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AMERICAN CITIES.

BY

ANDREW P. PEABODY.

Reprinted from the International Review of January, 1874.

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FIRES IN AMERICAN CITIES.

Among the most alarming features of our recent history — peculiar to this country — are the frequency and destructiveness of fires in our cities and larger towns. Leaving out the exceptional cases of Chicago and Boston, the daily record of fires embraces property estimated always by tens, often by hundreds of thousands, not rarely by millions of dollars. It is impossible to obtain statistics, or to make even approximate calculations; but we have little doubt that the tax paid to the fire-king has for the last three years exceeded the entire revenue of the United States. If we add to the property thus consumed, the losses by flood, storm, and shipwreck, there may be reason to apprehend that the annual surplus products of our national industry are nearly or quite cancelled by these casualties. It is certain, also, that fires have increased in frequency and extent much faster than the population and wealth of the cities devastated by them have grown, — a fact which, as to wealth, is concealed from general recognition, in part by the large amount of ready money paid in insurance and thus sent into circulation after every great fire, and in part by the enhanced valuation almost always put upon the denuded sites, which are a favorite arena of speculators in real estate. It is equally certain that, under seemingly like conditions, fires are less manageable than formerly; that is, that under the most favorable circumstances a small fire is much more likely to grow into a large one, and a large one to outgrow the resources of human labor, skill, and science. We propose to consider some of the causes of this condition of things, and to suggest such remedies as have presented themselves to our careful reflection. If our hints have in themselves no prac-

tical value, they may at least be of worth in leading wiser minds and more able pens to undertake the discussion of a subject of vital importance to the prosperity of our people.

We will first inquire how far our insurance system is answerable for the losses which it is designed to replace. We yield to none in admiration for the principle of insurance, and regard its establishment on a scientific basis, its efficiency, its extension to risks and contingencies of every description, as among the foremost achievements of modern civilization. It so distributes losses and calamities, else crushingly heavy, that no member of the community need feel their burden. It is like the conducting rod that draws harmless to the ground the thunderbolt full-fraught with death and ruin. But the rod may attract the bolt it discharges; and there is reason to fear that insurance multiplies the disasters which it neutralizes. No one who has examined the subject, can doubt that the number of preventable fires very far exceeds those, the causes of which could not have been foreseen and guarded against.

The instances are by no means few in which there is reason to believe that the owner of the property himself kindles the fire. This, from the very nature of the case, it is generally impossible to prove. Incendiarism almost always escapes detection; and it is especially easy for a man thus to work on his own premises, where he can choose his time, conceal his preparations, and arrange beforehand circumstantial evidence to avert suspicion. Meanwhile, his reputation is protected. His neighbors may think him guilty; but they dare not whisper the charge, which may lead to a suit for defamation and heavy damages, — a result which has repeatedly ensued on one's giving voice to the belief of an entire community, based too on amply sufficient grounds, though not on legally admissible evidence. Yet, unlawful though it be, it is right to think ill, and it ought to be lawful to speak ill, of any man who derives pecuniary benefit from the destruction of his property. If his building or goods be manifestly over-insured; if his stock has been suffered to decline without replenishment, or has become unsalable; if it is certain, beyond dispute, that by no other possible way he could have made his property so lucrative as

by burning it, then the entire burden of proof as to his innocence rests on him; and if he cannot show how the fire originated, the public has a right to regard him as its author. He has placed himself in a position which no honest and honorable man can occupy, and the presumption, therefore, is against him, — a presumption justly strengthened by any unusual circumstance in his conduct, even though it have in itself no evidential value.

Now, there can be no question that by this criterion of judgment the cases of incendiarism by the owners of property burned have been very numerous, and that some of the most destructive conflagrations are to be traced to this cause. Such fires have begun in the interior of the building, — often, we are told, where no light or fire could have lawfully been, perhaps shortly after the proprietor is known to have left the premises, perhaps after he had dismissed his assistants at an unusually early hour, — sometimes without involving the loss of certain valuables which by an unaccountable instinct the owner had for once been moved to put out of danger, sometimes at the hour of night when an alarm is the most tardily given, sometimes in broad daylight, yet with a rapidity of combustion inconceivable unless prearranged, — very often too, it must be acknowledged in mitigation of judgment, under conditions of wind and weather unfavorable to the spreading of the flames, were it not that they, once kindled, create their own whirls and eddies of wind though there be a dead calm around.

Insurance renders many persons careless who could not be guilty of crime. Formerly — some of our readers have lived long enough to know — special and minute care of the fires was an essential part of the nightly routine in every house, shop, and counting-room, — an office seldom left to a deputy, but performed by the master or mistress of the establishment. Careful inspection was made, first, with a light, — in the best usage, with a lantern; then without a light, with eyes and nostrils equally on the alert. If like care is exercised now, it must be only here and there by some worshipper of the past. Young America disdains the curfew rites. Meanwhile, the furnace, with its flues often liable to overheating, has replaced

the broad screen-fenced hearth; explosive liquids or gases have superseded oil; while for the ancient flint and steel, from which only skilled and resolute hands could elicit a spark, we have the lucifer match, lying and thrown about in all sorts of places, ready to be ignited by a footfall, a mouse's tooth, or even the torrid sun-heat of a summer noon. Improvements all these undoubtedly are, if under intelligent and responsible custody and management; but the conscious security which insurance inspires has taken the place of vigilance precisely at the time when buildings can be made safe at no other price.

