

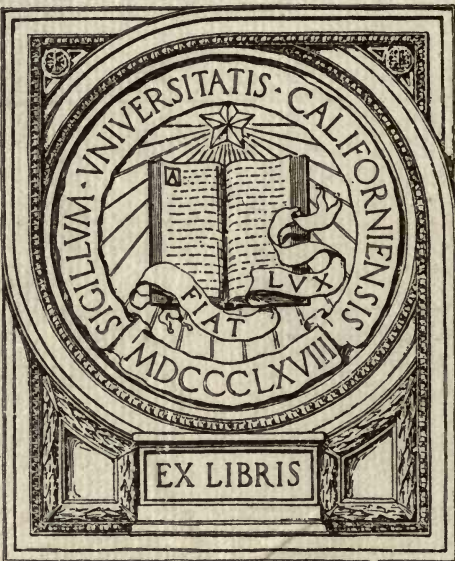
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A Five Years' Fight

against

FIRE WASTE

and

Its Possible Control in the United States

by

Fire Prevention and Protection

Comprising a Series of Addresses, showing the growth of an idea on this subject within five years—1908-12 inclusive.

By

POWELL EVANS

**Chairman
Fire Prevention
Committee**

City of Philadelphia
(Appointed by his Honor the Mayor through the
Director of Public Safety)
Bureau of Municipal Research, Philadelphia
National Hardware Association of the United States
National Sheet Metal Contractors Ass'n of the U. S.

**Former Chairman
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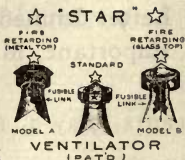
INTRODUCTION

This book is an aggregate of five years of *Addresses, Detailed Studies of State and City Machinery*, and Newspaper and Periodical Comment thereon—all intended to illustrate the size and phases of American fire waste and the possible means of controlling it.

INDEX

YEAR	PAGE
(1) 1912 Correspondence—Powell Evans and National Fire Protection Association	2
Suggesting change and broadening of organization.	
(2) 1911 Address before Board of Trade, Camden, N. J....	12
Urging National, State and City organization of business men to fight fire waste.	
(3) 1912 Some Technique of Fire Waste Control.....	34
An Address before Boston Society of Architects and Pennsylvania State Association of Architects.	
(4) 1911 "State Fire-Prevention Association" Work	46
Explaining the functions and methods of such organization.	
(5) 1912 Philadelphia Fire-Prevention Committee	50
Detail of work and newspaper comment thereon.	
(6) 1911 Fire Waste (Reprint from Survey (N. Y.) July 1, 1911)	91
A general discussion of fire danger in United States and means to control it.	
(7) 1911 Pennsylvania (State) and Philadelphia (City) Fire Marshall Laws	112
Text, with explanatory notes, and newspaper and other comment.	
(8) 1911 Remarks before City Club, Philadelphia, on Local Fire Danger	134
Substance of evidence before New York Legislative Investigating Committee.	
(9) 1911 and 1912 Fire-Prevention and Protection, New York State and City	143
Comment on State Fire Marshall Bill, City Fire Prevention Bureau and proposed new city Building Code.	
(10) 1909 Fire Insurance and Prevention as Related to Credit	153
Address before Fire Underwriters Association of the Northwest, at Chicago.	
(11) 1908 Fire Waste and Prevention	168
An address before First Conservation Congress, White House.	

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517 ARCH STREET

Philadelphia, May 15th, 1912.

FOREWORD TO THE PUBLIC:

American fire-waste is an annual national calamity - The aggregate of fire losses occurring throughout the different states - principally in the municipalities within these states.

ALL AGREEMENTS SUBJECT TO STRIKES, ACCIDENTS OR CAUSES BEYOND OUR CONTROL WE WILL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES. NOR CAN ANY MATERIAL BE RETURNED WITHOUT OUR CONSENT

As the loss is national in fact, the control should be national - but it is not and cannot be under our government.

The only relief possible is uniform action by all the states and their cities.

This book is intended to illustrate the method (which has worked successfully so far in practice in Pennsylvania and Philadelphia) of advancing within recent years an abstract objection against fire-waste of life and property towards concrete detailed control of this abuse.

Citizens of any other state and city can organize and successfully accomplish such a program in their respective locations, and possibly better it.

A national movement to this end (organized into State branches and Municipal sub-branches) equipped with legal and engineering personnel - to study the laws and the facts everywhere; and prepare, advance, procure, organize and enforce uniform practical legislation throughout the country - is now imperatively needed, as the following subject matter attempts to prove conclusively.

Respectfully,

Brouhaug

Chairman,	(City of Philadelphia
Fire Prevention	(Bureau of Municipal Research (Phila.)
Committee	(National Hardware Association
	(National Ass'n Sheet Metal Cont'rs of U.S.
Former Chairman	
Fire Prevention	(National Association of Credit Men
Committee	(National Ass'n of Manufacturers.

NOTE - The latest work is first printed herein, and the older ones in order backwards. Some repetition in the subject matter was unavoidable.

TO THE
ASSOCIATION

THE FOLLOWING CORRESPONDENCE

Led Up to the Proposals Given in the Letter Immediately Below, Which Proposals Cover Important Matters Considered in This Book

PHILADELPHIA, May 3, 1912.

NATIONAL FIRE PROTECTION ASSOCIATION,
MR. FRANKLIN H. WENTWORTH, SEC'Y,
BOSTON, MASS.

Dear Mr. Wentworth:

I regret this tardy reply to your letter of April 6th, but have been unable to formulate it earlier. I will attend the forthcoming Annual Meeting in Chicago, and ask that you give opportunity for consideration of the following three propositions:—

1. The establishment of a Legislation & Publicity Division of the N. F. P. A. (national in scope,) with State branches and Municipal sub-branches (composed, more than one-half, of your Trade Association active members)—to study and prepare legally and physically, and get enacted and enforced, substantially uniform State and City legislation throughout the country, to control fire-waste of life and property.

2. The preparation and adoption of "Compulsory" standard of fire prevention and protection apparatus, based on the lowest reasonable requirements as measured by field and laboratory experience of the last ten years, for incorporation into State laws and Municipal ordinances—to bear as lightly as possible on the public, forced in numbers by such legislation to such expense for the common welfare. I have to-day written Mr. E. P. Boone, New York City, proper N. F. P. A. Chairman on this subject.

3. The advocacy of a legally enforced universal and periodic (annual) *occupancy* and *housekeeping* license in at least all congested areas of cities as to persons, pursuits and property housed in all buildings within defined geographical lines.

At this time of widespread discussion, agitation and constructive legislation against fire-waste, this Association should in my opinion clearly define its position in these matters. I have written Mr. Merrill, Prest., N. F. P. A. to-day enclosing copy of this letter.

As Chairman of the Philadelphia Fire Prevention Committee recently appointed by the Mayor of this City through the Dept. of Public Safety, I am particularly interested in action on the two last named above propositions.

Yours truly,

POWELL EVANS

Chairman, Fire Prevention Committee

NATIONAL HARDWARE ASSOCIATION

NATIONAL ASS'N SHEET METAL CONTRACTORS

P. S.—In order to present these matters as clearly as possible with full reason therefor, I have incorporated my work on Fire-waste for the past five years—together with this correspondence—in a pamphlet for distribution at the approaching meeting. I attended these meetings from 1900 to 1906.

W. H. MERRILL, President.

FRANKLIN H. WENTWORTH, Secy. and Treas.
87 Milk Street, Boston.

C. H. PHINNEY, Vice-President.

NATIONAL FIRE PROTECTION ASSOCIATION.

ACTIVE MEMBERS.

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American Electric Railway Association,
American Institute of Electrical Engineers,
American Watchmen's Association,
American Water Works Association,
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Fire Underwriters' Electrical Bureau,
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International Acetylene Association,
International Association of Fire Engineers,
Iowa State Fire Prevention Association,
Kansas Fire Insurance Inspection Office,
Kentucky Inspection Bureau,
Kentucky State Fire Prevention Association,
Louisiana Fire Prevention Bureau,

Louisiana State Society for the Reduction of Fire
Waste,
Louisville Board of Fire Underwriters,
Mainland Fire Underwriters' Assn. of B. C.,
Massachusetts Association of Municipal Electrical
Inspectors,
Massachusetts Mutual Fire Insurance Union,
Michigan Inspection Bureau,
Michigan State Fire Prevention Association,
Milwaukee Board of Fire Underwriters,
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Mississippi Inspection and Advisory Rating Co.,
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National Paint, Oil & Varnish Association,
Nebraska State Fire Prevention Association,
Nevada Inspection Bureau,
New Brunswick Board of Fire Underwriters,
New England Insurance Exchange,
New Hampshire Board of Fire Underwriters,

New York Board of Fire Underwriters,
New York Fire Insurance Exchange,
North Carolina Fire Prevention Association,
North Dakota State Fire Prevention Association,
Nova Scotia Board of Fire Underwriters,
Ohio Inspection Bureau,
Ohio State Fire Prevention Association,
Oklahoma Inspection Bureau,
Philadelphia Fire Underwriters' Assn.,
Philadelphia Suburban Underwriters' Assn.,
Rocky Mountain Fire Underwriters' Association,
Royal Architectural Institute of Canada, The,
South Carolina State Fire Prevention Association,
South Dakota State Fire Prevention Association,
South Eastern Underwriters' Association,
St. Louis Fire Prevention Bureau,
Suburban Fire Insurance Exchange,
Tennessee Inspection Bureau,
Texas Fire Prevention Association,
The Union,
Underwriters' Assn. of the Middle Department,
Underwriters' Association of New York State,
Underwriters' Bureau Middle and Southern States,
Underwriters' Bureau of New England,
Underwriters' Laboratories, Inc.,
Virginia Fire Prevention Association,
Western Actuarial Bureau (Fire),
Western Canada Fire Underwriters' Association,
Western Factory Insurance Association,
Western Sprinkler Risk Association,
West Virginia Fire Underwriters' Association,
West Virginia Inspection Bureau,
Wisconsin Inspection Bureau,
Wisconsin State Fire Prevention Association.

87 Milk Street, Boston, April 6, 1912.

Mr. Powell Evans,
517 Arch Street,
Philadelphia, Pa.

My dear Mr. Evans:--

I have been seeking a half hour not crowded with more imperative obligations to read, digest and reply to your very interesting letter of March 29th. As I note your desire to receive a reply to the same before April 9th, I am taking it up today, although I may wish to write you further on certain points after its more leisurely perusal and consideration.

First, as to the matter of underwriting problems in connection with our work. You are quite right that fire waste and underwriting are too close together to absolutely sever. I presumed upon a familiarity on your part with the long established unwritten laws of the Association, but on second thought I do not remember ever seeing you at one of our annual meetings. We found some years ago that the injection of underwriting matters into our conventions invariably precipitated a discussion of rates and that these discussions impaired the value of our meetings from an engineering point of view. You know of course that for many years we were simply an engineering body making standards for fire prevention and protection. Our work of public education is a development of the last three years. When I undertook to make speeches on the fire waste on behalf of our Association, the Executive Committee suggested that in my public work I emphasize the statistics of the fire waste and the methods by which it might be curtailed, without allowing myself to be drawn into a discussion of rates. When,

therefore, I asked you to come to Boston to speak, I simply passed the counsel which had been given me along to you without the explanation I should have made. I have found in my own work that what you say is true,—that one cannot in speaking on the fire waste ignore absolutely the underwriting aspects of it, and I believe with you that all those who speak on this subject should be at liberty to refer to it, as you say, fairly, honestly and temperately. So much for that point.

It is true that the general public assumes that the N. F. P. A. is an insurance organization. In a sense it is, because all the standards put out by us have been laboriously compiled by the engineers in the employ of the underwriters. If this contribution had not been freely made by the latter, we never would have had any standards. Our membership, however, is so rapidly broadening that I feel we are justified in declaring that we are not an underwriting organization in our work of publicity, and such campaigns as that of the Credit Men will go far to bring the country to this recognition of us and make our increase of membership among non-insurance people more rapid as the years go on. My feeling was that your activity might possibly be more effective, expressed through channels of the N. F. P. A. instead of through a separate organization as suggested in your Camden speech. I am open to conviction, however, that your own idea may be the best. I appreciate immensely the personal contribution you have made to the cause, and are yet making. I feel, however, that one would not be more justified in declaring that the N. F. P. A. was an insurance organization than one would be in declaring that your committee to study the fire waste in Philadelphia was an insurance organization, because 33 per cent. was typified by Mr. Hexamer. An organization should be judged by its object, and if that object typifies a large outlook and broad public policy, it should be taken on its merits. Can you point to any special work we have done in the line of publicity, since we began our campaign, which appears to have been put forward from an underwriting viewpoint?

I am passing your remarks regarding the Underwriters' Laboratories to Manager Merrill, of that institution, and enclosing you copy of the letter I have just dictated. You will undoubtedly hear from him direct.

I am greatly interested in what you say regarding the use of the automatic sprinkler under state or municipal compulsion. Our Committee on Automatic Sprinklers is to revise or amend the sprinkler rules this year. The time

is, therefore, strikingly opportune to secure the consideration of the points you raise at our annual meeting. Rather, therefore, than continue the suggestion that you appear on our program formally as a speaker, it seems to me especially desirable that you, as a representative of two of our active members, should put up to the chairman of our Committee on Automatic Sprinklers, Mr. E. P. Boone, of 123 William Street, New York, the problem as you express it in your letter to me, making such recommendations as you would like to see made effective, and then come to the annual meeting at Chicago and fight for your contentions on the floor of the convention. I agree with you that the N. F. P. A. should be a leader in grappling with these important developments, but you, yourself, are a member of our Association and owe it to that body, as a member, to do all you can to insure that leadership.

I shall greatly hope to hear from you to the effect that you will approach the committee above referred to in the manner suggested, and let us have the points raised by you well thrashed out at the annual meeting with yourself present as the champion of the measures you advocate.

The other important points in your letter can be considered later.

With kind regards and much appreciation of your interest,

Very truly yours,

FRANKLIN H. WENTWORTH
Secretary.

FHW/L.
Enc.

March 29th, 1912.

MR. FRANKLIN H. WENTWORTH, SEC'Y,
NATIONAL FIRE PROTECTION ASSOCIATION,
87 MILK STREET, BOSTON, MASS.

My dear Mr. Wentworth:

Although I promised to send you by the 10th of March, or soon thereafter, the text of certain remarks made by me to the Boston Architects on February 6th, as further illustrating the thoughts I have on the line of effort which should be followed to reduce fire waste in this country,—all this in reply to the two notes received from you while on your Western speech-making tour,—I have been unable to do this as yet on account of press of business and numerous absences from the city.

The Pennsylvania State Association of The American Institute of Architects has asked me to attend their Fourth Annual Meeting in Philadelphia on April 9th, during the afternoon session which will be devoted to a discussion on improvements in building construction, and in talking to this body, I want to be quite clear in any suggestions I make, hence, I am writing you now about this general subject and hope to have your reply in due course before April 9th. Your letters of January 16th, 26th and February 3rd are the ones referred to.

I made the trip to Boston as you now know and was glad to see Mr. Goddard there.

I cannot exactly agree to the view given in your letter of Jan'y 16th, that no mention of underwriting matters should be made on any talk about fire waste, because the question of underwriting can no more be disassociated from fire waste than any other phase of its environment. Different minds hold different views and think along different lines, and the whole question of fire waste must necessarily be viewed and treated differently by different individuals, and there should be no objection to this, no matter who or what is touched, so long as this is done fairly, honestly and temperately.

You will recall also that the active members of the N. F. P. A. have different view-points and different experiences, and that representatives of these active members are justified in discussing fire waste at every angle from the standpoint of those they primarily represent; and finally that one of the fundamental tenets of the N. F. P. A. is, that no member is limited in his views or actions by joining this Association.

I do not believe that control of fire waste in this country can ever be adequately accomplished by insurance interests alone but enforcement of *minimum requirement laws* on behalf of the states and municipalities will materially and permanently better the situation. The great question is, who will work out such program and how?

In my Camden Board of Trade remarks I outlined reasons, which still appeal to me, why such a program is measurably put at a disadvantage when presented by insurance organizations. You may take the position that the N. F. P. A. is not an underwriting organization but admittedly 90% of its membership—and that the controlling part of it—is made up of underwriting organizations and so absolutely identified with underwriting organizations as to leave no recognizable line of difference so far as the ordi-

nary citizen can see; hence it stands out to the average mind of the average citizen as a part of the insurance whole.

If I am right in this view, then for questions of policy alone the preparation and advancement of uniform legislation to control fire waste in this country could wisely come through channels not identified with insurance activity.

Recently the Director of Public Safety of this city called for help, to study the fire waste question in Philadelphia and, in answer to this call, Mr. Hexamer, Secretary of your local Board, Dr. Burks, Director of the Philadelphia Bureau of Municipal Research, and I, got together to make the study.

We had first of all a student organization; second an insurance experience, and third a lay commercial experience associated in this work. It was necessary to pay for certain assistance to make this study legally and physically, and we had to raise \$450.00 by private subscription to carry out this work. I am sending you under separate cover a copy of this report which kindly return to me promptly.

Now I don't know of any machinery in insurance organizations to-day that alone could do this sort of work, not only in any one city but throughout the country, yet such machinery must be found and set in motion to accomplish the results that we all agree should be accomplished. So these *two great questions of policy* and of *actual machinery* to carry out the policy are the ones now to be fairly measured.

If you feel that the N. F. P. A. would undertake to organize a division of its work for the study and promotion of legislation and education to reduce fire waste, and that the N. F. P. A. would be willing to turn such a committee over to the control of its Trade active members, and will appropriate some of its funds to organize a bureau for the legal and physical research necessary to start such work, and would give proper publicity in its Quarterly and through other channels to inform the public about this work, it might be that the consolidation of energies against the common enemy of fire would travel faster and more strongly than a division of this effort.

I am convinced, however, that unless a more effective alliance can be worked out between insurance buyers and insurance sellers for uniform betterment of fire waste over the country, that this fire waste will not get better but become even worse. If some such step as above referred to were feasible, then I should say your Quarterly should be turned into a more or less popular form of Monthly Magazine for very much larger distribution, the Quarterly issues

caring only for the more technical phases of the work. There is no reason why such a magazine should not have a million subscribers in this country within the next five years if properly edited and pushed unanimously by all insurance and trade organizations. It does no good to have a doctrine, no matter how excellent, unless that doctrine can be brought home to the average person concerned and have a chance to make converts, and working converts at that. If such a coalition as above suggested were feasible the Trade Associations becoming active in this work might become friendly graduates of your Insurance Organizations and spread the doctrine of fire prevention in their own fields.

I think possibly that the present method of administering the Underwriters' Laboratories could, with advantage to itself, be criticised and corrected in a measure. I am satisfied that as now operated they do not with adequate speed pass upon a question submitted to them, and that they are in a measure arbitrary and unreasonable in the way they initiate inspection of work entrusted to them and send through unexplained bills to their clients for unauthorized work.

As the great centre of physical research in suppressing fire waste the laboratories should be so keenly and reasonably conducted as to attract and not repel anything that touches the problem, and a little kindly criticism at this time is due them under their present methods.

There is another matter of broad interest and importance which is pressing insistently now for consideration and readjustment. The admitted sound field for the use of the automatic sprinkler has become so generally proven and recognized as to be the subject more and more extensively of municipal and state legislation, compelling the use of sprinkler systems in congested building areas.

A bill to this effect is now pending before the Massachusetts Legislature; a similar measure is now in force in New York City; a similar measure is up for action as an ordinance before the City Government of Chicago; and the application of sprinklers in theatres, portions of hotels and like structures is already mandatory in St. Louis, here, and in other cities.

I raised the point in detail before the Boston Architects as to the propriety of considering at this time a lower standard for sprinkler installation when compulsory than that now generally known as the Underwriters' Standard.

The experience of a generation has shown that 90% of fires are extinguished by sprinkler systems in the relative incipiency of the fire with ten or less sprinkler heads open.

Obviously therefore with connections, pumps, tanks and reservoirs which will care for ten or less heads at the same time would extinguish 90% of fires based on a twenty-five year average. Obviously therefore buildings only equipped to this extent would be infinitely better multiplied throughout cities under pressure of legal requirements than the omission of sprinkler systems almost entirely as is now virtually the rule everywhere;—in Boston, for instance, less than 3% of buildings in the city centre being equipped.

Therefore, if under such laws what might be called a *compulsory* standard were adopted, it would be much fairer to property owners in cities because requiring so much less investment on the average. In many cases surveys here indicate that the heavy piping and accessories add often as much as 100% to the cost of the system. There should be no need, under the experience above cited, for ever using bulk pipe in any building larger than 3 inch. If any sprinkler system, even under this compulsory schedule, is to meet the requirements of the Underwriters and secure the lowest rate of insurance, then the Underwriters by the rate power they wield can demand the present Underwriters' Standard—which may be called a *voluntary* standard—and it is up to the property owner either to put in this highest (taking lowest Insurance rate) standard or not as his interest determines; but the minimum or compulsory standard should be just as fair as possible in first cost to the property owner and as low as the average experience in sprinkler systems permits.

Again, in congested city areas where the greatest danger exists, there is a gradual development of high pressure water service. The present Underwriters' Standard prohibits any smaller connection to water supply than 4". Obviously a great number of 4" connections to a high pressure system would introduce so much danger in event of breakage or leakage of any of these connections that the connection becomes inadvisable no matter how many sprinkler systems are in service.

Hence, under present rules high pressure water supplies cannot be supplied for sprinkler or distribution systems. Now 4" connections are not required to feed this 90% average of 10 or less sprinkler heads. One inch connections only would be necessary provided a good strainer and pressure regulator combined were put at the bottom of this 1" pipe and 1" connections could be safely multiplied without unduly endangering materially the high pressure service. The compulsory or minimum sprinkler standard demanded by law should, in my best judgment to-day, call

throughout only for Underwriters' devices, and substantially Underwriters' head—spacing and valve requirements; but the pipe sizes should be brought down to provide for only say 20% instead of 50% capacity; and the pumps, tanks and water connections should follow the reduction in pipe size; and particularly the high pressure water connections should be reduced to 1" with approved strainer-regulator service to insure proper movement of the water through this small distribution.

When the State or Municipality finds an agency so thoroughly proven in service and so reasonable in first cost as the sprinkler system can be made on its average requirements, the time has come in the face of existing American fire waste where the State and City can reasonably impose on citizens in congested areas a mandatory requirement for this protection against fire—along with other reasonable requirements as to building construction, occupancy and housekeeping; but when the State or City goes this far it should see to it that the citizen is protected in the cost of what he is forced to buy.

As far as I am concerned, it would suit me if the State or a number of States were to themselves manufacture sprinkler heads, only I think that a private enterprise can do this better under the American system of living; but I am willing to take my competitive chance under such a regime as outlined above and to remain in this business, while insuring only a proper charge for devices or systems to the public—if the States and Cities make the purchase of devices or systems obligatory. This is one of the most important actual commercial considerations in relation to fire prevention before you to-day; and the N. F. P. A. should be a leader instead of a follower in a movement to regulate reasonably this new situation, particularly as a strong minority of the personnel of the N. F. P. A. has for years felt in a measure about standards as I have here outlined.

I would be glad to have your reply to this letter before April 9th so that there is time to communicate with Mr. Merrill if you so desire before answering me. If an expression of such views would be welcome on the floor at the Annual Meeting of the N. F. P. A. I will be very glad to go to Chicago at that time.

Yours very truly,

POWELL EVANS

FARGO, N. DAK., Feby. 3, 1912

MR. POWELL EVANS
517 Arch St., Phila.

Dear Mr. Evans:

Mr. Meek (former Secretary, now Vice President National Association Credit Men) and I read your Camden Board of Trade speech of Nov. 14th, together yesterday on the Nor. Pac. train, and discussed at length your plan of a new organization. We are not sure but that you might get an equally effecting result through the creation of a special committee of the N. F. P. A. of which you, as the representative of several active members, might be chairman. The N. F. P. A. is not an insurance organization. It has that aspect simply because we have never been able to get substantial help from any other direction.

I shall be in N. Y. in about six weeks and would like very much to talk over this matter with you. There is no reason why the N. F. P. A. should not be in every sense a national organization, wedded to no special interest, whatever. I am doing my utmost to increase our membership to that end.

Sincerely,

FRANKLIN H. WENTWORTH

87 Milk St.

Boston

An Address Urging National, State and City Organization of Business Men to Fight Fire Waste

November 14, 1911.

BOARD OF TRADE,
CAMDEN, NEW JERSEY.

Gentlemen:

Your kind invitation to speak on Fire Waste at your Meeting, following as it does an earlier one this Spring—which absence from the country did not permit me to accept—shows a confidence in my interest and perhaps knowledge of the subject, which may possibly in the latter respect be misplaced. I certainly appreciate the compliment and will do my best to warrant it. Some offerings, however, are burdens rather than blessings, as was the case with a friend of mine interested in an Old Ladies' Home, who applied to a well-known capitalist for a donation. "Certainly," was the prompt reply, "I will donate two old ladies."

What you want is real enlightenment about United States fire waste and not incomplete half truths which will make the subject more obscure. You do well to study this matter, and you will do better to play an active part in your State and City hereafter to help suppress one of the largest and most useless drains on American prosperity of all the many that exist.

The basic, undisputed facts are as follows:

Last year's fire loss was 214 millions of dollars, approximately the average of 216 millions for the ten years—1900-1909 inclusive. If the related expenses of Fire Departments and protection were added the total loss would increase to approximately 400 millions. This would roughly average \$3.00 per capita—vs. about 33c. for Western Europe. Insurance costs us about one per cent. on the average vs. one-tenth of one per cent. for Western Europe.

In other words, our fire waste, and our cost for insurance, are both about ten times like averages for Western Europe.

Of our fire losses about 20% are made up from arson and over-insurance and exaggerated settlements; and about 30% more from individual carelessness, indifference and dirty housekeeping—or "personal responsibility."

Poor physical condition of construction, protection and occupancy of properties would account for another 25%.

All authorities agree that fully two-thirds of all losses are preventable. United States life loss from fire averages about

1500 killed and 5000 badly injured per annum. There is also tremendous associated loss from interruption to business from fires. A reduction in fire loss would proportionately reduce the last named items.

It is not possible to now cite you chapter and verse to sustain these general facts and conclusions. The history of the subject covers our whole national life. Much has been observed, studied, spoken, written and done in this fight with the fatal as well as beneficent element—fire. I can only refer you now to the data obtainable, and leave it to your interest and enterprise to obtain and use it.

The general public awakening about fire waste, may be said to have come during the past five or six years, and will be found fairly well summarized in the following articles:

1905:—

The United States Department of Commerce and Labor (Bureau of Manufactures) published a report of the Consular Service on fire loss and insurance abroad.

This furnishes the basic foreign figures for comparison with our home conditions cited above.

1907:—

The United States Department of the Interior (U. S. Geological Survey) in Bulletin #418 on "The Fire Tax and Waste of Structural Materials in the United States" gave a powerful warning on this subject.

1908:—

At the First Conservation Meeting of Governors in the White House, May, 1908, I presented on behalf of the National Board of Fire Underwriters a paper on Fire Prevention, outlining the facts and possible remedies, based on my experience as Chairman of the Fire Prevention Committee of the National Hardware Association of the United States at that time. (Text, page 168 herein.)

1908-10-11:—

The National Board of Fire Underwriters presented further papers on Fire Waste at the Conservation Congresses during these years, from which quotations will later be made.

• These papers give authoritative and quite complete views on our fire waste problem and the course in general terms to better it.

As Chairman of the Fire Prevention and Insurance Committees of the National Association of Credit Men, National

Association of Manufacturers and National Hardware Association, in the Fall of 1909 I read a paper at the Fortieth Annual Meeting of the Fire Underwriters of the Northwest on "Fire Insurance and Prevention as Related to Credit," which fully enumerated the studies and authorities on the subject, and the activities at work to regulate it, and finally the necessity of *consolidating these efforts* to achieve any practical results. (Text, page 153.)

In an address before the City Club of Philadelphia, January 7, 1911 (Text, page 134), and as a witness before the Legislative Investigation Committee of New York later the same Spring (Text, page 134); in a pamphlet on proposed Fire Marshal Legislation for Pennsylvania and Philadelphia, for a Meeting of business associations at the Bourse, Philadelphia, April 26, 1911 (Text, page 112); and in an article in "The Survey" (New York) July 1, 1911 (Text, page 91); I developed a good case showing the reasons for and method of conversion of the above-cited *general* facts and conclusions into *specific* State and Municipal Laws to control fire waste—constituting the continuous advance of a principle of action into results.

The absolute need of complete, specific and centralized legislation to reduce life and property loss from fire is fully disclosed in the following articles:—

"The Survey"—issue of January 7, 1911—had an article by Mr. J. P. McKeon, an engineer, entitled "Fires, Factories and Prevention," which exhaustively describes and analyzes the fire loss in life and property in the Newark factory at Orange and High Streets, in 1910. In this article he shows the jumble of insufficient, inefficient and unrelated State and Municipal laws respecting the construction, protection and occupancy of buildings; the careless, indifferent and inefficient enforcement of such laws as existed; and the lack of any real and continuous inspection from any source, to insure any reasonably effective control.

In "McClures Magazine"—September, 1911 issue—is a forceful editorial on "The Fire Question in the United States."

In the same issue an article by Mr. Arthur McFarlane, entitled "Fires and the Skyscraper," fully discusses the Washington Place, Asch Building, or "Triangle," fire in New York City in March, 1911, with its causes and needlessness.

In "McClures Magazine" of December, 1911, Mr. McFarlane has another article entitled "New York's Conflagration Peril," which discusses the fire and conflagration hazard in New York City at present.

The "Journal of Commerce and Commercial Bulletin," New York, in an editorial in issue of March 29, 1911, lays pronounced emphasis on the governmental conditions in the City of New York, which made the Triangle fire possible; adding cumulative evidence to that above cited, especially concerning the Newark fire, as to the conflict of authority supposed to control fire waste at present in practically all states and cities.

"Everybody's Magazine" issue of November, 1911, has an article by Messrs. Leon Platky and Walter Lippman, which throws light on the serious "arson" conditions under the present imperfect laws and enforcement of same.

Mr. Franklin H. Wentworth, Secretary of the National Fire Protection Association, has in repeated addresses called for the gradual construction of a fire-stop cross in all cities, dividing their areas substantially into four parts—this cross to be effected by taking two intersecting main avenues and gradually improving the construction of the buildings along them so as to resist the march of conflagration.

The only reasonable deduction from all this evidence is that, as regards fire waste, all over this country *public opinion, general building construction, improvement, protection, occupancy and housekeeping; legislation—both State and Municipal, and inspection under and enforcement of existing laws—* are in main loose, unrelated, lacking in uniformity and centralized authority, and generally neglected to a shameful and often criminal degree.

I cannot now and here detail all this data—it would require a full day—so you must assume my position is right until you investigate directly.

This situation becomes more burdensome every day and it is unthinkable that we cannot as a nation control it, so we approach consideration of the solution of this Gordian knot.

The Insurance organizations alone will never be able to give us relief, for reasons I will now develop.

The best known and most authoritative organization of the Stock Insurance Companies (apart from the local Underwriting Boards, which are most in evidence in dealing with the public) is the National Board of Fire Underwriters, No. 135 William Street, New York City. It describes its own views and activity in its December, 1908, Conservation Address, as follows:—

"The National Board of Fire Underwriters, which this Committee represents, devotes its energies and activities to the reduction of the fire waste and the safeguarding of life

and property and has nothing to do with the rates of premium. It confines itself to matters in which Fire Insurance Companies have a common interest and most of which also deeply concern the public.

Thus, through a Committee on Fire Prevention, commanding the services of a corps of engineers, the cities of the country are systematically inspected by the National Board of Fire Underwriters with a view of pointing out defects in water supplies and fire department equipments, and copies of these reports, with our recommendations for improvements, are presented for the free use of municipalities; an extensive Laboratory plant is supported for the purpose of testing material and devices of a hazardous nature entering into the problems of fire protection; a model building code has been adopted, ten thousand copies of which have been distributed to cities and towns in the United States; an arson fund is subscribed from which over a million dollars in rewards has been offered for the conviction of incendiaries; nearly half a million of standard rules and lists of hazardous and protective devices and materials were during the past year alone circulated to the public free of charge; hundreds of thousands of copies of the rules to regulate electric installations are annually distributed, and in every way possible we have endeavored to create a sentiment which should tend to place some check upon the constantly increasing destruction of values by fire.

The Committee believes that the present fire waste in this country is an unnecessary national calamity, and that to reduce it it is essential

First.—That the public should be brought to understand that property destroyed by fire is gone forever and is not replaced by the distribution of insurance which is a tax collected for the purpose.

Second.—That the States severally establish and support the office of Fire Marshal and confer on the Fire Marshal by law the right to examine under oath and enter premises and to make arrests, making it the duty of such officer to examine into the cause and origin of all fires and when crime has been committed requiring the facts to be submitted to the Grand Jury or proper indicting body.

Third.—That the States severally adopt and enforce a building code which shall require a high type of safe construction, essentially following the code of the National Board of Fire Underwriters (for use by municipalities).

As long ago as 1892 a Committee of this Board addressed the President of the United States on the destruction of life and property by fire. As was expected, it appeared to him a matter for State rather than National legislation.

Fourth.—That municipalities adopt ordinances governing the use and keeping of explosives, especially inflammable

commodities and other special hazards, such as electric wiring, the storing of refuse, waste, packing material, etc., in buildings, yards or areaways, and see to the enforcement of such ordinances.

Fifth.—That in all cities there be a paid, well disciplined, non-political fire department, adequately equipped with modern apparatus.

Sixth.—That in all cities an adequate water system with proper distribution and pressure be installed and maintained. In the larger cities a separate high pressure water system for fire extinguishment is an absolute necessity, to diminish the extreme imminence of general conflagrations.”

The National Board of Fire Underwriters, the highest authority in Stock Insurance, admits the *inability of insurance interests alone* to properly regulate fire waste in this country in the following language taken from its 1910 Conservation Address:—

“No one organization can effect the needed reform. Since 1880 the population has increased 73 per cent. while the fire loss for the same period increased 134 per cent. The National Fire Protection Association and the National Association of Credit Men are spreading the doctrine of reform in the recklessness with which our utilized resources are destroyed by fire. Each organization should be encouraged. Membership in the former is open to all and in the latter to the business men and merchants of our cities.

The work, however, is carried on without State or municipal co-operation and therein lies the chief reason of delayed success.

If the office of State Fire Marshal were created by every Commonwealth, and that official and his deputies given power to enforce good fire prevention laws, investigate and if necessary prosecute cases of arson or criminal carelessness in the starting or spreading of fires; ascertain the cause of every fire, and by the distribution of literature educate the citizens to the need of care and forethought in the protection of his property, a distinct conserving of the utilized resources in that State would follow:

If our municipalities will enact and enforce improved and safe methods of building construction and cause the removal or reconstruction of existing structures which constitute—because of their construction—a menace to adjoining properties, our cities will be freer from the imminent conflagration which now threatens them. Eliminate defective chimney flues, unprotected external and internal openings, excessive areas, weak walls and combustible roofs; prohibit the storage of rubbish and demand the safe use and handling of dangerously inflammable liquids and oils; regulate the use

of explosives;—and the destruction of our values, created from the natural resources but enriched many fold by human toil, industry and skill, will be materially diminished.

If the citizens of a community, as members of their local civic bodies and boards of trade will create in such organizations a Committee of Fire Prevention, whose duty it shall be to study the subject and awaken among their associates a realization of individual and communal responsibility, and if our Boards of Education will emulate the action of the State of Ohio in prescribing primal education of the school children as to the chemistry of fire, the causes of fires in our homes, and how to guard against them, and how to extinguish incipient fires or hold them in check while awaiting the response of the fire department, a preparation will be made in that community which will check the constantly increasing fire waste."

This Board in its 1911 Conservation Address specifically invites commercial bodies and Boards of Trade of our cities to interest themselves in this subject of fire waste, and urges upon our Governors and State Fire Marshals to set aside a Fire Prevention Day and take every other possible step to teach the people at large, including factory workers and school children, the danger of fire and how to minimize, suppress and evade it, in the following language:—

"Many commercial bodies and boards of trade of our cities have taken up the subject of the fire waste, appointed local committees on Fire Prevention and advocated and secured improvements tending to afford better fire protection and lessen the great financial drain which the fire loss was causing in their communities.

The National Association of Credit Men, which has perhaps devoted more time to the study of insurance and the fire waste of the country than any other commercial body, has been very active in acquainting business men with the importance of the subject and in encouraging the adoption by State and municipality of such remedial measures as will tend to diminish the steadily and rapidly increasing fire losses.

The States of Ohio, Montana, Nebraska and Iowa are instructing their school children as to the importance of observing greater care in the handling and use of the ordinary fire hazards. The Fire Insurance Commissioners in annual convention in August last adopted the following resolutions:

"The appalling annual loss of life and property in the United States by fires, due to criminal carelessness, ignorance or dishonesty, command the serious attention of the American people. From present indications over \$300,000,000 in property values will be utterly wiped out during the current year—a sum so vast that it must have a serious economic effect

on the prosperity of the country. The causes for this enormous drain on the savings of the nation are well known and to a large extent preventable.

The destruction of property by fire is ten times as great per capita in the United States as it is in Germany, France, England and other countries abroad; and in addition to this needless waste of property there are also thousands of men, women and children burned to death or crippled in the various local fires and conflagrations that constantly occur. The chief factor responsible for this situation is general carelessness and the utter lack of personal responsibility for the removal of causes productive of fires.

We recommend a campaign of education through the Governors, Insurance Commissioners, and Fire Marshals of the various States, for the purpose of bringing directly to the attention of the people the causes responsible for the national ash heap, and the adoption of legislation which will safeguard the lives and property of the people by holding every individual responsible for carelessness resulting in fires.

We recommend the suggestion unanimously adopted by the Association of Fire Marshals of North America, urging that Governors of the various States set aside one day each year to be known as "Fire Prevention Day." By proclamation the Governor can call the attention of the citizens to the enormous preventable fire waste of the country, and urge the taking of such precautions—individual, municipal and State—as will tend to reduce it. Appropriate exercises can be held in the public schools, instruction on the common fire hazards can be given the children, and the day can be made the occasion of the "clean-up day" which is doing so much to remove hazardous conditions.

Resolved, That the individual members of the convention will use their influence to secure such action by the Governors of their respective States, as an important, practical and educational assistance in the work of fire prevention.'

The Governors of a number of our Commonwealths have already acted favorably on part of the foregoing suggestions and by proclamation have set aside a day to be known as 'Fire Prevention Day,' when the citizens will be called upon to *clean up their several premises* and provide better fire protection, as a part of a nation-wide study of fire waste, and *the individual responsibility of property owners and householders*.

The State Fire Marshals in their annual session adopted somewhat similar resolutions. The awakening of our people on this subject affords encouragement, but as yet it is only partial, incomplete, and not in keeping with the national importance of the subject."

The present Secretary of the Department of the Interior of the United States, Hon. Walter L. Fisher, at the annual

meeting of the National Fire Protection Association in New York, May last, raised his voice on this subject as follows:—

“To arouse the people against the fire foe is our task. If there were any dispute as to the facts, if any one opposed a movement to check the fire loss, the American people might more readily become partisans of this movement which you are leading. But there is no difference of opinion regarding the essentials. The average American citizen would admit that our fire waste is in the nature of a national disgrace. The task is to make him do something to remedy conditions. You must popularize your movement and create a general demand for adequate laws and thorough enforcement. To relieve the people of the unnecessary burden which they are now carrying you must teach them the importance and the significance of that burden. You must show them the necessity for a defence against this common enemy. Organized methods must be adopted for bringing the significance of the fire waste before every person who will read the written work or listen to the spoken one. Let the people once realize the exact facts of their own negligence and they will be swift to provide the remedy.”

In testimony on the same point I further quote Mr. A. F. Dean, one of the best-known underwriting experts of the Stock Insurance Organization:—

“The difference between our country and Europe seems to be that we are lavish in extinguishing fires and niggardly in preventing them. A fire department appeals to our love for the dramatic, but it is *complicated, costly and only too often absurdly inefficient*. On the other hand, *fire prevention, with its unbounded scope for efficiency, is simple and relatively inexpensive*;—but it is prosaic and commonplace, with wide intervals of time between cause and effect, and such things do not appeal to our national temperament, which looks for immediate results.”

It must be admitted from the above that something besides insurance organizations and firemen must get to work in a thoroughly uniform, practical and organized manner all over the country if American fire waste is to be controlled.

