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A STRONG, but, we fear, hopeless effort is being made in Boston to prevent the removal of the Park Street Church, which has been sold by its owners. This church, which was built in 1810, is said to have been designed by an English architect, named Banner, and is a very pretty specimen of the best architecture of the early part of the nineteenth century. Unfortunately, the land on which it stands is now of great value. It was sold by the church for a million and a quarter, and, probably, could not be repurchased for less than a million and a half; so that, unless the people of Boston are willing to contribute a sum amounting to, at least, ten dollars for each family within the city boundaries, which is practically out of the question, it will have to be delivered up at the time agreed upon. The delivery of the land need not, however, involve the delivery of the building, and it would be quite practicable, with a little relaxation of the ordinances respecting the moving of buildings through the streets, to convey the old church intact through Park and Beacon Streets to a permanent resting-place on the Fens, where the Society is said to contemplate the erection of a new church. Even if the Park Street congregation should prefer a new building to their old one, there would probably be little difficulty in securing a lot and transferring to it the old church, to be kept as a public monument. Although a monument is, in general, more respectable in the place where it was originally erected, it does not lose all its respectability by being transferred to another; and the surroundings of the present Park Street Church differ so much from those which existed when it was built, when Tremont Street was occupied exclusively by dwellings, that the change would be less important, particularly as there is no special historical association with Park Street Church. Another advantage of moving the building would be that it could be freed from the business associations involved in letting the basement for stores, which has been necessary for many years. To our mind, a church which has been utilized in any part for business purposes always has a painful air of humiliation and degradation; and the Park Street Church, set up on a lot on the Fens, far removed from the encroachments of trade, might, as it seems to us, live for another century the beautiful and useful life for which it was designed, but which is no longer possible for it in its present location.

THE Bostonian Society, one of the most active and energetic of local historical societies, has been stirred by the prospect of the demolition of Park Street Church to suggest that, where the removal of ancient monuments cannot be prevented, permanent tablets should be placed to commemorate at least the spot where they once stood. A bronze tablet of this sort marks the site of the house of John Hancock, and that of the house where Wendell Phillips lived; and many more might be set up with great advantage, to mark, let us say, the dwellings of Everett, Holmes, Prescott, James Freeman Clarke, Phillips Brooks, and others who have made Boston famous. This would be a much less expensive mode of commemorating the dead than statues or monuments, and in some ways it would be equally satisfactory. In fact, we doubt whether one-tenth of

the native inhabitants of Boston could tell the names of the people who are immortalized by the four monuments on Commonwealth Avenue, or the five on the Public Garden, owing partly to the general indifference of the American public to works of art and partly to the insignificance of position of all these works except the Washington statue in the Public Garden, and still more, perhaps, to the want of any connection between the monuments and their situation.

THE Leif Ericsson statue, for instance, one of the cleverest and most interesting figures in America, and very well placed in that it attracts attention from a distance, is a little absurd in the middle of Commonwealth Avenue, where the bold viking is made to appear in the act of setting sail across a basin about ten feet in diameter, and summoning to witness his feat the automobiles which form the nearest visible representatives of the other ships of his squadron. A much better position for this charming monument would be a little farther west, at the Charlesgate, where the Norseman and his boat could be placed at least in sight of the water. Beyond the Charlesgate, both westerly, at the junction of Commonwealth Avenue, Beacon Street and Brookline Avenue, and, southerly, around the Fens, are many magnificent sites for monuments, which should be at once set apart, and reserved for works to which they are suited. One of the most imposing sites on the Fens, that in the axis of Boylston Street, is already occupied disadvantageously by the Boyle O'Reilly monument, which, although it would be very attractive in one of the "islands" farther down the Fenway, where it would be seen from a short distance, is dwarfed by the vastness of the space around it in its present location, at the same time that an admirable site for an obelisk, or monument a hundred feet high, is rendered unavailable. Another excellent position for, at least, two large groups is afforded in the spaces on each side of the Westland Entrance to the Fens, to which Mr. Lowell's fountains give a beautiful introduction; and the Huntington Entrance, with its sheet of water in the middle, could hardly be improved as a site for a large and lofty monument, in the axis of the Entrance, with the water as a foreground. Unless these splendid sites, unsurpassed, perhaps, in any city in the world, are soon reserved for their proper uses, they will be irretrievably spoiled, and the opportunities which they offer will be thrown away.

