Miner, Alfred N., Mass. Safety Council, 40 Broad St., Boston  
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Moulton, E. G., Ahrens-Fox Co., 5 Admiral Road, Worcester  
Morris, Michael J., Deputy Chief, Natick  
Moxham, William W., Chief, Lynnfield  
Mulock, Franklin C., Chief, Newton St., Weston  
\*Murphy, John J., Capt., 13 Harrison Ave., Cambridge  
Murphy, Miles V., Lieut. Engine 2, Boston Fire Dept.  
\*Murray, Walter R., Capt., 17 Walker St., Weymouth  
Murrill, M. W., Ex-Chief, Scituate  
\*Neal, Bertram A., Chief, 23 Myrtle St., Waltham



- Niedner, Wm. H., Pres. and Treas. Chas. Niedner Sons Co., Malden  
 \*Normandin, Charles, Chief, Amer. Optical Co., Southbridge  
 Norton, Frank, Jr., Chief, Edgartown  
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 O'Leary, Perry, Asst. Chief, Marlboro  
 Oliver, Joseph L., Chief, Cohasset  
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 \*O'Neill, James J., Jr., Deputy Chief, Lynn  
 \*O'Neill, Patrick F., Dist. Chief, 711 Cummings Hwy., Mattapan  
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 \*Perry, Emery, Chief, Harvard.  
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 \*Pope, Samuel J., Chief, Boston  
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 Brookline  
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 Priest, George T., Chief, Maynard  
 \*Pye, Frederick H., Chief, Stoughton  
 \*Qualey, Thomas, Chief, Medford  
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 \*Quinn, Joseph W., Chief, Navy Yard Fire Dept., Charlestown  
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 Reddy, Clarence S., Deputy Chief, Cohasset  
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 \*Reilly, William Arthur, Fire Comm., Boston  
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 Rich, Lewis E., Deputy Chief, Barre Plains

- \*Ritschel, Franklin N., Chief, Gamewell Co., Newton Upper Falls
- Roberts, G. L., 67 Summer Ave., Reading
- Robertson, Ralph C., Chief, North Attleboro
- Robinson, George E., 80 Federal St., Boston
- \*Roeder, Harold E., 23 Cedar St., Arlington
- \*Rohan, John H., Chief, Holyoke
- \*Root, H. C., Chief, Springfield
- Ross, Carl, Deputy Chief, Hull
- \*Roulo, Alfred J., Capt., Beverly
- Rounseville, C. C., Jr., Fire Commissioner, 264 French St., Fall River
- Rowley, Charles F., Fire Commissioner, Brookline
- Ryan, Edward T., 48 Burt St., Dorchester
- Ryan, James J., Rockwood Sprinkler Co., 34 Harlow St., Worcester
- Ryder, Frederick M., Chief, Middleboro
- Sands, William J., Chief, Quincy
- Salamone, Richard M., Chief, Fire Dept., Needham
- \*Scanlon, Joseph E., Chief, 112 Walnut St., Lynn
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- Scully, John F., American Fire Equipment, 35 Broad St., Boston
- \*Shea, Michael J., Chief, Fitchburg
- \*Sheehan, Edward J., 20 Rosaria St., Dorchester
- \*Shepherd, Melvin B., Pembroke
- Sheridan, Philip, Chief, Bethlehem Steel Co., Fall River
- \*Sherman, Edward Danforth, Hotel Statler Bldg., Boston
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- \*Sibley, Frederick H., Chief, West Springfield
- \*Siebert, Everett, Lieut., 10 Francis St., Newton Highlands
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- Skelton, David W., Chief, Burlington
- \*Skelton, Marshall W., Burlington
- Slaman, T. H., Chief, Wellesley
- \*Smiddy, Earl, 1238 Chestnut St., Newton
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- Smith, Edward, Chief, Ipswich
- \*Smith, Ernest L., Chief, 206 Exchange St., Athol
- Smith, Fred F., Ex-Chief, East Bridgewater
- Somerville, Stewart, 547 Main St., Woburn
- \*Soper, Arthur E., Chief, Mansfield
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- Sprague, M. Ewing, Chief, Leicester
- \*Stackpole, Charles E., Chief, Lowell
- Stalker, Geo. D., Fire Commissioner, 196 Walnut St., Holyoke
- \*Stanley, Vincent C., President Gamewell Co., Newton Upper Falls
- \*Stapleton, John V., Capt., 222 L St., So. Boston
- Stetson, M. D. Co., 340 C St., So. Boston
- Sullivan, Harold, U. S. Deputy Marshal, Needham
- \*Sullivan, John J., 66 Burt St., Dorchester
- Sullivan, John N., State Fire Insp., Kurts Place, Taunton