The technical and practical experience on the subject in all phases,—constructing, protecting and occupying property—is now thoroughly known to the expert branches of the insurance organizations (in which are combined both the Stock and Mutual Companies) and no agency in the country can either increase or perpetuate this expert information so well as the insurance organizations;—hence, whatever further movement is undertaken and followed with a view to reducing our national fire waste, this part of the work should always rest where it now is.

The branches of the insurance organization which carry on the technical part of this work are the National Fire Protection Association (87 Milk Street, Boston, Mass.) and the Underwriters Laboratories, Inc. (207 East Ohio Street, Chicago, Ill.).

The following data from the N. F. P. A. Year Book, 1911, will explain the scope and method of their work:—

“The objects of this Association are to promote the science and improve the methods of fire protection; to obtain and circulate information on these subjects and to secure the co-operation of its members in establishing proper safeguards against loss of life and property by fire.”

Its membership consists of

(a) Active Members (National Institutes, Societies and Associations interested in the protection of life and property against loss by fire; State Associations whose principal object is the reduction of fire waste; Insurance Boards and Insurance Associations having primary jurisdiction)—Annual Dues,—\$15.00.

(b) Associate Members (National, State and Municipal Departments and Bureaus; Boards of Trade, Chambers of Commerce and similar business men's associations; Insurance Boards and Insurance Associations not eligible for active membership; individual members of organizations represented in the Active or Associate Members; individuals engaged in the fire insurance business. Annual Dues,—\$5.00.

(c) Subscribing Members (Individuals, Firms and Corporations interested in the protection of life and property against loss by fire). Annual Dues,—\$5.00.

The active members of this Association include all the Stock and Mutual local Underwriting Boards throughout the United States and Canada, and a large number of important Associations—national in scope—which have expressed their interest in fire prevention and protection through appropriate resolutions and by the formation of committees, to advance the purpose of such resolutions by acquiring active and associate membership in the N. F. P. A.

Notable among such business and commercial associations are:

The American Institute of Architects,
American Electric Railway Association,
American Institute of Electrical Engineers,
American Waterworks Association,
National Association of Credit Men,
National Association of Manufacturers,
National Hardware Association,

National Association of Sheet Metal Contractors of the United States, and others too numerous to mention.

I am or have been Chairman of the Fire Prevention Committees of the last four named Associations, and induced three of them to join the N. F. P. A.

The National Board of Trade, the National Organization of Chambers of Commerce, the Municipal League, and The American Bankers Association should undoubtedly become active members in the N. F. P. A. and induce their constituent bodies to become associate members, thus disseminating throughout these important trade bodies the regularly distributed literature of the N. F. P. A.

Mr. W. H. Merrill, President of the Association, at the fifteenth annual meeting, May 23d last, New York City, reviewed its work, which included the following statements:—

“It is well that during 15 years we have proven in practice the soundness of our recommendations, for proven facts are demanded and being utilized today as never before.

Formulated largely by men whose daily avocation is the analysis of fire risks, having in consultation with them representatives of all the interests involved and furnished with data on details by thorough and competent laboratory experimentation, it was reasonable to suppose that our specifications would successfully meet the requirements of practice; but it is comfortable to feel that such is the case and that we are not theorizing in the recommendations we make for safeguarding the lives and property of our fellows.

We prescribe real buildings of fireproof construction (not shells with unprotected vertical and horizontal openings, and finished or equipped with combustibles), real fire windows (not merely things of glass and metal); real fire doors with fire (not ordinary) door hardware; real automatic sprinkler installations (not partial or ineffective equipments or perforated pipes); real firehose (not the common, shoddy substitute); real first aid appliances (not those which require fires educated to meet their limitations); real structural methods and materials; real fire fighting apparatus,—and so on through the whole field of fire protection.

Of special and miscellaneous subjects, our reports, pamphlets and papers, cover thousands of items, information from which has been freely distributed wherever the need for it was apparent.

The admirable articles and editorials in our quarterly magazine are also widely quoted and copied, many of them attracting attention in one form or another during periods of a year or more after their publication by us. Specifications which we have prepared, adopted and recommended have run through many editions, hundreds of thousands of copies have been distributed, and their provisions are found embodied in many laws, rules and contracts relating to the various subjects which they specifically cover.

The N. F. P. A. extends its welcome to each passerby who may express an interest in fire prevention or protection. He may join the effort for the general good which has been crystallized and is being carried forward through the constantly broadening influence and work of this association. Each one may obtain for himself through this agency information and advice on matters of fire protection engineering from experts trained in this profession, and at the same time add his helping hand and the moral influence of his membership to the effort of the thousands of loyal soldiers already enlisted and doing brave battle against the evil spirits of the flame."

As regards the Underwriters Laboratories, Inc., this is a purely technical establishment (under the direction of the National Board of Fire Underwriters) which was chartered by the State of Illinois, November, 1901:

"To establish and maintain laboratories for the examination and testing of appliances and devices, and to enter into contracts with the owners and manufacturers of such appliances and devices respecting the recommendation thereof to insurance organizations."

"The work of the Underwriters Laboratories is confined to investigations having a bearing upon the fire hazard, and is undertaken as one means of securing correct solutions of many of the problems presented by the enormous and disproportionate destruction by fires of property in the United States."

"The object of the Underwriters Laboratories is to bring to the user the one best obtainable opinion on the merits or demerits of appliances in respect to the fire hazard. Such appliances include those designed to aid in extinguishing fires, such as automatic sprinklers, pumps, hand fire appliances, hose, hydrants, nozzles, valves, etc.; materials and devices designed to retard the spread of fire, such as structural methods and materials, fire doors and shutters, fire windows, etc.; and machines and fittings which may be instrumental in causing a fire, such as gas and oil appliances, electrical fittings, chemicals and the various machines and appurtenances used in lighting and heating."

"Summaries of the Laboratories' reports are promulgated on printed cards, filed according to classifications. Cabinets containing these cards are maintained at the offices of the principal Boards of Underwriters and Inspection Bureaus in the United States, at many of the general offices of insurance companies, by some insurance firms, certain municipal departments and at the local offices of the Laboratories in larger cities. Much of the information is also freely distributed by means of lists of approved and permitted devices promulgated freely on request by the National Board of Fire Underwriters, 207 East Ohio Street, Chicago, Ill.

The results of the work in many classes of appliances are furnished directly to building owners, architects, users and all persons interested, by means of the Laboratories' labeling system, under which goods are inspected at factories by Laboratories' engineers and stamps or labels attached to such portions of the output as is found constructed in accordance with the standard requirements.

The aim of the founders of the Underwriters' Laboratories—which was to secure the best and fairest opinion regarding the merits or demerits of every device, system or material having a bearing upon the fire hazard, and to have the work so conducted and reviewed as to secure accuracy and uniformity in its findings—has been accomplished to such an extent that the majority of fire underwriters in the United States, many municipal authorities, and a large number of architects, building owners and users either accept or require a report from these Laboratories incident to their recognition of devices, systems and materials having a bearing upon the fire hazard.

Underwriters Laboratories, Inc., however, issues no guarantee that its finding will be accepted or recognized in any case. Such assurances can only be obtained from the authority having jurisdiction." (Such as the Philadelphia Fire Underwriters Association).

The Underwriters Laboratories, Inc., have thoroughly studied, tested, standardized and issued data in circular form on:

Complete Building Construction,
Automatic Sprinkler Machinery and Equipment,
Fire Pumps,
Sky Lights,
Liquid Fuel, storage and machinery,
Municipal Fire Alarms and Signalling Systems,
Railway Car Plants,
Wired Glass Windows,
Waste Receptacles,
Public and Private Fire Department Valves and
Hydrants,
Kerosene Oil Storage Systems,
Protection against Lightning,
Heating, Cooking and Welding Apparatus,
Fire Doors and Shutters,
Electric Wiring Apparatus,

and other subjects too numerous to mention.

There is no question but that the technical information and experience collected for a century by the Insurance organization is ample to guide the public in reducing the fire danger if they would only understand and use it.

The very extent and accuracy of insurance knowledge on this subject, however, lays this interest open to suspicion on the part of the public, who generally feel that they are bound to get the worst of the bargain in any dealings or disputes.

The Insurance world therefore *greatly needs an intelligent organization of the business interests of the country to parallel their efforts in fighting fire waste*, which can at the same time set them right with the public or show them where they are wrong from place to place and time to time. The public needs such a business men's and property owners' organization to fight fire waste, to study, formulate and get enacted and enforced a rounded program of uniform legislation throughout the States and municipalities within the States—covering a standard Insurance policy, brokers' license, fire marshal law and building ordinance,—all under centralized, thorough, honest, capable and continuous inspection service.

Included in such legislation should be continuous public distribution of knowledge about this common danger to property owners generally and factory workers and children in school,—including the building and protection of new property and improvement of old property; cleanly housekeeping; fire drills in schools and factories; and the many small causes of fire, such as defective flues, bad matches, accumulated rubbish, etc., etc.

Finally, in all such legislation an avenue should be opened for volunteers to work—just as they now work in the Society for Prevention of Cruelty to Animals. A principal function of the business men's organization in this work should be to inspire, inform and organize volunteers all over the country to watch, stimulate and assist officials to enforce fire-waste laws.

If the necessity for such legislation is admitted, is it not necessary for those most needing it to make practical plans to formulate it, procure it and enforce it? The public must do this through some channel, as others interested need not and will not.

The Illinois State Commission on this subject calls attention to:—

“The fact that it is no more the moral duty of fire insurance to teach the public how to reduce fire waste and thereby cut down the income of the industry than it is for doctors to teach people how to keep healthy, or for lawyers to teach people how to avoid litigation, and frankly admits that fire indemnity has done its whole duty in the face of widespread misunderstanding and misrepresentation of motives that cannot be called fair,” stating that it would be dishonest to withhold this plain statement of the truth.

This last and what immediately follows is from an address by Mr. Dean:—

“Fire Underwriters have long tried to educate the public into an understanding of the nature and equities of their industry, with indifferent success. This has largely been due perhaps to the fact that Underwriters themselves have been confronted with some of the profoundest problems of modern life; that—as in every other form of activity where students are few—many of the results of their research have been in conflict with established prejudices or entrenched privilege. Again, the house of insurance is a divided house; its personnel is separated into groups with conflicting duties and interests. This industry has its commercial as well as its regulative or administrative side. On the commercial or business getting side we find agents and brokers who are compensated by commissions. These commissions are part of the outgo of the industry which must be comprehended in the rate and paid by the assured. Stated briefly, the companies own the capital, while the agents and brokers own the business. A single agent may represent many companies. These companies are permitted to remain at the will of their host, and the most active phase of the competitive strife among companies is to secure the agent’s favor. In many towns one or two agencies practically monopolize the business, and the companies are simply tenants at will, whose baggage may be set on the sidewalk any day by the landlord, who is not disposed to tolerate even the mildest criticism of his accommodations or the price of his board. Needless to say, the *buyers of insurance pay* for the service of agents.”

You cannot therefore expect the insurance organization to care for the public interests as a matter of actual or moral right, as they see it; or from expediency, because they have many troubles at home.

They are conducting in the aggregate all of this work as a part of their commercial business of writing insurance on property for profit.

The General Manager of the Scottish Union and National Insurance Company of Edinburgh is quoted in “Everybody’s” as saying to a group of insurance experts at Glasgow, the following:

“Were there no fires, there would be no insurance business, and, on the other hand, the greater the fire damage the greater the turn-over out of which Insurance Companies make profit.” And further, “Speaking tonight as Manager of a Fire Insurance Company, I say we cannot make profits for our shareholders without fires, and further, that within certain well-defined limits we welcome fires.”

This may only represent a partial view of the insurance underwriters, but there are not a few Managers in this country who frankly hold the same opinion about their business or major interests. They tell their agents to take risks as presented on the schedules they prepare and they will chance the results, within the limit of amount they fix. So long as *they lose only half of their premium so collected* they seem to like the business and find it satisfactory in their profit.

Therefore the business interests of insurance underwriters at large, and the much vaunted influence of the elastic insurance schedule to reduce fire loss, do not appear so effective in fact as claimed.

Again assuming the insurance organization would undertake to formulate and prepare legislation actually required all over the country to suppress fire waste, would they not, naturally, as human things go, advise a program which would lean more to their interests in the matter than that of the public? Is it not essential that the public protect its own interest, directly, in such an important matter by an effective, uniform, centralized and widespread organization which it would *dominate* and not merely follow?

Therefore from any viewpoint of practical administration, I advocate, at this time, an organization of such bodies as you own all over the United States to undertake legislative and educational work to suppress fire waste; and which will co-operate with the insurance organization and their highly effective representation in legislative halls all over the country in bettering conditions so long as the interests of the public are fully conserved. In such a program and in the event of a divergence arising—which I, for one, do not believe would often occur—this business organization representing the major interest of the country should enforce, to the extent of its power, its program, although opposed.

The technique of the art should be left with the insurance organization. The business of accomplishing beneficent legislation, however, should be the burden on this business organization, because the insurance interests as a rule do not have easy sledding in Legislatures, and their program is often subject to assault if only because advanced by them.

Every consideration shows the necessity of commercial bodies taking up this matter seriously and in detail at this time.

I will now illustrate the actual detail required to prepare and advance legislation.

Last Winter in Pennsylvania the State Firemen's Association and the State Association of Mutual Insurance Com-

panies started in to pass a State Fire Marshal law through the Pennsylvania Legislature. A study of two drafts of the law they had prepared disclosed possibilities of improvement, whereupon I engaged competent constitutional counsel and laid before him these drafts together with copies of various other fire marshal laws and a digest of laws relating to the subject in the State of Pennsylvania, and added to this data certain other suggestions on educational features and certain recommendations of the Legislative Investigating Committee of the State of New York.

A new draft was finally worked out in numerous conferences, which was finally accepted by the above-mentioned Associations and was then submitted to the Pennsylvania State Fire Insurance and Educational Departments for their approval. These drafts were also submitted to the Stock and Mutual Insurance interests for discussion and approval. I then invited representatives of various public commercial bodies in Philadelphia to a meeting at the Bourse, at which time the whole matter was laid before them in detail, orally and by a printed pamphlet. (Text—page 12.)

The measure was so fair and complete as to gain widespread support. It then became necessary to appear before the Committees of the Legislature—by resolution, by individual letters and by actual presence of the individuals, to impress on the lawmakers in person at the Capitol the demand for this proposed law.

It finally passed in quite satisfactory shape and was signed by the Governor.

Consider for a moment the amount of work and legitimate expense that was required in this one instance.

Again, when the Legislative Investigating Committee was considering the subject of insurance in New York last Winter, I made three trips to New York and was present at a meeting of the representatives of important trade bodies in that city, all with an object to inform, stimulate and influence that Legislative Committee to propose fair and effective Fire Marshal law. (Text of evidence—page 134.)

It was not possible to round up as much actual support and information at Albany as we later accomplished at Harrisburg, and hence the Fire Marshall Law passed by the last New York Legislature, although a good one, is not so good as the Pennsylvania law.

Here again arose the actual necessity of engaging in the detail work and expense of a struggle—first, to prepare; second, to secure and convince the necessary support; and third, to actually get this support on the ground in order to get the law passed and signed by the Governor.

One or a few individuals are not called upon to continuously carry on such effort at such expense;— it is the duty of the public at large to provide means to accomplish such ends.

The articles above-stated, in "The Survey" and "McClures Magazine," and the "Journal of Commerce" clearly show the widespread confusion in the existing basic laws and ordinances, and the confusion and negligence in carrying out even such laws as there are under present conditions.

The old statutes and regulations of almost any State and City require study at this time; and in most cases should be rescinded and modern, complete regulations imposed in their stead; and these should be *uniform* as between State and State, and as far as possible uniform—except as limited by congestion—throughout the cities and towns of each State.

The stories of the Newark and Washington Place fires particularly show the imperative necessity of continuous, honest and intelligent inspection under *centralized* authority—preferably by the "Fire Department" and by the "Bureau of Building Permit and Inspection" Service in cities, and by the "Factory Inspection" Service throughout the State, and after that by any corps of volunteer forces which can be recruited from the insurance personnel and all other sources. Continuous inspection is essential for better conditions even with good laws. This inspection should be real, and of adequate quality and amount, to actually cover the ground.

Quoting further from "Everybody's":—

"There are several people whose business it is to deal with the crooked fire and the crooked fire adjustment. In the Boroughs of Manhattan, the Bronx and Richmond, of New York City there is a Fire Marshall who is supposed to investigate the origin of all fires and to prosecute incendiarism. He has eight assistants, an interpreter, a stenographer and a clerk. With that force the City of New York expects him to find out all about the origin of twelve thousand fires every year, gather evidence of crime and present it to the Grand Jury. Think of nine men trying to investigate the cause of a thousand fires a month, or two hundred and fifty fires a week. In ten years there has been no increase in the force whose business it is to investigate the cause of fires, although the number of fires has been more than doubled in that time. Yet in the same period the fire-extinguishing force has been increased over one hundred per cent. Could anything be less intelligent than that?"

"Industrial Engineering," September, 1911, has an article on "Fire Protection in Factories," by Mr. S. G. Walker, of the Mutual Insurance Organization, which I quote as follows:

"It is estimated that sixty per cent. of fires start from careless or preventable causes, and although it is clearly impossible to wholly eliminate these, good management goes far towards effecting a reduction. In the early days, with no protection which would be recognized as such today, it may be said to have been a matter of good luck reinforced by good management—or perhaps later, the reverse—that kept factory properties from burning.

The success of the Mutual Fire Insurance Companies has been as much due to the *efficient inspection* of their risks as to any other one cause, for in the long run this was *bound to reduce losses*. This vigilance has not been in the least relaxed since the general introduction of modern fire fighting apparatus *for if a fire can be prevented it does not need to be extinguished, and even a small loss is avoided*.

The inspections are most thorough, investigating and reporting upon, in minutest detail, anything which has a bearing on fire hazard. Heading the list of features is that of order and neatness, or housekeeping, and it frequently takes several years to get a new member up to the Mutual standards in this respect, but right here is the feature of carelessness sought out and corrected. All the physical characteristics of a property, affecting hazards or the extent of a probable fire loss, are examined and noted, covering such features as *construction, exposure, occupancy, heating, lighting, protection and management*, which are rated according to the judgment of the inspector.

As a matter of fact the maintenance of this department represents about as much in outlay as the average losses amount to, under present-day conditions of protection, and, while the results cannot be reduced to dollars and cents, there is no question but that the fires prevented each year pay for the cost of maintenance of inspection service several times over.

As recently as fifteen years ago it was thought logical to exercise some judgment as to where automatic sprinklers were necessary, but a few fires in places deemed immune demonstrated the fact that it is cheaper in the long run to buy protective apparatus than to pay for factories or parts of factories destroyed by fires starting unexpectedly and from unsuspected causes, and the present practice is to *protect* every locality where combustibles are involved either in buildings or contents.

It is calculated from experience that automatic sprinklers will eliminate over ninety per cent. of the fire losses in a given factory during a period of years of sufficient length to establish average conditions.

In view of the recent appalling loss of life in New York and Newark fires it may appropriately be noted that a sprinkler equipment serves as a most efficient life saver as well as

protector of property, and had either of these buildings been equipped, the gruesome results would have been averted. The same may be said of the Iroquois, Boyertown and Collinwood fires, and many others which stand forth prominently among the extended list of calamities of this kind in our country.

The article above quoted in "McClures" affords further evidence about the advantage to any existing building (not to speak of new buildings) of the modern automatic sprinkler system, and the writer also shows the imperative necessity of reasonable fire tower service for high and fully equipped buildings.

A further article in "The Survey" of June 7, 1911, by Mr. H. F. J. Porter, Engineer, of New York, entitled "Warding Off the Factory Fire Panic and its Loss of Life," shows the imperative necessity of adequate fire escapes and fire drills in factories.

Every indication points to a dual duty of the Trade Associations of this country, viz:—working with and getting technical knowledge and experience from the fire insurance organization through the channel of membership in the N. F. P. A. on one hand and on the other hand forming a *National League* with State Branches and town and city sub-branches among themselves, which will be dominated by themselves,—to fight fire waste.

The Insurance Organization should be invited into this new trade association to fight fire, but should not in any case exceed more than 25% control directly or indirectly. Rough figures obtainable from Government statistics show that there are approximately 9,000 trade associations in 4,500 cities and towns in this country, and approximately 13,000 agricultural organizations in approximately 10,000 towns and villages in this country. This gives abundant material with which to work out this plan.

I have been committed to such a purpose in principle for now about five years and the time is ripe to carry it into effect. Several National Trade Associations of which I am a member would, I believe, at this time, provide limited funds to start a central Bureau for this purpose, and more might be obtained if the need and advantages of such a course were made plain, and the actual management proposed should show itself entitled to confidence.

At least \$10,000.00 per annum should be provided for a competent Manager, skilled in insurance and fire preventive work, for modern office and stenographer, and primary Constitutional, legal and engineering advice.

The duty of such an office would be to organize membership all over the country from Trade Associations—first, in State Associations, then in City Associations. Then would follow a study of State and City Laws on the subject throughout the country, and the preparation and advancement of better legislation, and the actual co-operation with the different State Associations, and their constituent City members to get these laws enforced effectively through an Inspection Corps—all in friendly co-operation with the insurance organizations.

My business and technical training for some years have usually safeguarded me from embarking in chimerical enterprises.

This proposition, however, is merely a continuance of personal and in a measure successful, practical work I have carried on at my own expense and through my own initiative for about five years; and I am sure the need of such a program is here, and that it is entirely possible and probable of success.

I would be glad to provide the present necessary office accommodation and part of the time of a highly trained Manager during the year 1912 to initiate this work, if enough support can be secured from Trade Associations to pay the stamps and other purely incidental expenses.

If a year carried on under such conditions proves itself worth while, greater support will doubtless be forthcoming to the amount necessary to insure success.

The Association should be called the

“AMERICAN FIRE PREVENTIVE LEAGUE,”

a national organization, divided into State branches and municipal sub-branches.

It is time for us to stop this waste in life and property, and the way to stop it is *to stop it!* The first effort must be to find out who will assist in this work by raising the point in an entirely impersonal way, so well illustrated by my formerly-quoted friend, Mr. Dean:

“A visitor once asked the janitor in a lunatic asylum, ‘How do you tell when the patients are insane?’ The answer was: ‘I turns on the water in the basement and sets ’em to moppin’ up the floors; them as ain’t idjits shuts off the water.’

We have many water faucets running in our national basement and have apparently just bethought ourselves of the advisability of shutting them off. With our tendency to invent a name for everything, we have grouped the aggregate

flow from these faucets under the expressive term 'National Waste,' and of all these faucets that have been deluging our basement, easily the first in volume is fire waste."

Won't you and the National Board of Trade now help in this movement?

POWELL EVANS

*Chairman, Fire Prevention Committee Philadelphia
Bureau Municipal Research*

*Chairman, Fire Prevention and Insurance Committees:
National Hardware Association,
National Association Sheet Metal Contractors*

Former Chairman, like Committees:

*National Association of Credit Men,
National Association of Manufacturers of
the United States.*

SOME TECHNIQUE OF FIRE WASTE CONTROL

An Address Before the Boston Society of Architects,
Boston, Mass., Feb. 16, 1912

REPEATED IN PART BEFORE THE PENNSYLVANIA STATE ASSOCIATION OF AMERICAN INSTITUTE OF ARCHITECTS AT THEIR ANNUAL MEETING, PHILADELPHIA, APRIL 9, 1912

MR. PRESIDENT AND GENTLEMEN:—

It is a distinct compliment to be asked to speak to this Society on Fire Prevention and Protection, particularly in view of the active interest in these questions in this city at this time.

An early engineering training supplemented by later special experience in the manufacture and distribution of Fire Prevention and Protection apparatus have brought me into close contact with the technical bureaus of the Insurance world during the past ten years. During the past five years particularly I have appreciated forcibly the serious and far-reaching economic drain on this country caused by our largely reducible fire waste, and have carefully studied the subject here and abroad with a wider view and deeper sympathy than that engendered by merely personal interest. I look upon Architects and Engineers as experts in this matter particularly "Down East" and in Boston. Here is a centre of high stock fire insurance standard and precedent, and the home of the mutual fire insurance system, our best exemplars in this work.

I venture to ask this question,—does your profession, speaking of the country at large, lay sufficient emphasis upon fire prevention in your work, or do your clients, or the public generally? Any informed man would have to answer in the negative. There is certainly enough authoritative data on the subject, but it is not used. A wave of public interest has begun to move across the land demanding correction of current fire waste, and it is now possible to accomplish reforms which even a few years ago would have been thought chimerical and almost impossible.

A reasonable minimum of Fire Prevention and Protection should almost subconsciously run through all new building design, and all change and all improvement of old buildings,—touching strength and character of materials (especially with reference to the occupancy hazard—even when on fire), vertical openings, concealed spaces, etc., etc., to the end of the physical chapter.

In machine design for instance,—of which I have experience in the manufacture of motor car parts,—even the draughtsmen are taught the rudiments of selectable materials (so that a casting or forging, or pressed steel part may be appropriately employed), and of pattern making (so that unnecessarily expensive forms may be avoided), and of machine tool practice (so that the finished part may be economically produced).

In this way a harmonious and well designed assembly may be accomplished without any sacrifice to its final use, while still safeguarding the best practice in form and cost with respect to its parts.

This nearly automatic care for fundamental essentials in daily work may be seen from another angle of view in ordinary corporation practice where good law runs through all contracts no matter how small or temporary. If a transient wire or pipe is to be taken across a railroad right of way, the physical facts are advised as a matter of course to the legal department for wording of the contract.

Nothing is in the end more confusing than doing a complex thing informally, hence systematic and nearly automatic provision could with advantage to all concerned be thrown around all your work, especially in the preparation of your specifications, touching this important matter of the control of fire danger throughout all structures under your direction.

Provision for fire control should and could be incorporated in all building construction,—from its commencement in your office up to the completed structure,—and without undue cost or trouble, if your system of work anticipates it, learns it, and enforces it as a matter of course.

Many of you doubtless do not need this suggestion, but what about your clients? Ignorance, indifference and self-interest often control the investor. No one could object to a man operating a powder mill in a celluloid building—if he goes far enough away and by himself. When his actions affect others, however, social control should take command and enact and enforce minimum requirement laws, to the end that the greatest good for the greatest number may be conserved. No man may directly commit murder or destroy the property of others, no matter how much inclined or to his interest, and equally no man should be permitted to do either of these things indirectly by needlessly causing or allowing a dangerous fire.

In populous areas paving, sewers, lights and police are the present day rule of civilization, no matter if they do cost, and we are taxed accordingly. Why then should the

pest of fire danger to life and property be sidestepped for years because it costs somebody something?

Since the fabled Prometheus first brought fire to man it has been at once his greatest intimate of the elements, his greatest friend and enemy—the *control* measuring this relation.

In every building throughout the land, in every life, everywhere and most of the time, we use fire in many forms. We should *control it as widely*, but have failed to realize and accomplish this truth.

The annual and increasing fire tax in this country exceeds its just amount by fully \$150,000,000, 1000 deaths, 4000 bad accidents, and countless cost in sickness and nervous suffering, great loss of wages and interruption of business—all apart from the high related cost of insurance expenses and city fire protection and fire departments.

We are a great, big nation; and beat Europe in all this about ten to one.

This absolute financial loss we pay patiently and continually in great part as insurance premiums; and here again we beat Europe many times. We are too rich and busy as a nation to think this over and amend it. We live high and complain of the high cost of living—but the world looks on and calls us a thriftless lot. We have grown callous to this “old man of the sea” of fire waste, and have scarcely considered or resented his long, palsying grip.

There are no better friends of humanity and patriots than those who cry out long, loud, and successfully in this country against the continuation of this enormous and largely useless loss of life and property.

Most of this waste occurs in our large towns and cities, and in their congested central areas.

Analyze this fact, and you will find the *small town* and *suburb to-day* is the *city of to-morrow*. Many complacent Americans say this matter is too large and deep for correction within a generation. Then why do we not now reasonably digest this view in part and so build that the future fire danger shall decline to its just proportions and stay there—as European cities in the great majority now do?

It is hard to get the *idea of Fire Prevention* into the mind of Americans.

Commercial Associations still insist on forming Fire Insurance Committees (often to fight Insurance rates), instead of *Fire Prevention* Committees to reduce fire waste and so automatically lower the cost of Insurance.

I am persuaded that those who design and construct buildings are not as fully alive to, and active in, this prob-

lem as they reasonably should be; and that even if they were, their influence is limited; further—that building owners and occupants will not of their own motion travel far or fast enough to give proper relief; and further,—that the Insurance world as a whole will not materially pass the limits of their own self-interest in curbing the evil, and are powerless to a degree if they would.

My reasons for this view cannot be fully detailed here for lack of time, but were given in an address last November before the Board of Trade of Camden, N. J. (Text, page 12 herein.)

There is no question but that the *technical* information and experience collected for a century by the Insurance organization is ample to guide the public in reducing the fire danger if the public would only understand and use it.

This remark applies to the Engineering side of Insurance work. In the Commercial Underwriting, or commanding interest, however, there is naturally an effort on the part of Underwriters to make their business pay the highest return—as I outlined in an article in the "Survey" of July, 1911 (Text, page 91), and in a pamphlet on the proposed Fire Marshal Laws in Pennsylvania in April, 1911 (Text, page 112).

The Insurance *organization* over the country, as I see it, is too large for a personal view. It is a mighty *influence* that will always continue and must be counted in any calculation in this matter.

Any fair man who knows any number of its personnel must like and respect them in every way—although possibly at times diverging from their view and interest.

Yet the size, mystery and solidity of this body, added to their sure knowledge, makes them feared and suspected by a large proportion of the public and often by legislators—who feel they are apt to get the worst of any joint bargain. In technical standards, and detail State Fire Prevention Associations, they naturally do and will continue to lead. In legislation and public education the business men of the country must at this time come together and get actively to work to suppress fire waste.

Now having indicated the reason you should enter this work in a larger way, I would suggest some of the actual things to be done.

You have already in this city made admirable studies of your fire danger situation in your "Report of Commission appointed by the Mayor, August 23, 1911," and in your "Report of the Committee on Fire Prevention of the Cham-

ber of Commerce, September, 1911," and finally, in the "Review of your City Club, December 7, 1911."

Internal evidence of some of these shows full confidence in their insurance advisers. I would suggest that you collect at the same time all further facts and views obtainable so that no one influence will weigh too heavily in your final actions in this city.

Mr. Clarence H. Blackall, Chairman of your Chamber of Commerce Committee, was evidently of the same opinion when talking to the City Club, as the following will show:—

"Something like two years ago the Chamber of Commerce awoke—I don't know for the first time, but certainly did then—to the fact that because of the high premiums paid to the insurance companies there must be some way to save some money for the poor merchants who had little left after they paid their insurance bills. So they appointed a committee on insurance with the avowed intention of reducing the insurance rates. We met and began by talking to the insurance people.

"There was not a single insurance man on our committee, I am glad to say, so we could talk with perfect freedom among ourselves and call in all the experts we desired from outside. We talked with the leading experts here, and the representatives of the National Board of Underwriters, and tried to find out what the condition was. We very soon changed the name of our committee. We ceased to be the "Committee of Fire Insurance," and became "The Committee of Fire Prevention" which is a very different thing."

Your efforts almost necessarily must lead to betterment in two important respects:—

- (1) Physical improvement of fire hazard in the community, and
- (2) Moral improvement of fire hazard in the community.

The first item covers the definition of your widest (or city limits) with a mandatory minimum of requirements for (a) new building, (b) improvement of old buildings, and (c) forced retroactive correction to a reasonable extent of all buildings now dangerous.

Like definitions must then be made of your narrower (fire limits) area, with stricter regulation; and finally of your central (or congested) area, with the strictest regulation.

This requires full discussion and final compromise on your whole *area limit* legislation, and of the *building code* applied thereto,—a large job but a pressing one.

No one posted in this matter can deny but that every State and City in the country, almost without exception, imperatively needs a new building code, and it does little good in any one section of the country to have one without the other. They should supplement each other so that the whole area of each State in time will be under control of either the City or State code. Witness the remarks of one of your own citizens on this subject, Hon. Edward Seaver, before your City Club:—

“Now if the measure proposed by the Chamber of Commerce to ward off a proposed conflagration in Boston is opportune and desirable, why is not its application to the entire metropolitan district equally opportune and desirable? We are all in one boat so far as needs common to all the people in the metropolitan district are concerned. If the common needs of water, sewers, and parks have been recognized and treated as common needs, the conflagration peril is a common danger and should be treated as a metropolitan question. It will be remembered that Boston narrowly escaped from the late Chelsea disaster.

“If it be contended that the proposed action must be taken sometime, and it might as well be now, the same is equally true of the metropolitan district, which cannot properly be dissociated from Boston where there is a need or danger common to all. A question such as this, going beyond the limited confines of Boston, might better be treated broadly to cover the whole field of danger instead of a part.

“Our committee was inclined to think that the regulation of all building construction throughout the metropolitan district is a desirable common need. Building laws, not limited to Boston alone, but covering the development of the entire metropolitan district as a recognized single community in essence, would inspire a more orderly march of progress and work for the common good. Such action will have to be taken sometime and it might as well be now.”

Your Chamber of Commerce studies of building costs seems to point unanswerably almost to the exclusion of wood in roofs and walls anywhere except in real and lasting country areas; and your City Committee is wise in endorsing so pointedly this view, particularly in recommending non-inflammable roofs,—all, even to the discomfort of the Lumber Trust and speculative builder and selfish tenement landlord.

As to the protection of buildings, it is not enough that a building should of itself be fire-proof, but it should contain proper aids to protect its contents in life and property. The Chamber of Commerce of Rochester (N. Y.) in its pamphlet “Prevention of Fire, 1911,” clearly brings up this issue in the following statements:—

"In Rochester our fire fighters reach a fire in the business section from two to three minutes after the alarm is received, and in the residence section from three to four minutes. It must be evident to the most critical that the cities of the United States are doing their duty through and with the fire departments. (*Sic*)

"It seems to be granted that all fires are the same size when they start, but between the time of discovery of the fire and the arrival of the fire fighters, five minutes must elapse. That particular five minutes is the vital time in the life of the fire, the time when it gains sufficient foothold to become a dangerous blaze.

"The Fire Marshall of the City of Rochester is of the opinion that a certain building should have a fire escape on it. The Superintendent of that building says that it is all nonsense, that the building is fire-proof. Buildings may be fire-proof—what about the people? Experience teaches that there is enough inflammable in a fire-proof building to keep a full head of steam on a boat like the *Lusitania* for twenty-four hours. Time and again fire-proof buildings have withstood the fire, but the people inside of them have perished. Shouldn't we make an end of this freedom of opinion that costs so many lives?

"The State Capitol at Albany, New York, has just burned. The financial loss is six million dollars. The loss of documents and records is priceless. Here are the exact words of a man who was in the building when the fire started: 'THE FIRE AT THIS TIME COULD HAVE BEEN EASILY PUT OUT WITH A PAIL OR TWO OF WATER. WE SEARCHED IN VAIN FOR ANYTHING TO SERVE THE PURPOSE. THE NIGHT WATCHMAN RAN DOWNSTAIRS TO SOUND THE ALARM, THERE BEING NO ALARMS IN THE BUILDING. WHILE WE WAITED FOR THE DEPARTMENT—' This building at Albany cost twenty-seven million dollars, and was not equipped with fire alarms, chemical extinguishers, or even pails of water, and we have the testimony of an eye witness that this fire was a small blaze when it started.

"There is too much confidence placed in "fire-proof" buildings—a furnace is 'fire-proof' exactly the same as a building is 'fire-proof' and the contents of a furnace will burn exactly as the contents of a 'fire-proof' building do burn. The building in New York was 'fire-proof.' The State Capitol at Albany was 'fire-proof.' The Cincinnati Chamber of Commerce was 'fire-proof,' and, in each case, everything inside the building has gone—burned out. Do not make a fetish of the words 'fire-proof.' A powder factory might be 'fire-proof.'"

I favor the extensive use of Automatic Sprinkler installations in most buildings in city congested areas on conviction, even if the City or State makes the devices and

pays for them out of the tax rate and distributes them gratis to citizens. Your Chamber of Commerce study of Sprinkler installation confirms all former knowledge and experience as to the reasonable cost and thorough merit of this fire protection.

Your proposed law for a Bureau of Fire incorporating certain Sprinkler protection, endorsed by your City Committee and Chamber of Commerce, is in line with the present New York City regulations and practice in this particular and with the proposed Chicago ordinance.

An important consideration enters here, however, with respect to the mandatory standard required.

As you adopt any economic utility and force its wide use by law you should protect the public against undue cost from any cause. I believe the present Underwriters' standards (incorporated in most existing and proposed legislation on this subject) on *Sprinkler Installations* (not devices) is higher than proven averages demand. For years—all over the country—*less than 10 sprinkler heads* have controlled fully 90% of fires originating under their protection.

Yet the Underwriters' standards of pipe schedules, tanks, pumps, etc., have been carried up to sizes which would supply water to 50% of all heads which could open in any area. Hence, a material increase in cost of any system over that necessary to care for 10 heads or less—or 90% of fires—solely to insure a minimum Insurance loss on the remaining 10% of fires under such conditions.

This matter has been the cause of endless discussion among Underwriters themselves for years and at this time they are by no means a unit on existing rules. I know of cases where the sprinkler head and pipe system proper has been less than half the total cost,—the major part of the total being bulk piping and adjuncts. To care for 90% of recorded sprinkler fires no system needs larger than 3" pipe anywhere—and tanks and pumps less than half present requirements.

Further—present Underwriters' rules permit nothing less than 4" connections to public water supplies, hence connections to high pressure city service in numbers are dangerous because one such broken connection may disable the entire high pressure system, yet 1" connections (each provided with properly worked out pressure regulator and strainer combined to limit pressure and assure flow through this smaller channel) would feed the 90% average of Sprinkler heads that open in fires, and this rule would so reduce the danger of interruption of the high pressure serv-

ice through breakage or leakage of such connection as to be reasonably safe and hence advisable.

You should investigate the above view carefully before reading the present Underwriters' requirements into such an important law. You must also train firemen to understand and use of Sprinkler outlets in buildings (demanded by Underwriters for all city installations) which, in most cities throughout the country except St. Louis, are rarely used, and in Philadelphia are not used at all.

The demand for modern fire engine equipment is sound, yet I trust the day will come when American municipalities will—as has long since been the rule in Europe—rely more on the resistance of property itself than on many men and powerful engines pumping tons of spray haphazard into building interiors to reduce fire waste.

The necessity of prompt notification of any fire to the central city bureau and the immediate despatch thereafter of fire fighting apparatus, as emphasized by your City Commission, is almost self-evident, and every city in this country must bring its alarm system up to a modern and efficient service.

Physical considerations having been considered, some emphasis in conclusion may be laid on (2) moral considerations.

Closely related to the above discussed physical questions are the moral ones of occupancy, housekeeping or management, and organized inspection under minimum requirement laws and ordinances to insure proper conditions in these respects.

“Occupancy” means the nature of the business conducted in any building, which must determine, first,—the specification of the building itself for normal use as well as in the event of fire (because it considers not only strength of materials for use intended, but also in the event of fire); and as well determines many other factors of construction and protection, having regard for the particular trade housed and the way it is actually conducted; hence, at least in central city districts, buildings from their inception to their destruction should be licensed *continually, annually at least*, for occupancy. When a building is constructed for any purpose it should be licensed for that purpose at least annually both as to persons, pursuits, and property housed.

If the use of any building is changed it should be re-inspected and re-licensed incorporating mandatory fresh conditions precedent to any new use. I am not yet clear as to

the desirability and practicability of your City Commission proposal to impose license fees on trades likely to cause fires.

This subject is apart from that of "housekeeping" called "management" (by Mutual Insurance Companies) or the continuous daily conduct of any given pursuit. As most fires originate from bad management or dirty housekeeping, it is apparent that this cause should be diminished as much as possible through the control of minimum regulation and the enforcement thereof by competent inspection.

Every little effort helps as a matter of course throughout this work, but the average betterment will not come over the country at large until average control of building occupancy and housekeeping conditions are incorporated in the fundamental law throughout American cities and municipalities and continuously enforced for a number of years.

The suggestion of your Chamber of Commission of denying insurance on buildings and contents until they had been approved by your proposed Fire Bureau impresses me as a mischievous and even dangerous legislation, for reasons fully set forth in my address before the Fire Underwriters' Association of the Northwest, in the fall of 1911 (page 153 herein).