THE profession of architecture is indirectly honored in the appointment of Mr. Horace G. Wadlin as librarian of the Boston Public Library. Although it is many years since Mr. Wadlin gave up his practice to enter upon statistical work as assistant in the Massachusetts Bureau of Statistics, many of the Boston architects remember him as a quiet, but remarkably intelligent and well-trained man, whom they were happy to count as one of themselves, and have watched with interest his subsequent career, as one of the clearest and ablest statisticians of the time. As the head of the great Public Library of Boston, his skill in methods of arrangement, and his ability in administration, will be well employed, and the people of the city will, undoubtedly, have reason to be grateful for the application of such rare talents to a task so complex and difficult as that of making a collection of something like a million books useful to the population of a great city.

IN the death of Mr. Abram S. Hewitt a name very familiar to architects disappears from the active world. Many years ago, a bright and ambitious young man, who had earned his way through college, and, after being admitted to the bar, had held a college chair as Professor of Mathematics, married the daughter of Peter Cooper, a rich hardware merchant, and manufacturer of various articles in which he dealt; and, soon afterwards, assumed charge of the iron-manufacturing part of the business, in connection with his brother-in-law, Edward Cooper. In their hands the iron business developed rapidly. The use of rolled-iron beams for building in place of cast-iron girders had then just been introduced, and the young firm was the first in New York, and one of the first in the country, to set up rolls for making them. The confidence universally felt in the members of the firm contributed much to win favor for their new goods, and the "Cooper-Hewitt" beams soon became

a staple building-material. Long after the Cooper-Hewitt business became absorbed in the great Trenton Iron Works, the old New York builders still continued to call all rolled beams after the name of the young manufacturers who first introduced them. Although Mr. Hewitt was a man of very active mind, interested in political and social matters as well as many other things, he retained, until late in life, his connection with the iron business, and did much to raise the American iron industry to its present development.

THE plan of the Municipal Art Commission, for taking the ground north of Chambers Street, outside of the City Hall Park, for a new municipal building, seems likely to be carried out. The valuation of New York has increased immensely within the past two years, and the legal borrowing capacity of the city has increased with it; so that bonds can probably now legally be issued to pay for the improvement. As land in that part of New York is worth from sixty to seventy dollars a square foot, the clearing of all buildings except the City Hall from the Park, which is the main object in buying the Chambers Street property, will be an expensive luxury; but it will probably be worth its cost. Meanwhile, it is much to be hoped that the sensible recommendation of the Municipal Art Commission, that sites for the public buildings of the future should be arranged for now, when they cost little or nothing, may be followed, and the newer part of the city arranged in such a way that, when built up, it will be built in the most imposing and beautiful way.

A GREAT deal of discussion is now going on in the newspapers over the waste of water in cities. In Chicago it is estimated, we do not know on what basis, that seventy-five per cent of the water pumped from Lake Michigan is wasted. It is certain, however, that the consumption per head is extravagant, and the City Engineer proposes to put meters in something less than half the buildings in the city. New York already has meters in large buildings, and it is proposed to extend their use. It is not many years since municipal authorities put in water-meters only at the solicitation of consumers, and then with reluctance, as the meter-rates were, as a rule, considerably less than the rates charged by counting the plumbing-fixtures. Now, however, it has become necessary to do something to check the waste of water, and the use of meters will probably become general in cities. It is claimed that the effect will be to make the poor man's water-bills less, while the proprietors of apartment-houses and hotels will have to pay more, but this depends upon the "minimum rate," or "meter rent" which may be fixed. There are many places where the "meter rent" charged in small houses with no bath-room amounts to several times the value of the water actually consumed at the prices charged to large consumers, and the latter, of course, have their rates lessened in proportion to the excess which the poor people are made to pay. There is no reason why every one, rich or poor, householder or manufacturer, should not be required to pay for water at a uniform price per gallon. If this were done, the poor people, to whom even the cost of a hundred gallons of water means some sacrifice, would be able to use more of it, to their advantage, and the railroad companies, for example, who usually pay for water at wholesale rates, which are only a fraction of those charged small consumers, could use artesian wells, or in other ways economize in their bills.

THE way in which a single clever man may put himself at the head of an artistic movement is strikingly evident in the case of Professor Olbrich, of Darmstadt, who has not only, within about two years, made himself the most conspicuous figure in the "new art" movement in architecture, but has gained for the pretty town of Darmstadt, in which he lives, an artistic fame to which it could hardly have dreamed of aspiring. We are very far from admiring all, or even very much, of Professor Olbrich's work; but unlike many of the productions of the "new art," which are simply warmed-up copies of the forgotten failures of the past, his designs, even if extravagant, are generally original with himself, and this alone is enough to make him a leader in the "artistic colony" of Darmstadt. Any one who is old enough to remember the commotion which followed the publication of Eastlake's "*Hints on Household Taste*," which, simply by the force of amusing rhetoric, supported by a few illustrations, revolutionized the design of furniture, and, to a considerable extent, that of houses, can imagine what an influence might be exerted by a man capable,

not only of discoursing about new ideas in art, but of practising them, if he could once gain the ear of the public. Such a man Professor Olbrich appears to be; and although the movement which has adopted him for one of its principal leaders may be as short-lived as was the "Eastlake craze," it will probably, like that, leave an important impression on the taste of the period.