- Sullivan, M. P., 7 Broad St., Boston
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- \*Tancrell, Wilfred J., Chief, 94 Elm St., Uxbridge
- \*Tappen, Robert M., Chief, 167 Main St., Gardner.
- Tarr, Frank H., Captain, Wenham
- Taylor, J. Frank, Chief, Nahant, Mass.
- \*Terrenzi, William A., Lieut., 26 Brookvale St., Dorchester
- Thibeault, Guy A., Chief, Rockport
- \*Thomas, John F., Asst. Chief, Lowell
- Thompson, Joseph W., 714 Adams St., Dorchester
- \*Thompson, Robert E. L., Plant Prot. Coordinator, Gen'l. Elect. Co., 14 Jackson St., Saugus
- \*Tierney, Daniel B., Chief, Sec'y-Treas. Int. Assoc. of Fire Chiefs, Arlington
- \*Tierney, John M., Deputy Chief, Arlington
- \*Tracey, Hubert W., Amer. Fire Equip. Co., 45 Broad St., Boston
- \*Tracey, John P., Chief, Great Barrington
- \*Trevett, LeRoy, Chief, Framingham
- \*Truax, Edwin E., Chief, Foxboro
- Tuttle, Harry E., Chief, Concord
- Tyler, Bartlett, Deputy Chief, 390 Atlantic Ave., Cohasset
- VanGries, Aloiss, 119 Peterboro St., Boston
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- Walden, Lawton C., 57 Exchange St., Worcester.
- Wallace, J. Thos., Chief, Bourne
- \*Walton, Henry, Fire Commissioner, Plymouth
- Warnock, James, Ex-Chief, Swampscott
- Warren, George A., Brighton Item, 66 Chestnut Hill Ave., Brighton
- Webber, Joseph A., Amer. LaFrance Co., 28 Brighton Ave., Boston
- Weinberg, Jos. M., 13 Appleton St., Boston
- Welch, Thomas F., Chief, Williamstown
- \*Wheeler, Earle A., Ex-Chief, Berlin
- \*Whelpley, A. C., Chief, Amesbury
- Whitcomb, Jos. C., Maxim Motor Co., Middleboro
- \*Whiting, Samuel W., Fire Marshal, National Fireworks, W. Hanover
- Whitney, Edward Carroll, Whitney Barrel Co., Somerville
- Whitney, G. G., Jr., 59 Highland St., Milton
- \*Whitney, George H., Fire Equipment, 304 Newbury St., Boston
- Wiggin, Leslie S., Chief, Franklin
- Wilder, Russell J., Chief, North Scituate
- Williams, Andrew, Ex-Chief, Hopkinton
- Williams, A. K., Chief, Scituate
- Williams, Herbert, Supt. Fire Alarm, King St., Cohasset
- \*Williamson, Geo. S., 200 Winter St., Norwood
- Wilson, Waldo, Chief, Carlisle
- Windhorn, Charles H., 70 Maple Pl., Dedham
- Wittenhagen, Frederick W., Dep. Chief, Beverly
- \*Wolfenden, John W., Pres. Box 9 Assoc., Attleboro
- \*Wood, Everett B., Chief, Plymouth
- Wood, Philip A., Fabric Fire Hose, 8 Chestnut St., Danvers