Let insurance issue freely in honest amounts—to restrict it will surely affect Boston's credit. Your City Commission recommends very clearly and wisely:—

"To decrease the possibility of fires from carelessness or evasion of the laws and ordinances, (a) The immediate codification of all laws and ordinances relating to the prevention of and protection from fire and the protection of human life from fire and explosives with a view to the amendment of such laws that the enforcing power shall lie in one central body."

Its explanation of this recommendation is so clear and forceful as to bear repetition here, viz.:—

"At the present time the enforcement of laws and ordinances relating to the protection of life and property from fire and explosives is scattered through many departments of the state and city. Permits for the transportation, sale, use or storage of one kind of explosives are issued from one office, for another kind from another office, while licenses to operate under the permits come from still other offices.

"In the last analysis the Fire Department is better qualified to pass on these matters and the most interested in the enforcement of laws and ordinances relating to them. We are of the opinion that all such laws and ordinances should be codified and amended to the end that the Fire Department

have entire control over the permits and licenses and the making of reasonable regulations for the transportation, sale, use or storage of explosives or highly inflammable substances; and initiatory power in the enforcement of laws, ordinances and regulations.

"Reasonable fees may be charged for such licenses or permits and similar licenses or permits should be required for the use or operation of certain other trades likely to cause fire.

"These fees and the moneys accruing from fines from violations of ordinances relating to them might well go to a pension fund for the Fire Department. New York has some such system.

"The entire work of revising, redrafting, codification, fees, etc. is so great as to warrant a special commission which should draft suitable laws."

Your proposed Fire Bureau—which would be a commission having the same powers within the City of Boston as the Massachusetts State Fire Marshal has without the city—could effectively concentrate responsibility and control fire danger here, but your Fire Department could not.

To secure satisfactory results you must separate your "fire prevention and inspection service" from your "fire fighting service." They should mutually check each other. Adequate inspection, backed by proper legal power, alone will control the ignorance, carelessness and selfishness of property owners and users in our cities. Boston is not alone in this difficulty about her fire danger. New York, Chicago, Philadelphia, Newark, Rochester, Seattle and Birmingham are among those progressive communities which are now struggling with the same chaos in this matter which confronts you here.

Most American cities are yet without interest in, or realization of, their danger in this respect and still gamble on "nothing very bad happening." It does not seem enough to get proper laws studied, prepared and enacted. For instance, a State Fire Marshal Law was passed nearly a year ago in Pennsylvania and an appropriation of \$70,000 per annum made by the Legislature for this work, and yet the Governor of the State, who signed this law, has virtually nullified it to date by neglecting to appoint and organize the department under the law, and no influence has yet been able to move him to take this step.

Again, the Pennsylvania Legislature passed a Fire Marshal Law for the City of Philadelphia during the past year, and the Fire Marshal was appointed, but the actual

conduct of the office by the official in charge has so lacked in scope and efficiency as to have virtually nullified the law.

The control of American fire waste must come from competent study of existing laws in each State and city and a preparation, enactment and enforcement of proper legislation to correct present bad conditions everywhere.

It then becomes necessary to so organize public opinion with such political force behind it that our Executives of the City or State will actually force these studied and enacted regulations.

If our former immense and largely needless life and property loss from fire waste all over this country will bring these truths home to the people so that all States and their Cities will enforce substantially uniform minimum regulations simultaneously to control this danger in the future, then the price has not been too great to have paid for such a future.

Workmen, women particularly, and the labor unions, certainly suffer most from present fire danger and should be first to advocate this entire movement.

I trust that you as Architects and Engineers will spread this doctrine more actively through your clients to the public and hold it fully in mind in all your future work.

I again thank you for the courtesy of this invitation and the time you have accorded me this evening.

POWELL EVANS

State Fire Prevention Association Work

This work must almost of necessity be organized and conducted by Insurance experts because of its extremely *technical* nature. The following letter so clearly discloses its nature, scope and methods, that it is given verbatim:

OHIO STATE FIRE PREVENTION ASSOCIATION

S. C. Neff, Secretary-Treasurer
808 New First National Bank Building
Columbus, Ohio

June 3, 1911.

MR. POWELL EVANS,
c/o MERCHANT & EVANS,
PHILADELPHIA, PA.

Dear Sir:—

The writer is of the impression that your name was suggested during the meeting of the National Fire Protection Association as one who would be interested in the work of forming a PENNSYLVANIA STATE FIRE PREVENTION ASSOCIATION, and I therefore take the liberty of sending you specimen copies of our work together with copy of our Constitution and By-Laws. The latter has been copied in most of the associations. You will notice particularly that we give ourselves the title, which is of great advantage, of a *state* Association.

I am forwarding you a copy of the Executive Committee's report for the past year, which will give you a general idea of the work attempted and accomplished, and I give below our method in the matter of inspections:—

The Executive Committee appoints a date and town for inspection. The Chairman of the Committee calls a meeting of his committee at that town (or towns), and on their arrival a fire map of the town is borrowed from one of the local agents and placed in a general meeting room in the leading hotel. The assignments by blocks are then made to one or more individuals (members) to inspect the risks in that block and report back to the Chairman or member detailed to supervise the clerical end of the work. I should state that the meeting of the Executive Committee, as a rule, is called the day in advance of the general call for inspection in order that everything may be made ready for the work of the next day and no time lost.

After making the inspections, as per the slips (copy enclosed with data forwarded), the member writes out a "Request" notice for the owner of the risk where a defect is found and correction desired, and when all are through these inspection slips and requests are all gathered together and taken (or expressed) to the Secretary who sends out the requests from the Columbus office and compiles the data for report and bulletin to the companies,—all matter being gone over by the Executive Committee or Chairman before bulletin goes out. The Secretary, in the case of the Ohio Association, is a lady who has her office in one of the buildings and takes care of all our correspondence, stenographic work, etc., and is also our Treasurer. We felt this to be the best method in order that matters may have immediate attention at some distinct point in the State.

While the work of inspection is going on, the Law and Ordinance Committee meet at some appointed place with the City Officials and Local Agents and state the object of their coming, asking for assistance, and, generally getting acquaintance.

In the meantime, the Chairman of the Publicity Committee cultivates the newspaper men, not only reporters but editors and managers, and states the reason for their coming and the aim and work of the Association in a general way. We have found these publicity meetings and the work of the Publicity Committee to be very valuable, as it gives weight to our requests for correction.

Rubbishy conditions are the chief defects to be looked for, also defective electric wiring, rubber hose gas connections, swinging gas jets, etc., which form the main part of our requests for correction. The question of general cleanliness is the most important.

While this work of inspection is going on, the Fire Protection and Water Supply Committee takes up the question of the condition in the waterworks, in connection with the proper Rating Bureau authorities. It is of very great importance that field men should not make a report upon deficiencies in water supplies, except with the full recommendation of the proper authorities, which matters should go to the Bureau authorities. It is here we may be led into a great deal of trouble. It is not, as a rule, wise for a field man to report on the lack of or necessity for various forms of protection, for while some of them are capable to do this others are not and it is hard to draw the line. In our State we work with the Engineers of the Local Inspection Bureau and they are members of our Committee on Fire Protection and Water Supplies.

We make no town reports, although some of the Western State Associations have done so, but I do not think they are continuing the work. We can report deficiencies, you understand, as we see them, referring the matter for attention to some qualified and *authorized* engineer. I dwell on this matter because it is very important, and that is part of the work of the "Committee on State Fire Prevention Associations" of the National body to get uniformity of action. You will readily understand that a false standard recommended would only place the association in a false light, when the subject of rating would become connected with such a recommendation. We do, however, visit cities and urge them to vote on town issues to raise money to buy equipment and furnish water supplies after the proper Bureau or authorities have made recommendations. We warn cities against unscrupulous contractors who may be liable to overlook the standards of requirements which would enable cities to obtain a better rating. In this way we touch on rates, but in no other fashion as we have *nothing* to do with rates.

Certain of our members belong to the Credit Men's Association in the several towns, and our orators—if you wish to use the expression—have been invited to address these associations and explain our work and urge co-operation. Business men's clubs, in like manner, and Chambers of Commerce, we have no hesitancy in addressing, and this publicity about the standards and requirements of our business and necessity of co-operation on the part of the public have led to very good results.

It is an interesting work, and we find that each man representing a company, having given his allotted time to the burden of the work, is allowed to retire and some one else come on the next year to take his place. In this division of work we find we have good results.

We heartily co-operate and are respected by the Officials of the State, particularly with the office of the State Fire Marshal, Work Shops and Factories, and the State Board of Health. We show them that we can be of assistance to them and we do all in our power to help the men of the State Government. We invite them to our banquets, and they sit with us without any dread of there being any political issue in the matter. The results of our work have shown, in Ohio at least, a hearty co-operation from all classes of men interested in the physical welfare of the State, and this has been a matter of surprise to many of us owing to the fact that the prejudice against insurance companies has been so great that we feared little could be ac-

completed. It is particularly to the lowering of the loss ratio in Ohio since this work was started that we point with some pride. We feel that this work has brought about tangible results, and while it is only preliminary to better things, it is a stepping stone at least to organized effort and will ultimately educate the public to help themselves.

We admit anyone, union, non-union, mutual, or any citizen of the State to membership. We have local agents, and special agents, of all classes, and as a rule we feel that this has not been detrimental to the best interests of the business.

It is rather difficult by letter to show you what we have done, but we will be glad to answer any questions or be of any assistance to you that may be in our power, and trusting the foregoing information may be of some value to you, beg to remain

Very truly yours,

WM. B. GODWIN

*Chairman N. F. P. A. Committee on State Fire
Prevention Associations*

PHILADELPHIA FIRE PREVENTION COMMITTEE

State and Municipal Needs All Over Country

It will be noted that wherever public-spirited citizens, individually or partially organized in different states and cities, have been forced in self-defense to commence a real fight against fire waste, the *same need of reform* becomes plainly and immediately evident after the most primary investigation.

The steps towards progress in any community, while differing in degree and characteristics, must always follow the same lines, viz.: (1) Study—legal, physical and political; (2) elimination of bad and useless rules; and substitution of modern, co-ordinated and centralized control, and (3) the actual search for straight, competent and experienced men to get on the job and get results.

Real results for the whole United States will only come when all these local groups (working to control and reduce fire waste) come together into national organization divorced from any selfish and special interest; and man the country at every State Capital and city centre of congestion; and in experienced, disinterested, union force uniform good regulations everywhere at the same time—to wipe out this shameful and needless drain on life and property in this progressive nation.

POWELL EVANS.

Following are selections from current newspaper comments on the Philadelphia Fire Prevention report, and the appointment of the recent Phila. Fire Prevention Committee.

SHARP ATTACK MADE ON FIRE MARSHALL

Commission Reports That His Office is Weakest Link in City's System—Reorganization Suggested

The special commission appointed by Director Porter, two months ago, to investigate the condition of the city's fire protective system and the conditions surrounding the fire losses, has recommended a radical reorganization of the fire marshall's department and changes in the relationship of several of the municipal bureaus.

The commission submitted a preliminary report to the Director yesterday. The investigators are Charles A. Hexamer, secretary of the Fire Underwriters' Association; Dr.

Jesse D. Burks, director of the Bureau of Municipal Research, and Powell Evans, chairman of the fire prevention committees of several organizations.

Their report indicates that there are many weaknesses and a lack of co-ordinate effort in several of the bureaus under the Departments of Public Safety and Public Works. The fire marshal's department, they say, is especially in need of reorganization. They say that this department devotes most of its time to investigating fires after the damage has been done, and that the fire marshal turns over but little more information regarding the cause of the fire than is already known through the police and firemen. The report says that little if any practical use is made of the information turned in by the fire marshal.

DIRECTOR PORTER WILL ACT

Director Porter said after receiving the report that in accordance with the recommendations of the experts he would at once communicate with a number of gentlemen who had made a study for years past of the fire situation to learn whether they would be willing to tender their services as members of the proposed commission.

He said he would also at once notify Mayor Blankenburg and suggest the formation of the commission to consider the whole subject as outlined in the report. He said the Philadelphia Fire Underwriters' Association had sent to him a list of hundreds of buildings in the city which were equipped with fire-sprinkling apparatus so arranged that attachments could be made directly to the city's fire engines and have streams of water pouring upon fires in lofty buildings long before there would be any chance to drag lines of hose up ladders or erect water towers. He said he had just learned that the buildings at Franklin and Vine streets, which were recently destroyed by fire, were provided with the system and that the chances were that they might have been saved had it been known to the firemen that it was in existence.

He said he had forwarded the list to Chief Waters, of the Bureau of Fire, asking him to have a record made of the location of each and every structure mentioned, so that in the event of a fire occurring in any of them the firemen might know that the sprinkler system was there ready for use.

When asked whether in consequence of the criticism by the committee of the workings of the Fire Marshal's department he had any intention of abolishing it or consolidating it with some other department, the Director replied emphatically that he had no such purpose.—*Philadelphia Public Ledger*, March 22, 1912.

BETTER FIRE PROTECTION

Prominent Men Selected to Investigate the Problem

Director Porter was authorized yesterday by Mayor Blankenburg to appoint the following persons, whom the Director had suggested, as a commission to investigate thoroughly all matters pertaining to fire protection and prevention in Philadelphia:

Powell Evans, chairman, Fire Prevention Committees, Bureau of Municipal Research, National Hardware Association, National Association Sheet Metal Contractors, National Association of Manufacturers.

William T. Haddock, superintendent of construction, John Wanamaker stores.

Charles A. Hexamer, secretary of the Philadelphia Fire Underwriters' Association (past president of the National Fire Protection Association).

James Collins Jones, chairman of the Standing Committee on Law, Philadelphia Chamber of Commerce; also director trustee of the Bureau of Municipal Research.

Charles H. Ludington, secretary and treasurer of the Curtis Publishing Company.

R. H. Newburn, superintendent of insurance, Pennsylvania Railroad Company.

Robert S. Perry, president of Harrison Brothers & Co., Inc.

Dr. Jesse D. Burks, director of the Bureau of Municipal Research.

In his letter to the Director Mayor Blankenburg said that while Philadelphia has been most fortunate in its low ratio of fires, it is highly desirable that every additional precaution be taken to still further reduce the loss.

Director Porter said that the commissioners would be free to confer with anybody they felt like in the quest of information. He said they realized the enormous importance of the subject and its far-reaching results, and that he would not interfere at all with them. They would have unlimited time, he said, in which to make their investigation, and at the end of the inquiry would make a report.—*Philadelphia Public Ledger*, April 25, 1912.

NOTE.—Since the above announcement, Mr. Ludington has found that other engagements will not permit him to serve. Mr. D. Knickerbacker Boyd, a well-known architect (formerly President Pennsylvania State and Philadelphia Chapter of American Institute of Architects), and Mr. Walter F. Ballinger, a representative mill engineer, have been added to the commission.

Members of the new Fire Commission, appointed to study the problems of prevention and protection, announced that their inquiry will be thorough and will be begun soon.—*Philadelphia Public Ledger*, April 26, 1912.

RIGID INQUIRY BY FIRE COMMISSION

Investigators Will Go Deeply Into the Subject of Preventive Measures—Ask the Public to Help—Will Take Up Matter from Every Standpoint, and urge vigorous action.

Work by the new commission appointed by Mayor Blankenburg, through the Director of Public Safety, to conduct an extensive investigation into Philadelphia's system of fire protection is to start in earnest within the next few days. The members of the body have the whole power of Director Porter's department at their backs, and Powell Evans, the chairman, declared yesterday that no matter who the disclosures hurt, the commission intends to make known to the municipal authorities anything it considers a menace to the public, and to insist on the evil being corrected.

Plans of the commission are not yet in concrete shape. Even the chairman does not yet know on just what date he will call the first meeting. It was announced yesterday, however, that an exhaustive, systematic study of everything relating to the subject of fire protection will be made.

Members of the commission will be empowered to enter any building they see fit, examine its structure, its fire-escape facilities or its contents. Factories and shops where large numbers of men, women and children are employed will likely be among the first to come under their notice. Moving picture enterprises will also be investigated carefully.

Many of the owners of moving picture shows in this city, it was declared, do not properly safeguard the lives of their patrons. Inadequate fire exits, poor electric wiring and other evils exist, it is charged, in many of the houses.

ASK ALL TO HELP

Co-operation is to be the watchword of the men who will engage in this work. They will carry on the investigation in a thorough, quiet manner, endeavoring wherever possible to induce owners of buildings to remedy poor conditions without recourse to law.

Where evils are found that are the result of a lack of proper knowledge concerning fire prevention the commission will teach.

Cleanliness as a feature of fire prevention is a point that will be strongly brought out. It will be shown that a fire starting in a cellar will spread with fearful rapidity if the cellar is filled with dirty paper or collections of rags, and also that if no refuse is present the danger of a blaze is reduced to a minimum.

Mr. Evans said that he would like to have every person in Philadelphia consider himself a part of the new commission and help along the good work by keeping eyes open for evidence of negligence or unsatisfactory conditions. Reports from anyone who may discover a menacing condition will be kept absolutely confidential by the commission and looked into immediately.

Powell Evans is also chairman of the fire prevention committee of the Bureau of Municipal Research, the National Hardware Association, the National Association of Sheet Metal Contractors and the National Association of Manufacturers. Concerning the investigation into this city's fire conditions, he said:

"Our investigation is to be of the widest scope imaginable. We shall not let a detail escape us. Everything from the condition of the Fire Department up will be looked into.

"Why, a fireman told me the other day that at a recent fire he had to try half a dozen connections before he was able to play water on the flames. This shows something radically wrong with present equipment.

"This commission was appointed by Mayor Blankenburg following a request of the Bureau of Municipal Research. It is composed of men who know the business from every angle.

"William T. Haddock, former Director of Public Works, is in a position to know the very latest concerning the way a structure should be erected most safely. Charles A. Hexamer, secretary of the Philadelphia Fire Underwriters' Association, probably knows more about the origin of fires than any man in the country. James Collins Jones, of the Philadelphia Chamber of Commerce, was active in preparing the recent report on the subject of fire prevention made to the city by the Bureau of Municipal Research, and for years R. H. Newburn has had charge of the insurance business of the Pennsylvania Railroad.

"Dr. Jesse D. Burks, head of the Research Bureau, is the student of the commission, and his experience and knowledge will be of inestimable value, while valuable pointers will be given by Robert S. Perry, of Harrison Bros. & Co.

"Besides Charles H. Ludington, treasurer of the Curtis Publishing Company, who is the ninth member of the commission, two more men are to be appointed. It is likely that these will be an architect and an engineer.

"It's a safe bet that not a member of this committee can be 'reached,' no matter how great a financial temptation is the stake. If evils are found disclosures will be made, no matter whom they hurt.

"I do not know how we are going about this investigation. It is too early to make any such an announcement.

EXPECTS VIGOROUS ACTION

"Since Director Porter has named this committee and told us to go ahead, the public may rest assured we will have every support and power his office can give us.

"When Henry Clay was at the head of the department he was told of certain evils existing in moving picture houses, but did nothing to remedy them. I think that if our investigation turns up things that should be remedied Director Porter will not be so inactive.

"One of the first things necessary, I presume, is for the commission to issue a call to Philadelphians who can afford it to supply money to carry on the great work. Fortunately, this city at this time is filled with just such public-spirited persons, who are willing to go down in their pockets and help, especially when it is so generally known that the city has no cash to offer.

"Garages, factory buildings, stores, structures of every sort will come under the supervision of this commission in its investigation. Effort will be made to discover places where unlawful quantities of volatile liquids or compounds are stored and their presence reported to the proper authorities.

"In a recent fire on Market street it was found that six times as much calcium carbide was stored as is permitted. Had water reached this drug and the quantity of acetylene gas that would be engendered been released an explosion would have resulted that would have destroyed millions in property and, in all probability, hundreds of lives.

"There are saloons in town in the cellars of which are kept altogether too large quantities of brandy and other inflammable liquors. This phase of the situation will be looked into.

"It is impossible to tell off-hand just what this commission will do. Its work will be mapped out as the work presents itself. The public can be of vast help in this investi-

gation by co-operating. I would like every one who learns anything by private investigation to communicate at once with me or some member of the commission. His message will be treated in utmost confidence and we will be most grateful for such assistance."—*Philadelphia Public Ledger*, April 26, 1912.

EDITORIAL

FIRE PREVENTION

The commission just appointed by Director Porter, under the authority of Mayor Blankenburg, to investigate the question of fire protection and prevention in Philadelphia has committed to it, in an intensely practical way, one aspect of the vital problem of national conservation. America has been criminally careless in the matter of fire prevention, and the annual wealth which goes into the ash heap is one of the most severe arraignments of our civilization. It is only by attacking the problem in detail that lasting results can be accomplished, and the inclusion in the present commission of representatives of the insurance as well as of the manufacturing and building interests shows that there is no intention of shirking any portion of the responsibility.

The problem of fire protection in Philadelphia has already been exhaustively studied from the standpoint of the underwriters, but the relation of those studies in the past to the matter of insurance premiums, the element of criticism that necessarily entered into the reports, and the absence of that complete co-operation between the municipal authorities and the insurance interests so essential to progress have been limiting influences upon the complete usefulness of such inquiries. Now, however, that co-operation is assured in the nature of the composition of the commission and in the source from which it receives its authority and inspiration, the community can look forward with greater confidence than ever before to definite results and to an improvement in conditions, both with respect to fire-fighting facilities and to legal measures of a preventive character.—*Philadelphia Public Ledger*, April 26, 1912.

NOTE.—The Pennsylvania State Building Code Commission recently appointed by Gov. Tener, through its chairman, Mr. John T. Windrim, a prominent Philadelphia architect, has assured the Philadelphia Fire Prevention Committee of its hearty co-operation.

Editorial from April, 1912

NATIONAL FIRE PROTECTION ASSOCIATION QUARTERLY

What Two Philadelphia Members Did

One of the most striking and valuable forms of public service ever rendered by members of the Association is that recently given to the city of Philadelphia by two of our Philadelphia members, Mr. Chas. A. Hexamer and Mr. Powell Evans, in co-operation with the local director of the Bureau of Municipal Research, Mr. Jesse D. Burks. These gentlemen accepted as a special committee the responsibilities placed upon them by the director of the Department of Public Safety in the preparation of a preliminary report on fire protection and fire prevention for the city of Philadelphia.

One of the commonest, although most deplorable, facts which face the student of municipal problems is the lack of mutual co-operation and understanding among the various municipal departments of a great city. It was owing to such conditions in New York city, where progress was practically blocked through inability to place responsibility upon any single department, that the Bureau of Fire Prevention was devised. The report of the committee above referred to reveals a similar situation in Philadelphia. It points out the fact that the city fire marshal takes much too limited a view of his responsibilities, and that many of the city ordinances, for example that regarding the storage of gasoline, are obsolete and require prompt revision. The report, although claiming to be merely preliminary, seems to us a very thorough and comprehensive document. It first outlines the agencies and what they are expected to do under the present laws. It then very carefully recites what the agencies in question actually do, and concludes with suggestions as to what they might do. The principal weakness of the Philadelphia situation as suggested in the report lies in the fire marshal's department and the fact that no inspections of buildings are made during occupancy. The report also points out that the water pressure in Philadelphia is insufficient and that the annual daily use of water is 200 gallons per capita—an astonishingly wasteful figure. The report concludes with the recommendation that the mayor be requested to appoint a commission to ascertain the facts and to submit a constructive program for increasing the efficiency of the several public agencies concerned and for bringing about correlation between the different agencies and between them and private agencies performing related functions.

The suggestions of this committee, upon which our members have rendered such distinguished service, might well be adopted by every large city in the Union. It is a movement in the direction of efficiency in the administration of one of the most vital functions of the municipal government. No comprehensive or effective work can be done in fire prevention in any large city until the various departments are brought into harmonious relation.

PRELIMINARY REPORT
on
FIRE PREVENTION AND PROTECTION
by
A Special Committee
Appointed by the
Director of the Department of Public Safety
Philadelphia, March 16, 1912

MR. GEORGE D. PORTER,
DIRECTOR, DEPARTMENT OF PUBLIC SAFETY,
CITY HALL, PHILADELPHIA.

Dear Sir:

In accordance with your recent request, we are submitting herewith the results of a brief inquiry, showing (1) the general organization of the public and private agencies directly concerned with fire prevention and protection; (2) the broad lines of procedure followed by these agencies; (3) the more obvious defects in organization and administrative methods of the municipal agencies; and (4) certain tentative proposals for the correction of the more serious defects so far as this can be effected with the equipment and financial resources already available.

There are eight different divisions of the city government performing specific functions related to fire prevention and protection; namely, the *bureau of water, gas, building inspection, police, fire, boiler inspection, the electrical bureau, and the division of fire marshal*. Obviously, an effective program of fire prevention and protection requires that these eight agencies work in complete harmony; each reinforcing and supplementing the work of the other in the performance of its special functions. Besides these municipal agencies, there are numerous private organizations equipped to render important service in a well planned and efficiently directed program. Generally speaking, no such plan has been formulated. There is, accordingly, much overlapping of functions, lack of correlation, and failure to meet some of the most urgent requirements of a safe and sound policy.

Potentially the most important factor in a program of fire prevention, as distinguished from the control of conflagrations, is the *fire* marshal's office operating under an excellent new law. In this office rests the power and the responsibility for determining, by inspection, conditions that endanger life and property by reason of hazardous occupations, careless methods in conducting such occupations, slovenly housekeeping, and inadequate preventive measures. The fire marshal is clothed with adequate power, under state law, to enter and inspect all buildings. He is given authority, when a building is shown by inspection to be especially liable to fire, to be so located as to endanger other buildings, or so occupied that fire would endanger persons or property therein to order the correction of the dangerous conditions. Owners and occupants are required by the law to comply at once with the fire marshal's orders, subject only to appeal to a commission provided for by law.

Notwithstanding these broad powers, the office of fire marshal concerns itself almost exclusively with attending fires and investigating their causes, prosecuting cases of suspected arson, inspecting the aisles and exits of theatres and moving picture places, inspecting places containing explosives and highly inflammable materials, and investigating of matters related to fire escapes. Practically no attention is given to the correction of housekeeping and occupancy conditions that are chiefly responsible for an annual fire loss of approximately \$2,500,000 in Philadelphia.

The approximate average per capita fire loss for Philadelphia of \$1.65 is not so bad compared with other American cities, but it must be recalled that Philadelphia has fire limits almost coincident with the county lines making very extensive fire limits, and within the fire limits it has a tremendous number of buildings of virtually fire proof exterior—brick with metal roof; the whole situation making a low fire loss normal as compared with much more restricted fire loss of Boston. Compared with foreign city averages it is obvious at once how much can be saved in Philadelphia. The following table based upon the latest available data, gathered up to 1907, shows the average annual per capita fire loss for the United States at large, and the principal cities of United States and Europe:

CITY	AVERAGE PER CAPITA FIRE LOSS (ANNUAL)
United States	\$3.00
Cleveland	1.18
Washington	1.19
Baltimore	1.29
Chicago	1.43
Philadelphia	1.65*
New York	2.60
Boston	5.15
Berlin25
Bremen38
Paris47
London50
St. Petersburg	1.42

The fire marshal's office may therefore be regarded as the *weakest link* in the chain of official agencies concerned with fire prevention and protection. The organization and administrative methods of the office are such that the important functions for which it is constituted cannot be performed with reasonable economy and efficiency.

The fire marshal has given an unduly narrow and perfunctory interpretation of his legal powers and duties. He has expressed the opinion that the law of June 8, 1911, gives him no authority over places used for public gatherings, except to inspect aisles and exits; that the clause "dangerous and faulty conditions" refers to construction only, and not to conditions of occupancy and housekeeping; and that a city ordinance must be passed before the law becomes effective.

One of the four assistant fire marshals has given his time exclusively to the supervision of ten fire escape inspectors, leaving only three officers to perform the functions assigned to assistant fire marshals. The records of inspections made by the ten fire escape inspectors show that these inspections have not been made with desirable dispatch; the average rate of inspection for eight months having been five to seven per day.

The current and summary records of work done and results accomplished are incomplete, inadequate, and not adapted to the purposes of administrative control. Little use is apparently made even of such records as are maintained to improve the quality of service rendered by individual inspectors or by the organization as a whole, to bring out the chief problems with which the office is concerned, or to point the way toward more effective control of fire waste.

*The total fire loss for Philadelphia for 1911 was \$2,100,000 making a per capita loss of \$1.45.

The preliminary report now submitted is not assumed to cover the field in a complete or systematic manner. It is intended rather to demonstrate the need for a more comprehensive and thorough investigation of the problems of fire prevention and protection with a view to the formulation of a constructive plan for a more effective organization of the several public agencies concerned and for better working relations between these agencies—the Fire Underwriters' Association, the Fire Insurance Patrol, and other private organizations engaged in similar activities.

In order that such a program may be formulated and the interest of the entire community enlisted in its promotion, we would respectfully suggest that you request the Mayor to authorize immediately a complete reorganization of the fire marshal's office and to appoint a commission of nine citizens of proper qualifications to ascertain the necessary facts and, on the basis of its findings, to formulate a program adequate to meet the needs of the community, and to cooperate with you in the reorganization of the fire marshal's office.

We would respectfully urge that you have printed for general circulation the city fire marshal act of Philadelphia, together with a completely explanatory opinion of the city solicitor sustaining the same along the lines of the attached circular from Fire Commissioner Johnson of New York City which explains the Hoey Fire Prevention Law, and gives the opinion of the city solicitor respecting its salient features.

Very truly yours,

CHARLES A. HEXAMER

Sec., Phila. Fire Underwriters' Association
[Past Pres., National Fire Protection Ass'n]

JESSE D. BURKS

Director, Bureau of Municipal Research
[Phila.]

POWELL EVANS

Chairman, Fire Prevention Committees:
Bureau of Municipal Research;
National Hardware Association;
Nat'l Ass'n Sheet Metal Contractors;
[Formerly, Natl. Ass'n of Creditmen;
Nat'l Ass'n of Manufactures]

INTERIM REPORT
ON
FIRE PROTECTION AND PREVENTION IN
PHILADELPHIA

I. FUNCTIONS AND ORGANIZATION

1. THE AGENCIES HAVING TO DO WITH FIRE PROTECTION AND PREVENTION IN PHILADELPHIA ARE CHARGED WITH THE PERFORMANCE OF THE FOLLOWING FUNCTIONS:
 - A. SUPERVISION OF CONSTRUCTION AND ALTERATIONS OF ALL BUILDINGS IN THE CITY, INCLUDING HEATING APPARATUS AND APPLIANCES FOR LIGHTING; AND THE MAINTENANCE OF RECORDS OF WORK DONE AND RESULTS ACCOMPLISHED.
 - B. INSPECTION OF BUILDINGS AND THEIR CONTENTS, DURING OCCUPANCY WITH REFERENCE TO CLEANLINESS AND HOUSEKEEPING AND SPECIAL FIRE HAZARDS; AND THE KEEPING OF ADEQUATE INSPECTION RECORDS, TOGETHER WITH EFFECTIVE ENFORCEMENT OF COMPLIANCE WITH ORDERS TO REMEDY EXISTING CONDITIONS.
 - C. THE EXTINGUISHING OF FIRES IN ORDER TO PREVENT SO FAR AS POSSIBLE THE DESTRUCTION OF LIFE AND PROPERTY.
 - D. INVESTIGATION OF THE CAUSES OF FIRES WITH A VIEW TO UTILIZING THE INFORMATION SECURED FOR THE PREVENTION OF FUTURE FIRES AND THE PROSECUTION OF PERSONS GUILTY OF ARSON.
2. THE ORGANIZATION PROVIDED FOR PERFORMING THESE FUNCTIONS AND THE DISTRIBUTION OF FUNCTIONS ARE AS FOLLOWS:
 - A. DEPARTMENT OF PUBLIC WORKS.
 1. *Bureau of Water.*
 - a. Inspection service: 10 hydrant inspectors who examine each low pressure hydrant semi-annually.
 - b. Two high pressure fire pumping stations used only for fire service.
 2. *Bureau of Gas.*
 - a. Responsible for the enforcement of the lease with the United Gas Improvement Co., as to the inspection of gas piping.

B. DEPARTMENT OF PUBLIC SAFETY.

1. *Bureau of Building Inspection.*

a. Chief, deputy chief, engineer of construction, inspector of reinforced concrete, 24 inspectors, inspector engineer, assistant inspector engineer, 4 clerks, 2 stenographers, and one messenger.

2. *Bureau of Police.*

a. Superintendent with office staff of 39, in charge of 10 captains, 48 lieutenants, 335 sergeants and about 3400 patrolmen and 48 stations.

b. Three Police and Fire Boats, with 11 pilots, 9 engineers, 10 firemen, and 3 deck laborers.

3. DIVISION OF FIRE MARSHAL.

1. Fire Marshal; salary \$2500.

a. Responsible to the Director of Public Safety.

b. Inspects moving picture places and theatres, with Chief of Bureau of Fire and Chief of Bureau of Building Inspection, before occupancy, and certifies his approval before license may be issued.

c. With Chief of Electrical Bureau, forms Board of Examiners for moving picture operators.

d. Attends to "all complaints regarding dangerous conditions in case of fire" (*e. g.*, defective flues, and shaky walls); in charge of "inspection of all buildings to see that they are clear of all combustible material."

NOTE 1.—The present regulations for the storage of gasoline are utterly obsolete and inadequate for meeting modern city conditions. They were adopted before gasoline was used in such volume, especially for motor cars; and if enforced as now existing make the storage of gasoline, in amounts which are safe and necessary, virtually impossible; or if not enforced make the storing of gasoline in necessary quantities virtually criminal. The law should be immediately studied, redrafted, re-enacted, and enforced with proper inspection.

e. In charge of inspection of places where explosives, gasoline and volatile oils, and combustibles are stored. On his approval depends the issuance of licenses for such storage, good for one year.

f. In charge of the investigation and determination of the cause of each fire; with the power to summon any person who is supposed to have knowledge, to take his statement under oath, and (if the case is suspicious) to transmit the evidence to the District Attorney for arrest and prosecution.

NOTE 2.—The question of fire escapes is a vital one to-day, particularly inasmuch as so many buildings are in character of

such construction as to make possible a dangerous fire. The present Philadelphia ordinance on fire escapes is far below the standard in its requirements as to character of the escape, size, location of entrance, etc. Careful studies of the character of fire escape provisions have been made by such engineers as Mr. Porter, of New York, and the facts are already definitely known. The Philadelphia fire escape ordinance should be carefully studied, redrafted, and re-enacted as soon as possible.

g. In charge of the inspection of fire escapes; issues an inspection certificate good for one year.

2. *Assistant Fire Marshal, salary \$2000.*

a. Detailed to the office to handle all matters relating to fire escape inspection.

3. *Clerk; salary*

a. Handles reports of fire escape inspectors and makes out requests for compliance with the fire escape law.

NOTE 3.—With respect to fire escape inspectors, it may be questioned whether this separation of duties should not now be done away with and all inspectors under the fire marshal given the full range of duties, working within prescribed areas, with regular rotation of assignments to these areas.

4. *10 Fire Escape Inspectors; salary \$1200 each.*

a. Each is assigned to one of ten districts and is concerned only with his district.

b. Report daily at 9 a. m. at the Fire Marshal's office and submit written reports of inspections.

c. Inspect quarterly the fire escapes in all buildings to see that exits are kept clean and that fire escapes are free from obstructions.

d. Inspect other buildings in their territory to find where fire escapes are needed.

e. Investigate all complaints and serve written request for compliance in specific details when fire escapes are defective or exits are obstructed.

f. Forward the case to the City Solicitor for his action, if the owner, agent, or occupant does not comply with a written notice.

g. In some cases report rubbish or inflammable matter in cellars or garrets.

5. *Three assistant Fire Marshals; salary—one \$2000, two \$1200 each.*

a. Each is assigned to one of 3 districts, and is concerned only with his district.

b. Report daily at 9 a. m. at the Fire Marshal's office, the results of all investigations of fires and other matters.

- c. Investigate and determine the cause of each fire in the respective districts not later than the day after the occurrence of the fire.
- d. Required to attend each fire in the several districts and to take charge of the police in keeping clear an area sufficient to enable the firemen to work advantageously.
- e. Inspect moving picture shows and theatres in the respective districts, as to exits, aisles, and fire buckets, about every two months.
- f. Inspect places where explosives, gasolene, inflammable oils, and combustibles are refined, used, stored or sold, on application for a license; also inspect places suspected of containing such materials.
- g. Investigate complaints of dangerous conditions as regards fire, to see that such places are clear of combustible material.

6. *Clerk; salary \$1200.*

- a. Handles correspondence.
- b. Keeps a record of applications for license for the storage of explosives or combustibles.
- c. Collects information and keeps a record of the investigation of the causes of fires.

4. *Electrical Bureau.*

- a. One chief; an office staff of 7; an inspection staff of 13; 31 operators and a battery assigned to the municipal telephone, police and fire alarm service; and (for the construction and maintenance of the police and fire alarm system, street lights, overhead wires and underground conduits) a manager, an assistant manager, 3 inspectors, 4 plumbers, one draftsman, 22 linemen and wiremen, one foreman, 129 laborers, 2 bricklayers, and 6 apprentices.
- b. Chief and Fire Marshal examine and license moving picture operators.
- c. Employees inspect all outside wiring and electric signs.
- d. Employees inspect electric wiring in municipal buildings, theatres, and moving picture shows during the construction period, and during occupancy.
- e. Fire alarm operators are in 3 shifts of 3 men each.
 - (1) Test alarm circuits 6 times daily.
 - (2) Test daily the telephone circuits for high pressure fire service.

- (3) Make electrical tests for grounds on outside circuits every hour and a half; make tests of insulation of wires and battery tests daily.
- f. One inspector tests fire alarm boxes, theatre and auxiliary boxes monthly; others 3 times a year.
- g. Records are kept of all tests and troubles.
5. *Bureau of Boiler Inspection.*
A chief inspector, 6 assistants, 2 smoke inspectors, 3 clerks, one messenger, one driver and one stenographer.
6. *Bureau of Fire.*
- a. Chief; salary \$4500.
Controls all supplies, apparatus and equipment (except buildings) maintains a shop for repair of apparatus; locates fire alarm boxes; assigns companies to fires; meets the district engineers 3 times a week to discuss methods of fighting fires.
- b. Assistant Chief; salary \$3000. Assists the Chief in the performance of his duties.
- c. Secretary; salary \$1600.
Conducts correspondence; maintains records.
- d. Store-house clerk; salary \$1200.
Directs the distribution of supplies for engine and ladder houses.
- e. 2 drivers of supply wagons; salary \$1000 each.
Drive wagons for transportation of supplies to stations.
- f. 3 telephone operators; salary \$1000.
Each is on an 8 hour shift at the Race Street headquarters; and notifies the Electrical Bureau what companies to send to fires.
- g. Messenger; salary \$800.
- h. Inspector; salary \$1300.
Supervises building repairs; weighs coal.
- i. Fire Inspector; salary \$4500.
Ex-chief retired on a pension; receives visitors and acts as an advisory engineer to the chief.
- j. 11 District Engineers; salary \$2000 each.
Each is assigned to a territory which overlaps others more or less; is in immediate charge of the uniformed force at the fire stations in his territory; 3 engineers form a court of trial, meeting Mondays, to consider cases of violation of rules.

- k. 78 Foremen; salary \$1400 each; each is the responsible head of a company and station; responsible for maintaining apparatus, horses, and other property in good condition; required to keep 6 men always on duty.
- l. 77 Assistant Foremen; salary \$1250 each.
- m. 59 engineers (operating engineers); salary \$1200 each; each operates a fire engine and is responsible for keeping the engine in good condition; must maintain 10 pounds of steam at all times; instructs firemen as to duties.
- n. 61 Firemen (stokers); salary \$1100. each; rides on engine; stokes the fire; responsible for the proper supply of fuel.
- o. 95 Drivers; salary \$1100. each; responsible for the care, condition and driving of the horses.
- p. 18 Tillermen; salary \$1200. each.
- q. 892 Horsemen and Laddermen; salary schedule.
- r. Veterinary Surgeon; salary \$2000.
- s. Assistant Veterinary Surgeon; salary \$1200.
- t. Repair Shop.
Superintendent, Assistant Superintendent, 2 plumbers, one blacksmith; 6 helpers; 9 machinists; one boiler maker, 5 wheelwrights, 4 carpenters, one patternmaker, one watchman.
- c. PHILADELPHIA FIRE UNDERWRITERS' ASSOCIATION.
Supported by 144 insurance companies; (employs a staff of 90 people) issues 847 brokers' certificates; makes surveys for the purpose of rating risks; inspects all inside electric wiring and sprinkler systems in the City. Two men are assigned to block inspection of conditions affecting fire hazards. Reductions in fire hazards are encouraged by the offering of a permanent reduction in the insurance rate for specified improvements.
- 4. FIRE INSURANCE PATROL.
Organized under State laws by insurance companies for the purpose of saving life and property at fires.
- i. Consists of three groups or companies covering the district between South and Vine Streets; Broad St. and the Delaware River; also along Chestnut St. from Broad St. to 18th St.