PROFESSOR OLBRICH is a young man, and, if his head is strong enough not to be turned by notoriety, he may be a great and real leader in art. It is not surprising that an architect who has resolved to cut loose from the old traditions should find it difficult to create at once a beautiful new style, but he avoids, at least, the attempt to palm off copies of Japanese motives as original, and is sincere enough not to offend by the impudent eccentricity of which there is altogether too much in the "new art" generally; while his work occasionally shows an appreciation of effects of light and shade, and a delicate inventiveness in detail, which are charming. The most inveterate defender of tradition must acknowledge that these are qualities which the education of architects generally does not tend to develop, while it is equally certain that they are qualities of the highest artistic value; so that, if Professor Olbrich does nothing else for the profession than to teach it to take advantage of the resources for expression offered by skilful management of light, and by the interesting treatment of detail, he will have deserved well of it.

THERE is to be this summer in London an International Fire Exhibition, the technical portion of which is to be under the general charge of the British Fire Prevention Committee. This organization, composed of distinguished architects and others, is well known in America, and it is certain that its part of the affair will be well carried out. The remainder, including business-matters and administration, is in the hands of the "London Exhibitions, Limited," which provides the grounds and buildings, furnishes music and illuminations, and arranges for competitive tests of apparatus; reimbursing itself by the sale of admission-tickets, and by a charge of four shillings per square foot for floor-space. It is intended to hold an International Congress of Experts in connection with the Exhibition; and there is every reason to believe that the affair may do much to extend the knowledge of the means of protection against fire. It is particularly to be desired that the United States may be well represented. There is no country in which the art of fire-resisting construction has been so thoroughly studied, and where so much successful ingenuity has been displayed in solving the problems which it presents; and, although our ordinary construction, owing to the abundance of timber and the absence of legal restraint, has been, and still is, very combustible, our buildings designed to resist fire are the best in the world; and, while we can undoubtedly learn much from the practice of other people, particularly of the Germans, who are our greatest rivals in the application of science to everyday uses, we can also teach them much.

ONE of the things which we hope will not be forgotten in the Exhibition is a comparative view of legislation and jurisprudence affecting the communication and prevention of fire. Some idea of the enormous importance of such jurisprudence may be obtained by reflecting that the saving of money effected by the Continental system of neighborhood responsibility over our system of allowing every one to endanger his neighbor's property with impunity has, judging from our experience, been sufficient to pay the cost of all the public luxuries in Europe; or, to put it in another way, that all the palaces, museums and picture-galleries which have been built in Europe within the last two hundred years have cost, with their contents, much less than the sum which has been spent in this country during the same time in repairing fire-losses. This difference has been due partly to the circumstance of cheap timber in this country, but much more to legal restriction in Europe; and, particularly, to the established law, in nearly all Continental countries, that every person in whose premises a fire originates is responsible for the consequences of the spread of the fire beyond his own premises. Some of the best insurance experts in this country now strongly advocate the adoption of a similar system here, and it is very desirable to get together as soon as possible, and particularly on an occasion like that of an international congress, all the information on the subject that is procurable.

FIRE-ESCAPES IN AMERICAN COMMERCIAL BUILDINGS.¹ — I.

THE following notes on fire-escapes in American commercial buildings were prepared during my tour as Godwin Bursar through some of the chief cities of the Eastern States of America in the autumn of 1902.

The danger to life in the event of fire in buildings of all classes is universally recognized. It is a problem which demands the attention of the architect and builder as well as of the employer and administrative authority. The devastation of property by fire has few, if any, compensations. It is true that new buildings may arise out of the ashes of a conflagration, and that new business and new methods may develop; but the public has ever demanded to be protected from fire-hazard, until to-day fire-fighting is a science with its own specialists and propaganda.

The safety of the public in theatres, assembly-rooms and similar buildings is dealt with by regulations and laws in all important cities, and the experience and practice upon this point have been so widely disseminated that a standard of safety is being gradually recognized. These notes do not deal with this important class of buildings.

In the United States very general attention is given to the safety of employes and others in the event of fire breaking out in commercial buildings. The building codes and regulations of the principal cities deal with this question, and year by year the requirements are being made more stringent and more far-reaching. The State laws, also, in many instances include provisions which enable the State bureaus to regulate all buildings, in addition to those outside the jurisdiction of city regulations.