It is believed that, under shelter of an adequate insurance-policy, many persons who would indignantly spurn the thought of a criminal act, contentedly leave their buildings or heating apparatus in what they know to be an insecure condition, postponing repairs or alterations of the necessity of which they are fully aware. "I am well insured, there 's no need of haste," is sometimes said, and is no doubt much oftener thought. Sometimes destruction by fire is openly proclaimed to be desirable. We have known even the trustees of a religious society to express the hope that their church edifice would burn, adding, "It is insured for as much as it is worth, and while it stands, it is impossible for the society to unite in building a new church." Such wardens will not, indeed, light the match; but they will be slow to detect a flaw in furnace-flue or smoke-pipe, and the coldest Sunday in the following winter will probably number this desired catastrophe among the burnings of churches which every year signalize that day in our ecclesiastical annals.

All the crime and carelessness of which we have spoken may be traced, not indeed to the system of insurance, or to its avowed principles and rules, but to the absurdly reckless method of its administration. If only men of known probity and of careful habits could obtain insurance, and if their policies were voidable on proof of negligence or the lack of due precaution, the insurers would throw their influence on the side of public safety. But, practically, every man can secure insurance on all kinds of property, for its entire value or more, under whatever degree of exposure; and, in case of loss, un-

less the charge of incendiarism be proved against him beyond dispute, he can obtain, in remuneration, generally all that he claims, or if the claim be controverted, all that his books — which may be prepared for such a contingency — will show to have been consumed. Insurance stock is not, indeed, in the average of a long series of years, more productive than other stocks; but there are periods of ten or twelve successive years for which particular companies pay enormous dividends. Such prosperous seasons, together with the proclivity to gambling which makes many persons prefer hazardous to safe investments, multiply insurance companies beyond the spontaneous demand and actual need of the community. The business that would naturally come to them would be insufficient for the support of this growing number of separate corporations. They must therefore seek business and make it; and in the sharp competition that necessarily ensues, so far from waiting for the owner of property to apply for insurance as a benefit to him personally, the company seeks him out, follows him up, and will give him no rest until he has conferred upon it, or its more insinuating rival, the favor of his patronage. "Beggars cannot be choosers;" and by the mendicant position in which insurance companies have placed themselves, they have surrendered the privilege of selecting risks, imposing imperative conditions, and making searching scrutiny for the guidance of their operations.

The rivalry of which we speak is rendered the more keen and reckless by the appearance of mutual companies on the field. Let the stock-offices reduce the rates even below the point of safety, there is a possibility, under the most favorable circumstances, of still cheaper insurance. If risks be widely scattered, a body of property-owners may be mutually insurers and insured for several years with very small assessments or none; and though such a body generally finds itself overtaken at length by a heavy assessment, the prospect of temporary immunity from payment frequently gives these companies the vantage-ground in competition, especially as the insured person has the ghost of a potential return-premium presented to his cupidity. The success of a mutual company, obviously, must

depend on its transacting so large an amount of business, that the advanced payment on new premium-notes shall meet the current expenses and satisfy the petty losses which are constantly occurring.

Of course, the only assurance of a reasonably safe business for a company of either class is that its transactions be not concentrated, but distributed over a wide extent of territory, and not in great cities only, but in every region in which there is a town or village large enough to serve as a base for operation. Hence the necessity of employing in distant places agents whose contracts shall bind the company; otherwise the insurance of each city or district would be effected with its own local offices. Of course, a minute *surveillance* cannot be maintained by the directing board of each company, — especially when there are on the ground, in every considerable place, agents of transatlantic companies, who — necessarily untrammelled — would procure the lion's share of the business, were not the agents of our domestic offices enabled to act with equal promptness, and with equal certainty of having their doings ratified.

We have, then, the insurance business, practically, in the hands of an army of several thousand agents of companies, stock and mutual, domestic and foreign, each of them obliged, in order to stand well with his employers, to keep up a brisk demand for new or renewed policies, and thus with very strong inducements to accept in behalf of his company risks of every description. But this is not all. The agents are generally paid in proportion to the business they do, and the usual compensation is fifteen per cent of all the money received on policies. There is hardly any more lucrative employment than this for a man of smooth tongue and bland manners. There have been cases in which a single year's commissions have exceeded the combined salaries of the Supreme Bench of the United States. We have known instances in which a thousand dollars have been thus received — not to say earned — in a single week, and there are afloat stories which, if mythical, are yet typical, of a like sum pocketed in a single day. Now, if these agents are all rigidly honest men,