2. Two men make block inspections in this territory.
3. Receives a list of fires and causes from the Fire Marshal; ascertains the amount of the loss and insurance from the various insurance companies; tabulates and publishes this information in an annual report.

II. METHODS AND PROCEDURE.

1. SUPERVISION OF CONSTRUCTION.

NOTE 4.—The building laws of Philadelphia are not bad compared with many other American cities, yet they are by no means as good as reasonably possible, and the city fire marshal in connection with the bureau of building inspection should in co-operation with the state fire marshal aim to bring about the revision of the building code and the preparation of a proper building ordinance for this city.

A. NEW CONSTRUCTION AND ALTERATIONS.

1. *Bureau of Building Inspection.*

- a. Work begins on receipt of an application to the Bureau for a permit for new construction or for changes in old buildings.
- b. Bureau may order changes in the plans and specifications which usually accompany the application.
- c. Inspectors examine the building as often as practicable and make written reports to the Chief of the Bureau.
- d. Penalties are fixed for non-compliance with the building laws or for beginning construction or alterations before issuance of the permit.
- e. Testing of building materials is conducted by the Bureau of Surveys on request from the Bureau of Building Inspection.

2. *Bureau of Police.*

- a. The lieutenant of each police station reports weekly to the superintendent of police any new construction or alterations to old buildings in his district. Usually, where construction work is observed to be in progress, a patrolman asks to see the permit and in absence of a permit advises the owner or occupant to obtain one before proceeding further. This information goes to the Bureau of Building Inspection.

B. GAS PIPING.

1. *Bureau of Gas.*

has a contract whereby the United Gas Improvement Co. inspects all gas piping.

C. ELECTRIC WIRING AND ELECTRIC SIGNS.

1. *Philadelphia Fire Underwriters' Association.*

- a. Issues certificate of inspection of inside wiring before electric lighting company consent to furnish electric current.
- b. National Electrical Code is the standard.
2. *Electrical Bureau.*
 - a. Inspects inside electrical wiring only in municipal buildings, theatres, and moving picture shows.
 - b. Inspects all outside wiring and electric signs.
 - c. Chief issues permit for the erection and maintenance of an electric sign.
 - d. Chief has control of the design, construction, and manner of erection of electric signs.
 - e. A permit or "Certificate of Inspection" for an electric sign issued by the chief is required before electric current may be supplied.

D. FIRE ESCAPES.

1. *Bureau of Building Inspection.*

- a. In the construction stage fire escapes are regarded as new construction or alterations; hence the work of inspection begins on receipt of an application for a permit.

E. THEATRES.

1. *Mayor.*

- a. Issues a license before occupancy after receiving a certificate of approval signed by both the Bureau of Building Inspection and the Bureau of Fire. By custom, the Fire Marshal is also expected to inspect and certify approval before issuance of license.

2. *Bureau of Building Inspection.*

Sees that special requirements are followed in building theatres (legislative acts).

Inspects plans and specifications; issues the permits; and examines the building frequently until completion with special reference to the requirements of State laws governing the construction of theatres.

3. *Bureau of Fire must be satisfied.*

- a. As to saturation of scenery and woodwork about the stage with non-combustible materials.
- b. As to installation of an automatic sprinkler system with fusible plugs.

- c. As to suitable appliances for interior lighting.
- d. As to the arrangements for stage lighting.
- e. As to the installation of standpipes, gas, electric wires, hose, footlights and all apparatus for extinguishing fire or guarding against the same.

F. MOVING PICTURE SHOWS.

1. *Director of Public Safety.*

- a. Issues license before occupancy after he has received a certificate of approval signed by the Chief of Building Inspection, Chief of Bureau of Fire; and the Fire Marshal.

2. *Chief of Electrical Bureau.*

- a. Issues certificate of approval of the electric wiring, before electric current may be used.

2. INSPECTION DURING OCCUPANCY.

A. GENERAL INSPECTION OF BUILDINGS AND CONTENTS.

1. *Philadelphia Fire Underwriters' Association.*

- a. Makes inspection only for issuance of insurance.
- b. Inspections are not regularly made, usually on change of occupancy; some places have not been inspected for ten years.

2. *Fire Insurance Patrol.*

- a. Two men assigned to block inspections.
- b. Buildings, assigned to the block inspectors, are examined once a year, some places, three, four, five or six times.
- c. Inspections are made in a portion of the territory between South and Vine Streets; Broad Street and the Delaware River; and along Chestnut Street from Broad to 18th Street.

3. *Bureau of Police—Uniformed Force.*

- a. Patrolmen are required to be alert to prevent incipient fires.

4. *Division of Fire Marshal.*

- a. With the exception of moving picture shows and theatres, inspects buildings only as regards aisles and exits.
- b. Some fire escapes inspectors report rubbish and inflammable material in cellars or garrets.

B. GAS PIPING.

There is no inspection after the completion of a building, except in cases of repairs.

C. ELECTRIC WIRING AND ELECTRIC SIGNS.

1. *Philadelphia Fire Underwriters' Association.*

- a. Inside wiring is inspected as opportunity permits.
- b. Inspections are not at regular intervals, usually on change of occupancy.

2. *Electrical Bureau.*

- a. Makes frequent tests and when necessary repairs the municipal wires, the fire alarm systems and the police patrol telephone service.

(1) Tests fire alarm boxes 3 times a year.

(2) Tests fire alarm circuits 6 times daily by sending out signals.

(3) Tests the circuits of the telephone system for the high pressure fire service, twice daily.

(4) Keeps records of tests.

- b. Operates municipal power plants.

c. The results of the inspection of electric wiring in moving picture shows must be satisfactory before the annual license may be renewed.

d. Inspects electric wiring in theatres weekly.

e. There is no inspection of electric signs after the issuance of the permit.

D. FIRE ESCAPES.

1. *Bureau of Police—Uniformed Force.*

- a. Reports of Fire Marshal defective fire escapes, obstructions to fire escapes and buildings that need fire escapes. This rule is rarely observed.

2. *Division of Fire Marshal.*

NOTE 5.—The most important function of the fire marshal is to inspect the use of buildings throughout the city, so that not only their physical condition may be brought up to a minimum standard of excellence with respect to fire prevention and protection, but that the voidable risks of occupancy can be reduced to a reasonable minimum; and that the housekeeping of the building with respect to general cleanliness or orderliness of occupancy can be kept to a reasonable minimum of excellence.

To effectively accomplish this end, the city must be divided into inspection areas, each area to be under a separate inspector; the inspectors regularly rotating as do the Factory Mutual Insurance Company inspectors, say, each six months. A list of such buildings with data must then be prepared in duplicate, by a card system; each inspection center to have one copy, the other copy to go to City Hall. A suggested delimitation of such areas is made on attached maps, and the buildings to be inspected within

such areas would total approximately 35,000. The Fire Underwriters' Bureau of Philadelphia has during the past fifty years collected approximately 25,000 physical surveys of buildings in the congested areas of Philadelphia, and they offer the substance of this data as a basis for beginning the card system for an enlarged area. This detailed knowledge and provision for detailed watching of buildings so illustrated is a minimum requirement to control fire danger in Philadelphia.

Another important function of the fire marshal is to use his power under the fire marshal law to summarily abolish obvious nuisances and danger with respect to fire risk. Fire Commissioner Johnson of New York City, acting under the Hoey bill which established a Fire Prevention Bureau in New York City, the powers of which were carefully investigated and defined by the City Solicitor in a publicly distributed pamphlet (the powers of which are no larger than those of the Philadelphia's Fire Marshal bill) has summarily notified the occupants of 35,000 buildings that smoking cannot be permitted in these buildings. Under date of February 2, 1912, he writes as follows:

"It may not appear on the face of it, where the commissioner gets his authority for criminal prosecution where smoking is carried on in factories or manufacturing places where fire might result therefrom. The operation of the law is this:

First.—A nuisance is any condition that creates a hazard or danger to others.

Second.—The Fire Prevention Law places the duty on the commissioner to remove all fire hazards.

Third.—By a provision of law, a violation of any order of the Fire Commissioner is a misdemeanor, therefore, when he orders that no smoking shall be allowed in buildings where same would be dangerous, a violation of that order becomes a misdemeanor and is punishable by \$500.00 fine or a year's imprisonment, or both."

Respectfully,

WILLIAM G. GUERIN

Acting Chief, Bureau of Fire Prevention

The above action is in line with the genesis of the present law on the subject in France. The Code Napoleon, more than a century old, sets forth the following sections:

Article 1382: Every person is responsible and liable for any acts of his by which any other person has or may have sustained any loss, damage or injury.

Article 1383: Every person is responsible for any loss, damage, or injury caused by his own act, carelessness or negligence.

The French courts have decided that under these general enactments there is definite responsibility upon every man for fire damage to his neighbor. There is no question, therefore, but that the city fire marshal of Philadelphia can stop smoking in build-

ings that he considers dangerous; can stop the use of parlor self-igniting matches in similar buildings; can stop the accumulation of refuse, packing, greasy rags, dirt and dust in such buildings; and can generally, in a retroactive way, reasonably force the clean-up of general physical conditions in buildings, including fire escapes.

Fire Commissioner Johnson, in New York City, has also recently sent self-propelled fire engines clanging up and down the streets along the east side, covered with large printed notices, calling attention to these dangerous housekeeping conditions and demanding that property owners abate these fire-danger nuisances. In this connection the city fire marshal should take measures to invite information from all voluntary sources as to bad fire conditions so that he will have knowledge supplementary to that given by his own inspectors on which to base an effective clean-up of all buildings in the city.

- a. An inspector makes block to block examination of the buildings in his territory as to the condition of exits, and fire escapes and all fire escapes in his territory are examined quarterly.
- b. The inspector reports daily in writing the results of the previous day's work, and all places where fire escapes are needed.
- c. When a building does not comply with the law, the inspector delivers to the owner or occupant, a written request for compliance, specifying details.
- d. On failure to comply with such a written notice, within 90 days, the case is referred to the City Solicitor.
- e. Fire Marshal issues inspection certificates good for one year.

E. THEATRES.

1. *Division of Fire Marshal.*

- a. Each of three Assistant Marshals inspects about every two months the theatres in his district as to aisles, exits and buckets.
2. *Bureau of Fire.*
 - a. District Engineer inspects monthly all theatres in his district.
 - b. A fireman is assigned to every performance to inspect the entire building before and after the performance to examine fire appliances; and to prevent smoking.

F. MOVING PICTURE SHOWS.

1. *Fire Marshal.*

- a. Each of three assistant marshals inspect about every two months the moving picture shows in his district as regards aisles, exits, fire buckets.

b. Has power to close up any place shown by inspection to violate legal requirements.

2. *Electrical Bureau.*

a. A Board of Examiners consisting of the Chief of Electrical Bureau and the Fire Marshal examines and licenses moving picture operators.

G. BOILERS AND STEAM ENGINES.

1. *Bureau of Boiler Inspection.*

a. Makes an annual examination prior to the issuance of a certificates good for one year.

b. Examines and licenses operating engineers, and issues certificates good for one year.

H. STORAGE OF EXPLOSIVES AND COMBUSTIBLES.

1. *Division of Fire Marshal.*

a. Makes inspections as a result of an application for a license; suspected places are often inspected also.

b. Is required to inspect licensed places annually.

c. Has power to close up any place found to violate legal provisions.

3. EXTINGUISHING OF FIRES.

A. SUPPLY OF WATER.

1. *Bureau of Water.*

a. Inspects low pressure hydrants semi-annually.

b. On receipt of first alarm in the district covered the pumps of the high pressure fire system are started and pressure is maintained at 100 pounds, to be increased to 300 pounds when demand is made on the system.

c. The high pressure fire service hydrants are inspected and ordered daily in winter, at other seasons weekly.

B. TRANSMITTAL OF ALARM.

1. *Electrical Bureau.*

a. On receipt of fire calls by telephone, inquiry is made of the Bureau of Fire as to which Company to send.

b. On receipt of a box alarm, the fire alarm operator counts the first round, checks the circuit shown on the board with that given for the box in the record book, and sets the number on the manual transmitter.

c. An assistant reads the number from the printing register, sees that the box is on the circuit indicated and calls the number to the operator as a check.

- d. The manual transmitter is started after the second round from the box is completed.
 - e. The transmission consists of 10 preliminary blows, then the box number repeated twice, and repeated twice at a slower rate.
 - f. Second alarms are given by repeating the first alarm.
 - g. Third and subsequent alarms are preceded by 10 blows struck twice in addition to special signals requiring from 9 to 18 blows.
2. *Auxiliary Fire Alarm Company.*
- a. Rents to patrons small boxes placed in various places throughout a building and connected to a municipal box box at the entrance.
 - b. Inspects twice a month the 200 buildings that are equipped.
3. *Consolidated Fire Alarm Company.*
- a. Transmits an alarm to fire alarm headquarters from the Company's central office by a Morse key and verifies same by telephone.
 - b. Inspects 300 installations monthly.
4. *Central Station Watch Service.*
- a. Has 138 subscribers and 1484 boxes, 40 closed circuits under constant test.
 - b. Sends alarm to fire alarm headquarters from Company's central office by manual transmitter and confirms by telephone.
5. *American District Telegraph Company.*
- a. Has 36 subscribers, and from 6 to 43 boxes per subscriber.
 - b. Receives signals at nearest Postal Telegraph office on a tape register.
- C. CONTENDING WITH FIRE.
1. *Bureau of Fire.*
- a. 10 pounds pressure of steam is constantly maintained in the engine at each station.
 - b. First alarm calls out 3 to 6 companies.
 - c. Chemical engine is generally used first.
 - d. High pressure fire service is ready with 100 pounds pressure on the first alarm, and is controlled by telephone instructions from the engineer in charge at the fire.
 - e. Second alarm calls out 7 to 10 companies.

- f. The outside sprinkler connections are demanded by insurance companies when systems are installed and are available to flood a building with water at the point needed, but are never used.
- g. An extensive repair shop handles all repairs and manufactures new apparatus and parts, including repairs for bureau of police which are not charged for.

D. MAINTENANCE OF FIRE LIMITS.

1. *Bureau of Police—Uniformed Force.*

- a. Lieutenant in the police district takes all available men to keep clear an area sufficient that the firemen may work without obstruction.
- b. Patrol wagon goes to fire and remains on duty until all fire apparatus has left.

2. *Division of Fire Marshall.*

- a. In charge of Police.

E. SALVAGE.

1. *Fire Insurance Patrol.*

- a. Each company attends all fires in its district and protects property and life.
- b. Patrol wagons are equipped with rubber blankets, pails and fire extinguishers.
- c. The Company protects contents, also roofs of buildings from water damage.
- d. The company takes charge of a building after a fire, and prevents damage by mopping up water and pumping out cellars.

4. INVESTIGATION OF THE CAUSES OF FIRE.

Division of Fire Marshall.

- a. The clerk receives the morning of each day from the Electrical Bureau, a report of all fires occurring during the previous day.
- b. The Clerk partially fills out a report sheet for each fire and gives it to the Assistant Fire Marshall, in whose district the fire occurred.
- c. The Assistant Marshall investigates and determines the cause of the fire within a day or two, taking testimony under oath if necessary.
- d. The Assistant Marshall records the information he has obtained on the report sheet, which is returned to the Clerk.

- e. The Clerk records in a large book all information in the report sheet as soon as returned by the Assistant Marshall.
 - f. The Clerk then sends the report sheet to the Fire Insurance Patrol to obtain information as to amount of insurance and of loss.
 - g. On the return of the sheet from the Fire Insurance Patrol the Clerk enters on the record book the amount of insurance and of loss and files away the report with others.
 - h. In a case of incendiarism, the Marshall transmits his findings and evidence to the District Attorney who institutes prosecution.
2. *Bureau of Fire.*
 - a. District engineers meet chief three times a week to discuss fires and obstacles met in fighting fires.
 3. *Bureau of Building Inspection.*
 - a. After a fire, the inspector makes an examination of the property, and makes a record of all walls or buildings found unsafe or dangerous, with the name of the owner or agent and the location of the danger.
 4. *Philadelphia Fire Underwriters' Association.*
 - a. Make investigation for insurance records.
 5. *Fire Insurance Patrol.*
 - a. Receives from the Fire Marshall a record sheet for each fire showing the cause.
 - b. Obtains the amount of insurance and of loss from the various insurance companies and places this information on the record sheet and returns same to the Fire Marshall.
 - c. Reports to Fire Marshall all fires that occur, for which no alarm is sounded, and which are extinguished without the aid of the Bureau of Fire. This information usually is obtained from insurance companies.
 - d. Tabulates all information, an account of each fire, the cause, the amount of insurance and of loss, and publishes the information in an annual report.

III. ANALYSIS OF RESULTS.

1. DEPARTMENT OF PUBLIC WORKS.

a. *Bureau of Water.*

15,600 low pressure hydrants are inspected semi-annually by 10 men at the rate of 10 per day. This inspec-

tion is too infrequent. These hydrants are used for street and sewer flushing and sometimes by private parties. Much damage from such use is reported; many of the outlet caps are not replaced and sticks and stones get into the orifice and the screw threads are exposed to injury. On the other hand, the high pressure hydrants are inspected weekly.

At the Race Street High Pressure Station the men work on 24 hour shifts, that is to say—one group comes on at 7 a. m. and continues on duty until 7 a. m. the next day. As a result when night comes, all but one of the men on duty go to bed, in the station, and are awakened by a man on watch when the call for service comes in. Most of the demands for the high pressure fire service comes at night. The question is therefore raised whether the efficiency of the station would not be materially increased if the men were placed on 12 hour shifts, so that all those on duty at night might be fully rested, wide awake, alert and ready for any demands.

2. DEPARTMENT OF PUBLIC SAFETY.

a. *Bureau of Building Inspection.*

16,215 buildings were inspected with 78,562 visits during 1911; this being at the rate of 4910 visits per inspector. The organization of the Bureau appears to be efficient and within the limitations of the present building law. As a result of the weekly reports from the police, the Bureau appears to control with few exceptions all construction and alterations.

b. *Bureau of Police.*

1. Uniformed Force.

NOTE 5½.—If the police could report all dirty and dangerous conditions, they would render additional valuable service.

The police are a material aid to the Bureau of Building Inspection, in enforcing the requirement of a permit before beginning building operations.

One or two patrol wagons with 8 to 16 men, the street sergeants, and lieutenant respond promptly to each box alarm. Fire lines are promptly roped off and the crowds are effectively handled.

2. Fire Marshall.

The weak point in the series of organizations for effective fire prevention in Philadelphia is the Fire Marshall and his staff. This may be due to an imperfect conception on the part of the Chief of the duties of his office;

to inefficient direction and supervision of the staff; to failure to provide adequate information through suitable records and report; or to an inadequate staff.

(a) Investigation of Fires.

Three assistant marshalls are assigned to attendance at fires and the investigation of the causes of fires. The Fire Marshall personally attends important fires and shares in important investigations. 3900 fires occur annually, averaging 1300 per man or 4 per day per man. The time available for making these investigations is an important factor in determining the efficiency of the work. Assuming a 12 hour working day, excluding meals, 7 days in the week—and this duration of duty seems excessive, an hour must be deducted for going to and from the office for the daily report at 9 o'clock, as required by the rules. Some deduction must also be made for time required to inspect moving picture shows and theatres and places where combustibles are stored.

Based on these facts, an average of less than two hours and a half of a fire marshal's time can be given to each fire for policing the streets and investigating the causes of the fire. As a result the investigation reports are brief and incomplete; giving little more information than might be supplied by the Bureau of Fire, or the Bureau of Police.

The records for 1911 show that 5 arrests were made for arson and that 3935 fires occurred of which 5 were clearly incendiary; 46 supposed incendiary, and 294 from unknown causes. In the City of Chicago, in 1910, 1288 fires were investigated by the fire attorney, resulting in 34 arrests. Of 8555 fires, 56 were incendiary, 129 supposed incendiary and 2594 from unknown causes.

No practical use moreover is generally made of the results of investigations. The entire motive of the Fire Marshall's Office appears to be to learn the *name* of the cause, and to have the *name* written down in the record book, rather than to *utilize the information* in an attempt to prevent the occurrence of future fires.

(b) Storage of Explosives and Combustibles.

During the year 1911, the number of inspections reported were:

- 229 of dynamite
- 74 of chemicals and explosives
- 248 of combustibles
- 544 of gasolene and volatile oils.

The report, however, does not show clearly whether these are the number of inspections or number of places inspected. The greater part of this work was performed by the three Assistant Marshalls in addition to attendance on and investigation of fires, and inspection of theatres and moving picture shows every two months. The Fire Insurance Patrol in 1910 found over 2000 gallons of reckless storage of gasoline, in an inspection of 3300 buildings. The Philadelphia Fire Underwriters report that "every day" they discover instances of the storage of explosives, gasoline and combustibles in violation of the law. In one instance they found 3000 pounds of calcium carbide stored in a cellar without a license; the maximum allowed by law being 600 pounds to be stored above grade.

These illustrations show an imperfect control of the situation by the Fire Marshall.

(c) Fire Escape Inspection.

One Assistant Marshall devotes his time exclusively to the direction of the work of ten men. These inspectors report every morning at the Fire Marshall's office at 9 o'clock. In this way they consume probably half an hour per day or 3 hours a week, so that the time available for inspections is about 36 hours per week.

Block inspections have been made of 9353 buildings in 8 months, and the reports contain information regarding fire escapes, exits, stairways, and fire safeguards about elevator shafts. In 8 months 4656 inspections of fire escapes of record were made; apparently included in 9353 building inspections. The rate of work is 5 to 7 inspections per day; that is the average inspection consumes about an hour. It would seem that this rate could easily be increased to form 10 to 14 per day or 30 minutes per inspection. However, there are no data available as a basis for judgment on this point.

(d) Inspection of Buildings and Contents during occupancy.

Three Assistant Marshalls are assigned to the inspection of buildings.

Moving picture shows and theatres are examined every two months as to the condition of exits and aisles. These buildings are not uniformly distributed throughout the city and the bulk of the work probably is handled by two men—supplemented perhaps by the Fire Marshall.

Regarding all other buildings in the City—office buildings, factories, schools, stores, tenements and residences, there is no systematic inspection of occupancy and

condition, and no records descriptive of the conditions found.

The Fire Marshall's report for 1911 mentions 36 cases of defective flues and of faulty or dangerous condition. Also 9353 buildings examined primarily as to whether they need fire escapes. These are the only references indicating inspection of the 375,000 buildings in the City.

As to the interpretation of his legal powers and duties, the Fire Marshall has expressed the opinion:

First, that the law of June 8, 1911, gives him no authority except to inspect aisles and exits.

Second, that the clause "dangerous and faulty conditions" refers to construction (*e. g.* to walls liable to fall.)

Third, that a city ordinance must be passed before the law becomes effective.

Authority to inspect aisles and exits was given to the Fire Marshall as early as March 24, 1903, by a legislative act. The law of June 8, 1911, is clear and specific and confers broad powers on the Fire Marshall. Even if the law were not clear in its terms, it would be a simple matter for the Fire Marshall to obtain from the City Solicitor an authoritative interpretation of the law as it affects his powers, duties and limitations.

The object of occupancy inspection clearly is to reduce dangerous conditions. In order to be effective, such inspection should be concerned with protection against fire, which may vary with the nature of the occupancy, and should cover the housekeeping, as to whether the business is conducted in a cleanly manner with clean floors and cans for oily waste and the like.

c. *Electrical Bureau.*

The care of the fire alarm signalling system and its adjuncts, and of the telephone system for the direction of the operation of the high pressure fire service are entirely under the control of the Electrical Bureau. A large number of the boxes are of the key type and show no instructions where keys may be obtained, consequently delays result in sounding an alarm. The sounding of ten blows before each alarm, and 20 blows and special signals requiring from 9 to 18 blows before the third alarm—occasions needless delay. This delay is considerable for the rate of gong signals is one blow per second. Other cities have not found these preliminary blows necessary.

d. *Bureau of Boiler Inspection.*

No attempt has been made to obtain data regarding the efficiency of this organization.

e. *Bureau of Fire.*

The chief business of this organization is fighting fires. The question may be raised whether systematic provision should not be made to drill the man in handling hose and other apparatus, rather than to leave the men to be trained entirely by experience under the excitement of actual fires.

It is suggested that the division of territory among the district engineers may be greatly improved. As a result of overlapping, one part of the city, including two engine houses and a ladder house is assigned to 4 district engineers. One district is contained entirely within another, leaving it uncertain to the layman at least; which district engineer is responsible for the condition of the stations in the inner section. Four small portions of the city are not covered at all.

An engine is usually out of service while the horses are being shod; no provision being made for an extra pair of horses to be on duty at such times.

No one person is responsible for the condition and regular testing of engines. As a result it is probable that many of the engines when pumping water at fires, are not working as efficiently as they should. In 1906, tests of the fire engines were made by the Chief of the Bureau of Boiler Inspection, in the presence of the Chief of the Bureau of Fire and two experts, representing the Trades League of Philadelphia. These tests each of one hour duration were made on 51 engines under working conditions and resulted in the disabling of 10 engines, while repairs were recommended on 10 others. From 3% to 5% is regarded as a reasonable slip of a pump. 38 engines out of 51 showed excessive slippage; 22 exceeded 10% and one showed 30%.

3. PHILADELPHIA FIRE UNDERWRITERS' ASSOCIATION.

The affairs of this organization as regards fire prevention are efficiently handled. In 1911, the Survey Department visited 10,912 risks for rating at the rate of 5.6 per day per man. There were 6231 blocks inspections at the rate of 15 to 30 per day per man and a large number of improvements of various sorts resulted. The Electrical Inspectors visited 50,930 risks; and there were 5312 visits to buildings equipped with sprinklers. There are

718 fully and partially equipped sprinkler systems and 44 "open" sprinkler systems in the city.

4. FIRE INSURANCE PATROL.

During 1910, over 3300 buildings were inspected by two men, at the rate of 5.5 inspections per man per day. The results of these inspections are reported to the Philadelphia Fire Underwriters' Association. The Fire Patrol attended 577 fires. There is a good spirit of co-operation between this organization, the Fire Marshall and the Bureau of Fire.

ANALYSIS OF RESULTS—SUMMARY

1. SUPERVISION OF CONSTRUCTION.

The various organizations and methods provide for the control of all building construction and alterations and the inspections are generally effective within the limits of the present building law.

2. INSPECTION DURING OCCUPANCY.

This is the weak point in the municipal activities for effective fire prevention. The chief source of weakness is found in the Division of Fire Marshall. While the laws are adequate, no systematic attempt is made to reduce effectively the fire hazards of buildings and contents, except in one particular form of protection, the fire escape.

3. EXTINGUISHING OF FIRES AND SALVAGE.

The equipment for fighting fires is in some ways unsatisfactory. The water pressure is insufficient; due perhaps to lavish use throughout the city, averaging 200 gallons per capita per day. An extension of the high pressure system along Vine Street is desirable. There are avoidable delays in the transmission of an alarm. In many instances the fire apparatus is very probably in poor condition.

In 1910, there were 3717 fires with a total loss of \$2,482,000, of which \$1,835,000, about 74%, represents the loss of 51 fires, at an average of \$36,000 each.

4. INVESTIGATION OF THE CAUSES OF FIRE.

NOTE 6.—The state fire marshalls of Ohio and Wisconsin have accomplished remarkable results in recent years by a continuous policy of educating the public in detail. The city fire marshall in Philadelphia could without doubt accomplish quite as much.

The chief motives of the investigation, conducted by the Fire Marshall, seem to make a record of the *name* of the cause of the fire, and to prosecute criminal cases.

In contrast to these motives of fire investigation the following newspaper statement is suggestive :

“JOSEPH JOHNSON, Fire Commission of New York, has had 40,000 notices posted in the factories of the city forbidding smoking. The notices are printed in English, Yiddish, and Italian, and the inspectors are required to see that they are obeyed. That the order was necessary, was shown by an investigation which brought out the fact that, in 1910, 3240 fires in New York city were directly attributable to the careless use of matches by smokers, or to lighted cigar or cigarette stubs thrown into waste paper or refuse.”

IV. CONSTRUCTIVE SUGGESTIONS

In view of the defects in organization and administrative method which even the foregoing incomplete analysis has shown to exist the following suggestions are offered as a basis for discussion or for immediate application so far as they command themselves to the judgment of the responsible administrative officers.

The weakest link in the chain of official agencies having to do with fire prevention and protection, is evidently the fire marshall's office. The following suggestions are submitted with a view to pointing our ways and means for increasing the efficiency of the fire marshall's office by making more complete and better use of the legal powers and financial resources already available.

1. REORGANIZATION OF OFFICE STAFF AND FIELD FORCE.
 - A. *Office Staff.*
 1. Fire Marshall: an executive officer of requisite personality, training and experience to handle men, organize the details of office management, collect and classify the information now legally obtainable and necessary for intelligent action and make effective use of such information in controlling the business of the office, and in enforcing the requirements of the laws and ordinances affecting fire prevention and protection.
 2. A chief clerk, preferably a stenographer, qualified to devise methods for facilitating the business of the office.
 3. In case it is shown by experience that the clerical work of the office cannot be handled by the chief clerk alone, a subordinate clerk, preferably a stenographer, should be employed.

B. *Field Force.*

1. Four (4) Assistant Fire Marshalls performing the following duties:

a. Investigation of the causes of fires with the primary object of correcting conditions that constitute fire hazards and institution of prosecutions in cases of presumptive arson.

Such investigation might include also a study of the efficiency of the bureau of fire in handling fires.

b. Regulation of the storage of gasoline explosives and combustibles in the territory outside of that assigned to the fire escape inspectors.

c. Require that written reports of work done and results accomplished be submitted by mail or in person at the close of each working day; with monthly summaries of the same.

d. Discontinue the practice of requiring inspectors to report in person daily at 9 a. m. at the Fire Marshall's office.

The first hour is the most valuable in the day to the Fire Marshalls in planning his work and should be free from needless interruptions. An undue amount of the Assistant Marshall's time in the best part of the day is also wasted.

e. Discontinue the requirement that Fire Marshalls attend every fire.

The Chief of the Bureau of Fire receives from his men a report of every fire with detailed information including cause. These reports are available and copies may be sent to the Fire Marshall's office.

A more effective investigation furthermore can be made after a fire than during the confusion of the fire itself. By relieving the Assistant Fire Marshall of excessive night work, it should be possible to improve measurably the quality and quantity of inspection service directed toward the prevention of fires.

f. Relieves the Fire Marshalls of the responsibility for the supervision of policing at fires.

This service is a simple duty which the police organization is competent to perform.

g. Discontinue the inspection of theatres and moving picture shows by fire marshalls.

There is an unnecessary duplication of duties in this field.

(a) Theatres are inspected monthly as to fire hazards by the District Fire Engineers;

(b) Moving pictures shows under the suggested plan will be inspected quarterly by the Fire Escape Inspectors, and are inspected *weekly* now as regards electric wiring by the Electrical Bureau.

2. Ten (10) Fire Escape Inspectors.

a. Make the inspectors responsible directly to the Fire Marshall rather than to an assistant marshall as at present.

b. Assign each of nine inspectors to a definite territory of at least 1500 buildings, and require them to make inspections of occupancy and conditions of buildings at the same time and in addition to examination of fire escapes.

The rate of block inspection by the Philadelphia Fire Underwriters' Association is 15 to 30 buildings per day per man. At the rate of 20 per day, each inspector can report upon 6000 buildings annually.

c. Change assignment of territory quarterly, in order that each building may be examined by a different inspector in successive periods; the work of each inspector will in this way be subject to check by others.

d. Assign one inspector to the part of the city not covered by the other nine, to inspect quarterly all fire escapes of record in that territory.

e. Discontinue the requirement that inspectors report in person at the Fire Marshall's office daily at 9 a. m.

f. Require each inspector to render written reports at the close of each working day, showing work done and results accomplished. These reports to be summarized in weekly, monthly and annual reports.

Maintain a card for each building and of the contents to be made out at the time of the inspection, stating the location, names of owner and occupant, nature of occupancy, conditions of construction, nature of special protection, housekeeping condition and special hazards (see suggested outline of occupancy inspection report).

g. Require each inspector to return also a special form of report for fire escapes; also a special form of report for high pressure, gasolene and combustibles.

h. Make proper provision for the issue of formal written notification by inspectors, to owners or occupants, regarding conditions to be corrected; a copy of such notification to be filed in the office of the Fire Marshall together with proper records of subsequent inspectors and the results obtained.

2. APPOINTMENT OF A COMMISSION OF FIRE PROTECTION.

The present preliminary study is not assumed to cover the field in a complete or systematic manner; it has rather developed the need for a more comprehensive and thorough investigation of the problems of the prevention and protection in Philadelphia.

It is accordingly suggested that the Mayor be requested to appoint a commission, consisting of nine persons of proper qualifications, to ascertain the facts and to submit a constructive program for increasing the efficiency of the several public agencies concerned and for bringing about a better correlation between the different agencies and between them and the private agencies performing related functions.

In general, the scope of such an inquiry might be as follows:

- A. The functions now performed and the methods employed by the several public and private agencies.
- B. The extent of divided responsibility, overlapping of duties, or otherwise ineffective distribution of functions.
- C. Ordinances or state laws needed to define, supplement, or limit the powers and duties of the agencies concerned.
- D. Changes in administrative methods and procedure necessary to increase the individual and collective efficacy of these agencies—public and private.
- E. Additional equipment and financial provision, if any, needed to insure the community adequately against waste of property and life through preventable fires.
- F. Relation of the State Fire Marshall law to the City's program of fire prevention and protection.
- G. Means for reducing the danger of loss by fire of property owned by the municipality.
- H. A program for educating the Community to preventable fire waste and for securing the coöperation of citizens in a constructive plan for reducing waste, and procuring volunteer inspections and reports which will assist the fire marshall.

CITATIONS OF STATUTES AND ORDINANCES RELATING TO FIRE PROTECTION AND PREVENTION IN PHILADELPHIA

A. Denotes acts of the State Legislature.

O. Denotes ordinances of Councils.

I. BUILDING LAWS

- | | |
|----------------------------------|-------------------------------|
| A. April 10, 1849; P. L. 600 | O. Sept. 15, 1856; p. 219 |
| A. May 7, 1855; P. L. 468-469 | O. June 20, 1863; p. 191 |
| A. March 11, 1862; P. L. 109-110 | O. Sept. 30, 1880; p. 144-145 |
| A. March 22, 1865; P. L. 538 | O. Dec. 30, 1886; p. 350 |
| A. May 6, 1870; P. L. 1303 | O. March 28, 1894; p. 89-96 |
| A. June 1, 1885; P. L. 401 | O. April 10, 1894; p. 199-200 |
| A. June 7, 1895; P. L. 178-181 | O. June 12, 1894; p. 232 |
| A. May 5, 1899; P. L. 193-228 | O. March 2, 1895; p. 29 |
| A. June 5, 1901; P. L. 480-486 | O. Nov. 9, 1897; p. 222 |
| A. April 25, 1903; P. L. 304-312 | O. Oct. 17, 1898; p. 209-210 |
| A. June 9, 1911; P. L. | O. Apr. 6, 1900; p. 140-144 |
| | O. Feb. 23, 1906; p. 22 |
| | O. Mar, 12, 1906, p. 29 |
| | O. Mar. 28, 1907; p. 105 |

- Sept. 28, 1906 rules for testing new materials
Oct. 8, 1907 rules for hollow concrete blocks

2. INSPECTION GAS PIPING

- O. Nov. 12, 1897; p. 227

3. INSPECTION OF ELECTRIC WIRING

- | | |
|------------------------------|-----------------------------|
| A. June 25, 1885; P. L. 164 | O. March 13, 1883; p. 68-72 |
| A. April 8, 1903; P. L. 155 | O. Jan. 3, 1884; p. 1-2 |
| | O. July 11, 1884; p. 190 |
| | O. July 18, 1885; p. 202 |
| O. April 18, 1863; p. 80 | O. Feb. 16, 1886; p. 27 |
| O. Sept. 20, 1867; p. 284 | O. Aug. 5, 1886; p. 243-246 |
| O. Dec. 9, 1868; p. 470 | O. Dec. 30, 1886; p. 350 |
| O. March 7, 1871; p. 48 | O. Dec. 31, 1886; p. 426 |
| O. Dec. 21, 1880; p. 240-242 | O. March 19, 1888; p. 48 |
| O. Jan. 6, 1881; p. 1-4 | O. March 29, 1888; p. 148 |
| O. Feb. 21, 1881; p. 25 | O. Feb. 6, 1891; p. 19 |
| O. June 13, 1882; p. 165 | O. March 10, 1908; p. 34 |
| | O. July 1, 1908; p. 170-171 |
| | O. April 2, 1909; p. 118 |

4. INSPECTION OF FIRE ESCAPES

- A. June 1, 1885; P. L. 40
A. June 3, 1885; P. L. 68-70
A. May 9, 1889; P. L. 170
O. Jan. 7, 1882; p. 17-22
O. Dec. 30, 1886; p. 344, p. 350
O. Dec. 10, 1896; p. 253
O. April 2, 1901; p. 121

Rules and Regulations of Director of Public Safety Dec. 28, 1906—
Specifications for Fire Escapes.

5. INSPECTION OF THEATRES

- A. May 22, 1879; P. L. 74
A. May 5, 1899; §49, P. L. 217
A. May 23, 1907; P. L. 221

6. INSPECTION OF MOVING PICTURE SHOWS

- O. Feb. 25, 1908; p. 26-28

7. INSPECTION OF ELECTRIC SIGNS

- O. April 12, 1909; p. 118

8. SUPERVISION OF BOILERS AND STEAM ENGINES

- A. May 7, 1864; P. L. 880-881
A. June 1, 1885; P. L. 38
A. March 11, 1891; P. L. 5-7
A. April 18, 1899; P. L. 49-52
A. March 10, 1903; P. L. 21
O. July 13, 1868; p. 328-334
O. Feb. 16, 1882; p. 44-49
O. Jan. 25, 1883; p. 25
O. July 7, 1886; p. 230
O. Dec. 30, 1886; p. 350
O. June 15, 1892; p. 261

9. STORAGE OF EXPLOSIVES AND COMBUSTIBLES

- A. Aug. 26, 1721; Sm. L. 129-130
A. Mar. 28, 1787; Sm. L. 402-403
A. April 4, 1807; Sm. L. 392
A. Feb. 25, 1808; P. L. 76
A. March 14, 1818; Sm. L. 83-85
A. March 16, 1809; Sm. L. 27-28
A. March 16, 1847; P. L. 473
A. April 11, 1848; P. L. 506
A. April 22, 1850; P. L. 539
A. April 8, 1851; P. L. 384
A. April 14, 1851; P. L. 551
A. March 20, 1856; P. L. 137-139
A. May 5, 1864; P. L. 841
A. March 2, 1865; P. L. 262-263
A. March 23, 1865; P. L. 744
A. March 24, 1865; P. L. 749-750
A. March 12, 1866; P. L. 160
A. May 23, 1871; P. L. 1053
A. March 26, 1872; P. L. 575
A. May 15, 1874; P. L. 189
A. April 17, 1878; P. L. 23
A. May 23, 1878; P. L. 102
A. June 10, 1881; P. L. 111
A. June 1, 1885; P. L. 40-41, 54
A. June 11, 1885; P. L. 111
A. June 4, 1901; P. L. 361
A. April 8, 1903; P. L. 156
A. March 24, 1905; P. L. 149
A. June 1, 1911; P. L. 542
A. June 1, 1911; P. L. 554
O. Sept. 23, 1864; p. 361-362
O. June 20, 1881; p. 149
O. Dec. 30, 1886; p. 350
O. April 6, 1892; p. 136
O. April 2, 1901; p. 110-126
O. March 5, 1907; p. 69

10. FIRE ALARM

see c. Inspection of Electric Wiring also

A. Feb. 28, 1865; p. 238

11. BUREAU OF FIRE

A. March 7, 1848; P. L. 111
A. April 11, 1868; P. L. 862
A. June 1, 1885; P. L. 40-41

O. March 15, 1806; p. 397
O. July 5, 1867; p. 238
O. April 12, 1869; p. 143
O. Dec. 29, 1870; p. 592-596
O. Jan. 19, 1871; p. 6
O. Dec. 18, 1871; p. 493

O. April 3, 1883; p. 85
O. June 29, 1883; p. 198
O. July 11, 1884; p. 90
O. Dec. 30, 1886; p. 349-350
O. April 4, 1887; p. 173
O. Sept. 25, 1888; p. 268
O. Oct. 14, 1899; p. 185
O. Dec. 20, 1906; p. 298
O. May 10, 1907; p. 136

12. FIRE MARSHAL

see also d, e, f and i.