Woodcock, Chester C., Dept. Chief, Rochdale  
Woodman, Charles L., Chief, Oxford  
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### RHODE ISLAND

- \*Alletag, Otto J., Chief, Warren
- Babcock, John E., Warden, Union Fire Dist. So. Kingston, 63 Main St., Wakefield
- Barker, James W., Chief, Middletown
- Batchelder, Earl H., Ex-Chief, Box 193, Centerdale
- \*Black, Irving S., Chief, U. S. Rubber Prod. Co., Providence
- \*Booth, Chas. L., Dep. Chief, East Greenwich
- \*Brickley, Chester A., 100 Sheldon St., Providence
- \*Bull, William T., 11 Blackwell Place, Newport, Defense Coordinator Firestone Rubber Co.
- \*Callahan, Frank J., Chief, Central Falls.
- \*Cardarelli, G. Frank, Chief, Centerdale
- Cesana, Dominic, Chief (Marienville), No. Providence
- \*Charlesworth, Frank, Chief F. D., U. S. Naval Air St., Quanset Point.
- \*Comolli, Andrew N., 1st Asst. Chief, 6 Boylston St., Westerly
- \*Comolli, Claudio A., Asst. Chief, Westerly
- \*Cote, A. J., Chief, Woonsocket
- Cotter, Thos. H., Chief, Providence
- Connolley, William T., Deputy Chief, Pawtucket
- Cross, Henry B., Secretary, Grinnell Co., Providence
- Daley, Thos. V., Chief, Pascoag
- Dawley, Wm. S. H., 8 Warner St., Newport
- Drew, Morris R., Ex-Chief, Valley Falls
- Eldridge, Abel S., Dep. Chief, Newport
- Fischer, John H., Ex-Chief, Providence
- \*Fogarty, Michael, Lieut. Fire Dept., 35 Ridge Rd., Ononset Point
- Fortier, Henry E., Chief, Manville
- Gareau, Lionel P., Chief, West Warwick
- \*Holst, Anne C. Allen, Chief, Cedar Hill, Cowesett
- \*Jache, Paul O., Chief, Johnstone Hose Co., No. 3, Manton
- Jones, Leroy H., Jr., 77 R. I. Ave., Newport
- Lawton Joseph S., Chief, Newport
- Lenahan, R. A., Westerly
- Leys, Laudie, 135 Thames St., Newport
- Leys, Wm. A., Box 599, Newport
- Luft, I. Arthur, Midwestern Mfg. Co., 480 Westminster St.
- Mason, William H., Bureau of Fireman's Relief, Providence
- McElroy, Harry, Batt. Chief, No. 1, Providence
- McKenzie, James W. M., Chief, Barrington
- Miles, George Scott, Designer, 29 Thames St., Newport
- \*Miller, Frederick T., Chief, East Greenwich
- Moore, Moses, Chief, Bristol
- Nichols, Leon A., Barrington
- \*O'Connell, William V., Chief, West Hilton St., No. Tiverton
- \*Pasetti, Columbus, Chief, Westerly

- \*Patt, Everett I., Lieut. Fire Dept., Central Falls.
- Payne, Moses, Asst. Chief, Westerly
- Reynolds, Adelbert J., Chief, Oakland-Mapleville Fire Co., Oakland
- \*Rhodes, John, Chief, Saylesville
- \*Rodman, R. W., Chief, North Kingstown Fire Dept., Wickford
- \*Savage, John A., Chief, 270 Broad St., Valley Falls
- Sayer, W. Norman, City Clerk, Newport
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- Smith, Elphege, Chief, West Warwick
- Smith, Harold A., Ex-Chief, Greenwood
- Smith, John, 69 Granite St., Westerly
- \*Stone, David E., Deputy Chief, Station 3, Woonsocket
- Tabor, J. Earle, Chief, Forestdale
- Taupier, Napoleon, Chief, Pawtucket
- \*Whipple, Nathan W., Jr., Chief, North Cumberland Vol. F. D., Valley Falls
- Wilbur, Clifford H., Chief, So. Kingston
- \*Young, William, Chief, Cranston