it is too much to suppose them all so clear-sighted and so thoroughly purged from unconscious reference to their own interest, as to look with judicial strictness and severity at every risk that is offered them. Is it not conceivable that a man who means to do right, in his complaisance for the man who has the good sense to single him out from his brother-agents, and in his unwillingness to lose what in any other industry he could earn only by a week's labor, should really believe his client's building, goods, or operations, safer than they appear to the rest of the community? This unconscious leaning in the direction in which their gain lies is the heaviest charge that we would make against insurance agents as a class; for we have no doubt that this profession has its full quota of conscientious and honorable men. But there are among them some who are manifestly unscrupulous, and a very few such would suffice to account for numberless fires that ought not to take place. It is certain that some agents will accept risks that others refuse. Persons who have had their property burned more than once, under suspicious circumstances, can still obtain insurance, and we have yet to learn that there is a person, whatever his character, or however perilous his business, who has been everywhere rejected. Nay, we doubt whether there exists an owner of uninsured property, who has not repeatedly encountered the importunate solicitations of insurance agents. Indeed, there is something weird, almost preternatural, in the *clairvoyance* by which these agents know when one's policy is about expiring, or divine the list of potential clients for their services on the dissolution or bankruptcy of a company.

It is perfectly evident that fires cannot diminish in frequency so long as this system remains unchecked. The first movement of reform should be directed toward the agencies. The stimulus to unscrupulous temerity in the risks admitted to insurance should be checked, by legislation, if necessary, but rather, were it possible, by the general demand of good citizens. Let the agents have a stated compensation, fully equal to what they would receive for services of like skill and responsibility in a bank or a financial bureau of any kind. If this compensation be increased from time to time, let it be on

the ground, not of the amount of business done, but of the prudence, integrity, and fidelity with which it is transacted. Let each be expected to do his share of the safe business in and around his place of residence, and to keep himself and his employers well informed as to the condition of the property which has their guaranty. Let it be regarded as a merit in him to refuse a doubtful risk, and to make the insured person, as he really is, the obliged party of the two. By this method the profits of the companies would be largely increased, and their stability to a great degree secured; for not only do the risks that would be declined on prudential grounds occasion a very large proportion of the losses which insurers must pay, but the initiation of such a line of policy by the insurers could not fail to impose added caution on the insured, and to make the public intolerant of dangerous buildings and neighbors. Even now, it may be doubted whether there be a community which would not regard a building or business — not isolated — for which insurance could not be obtained, as a nuisance to be immediately abated.

There should be, in the next place, in the legal provisions connected with insurance, an inevitable penalty on carelessness, which, however free from bad intent, is always blameworthy, and merits at least a pecuniary mulct. We doubt whether it would be well to go the full length of the French law, which deprives of indemnity the person on whose premises a fire originates. Such a provision would undoubtedly prevent half of our fires; but with us it would leave some very hard cases, while in France fires are of infrequent occurrence, and are commonly extinguished with slight damage, so that insurance is sought mainly with reference to the rare contingency of an extensive conflagration. But would any essential wrong be done, were the person on whose premises a fire began permitted to recover not more than two thirds of the value of the property consumed? An exception might be made in cases in which it could be clearly proved that the fire originated from a cause that could not have been foreseen and prevented; but the presumption should be of carelessness in the absence of express evidence to the contrary. The negligence or folly of

employés or servants should not be accepted as a plea in abatement of the penalty. In all other matters a man is responsible for the mistakes and failures of those in his service, and this rule is founded in equity; for in whatever may compromise the well-being of those around him a man is bound to exercise personal circumspection and vigilance unless he can delegate his charge to safe agents. When a servant of well-known stupidity and shiftlessness, who would not be intrusted with the delivery of a message or the removal of a porcelain vase, crams a stove or furnace with fuel, and so opens or closes draughts or registers as to make the combustion of the nearest woodwork inevitable, the blame belongs wholly to the master or mistress, who is no more justified in committing heating apparatus to the charge of a dolt or a fool, than in giving loaded firearms to the keeping of an infant or an idiot.[1]

There is yet another responsibility which rests, if not on the insurers, on the legislatures in which the competent authority resides, — that of a judicial inquiry as to the cause of each specific conflagration, and the publication of the results of such inquiry. There are, indeed, cases in which the origin of a fire cannot be traced, or even imagined; but there are many more in which it would be easy to substantiate facts that would suggest a probable solution, and to the authentic materials for such a solution the endangered public has a right. This procedure would arrest groundless suspicion of criminality on the part of the owner of the property consumed; for unless he would be a gainer by its destruction, no one would suppose him guilty. But if he be over-insured, the fact ought to be

[1] It is desirable, as it seems to me, that either by legislation or by the joint action of insurance companies, buildings of such dimensions, height, or uses as might be specified should be licensed or insured only on condition of having in every story or apartment some approved apparatus for extinguishing fires, and of the maintenance of watchmen whenever the building is not occupied for business. This last provision is rendered especially desirable, I would say even essential, by the use in almost every large building of two or more sets of electric wires, from which, in any accidental complication, as probably in the late large Boston fire, a flame may be kindled. Electricity is undoubtedly going to do the world's work, and half a century hence will do it safely. But meanwhile danger can be averted only by a degree of caution and vigilance which it is hard to learn or to teach.

made public under official sanction, even though in every other respect his character for integrity be unimpeached.