A. April 20, 1864; P. L. 515-516
A. June 1, 1885; P. L. 40
A. March 24, 1903; P. L. 48-49
A. June 8, 1911; P. L. 705
(Fire Marshall Law)
A. June 9, 1911; P. L. 746

O. March 25, 1864
O. Dec. 24, 1870; p. 566
O. April 2, 1901; p. 121
O. May 24, 1904

13. FIRE DRILLS

A. May 12, 1911; P. L. 294
A. June 7, 1911; P. L. 677

schools
factories

14. FIRE INSURANCE PATROL

A. May 22, 1895; P. L.

15. FIRE PLUGS—BUREAU OF WATER

O. Sept. 23, 1864; p. 360
O. June 1, 1877; p. 241-242
O. March 17, 1884; p. 38
O. Dec. 30, 1886; p. 350

FIRE WASTE

(Reprint from *Survey* (N. Y.), July 1, 1911.)

The contributor of the following article is president of the Merchant and Evans Company, the Schuylkill Railway Company, and the International Sprinkler Company, and director of the Tradesmen's National Bank, Philadelphia. The conclusions presented are based on his experience as merchant, manufacturer, and engineer, and have the weight of an intimate knowledge of fire prevention and protection engineering extending over the past ten years, together with a comparative study of the subject abroad during the past five years.

As chairman of the fire prevention and insurance committees of the National Association of Manufacturers, the National Hardware Association, the National Association of Credit Men, and the Bureau of Municipal Research, Philadelphia, he has since 1907 been in close touch with the preparation of legislation to control fire waste from the standpoint of the buyer of insurance. The fire marshal law, which has been before the current Pennsylvania Legislature, embodies many of his ideas. It is published in this issue in part.

Mr. Evans made a report on Fire waste of Created Resources at the First Conservation Congress in Washington, in May, 1908, which was later adopted by the National Board of Fire Underwriters as its official utterance on the subject on that occasion. He was a witness before the Legislative Investigating Commission on the subject of Fire Prevention during its hearings in New York the past winter. The great factory fires in New York and Newark give marked timeliness to the facts and views he so vigorously presents.

Fire waste in the United States and Canada is about ten times that of western Europe. It averages broadly \$250,000,000 yearly with \$150,000,000 added expense for protective measures imperatively demanded by this great, continuous, and increasing loss.

The 1910 fire waste would pay the total interest-bearing debt of the country in four years; or would build the Panama Canal in less than two years. In other terms, it exceeds the combined cost of the United States Army and Navy and the interest on the National debt; or nearly equals the combined annual failures and pension payments in the United States; or exceeds the combined United States gold and silver production and Post Office Department receipts—these all annual figures.

It represents about 40 per cent. of either the total unused United States government receipts or total expenditures, or the net earnings of American railways; it represents about 80 per cent. of either the United States Internal Revenue receipts or the United States Customs or the interest paid on the railways in the country. The fire waste of the United States in the past ten years exceeds the amount of gold held in the United Kingdom, Austria, Hungary, Italy and Spain. It is equivalent to wiping out the entire corn crop once every ten years, and exceeds the annual value of wheat, hay, rye and oats. It is twice the annual value of the cotton crop. It costs about \$30,000 for each hour in the year, or \$500 for each minute. It costs, moreover, more than 1,500 lives and 5,000 serious injuries annually.

If all buildings burned last year in the United States were placed together on both sides of a street, they would make an avenue of desolation reaching from Chicago to New York, and although one seriously injured person were rescued every thousand feet, at every three-quarters of a mile a man, woman, or child would nevertheless be found burned to death.

This fire loss averages three dollars per capita in America each year as against thirty cents in Europe. It is absolute loss, and not ever transference of value. It positively does no good to anyone. About two-thirds of this waste in life and property in this country could easily be avoided by means similar to those employed in western Europe, where the loss is about one-tenth of ours.

There are certain conditions in these foreign countries that operate to effect a lower fire loss than would reasonably be possible here, viz.: the larger use of noncombustible materials, due to the higher cost of wood; better building codes, in letter and practice; the lower height and smaller areas involved in city construction; and finally, the intangible influence of older civilizations, which makes people more careful of small savings in all their affairs and generally more cautious than we have yet become.

Allowing duly for these fundamental differences between the countries compared, it is yet apparent that the difference in fire loss in the United States over that of the principal western European countries is outrageously and criminally greater than it should be; and this condition must arise largely from the ignorance, the carelessness, and the indifference of this country's inhabitants. Ignorance, carelessness, or isolated self-interest, when they result in the tremendous sacrifice of life and property now habitually occurring among us from this one cause, become nothing less than criminal.

It has been argued by some that so far in our national development the total gain to national wealth, arising from the permissible construction of buildings below the desirable standard of fire-resistance (thus enabling men with limited capital to engage in business operations without undue expenditure on property), has been greater than if too restrictive building laws had been operative. There may have been some merit in this argument applied to times and conditions which have passed, but we should now unquestionably, on the evidence before us, begin to enforce in our cities, and enforce rigidly, a higher standard of fire-preventive building construction, protection, and occupancy. In many European cities a fire is held substantially a crime, and the owner of the property where it occurs, regardless of size, must report the facts to the authorities and may be penalized.

The world's insurance bill is the measure of its fire waste. In the United States, insurance costs, on the average, about 1 per cent. of the policy value or one dollar per one hundred, with three dollars per capita fire waste; whereas, in western Europe, insurance costs on the average one-tenth of one per cent. of the policy value or ten cents per one hundred, with thirty cents per capita fire waste.

The sound rule follows that, as fire waste is reduced, the cost of insurance automatically falls in proportion, and from this cause only. Insurance is not a commodity in the usual term; it is a tax which distributes the fire waste of the country over its population. It is fundamentally a nation-wide average. About one-half of all insurance premiums collected are returned to the insured for fire losses, and the remaining one-half goes for expense and profits in the insurance business. Unduly numerous or large fires, or conflagrations, swell the total waste bill, and automatically rates rise everywhere within the national boundaries, until the half of all collections is great enough to pay these losses. Every inhabitant of the country contributes an average share of these insurance bills; higher rents, clothing, and food bills; and through them higher credit rates and interest on loans. No one can escape. In the large, it can safely be said that every workman pays this three dollars yearly for every member of his family, through either one or all of these channels.

Those not fully informed on the subject may ask whether the means are known and understood which will operate, if applied, to reduce materially this fire loss. Fire insurance ramifies throughout the life of our country in ways which can be compared to nothing so much as the telephone systems which reach every town and crossroads. The experience of this insurance organization, in the field and in the laboratory

—thoroughly detailed, classified, and digested for years—provides a fund of sure knowledge, which, if widely known and applied, would yield certain results (not conjectured, but proved by large practice over a long period); but this knowledge is now bottled up in a relatively small expert circle and is not widely enough diffused to enlighten, stimulate, and guide the public.

A brief description of this organization and its economic basis will be helpful to the layman:

Insurance throughout the world of commerce is essential for credit in borrowing money in any form or buying merchandise on time. Credit is a derivation from the Latin *credo*, I believe. It is the belief that any obligation will be met as agreed. It embraces the moral as well as the material obligation. Between incurring and meeting an obligation lies that gulf of the unforeseen which we bridge by hope and belief—whose values are measured by our resources, knowledge, caution, courage, energy, and good intent. Yet with all these present in quantity and quality we must still allow for the elements of the unexpected and uncontrollable. The total of these last named, as regards danger from fire, with the further cost and reward for providing surely and adequately against them, results in the cost of fire insurance, which is distributed as a tax over the country at large. It follows clearly and logically that insurance is an essential to sound credit and therefore a general necessity all over the country. Creditors should justly be relieved from the risk of accidental elemental destruction of the basic security, after taking the moral and commercial risk commensurate with the return without such destruction being considered. On such a limitation of risk only can average solvent credits be continuously extended. The borrower who neglects or declines to insure should justly pay the usual charge for credit plus the cost of insurance in each case. Hence the obligation for insurance in all mortgages and deeds of trust, and the wisdom of demanding it on all buildings and personal property and merchandise used as a basis for loans or credits from banks, or generally in commerce.

Therefore, in principle and practice, safe insurance and sound credit are inseparable in solvent commerce, and self-interest as well as this principle have worked to make the use of insurance almost universal.

Insurance abroad is practically all written by stock companies, conducting their business with their own capital, at their own risk and profit, at fixed rates. The policies there are usually for ten years, and by virtue of this long term and their incorporation in mortgages and deeds of trust, the stock

companies are very strongly entrenched and no other system can get a start. In the United States, on the other hand, competitive insurance is obtainable on the best risks (mills, factories, warehouses, etc.) from the stock companies (largely owned abroad) on the one hand, and from the Factory Mutual Fire Insurance Companies (centered in New England) on the other.

The latter considered first—as the simpler organization—consists of about twenty-five companies coöperating through one central inspection bureau, which confines its risks to such buildings as are properly built, protected, and occupied, so as to be only slightly inflammable. The insured pays his assessed rate into a pool and recovers annually as a dividend his *pro rata* surplus over the payment of losses, expenses, and a small investment fund; hence the term “mutual.” This insurance has spread to large dimensions, and is found cheap, careful, and safe.

To meet this particular class of competition, prominent stock companies have combined into factory insurance associations which insure a large amount of like property at a comparatively low “flat” rate.

Stock insurance proper cares for *all other risks*—such as the bulk of city property; mills and factories of construction, protection, and operation below the standard above mentioned; and miscellaneous country property.

On all these last mentioned risks higher tariffs are usually charged, representing the sum of hazards, measured by items, constituting the final rate. The officers, agents, and brokers of the stock companies in different centers constitute survey, inspection, and rating boards. Rates are applied to individual properties by about fifty of these boards, which parcel out the entire country.

The determination of rates is based on facts discovered by local inspections and the application thereto of rules based upon the engineering and commercial data and experience collected by the engineering and business organizations of the insurance business (aided by a technical test laboratory conducted by experts).

It may now be seen more clearly why civic and commercial committees, such as those whose agitations are most familiar, cannot well secure for themselves a reduction in insurance rates, and why the old device of hammering the rate without touching the cause has always largely failed, and always must fail.

It is not a sound effort in that, for one reason, it attacks the effect instead of the cause, and, for another, it attacks an opponent who cannot be caught. Either the committee repre-

sents a trade association, spread over the country and weak at any one point where it meets the local insurance rating power, or it represents any one community attacking one local rating board, which has the support of all the others.

The correct course is not to attack rates, but rather to attack the causes of fire loss which produce those rates. First better conditions, and then let the rate become a commercial question of barter and sale between the business interests purchasing it and the insurance companies selling it. If insurance is made to cost less it must in time inevitably be bought for less. In this field the engineering associations of the insurance organization are already operating. They have been energetic, careful and accurate in collecting data and drawing conclusions on the subjects of fire prevention, protection, and occupancy; but in practice this work is not widely enough known or heeded to make it nearly as effective in reducing fire waste as might now be the case, and as certainly should be the condition for the future.

The National Board of Fire Underwriters, the central organization of the stock insurance interests of the country, was originally the highest rate-making board in the organization; but of late years it has ceased to perform the rate-making function, and now confines its activities to publicity about fire waste and related matters; to promulgating the recommendations of the National Fire Protection Association and Underwriters Laboratories, Inc., about all subjects relating to the construction, protection, and occupancy of buildings; and to the standardization and improvement generally of fire fighting methods and organizations all over the country.

To take up the first of these: The National Fire Protection Association, No. 87 Milk street, Boston, Mass., is composed of about 120 active members, comprising, approximately, fifty stock insurance, local underwriting, rating, survey, inspection, and engineering boards of the stock organizations; the engineering branch of the mutual insurance organization; and a number of non-insurance trade and engineering bodies—of such character as the American Institute of Architects; Electrical Engineers; the American Waterworks Association; the National Association of Credit Men, and the National Association of Manufacturers—in fact, all associations of national scope that may be interested in fire prevention.¹

To go a step further: The Underwriters Laboratories, Inc., No. 207 East Ohio street, Chicago, is jointly conducted by the engineering branches of the stock and mutual insurance

¹All such associations can join as active members at fifteen dollars per year, whereupon the component members of such active members can become associate members of the N. F. P. A. at five dollars yearly and receive regularly their technical data on all fire prevention, protection, and occupancy matters.

organizations. It has the most complete laboratories for its purposes in the world. It continuously collects and systematizes the field observations of the army of insurance inspectors traveling over the country, visiting properties and fires occurring therein, this data comprising the widest range of actual observed experience on the subject.

It further conducts continual tests of materials, equipments, and methods concerning the construction, protection, and occupancy of buildings—paralleling in these tests as nearly as possible actual working conditions. If a manufacturer desires to place a new device on the market he must first have it tested and approved by the Underwriters' Laboratories, and this approval must be promulgated by the National Fire Protection Association and published by the National Board of Fire Underwriters before it can be used in any building in the country without being penalized by a rise in insurance rates. For example, approved electric cut-out switches for ordinary lighting service remain in good condition after having been worked, say, 100,000 times. A new switch presented at the Chicago laboratories is coupled to a continuously operating machine and subjected to ordinary wear of this extent. If it falls short in any respect, the manufacturer is required so to perfect it as either to equal or excel existing devices, before it can be put on the market. A like course is followed with a new automatic sprinkler device, a new acetylene light generating apparatus, or a new method of storing bulk gasoline—with the result that the standard of all materials entering into the construction and protection of buildings, which are permitted to be used without penalization through a rise in the insurance rate,² are not only kept up to a known degree of excellence, but are constantly improving.

Reference has several times been made to the terms, construction, protection and occupancy of buildings. These constitute the alpha and omega of fire waste control.

CONSTRUCTION covers the form and complete specifications of the building itself and embraces the height of structure, the fire-control areas, the elimination of concealed spaces and exposed vertical openings, and generally of avenues for the spread of flames within the building; the character, form, and strength of materials, the elimination of such as are inflammable, the provision of fireproof roofing and wire glass in safe metal frames; and generally determines all details of the nature, amount, and form of materials that will endure for the use intended and under possible heat and water exposure caused by conflagration.

²All approved appliances are included in the published lists of the National Board of Fire Underwriters, and most of them can be identified by labels attached to them, which may be secured by agreement from the Underwriters Laboratories by manufacturers of the various appliances.

Careful investigation by the United States Government, and by the insurance organizations, of the Baltimore, the San Francisco, and the Chelsea conflagrations prove conclusively that proper buildings can now be erected at reasonable cost in any city for any purpose and yet meet all the necessary conditions above outlined. Yet owners and designers who principally control the matter, are not on the average sufficiently guided by these considerations, although perfectly constructed and protected buildings can now be erected in concrete for from twenty cents in the city of New York, down to six cents in country towns, per cubic foot.

PROTECTION.³ Next in importance to the nature of the building itself, for limiting successfully comprises the risk of fire either within or without, comes the problem of equipping it properly to give the alarm and to extinguish fire if it occurs. The automatic sprinkler is the most important of these agents and an absolute essential for low rate insurance for buildings and contents. It has become a legal requirement, in many states, in theaters, and other buildings for large assemblages, and for dangerous parts of hotels; and its use should certainly become obligatory in all cellars in congested city areas, and in all buildings, including those used for offices, of height beyond successful control of fire streams from the ground. The sprinkler system includes its own water-supply and covers the entire interior of the building—operating without human aid at the time and point of fire while at the same time sounding an alarm.

A special form of sprinkler is also employed for the exterior protection of dangerously exposed buildings. Next comes the Thermostat (automatic alarm) system; the stand-pipe (water-supply); and Chemical (liquid) extinguisher.

OCCUPANCY. This term covers two subjects: first, the nature of any business, and second, the manner in which any business is conducted. This last meaning is best expressed by the term "housekeeping" as applied to the home or the factory. It covers the whole rationale of thoughtful, thrifty, and cleanly living in buildings so as not uselessly to cause fire. For example, rubbish-filled cellars, halls, and adjacent yards were, according to former Fire Chief Croker, responsible for 3,000 out of 12,000 fires in New York city in 1909. Last year in Chicago 1,000 fires were directly traceable to the use and abuse of the match. Uncovered lights near curtains are a cause of a constant series of fires, easily and cheaply removable by means of wire globes. Defective flues cause thirteen per cent of all fires throughout the country, nearly fifty per cent of the fires in buildings in the South arising from this cause.

³The following consideration of fire-protection excludes that meaning of the term which comprises the fire-fighting department of cities, including the water-supply, and the fire engine and patrol equipment with their appropriate organization.

The term occupancy includes not only the many things one should not do, but the things that should be done, such as systematic fire drills in schools and factories, which will insure that in the outbreak of fire and the ensuing excitement a quick orderly retreat of those in danger can be effected.

It is incumbent upon architects, engineers, and building inspectors all over the country thoroughly to educate themselves in the engineering solution of these problems because of the general reliance placed on their supposed information on and attention to the matter. When planning or repairing any building, or installing heating, lighting, cooking apparatus, or lightning rods, send an inquiry to the National Fire Protection Association, No. 87 Milk street, Boston.

Investors in new buildings should require of their architects and engineers, before contracts are let, submission of plans for criticism and suggestion, both as to the details of construction and protection, to the National Fire Protection Association or one of its active members.

Owners and tenants of old buildings should invite inspections and re-rating by the local insurance bureau, which will disclose the various danger points in the construction and protection of their properties. It will be found, in a large proportion of existing buildings, that a reasonable expenditure to eliminate vertical openings, concealed spaces, unduly large areas, defective lighting and heating apparatus, etc., will pay for itself in anywhere from one to five years, by reduced cost of insurance alone, not to speak of the reduced risk of interference with business and reduced danger to life. Such inquiry concerning large buildings or groups of buildings should invariably be addressed to both the mutual and stock organizations, and cover points of construction and protection, if the fullest information about the reduction of possible risk is desired.

In general, complete data on all these points are obtainable by application to the secretary of the National Fire Protection Association in Boston. It may safely be stated that these facts and observations, collected and analyzed by the above described machinery for many years, are very complete and certain, and if they were ascertained and employed by owners, engineers, architects, and builders generally through the country—for the improvement of existing buildings and the construction of new ones,—there would undoubtedly follow a gradual and continuous reduction in fire waste.

As this course is not voluntarily pursued by all concerned, it becomes the duty of the several states, and of the municipalities within these states, through the medium of fire marshal laws and municipal ordinances and inspections, to enforce the

betterment of fire waste conditions by compulsion. The several states, and further their municipalities, should adopt and firmly enforce from this time on minimum requirements covering the construction and protection of new buildings, the improvement and protection of old ones, and the occupancy of all.

Let me enlarge, therefore, upon the public's relation to fire waste and its control.

The manner of safely constructing, protecting, and occupying almost every character of building everywhere is surely known, and in detail. The trouble is that this knowledge is not widely enough spread—even by those charged with such knowledge—such as architects and engineers, and that it is shamefully neglected for every sort of reason by many who possess it.

These remarks justly apply to the owners and occupants of the average building; to the architect and engineer who design buildings; to the builders who erect them; to the insurance manager, agent, and broker supposed to scrutinize them; to the municipal officials supposed to inspect and safeguard them; and to the state officials over them all.

The continued ignorance and indifference, or worse, of building owners, occupants, designers, constructors, and inspectors does not make for any higher standard for fire preventive and protective methods, and there are no widespread and effective mandatory laws limiting the evil; hence the fire waste continues not only at the present rate but at a rising one.

The insurance interests considered in their entirety have limited public influence; no power other than imposing a high rate; and are in a measure, because of their own commercial interest, indifferent to present fire waste. It would appear to the layman at first glance that less fire waste would be welcome to the insurance business, yet the insurance influence by and large is far from making a united effort to reduce it. So long as an insurance company does not have to pay out more than fifty per cent. of its premiums for fire loss, the unit profit is good. Therefore one-half of a high rate nets a greater final profit than the same proportion of a low one. Hence the automatic yard-stick rate-schedule which companies apply to any property, which totals up the final rate in each case—having regard to the building, contents, and location (exposure hazard). This might result in a premium as low as ten cents on new mills, and stores (not contents); or as high as ten dollars per one hundred dollars on Southern woodworking mills. Many insurance managers actually prefer the higher rate and risk as making higher possible earnings for the com-

pany and permitting a higher absolute payment to the broker, thus enabling the manager to produce a larger net annual profit, and to interest and hold a better line of brokers through whom to distribute his contracts of insurance.

The broker, who gets from ten per cent. to thirty per cent. of the premium, objects even less to the higher rate—although, as we have seen, it inevitably means higher risk and more chance of fire, and in fact more fire waste; so the destruction continues.

The average municipal building code throughout the country is obsolete, and even so is unequally and imperfectly enforced. A few years ago I collected copies of the building codes of most of our cities. They constitute a mass of disordered, undigested, and conflicting rules. In the matter of fire danger there is little difference, except in magnitude and congestion, among most of our cities, and for cities of a given size a uniform building law should be adopted and enforced.

Questions of altitude, latitude, longitude, local policies, or conditions of any sort do not enter in, save only as to size, character and density of buildings. The United States government could and should investigate authoritatively a proper building code for adoption by municipalities all over the country, elastic enough to be applicable to every sized city and town. There is neither present machinery, appropriation, nor constitutional authority for the federal government to impose such a code on the country; but it could study, and formulate, and impose a code on the city of Washington, which would be its authoritative conclusion on this subject broadly enough considered for national use. All persons and interests favoring a reduction of the fire waste in the country should exert their influence upon the national government to this practical end. The several state governments could then be influenced to adopt this national municipal building code, and as far as possible influence its adoption in turn by the municipalities within their borders—a perfectly legal, practical, and reasonable method of bringing into being a uniform municipal building code all over the country.

The enforcement of the building code in any city is usually accomplished through the medium of the permit and inspection bureaus, and in many of our cities these are under cover and not free to the observation of the average citizen. Here is where graft may enter. The law itself may be good (and an attempt is usually made to concede this to the public because he who runs may read it) but if that law is not honestly and actively applied and enforced what good result can come from it? It is necessary that the individual taxpayer shall have the right to know that these permits and inspections

are honestly and efficiently handled. If any man wishes to know whether his neighbor's cellar is cluttered with refuse, the contents a fire-trap constantly menacing his life, property, and business; or whether it holds stores of spirits or benzine or gunpowder in defiance of the law against such acts—let any one try to find out the truth in some particular instance—he will find that it is almost impossible to get at such facts under current laws and ordinances.

Few know the risk in our cities to-day of some Tarrant explosion, because some individual is permitted by carelessness or worse, and in secret for his own self-interests, to follow the dangerous course of storing explosives within thickly populated areas. Such instances as the Slocum disaster in New York harbor; the Iroquois Theater fire in Chicago; the Boyertown, Pa., theater holocaust; the Collinwood, O., school horror; the Newark factory fire of November 26, 1910, where twenty-six were killed, and the Washington Place disaster in New York where 145 were killed; and numberless fatal fires in factories, hotels, stores, residences, and every sort of place of assemblage should make all citizens realize how constant is the life danger from present fire loss conditions to themselves and their families, apart from and above the money loss involved.

Proper regulations may not exist, may not be applied or enforced; and all three or any one of these loopholes constitute a great and ever-present danger everywhere.

The average American state has no machinery whatever at work on the subject. The situation is one of the unsolved anomalies of American life—that a nation of such keen and educated individuals should be so thriftless in so important a matter—fully known, generally burdensome and deplored, solved in principle, yet wantonly neglected in practice.

Under these actual conditions, unless and until the more intelligent and enlightened element of the public in the several states formulates, proposes, and insists successfully upon the enactment of restrictive laws on this subject, the fire waste of life and property in the United States will continue.

State fire prevention laws are and have been for some years in highly beneficial operation in some states, and their scope and results are clear. Witness the effect of the law in Ohio, where in six years fire waste has dropped from approximately \$11,000,000 to below \$7,000,000, with like reduced life loss and arson, and with greatly reduced insurance cost—all with insured values doubled. Wisconsin has had like experience during the past three years.

Such legislation should cover the following main considerations:

1. Insurance should be stable, as the average policyholder is ignorant about the credit of the insuring company and assumes its soundness; hence the state should rigidly inspect and regulate the financial reliability of any insurance companies allowed to issue policies.

2. Insurance should be written by a simple and sound contract—uniform among the several states as far as possible—to protect the small policyholder who is not sufficiently informed to protect himself and not sufficiently protected by insurance companies, agents and brokers.

3. Insurance should only issue honestly and intelligently on any property, hence the broker and agent should be examined and licensed by the state as to responsibility and capacity.

The above three points cover the minimum requirements of a legal and financial character.

4. As property owners generally have not been sufficiently controlled by their own best interests, or the interest of the common welfare, to use known means to correct fire waste conditions, the state can no longer decline or neglect to protect its citizens against fire arising from improperly constructed, protected, or occupied buildings.

This end can best be attained through the operation of a good fire marshal law whereby central authority and responsibility can firmly control the problem in each state. The substance of the state fire marshal and related acts introduced this year in the Pennsylvania legislature is given in the following columns. Laws of like tenor are now also before the New York Legislature. Their provisions, reasonably modified for each state to conform with its local and constitutional conditions, would together with a sound building code provide effective control of this matter for any state or city—provided such regulations were diligently administered by a competent and faithful personnel. To this end the publicity provided in these acts is of the greatest importance as giving the public opportunity to watch the equal and faithful enforcement of the law.

The Pennsylvania bills, as introduced incorporated the best provisions found in laws which have been operating in several states for some years, together with important suggestions brought out in the investigation of the subject conducted in the past year by the New York Legislative Investigating Committee, and also certain further proposals which to the writer's mind will make the measures more effective in practical operation. I am not one of those who believe in more law—less, if anything, is needed—but surely none can object to replacing obsolete and inadequate laws which have accumulated for years with simple, modern, and effective statutes.

The fire marshal's act would

Establish the office of state fire marshal, give courts the power to punish witnesses for contempt of his authority and to review his orders, and make it the duty of officers of public instruction and persons in charge of public or private schools to instruct children as to the dangers of fire and the prevention of fire waste.

The fire marshal is to be appointed by the governor for a term of four years; he shall give his entire time to the work at a salary of \$5,000; shall in turn appoint a chief assistant fire marshal at \$4,000, and two deputies at \$3,000 each, which with clerical assistance would provide a central organization which in number and remuneration are reasonable when the area of the state is considered. The *Journal of Commerce and Commercial Bulletin*, New York, in an editorial on Fire Prevention in the issue of Wednesday, March 29, comments on the Washington place (Asch building), New York, fire of recent date, and lays clear and pronounced emphasis on the bad feature of decentralized fire control in the existing organization of the New York city government. This mistake should not be allowed at this time in any state or city. The fire marshal should have the same concentrated control over buildings existent and future as regards fire danger, as the health department now has as regards sanitation; and the plan is equally practicable and workable.

For quite as important as centralization of authority is the adequacy of assistance to the headquarters staff, so that the whole area can be covered promptly. Authorities all over the country agree that firemen, active and retired, should, as far as possible, inspect the properties they protect, both to know them in case of fire and to prevent in advance conditions which lead to fire. The Pennsylvania statute would make them assistants to the state fire marshal to this end, limiting their work, however, to such as may reasonably accord, in the mind of the state fire marshal, with their pre-existing public duties. As firemen cannot cover all the inspection work, the fire marshal should be empowered to charge city and state building and factory inspectors with watching the fire hazards as his assistants. These powers are set forth in the section following:

Section 3. *All fire marshals* in any county, city, borough, township, school district, or other municipality or incorporated district having such officers, or where no such officer exists, the *chief of the fire department thereof*, where such fire department is established, or where no such fire department exists the *chief executive officer* of such county, city, borough, township, school district, or other municipality or

incorporated district, together with all building permit and inspection officers or deputies or assistants thereof, and *all factory inspectors or deputies or assistants* appointed under any law of the commonwealth of Pennsylvania, shall be by virtue of such office held by them assistants to the state fire marshal, and subject to the duties and obligations imposed by this act, and subject to the directions of the state fire marshal in the execution of the provisions hereof. The state fire marshal may also appoint *individual citizens as assistants*,⁴ who shall be subject to the duties and obligations aforesaid and to the directions of the state fire marshal. Immediately upon taking office the state fire marshal shall prepare instructions to the assistant fire marshals, and forms for their use in the reports required by this act, and shall cause them to be printed and sent together with a copy of this law to each such officer in the commonwealth.

The duties of these assistants are set forth as follows—in terms substantially as adopted in the proposed New York act and as they have tended, under the state fire marshal systems of Ohio and Wisconsin, materially to reduce arson.

The assistants of the state fire marshal shall investigate the cause, origin, and circumstances of every fire occurring in this state, by which life or property has been destroyed, damaged, or endangered, and so far as possible shall determine whether the fire was the result of design or carelessness. Such investigation shall be begun immediately upon the occurrence of the fire by the assistant in whose territory it has occurred, and if it appears to the assistant making such investigation to be of suspicious origin, the state fire marshal shall be immediately notified of such fact. Every fire occurring in this state shall be reported in writing to the state fire marshal within ten days after its occurrence, by the assistant in whose jurisdiction it occurred. Such report shall be in the form prescribed by the state fire marshal, and shall contain a statement of all facts relating to the cause and origin of such fire that can be ascertained, the extent of damage thereof, the insurance upon the property injured or destroyed, and such other information as may be required.

The crux of important powers of inspection, obtaining evidence, and ordering changes in the direction of preventing fires are to be found in the following sections:

Section 5. The state fire marshal, his deputies or assistants, upon the complaint of any person, or whenever he or they shall deem it necessary, shall inspect the building and premises within their jurisdiction.

Whenever any of said officers shall find any building or structure which, for want of repairs or by reason of age or

⁴Fees of fifty cents for each fire reported, and forty-three for each day's service, are provided for assistants not receiving salaries for public duties.

dilapidated condition, or for any other cause is especially liable to fire, and so situated as to endanger other property, he or they shall order the same to be removed or remedied, if the same is reasonably practicable, thereby lessening the danger from fire.

Whenever such officer shall find in any building combustible or explosive matter or inflammable conditions which are in violation of any law or ordinance applicable thereto, or are dangerous to the safety of such buildings, thereby endangering other property, he or they shall order the same to be removed or remedied, and such order shall forthwith be complied with by the owner or occupant of such premises or building.

If such order is made by a deputy or assistant of the state fire marshal, such owner or occupant may within five days appeal to the state fire marshal, who shall within ten days review such order and file his decision thereon, and, unless by his authority the order is revoked or modified, it shall remain in full force and be obeyed by such owner or occupant:

Provided, however, that any such owner or occupant who feels himself aggrieved by such order may, within five days after the same has been affirmed by the state fire marshal, file his petition with the Court of Common Pleas of the proper county, praying a review of such order and it shall be the duty of the court to hear the same at the first convenient day, and to make such order in the premises as right and justice may require.

Any owner or occupant failing to comply with such order within ten days after said appeal shall have been determined, or, if no appeal is taken, then within twenty days after the service of the said order, shall be liable to a penalty of twenty-five dollars for each day's neglect thereafter. The service of any such order shall be made upon the occupant of the premises to whom it is directed by either delivering a true copy of same to such occupant personally or by delivering the same to and leaving it with any person in charge of the premises, or in case no such person is found upon the premises by affixing a copy thereof in a conspicuous place on the door to the entrance of the said premises; whenever it may be necessary to serve such an order upon the owner of premises, such order may be served either by delivering to and leaving with the said person a true copy of the said order, or, if such owner is absent from the jurisdiction of the officer making the order, by mailing such copy to the owner's last known post-office address. The penalties herein provided may be recovered as debts are by law collectible in any courts having jurisdiction of the parties. Such action shall be brought in the name of the commonwealth, under the direction of the state fire marshal or any of his deputies or assistants, by the attorney general or by any district attorney or legally constituted law officer of any county, city, borough, township, or other municipality,

who may be designated by the attorney general, or at the option of the attorney general he may designate any attorney to bring such action.

Section 6. The state fire marshal or his deputies, in addition to the investigation made by any of the assistants, may at any time investigate the origin or circumstances of any fire occurring in this commonwealth. The state fire marshal, his deputies and assistants, shall have the power to summon witnesses and compel them to attend before them, or either of them, and to testify in relation to any matter which is by the provisions of this act a subject of inquiry and investigation, and may require the production of any books, papers, or documents deemed pertinent or necessary to the inquiry, and shall have the power to administer oaths and affirmations to any person appearing as a witness before them; such examination may be public or private as the officers conducting the investigation may determine. (Here follow the usual powers to compel evidence and the usual powers to punish recalcitrant witnesses in accord with Pennsylvania practise.)

The state fire marshal or his deputies or his assistants may at all reasonable hours enter any building or premises within his or their jurisdiction for the purpose of making an inspection which, under the provisions of this act, he or they may deem necessary to be made.

Of even larger educational importance in the long run are three sections which would provide for a permanent system of keeping records, now practically non-existent or unobtainable; for semi-annual reports by property owners, automatically rendered in paying taxes; and for an educational scheme for the public schools, in line with the well known Reed law of Ohio. The sections follow:—

Section 8. The state fire marshal shall keep in his office all records which may be sent him in accordance with law, relative to the physical condition of buildings, whether the laws and ordinances have been complied with so far as the same relate to fire protection, records of application for fire insurance upon any buildings or other information relating thereto, which may be sent him in compliance with law, and shall also keep a record of all fires occurring in this state and of all the facts concerning the same, including statistics as to the extent of such fires and the damage caused thereby, and whether such losses were covered by insurance, and, if so, in what amount. Such records shall be made daily from the reports made to him by his assistants under the provisions of this act. All such records shall be public except that any testimony taken in investigations under the provisions of this act may be withheld from the public in the discretion of the state fire marshal.

Section 9. It shall be the duty of the state fire marshal to prepare blank forms for the furnishing of information by

owners or occupants of buildings throughout the commonwealth of the condition of such buildings with regard to fire protection. The said blanks shall contain notice to such property owners or occupiers of proper rules and regulations to minimize the danger of fire and to suppress fire waste, and shall contain certain questions requesting information of a definite character to show the condition of the buildings as aforesaid. These blank forms shall be furnished by the fire marshal to officers whose duty it is to receipt for taxes on real property in every part of the commonwealth, to be given by them to property owners, together with their tax bills (two forms for each property), with the requirements that one properly filled out be forwarded to the state fire marshal at once for filing among the records of his office, and that the other be so forwarded six months thereafter.

Section 10. It shall be the duty of the fire marshal to prepare in consultation with the superintendent of public instruction books of instruction for use in the public and private schools of students of all grades with regard to the dangers of fire and the prevention of fire waste. It shall be the duty of the superintendent of public instruction and of the principals or other persons in charge of the various schools in this commonwealth to provide for the instruction and training of pupils of such schools by means of drills, so that they may in sudden emergencies be able to leave the school buildings in the shortest possible time without confusion or panic. Such drills shall be held at least once a month when the schools are in session. Books of instruction with regard to the dangers of fire and the prevention of fire waste as above specified shall be published at the expense of the state under the direction of the superintendent of public instruction, and shall be distributed in sufficient quantities for the use of the schools as herein provided, and the curriculum of such schools shall include some regular and continuous study of such subjects during the entire school year.

Other sections would provide for an annual report by the fire marshal, for the preparation before the next session of the legislature of a "standard fire insurance policy" (most important to assure property owners a sound and simple insurance compact), and a standard building code for adoption by municipalities. The American Bar Association has through its committee on insurance law and its allied commission on uniform laws emphatically urged uniform legislation on this entire subject.

A companion act would provide support for the fire marshal's office (estimated at \$60,000 annually) by taxing the gross receipts of fire insurance companies one-fourth of one per cent on business done within the commonwealth. This is the Nebraska rate; the Ohio rate is one-half of one per cent. As the fire marshal reduces fire waste, the

fire loss will decrease, which will first produce an important saving in the insurance payments for this loss; and this saving will be so great compared with this tax, and will come so directly from the control of the fire marshal organization, that the burden of its maintenance should rest primarily on the underwriting business. A further supplementary act would require the insurance organizations to report annually to the state fire marshal the total amounts they have at risk: more important, it would require every association or rate-making bureau to supply the state on request with reasonable data in its possession as to the physical condition of properties in the state. The unincorporated insurance bureaus possess practically all the physical data about buildings in the state and the application to these of the insurance schedule ratings (25,000 properties are listed in Philadelphia alone). These data are the accumulation of years. This cost has been included in the expense of administration of the insurance business. This expense has been an item in the determination of insurance premiums which have been collected from the public. Hence these data belong to the public, and hence to the state; hence the state fire marshal should be entitled to these data to guide his office in decisions about properties in detail. The insurance companies do not appear to object to this regulation. Any movement actually to better fire waste must start at the property, which means the procural of a volume of data about property all over the state in detail.

Finally, we have offered an amendment to the present insurance law providing for the licensing of insurance brokers and agents. Students of fire loss, and of insurance as related thereto, recognize two powerful influences at work adverse to the reduction of fire waste. As already noted much insurance is written on the broad idea that property is taken as found and assessed at a rate measured by the existing hazard. This means higher insurance, but so long as half of this premium is saved the total net revenue to the underwriter is better than if the property were improved and lower priced insurance were written. The underwriter, however, is always so deeply interested in the solvency of his company as necessarily to control fire waste in as large measure as possible. The broker on the other hand, whose income is derived from the commissions from the premiums written, would naturally, in principle, prefer high rates (which means high fire hazard) with less regard to the solvency of the company than the

underwriter on the one hand, or the destruction of the property by fire than the owner on the other.

It is therefore imperative that the state should carefully license the distributors of insurance policies to property owners, and should assure that only reputable and competent individuals are authorized to conduct such business. As preliminary to a license, a broker must pass an examination prepared by the state fire marshal and insurance commissioner, and give satisfactory evidence as to his moral character. Brokers shall be deemed to be agents of the insured for purposes of procuring insurance, and agents of the company for purposes of collecting premiums. Payments of premiums to brokers shall be deemed and held as payments to the company.

Outside these insurance reforms, and the provisions centralizing responsibility for knowledge of fire conditions in a state office to which would be given important powers of prevention, and which would provide for widespread educational measures, it will be noted that these Pennsylvania bills would enable volunteers to offer their services and become effective workers in the effort to reduce fire waste.

Every man and woman in the country should be an ally of this movement; should become posted about the facts in the case; should have under law authority to report any dangerous or illegal conditions noted in any building, anywhere and at any time, to the proper authorities; and should be able to require prompt, effective, and reasonable correction—just as agents and members of the Society for Prevention of Cruelty to Animals can now inquire into and resist on the spot abuses of that nature.

This article was written during the session of the Pennsylvania legislature just closed. Mr. Evans is in Europe. The fire marshal bill became a law practically as proposed and embodies in a general way all of Mr. Evans' suggestions. The companion act providing for a revenue by taxing insurance companies failed of passage and no substitute measure was adopted, so that the cost of the fire marshal's office will have to be met by the general state revenues. The amendment offered providing for the licensing of insurance brokers and agents did not pass. In the form in which they were introduced, the bills presented a rounded program of legislation.

The New York Legislature also has passed a state fire marshal's bill and, as this issue goes to press, it is awaiting the Governor's signature. This bill does not apply to New York City, where the fire prevention problem will be handled, if any one of three measures passes, by a Bureau of Fire Prevention, to be established in the Fire Department.—Ed.

The final duty of the average householder throughout the land before retiring to rest is to look at the fire or furnace in his house. The fact that this danger is so ever present tends in itself to limit opposition to it, because the fear of it is a habit and in a measure subconscious; but the moral support of the country, which is the basis of

every great movement, could beyond question to my mind be rapidly and effectively organized to oppose present fire waste.