### CONNECTICUT

- Allen, Francis J., Conn. Nat'l Board Fire Underwriters, 26 Girard Ave., Hartford
- Angeley, Wm., Chief, Glenville
- Barber, Irving R., Chief, Moosup
- Boyington, Charles L., Ex-Chief, Newington
- Brencher, George A., Chief, Darien
- Brockett, Myron R., Chief, North Haven
- Burgess, Harold E., Lieut., Box 145, Danielson
- \*Burr, Edwin R., Chief, Stratfield Vol. F. D. No. 3, 517 Stratfield Rd., Bridgeport
- Bussmann, Herman, Ex-Fire Commissioner, 71 Orange St., New Haven
- Cameron, Lloyd J., Chief, West Haven
- Carrigan, C. J., Chief, Terryville
- \*Cavanaugh, Thomas F., Chief, Waterbury
- Churchill, Frank W., Rocky Hill
- Clark, Horace B., 21 Woodland St., Hartford
- Conrady, William, Asst. Chief, Earle St., Rockville
- \*Cromack, Harold F., Chief, Unionville
- Delagrange, R. M., Chief, Stonington, Conn.
- \*Disbrow, John O., Chief, Wilton F. D., Wilton
- \*Donnelly, T. H., Chief, West Hartford
- Enquist, Roy C., Chief, 89 Hopson Ave., Branford
- Everly, James, Ex-Chief of Fairfield Co. No. 1, Comps Beach, Westport
- Fancher, Rufus R., Ex-Chief, 317 Edgewood Ave., New Haven
- Finn, George, Captain, Greenwich
- Ford, Laurence M., Redding Center, Conn.
- \*Foy, Albert B., Chief, South Manchester
- Franklin, Edgar C., Supt. Fire Alarms, 160 Albert St., Torrington
- Fulton, A. J., Chief, Westfield Vol. Dept., Middletown
- \*Gisborne F. R., Ex-Chief, Sound Beach
- Glenn, Russell A., Sr., Gamewell Co., 335 Fairview Ave., Bridgeport

- Goodman, Edward F., Chief, Torrington  
 Graham, George C., Chief, Bristol F. D., 88 Pine St., Forestville  
 Gray, Joseph D., Chief, General Electric Co., Bridgeport  
 Greene, Richard M., 2nd Asst. Chief, New Haven  
 Griffin, John H., Chief, Norfolk  
 \*Griswold, Henry G., Fire Comm., 759 Woodward Ave., New Haven  
 Griswold, Henry H., Ex-Chief, 749 Woodward Ave., New Haven  
 \*Hale, Leslie N., Fire Commissioner, Newington  
 Hall, William F., Chief, Plainfield  
 Hansen, Ernest, Chief, East Haven  
 Harford, D. W., Ex-Chief, 10 Chestnut St., So. Norwalk  
 Harper, George H., Jr., Chief, Putnam  
 Harris, Arthur E., Deputy Chief, Meriden  
 \*Hayden, Martin J., Chief, 66 Drew Place, Bridgeport  
 Heimer, Edward, Eng. Co. No. 5, East Hartford  
 \*Heinz, Paul P., Chief, New Haven, Conn.  
 Henderson, R. W., Chief, 13 Pleasant St., Thomaston  
 Hermann, Edward, Jr., Chief, District No. 2, Fairfield  
 Hines, John J., 265 Laurell Ave., Bridgeport  
 \*Howard, Thurston S., Chief, Waterford  
 Hunt, George L., Second Asst. Chief, Guilford  
 Hunt, Harris R., American LaFrance Corp., New Hartford  
 \*Hutchinson, John A., Jr., Asst. Chief, Old Greenwich  
 Ingals, Francis E., Chief, Chaffinch Island V. F. D., Guilford  
 Jenkins, Vernon S., Chief, Lost Acres, No. Granby  
 Jopson, Harold E., Chief, Deep River  
 Judson, Allen D., Chief, Stratford  
 \*Kantack, W. W., Chief, 145 Main St., So. Meriden  
 Kaul, Richard D., The Sealand Corp, Bridgeport  
 Kavanagh, J. D., Chief, Remington Arms Co., Bridgeport  
 \*Keena, Michael T., Chief, Hartford  
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 Lamphere, L. L., Ex-Chief, Naugatuck  
 Landon, B. H., First Asst. Chief, Guilford  
 \*Lawton, M. W., Chief, Middletown  
 Lenard, Jules A., Chief, Windsor  
 Lippmann, Ernest J., Fire Comm., Rockville  
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 McPherson, Donald S., Chief, Winsted  
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 \*Meunier, Frank, Chief, East Hartford