A further benefit which would result from such inquiry would be the publicity thus given to culpable, though not criminal, carelessness. The architect, the carpenter, the mason, the adjuster of stoves, furnaces, and funnels, to whose inadvertency or rashness a disastrous fire is chargeable, might thus be advertised as unworthy of confidence, and the numberless makeshifts that take the place of sincere and honest work would in this way be superseded by the very same selfish considerations to which they owe their existence. Artificers, in their respective departments of building, would expect to secure reputation, and the consequent profit, only by rigid and thorough fidelity.

We are aware that in several States fire-inquests may be held if the individuals most nearly concerned, or the local authorities, take the needed preliminary steps. But what is to be desired is a permanent tribunal, competent for and charged with this express duty, and legally bound to perform it in every case of sufficient magnitude to demand or authorize investigation. Unless judicial inquiry be a matter of course, it will be omitted in many cases when it would be of especial service whether in removing or confirming such suspicions as are often rife, and sometimes without substantial ground.

We would now speak of the methods of dealing with fires. Here the all-important element is time. We are almost always told with reference to a great conflagration, that when first discovered it might have been extinguished with a bucket or two of water. But the person who makes the discovery, instead of seeking the water, raises the alarm, and he and such bystanders as may join him wait passively for the advent of the fire-department, just as in a case of sudden death it used to be thought necessary to suspend all offices of humanity till the arrival of the coroner. The fire, however, does not wait, but spreads in a geometrical ratio corresponding to the arithmetical increments of time, and when the expected aid arrives has passed beyond control. This is prone to be the case when the

officials are alert and prompt. But there is always danger of needless delay. Sometimes the nearest engine with its custodians is gracing a civic procession, or, it may be, on exhibition at a firemen's parade fifty miles away. Sometimes a dispute between two rival engine companies must be settled or compromised before either will do its work. Seldom, however, has there been a degree of fatuity to be compared with that which was the proximate cause of the great Boston fire of 1872. One would have thought that, had there remained a score of undiseased horses in such a city, they should have been impressed and kept in hand for the use of the fire-department. But on that ill-starred Saturday the stress of the horse-disease had been overpassed, the running of the street-cars had been resumed, the convalescents far outnumbered the still diseased in all the stables; yet men were employed by the fire-department instead of horses, and so slow and tardy were they under the yoke that an engine had arrived from Worcester before the remotest of the Boston engines reached the scene of action.

Then again, though in theory a steam fire-engine can be brought into play with great expedition, there are various practical hindrances which may occasion a fatal delay. In a narrow street or court it may be difficult to find an advantageous position for the engine, and if so, the requisite adjustment of the hose may be a slow and precarious operation, especially if, as was the case at the Boston fire, the department has not the paramount right of way, and reckless draymen — stimulated by exorbitant prices — have free license to drive over the hose and intercept the movements of the firemen. The steam-engine, too, is a rapid consumer, and must have not only a full supply, but an unintermitted flow of water, in order to attain its entire capacity of service; while not only blamable negligence, but circumstances that could not be foreseen or prevented, may, at a particular time or place, render reservoirs, hydrants or service-pipes inadequate to the emergency, — a condition of things tenfold more likely to occur from the fact that the fire and water departments are under the control of separate boards, the former having no immediate authority over the latter.

Another element of danger is to be found in the constitution of the fire-department in most of our large cities. The chief engineer or head of the department is generally chosen every year by the city council, and is often elected or removed on grounds entirely independent of his qualifications for the office. The best man that could be chosen is liable to be displaced by a change of national parties in the municipal government, and it is perfectly possible for an unscrupulous party fugleman to obtain the place, if he belong to that pestilential class of paupers that depend on the public crib for their subsistence. We have personally known an instance in which the sole assignable reason for ousting a competent chief engineer was that he had had a negro or mulatto grandfather, and that the examination of his features by strong gaslight revealed traces of his African ancestry. The firemen, too, are seldom of the class of men who are likely to combine prudence, skill, strength, and persistency to the degree that seems desirable. Except in the city of New York, they are inadequately paid,[1] and consequently cannot be recruited from the class of persons who are able and willing to give the best work for an ample and generous compensation. The deficit of wages is made up by the attractions of the engine-house, the opportunity for associations of a somewhat festive character, the convivial occasions growing out of such intercourse, the éclat of public exhibitions, and the excitement of professional excursions, receptions, parades, and entertainments. This supplementary payment invites precisely the sort of persons who can best afford to be firemen, namely, young men with no definite trade or occupation, with a strong love for frolic and adventure, without family ties, in fine, such as live mainly for and in the fresh experience of the passing hour, — Bohemians, if we may use the term where neither art nor literature forms a part of its meaning. We would not say a word in reproach of those engaged in this service. We cannot forget the numerous instances of heroic daring and generous self-sacrifice which have often made their ranks illustrious. But a higher rate of pay-

[1] I know not how far this may be true now. It was true when this article was written.

ment might secure men trained and hardened by labor and exposure, while much more than the added compensation which such men would claim is now consumed in the ornamental and festive accessories of the department, which they should not need nor crave.