The frequent, irregular, and unrelated newspaper comment on fire losses shows the disposition of the daily press in the matter and its aid could doubtless safely be counted upon to disseminate regularly more systematized information, when the need of a thorough educational campaign on the subject is made clear. I trust that state fire prevention associations will spring up all over the country, formed of and supported by citizens generally to co-operate with the growing list of fire marshals in an effort to reduce American fire waste.

With the premise admitted that we as a people know how to construct, protect, and occupy buildings reasonably immune from fire waste, it follows that the great bulk of present fire waste is largely preventable. A group of city buildings reasonably correct in construction, protection, and occupancy suffers less from fire hazard than if deficient in these three respects; a block of buildings correct in these respects is more proportionately safe from the fire hazard than any one group; while an entire city properly constructed, protected, and occupied in practice cannot burn. That such conditions can gradually be brought about—the fire map of Boston proper shows even to-day, in the gradual extension of fire-proof structures over crucial areas. It is the truth in this thought which was the basis for that provision of the Napoleonic code, still the fire insurance law of France, which provides that the individual must in a measure insure his neighbor as well as himself against fire loss.

Pennsylvania (State) and Philadelphia (City)

FIRE MARSHAL LAWS

Following Are Selections from Current Newspaper and Pamphlet Comment on These Two Acts of Legislature

PLEADS FOR STATE BUREAU TO CHECK MENACE OF FIRE

Municipal Research Expert, in Address at Bourse, Appeals for Support of Pending Legislation to Protect Life and Property

"Owners evade expense in building; engineers and architects are often not fully posted, or they are too indifferent or too lenient with their clients; insurance boards have limited influence and no power; the municipal building and inspection bureaus, fire departments and state factory inspection bureaus only partially co-operate or control, and are often jealous and even in conflict. There is no centralized authority, no centralized responsibility."

In these words, Powell Evans, of the board of trustees of the bureau of municipal research, summed up yesterday conditions as they exist in Pennsylvania with regard to the fire menace. Mr. Evans spoke to a representative body of men in the Bourse, and urged them to exert their influence to have passed the bills now pending in the legislature, providing for the establishment of the office of a state fire marshal and the licensing of insurance brokers and agents.

CONDEMN DIVISION OF RESPONSIBILITY

He declared that lack of intelligent precaution has been responsible for the loss of thousands of lives and the destruction of millions of dollars' worth of property, and he said that the scattering of responsibility among numerous officers and bureaus operated to destroy any semblance of precaution.

"There is," he declared, "a riot of indifference, incompetence and sometimes graft; lack of authority, conflict of authority. Such authority as does exist is so discentered as to make the placing of responsibility impossible. And over all is a criminal gambling on the chance of fire, with its horror and suffering and waste. Nowhere is there any mandatory order for any one to do anything to prevent fire waste.

"There should be a central state officer clothed with authority, and he should be placed in the state capitol. He should exercise as much power over the construction, protection and occupation of buildings to prevent fire waste as the state health department now exercises in its line." * * *

Among the organizations and firms represented at the meeting were the State Association of Architects, the bureau of municipal research, Corn Exchange National Bank, bureau of building inspection, Philadelphia Fire Underwriters' Association, Philadelphia Credit Men's Association, Pennsylvania Association of Mutual Fire Insurance Companies, Firemen's Association of Pennsylvania, Royal Knitting Mills Company, Merchants and Manufacturers' Association, Chamber of Commerce, Tradesmen's National Bank, Pennsylvania Bankers' Association, Builders' Exchange, Perry & Co., Biddle Hardware Company, Folwell Brothers & Co., Young, Smyth, Field Company, V. H. Smith & Co., Board of Trade, City Club and the Merchant & Evans Company.—*Philadelphia North American*, April, 1912.

SHIRTWAIST WORKERS DISCUSS FIRE PERILS

Saying that a number of shirtwaist factories in this city are dangerous, because of lack of precautions for averting fires, members of local No. 15, of the Ladies' Shirtwaist Makers, passed resolutions last night deciding to appoint a committee of five to investigate. More than 1000 workers attended a meeting in the Labor Lyceum, at Sixth and Brown streets. Miss Pauline M. Newman, organizer of the union, conducted the meeting, and the speakers included Isadore Dornblum, organizer; Miss Rose Schneiderman, of New York, vice president of the Woman's Trade Union League of New York, and George W. Aurich, a fireman of Truck No. 4, this city.

Fireman Aurich told the employes of the factories that many of them were unsafe through the large quantities of scraps on the floors, and told them if they wanted to help protect themselves, to stop smoking cigarettes at their work. He said that each factory should have a fire drill at least once a week, and that the employes should see that the water buckets were kept filled and the fire hose in good condition.—*Philadelphia North American*, April, 1912.

URGE RIGID LAWS TO PREVENT FIRES

Merchants and Insurance Chiefs Point Out Need of Marshalls, Indorse Pending Bills

Necessity of more stringent fire-preventive legislation in this State was emphasized at a general meeting of merchants, trade and insurance associations, which was called together at the Bourse yesterday afternoon.

Powell Evans, chairman of the Fire-prevention Committee of the National Association of Manufacturers, occupied the chair, and among those active in the organizing movement for the meeting were N. B. Kelly, of the Chamber of Commerce; Richard Waterman, of the City Club; Charles A. Hexamer, of the Fire Underwriters; Louis S. Amonson, W. R. Tucker, of the Board of Trade; C. H. Johnson, Master Builders' Exchange; Edward F. Henson, Arthur Freeston and George W. Aurich, representing the city fire department.

Chairman Evans, in opening the meeting, called attention to four bills now before the Legislature at Harrisburg providing for a State fire marshall with incidental taxation; also dealing with fire insurance rates and licensing brokers and agents. He decried the great waste and loss now due to fires in the city and State, and was confident that present conditions could not be remedied without centralizing power and responsibility for general preventive measures in such form as provided in the law creating a State fire marshall.

Louis S. Amonson called attention to the startling fact that fire waste costs each man, woman and child in this country \$3 a year, while in Europe the per capita rate is only 30 cents. In Berlin, with 2,000,000 people, the annual fire loss is only \$175,000, while in Philadelphia it exceeds \$2,000,000. He contended that a State fire marshall law would result in a codifying and improvement of our present preventive measures, especially in the matter of inspections. Among other acts which would be made criminal offenses would be the careless throwing about of lighted matches and cigars, as in the case of the recent fire in New York, where a cigarette fiend had apparently caused the loss of 144 lives.

USE OF FIREMEN FOR INSPECTION

George W. Aurich, of Fire Truck No. 4, who has been specially assigned to inspection work, pointed out the results of a recent tour around town, where dangerous violations of the fire laws regarding traps at stairways were ob-

served in many factories. He believed that it would be a good thing for the city when the firemen were more commonly used for inspection service, instead of sitting around the fire houses.

Among others who spoke were W. R. Tucker, C. H. Johnson, C. Elwood Wagner and D. K. Boyd, of the State Association of Architects. At the end of the meeting the following was unanimously adopted:

“Resolved, It is the sense of this meeting and of the individuals composing it that sound city and State fire marshal laws should be enacted by the present Legislature. And it is the further sense of the meeting that the bills, with attached notes, with printed pamphlet, dated March 30, 1911, substantially cover the measures required.”

It was also agreed by representatives of the various trade bodies present at the meeting that united pressure would be brought to bear upon the Legislature to obtain the passage of the preventive measures now under consideration there.

Chairman Evans said after the meeting that a deputation of Philadelphia business men would in the near future wait upon the Legislature to secure the most advanced fire-preventive laws available for the protection of the city.—*Philadelphia Record*, April 1, 1911.

FIRE MARSHAL BILLS

STATE OF PENNSYLVANIA AND CITY OF PHILADELPHIA

The following is the brief history of these bills taken from a widely distributed pamphlet issued by Mr. Powell Evans in April, 1911, for a meeting of approximately 50 trade bodies called by him at the Bourse, Philadelphia, to organize support for the measures then before the Pennsylvania Legislature.

The introduction follows:

*To Owners and Occupants, Architects and Engineers, Contractors and Inspectors of Buildings in the United States.
Everywhere and All the Time*

READ! STUDY! AND PRESERVE!

THIS PAMPHLET

URGE SUCH LAWS EVERYWHERE

Just State and City Fire Marshal Laws, and Building Ordinances; Continuously enforced by rigid and honest Inspectors; with Complete Publicity, will correct this needless

waste continuing at an increasing rate at the cost of the whole population, throughout the country.

Fire Waste in the United States, *in life and property* is more than *twice as large as necessary*, measured by a study of the facts at home and abroad.

All students and authorities agree on this statement!

Fire Prevention and Protection is the cure for this criminal condition!

Make fires impossible or harmless, and the useless waste of life and property will cease!

Other facts given were commented upon in part as follows by the *North American* (Phila.) in an editorial dated April 20, 1911. Noting the then recently announced Croker Bureau in New York:

"The need for fire prevention is not a discovery of Edward Croker. He simply has devised a practical method of providing what has been demanded for years by the most enlightened business men of America, notable among them being Powell Evans, of Philadelphia.

We are indebted to Mr. Evans for some of the statistics already used. We find nowhere any better summary than his of the conditions that the Croker plan is meant to remedy:

Pennsylvania fire loss averages \$10,000,000 per annum, compared with total insurance premiums of \$25,000,000, reported at Harrisburg. About one-quarter of waste and value lie within the city of Philadelphia.

All facts prove:

First—That United States fire waste is outrageously high (average over \$3 per capita, against about 30 cents in western Europe).

Second—That it is easily reducible here by known courses of action (Ohio fire waste reduced from approximately \$11,000,000 to below \$7,000,000 in last six years under control of state fire marshal, although for same period insurable values in Ohio doubled; similar record in Wisconsin and Nebraska).

Third—That cost of insurance slowly but approximately drops with fire waste (average insurance cost in western Europe 1-10 of 1%, with 30 cents per capita fire waste, against \$1 here on \$3 per capita fire waste, or United States fire waste and insurance cost both about ten times that of western Europe. Insurance cost falling in Ohio and Wisconsin as fire waste falls).

Life loss from fire decreases as fire waste. Approximately 1500 people killed and over 5000 badly injured per annum in United States, far exceeding foreign averages.

The business man must also remember that reduced fire waste also means reduced interruption to business, which cannot be safeguarded by insurance, as well as reduced insurance cost.

This whole country has good reason to echo these words of Edward Croker: "I am hopeful that the coming years of my life will leave behind me a record of public good in this direction. I am confident that I can be of more good out of the department in protecting life and property than I have been heretofore, for I will have a greater field of activity and usefulness to carry out my ideas. I am sure that if I am able to do this we will not have a repetition of the recent disasters that have startled the world."

Newark and Washington Place have furnished sickening proofs that the best of laws and the bravest, perfectly equipped department will not suffice to prevent such sacrifices. It is simple business sanity to adopt every practical means to reduce fire waste of property and insurance cost to figures approximating those in the older countries. But tenfold stronger is the demand of humanity for a cessation of these preventable burnt offerings upon the altar of waste, greed and ignorance."

The following is a brief history of above named bills then before the Pennsylvania Legislature.

Senator Tustin introduced in the State Senate some time in February a fire-marshal bill, copied almost precisely from the Illinois act, at the request of Mr. George Nallinger, District Fire Marshal of the city of Philadelphia and active in the Firemen's Association of the State of Pennsylvania (which for the past two years has advocated such a measure in principle).

The Pennsylvania Association of Mutual Fire Insurance Companies, through Mr. Arthur Freston, Secretary, and Dr. J. R. Beckley (another of their officers, who has carefully studied such legislation), also actively supported such a measure in principle.

After I received from the Hon. Edwin A. Merritt, Jr., chairman, the "Report of the joint committee of the Senate and Assembly of the State of New York, appointed to investigate * * * the affairs of insurance companies other than those doing life insurance business, transmitted to the Legislation February 1, 1911," and studied the facts gathered from their nearly 200 witnesses, over a period of more than three months, covering every phase and interest touching the

subject, in hearings before this commission (whose attention I had been in a measure instrumental in centering on *fire prevention*); I engaged Mr. Thomas Raeburn White of the Philadelphia bar to prepare drafts for the necessary legislation to meet legal (constitutional) requirements in Pennsylvania, and properly cover the situation on this subject actually existent in this State.

The *form* of the proposed New York laws seemed best, and with modifications and amendments were adopted.

The initial drafts were carefully discussed in detail with the Firemen's Association; the Stock Insurance organization, *imposed on any one as to anything to prevent fire waste widely and effectively*. Current newspaper reports tell enough about the New York Asch Building fire. The Survey (New York), January 7th, fully describes the Newark fire, and proves all the above statements. If in this matter and in this State we would not be fools and spendthrifts, the time has come to act and to act effectively.

A central State officer, duly clothed with authority, should be placed in the State Capitol—to exercise as much authority over *constructing, protecting, and occupying buildings (including constant fire preventive inspection)*—to minimize fire waste, as the State Health Department now exercises within similar lines to protect health effectively and without conflict or confusion.

Repeated and continuous statements from the publications of the National Board of Fire Underwriters and the National Fire Protection Association more than endorse the above views.

It is unfortunate that local political influences deny this just reform within the cities of Philadelphia and Pittsburgh at a risk of the defeat of the State measures, but time will show the merit of these laws from their operation over the remainder of the State. Eventually this central control with authority and organization should cover the whole State—including all fire, building permit and inspection, and factory inspection, bureaus and departments.

NOTE.—The Pennsylvania Fire Marshall Bill passed the Legislature and was signed by the Governor, June 3, 1911, with an appropriation of \$70,000 for organization and support of this office. Up to date of issue of this book, or nearly one year, the Governor has for unknown and incomprehensible reasons declined to appoint—and has thus nullified the plain will of the Legislature of Pennsylvania, approved by himself—and thus deprived the people of this state of the protection against fire they asked and need.

The following cited Resolutions indicate current Trade Association opinion on this situation.

Resolutions adopted at the meeting of the Board of Directors of the Chamber of Commerce held March 14, 1912:

WHEREAS, At the last meeting of our Legislature a commission was created and authorized to revise our building code, and the sum of six thousand dollars (\$6,000) appropriated for that purpose, therefore be it

RESOLVED, That it is the sense of the Chamber of Commerce of Philadelphia that Governor Tener should immediately appoint such a commission, so that the property values of our citizens may be protected and saved from impending loss; and that such Committee be composed of experienced men in building and construction lines.

RESOLVED, That the holocaust should stimulate him to immediate action.

NOTE.—Since above resolution the Governor has appointed this Board.

The fire loss in the United States for January and February reached the enormous total of sixty-four millions of dollars, our own State losses entering largely into these figures.

WHEREAS, It has been nearly a year since the passage of the Fire Marshall Bill by the Legislature, carrying with it an appropriation of Seventy Thousand Dollars (\$70,000) for the purpose thereof, and

WHEREAS, The appointment of a Fire Marshall was authorized by said Bill, therefore be it

RESOLVED, That the Chamber of Commerce of Philadelphia earnestly request that Governor Tener promptly appoint a Fire Marshall in compliance with said Bill, so that the large interests of the State may be benefited by the protection intended, and that said appointee be a man of well known executive and business ability.

Resolutions adopted at a Board meeting of the Philadelphia Association of Credit Men, April 17, 1912:

WHEREAS, The Legislature of Pennsylvania in the year 1911 passed a Fire Marshall Bill carrying an appropriation of Seventy Thousand (\$70,000) Dollars, guaranteeing its efficient working, and the appointment of a Fire Marshall was authorized thereunder, therefore be it

RESOLVED, That the Philadelphia Association of Credit Men, representing many of our strongest and best manufacturing, commercial and banking houses, unite in asking Governor Tener to immediately appoint, in accordance with said Bill, a man of recognized business and executive ability as Fire Marshall for this Commonwealth.

Following are the two bills as finally enacted into law. The notes were added from Mr. Evans' pamphlet:

No. 254.

AN ACT

Establishing the office of State Fire Marshall; defining his powers and duties; providing for his compensation, and the maintenance of his office; giving courts the power to punish witnesses for contempt of his authority, and to review his orders; and making it the duty of officers of public instruction and persons in charge of public or private schools to instruct children as to the dangers of fire and the prevention of fire waste.

Section 1. Be it enacted, &c., That the Governor of the Commonwealth shall, within thirty days after the approval of this act, appoint a State Fire Marshal, who shall hold office for a term of four years, or until his successor is appointed and qualified. The State Fire Marshal shall be a citizen of the Commonwealth of Pennsylvania, shall keep his office in the capitol at Harrisburg, and shall devote his entire time to the duties of his office. He shall receive an annual salary of five thousand (5,000) dollars, and in addition shall be paid his actual and necessary expenses incurred in the performance of the duties of his office. He shall give bond, in the sum of ten thousand (10,000) dollars, for the faithful performance of his duties.

Section 2. The State Fire Marshal shall appoint a chief assistant fire marshal, who shall receive an annual salary of four thousand (4,000) dollars; and a first and second deputy fire marshal, each of whom shall receive an annual salary of three thousand (3,000) dollars. Each such assistant and deputy shall also be paid his actual and necessary expenses incurred in the performance of the duties of his office. The State Fire Marshal shall also appoint one or more stenographers, at an annual salary not to exceed one thousand two hundred (1,200) dollars each; and such other clerks and assistants as may be needed, at a cost of not exceeding three (3) dollars per day each. In case of the absence of the State Fire Marshal, or his inability, for any cause, to discharge the duties of his office, such duties shall devolve upon the chief assistant fire marshal. In case of the absence or inability, for any cause, of both the State Fire Marshal and chief assistant fire marshal, their duties and powers shall devolve upon the first deputy, and, failing him, upon the second deputy.

Section 3. The chief of the fire department in any county, city, borough, township, school district, or other mu-

nicipality or incorporated district, where such fire department is established, or, where no such fire department exists, the

NOTE.—Authorities all over the country agree that firemen, active and retired, should, as far as possible, inspect the properties they protect, both to know them in case of fire and to prevent in advance conditions which lead to fire. Their duties in this respect are limited by proviso at end of Section No. 4 following. As fireman cannot cover all the inspection work, the fire marshal can appoint others at his discretion as Assistants.

burgess of any borough, or president or chairman of the board of supervisors of any township or other municipality or incorporated district, shall be, by virtue of such office held by them, assistants to the State Fire Marshal, and subject to the duties and obligations imposed by this act, and subject to the directions of the State Fire Marshal in the execution of the provisions hereof. The State Fire Marshal may also appoint individual citizens as assistants, who shall be subject to the duties and obligations aforesaid, and to the directions of the State Fire Marshal. Immediately upon taking office, the State Fire Marshal shall prepare instructions to the assistant fire marshals, and forms for their use in the reports required by this act, and shall cause them to be printed and sent, together with a copy of this law, to each such officer in the Commonwealth.

NOTE.—Defines duties of Assistants (under central officers) substantially as adopted in New York act. Sections 4 to 7 inclusive tend to materially reduce the opportunity for the crime of Arson as shown in Ohio and Wisconsin.

Section 4. The assistants of the State Fire Marshal shall investigate the cause, origin, and circumstances of every fire occurring in this State, by which life or property has been destroyed, damaged, or endangered, and so far as possible shall determine whether the fire was the result of design or carelessness. Such investigation shall be begun immediately upon the occurrence of the fire, by the assistant in whose territory it has occurred, and if it appears to the assistant making such investigation to be of suspicious origin the State Fire Marshal shall be immediately notified of such fact. Every fire occurring in this State shall be reported in writing to the State Fire Marshal, within ten days after its occurrence, by the assistant in whose jurisdiction it occurred. Such report shall be in the form prescribed by the State Fire Marshal, and shall contain a statement of all facts relating to the cause and origin of such fire that can be ascertained, the extent of damage thereof, the insurance upon the property injured or destroyed, and such other information as may be required: Pro-

vided, however, That the duties to be performed by the assistant fire marshals, or any of them, may be limited by the State Fire Marshal so as to reasonably accord with their preexisting public duties.

NOTE.—Defines duties, powers, penalties, and processes vested in fire marshal organization to accord with Pennsylvania law, and to provide authority incorporated in New York act.

Section 5. The State Fire Marshal, his deputies or assistants, upon the complaint of any person, or whenever he or they shall deem it necessary, shall inspect the buildings and premises within their jurisdiction. Whenever any of the said officers shall find any building or structure which, for want of repairs, or by reason of age or dilapidated condition, or for any other cause, is especially liable to fire and so situated as to endanger other property, he or they shall order the same to be removed or remedied, if the same is reasonably practicable, thereby lessening the danger from fire. Whenever such officer shall find in any building combustible or explosive matter or inflammable conditions which are in violation of any law or ordinance applicable thereto, or are dangerous to the safety of such buildings, thereby endangering other property, he or they shall order the same to be removed or remedied, and such order shall forthwith be complied with by the owner or occupant of such premises or building. If such order is made by a deputy or assistant of the State Fire Marshal, such owner or occupant may, within five days, appeal to the State Fire Marshal, who shall within ten days review such order and file his decision thereon; and unless by his authority the order is revoked or modified, it shall remain in full force and be obeyed by such owner or occupant: Provided, however, That any such owner or occupant, who feels himself aggrieved by such order, may, within five days after the same has been affirmed by the State Fire Marshal, file his petition with the court of common pleas of the proper county, praying a review of such order; and it shall be the duty of the court to hear the same at the first convenient day, and to make such order in the premises as right and justice may require.

Any owner or occupant failing to comply with such order within ten days after said appeal shall have been determined, or, if no appeal is taken, then within twenty days after the service of said order, shall be liable to a penalty of twenty-five dollars for each day's neglect thereafter. The service of any such order shall be made upon the occupant of the premises to whom it is directed, by either delivering a true copy of same to such occupant personally, or by delivering the same

to and leaving it with any person in charge of the premises, or, in case no such person is found upon the premises, by affixing a copy thereof in a conspicuous place on the door to the entrance of the said premises. Whenever it may be necessary to serve such an order upon the owner of premises, such order may be served either by delivering to and leaving with the said person a true copy of the said order, or, if such owner is absent from the jurisdiction of the officer making the order, by mailing such copy to the owner's last known post-office address. The penalties herein provided may be recovered as debts are by law collectible, in any courts having jurisdiction of the parties. Such action shall be brought in the name of the Commonwealth, under the direction of the State Fire Marshal or any of his deputies or assistants, by the Attorney General, or by any district attorney or legally constituted law officer of any county, city, borough, township, or other municipality, who may be designated by the Attorney General; or at the option of the Attorney General, he may designate any attorney to bring such action.

NOTE.—Defines powers to obtain evidence—essential. In accord with Pennsylvania practice.

Section 6. The State Fire Marshal or his deputies, in addition to the investigation made by any of the assistants, may at any time investigate the origin or circumstances of any fire occurring in this Commonwealth. The State Fire Marshal, his deputies and assistants, shall have the power to summon witnesses, and compel them to attend before them, or either of them, to testify in relation to any matter which is by the provisions of this act a subject of inquiry and investigation; and may require the production of any books, papers, or documents deemed pertinent or necessary to the inquiry; and shall have the power to administer oaths and affirmations to any person appearing as a witness before them; such examination may be public or private, as the officers conducting the investigation may determine.

No person shall be excused from attending before the said Fire Marshal, or any of his deputies or assistants, when summoned so to attend; nor, when ordered so to do, shall he be excused from testifying, or producing any books, papers, or documents before such officer, upon any investigation, proceeding, or inquiry instituted under the provisions of this act; upon the ground or for the reason that the testimony or the evidence, documentary or otherwise, required of him, may tend to convict him of a crime or

subject him to a penalty or forfeiture; but no person shall be prosecuted, or subjected to a penalty or forfeiture, for or on account of any transaction, matter, or thing concerning which he may have been required so to testify or produce evidence, documentary or otherwise; and no testimony, so given or produced, shall be received against him upon any criminal investigation or proceeding. If after any such examination the State Fire Marshal, or any of his deputies or assistants, is of the opinion that the facts in relation to such fire indicate that a crime has been committed, he shall present the testimony taken on such examination, together with any other data in his possession, to the district attorney of the proper county, with the request that he institute such criminal proceedings as such testimony or data may warrant.

The State Fire Marshal, or his deputies or his assistants, may, at all reasonable hours, enter any building or premises within his or their jurisdiction, for the purpose of making an inspection, which, under the provisions of this act, he or they may deem necessary to be made.

NOTE.—Defines penalties for recalcitrant witnesses—essential. In accord with Pennsylvania practice.

Section 7. Any witness who refuses to obey a summons of the State Fire Marshal, his deputies or assistants; or who refuses to be sworn or to testify; or who disobeys any lawful order of the State Fire Marshal, his deputies or assistants, in relation to any investigation instituted by him or them; or who fails or refuses to produce any books, papers, or documents touching any matter under investigation or examination; or who is guilty of any contempt, after being summoned to appear before him or either of them to give testimony in relation to any matter or subject under examination or investigation as aforesaid, may be punished as for contempt of court. For this purpose, application may be made to any court within whose jurisdiction the contempt in question took place, and for which purpose the courts of common pleas of this Commonwealth are hereby given jurisdiction.

NOTE.—Provides for continuing records now practically non-existent and unobtainable—essential. Having authorized and organized a Fire Marshal force then the publicity of records obtained becomes most important as a moral check on the office, and an avenue for volunteer work.

Section 8. The State Fire Marshal shall keep in his office all records which may be sent him in accordance

with law relative to the physical condition of buildings, whether the laws and ordinances have been complied with so far as the same relate to fire protection, records of application for fire insurance upon any buildings, or other information relating thereto which may be sent him in compliance with law; and shall also keep a record of all fires occurring in this State, and of all the facts concerning the same, including statistics as to the extent of such fires and the damage caused thereby, and whether such losses were covered by insurance, and, if so, in what amount. Such records shall be made daily, from the reports made to him by his assistants, under the provisions of this act. All such records shall be public, except that any testimony, taken in investigations under the provisions of this act, may be withheld from the public, in the discretion of the State Fire Marshal.

SECTION 9.

NOTE.—Provides cheap and effective notice annually to property owners with important and continuous educational value to adults through the State.

It shall be the duty of the State Fire Marshal to prepare blank forms for the furnishing of information, by owners or occupants of buildings, throughout the Commonwealth, of the condition of such buildings with regard to fire protection. The said blanks shall contain notice to such property owners or occupiers of proper rules and regulations to minimize the danger of fire and to suppress fire waste; and shall contain certain questions requesting information of a definite character, to show the condition of the buildings as aforesaid. These blank forms shall be furnished by the fire marshal to officers whose duty it is to receipt for taxes on real property, in every part of the Commonwealth, to be given by them to property owners, together with their tax bills (two forms for each property); with the requirements that one, properly filled out, be forwarded to the State Fire Marshal at once, for filing among the records of his office, and that the other be so forwarded six months thereafter.

NOTE.—Defines educational scheme for schools of present and future value, closely following well-known "Reed" law of Ohio which has been found during the past five years very workable and effective.

Section 10. It shall be the duty of the fire marshal to prepare, in consultation with the Superintendent of Public Instruction, books of instruction, for use in the

public and private schools of students of all grades, with regard to the dangers of fire and the prevention of fire waste. It shall be the duty of the Superintendent of Public Instruction, and of the principals or other persons in charge of the various schools in this Commonwealth, to provide for the instruction and training of pupils of such schools by means of drills, so that they may, in sudden emergencies, be able to leave the school buildings in the shortest possible time without confusion or panic. Such drills shall be held at least once a month when the schools are in session. Books of instruction with regard to the dangers of fire and the prevention of fire waste, as above specified, shall be published at the expense of the State, under the direction of the Superintendent of Public Instruction, and shall be distributed in sufficient quantities for the use of the schools as herein provided; and the curriculum of such schools shall include some regular and continuous study of such subjects during the entire school year.

NOTE.—Requires annual reports; including preparation before the next meeting of the Legislature of a proposed “Standard Fire Insurance Policy”, (most important to assure property owners a fair, sound and simple insurance contract); and a “State Building Code” for adoption by municipalities—both without added cost to the State, by men capable of sound construction of such measures, without the necessity of a cumbersome and expensive commission. Insurance is nation wide, without Federal Control apparently possible. States should in the aggregate pass uniform acts to control this entire subject, as emphatically urged by the American Bar Association, through its Committee on Insurance Law, and its allied Commission on Uniform Laws.

Section II. The State Fire Marshal shall make an annual report to the Governor of the Commonwealth, on or before the first day of February of each year, setting forth a full report of the work of his office during the preceeding calendar year, including such statistics as he may desire to include therein. He shall also recommend in his report such legislation, if any, as in his judgment may be desirable to further carry out the purpose of this law for the prevention of fire waste; such recommendation shall include a draft of an act providing for the adoption of a standard municipal building code, and a draft of an act providing for a standard fire insurance policy, for the Commonwealth of Pennsylvania, which drafts shall be reported on or before January first, one thousand nine hundred and thirteen.

Section 12. The assistants of the State Fire Marshal, not receiving a salary for the performance of public duties, shall receive, upon the audit of the State Fire Marshal, fifty cents for each report of each separate fire reported to the State Fire Marshal under this act; and, in addition thereto, shall be paid the sum of fifteen cents for each mile traveled to the place of fire; and, in the discretion of the State Fire Marshal, where an investigation has been made, a sum not to exceed three (3) dollars for each day's service spent in such investigation.

Section 13. All penalties or forfeiture collected under the provisions of this act shall be paid into the treasury of this Commonwealth.

Section 14. This act shall not be construed to repeal an act of the General Assembly, entitled "An act to provide for the appointment of a fire marshal for Allegheny County," approved the eighteenth day of April, Anno Domini one thousand eight hundred and sixty-four (Pamphlet Laws, four hundred and sixty-five). It is further hereby declared to be the true intention and meaning of this act, that the same shall not apply or be operative in any city or county of this Commonwealth where, under existing laws, whether special or general, the position and duties of a fire marshal are provided for.

Section 15. All acts or parts of acts inconsistent herewith are hereby repealed.

Approved—the 3d day of June, A. D. 1911.

JOHN K. TENER.

The foregoing is a true and correct copy of the Act of the General Assembly No. 254.

ROBERT McAFEE

Secretary of the Commonwealth

No. 281

AN ACT

Creating the office of Fire Marshal, to be attached to the Department of Public Safety in cities of the first class; prescribing his duties and powers; and providing penalties for violations of the provisions of the act; and providing for the method of appointment, compensation, and for the maintenance of his office.

NOTE.—It does not appear that any salary or bond attaching to the Fire Marshal is defined in this section.

Section 1. Be it enacted, &c., That there shall be established in the Department of Public Safety, in all

cities of the first class in this Commonwealth, to be known as "the Office of Fire Marshal." That the Director of Public Safety shall appoint, subject to the approval of select council, a suitable person, who shall be a citizen of the State and a qualified elector of said city, Fire Marshal, who shall devote his whole time to the duties of his office, and who shall hold office until his successor is appointed and qualified. The office of Fire Marshal be maintained at such place as may be designated by the Director of the Department of Public Safety: Provided, That whenever an officer of the Police Department, in any city of the first class, has heretofore been appointed as Fire Marshal, he shall continue to hold office and act as Fire Marshal, under the terms and provisions of this act, until his term of office shall have expired, or until he shall have been removed for cause by the said Director of Public Safety.

Section 2. The Director of Public Safety is hereby empowered and required to appoint such a number of assistant fire marshals as the city councils may allow, one of the said assistants to be designated as chief assistant. The duties of said chief assistant and assistants shall be to assist the Fire Marshal, and such appointees may be removed for cause by the said Director of Public Safety.

Section 3. In the event of a vacancy in the office of Fire Marshal, or during the absence or disability of that officer, the chief assistant marshal shall perform the duties of the office, or, in his absence, one of the assistants to be designated by the director of Public Safety.

Section 4. The Director of Public Safety is hereby empowered to appoint such office assistants as the city council may allow, as being necessary for the proper and efficient conduct of his office: Provided, nevertheless, That all rules and regulations heretofore made by councils, at any city of the first class, for the regulation and conduct of the office of Fire Marshal, not inconsistent with the terms of this act, shall be valid and binding.

NOTE.—It does not appear that any salary is defined for Assistant Fire Marshals in this section; nor does it appear that the Fire Marshal has any power to appoint volunteers for any of this work should the force allowed him by City Council prove inadequate to fully carry out the functions of his office.

The proposed City Fire Marshal under this act would have no use of the City Fire Department organization or the City Building and Inspection Bureau organization, both of which should unquestionably be brought enough under the control of the proposed Fire Marshal as to regulate for the

future the danger of fire not only in the construction and protection of new buildings, but in the improvement, protection and occupancy of all existing (including new) buildings. This proposed bill fails to concentrate authority over all property in the City, as respects the danger of fire, in one office.

The Journal of Commerce and Commercial Bulletin, New York, in an editorial on Fire Prevention in Wednesday, March 29th issue, comments on the Washington Place (Asch Building) fire of recent date, and lays clear and pronounced emphasis on this bad feature in the existing organization of the New York City Government. This mistake should not be allowed at this time in this city. The City Fire Marshal should have the same concentrated control over buildings existent and future as regards fire danger, as the health department now has as regards sanitation; and the plan is equally practicable and workable.

Section 5. The Fire Marshal may order the inspection of all buildings used for business or private purposes, and all buildings used for public purposes,—meetings, exhibitions, or theatrical or operatic performances, or any amusement place,—and enforce all laws relating to the same, and no license shall be issued by the Mayor until approved by the Fire Marshal. He and his assistant fire marshals shall have the power to enter and inspect buildings as aforesaid, including their contents and occupancies as provided under section nine of this act, and it shall be the duty of such Fire Marshal to report to the Director of Public Safety any faulty or dangerous condition found; and no license under the provisions of any law may be necessary, to use said buildings for any purposes herein named, shall be issued, or, if issued, shall not be available for said use, until the faulty or dangerous condition is remedied; and said Fire Marshal shall, if he find any temporary property, to be used in any building for scenic or spectacular purposes, is made of or composed of highly combustible material, he shall forbid its being taken in said building.

NOTE.—The fire investigation as provided in this section should extend to fires “endangering” property, as well as fires damaging and destroying property, and such investigation should be as nearly “immediate” as possible after fire occurs.

Section 6. The Fire Marshal of every city of the first class of this Commonwealth shall make, or cause to be made, an investigation of the cause, origin, and circumstances of every fire occurring in such city, by which property has been destroyed or damaged, and shall especi-

ally make investigation as to whether such fire was the result of carelessness or design. Such investigations shall be begun immediately after the occurrence of such fire, and the Fire Marshal shall have the right to supervise and direct such investigation whenever he deems it expedient or necessary. The officer making investigation of fire shall forthwith notify said Fire Marshal, and shall within one week of the occurrence of fire furnish to the said Fire Marshal a written statement of all facts relating to the cause and origin of the fire, and such other information as may be called for,—the blanks provided by said Fire Marshal. The said Fire Marshal shall keep in his office a record of all fires occurring, together with all facts, statistics, and circumstances, including the origin of the fires, which may be determined by investigations provided by this act; such records shall at all times be open to the public inspection.

Section 7. The Fire Marshal shall, when in his opinion further investigation is necessary, take or cause to be taken the testimony, on oath or affirmation, of all persons supposed to be cognizant of any facts or to have means of knowledge in relation to the matter as to which an examination is herein required to be made, and shall cause the same to be reduced in writing; and if he shall be of the opinion that there is evidence sufficient to charge any person with the crime of arson, or of conspiracy to defraud, or criminal conduct, in connection with such fire, he shall cause such person to be arrested and charged with such offense, or either of them, and shall furnish to the proper prosecuting attorney all such evidence, together with the names of witnesses and all of the information obtained by him, including a copy of all pertinent and material testimony taken in the case; and shall report to the mayor, as often as such mayor shall require, the proceedings and the progress made in all prosecutions under this act, and the result of all cases which are finally disposed of.

Section 8. The Fire Marshal and the chief assistant fire marshal, and assistant fire marshals, shall each have the power to summon and compel the attendance of witnesses before them, or either of them, to testify in relation to any matter which is by the provision of this act a subject on inquiry and investigation, and may require the production of any book, paper, or document deemed pertinent thereto by them, or either of them. Said Fire Marshal, and chief assistant fire marshal and assistant fire marshals, are each hereby authorized and empowered to administer

oaths and affirmations to any persons appearing as witnesses before them. Any witness who refuses to be sworn, or who refuses to testify, or who disobeys any lawful order of said Fire Marshal, chief assistant or assistant fire marshals, or who fails or refuses to produce any book, paper, or document touching any matter under examination, or who is guilty of any contemptuous conduct after being summoned by them, or either of them, to appear before them or either of them, to give testimony in relation to any matter or subject under investigation as aforesaid, shall be deemed guilty of a misdemeanor, and, on conviction before any magistrate, be fined twenty-five dollars, or, in default of such payment, imprisoned in the county prison not more than thirty days. Said Fire Marshal and his subordinates, or either of them, shall have the authority at all times of day and night, in the performance of the duties imposed by the provisions in this act, to enter upon and examine any building, or premises adjoining or near the same.

NOTE.—The proviso at the end of this section permits an appeal to the Fire Marshal, but allows no appeal from the Fire Marshal. After careful study and consultation the State Fire Marshal Act incorporated the following appeal from the Fire Marshal, viz.:

“Provided that any such owner or occupant who feels himself aggrieved by such order may within five days after the same has been affirmed by the Fire Marshal, file his petition with the Court of Common Pleas of the proper county, praying a revenue of such order, and it shall be the duty of the Court to hear the same at the first convenient day and to make such order on the premises as right and justice may require.”

Reasonable rights of property may justly demand this permissible higher appeal.

The penalty provided in this section permits imprisonment in the County Prison for not more than 30 days in default of payment of fine. This is a serious power to confer and so much objection was raised to its incorporation in the State Act that it was omitted.

Section 9. The Fire Marshal, and his chief assistant and his assistants, shall have a right at all reasonable hours, for the purpose of examination, to enter into and upon all buildings and premises within their jurisdiction. Whenever any said officers shall find any building which, by reason of age and dilapidated condition or for any other cause, is especially liable to fire, and which is so situated as to endanger other buildings or property, or so occupied

that fire would endanger persons or property therein, and whenever any such officers shall find in any building or upon any premises highly combustible or explosive materials, oils, and greases, or conditions and combinations dangerous to the safety of said buildings or premises, they shall order the same to be removed or remedied, and such order shall be forthwith complied with by the owner or occupant of said buildings or premises: Provided, however, That if the said occupant or owner shall deem himself aggrieved by such order, he may appeal in writing to the Director of the Department of Public Safety within three (3) days after having received notice of the decision of the Fire Marshal, specifying in such appeal the reasons and ground therefor. The Director of Public Safety shall immediately refer such appeal to a commission, which shall consist of the Chief of the Fire Department, the Chief of the Bureau of Building Inspection, and the Secretary of the Philadelphia Fire Underwriters' Association. Said commission shall carefully consider said appeal and make decision thereon, and its decision shall be conclusive. The decision of any two shall be the decision of the commission. Failing to comply with the orders of the authorities above specified shall be deemed guilty of keeping and maintaining a nuisance detrimental to life and property, and, on conviction before any magistrate, be fined twenty-five dollars, or, in default of such payment, imprisoned in the county prison not more than thirty days.

Section 10. The Fire Marshal shall not engage in any other business, and he or one of his assistants shall at all times be at the office of the Fire Marshal, ready for such duties as are required by this act.

Section 11. The Fire Marshal shall submit annually as early as consistent with full and accurate preparation, and not later than the first day of January in each year, a detailed report of his official actions to the Mayor and councils, included in the annual report.

Section 12. The Fire Marshal, his chief assistant and inspectors, may examine all buildings upon which any fire-escapes may be erected, shall see that it is kept in good order and repair, and no person shall at any time, place any incumbrance of any kind whatsoever upon any of said fire-escapes or passageways constructed or intended for the escape of persons from the premises in case of fire. Any owner or occupant of buildings or premises, failing to comply with the orders of the authorities above specified,

shall be deemed guilty of keeping and maintaining a nuisance detrimental to life and property, and on conviction before any magistrate be fined twenty-five dollars, or, in default of such payment, imprisoned in the county prison not more than thirty days.

All acts or parts of acts inconsistent with this act are hereby repealed.

Approved—The 8th day of June, A. D. 1911.

JOHN K. TENER.

The foregoing is a true and correct copy of the Act of the General Assembly No. 281.

ROBERT McAFEE
Secretary of the Commonwealth

FIRE WASTE AND ITS PREVENTION

Remarks by Mr. Powell Evans Before the City Club, Philadelphia, January 7, 1911

NOTE.—The substance of statements given below were made by Mr. Evans as a witness before the Legislative Investigating Committee (N.Y.) at a hearing in City Hall, New York City, December 23, 1910.