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 Moroney, John F., Chief, Meriden  
 Murphy, Thomas J., Chief, Southington  
 \*Noble, William J., Chief, New Britain  
 \*Norton, Clarence E., Chief, 18 Graves Ave., Guilford  
 Oddy, Harold W., Assoc. Chief, Noroton  
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 \*Potter, Stuart M., Chief, Greenwich  
 Pracny, Edward H., Chief, Walcott  
 Prior, E. P., Chief, 18 Lincoln St., Plainville  
 \*Purtill, Joseph, Chief, Pawcatuck  
 \*Reif, Lawrence E., Ex-Chief, 334 Crown St., New Haven  
 Ringers, J. H., Sandy Hook  
 \*Sanger, John Joseph, Chief, Forest Ave., Sound Beach  
 \*Schepp, Wm. F., Fire Comm., Nichols, Former Chief, Cemco Fire Dept., Electric  
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 \*Schmehl, Clarence W., Chief, East Port Chester  
 Shanaghan, Edward, Chief, Vol. Fire Dept., East Haddam  
 \*Sheridan, John J., Chief, Naugatuck  
 Shepard, Geo. H., Sr., Fire Comm., West Haven  
 \*Shipman, Thomas H., Chief, New London  
 \*Short, Winthrop E., Chief, 55 Reynolds St., Danielson  
 Stapley, Sidney R., Chief, 37 Hilltop Drive, Nichols, Bridgeport  
 Starkel, Frank, State Police, Inspector, Special Hazards, 100 Washington St., Hart-  
 ford  
 Stiles, Walter F., Captain State Police, Hartford  
 Stowe, Lewis F., Chief, Milford  
 Sturges, William F., Chief, Ridgefield  
 Supernor, Alfred H., Fire Marshal, Guilford  
 Swan, James W., Chief, 7 Swan Ave., Seymour  
 \*Tracey, Joseph P., Chief, Norwich  
 Veit, Victor H., Chief, Stamford  
 \*Volk, Chas. A., Chief, Norwalk  
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 Wellington, George, Fire Commissioner, 1699 Noble Ave., Bridgeport  
 White, Herbert P., Chief, Groton  
 Wiltse, James R., Chief, Elm Forest Fire Co., No. 1, 45 Sanford St., East Haven  
 Wochomurka, Edward, Chief, Tolland  
 Wood, Ernest W., Fire Marshal, Branford  
 Zvonkovic, John, Asst. Chief, Branford