Fifty years ago, even in our large cities, every man was a fireman. In the towns and cities of New England, and probably in all the Northern States, every householder was obliged, under penalties rigidly enforced, to keep certain buckets, bags, and other apparatus in readiness for use; and the able-bodied man or boy who failed to obey the first summons of the alarm bell, and to work to the best of his ability till the fire was over, would have utterly lost caste. Every man and boy then understood the importance of pouring water on a fire the moment it was discovered, instead of waiting for the unrolling of sundry yards of red tape. The hand-engines then in use were manned by volunteer companies which had not yet begun to be demoralized, and consisted, for the most part, of robust and energetic young men; while there were among the elder citizens fire-companies whose members were pledged to active service on all occasions of need, and to special obligations of mutual aid, protection, or relief in case of danger or loss within their own body. The office of fireward, corresponding to that of the chief engineer and his staff, being without fee or salary, was generally conferred by vote on the very men whose presence of mind, alertness, vigor, and power of command could be relied on with the fullest confidence; by law they were invested with large discretionary authority; and by universal consent they exercised when on active duty an absolute dictatorship.

It would be difficult to determine the merit of this method as compared with the present, even if we had the most thorough and minute statistical data; for there have been changes both in the style of building and in the modes of water-supply which essentially affect the subject in all its bearings. Early in the present century there were very few buildings that had more than four stories above the basement; while now the inaccessibleness and often the superior combustibilty of the

upper stories constitute a chief cause of peril.[1] But then, on the other hand, there were, in all the larger municipalities, many districts as densely covered with buildings as at the present time, and with wooden buildings which are now replaced by brick. Those of us who were conversant with earlier times can well remember the promptness with which workers of every condition and age resorted to the scene of danger at the earliest moment, the frequency with which fires of the most threatening aspect were quenched with slight damage, and the desperate and successful hand-to-hand struggles with the flames when they seemed to have all the odds in their favor. There were, to be sure, some frightful conflagrations, which swept through the entire length or breadth of a town, and were arrested only when there was no more fuel in their track. But these occurred, with hardly an exception, in the dead of winter, when wells and cisterns, if not frozen, could not be freely drawn from; and it is impossible to say how far, with the present water-supply, the former modes of working might now be successful, even in the worst cases. Certain it is that fires did not formerly grow so frequently as now into unmanageable dimensions, with every element of wind, temperature, and water-supply favorable to their suppression.

We by no means question the eminent usefulness, nay, the necessity, of the powerful steam-engines which have monopolized the work of the fire-departments in our larger cities, and are fast superseding other apparatus in our thriving towns and villages. They alone can fully utilize the existing sources of water-supply; they alone (and they not always) can throw an efficient stream upon the roofs or into the upper stories of the highest buildings; and they can keep up the show and sustain the hope of resistance when no feebler agency would be worth the labor of working it. But what is more needed than anything else is the multiplication, and, if possible, the thorough organization, of methods analogous to those formerly in use,

[1] I would ask whether there ought not to be a legal limit to the height of buildings not absolutely fire-proof, especially in narrow streets. No story capable of spreading combustion should be too high to be reached by full jets of water from a powerful engine.

to which resort may be had at the first moment of known danger, and pending the necessarily slower movements of more complex apparatus. There are engines, adapted to domestic service, so simple as to require no special training for their use, so easy of working as not to exceed a child's strength, so cheap as to be within the purchasing power of every householder, so efficient that they have often checked rapidly spreading flames among the most combustible materials. These could be purchased by the hundred or thousand, and deposited in shops, warehouses, and dwellings of the better sort,[1] throughout a city or town, at a less amount of expense from the municipal treasury than is often wasted in a needless pageant or a civic feast. Perhaps, however, the same purpose could be better effected through the insurance companies. It would be a wise economy for them to give engines of this description to their policy-holders, or to make a stated deduction from their charge for insurance on the condition of the purchasing of such an engine, and keeping it — subject to periodical inspection — in working order. The educational influence of such an article of furniture would be of no little worth. There would be not a child whose curiosity would not be stimulated by it, or who would not be ambitious to experiment with it and learn its use. The contingency of peril by fire, the first steps to be taken in case of such peril, the necessity of prompt action, the folly and mischief of trepidation and terror in view of a calamity so easily preventable, would be matters of familiar conversation and discussion, and the family would become unconsciously organized as a fire-company, ready at need for efficient service. This domestic discipline would be greatly aided by the distribution from time to time, under proper authority, of printed directions as to the measures to be taken by day, by night, and under the different aspects in which danger by fire may present itself.