MR. EVANS: Mark Twain, in his "Innocents Abroad," told an incident of a camel getting loose in the tent, and eating a number of substantial things, including the narrator's overcoat; but, he said, fortunately he did not get to the notebook, for if he had struck the solid facts to be found there, he might have died.

PREVENTION AND INSURANCE

There are a great many solid facts which present themselves in connection with to-day's subject. It may not interest you to enumerate a lot of details and statistics; but it is important to consider a tremendous burden like that which we bear in fire and life loss in this country and see what is the matter, and what can be done to help it.

I think that no man who goes at all deeply into this subject can fail to drop the carping spirit of antagonism or of criticism of forces now at work. We cannot realize until we look at the facts how difficult it is to hold the ground already gained; but it may be possible to better conditions, and it is from a standpoint of impartial and friendly investigation that any remarks will be made to-day, certainly so far as I am concerned.

The subject to-day is "What is Philadelphia doing to protect the property of her citizens?" Now that suggests an attitude of paternalism which does not precisely appeal to me. I was brought up with the idea that every tub ought to stand on its own bottom. It might be pertinent to ask what Philadelphians and Pennsylvanians are doing. Instead of asking the state or city to protect us, we ought to turn in and help ourselves a bit. That is one of the crucial troubles in the whole matter of fire waste.

FOUR ELEMENTS IN PROBLEM

You cannot discuss the subject of fire prevention without bringing in the subject of fire insurance. They are so inter-related that one goes with the other necessarily. The entire

fire waste of any country is a loss, and that loss is distributed over the people at large by a tax, and that tax is what we pay for an insurance on property, together with what is burned up without insurance. We have to look at the question from many angles, from the standpoint of all parties concerned.

There are usually four elements to consider: First, the government, whether national, state or municipal. That is over us all. There is, second, the form of contract. That involves legal questions. The rate questions are decided by the great organizations which sell insurance, on the one hand, and by the commercial organizations of the country, or the buyers, on the other. These four elements enter into the problem: the one who buys, the one who sells, the government, and the form in which the contracts are made. Unfortunately, all these elements are organized, as a rule, except the buyers of insurance; and my interest is and has been for many years that of the manufacturer and the merchant, the property owner all over the country, who is buying insurance and who is generally very careless and very badly informed.

TAX FOR FIRE WASTE

The total tax for fire insurance includes, first, the fire loss, then the expense of conducting business, and finally, the profit on the business. I was very much interested in the actuarial figures presented before the Legislative Investigating Commission of the State of New York, which show that the best of the companies, ten or twenty of them, do not earn more than ten or eleven per cent., including returns from premiums and from investments. The Commission itself is authority for this. Below these comes the secondary range of companies whose profits are down to six or seven per cent. So it is obvious that the fire insurance companies are not making any tremendous profits. The steel business, the street railway business, and other businesses are making much more. We are all in the boat together, and if there are holes in it we ought to unite in plugging them up. We should find a way of getting a lower rate and reducing the loss. As the basic bill rises, the cost is sure to rise. There is not an insurance authority that will not admit that if there is a fire like those at San Francisco, Chelsea and Baltimore, the loss is distributed over the country at large. We know it is. I believe all insurance companies need regulation in some respects. I think New York carried into the general income fund last year a million dollars from taxing insurance premiums. It is like lifting yourself by your boot straps,—to take money out of premiums and put it into the state treasury. It is simply running round in a vicious circle. One fundamental basis of

sound state law is that insurance premiums should not be taxed to make a profit. As you burn up and your tax gets higher, up goes your automatic premium. What we want is less waste, and that is the whole doctrine of fire prevention.

FIRE LOSS IN THE UNITED STATES

Just a word on some of the solid facts that the camel didn't get. The ten year average of fire losses in the United States and Canada up to 1898 was about \$200,000,000. For 1907 the loss was \$215,000,000; for 1908, \$241,000,000; for 1909, \$204,000,000, and for 1910, \$234,000,000. For 1910 we had a good Christmas present by having \$30,000,000 more burned up than in the year before. Insurance authorities average the loss at \$250,000,000 a year, and they have ample authority for doing so. The United States Government, in the Geodetic Survey Bureau, went into the question fully and brought the amount up to \$400,000,000 total cost, including fire loss, and the cost of fire departments and patrols. I believe this estimate is correct, though \$250,000,000 is quite enough for me, for it means five hundred dollars per minute for every minute in the twenty-four hours and for every day in the year; and every hour we burn a certain percentage of human life. We have recently had excellent examples of the average, here and in Cincinnati and in Chicago, and a sad average it is. We have another thing which many shrewd business men do not realize. We have interruption of business. A man who pays one per cent. insurance is paying on the risk, so measured, of his building burning. If his building burns he loses something further through the interruption of his business, a loss which has bankrupted many a merchant. All these things travel together.

COMPARISON WITH OTHER COUNTRIES

In regard to these totals, the question arises, have we anything to quarrel about after all? We have to compare like things under like conditions to get a fair analysis. We naturally go to other countries of like intelligence and progress to see how they stand. In six countries in western Europe we have 33 cents per capita fire loss, and in this country over \$3. We are just about nine or ten times worse off than they are. Anybody who makes the most cursory investigation in this matter feels that we should call a halt, and take an account of stock. The insurance companies get on the average \$1.40 for every dollar of insured property burned in this country. I won't say that is within a cent or a fraction of a cent, but in rough averages that is about right. Out of every dollar they pay 60 per cent. in fire loss, and the rest goes into expenses,

taxes, profits and all that. Obviously, if the whole fire loss decreased, their own competition would provide that they would sell this protection for less money, and in practice it works; you can get thousands of examples whenever you want them. If we have all this waste here, with all the damage it is doing, which does not exist in other countries, the most important question is, Why? In the first place we have too much wood used here in construction, and too many badly built buildings. We need legislation on this point. We want to call a halt on leaving the bad buildings we have as they are. We want to protect and improve these buildings as long as it is a reasonable commercial proposition. Given the best buildings, and the best fire protection, we must then give some attention to occupancy. One of the most criminal causes of fire waste in this country is the dirty, filthy housekeeping of the people as a nation—not particularly in their homes, but in their places of business. There are two great causes for this. First of all, public opinion is indifferent, and in the second place, there is a lack of thrift. In addition the laws are bad, and these are imperfectly enforced. It is, fortunately, all changeable. The question is whether we will do it.

NEED PLAN OF CONCERTED ACTION

After considering what we want to do, the next thing is how we want to do it. I have been interested in this work from the standpoint of an engineer and a merchant for twenty years, and as a student here and abroad for five years, and I have had good opportunities of seeing the working of the whole machinery. We have to-day, in the literature of this country, authoritative information about how to build right. Not that we need no more information, but we have all that is essential. We have knowledge, based on sound practice, of how to prepare laws and how to enforce them. What we need is more concert of action. I have stated an ideal problem; ideal within practical lines. We cannot do it all in one year, and not all in one generation, but if we don't start we will never do it. Any man here, who has a mill or store and knows there is a minimum production capacity or a minimum gross storage needed, might begin a wing here and there, but he would have a co-ordinated plan of the entire structure to start with. That is all I plead for in this city and state, that we set out the plan entire in the first instance and then take what steps we can to commence it. That plan embraces what seems a large program of legislation, but it is all workable. I don't think any of us want more law, but sometimes the best way to clear up a matter is to wipe out a whole lot of bad laws and put one good law in their stead.

In the first place, we want a uniform fire insurance policy. The American Bar Association, through its committee on uniform laws, is decidedly of the opinion that that is a necessity. You could cut fire waste in this city down to nothing, and it would not materially affect the averages that you have to pay for insurance, because the average is based on what the United States is burning up. In a somewhat larger way you cannot improve conditions by legislation in Pennsylvania alone. If you put too much pressure on the insurance companies they will leave the state. On the other hand, we cannot get national legislation. But we can coöperate with other states in doing the same thing, and it will in time make a more uniform practice. Within the state, we have all power.

The basis of credit in every deed of trust to-day, in almost every merchant's sale of a bill of goods, is the assurance that the money not paid is protected by insurance policies. In England ten years is usually the length of each contract. Here the time is more limited and there is more competition. But insurance is a basis of credit to-day. Therefore, the contract should be readable by all men, and identical in essentials with the same kind of contract everywhere. If you have a thousand or ten thousand accounts over the country, you have not time to investigate every instrument or rider. There should be a uniform policy, and it should be simpler, clearer and somewhat sounder than it is to-day. The interests that should unite to draw such a contract are these: The committee on uniform laws of the American Bar Association, the insurance department of this state, a representative of the fire underwriters' organization in this state, and a representative of the combined trade associations of this state. You want those four views. You want the state, the buyer, the seller, and counsel to help draw up a proper contract. Such a contract should be pushed by the business men of this state. They should demand it, compromise on it, and get it passed.

THE STATE FIRE MARSHAL

The second thing you want is such sound and honest inspection of financial conditions of insurance companies that the mere fact that a policy is permitted to issue, carries its own state brand of solvency. Don't guarantee the policy, nobody expects that; but when you put money in a national bank to-day, under the controller at Washington, the chances are you will get it out again, and when an insurance company is permitted by a state to issue policies, that should automatically be a reasonably sound financial guarantee. That is a reason-

able thing to expect, and we certainly need a straight, intelligent insurance commissioner at Harrisburg who has nothing else to do, to accomplish this end.

The next thing is new in this state. Happily it is not new in many others. It is a minimum requirement,—a state fire marshal, a man sitting in the seat of power governing this thing, representing the power of the state government, and having jurisdiction over the entire state, including the biggest cities, Philadelphia and Pittsburgh. If you will study the operation of this act in Massachusetts, Ohio, Illinois, Wisconsin, Minnesota and Nebraska, you will see how it has been worked out and how it works. The fire marshal could first of all give you a straight record of fire waste. To-day nobody can give you that, where there is not a fire marshal. The papers do not give you accurate facts. Even insurance companies cannot get the facts for their own business; they simply have to average from what facts they can get. A fire marshal should be empowered to demand facts and get them. The correct means of redress of any wrong is first to understand what the wrong is; second, there must be the power, like that of our state police, to send people to the point of trouble, and put in force minimum requirements to correct it. The same interests needed to draw a proper insurance contract are needed also to draw a proper fire marshal law,—the bar, the fire organization, the business organization, and the government.

One of the prime causes of failure of fire marshal laws, is failure to determine who is to pay the bill. A fire marshal should be created; everybody is for it; "Let us have it," they say, "and charge it to the insurance companies, at the rate of one-fourth of one per cent." The insurance companies say, "That is a bully thing to have, but you must take it out of the tax levy." In come the farmers' mutuals who say, "Let the big fellow pay it." Through these circumstances 60 per cent. of the fire marshal legislation proposed has been abortive. It is right that the insurance company should pay some of this, but take some out of the tax levy, and if more is taken out than it costs, put it back in that fund, and not return it to the general tax levy. I think we could get a law through in this state on this compromise.

LICENSING OF BROKERS

The next thing required is a proper licensing of brokers. That is where there is more mischief being done than is generally supposed. There are many leaks. It is not the brokers' fault, or the insurance companies' fault,—it isn't anybody's fault, but it needs attention. To sell insurance

in this state a man must get a broker's license. He applies for a license, pays ten dollars, and if he has not killed anybody or been in jail, he generally gets it, and it is right he should. There are certain things, however, that the insurance broker should do, if he has a license. In the first place, whether he is the agent of the applicant or the agent of the company, whether he is the agent of the buyer or of the seller, when a buyer of insurance pays for a policy and the seller of insurance issues a policy, that ought to be a valid contract no matter what has happened to the money. There are not a few cases of carelessness in this respect. The small merchant gets insurance, and if he doesn't pay the bill, the insurance is likely to be invalidated. That ought to be safeguarded, and it would be a reasonable, decent liability. We don't hear much about it, but if you asked the fire chief of Milwaukee, you would find that arson is a serious charge, and a most dangerous thing from any standpoint. Now arson comes from the ability to get improper insurance too easily. There is not a man here, I feel safe in saying, and I know very few men of my business acquaintance, who would decline, in asking for a loan from a national bank, to make a legitimate statement of their condition at the time. It may change to-morrow or next day, but at the time it is a fact, and it is required of men applying for credit.

FORCED BUILDING IMPROVEMENTS

Insurance protection is a guarantee that in the emergency of loss, that contract shall be paid, and it is just as important a financial contract as paying money at the bank. Therefore, the applicant for insurance, when he goes to his broker for a policy, should in some proper form make an allegation of the insured value and of the total insurance on it at the time. The broker to-day when he passes on an application must allege that he finds the facts as stated; but let him put it in detail instead of in a phrase. That should be signed by the applicant and endorsed by the broker and sent to the fire marshal. Then you have something, and if there is a loss at any time, and it can be shown in adjustment that the allegation is false, let that man suffer the same penalty that a man suffers to-day for presenting a false statement for credit, under the common law. That is all I ask.

You ask for an insurance policy on this building. The application goes through to the insurance rating bureau of this city. They have records of certain things the building is wanting in, and of what they would give you in the way of a reduced rate if you improve those conditions. The

broker is given a transcript of those material facts. The broker should pass that transcript to the fire marshal. Any live, successful manufacturer, if you can show him how to put in a new machine and save twenty per cent., will jump at it. Mr. Carnegie did it if he could save ten per cent. Now, if by making \$1000.00 improvements in your building you could make a saving of \$200 in your premium, then the fire marshal should be able to compel you to do it.

I want to say a final word about state laws. In 1891 a uniform policy in principle was enacted. The power to draw that policy was lodged with the insurance commissioner. In a legal case the court held that the legislature had no power to delegate the authority; that they had to make it themselves. It won't do to ask for bills from the legislature which are unsound to pass, because they will fail in action. You need good counsel in this on the side that you wish to enforce.

CO-ORDINATION OF CITY AND STATE

After we get the state machinery in order, we need to look after the city machinery, the municipal ordinance. Municipal ordinances should be subject to and tied in with your state fire marshal organization, and should be co-ordinated with the work of the insurance commissioner. The Ohio law will show how it all works in, and it has been working well for five years. The local insurance rating bureau and the city fire marshal's office, the fire department and the building permit and inspection bureaus of this city are all pretty good. I never heard much criticism of the insurance bureau that we have. It is suffering from the sins of its fellows. The city bureau is doing well. I heard some hard things about the New York bureau. You will find in almost every city in this country that there is no mandatory limit on the bad condition, physical or otherwise, in which buildings may be kept. There is no limit to what they cannot do. The fire marshals and firemen have their work cut out for them year in and year out, and if we pass all these laws, and all worked, we would need all these men yet. They have a difficult job, and they are not working under good conditions.

PREVENTIVE WORK FOR FIREMEN

Now, a good building ordinance, and a building ordinance is imminent here now, should cover first how to put up and protect a new building, and reasonable minimum requirements should be created. There should be a requirement that old buildings should be gradually improved. There are many good students of these conditions who claim that where fire originates, the owner should be pen-

alized or denuded of a portion of his collectable insurance. There are two very important detailed things which could be done. The first thing is that the assessor should enclose two blanks which the property owner should pass on to the fire marshal semi-annually alleging the condition of his buildings. If he has broken any law let him bear the penalty. Chief Croker of New York made the statement that in 1909 out of 12,000 fires over 3000 came from faulty compliance with tenement laws of the state of New York, and from filthy cellars and hallways filled with combustible material. That surely should not be. After making a citizen go on record we need to know the facts. We need inspection of property. Mayor Reyburn is in favor of the use of pensioned firemen in that way. There is no reason why the active fire force should not use a portion of its time in familiarizing itself with the very places it may be called upon to protect, and at the same time stopping disorder and carelessness before fires start. We should take the position of the Chinaman who pays the doctor as long as he is well. We ought to stop this thing instead of taking care of the victim afterwards. There should be reasonable regulation of explosives. As an essential part of that ordinance there should be publicity in the records so that any man interested in the economic problem in his community should have some right to go in and work if he is willing to spend the time, activity and thought.

THE FUNCTION OF THE CITY CLUB

To get up a proper building ordinance you should consult the following authorities: On material, the United States Bureau of the Geodetic Survey at Washington which formulates details for the construction of post-office and customs buildings, they rely, as many other countries do, on good building to prevent fire waste; second, local business associations; third, local insurance associations; fourth, architects' and engineers' associations, including the American Waterworks Association; and finally, the contractors and builders. The function of a Club like this is to draw these essential elements together to draft a law which would be satisfactory to all concerned.

I am still convinced that such a program is in order now, that it is reasonable and that it is, more than all, workable and practical. If we cannot get it all, let us get some.

I have given an outline from a business and engineering standpoint of what we want in the direction of fire prevention, and trust I have not trenched too much on your time.

FIRE PREVENTION AND PROTECTION IN NEW YORK

A joint committee of the Senate and Assembly of the State of New York transmitted a report to the Legislature February 1, 1911. The recommendations of this report (based on extensive evidence from numerous sources) led to the passage of the first Hoey bill for a New York State Fire Marshal.

Following is a reprint of a report from the *New York World* of December 24, 1910, showing the character of Fire Prevention and Protection evidence considered:

PROTECTION LAWS AND TRAINING SCHOOLS URGED

Great Annual Fire Loss in U. S. Shown at Hearing to Be a Per Capita Tax of \$3.

Frank R. Chambers, senior partner of Rogers, Peet & Co., and chairman of the Fire Insurance Committee of the Merchants' Association, attacked Chief Croker as "a good fireman but twenty years behind the times," when he appeared as a witness before the Legislative Investigating Committee yesterday. Simon Brentano, President of Brentano's, the publishers and booksellers, followed Mr. Chambers and sharply took him to task. Charles H. Israels of the New York Chapter, American Institute of Architects, also came to Croker's defense.

The spat came in the course of a discussion before the committee of the problem of fire prevention. The witnesses included Franklin H. Wentworth of Boston, secretary of the National Fire Protection Association, and Powell Evans of Philadelphia, of the Fire Prevention Committee of the National Hardware Association, the National Association of Credit Men and the National Association of Manufacturers.

Mr. Chambers reviewed the efforts of the Merchants' Association to secure the establishment of a fire prevention department as well as a fire extinguishing department by the city.

"The Mayor," he said, "has already shown his interest in the project, and your committee, Mr. Chairman, may be of service in the matter, for it is likely to be incorporated in the new charter that should come before the next Legislature. But fire prevention is a more vital problem even than the putting out of fires.

NO GLORY IN PREVENTION

“Chief Croker is a good fireman, but he is twenty years behind the times. He is the type that says, ‘Let me get at it and I’ll put it out,’ but he can find no glory for his department in going to a fire and finding that it has been put out by some protective device within the building.

“Put sprinklers along our avenues, put them into the small stores, as they now are in the big ones, put them into the basements and the storerooms of the buildings that are tenements above the street, and we’ll have a fire-proof city. It is no hardship to compel the installation of sprinklers. Their cost comes back in better rents and in lower insurance rates. We ourselves put sprinklers into our building at Prince street and Broadway as a protection to a stock on which we carried \$1,000,000 of insurance, and in our premiums alone we saved the cost of the system in two years.

“The law will allow me to complain to the Health Department if the man next door to me annoys me by the odors that come from his carelessness, but he can maintain any sort of firetrap he pleases and I can’t touch him. I believe that the law should allow me to do this; I believe that the law should compel fire protection and fire prevention, in spite of the fact that I believe we are suffering from too much government. But this is a matter that we have got along without for too long a time already.”

“I was astonished to hear Mr. Chambers say what he did,” declared Mr. Brentano. “Chief Croker is not twenty years behind the times, and I cannot believe that he or any of his men would object to going to any fire and finding that it had been put out by any sort of device. I am sure that if Mr. Chambers had thought he would not have made such a statement.

“We all of us underestimate the conditions that firemen have to face. Fire prevention is a problem of the greatest importance, but while we are working it out fires have to be put out, and men are laying down their lives to do it, as happened only yesterday in Philadelphia and Chicago.

“Our whole attitude toward fires has changed. Once they were calamities; now they are only incidents. Any one can buy immunity from loss. The question has become a moral one. It is as wrong to have a fire as it is for an automobile to run down and kill a man, as wrong as it is to kill a man in an elevator through negligence, yet we have no laws upon the subject.

"We have no laws at all, as a matter of fact, on the subject. There is no law anywhere requiring a fire department, it only authorizes them. The rope that dangles from a hotel window represents the one law on the matter of fire protection that is on our books.

NO SCIENCE OF FIRE FIGHTING

"Our knowledge concerning these things isn't much more extensive than our laws. There has been no science built up around the fire problem as there has about every other economic and social condition. We have never had a large fire in the United States that broke out where fire authorities thought it would, and yet the men who have passed upon these things have been men like Chief Horan, who died yesterday in Chicago, and who, through twenty-five years of experience, had brought himself to as high a plane of efficiency as any man in America.

"We should have a school for fire extinguishers. We should teach men who are to fight and prevent fires what fires really are; what fireproof buildings really are; what conditions will bring certain results; what conditions will prevent those results. We have no standard for anything in connection with fires; we have no literature, we have not even the experience of men, who have fought fires all their lives, for when they die their knowledge dies with them. And so I say we should have a school for this. For example, it might be established at Cornell in connection with the schools of engineering there."

A graphic picture of the proportions to which the fire waste of the United States has grown was drawn by Mr. Wentworth. He has been Secretary of the Fire Protection Association since its organization in 1896, when it grew out of an effort to standardize sprinklers, and later to standardize hose, pumps, extinguishers and other protective devices.

"Figures gathered by the Department of Commerce and Labor," he began, "show that in six European countries the annual fire losses are 33 cents per capita. The number of fires for every 10,000 of population is eight. In the United States the annual per capita loss is \$3 and the number of fires for every 10,000 of population is forty. Berlin, with a population of 3,000,000, has an annual fire loss of \$175,000; Chicago, with a population of 2,000,000, has an annual fire loss of \$5,000,000. Berlin pays \$300,000 a year for its Fire Department; Chicago pays \$3,000,000.

"Our \$3 per capita fire tax is just as actual as if a collector compelled its payment at your door. Yet the man in

the street utterly disregards the conditions that bring it about. His cellars, his garrets, his closets are filled with the rubbish that fires feed upon.

"His stores and his factories are no better. There are a thousand factories in New York City as bad as that in which that frightful affair in Newark occurred.

TERRIBLE FIRE WASTE HERE

"Our personal habits are no better. In Europe when you want a match you have to go where the matches are. Here we have them on our mantels, on our tables, in the drawers of our desks, in the pockets of our old clothes. If we wake up in the middle of the night and cannot instantly lay our hands upon a match we feel abused. And every match is an incipient fire; it may be an incipient conflagration.

"The fire waste of \$250,000,000 a year—\$500 for every minute of every hour in the twenty-four—that has come in the United States touches the pocket of every man, woman and child in the land. It strikes as surely as indirect taxation; it merges into the cost of everything we eat or drink or wear. And it is created wealth that is destroyed, not something that nature will restore.

"Yet people go on, indifferent to it, with their minds clouded by a belief that the insurance companies pay for it. How could they? They are merely the collectors and distributors of that portion of the tax which is represented by their policies. Half of it they never touch; it falls upon the householder direct."

A good fire marshal law, Mr. Wentworth thought, the holding of inquests after every fire and an effort to establish responsibility, a uniform building code, the abolition of shingle roofs and the isolated storage of inflammable and combustible materials, were urgent needs.

Mr. Evans proved an advocate of supervision.

"There ought," he said, "to be regulation of fire insurance companies as there is of national banks. There are weak concerns writing insurance in every State that ought never to be allowed to issue a policy.

"The habit of too many companies is to regard the income and let the hazard take care of itself. At the time of the Baltimore fire I was told on the most reliable authority that not a few insurance men looked on that loss of \$30,000,000 as a good investment, from a commercial standpoint. There was danger then of a weakening of rates, but the conflagration drew the warring elements together and the level was maintained."

Mr. Israels told the committee that the real estate speculator was a factor in the fire problem.

"He builds no better than the law compels him to," he said. "The loan companies are partly responsible for this, for they will not give the man who wants to build well any more than they will give the man who builds just to pass the inspectors.

"And while I am speaking of this I would like to say that in all my dealings with Chief Croker I have found him most exacting and careful in trying to put into every new building all the protections against fire that he could."

Subsequently the Asch, or "Triangle," fire caused the New York Legislature to pass a second Hoey bill for a Fire Prevention Bureau for New York City (of same general force as Philadelphia Fire Marshall bill).

The following reprint from the New York Journal of Commerce of May 2, 1912, tells how this latter bill is actually operating:

HOW FIRE PREVENTION BUREAU IS WORKING

Is Conducting House to House Inspection Between Chambers Street and 34th Street—Buildings Where Life May Be Endangered in Fire First Consideration

A conference that took place this week between Fire Commissioner Johnson and Chief Guerin of the Fire Department and the Insurance Committee of the Merchants' Association, though the discussion was an informal one, is likely to bring about a better understanding, it is believed, between the officials of the Fire Department and the commercial interests of the city. The committee was desirous of knowing from authoritative sources what measures the Fire Department has taken to give effect to the Hoey fire protection law, the enforcement of which is of much consequence to manufacturers and business men. Particularly they sought information as to the work of the special Fire Prevention Bureau established by the department last fall.

The committee consists of John C. Eames, of the H. B. Claflin Co.; C. F. Shallcross, manager of the Royal Insurance Company; Alfred E. Marling, of Horace Ely & Co.; S. P. Benedict, of Benedict & Benedict, and Frank E. Chambers, of Rogers, Peet & Co., chairman, with F. B. Berard, secretary. It was hoped by them to learn what

the Fire Department is doing as regards the enforcement of certain provisions of the Hoey act drawn up at the instance of the merchants of the city, with a view to the reduction of fire hazards. These related especially to the prevention of the accumulation of rubbish and waste materials in cellars and basements, the periodical inspection of fire prevention installations and equipments, such as hose, standpipes, sprinkler systems and the like, and the inspection of buildings for the removal of structural defects.

The committee believed it most important that the first matter should be taken in hand first and they propose later on to seek similar conferences with the Superintendent of the Building Department, Rudolf C. Miller, the Assistant Corporation Counsel, and other city departmental authorities, so that without undue hardship to property owners, by approaching the latter in a spirit of co-operation and practical sense, the heavy fire loss of the city and the dangers involved may be diminished.

"The Merchants' Association," said Frank E. Chambers yesterday to a representative of The Journal of Commerce, "has long been trying to bring about improved fire conditions by co-operation between the fire and building departments and the mercantile community. The Asch fire fastened public attention on the necessity of various reforms we had advocated. We were anxious to know how the Hoey fire prevention law, passed as the result of the Commission's report upon the fire conditions of the city, is being carried out, and we believe it will clear up misunderstanding if the policy of the Fire Department is better known to the business community. Commissioner Johnson made it clear to us that it is the wish of his department to co-operate with the Building Department, so that in new construction the requirements of the two departments should be known to the architects and property owners and much expense now often incurred by owners and occupants should be saved by avoiding mistakes or omissions.

"The great thing is to get people to see that it is irrational to spend \$9,000,000 a year for putting out fires and begrudge a few hundred thousands for their prevention. The fire losses of the city may be put at about \$16,000,000. The sum paid in premiums is more than double this amount, and adding the cost of the Fire Department the full burden may be placed at about \$40,000,000 a year. The business men and property owners pay this great bill. They ought to encourage everything that would reduce it, and if by taking means for the prevention of fire we can do so, the

insurance people could afford to reduce their rates. The premiums would be cut down and business men would get back a larger proportion of their investment in safety appliances, the installation of sprinkler systems and the like.

"It seemed to us that the first attention of the Fire Prevention Bureau should be given to places where life is endangered by fire risks. One of the first practical steps to be taken is the removal of rubbish which accumulates in basements. It is the practice of janitors to accumulate much waste material and sell it. A spark setting on loose waste was probably the cause of the Equitable building fire, and it is so in many cases in factories and lofts. Property owners would do well to co-operate in keeping clear their cellars and basements. We would advocate, too, that every building for which the basement or cellar is used for business purposes should have sprinklers connected with the street mains which would give sufficient pressure. The installation would then not cost more than \$500 for the ordinary three-floor house on the ordinary city lot. Many little fires start in the basement floor which would quickly and easily be put out before life was endangered or much property damaged.

"Commissioner Johnson's explanation satisfied us that as far as his Fire Prevention Bureau is concerned, with the means at his disposal under the appropriation allowed, the bureau is busily engaged. He has seventy-five men at work, and on the average each is inspecting ten buildings a day. Considering, however, that there are 250,000 buildings in New York to be inspected, the force appears too small.

NEW FIRE MARSHALS

Nine Assistants Taken from Civil Service List

Fire Commissioner Johnson yesterday announced the appointment of nine assistant fire marshalls at salaries of \$1,500 each a year. The resignation of Edward F. Croker, Jr., son of the former chief of the department, as temporary fire marshall was also announced, as was the resignation of David E. Kelly, chief of the Bureau of Combustibles.

The new assistant fire marshalls, who were taken from the head of the civil service list, are: William A. Finn, Montgomery Wade, Rudolph Dillman, William J. Coen, William F. Walsh, Frederick J. Melvin, George A. Lynch, Israel Spielberg and Joseph Whalen. The salaries of the old assistants were raised to amounts ranging from \$1,800 to \$2,500 per annum.—*Journal of Commerce*, New York, April 21, 1912.

DAY IN NEW YORK

New York, April 24.

Fire Commissioner Johnson has won his fight to have the General Postoffice building comply with the fire prevention regulations of the New York Fire Department. Johnson announces that he has received from the Treasury Department a letter promising that the changes called for by the Fire Department would be made. Some few weeks ago the Commissioner gave notice that the building was not equipped with the necessary appliances for the prevention of fire and the safeguarding of life.—*The Public Ledger*, Philadelphia, April 25, 1912.

NEW BUILDING CODE FOR NEW YORK

The following reprint from the Insurance Press (N. Y.) of May 1, 1912, explains the process of studying and preparing a new Building Code for New York:

NEW BUILDING CODE

New York's Proposed Code Free from Political Preparation

Municipal building codes are more often indicative of political chicanery and of preferences to privileged interests than of a desire to improve conditions to conserve life. This is quite manifest in the existing code in New York City, wherein the matter of property is of chief consideration. In the new building code, however, conservation of human life is given first consideration.

The new code, prepared by the joint committee on city departments of which Benjamin D. Traitel, ex-president of the Building Trades Employers' Association, was chairman, and Robert D. Kohn, of the New York Chapter American Institute of Architects, secretary, was submitted to the Board of Aldermen on April 23, and referred to the building committee, which will hold public hearings.

Of much significance is the membership of the joint committee, which was composed of representatives of the following organizations: New York Chapter American Institute of Architects; Building Trade Employers' Association, New York Board of Fire Underwriters; National Board of Fire Underwriters; American Institute of Consulting Engineers; Brooklyn Chapter American Institute of Architects, and New York Society of Architects. The Borough Superintendents of Buildings and Chief Inspectors of Buildings in Manhattan and Brooklyn were advisers to the committee.

In view of the varied character of membership it may be said that the code is a harmonized crystallization of many points of view. And it is certain that in the preparation of any other code the deliberations have not been as independent as they have in this case. No preference is given to any particular building materials, and the committee has been competent to solve the problems confronting it without consulting private interests.

The old or existing code may be said to be a patchwork of previous codes in which features long out of date are retained. It utterly fails to cover present conditions, and the only relief had, has been in the discretionary powers vested in the superintendents of buildings. Many requirements are queer, to say the least, and there is nothing specific covering the very important feature of exits from buildings. The use of inferior materials is encouraged, and those of a fireproof nature are not. Many of the provisions favor certain trades, as for example the requirement for undue thickness of walls in fireproof buildings.

In the new code an attempt is made to cheapen the cost of fireproof construction and to encourage the use of fireproof materials. The thickness of walls in fireproof buildings, where carried by frame of building, will be 13 inches throughout. Exit requirements for factory and loft buildings are quite complete. Change of occupancy that might require different application of the requirements of the code are provided for. Buildings are classified as follows: public buildings, business buildings and residence buildings. Floor load requirements are made more specific and those covering construction of floors, more rigid. Reinforced concrete is put on an equal footing with steel and tile. There is no limit to the height of buildings. The matter of fire limits is left open. The code does not include classes of buildings under the jurisdiction of the tenement house department. Architects, builders and engineers are not required to register.

The provisions of the code of most interest to fire underwriters are: large floor areas prohibited, unless building is equipped with automatic sprinklers, and floors subdivided by fire partitions; stair and elevator openings required to be enclosed, the Philadelphia fire tower provided for, and the very extensive provisions for the protection of exposed openings in buildings.

The code puts a premium on the use of fireproof building materials, automatic sprinklers, wireglass and fire shutters, which is an innovation in building requirements. Tests of new materials are left to a joint conference of

borough building superintendents, and no form of construction will be debarred because it is not provided for in the code. It is said that the new code removes the negative influences of the existing code, and it is expected that new building operations will be stimulated.

Moving picture theaters having a capacity of less than 600 persons are not provided for in the code, as a separate ordinance now before the board of aldermen covers the subject. Larger shows come under the heading of theaters.—*The Insurance Press* (N. Y.), May, 1912.

"FIRE INSURANCE AND PREVENTION AS RELATED TO CREDIT"

(October 7, 1909)

Address Delivered by Powell Evans, of Philadelphia, Before Fortieth Annual Meeting of the Fire Underwriters Association of the Northwest

Mr. President and Gentlemen: This subject is so large that it touches all developed property and the whole of the commerce of the country, and one would necessarily be superhuman to have an authoritative opinion of it all; hence as briefly as may be I will reach my own viewpoint.

There is little need to indulge in definitions. Credit is a derivation from the Latin "crede"—I believe. It is the belief that any obligation will be met as agreed. It embraces the moral as well as the material obligation. Its warrant is sealed by the fact that the obligation incurred is finally met. Between incurring and meeting an obligation lies that gulf of the unforeseen which we bridge by hope and belief—whose values are measured by our resources, knowledge, caution, courage, energy and good intent. Yet with all these present in quantity and quality we must still allow for the elements of the unexpected and the uncontrollable. Add the total of these last named and add further the cost and reward for providing surely and adequately against them and the result is the cost of insurance, which by methods known to all is distributed as a tax over the country at large. It follows clearly and logically that insurance is an essential in sound credit—always against the elements which experience has shown on the average to be dangerous and widely on life. The creditor in any form should justly be relieved of the risk of accidental or elemental destruction of the basic security after taking the moral and commercial risk commensurate with the return, even without such destruction being considered. On such a limitation of risk only can average solvent credits be continuously extended. The borrower who neglects or declines to insure should justly pay the usual charge for credit plus the cost of insurance in each case. Hence the obligation for insurance in all mortgages and deeds of trust and the wisdom of demanding it on all buildings and personal property and merchandise used as a basis for loans or credits from banks or generally in commerce.

I therefore believe that in principle and practice safe insurance and sound credit are inseparable in solvent commerce. Self interest as well as this principle has worked to make the use of insurance almost universal, but the average banker and merchant of the country yet finds sufficient negligence on the subject to demand a sharp eye on this element of credit and should take deep interest in sound State laws regulating it.

Assuming therefore as an axiomatic premise that insurance should be universal on destructible property, the logical conclusion is that insurance should be (1) safe and easy to buy and (2) as cheap as controllable conditions permit. Insurance is a paradox in that it must be cheap yet dear, and easy yet difficult to obtain—that is so simple and sure in contract terms as to be understood by all and so low in cost as to be purchasable on any reasonably good moral risk and physical fire hazard, yet so safeguarded against improper purpose and so dear on unduly hazardous property that it may be almost unprocurable with commercial penalties to follow this condition.

The first point covers the whole range of relations between the insured, the agent and the insurer—the proper form of policy and law relating thereto; the reasonable control of the broker; the energy of the survey and inspection bureaus; the financial condition and solvency of the companies, with public knowledge of their condition and their control by the State.

The second embraces the subject of fire loss and its cost, and fire prevention—in all its phases of building construction, protection and occupancy—to reduce this.

These relations are so ramified and interwoven, as you well know, that they cannot be briefly set forth with any degree of clearness, nor is it necessary here to attempt more than a reference to the many details. All the great branches of political, financial, commercial and engineering problems are involved. The issue of paramount importance, it almost goes without saying, is the total fire waste and related losses with the resultant cost of insurance, and the method to reduce both of these—in fact, the broad subject of fire waste and fire prevention.

Now the special purpose I have in addressing you today as a merchant and manufacturer, and more remotely a banker, is to emphasize the fact that we already know that all these problems exist and one by one we know many practical methods of ameliorating them all. We have experts—individuals and bodies of men—who point by

point can advise us authoritatively of all evils in this connection that are excessive and how to grapple with them. We know, in fact, a great deal about what is wrong, how it is wrong and how it can be bettered—in detail. We recognize that the United States fire waste is notoriously ten times greater than in Western Europe, and that it should be practicable to reduce it at least two-thirds—and yet it keeps growing, and we have so far not succeeded in controlling or reducing it. Why? Because we are not all pulling together and in the same direction at the common load. That is a large part of the answer. It is the same message Aesop gave ages ago in his fable of the father who showed his sons that single sticks one by one could easily be broken, but bound together were unbreakable. It is the old motto, "Divided we fall, united we stand."

It will now be well to turn from a generalization in some particulars to sustain this view, and to analyze frankly the situation.

INSURANCE A COMPACT FORCE.

Insurance in this country up to the present time has been controlled more by the companies writing it than by any other force. They compose one of the strongest and most compact forces in trade, organized very thoroughly everywhere. They are within the law, yet above it, in that they comply with laws passed to regulate and control them which are enacted often despite their opposition, yet by virtual combined control of a necessity by private and unincorporated bureaus they assess and collect toll on property largely without outside control and as they see fit. The survey, the rating, the adjustment—the whole Alpha and Omega of insurance are in their hands. The materials of construction, of protection, of occupancy, of buildings and contents are in their hands to regulate as they think best and assess to the limit they alone determine. If their conclusions are not respected, no insurance issues with all the dangers and disabilities this entails or excessive charges are made. This is despotism, but on the whole it has proven reasonably beneficent. Yet it is wrong—because the whole subject should be regulated by forces equally powerful, informed and organized—by the buyers of insurance on the one hand and the sellers of insurance on the other. As against the insurance organization the public is an army without a leader, clustering as regards this subject in haphazard groups here and there as incidents or circumstances determine and sniping at

the common enemy as they can. They don't know the subject as an engineering or financial problem, yet they feel the restraint and are suspicious and resentful. Hence a trade body here, a city there, a State elsewhere are always in conflict on some subject with the insurance organization.

Mr. W. N. Johnson, one of your profession (of Erie, Pa.), told you this in his address on "The New Gospel of Publicity" at your meeting last year. Out of this widespread but largely disassociated interest and activity against fire waste is a crying need of a harmonious principle and plan of action which all concerned should discuss and agree upon—then proceed actively and with a united front to get into practical operation.

It will not be out of place here to enumerate the agencies now at work on some phase of this subject:

United States Government.

- Department of Interior;
- Geological Survey (on building materials).
- Department of Agriculture.
- National Conservation Commission (in State Association).

State.

- State Fire Marshals (national association).
- Insurance Commissioners (national association).
- Fire protection associations.

Municipal.

- League American Municipalities (Mayors in national association).
- International Association of Fire Engineers (city fire chiefs, marshals and commissioners).
- (Representing fire departments, police—of cities all over the United States).
- Firemen's Association (national organization of city firemen).

General.

- American Bar Association (commissioners on uniform State laws).
- National Association of Credit Men.

Commercial.

- National Association of Manufacturers.
- National Electric Light Association.
- National Electrical Contractors' Association.
- National Association Master Sheet Metal Workers of U. S.
- National Association Master Composition Roofers of U. S.

National Hardware Association of U. S.
American Street and Interurban Railway Association.
American Warehousemen's Association.

Engineering.

American Institute of Architects (rebuilding).
American Institute of Electrical Engineers.
American Water Works Association (re standard city water supply).

Stock Insurance.

National Board of Fire Underwriters (with its engineering committees; notably on Fire Prevention, which has surveyed the water supplies and fire departments of twenty-six (26) cities); on Lighting, Heating and Patents (including the Board of Consulting Engineers; the National Fire Protection Association; the Underwriters' National Electrical Association and the underwriters' laboratories)—and its associated "rating," or "underwriting," or "inspection," or "survey," or "fire prevention" bureaus and exchanges in nearly fifty cities and centres all over the country.