### NEW YORK

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Green, Joseph H., Pres. Eureka Fire Hose Co., Rockefeller Ctr., New York  
Hasenflug, Ray, Buffalo Fire Applia. Corp., Buffalo  
Kuss, George J., Woodhouse Mfg. Co., 17 E. 42nd St., New York  
Lenz, Chas. C., Pres. Atlas Fire Equip. Co., New York  
Morley, G. Monroe, Jr., 13 Williams St., New York  
Mulcahy, James J., Ex-Chief, 16 Franklin Ave., Yonkers  
Mullins, Gordon R., 305 E. 88th St., New York  
Myers, Arthur, Atlas Fire Equip. Co., 22 Warren St., New York  
Merrill Leonard A., United Mut. Fire Insurance, Buffalo  
O'Neill, E. E., President American LaFrance Foamite Corp., Elmira, New York  
Pusch, R. H., General Pass. Agt., Grand Central Terminal  
Riordan, William S., Retired Chief Dispatcher, 368 97th St., Brooklyn  
Shepperd, Fred, Editor, "Fire Engineering," 24 West 40th St., New York  
Sheridan, Philip A., Chief, Port Chester, New York  
\*Smith, D. B. & Co., Utica, Thomas M. Burton, Representative, "Indian Fire  
Pumps  
Speakman, M. P., J. I. Holcomb Co., 437 Eleventh Ave., N. Y.  
Stewart, C. D., American LaFrance Fire Eng. Co., 250 West 57th St., New York.  
Sullivan, Arthur G., Buffalo Fire Applia. Corp., Buffalo, N. Y.  
Walker, Hubert, American LaFrance Co., Elmira  
Ward, LaFrance, Truck Corp., 276 Jackson Ave., Bronx, New York

### NEW JERSEY

Balantine, Edward D., Dir. Public Safety, Irvington  
Bischoff, Raymond C., Fireman, 694 Valley St., Maplewood  
Callahan, Andrew T., Chief, Harrison  
Carlson, A. H., Commissioner, Edgewater  
\*Cordes, Fred W., Chief, Maplewood  
Day, Gus L., Ex-Chief, Mendham  
\*Gemeiner, George, Chief, Orange  
Green, Freeland M., 11 Clinton St., Morristown  
\*Gussner, Thomas L., Chief, Bloomfield  
Hagstrom, A. O., Sales Rep. Acme Visible Records, 6 W. Park St., Newark  
Hayes, J. David, Chief, Millburn  
Hutch, Andrew, Chief, Nutley  
Keegan, James T., Supt. Prot. Dept., 227 Wash. St., Newark  
\*Lasher, George P., Chief, Edgewater  
Linden, William, Chief, Westfield  
\*McGinley, Chas. A., Chief, East Orange  
Mitchell, George, Ex-Chief, East Orange



Moeller, William, Jersey City, 254 Bowers St.  
\*Murray, Francis A., Chief, Teaneck  
\*Murray, Thomas J., Chief, Summit  
New Jersey Fire Alarm Co., 37 South 8th St., Newark, Wm. M. Siddal, Asst. Supt.  
\*Reid, Robert A., Chief, Belleville  
Schafer, Samuel, Fire Commissioner, Bloomfield  
Smith, Charles J., Fire Commissioner, Newark  
Smith, Frank P., Chief, East Newark, Newark  
Wilderotter, Charles J., 429 Fairmount Ave., Newark

### OHIO

Britton, Tom D., Republic Rubber Co., 1500 Parkway Drive, Cleveland  
Fox, Charles H., 2966 Erie Ave., Cincinnati  
Lagher, S. G., Pres. Akron Brass Mfg. Co., Wooster  
Love, J. M., Gen. Mgr. Akron Brass Mfg. Co., Wooster  
Stevenson, Lester, Seagrave Corp., Columbus

### WASHINGTON, D. C.

Anthony, Nell J., 2127 P. Street, N. W., Washington  
Richardson, George J., Sec. Treas., International Association Fire Fighters, 207  
American Federation Labor Bldg., Washington

### MARYLAND

Stillman, Timothy G., 3417 East Fayette St., Baltimore  
Wilkinson, P. W., Sec'y Board of Fire Comm., Baltimore

### PENNSYLVANIA

Cornwall, R. A., Kerotest Mfg. Co., Pittsburgh  
H. O. Meier, Mgr., Fire Hose Div. Quaker Rubber Corp., Philadelphia  
R. D. Wood Co., 400 Chestnut St., Philadelphia

### INDIANA

\*Hansen, Elwood S., Elkhart Brass Mfg. Co., Elkhart, Ind.