In every shop, warehouse, or manufactory where many per-

[1] It is worthy of remark that an alarm of fire hardly ever proceeds from houses occupied by the very poor. They generally have but small and safe fires, with no complex or concealed apparatus; and what is more, their dwellings are so crowded with human life, that an abnormal fire is sure to be detected before it can become dangerous.

sons are employed, there ought to be an organization for defence against fire, with suitable apparatus, occasional drills, and a specific post or service assigned to each member in case of an alarm. By this method even a seemingly irresistible fire might often be kept at bay without any outside aid. What private energy can effect was witnessed in the case of the great dry-goods store of C. F. Hovey & Co., in the Boston fire of 1872. The building was surrounded by flames for many hours, and was not only believed and reported to have been burned, but was so situated that the fact of its having remained uninjured, when first reported, was discredited as utterly impossible. The fire-department did not regard the chance of saving it as worth their serious effort. But the then present, with not a few of the past, employés of the firm, — urged, indeed, by strong sentiments of affection and gratitude, sentiments for which, in like case, good reason ought never to be wanting, — resorted at once to the imperilled building, and covered the roof and all exposed portions of the walls with blankets, shawls, and cloths, which they contrived to keep constantly wet, though they had to bring all the water from the cellar, and even there would get only a languid and intermittent stream. Since that time the employés of the establishment have been regularly organized with a full supply of available apparatus, and other large firms of Boston have taken the same course. Should this plan be generally adopted, it will be hardly possible for the destroying element to spread unchecked, as it has so often, in the very heart of a city's wealth and commerce.

Yet while we would attach the highest importance to these private measures of protection and defence, the ultimate dependence must be on the municipal fire-department; and with reference to this there are two or three points that need to be urged as of essential moment. In a large city, the head of the department should be such a man as only by the rarest of chances could obtain or would accept the office at the hands of a city council, by an annual election. He should be such a man as would be eligible for those few highest trusts which demand in equal and generous measure science, skill, tact,

prudence, energy and integrity, — such a man as might be intrusted with the command of an army, or the construction of a new bureau of national administration. He should have, we will not say as high a compensation as many insurance agents get for multiplying fires, but three or four times what any of them can fairly earn, — a salary adequate to procure the services of the best talent in the land, and so large that the incumbent could not resign his office for one more lucrative. He should be not elected, but appointed by the Governor of the State, and by him only with the approval of the State Board of Public Works, if there be one, or of whatever board might be most fit for consultation in such a matter. He should be removable only for proved malfeasance or incompetency, with perhaps a limit of age. He should have an assistant of similar capacity, and with a correspondingly large salary, who should take the place of the chief during any temporary absence or inability, at other times serving under him, and who should be, by virtue of his appointment, the successor of his chief on the death, resignation, or removal of the latter, so that the office might never for a single day be vacant, or be filled by a novice. The chief, thus qualified and appointed, should have the supervision of the entire department, the power of removing any of its members for sufficient cause, absolute command, for the time being, within the premises endangered by fire, or to be occupied, used, or cleared for the purpose of arresting it, and even the right, in stress of need, of confiscating property for the public safety, not, of course, without accountability, but amenable for alleged official misconduct or violation of law, to no lower tribunal than the highest of the State Courts. In fine, there is in the management of a fire-department in action fully as urgent a necessity for undisputed authority and implicit obedience as there is in an army on the battle-field; and whatever weakness or division of counsels may result from the ignoring of this necessity may be no less fatal in the one case than in the other.

In a large city the members of the fire-department should be picked men, — intelligent, strong, active, sober. They should be paid for their whole time, at a rate which should put their

profession on the same footing with the better paid descriptions of manual and mechanical labor. The festive element should be entirely eliminated, the occasions for it abolished, the employment of the fire-apparatus for parade on gala-days, and its transportation to other cities, prohibited. The firemen should, indeed, have the same opportunities for rest and relaxation with other men of their condition in life, but not collectively or officially. As single members could from time to time be spared, or were able to furnish acceptable substitutes, they might be allowed any reasonable liberty. But, unless on leave of absence, they should be held to constant readiness for any alarm in their respective districts. They should be thoroughly instructed and drilled in their several functions, and trained, not only in the management of their engines, but in the entire range of resources by which skill and experience can often supersede and always supplement the use of the larger engines. They might also, very fittingly, be employed in the intervals of severer duty, as inspectors of buildings and fixtures in their relations to fire, or as a fire-police for the suppression of dangerous practices, employments, and amusements.