The National Association of Local Fire Insurance Agents.
Mutual Insurance.

Associated factory mutual fire insurance companies and factory mutual laboratories (engineering, rating and underwriting).

All the above are actually working at some or all the problems of fire waste and prevention, with varying interest, knowledge and activity—but more are needed.

I made the suggestion of taking membership in the National Fire Protection Association—the principal source of engineering and practical knowledge in the country, combining as it does stock and mutual insurance sources—to the National Conservation Commission and to the League of American Municipalities, and understand both subsequently took this step.

I made the same suggestion to the three great commercial organizations that in a measure I represent here now, and they all acted in accordance with it.

I have in the same way approached the American Bankers' Association, as this fire waste problem is a credit consideration of vital importance to their interests.

I have in the same way approached the National Board of Trade, as its nearly one hundred constituent local boards should have the deepest commercial concern in the problem. All trades leagues and chambers of commerce should show like interest and recognize their share of responsibility in permitting a continuance of present fire waste conditions without action or protest.

The National Grange, with its organization covering practically every State in the Union, and including something like a million farmer members, should by all means be brought into this movement because of the average character of their buildings, their isolation and their need for better knowledge of this subject.

Real estate organizations, trade organizations in all lines of commerce and manufacture, and generally all public and social bodies, are morally and economically concerned in the waste of life and property from fire and its cost to the individual and the constituent nation.

College courses on fire insurance and insurance engineering are now part of the curriculum in many institutions and should be extended and encouraged.

Finally, the daily papers, magazines and trade journals should aid in freely distributing broadcast more regular and instructive data than the occasional protest and haphazard notices of fires now usual.

The above outlines the range of organized activity now interested and which should properly and speedily become interested.

Does any person or body of people desire to know the subject? There is any amount of facts known and prepared which are easily obtainable by any one interested.

I prepared a paper on Fire Waste and Prevention for the first conference on the Conservation of National Resources at the White House May 13 to 15, 1908, which was published in part in its proceedings.

A special committee of the National Board of Fire Underwriters followed this up with an address on the same subject at the later conference, December 8 to 10, 1908.

The Report of the Committee on Statistics of the National Board of Fire Underwriters of May 13, 1909, includes the "Preliminary Report of the Fire Losses in the United States for the Year 1907," issued by the Department of the Interior, U. S. Geographical Survey.

These papers show in general and specific terms the problem of United States fire waste in its useless and hateful enormity.

In more general terms good viewpoints are presented in an article, "Who Killed Cock Robin?" by Mr. A. F. Dean, a well-known underwriter, in the Midland Magazine of September, 1908, and in an address by Mr. Franklin H. Wentworth, secretary of the National Fire Protection

Association, before the ninth annual meeting of the Texas Fire Protection Association, June 4, 1909.

Somewhat more of the insurance view of fire waste is presented in an address on "Fire Insurance Rates and Losses" by Mr. Henry J. Furber, Jr., general counsel of the Chicago Board of Fire Underwriters, before the Chicago Credit Men's Association, April 15, 1908; in an address on "Fire Waste," by Mr. Edward T. Campbell, president of the American Central Insurance Company, before the Credit Men's Association of St. Louis, December 10, 1908, and in an address on "Fire Insurance" by Mr. George P. Sheldon, president of Phenix Insurance Company of Brooklyn, N. Y., before the National Association of Credit Men at their annual meeting, Philadelphia, July, 1909.

The National Association of Credit Men and all of its sixty local branches issue the above addresses in pamphlet form, as well as a series of six circulars dealing with the necessity (1) of adequate insurance, (2) of having insurance contracts strictly applicable to the conditions of the risk, (3) of dealing with strictly responsible insurance companies, (4) of elements constituting the premium rates, (5) of protection against fire and (6) of company insurance and other special clauses.

In the Annals of the American Academy of Political and Social Science (Philadelphia), 1905, appear three papers by insurance underwriting and engineering experts which show very clearly from the experienced standpoint of the writers the reasons and principles at work in their respective subjects:

"Rates and Schedule Rating," by Mr. Chas. A. Hexamer.

"Fire Prevention," by Mr. Everett U. Crosley.

"Standard Fire Insurance Policy," by Mr. C. Oviatt.

On the latter subject Mr. Henry C. Evans, president of the Continental Insurance Company of New York, has prepared a model form of policy with very complete references, after long and careful study and co-operation with other authorities, which modifies in many respects the widely used New York State form.

Mr. D. S. Sawyer (of St. Paul, Minn.), chairman of the Legislative Committee of the National Association of Credit Men, after consultation with the Commission on Uniform State Laws, has drafted a model policy form which perhaps has more authority behind it and leans slightly more towards the insured than the above.

THE FEDERAL FORM OF POLICY.

On the subject of a Federal form of policy as against independent State regulation, it is well worth while to read the address delivered before your annual meeting of 1905 by Hon. James M. Beck, as well as the report of the Committee on Insurance Law by the American Bar Association at Portland, Me., August 26, 1907, which latter tells in what respect State regulation on this subject has failed, and worse. Both agree that the business of insurance is interstate in its nature and that the form of contract is properly subject to national regulation.

As to the value, even the imperative necessity, of State fire marshals to reduce fire waste—the address of Dr. Clarence Maris, pyrologist and Assistant Fire Marshal of the State of Ohio, delivered before the National Fire Protection Association at their thirteenth annual meeting, New York, May 25 to 27, 1909, is most illuminating on the march of this movement in twenty States and the entirely inadequate reasons why it has failed to come into being in the remainder.

An address by Mr. Charles W. Whitcomb, first State Fire Marshal of Massachusetts, before the members of the Ohio Legislature at Columbus, O., March 2, 1909, is still good reading in connection with this subject. The Ohio and Connecticut fire marshal laws have been largely based on the general plan of the Massachusetts statute.

There is certainly a widespread agreement on and demand for the movement. The American Bar Association Committee on Insurance Law presented a model form of State fire marshal law in their 1907 report.

The annual reports of the Ohio State Fire Marshal (especially 1907) show conclusively the reduction in life and fire loss accomplished in Ohio by this movement within a few years, and the annual reports of the Fire Marshals for Wisconsin and many other States conclusively show the definite improvements in fire waste conditions in all States which have adopted this agency.

The Pennsylvania State Conservation Commission, of which I have the honor to be a member, is committed to the advocacy of a State fire marshal law in the State of Pennsylvania at the next session of the Legislature.

I cannot pass from this point without quoting from a recent letter from Mr. George C. Neal, Deputy Chief of the Massachusetts Fire Marshal's office:

“The matter of the investigation of fires is one of the most important that I know of in criminal procedure. What

is everybody's business is nobody's business, and it is so difficult to secure evidence in a fire case that unless a detective is specially trained in that direction the work cannot be done as efficiently as it is done by a fire marshal organization."

On the regulation of brokers a careful study is in progress between the Insurance Committee of the National Association of Credit Men and the National Association of Local Fire Insurance Agents, which tends to the State examination and licensing of brokers.

I have advanced the following proposition in this connection to limit as much as possible the issuance of excessive insurance, viz.;

Required by Law: "Any applicant for insurance should make application in triplicate, alleging to the best knowledge and belief and in reasonable detail the values concerned. The broker, if any, should be required to so check this application as to indorse it or else decline it. If indorsed, the insurance company to issue its policy—should it elect to do so—with the application attached as a part thereof. In the event of loss, inquiry and adjustment, the company to report any concealment or misrepresentation discovered to the proper State officer, whereupon—on proof—the same penalties to attach to the assured and the broker on the application as would lie against a false credit statement for bank loans or merchandise in any State—in the absence of other specific penalty."

Such a requirement would be practical and inexpensive. It would force the applicant to know his own affairs and to run grave risk from misrepresentation or even carelessness. It would force the broker to greater care in procuring the issue of policies and safeguarding losses.

Brokers should also be required by law to arrange for payment of the premiums on policies procured through their agency at the time of issue, as usually failure so to do operates to invalidate the insurance which the assured in taking assumes to be binding.

Brokers finally should bear the burden of so shaping the final policy issued—by riders, etc.—as to protect the applicant to the extent agreed, and to make this plain in writing to the applicant in advance—as the forms of contract are not easily or generally understood by the public.

The local underwriting boards throughout the country are largely controlled by the element of insurance brokers instead of by direct representatives of the insuring companies themselves.

The interest of the broker must naturally lie primarily in the direction of selling the greatest amount of insurance

possible at the highest rate and getting the largest commission on it. It is this drag on the broker's mind, interests and actions which is responsible for a part that is bad in the fire loss and fire insurance situation in this country.

It would not be hard to pick out numerous instances of the broker soliciting business rather than sound insurance and making the way as easy as possible towards this end, with a preference rather for a high rate instead of a low one on the theory that the rate would cover almost any loss that would occur—therefore, better let it be high and get a good slice of it. You could not count on the fingers of your hand the officials of insuring companies, either, who would not oppose this view.

MODEL BUILDING CONSTRUCTION

As regards building construction, protection and occupancy, the Model Building Code (second edition 1907), proposed by the National Board of Fire Underwriters and the New York city and the Cleveland codes give exhaustive data, likewise the reports of the National Fire Protection Association and the lists of approved materials and devices regularly issued by the Underwriters' Laboratory.

The printed index to subjects covered in the printed records of the National Protection Association can be obtained by any one from the office of its secretary, 87 Milk street, Boston, Mass., and will disclose the vast amount of technical engineering study and investigation that has been done along this line. All members of the association also receive regularly the Quarterly, published by the association, by Mr. Henry A. Fiske, editor, at Hartford, Conn., which teems with valuable engineering data on building construction, protection and occupancy.

I suggested more than a year ago that the District of Columbia formulate and adopt a building code so broad in principal that it could be employed as a model by the rest of the country, but after consultation with Mr. MacFarland, one of the Commissioners of the District especially charged with this matter, it became apparent that by virtue of the limitations surrounding his office and having regard for the decisions of the courts controlling the matter, their code must necessarily be strictly confined to their own necessities, which, due to the peculiar physical conditions obtaining in Washington, are not nearly so urgent as in many other great cities in the country.

As regards insurance and fire loss abroad, the statistics gathered in 1905 by the Bureau of Manufactures of the

Department of Commerce and Labor through the principal United States consular offices in Europe, discloses very clearly why conditions here are so much worse and along what paths as to building construction and insurance contract regulations the way lies to improve them.

A long article in the Public Ledger (Philadelphia) February 1, 1908, "Real Estate Guide" supplement, condenses much of this data in form which may be generally understood.

Can any one therefore doubt but that we already have very full information in detail on almost every point in the problem?

Any organization in the country which interests itself in fire prevention can for \$15.00 per year become a member of the National Fire Protection Association, and any member of the former, therefore can become a subscribing member of the latter at \$5 per year, and will regularly receive the mass of authoritative information they regularly distribute on the physical side of the subject.

This is the simplest and easiest path to knowledge about how to fight fire waste, and if I may venture to suggest it, your presence in that membership would add to the list of good examples.

The little homely truths, which nullify much of the effect of larger matters well cared for, should be kept always well to the front. The rat and loose match, the neglected flue, the oily rag in a dusty corner—all these take a total annual toll which costs the average citizen far more than he would ever guess.

Any one can learn wherein old buildings are hazardous to owners, occupants and neighbors—and cost dearly to insure—when made of inflammable materials, with concealed spaces and vertical openings, and fire-spreading combustible roofs, without standard approved tin-clad divisional doors within to arrest the travel of fire, or like shutters or wire glass to keep fire from spreading in or out, or automatic sprinklers to detect and put out fire at the point and time it commences within. These and many other reasonable improvements can be made to any old property and usually with excellent profit to the owner and occupant—yet individual initiative makes slow progress, and the State and city do little to hasten it.

Any one desiring to erect a new building can learn from the same sources every detail of method and comparative costs for either fireproof or slow-burning construction—and still many owners, designers and builders think little and care less for this phase of the subject until often too

late—and the public which runs the State and municipal governments allows lax laws to remain when good ones could easily be devised and enacted, and sits quiet when such laws as exist are carelessly enforced or sometimes not at all if they touch uncomfortably any one with “a pull.”

The data is at hand, but there has not been adequate co-operation and compromise among the mass of agencies at work; and the average man who designs, builds and owns property so far seem indifferent and has not acquired or used the knowledge collected and tested to anything like a proper or reasonable extent.

A dull student of physics when questioned in examination by his professor as to how he would use an Aneroid barometer to ascertain the height of a tall building replied that he would tie it to a string and let it down from the top to the street, then measure the string. The public is now using fire protection knowledge with like intelligence.

What should be a program to round up this data out of all this available material and get it into combined forceful and speedy action by all the agencies concerned?

The underwriters—even with their growing list of allies—cannot succeed much better than now, with present methods. They cannot arbitrarily press the public too closely in requirements or charges because public opinion is not sufficiently enlightened to know and in ignorance is too suspicious to co-operate with and support their measures—nor are all of these in present form sufficiently shaped to the common interest or in all respects so altruistic as to be entitled to unquestioned support without change. Too much pressure with the competition among insurers themselves causes the loss of too much income sometimes; and the State, which in other guise is this public, has not yet put on the pressure to suppress a common waste for the common good. We then come to the solution of educating the public and concentrating with them on a concerted expert program which all will authorize and enforce.

THE PRINCIPLE OF PUBLICITY

You are beginning to believe in publicity as a principle, but if I may be allowed the frank opinion, it is now pursued with too little concrete plan or generalship and legislation is being sought without waiting to adopt statutes on which all should be agreed and in which all should be represented.

For instance, the National Board of Fire Underwriters caused to be introduced into the Illinois Legislature March 10, 1909, a resolution providing for a commission to prepare a State building law, in which they proposed that the commission be composed of fifteen members, including representatives from the American Institute of Architects, Western Society of Engineers, the National Board and the Builders and Contractors' Council.

Such a proposition to my mind should have been drafted after consultation with the commercial bodies concerned in that State and they should have been represented on it, as well as the underwriters, architects and builders. If this form of State legislation is desirable all the interests concerned should be considered and a model prepared for use all over the United States and thereafter revised with special reference to conditions for each State.

Is it not an error to initiate such legislation incorporating only the views of a portion of the interests affected instead of all? Another instance that may be cited is a bill introduced into the Sixtieth Congress (second session), H. R. 23,407, Feb. 23, 1901, by Mr. Flood, to create a commission to prepare a code of laws to regulate and control insurance companies doing business within the District of Columbia, which is included in the 1909 report of the Committee on Insurance Law of the American Bar Association.

Would not our legal friends, who desire to see a model on this subject applied to the District of Columbia for the benefit of the rest of the country, have been better advised if they had counseled in advance with insurance and commercial interests so that the proposal could be understood by and receive the support of all concerned instead of a part? This principle of action appears to me to underlie the possibility of all successful advance in this matter at this time.

Let us now consider for a moment what should be included in a comprehensive program. The National Board of Fire Underwriters in their report of 1909 included the substance of a letter to the National Conservation Commission on this subject, in which they recommend, in substance (1) educate the public that property destroyed by fire is an absolute loss and that the cost of insurance thereon is a general tax; (2) that the States severally adopt and enforce a building code, demanding improved construction (based on their model code, which might or might not on analysis prove the very best for all concerned from

the standpoint of the assured as well as the underwriters); (3) that the States establish and maintain fire marshals with proper powers; and, finally (4) (this possibly belonging more as a corollary to 2 above), that municipalities adopt ordinances governing the use and storage of explosives and fire hazards of every form from every cause.

As stated above, I believe that two other general subjects should likewise be included, viz., (5) that the States severally require the examination and licensing of insurance brokers and (6) that the States severally adopt a uniform insurance policy.

It is not enough that any one body or any one interest related to this great subject should advance such a program, no matter how powerful or authoritative.

A congress of all interested, limited only to the scope of the subject and the limits of the country—a wide range of which have been enumerated above—should meet for this purpose, under the auspices and direction of the representative bodies of property owners, merchants, manufacturing and transportation interests of the country, who in the aggregate pay the major portion of the insurance and fire loss bills and who have hitherto held themselves more or less uninformed and aloof from the problem.

This congress should organize committees to take testimony from every authoritative source and draft model proposals covering all the great points involved, viz., (1) the legal propositions; (2) the engineering propositions; (3) the underwriting propositions, taking in financial phases of insurance; (4) the State of political propositions; (5) the municipal and county, or in other words, the police propositions; and finally (6) the commercial propositions or that hitherto unexplored view which trade bodies and associations of every sort would present if they studied the subject in all its phases and formulated those intelligent demands on all points which their interests would warrant.

To gather together and organize such a congress would require a vast amount of work and preparation and quite considerable expense, nevertheless I am convinced that it is the right step. It should be thoroughly representative as to the bodies brought together (both geographically and with respect to the interests they constitute) and as to the men who represent them.

The program resulting from such a movement would have such weight not only as to the propositions evolved, but as to the forces behind it all over the country as to stand an excellent chance of enactment and indorsement

everywhere, any political or special interest to the contrary notwithstanding.

For the past five years up to the beginning of 1909 the United States fire loss averaged about \$750,000 per day. For the first eight months of this year it has been approximately \$136,000,000, or nearly \$28,000,000 more than for the same period of 1908. These are huge sums—they are all absolute waste—they can be reduced more than one-half, and I believe men can and ought to combine all over the country to this end.

If it lies within your province, gentlemen, to indorse such a meeting I will be very glad to see you take this action.

A crying need to my mind at this time in American life is that of more thriftiness and greater regard for the petty economies in life which go to constitute a healthy and continuously successful people. It is the lack of this spirit in the country which is the father of the whole situation just above discussed.

It is the lack of this spirit which taxes every individual in the nation with the result of a rotten road system instead of building good roads, as other civilized nations do.

Finally, it is this spirit in the country which is responsible for the waste in health occasioned by widespread lack of knowledge and interest about how to properly cook the best and cheapest food supply of all lands.

There is no question about the United States being the greatest country in the world physically and in the stock and intelligence of its people—but at present we are too busy and successful to give reasonable attention to important small things.

I thank you for the distinction conferred by your invitation here today and for the courtesy with which you have listened to these remarks.

CONFERENCE ON THE CONSERVATION
OF NATURAL RESOURCES

White House, Washington, May 13-15, 1908

FIRE WASTE AND PREVENTION

By POWELL EVANS

(By invitation of the President, Mr. Roosevelt)

Adopted as official report of National Board of Fire Underwriters. See Proceedings of 43d Annual Meeting, May 13, 1909.

This conference, remarkable in its scope and composition, owes its birth to the economic waste in many directions characterizing the National life and activity of the people of the United States. The topics of greatest importance are those which concern the undisputed waste which has and still accompanies the use of our National Natural Resources. Proper consideration of these questions, however, at once leads to associated subjects which seriously affect the welfare of the country's entire population, and which by their very nature can only be indirectly controlled by the National Government, but yet demand prompt and concerted action on the part of the several states.

The U. S. Inland Waterways Commission and Forest Service Bureau have during the past year urgently called attention to the widely ramifying injury inflicted on the country at large by the rapid destruction of our forests. There are three principal causes of forest waste, viz.: (1) Fire, which occasions over one-third of this destruction; (2) the size of the lumber cut (about 40,000,000,000 ft., board measure, for 1907—or 8 to 9 times that of Europe, per capita), and (3) the unnecessarily destructive methods employed in cutting our timber.

Fire loss generally in the United States is closely associated with the first two causes of forest waste above defined. The tremendous forest fire waste is paralleled by proportionate fire loss in artificial wealth, as will be shown below. Obviously the admittedly unnecessary amount of all this fire waste must arise primarily from thriftless and indifferent public opinion. Public opinion, if aroused and educated on this subject, would operate to reduce all fire waste to

its reasonable proportions. Again, the undue fire waste of artificial property all over the country arises to great extent from the use (and the unnecessary use, as better substitutes can be employed) of too much timber in building construction.

Restriction on the use of timber in city building would operate to substantially reduce fire loss, and at the same time materially reduce the demand for timber,—thus requiring a smaller annual cut, and this principally for use in the arts, where no satisfactory substitute is obtainable.

Hence any step leading to reduced fire waste would operate to both elevate public morals on the subject and reduce the consumption of timber—a twofold help towards forest conservation.

I will now outline the size, nature and the initial remedies for the *artificial fire waste* of the country.

The danger of fire—in destroying property, in the interruption of business, and in creating a permanent charge on income—is a menace to our entire business world; while at the same time it presents an ever present risk to life in the house, the shop, the factory, and in all places of assemblage—all of which touches every citizen of the country closely all the time and everywhere.

FIRE PREVENTION is the general term applied to the science of so *constructing, protecting and occupying* buildings as to minimize the danger of fire; and must not be confused with the narrower definition of “Fire Protection” applied to the mechanical aids employed to discover, resist and fight fire.

The annual fire loss of the United States, on a ten years’ average, for the years up to the end of 1902 (prior to the great Baltimore and San Francisco fires) was \$146,552,365; and up to 1908 was \$198,181,188.

The tremendous size of this waste may better be realized when measured with familiar items in our national expenditure.

The annual ten-year average fire loss up to the end of 1906 compares as follows with the like averages of the items given below:

36%	U. S. Govt. Total Receipts	\$554,390,238
37%	Net Earnings Railways in U. S.	542,274,762
37%	U. S. Govt. Total Ordinary Expenditures	532,018,116
76%	Interest paid Railways in U. S.	261,044,569
78%	U. S. Internal Revenue Receipts	253,400,164

79%	U. S. Customs	252,359,639
122%	Dividends paid by Railways in U. S...	162,124,558
141%	U. S. Pensions	140,861,166
152%	U. S. Postoffice receipts	130,201,926
156%	Commercial failure in U. S. (liabilities)	126,646,386
157%	U. S. War Department Cost	126,465,728
165%	Fire Insurance loss payments	120,352,198
180%	U. S. Gold production (coining value)	
	U. S. Silver production	109,805,439
242%	U. S. Navy Cost	81,871,647
648%	Interest on U. S. National Debt	30,568,000

The total 1907 fire loss was \$215,671,250.

In January, 1908, by far the worst record ever known was made in the fire loss sustained in the United States and Canada, aggregating \$29,582,600, approximately \$5,500,000 more than for January, 1907, and \$12,000,000 more than for January, 1906 (including 460 odd fires exceeding \$10,000 loss in each instance).

In April, 1908, the United States and Canadian fire loss was \$26,669,000, approximately exceeding the same month of 1907 by \$5,000,000 (including 376 fires reaching or exceeding \$10,000 loss each).

The United States and Canadian fire loss for the first 4 months of 1908 was \$91,464,600, or at the annual rate of \$275,000,000 for both countries (the share of the United States being higher than for any like average previous period).

All these figures conclusively prove the constant increase in fire waste, but do not represent all the cost imposed upon the country from this cause. The cost of insurance is the measure of this amount, and even this does not represent the full cost to the nation, as the expense of municipal fire protection and departments must also be included in estimating the total burden.

About 630 stock and mutual fire insurance companies during 1907 wrote approximately \$30,000,000,000 of risks for which they received \$301,038,893 cash premiums.

Not all the property burned in 1907 was insured. Nevertheless the cash premiums received by these fire insurance companies during this year show an actual average cost to the people of the United States of \$1.40 for every \$1.00 of fire loss.

It is stated by fire insurance authorities that an average of 60 cents out of every \$1.00 of premium received is used to pay insured fire loss. With these figures as a basis it

will be possible, by reducing fire waste, for the public to save on an average at once all uninsured value now burned, and in time $1 \frac{2}{3}$ of all insured values now burned.

A word now about the character of fire loss telling wherein it differs from any of the other compared items.

Substantially all of these represent mere transferals of value; whereas Fire Loss is an absolute destruction of wealth—the product of man's thought, toil and self-denial. It may be asked at this point whether this waste is unreasonably large, and capable of being reduced. A comparison with other countries of like civilization will supply a fair test. In round figures the per capita fire loss in the United States during the past year has been \$3.00 as against 33c. in the principal European countries, including England, France, Germany and Italy—or nine times more fire waste and interruption of business (which insurance cannot cover) in the United States than in western Europe. There are certain conditions in those countries that operate to effect a lower fire loss than would reasonably be possible here, viz., the larger use of non-combustible materials, due to the high cost of wood, and better building codes in letter and practice; the lower height and smaller areas employed in their city construction; and finally, the intangible influence of their older civilization, which makes these people more careful of small savings in all their affairs and generally more cautious than we have yet become. Allowing duly for these fundamental differences between the countries compared, it is yet apparent that the nine times larger fire loss in the United States than the principal western European countries suffer is outrageously and criminally greater than it should be; and this condition must arise largely from the ignorance and carelessness of this country's people. Ignorance, carelessness, or isolated self-interest, when they result in the tremendous sacrifice of life and property now habitually occurring among us from this one cause become nothing less than criminal. It has been argued by some that so far in our national development the total gain to national wealth, arising from permissible construction of buildings below the desirable standard of fire resistance (thus enabling men with limited capital to engage in business operations without undue expenditure on property), has been greater than if too restrictive building laws had been operative. There may have been some merit in this argument applied to times and conditions which have now passed, but should we not now unquestionably on the evidence begin to rigidly enforce in our cities a higher standard of fire-resisting building construction? The builder of

combustible structures should for the future be forced to locate in safe isolation on country acreage where the risk of fire will affect him alone, and even then the law should not permit a safe measure of risk to be passed in the interest of national economy and the welfare of other persons affected. In many European cities a fire is held substantially a crime, and the owner of such property where it occurs, regardless of size, must report the facts to the authorities, and is charged for the use of the public service to extinguish it. Every consideration leads to the belief that this problem needs present attention; and it is incumbent upon our Governments, trade organizations and business men all over the country to make themselves felt without delay in ameliorating this evil and unnecessary condition. Many of our business men now know more or less about this matter and apply it in their own affairs; but taking the population at large there is great ignorance not only about the fact that fire waste is as bad as I have shown it, but that it can easily be rectified. The facts must first be widely advertised to arouse sufficient interest among individual citizens to induce them to study the subject, and as far as convenient and permissible to apply the knowledge primarily in their home affairs. A weekly fire bulletin, made up from the municipal records of the cities and towns throughout the country for general distribution would fully disclose a complete list of fires and their causes. Next to this source of information in authority and completeness of information would be the records of fire insurance organizations; and third, statistics on the subject by journals continually publishing such facts. The result of this constant diffusion of information, and its absorption by the public, will be the bettering of existing properties by structural changes, possible and reasonable, and the improved protection of these buildings, and the more cleanly and orderly occupancy of these buildings—these elements constituting the gist of the reduction of the fire hazard. It will further result in the erection for the future of more non-combustible buildings with greater regard for the fire hazard than has heretofore been the rule, because with the owner informed he will see that his architect or engineer gives proper weight to these considerations we now discuss. It will further result in awakening the individual who is caring for his own needs in this direction to a sense of the danger that may exist from the ignorance, carelessness or sordidness of his neighbor. A group of city buildings reasonably correct in construction, protection and occupancy suffers less from fire hazard than if deficient in these three respects; a block of build-

ings correct in these respects is more than proportionately safe from the fire hazard than any one group; while an entire city properly constructed, protected and occupied in practice, cannot burn. It is the germ of truth in this thought which was the basis of the Napoleonic code, still the fire insurance laws of France, which provide that the individual must in a measure insure his neighbor as well as himself against fire loss. I therefore repeat that the individual who studies this problem and applies this knowledge to his own affairs will in time logically ask that his neighbor follow a like course—if not for self-interest, then in the broad social interest which denies a man the right to injure another under the law. Such public sentiment would result in better and more uniform building codes in our cities, in better water supplies, in better fire departments, and generally a better moral tone on the subject in every phase. In the face of such an awakened and organized public sentiment politics would not dare to trifle with or debase any one of these common safeguards.

A few years ago I collected copies of the building codes of most of our cities. These constitute a mass of disordered, undigested and conflicting rules. There is little difference except in magnitude and congestion between the fire danger in most of our cities, and for the same classes as to size a uniform building law should be adopted and enforced.

It is a condition substantially removed from any question of altitude, latitude, longitude, local policies or considerations of any sort except character and density of buildings. The United States Government could and should investigate authoritatively a proper building code for adoption by municipalities all over the country, elastic enough to be applicable to every sized city and town. There is neither present machinery, appropriation, nor constitutional authority for the federal government to impose such a code on the country; but it could study, formulate and impose a code on the city of Washington, which would be its authoritative conclusion on this subject broadly enough considered for national use. All persons and interests favoring a reduction of fire waste should exert their influence upon the national government to this practical end. The several state governments could then adopt this national municipal building code, and as far as possible influence its adoption in turn by the municipalities within their borders—a perfectly legal, practical and reasonable method of bringing into being a uniform municipal building code all over the country. Uniform and concerted governmental action

against fire waste from above, supplemented by widespread individual action against it from below, would together result beyond question in early and drastic correction of the evil.

The enforcement of the building code in any city is usually accomplished through the medium of the permit and inspection bureaus, and in many of our cities this is under cover and not free to the observation of the average citizen. Here is where graft may enter. The law itself may be good (and an attempt is usually made to concede this to the public because it must be exposed), but if that law is not honestly and actively applied and enforced what effective result can come from it? It is necessary that the individual taxpayer shall have the right to know that these permits and inspections are honestly and efficiently conducted. If any individual wishes to know whether his neighbor's cellar is cluttered with refuse, the contents a fire trap constantly menacing his life, property or business; or whether it holds stores of spirits or benzine or gunpowder in defiance of the law against such acts; let any one try to find out the truth in some particular instance. It will be found almost impossible to get at such facts.

Few know the risk in our cities to-day of some "Tar-rant" explosion because individuals are permitted by carelessness or worse, and in secret for their own self-interests, to follow the dangerous course of storing explosives within thickly populated areas. Such instances as the "Slocum" disaster in New York harbor; the "Iroquois Theatre" fire in Chicago; the Boyertown, Pa., theatre holocaust; the Collinwood, Ohio, school horror; and numberless fatal fires in factories, hotels, stores, residences, and every sort of place of assemblage, should make all citizens realize how constant is the life danger from present fire loss conditions to themselves and their families, apart from and above the money loss involved. Proper regulations may not exist, be applied, or be enforced; and any one or all three of these loopholes constitute a great and ever-present danger everywhere.

The average business man at present is not sufficiently alive to the situation to think or care much about it. *The average insurance man* is not troubling much about it, as he takes property as he finds it and charges a sufficient rate to cover the risk whatever it may be. *The average municipal government* is none too active in the matter because it might trouble some voter. *The average State Government* has not troubled about the matter at all. It is necessary that the attitude of all these agencies be changed if this evil is to be bettered. Of all the possible avenues to an awakening in the

matter of sufficient force to really set in motion an effective change, I believe that most progress can be made by organizing those interests which have most to lose, viz.: who pay the greater part of the cost—the individual American Merchants, Manufacturers and Property Owners who can demand with authority the enactment of uniform state laws to force better conditions in all municipalities. The necessity of bettering present fire loss conditions, as well as the ease and reasonableness of the movement, should appeal to this conference and enlist the sympathy and aid of the conferees in advance of the inevitable demand of their constituencies.

With this general idea and purpose, and with its reasons explained to you, I now propose to outline as briefly as possible the practical course as I see it which will initiate the accomplishment of the end in view.

Those not fully informed on the subject may now ask whether the means are known and understood which will operate, if applied, to materially reduce fire loss. The answer is that the detailed experience of the fire insurance organizations in the field and in the laboratory—thoroughly detailed, classified and digested for years—provides a fund of sure knowledge, which if widely known and applied will yield certain results (not conjectured but proved by wide practice over a long period). No one can sincerely question the fact that this old and great commercial organization—solely for its own interest if for no broader reason—is and has been earnestly seeking to learn the true causes and facts relating to fire loss and to discover and apply remedies to lessen it. From my observation they know a host of important facts and remedies; *but this knowledge is now bottled up in a small expert circle and is not sufficiently widely diffused among the public to enlighten, stimulate and guide the average individual in co-operating to correct the evil.*

The Insurance Organization as a commercial body selling fire policies may be as selfish and as much in combination to get a good price for its commodity as many others of our industrial aggregations, but as an expert Fire Prevention and Protection body they are watchful, careful and accurate, and it has invited all interested in the great problem to share their knowledge and help reduce fire loss. The old trade device of committees to attack the insurance bodies and hammer the rate without touching the cause has always failed and always will. It is not a sound effort for one reason, as it attacks the effect instead of the cause, and for another it attacks an opponent who cannot be caught. To understand why this is true it is necessary at this point to inquire into the character of the insurance organization.

Insurance abroad is practically all written by stock companies, conducting their business with their own capital, at their own risk and profit, at fixed rates. The policies there are usually for ten years, and by virtue of this long term and their incorporation in mortgages and deeds of trust, they are very strongly entrenched, and no other system can get a start. In the United States, on the other hand, competitive insurance is obtainable on the best risks (mills, factories, warehouses, etc.), from the Stock Insurance Companies on the one side and from the Factory Mutual Fire Insurance Companies on the other. The latter considered first—as the simpler organization—consist of about 25 companies coöperating through one central inspection bureau, who confine their risks to such buildings only as are properly built, protected and occupied, so as to be only slightly inflammable. The insured pays his assessed rate into a pool, and recovers annually as a dividend his pro rata surplus over the payment of losses, expenses and a small investment fund, hence the term “mutual.” This insurance has become very large, and is found cheap, careful and safe. To meet this particular class of competition, prominent *stock* companies have combined into *Factory Insurance Associations*, which insure a large amount of like property at a comparatively low “flat” rate.

Stock insurance proper cares for all other risks, such as the bulk of city property; mills and factories of construction, protection and operation below the standard above mentioned; and miscellaneous country property.

For all these last named risks higher tariffs are usually charged, measured by the sum of hazards by items constituting the final rate.

The officers and agents of the Stock Insurance Companies are *nationally* organized into a rating board, and further in nearly 50 different centres into *local* Survey and Inspection Boards. Out of this Commercial organization, and controlled by it, there exists a national engineering organization (National Fire Protection Association) which conducts an expert testing plant (Underwriters' Laboratories, Chicago) and co-operates with the like “Mutual” organization (Inspection Dept., F. M. F. I. Companies, Boston) in reaching uniform conclusions on all physical questions in the business.

A universal rate schedule (based on known facts, principles and tests) is nationally adopted. Any property applying for insurance is surveyed or inspected by the local board having jurisdiction; and the final rate is issued, arrived at by combining the *universal rate, the local modification of this rate, and the detailed facts concerning the property itself.*

It may now be seen more clearly why a trade body committee cannot well influence a reduction in insurance rates. Either the committee represents a trade association, spread over the country and weak at any one point where it meets the local insurance rating power, or it represents any one community attacking one local rating board which has the support of all others.

Hence, I say, do not start with an attack on rates, but rather the causes of fire loss which produce those rates. First, better conditions, and then let the rate become a commercial question of barter and sale between the business interests purchasing it and the insurance companies selling it. *If insurance is made to cost less, it must in time inevitably be bought for less.*

Here I reach the final point at which I have been aiming—*i. e.*, the suggestion for the practical step to be taken now.

The National Fire Protection Association, the engineering organization of the insurance world, organized and operated under the National Board of Fire Underwriters—the national executive body of the Stock Insurance Companies—is “an association to promote the science and improve the methods of fire protection, to obtain information on the subject, and to secure the coöperation of its members in establishing proper safeguards against loss of life and property by fire.”

Its membership consists of “active, associate, subscribing and honorary members, but none is pledged to any course of action through this membership.”

Active members (each with a vote) are *insurance boards and associations, having primary jurisdiction; and national institutes, societies and associations interested in the protection of life and property against loss by fire.* The annual dues of active members are \$15.00.

Any association having among its purposes or functions fire protection or prevention, can become an *active* member of this N. F. P. Association with a vote.

Associate members are *individuals engaged in the fire insurance business, and individual members of the organization represented in the active membership.* The annual dues of associate members are \$5.00.

Every member therefore of any such association can in turn, after the association itself has joined the N. F. P. A., become an Associate Member of the N. F. P. A.

All of this can be found in the copy of Articles of Association of the N. F. P. A., which is obtainable on application to the Secretary at Chicago.

The N. F. P. A. was organized, and is dominated to-day, by the combined insurance organizations. Its active membership is constituted of the 50 different boards, more or less, into which the stock organization in the United States and Canada is divided as I have above outlined; and also of the Inspection Department of the Associated Factory Mutual Fire Insurance Companies and Factory Mutual Laboratories; and of the following independent organizations, viz.: The American Institute of Architects, the American Institute of Electric Engineers, the American Society of Mechanical Engineers, the American Street and Inter-Urban Railway Association, the American Warehouseman's Association, the American Water Works Association, International Association of Fire Engineers, National Association of Master Sheet Metal Workers of United States, and National Electrical Contractors Association.

On these insurance boards is a representative of the Pennsylvania Railroad, one of the largest private insurance interests in the United States.

This N. F. P. A. represents the technical engineering organizations of the country engaged in studying the science of fire prevention, composed of the entire insurance organization as well as of many other national organizations interested in the science of fire prevention; and I contend that it should also number among its members not only all trade associations of the United States, but every member of these associations.

To take this step it is necessary for any association to appoint a committee on Fire Prevention—the chairman of that committee to be its representative as the active member of the N. F. P. A. because by the appointment of such a committee interest is shown in the science of Fire Prevention, which the N. F. P. A. was formed to promote. The practical benefit derived from this connection is the individual associate membership that each member can then take for \$5.00 per annum. This associate membership will bring to each such member every technical publication of the N. F. P. A. (which they issue continuously and liberally), containing the reports of their committees (with the laboratories of both the stock and mutual insurance organizations behind them), embodying their practical and technical advice on all subjects relating to fire prevention and protection. If the individual handling fire insurance collectively on property all over the country receives and studies these reports as they come in day by day and week by week, that man in time will himself become educated as a fire prevention expert, and will in turn reflect this

knowledge in a better fire prevention condition of the property in his charge; and inevitably this influence in time will result in greater safety for life and property, and a reduction in fire insurance charges in each instance. This process of education will constantly expand, and reflect itself in better municipal fire prevention conditions all over the country.

The endorsement by this Authoritative Conference will give to this movement, which is of such undisputed moment to the resources of the country in life and wealth, notable and widely announced approval. It will also constitute the first step in the study and broad use of some authoritative building code which not only relates so gravely to fire waste but also ramifies into many other questions of first importance affecting the health and happiness of the bulk of the inhabitants of the country.

I trust that in time an American Fire Prevention Association may come into being; organized nationally—with state departments, and municipal bureaus, comprising in its membership in each municipality every business house and individual in sympathy with reducing fire loss. This membership, informed and animated with this object, can use laws and ordinances in existence in every city to better present conditions, and if such do not now exist, can exert their combined influence to demand the creation of the necessary authority. Every man and woman in the country should be an ally of this movement; and should become posted about the facts in the case; and should have under law authority to report any dangerous or illegal conditions noted in any building, anywhere, and at any time, to the proper authorities; and be able to require prompt, effective and reasonable correction—just as agents and members of the Society for Prevention of Cruelty to Animals can now inquire into and resist on the spot abuses of that nature. The constant fear of fire is in every breast, as witness the protection of a policy on most property, and the incorporation of fire insurance in most deeds of trust, and its usual requirement as a basis for mercantile credit. The final thought of the average householder throughout the land before retiring to rest is to examine the fire or furnace in his house. The fact that this danger is so ever present everywhere tends in itself to limit opposition to it, because the fear is a habit, and in a measure subconscious; but the moral support of the country, which is the basis of every great movement, could, beyond question to my mind, be rapidly and effectively organized to oppose present fire waste. The frequent, irregular and unrelated newspaper

comment on fire losses shows the disposition of the daily press in the matter, and its aid could doubtless be safely counted upon to regularly disseminate more systematized information, when the need of a thorough educational campaign on the subject is properly brought to their attention. If the people of the country will generally unite in studying and working out this problem, I feel safe in estimating that in ten years more than two-thirds of the current fire loss in the United States will disappear, and upwards of \$200,000,000 of wealth now absolutely and ruthlessly destroyed will annually be saved—a satisfactory interest on \$5,000,000,000 added to our national assets, and countless lives and untold suffering saved.

POWELL EVANS

The President
invites the participation of
Mr. Powell Evans
in a Conference on
The Conservation of Natural Resources
to be held at
The White House
May thirteenth, fourteenth, and fifteenth
1908

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