### CANADA

Beaulieu, Rosaire, Chief, Quebec, Canada  
Geo. C. Maitland, Chief Defense Ind. Limited, Nobel, Ontario  
\*Pare, R. E., Chief, Montreal  
Snuggs, H. R., Mgr. & Chief Rating Official of N. S. Board of Ins. Underwriters,  
Halifax, N. S.  
W. J. Scott, Fire Marshall, Toronto, Ontario

### COLORADO

Bryan, W. S., Asst. Chief, 2969 Foster St., Denver

## FLORIDA

Hoyt, Reverend Paul, 833 West 48th St., Sarasota.

## CALIFORNIA

Dunphy, M. J., Chief Fire Dept., Headquarters, Sacramento

## HONORARY MEMBERSHIP LIST

Fortin, Charles E., Ex-Chief, Lewiston, Maine  
C. H. Austin, Ex-Fire Comm., Nashua, N. H.  
Newman, Wm. E., Ex-Chief, Hillsboro, N. H.  
Melendy, Albert C., Ex-Chief, Nashua, N. H.  
Stockwell, Carl, Ex-Chief, Burlington, Vt.  
Collins, Waldo A., Ex-Chief, Holliston, Mass.  
\*Doyle, John P., Ex-Chief, Wellesley, Mass.  
Fox, Henry A., Ex-Chief, Boston, Mass.  
\*Healy, D. Edward, Oper. Elect. Fire & Police Dept., Retired, 25 Blossom St.,  
Worcester, Mass.  
\*Hurley, Patrick J., Ex-Chief, Holyoke, Mass.  
Johnson, George L., Ex-Chief, Waltham, Mass.  
Leavitt, Charles F., Ex-Chief, 81 Spring Rd., Nahant, Mass.  
Leonard, Fred A., Ex-Chief, Taunton, Mass., Box 31, Ogunquit, Maine  
Nicolls, John T., Ex-Chief, Malden, Mass.  
\*Ordway, O. O., Ex-Chief, Reading, Mass.  
Saunders, E. F., Ex-Chief, Lowell, Mass.  
\*Sennott, Daniel F., Ex-Chief, Boston, Mass.  
Skelton, Walter W., Ex-Chief, Burlington, Mass.  
Small, Robert O., Director of Vocational Education, Commonwealth of Mass.  
Stratton, M. Norcross, Supervisor of Vocational Education, Commonwealth of  
Mass.  
Tiffany, F. M., Ex-Chief, Bennington, Vt., 270 Huntington Ave., Boston  
Tracey, Frank E., Ex-Chief, Woburn, Mass.  
Winslow, Herbert H., Comm. on Firemen's Relief Fund of Mass., 221 Market St.,  
Lynn, Mass.  
Weeks, Reuben, Ex-Chief, Providence, R. I.  
Chesson, Frederick W., Ex-Fire Comm., Waterbury, Conn.  
Downey, James A., Ex-Chief, Wallingford, Conn.  
Hall, Herman S., State Supervisor Trade & Indus. Education, State Dept., Conn.  
Taft, Henry R., Ex-Chief, Norwich, Conn.  
Dougherty, Thomas F., Ex-Asst. Chief, New York  
Cushman, Frank, Chief, Indust. Educational Service, Wash., D. C.  
Bogardus, George W., Ex-Chief, So. Norwalk, Conn., St. Petersburg, Fla.  
Bogan, Robert A., Chief, Baton Rouge, La.  
Evans, John, Chief, New Orleans, La.  
Mottesheard, R. E., Dearborn, Mich.  
Steinkellner, Peter, Chief, Milwaukee, Wis.