We have left ourselves less space than we ought for the ultimate mode of safety, to which we shall be driven as regards new buildings, if the present rate of destruction remains undiminished; namely, the erection of fire-proof edifices. There are cities in which this art, though perhaps without express design, has been carried almost to perfection. In Paris, though the common building stone is easily disintegrated in a hot fire, wood is so sparingly employed in building that a hot fire is hardly possible. It is doubted whether the entire space occupied by all the buildings consumed in the late communist outrages, when incendiarism labored unchecked with strenuous purpose to destroy the city, is as large as that often burned over in a single night in one of our fires of second magnitude. In the old Italian cities an extensive conflagration is inconceivable; a fire that shall spread beyond the apartment where it begins hardly possible. In Florence the fire-department — adequate to all uses — consists of a single hand-engine, a few

buckets, and about a dozen men. In London, where fires are more frequent and destructive, they seldom pass from one building to another; for in blocks a double division-wall, carried several feet above the roofs, interposes an effective check. We remember having seen a house thoroughly on fire in a densely settled portion of London, with the furniture in the two adjacent houses unremoved and the inmates entirely at their ease. A few firemen were present, with a single hand-engine, the steam-engines being reserved for more important occasions.

In this country it would seem as if superior combustibility were a foremost aim in building. If the walls are of brick or stone, the window-sashes, and often the entire window-frames, are of wood; the cornices and mouldings more frequently of wood than of stone; the Mansard roof — for which there seems to be nothing less than an unreasoning mania — almost always of wood. The major part of the towers, steeples, and cupolas of our brick and stone churches and public edifices are of wood. This is no less objectionable on the score of taste than of safety. The very idea of ornament includes comparative sumptuousness of material. No tailor or dressmaker uses ornamental trimming of a meaner fabric than that of the garment to be trimmed. A building, otherwise handsome, is made paltry and vulgar by the cheap wooden accessories, by which, rather than by solidity and symmetry, the architect — himself half trained — often seeks to captivate the untrained eye and judgment.

In Europe, the building of cities *de novo* is not to be thought of. With us it is likely to be, in whole or in part, a common operation for many years to come; for to say nothing of the new centres of travel and trade that are every year striding from birth to plethoric maturity, *there are large portions of all our existing cities that are destined to the flames*, unless measures of reform shall be more rapid than we dare to anticipate.

In the building or reconstruction of cities a prime element of safety consists in the banishing to less thickly settled suburbs or solitary situations all workshops or warehouses that are of

necessity dangerous on the score of fire. In this regard improvidence is not confined to our side of the Atlantic. Several years ago the city of Antwerp was imperilled by the burning of an immense range of petroleum warehouses in a very central position. In some of our cities similar sites are occupied by manufactories that require or create vast masses of the most readily combustible materials. A very disastrous fire on such a site occurred recently in a building in which were many tons of a species of wood-shavings, absurdly named *excelsior*, used in the making of a certain description of mattress, which, probably on account of its highly inflammable qualities, has come into extensive use.[1] A well-ordered municipal government would expel from its denser districts such branches of trade or manufacture as require the constant presence of combustibles in large quantities, and would bind under heavy penalties those which are liable to rapid accumulation of such materials to the daily removal of what cannot be massed with safety.

As regards materials for building, there can be no doubt that thoroughly burned bricks are best suited to resist the action of fire. A brick wall, if self-supporting, will stand with very little injury, when the building which it enclosed is entirely consumed. On the other hand, granite cracks, marble and all the softer stones crumble, and iron melts and runs away before a heat no more intense than that through which bricks came into being and can pass unscathed. The external surface of the building should have nothing combustible about it, and in stores, warehouses, and public edifices, the windows should be guarded by iron shutters and the doors by an external plating of iron.[2] The iron shutters might be recommended for dwell-

[1] Even a worse case than this occurred in Boston last summer, in which, in the centre of a densely crowded business locality, a building containing some fifty thousand dollars worth of explosive goods (?) was burned. Had I read of such a conflagration in Tunis or Constantinople, I should have regarded it as a token of the unmitigated barbarism of a Moslem population. Would not insurance companies render a public service and win an increase of public confidence if they would refuse to insure dangerous buildings in other than isolated situations? Or might not a law be so framed as to render their agents penally accountable for insuring such buildings, if the inexcusable folly of a municipal government still suffers them to exist?

[2] I find, on good authority, tin preferred to iron.

ing-houses also, unless there be insuperable æsthetic objections. For roofing, slates or tiles should, we think, have the preference. The compositions for roofing of which pitch is a principal ingredient do not, indeed, readily take fire; yet when a building so covered is in flames, it is impossible that the disintegration of the materials of the roof should not add fierceness to the fire, intensity to the heat, and danger to surrounding objects.