### INSURANCE BROKERS SECTION

- Anderson, Arthur J., O'Brien, Russell Co., 108 Water St., Boston, Mass.  
Boit, Dalton & Church, 89 Broad St., Boston, Mass.  
Cherry, Martin C., New Hampshire Fire Ins. Co., 89 Broad St., Boston, Mass.  
Clark, Robert M., G. H. Aldrich & Sons, 30 Main St., Keene, N. H.  
Crane, Norman B., Adjuster, 44 Kilby St., Boston, Mass.  
Dalton, William J., Adjuster, 141 Milk St., Boston, Mass.  
Edgerly, Ferdinand B., Edgerly Ins. Agency, 839 Elm St., Manchester, N. H.  
Erskine, Kenneth H., Mgr. Liverpool & London & Globe Ins., Boston, Mass.  
Everett, Douglas W., Ins. Broker, Concord, N. H.  
Field, Eddy & Bulkley, 1200 Main St., Springfield, Mass.  
G. Allen Putnam Agency, Manchester, N. H.  
Haller, Julius, O'Brien, Russell Co., 2 Coulton Park, Needham, Mass.  
Hamilton, H. J., State Agent, 390 Main St., Worcester, Mass.  
Hinckley, Ralph G., N. E. Mgr. Amer. Ins. Co. of Newark, Boston, Mass.  
Hurst, Carl E., State Agent, Conn. Fire Ins. Co., Boston, Mass.  
Jordan, Wm. T., Ins., 23 Alden Rd., Watertown, Mass.  
Keany, Walter, American Ins. Co., 61 Batterymarch St., Boston, Mass.  
McLean, C. Garfield, Adjuster, Pres. McLean Reports, Ins. Surveys, 101 Milk St., Boston, Mass.  
McWalter, John J., 34 Main St., Concord, Mass.  
New Hampshire Fire Ins. Co., Manchester, N. H.  
Pape, George R., Mgr., Nat'l Liberty Ins., 101 Milk St., Boston, Mass.  
Ray, Maynard C., Burlington, Vt.  
Rogers, Fred K., Adjuster, 10 Post Office Sq., Boston, Mass.  
Sherman, Emmanuel, Ins. Agent & Broker, 19 Milk St., Boston, Mass.  
Slee, Charles A., Agency Inc., Insurance Broker, Marblehead, Mass.  
Stalliday, Clarence J., Spec. Agt., Amer. Ins. Co., Newark, Boston, Mass.  
Thomas, Clyde S., 7 Rock St., Middleboro, Mass.  
Tourison, Edward G., Adjuster, 141 Milk St., Boston, Mass.  
White, Arnold R., Pres. J. R. Tallman Co., Inc., Taunton, Mass.  
\* Star before name denotes membership in International Association of Fire Chiefs.

## CONNECTICUT LATH & SUPPLY CO.

MASON'S SUPPLIES

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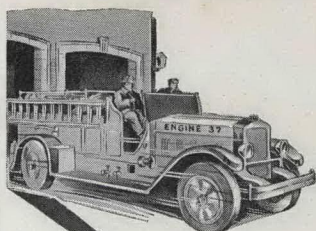
74 GOODSSELL STREET

BRIDGEPORT, CONN.

TOTAL MEMBERS, NOVEMBER, 1941

MAINE .....	54
NEW HAMPSHIRE .....	49
VERMONT .....	32
MASSACHUSETTS .....	535
RHODE ISLAND .....	62
CONNECTICUT .....	132
NEW YORK .....	28
NEW JERSEY .....	27
PENNSYLVANIA .....	3
OHIO .....	5
WASHINGTON, D. C. ....	2
MARYLAND .....	2
INDIANA .....	1
COLORADO .....	1
LOUISIANA .....	2
FLORIDA .....	2
MICHIGAN .....	1
WISCONSIN .....	1
CALIFORNIA .....	1
CANADA .....	5
<hr/>	
TOTAL .....	945

# The HEART OF THE FIRE DEPARTMENT



The signal system bridges the gap between the inception of fire and its extinguishment. Fire losses are minimized in direct ratio to the effective use of the signaling means — the box. Maintenance of the existing signaling systems in a high state of efficiency was never more important — and plans for the improvement of this vital element of the fire defenses are always in order and should receive early consideration.

Gamewell manufactures and installs fire alarm and police signaling systems applicable to every community and industry. We gladly cooperate in planning such protection.

## THE GAMEWELL COMPANY

*Specialists in Public Safety*

NEWTON UPPER FALLS



MASSACHUSETTS