In the latter part of the eighteenth century great attention was paid in England and in this country to plans for making the interior of buildings fire-proof. In the "American Museum" for May, 1788, we find the sketch of a method devised, and subjected to the severest experimental tests, by Lord Mahon, who seems to have borne a strong resemblance to Franklin in his enlightened zeal for the application of science to the arts of common life. His plan rests on the known necessity of a draught from beneath or behind, in order to sustain combustion. He laid all the floors of his buildings in mortar, and back-plastered all the vertical woodwork. On floors and against vertical boarding thus prepared, it was found that fires might be kindled with a generous supply of combustibles, and would smoulder away and expire when this supply was exhausted, without essential injury to the building; and that by no amount of feeding or urging could a fire be made to pass from room to room. An improvement on this method is to leave no unfilled space behind either the main or partition walls, but instead, to build interior walls of cheap brick laid edgewise.[1] Not only is security against fire thus gained, but a house so built is unaffected by exterior dampness, and by the slowness of bricks as a conductor of caloric, is made warmer in winter and cooler in summer. A wooden house thus constructed is drier and more equable in temperature than a brick house, as the external wall of painted wood rejects the greater part of the moisture which an external brick wall absorbs. In

[1] I built a house in this method in 1853, using for the interior wall of every partition bricks laid edgewise. The added cost of the house was not more than eight per cent. For this we must have saved some fuel, we had increased comfort, and we made the office of the domestic cat a sinecure.

this way, also, rats and mice are excluded, while they seldom fail to find permanent lodgings in a wall constructed in the ordinary mode. In connection with this method, which hardly admits of essential improvement, it is desirable, in view of the present cheapness and availableness of iron, to use it for various purposes in the details of the building, as for floor-beams, balustrades for stairs, and pillars wherever required.

The only practical objection to fire-proof buildings is their greater first cost; but on a wise calculation this objection will disappear. The most generous estimate would add on this account not more than twenty-five per cent to the cost, and it is believed that all the essential benefits of the method proposed might be secured at an advance of fifteen per cent. It would take but a few years to cancel this extra cost by saving in the single item of insurance, which would be hardly necessary, or, if still thought advisable, would be effected at a greatly diminished rate. At the same time, the solidity of this mode of construction would reduce to the very lowest point the expense for necessary repairs. We are acquainted with one massive building thus constructed nearly a century ago, which has not begun to show any token of infirmity or age.

We have exceeded our proposed limits; but the subject has developed itself in our thought in several directions in which we lack space to pursue it. It is a concern of the profoundest moment, not only to the peace and well-being of individual members of our several communities, but equally to the financial prosperity and wealth of the nation. Under each of the heads which we have specified there is scope for legislative action and there are few topics that so imperatively crave the wise intervention of the law-making power. Especially should it be employed in preventing the erection of similarly unsafe edifices to replace those destroyed in the great conflagrations which are from month to month sweeping away blocks, streets, and districts in so many of our cities in every part of the land.

It is worthy of emphatic notice that the New Jerusalem of the Apocalypse has no inflammable materials, — its walls of jasper, its foundations precious stones, its streets of gold, its

gates of pearl. Emblems these are, no doubt, of the strength and beauty with which we are to build characters that shall come forth unscathed and immortal from the fires of earthly temptation and trial; but may we not equally take them as types of the material structures, which, in their fragility or their enduring massiveness, we are prone to build after our own likeness?

SUPPLEMENTARY NOTE ON FIRE-PROOF BUILDING.

I WISH that the attention of architects might be directed to the history of Lord Mahon's experiments. He certainly demonstated the possibility of fire-proof building. Under his direction cheaply built wooden structures, with floors and walls after his method, were filled with combustibles, which were consumed without consuming anything beside.

I referred to a fire-proof building of the last century. This was a large, costly, and elegant dwelling-house, erected on the site and in lieu of a wooden house that had been burned, and so built that it was believed that it never could be burned. The house, when it passed out of the hands of its first owner's kindred, became an hotel, was largely remodelled, and was nearly quadrupled in length, with additional structures in the rear. The hotel was burned several years ago. The one large apartment that had undergone no change withstood the fire and showed no tokens of it except smoke-stains. I have not the slightest doubt that this mode of building, which for a time found great favor, especially in Philadelphia, would have become and remained common but for the rapid development of the insurance-system.

Any new building-ordinance — and there ought to be a new one wherever a great fire is possible — should provide for the erection of only fire-proof buildings within specified limits. In such an ordinance special attention should be given to the wells in which elevators run. They would not spread fire if there were nothing in them that could burn. They ought to have fire-proof walls, with automatically closing, metal-covered doors at their successive landing-places.

I have been told that the last building-ordinance of Boston, before it was passed, was essentially modified in the interest of a penny-wise policy, at the instance of certain owners of

real estate on which they were going to build. These men may have been my personal friends; I have no doubt that they were men whom I hold in the highest regard. But in such a matter I would not trust them, — I would not trust myself. Twenty-five per cent of added immediate cost, and a very slight enhancement of distant and contingent peril, might easily bias the honest judgment of one who sincerely meant to judge aright. I would as readily take the advice of burglars in shaping an ordinance for burglar-proof fastenings. A building-ordinance should be framed by a commission composed of architects, builders, and experts in the fire-department, should secure the approval of a competent number of disinterested men of practical wisdom, should then be passed without modification, and when passed should be peremptorily enforced.