In the event of fire life may be endangered through various causes, some of which may be enumerated as follows:

1. *Burning.* — There are few trades, excepting such as may be included under the head of "explosive trades," in which this danger requires to be seriously considered. There are, however, circumstances which may be overlooked in this connection, but which may very distinctly bring a trade into the explosive category. The dust resulting from the handling and manufacture of certain materials is highly dangerous, whilst other substances are liable to give off vapors which when mixed with the atmosphere, even in small quantities, are equally dangerous.

2. *Suffocation.* — Smoke and poisonous gases given off during a fire are the most prolific causes of danger to life. They rapidly extend throughout a building, and may cut off a line of exit as completely as would the fire itself. Smoke is in one respect a fire-alarm. It, however, is usually charged with gases, the products of suppressed combustion. The inhalation of these may quickly produce insensibility and death.

3. *Panic.* — It may be considered impossible to prevent danger to life through unreasoning panic. A false alarm of fire has frequently resulted in a calamity. Much may be done, however, to minimize the danger by providing well-known lines of exit.

4. *Inadequate Means of Escape.* — This is a defect which in every building may be remedied; and experience in all countries has indicated that the remedial measures must in the first instance be indicated by the public authorities. Private enterprise in this matter has not been satisfactory. It will be noted from the extracts from the regulations of various States and cities given below that a considerable diversity of opinion exists as to what should be demanded by the public from the owner or occupier of a building in which this danger to life may exist. This to a large extent may be accounted for by the fact that the United States is a young country, with phenomenal developments of trade and enterprise. Each State, too, has sovereign rights of internal legislation.

The regulations with respect to the provision of means of escape in case of fire are included in the building-codes, and to a large extent, as will be seen below, apply to the majority of commercial buildings.

The administration of the law upon this point generally devolves upon the chief officer of the building-departments. In Philadelphia all matters on building-questions are dealt with by him. From his decision, however, there is an appeal to the entire official corps of building-inspectors, and from this a final appeal to a commission, nominated by the Director of Public Safety, of three disinterested experts, who get two guineas each for their services, payable by the appellant. In New York there is an appeal from the decision of the Superintendent of Buildings on any point where the amount involved exceeds £200. The Appeal Court consists of representatives nominated by the following bodies: The American Institute of Architects, the Board of Fire Underwriters, two members of the Mechanics and Traders' Exchange, one a mason and one a carpenter; the Society of Architectural Iron Manufacturers, and the Real Estate Owners' Association, and the Chief of the Fire Brigade. They may be summoned by the Superintendent of Buildings to meet once a week, and receive two guineas each for every attendance. The decisions of the Appeal Court are final.

In Chicago, in all cases where discretionary powers are given to the Commissioner of Buildings, there is an appeal to arbitration. Each party nominates an arbitrator, and the two may nominate a third in the event of a disagreement. The cost of the proceedings

must be deposited by the appellant with the city authority, and is returned to him in the event of the decision being given in his favor.

In the United States the provision of fire-escapes is not treated as an isolated problem. It is very properly recognized that loss of life, as well as destruction of property, by fire reveals a local defect. In the cities of Rochester and Detroit, for instance, the fire-brigade marshals deal with questions affecting the safety of employes in the event of fire.

By means such as these it is possible to deal comprehensively with the problem, and to obtain advantages unobtainable by isolated bureaus. The well-known American external iron fire-escape has been evolved in this way. It not only affords a rapid exit in case of fire, but is in addition a ready means of approach to all floors for the fire-brigade.

The following points have a direct bearing upon the question of the safety of persons within a building: —

THE PREVENTION OF FIRE.

While it is manifestly impossible so to regulate all commercial undertakings that the fire-risk is entirely eliminated, it may be possible to reduce that risk to a minimum, and, by so doing, to simplify the question of the provision of means of escape. One of the most serious problems in this connection in the United States is with regard to fire-protection in the tall office-buildings. In these buildings the exigencies of business and traffic demand that powerful machinery and boilers be provided within the buildings. These are invariably placed in one of the basement stories. Obviously no attempt is made to provide a direct means of escape for the persons employed upon the upper stories, of which some are 300 feet above the pavement level, but at the same time the risk of a catastrophe, in the event of a fire breaking out in the basement or of a boiler-explosion, is one which may not be ignored by the architect and the municipal authority. Fire or explosion might wreck the lower floors of any such buildings, and not only endanger the stability of the whole superstructure, but imperil the lives of the large number of persons engaged within these buildings. Safety, therefore, has to be sought by preventive measures, such as rigorous boiler-inspection regulations, and the fireproofing of all constructional portions of these buildings. State laws endeavor to minimize the risk resulting from the careless or incompetent use of furnaces and boilers. Michigan requires all stationary steam boilers to be provided with safety low-water devices. New York requires all factory boilers to be inspected by a competent person once in every six months. By such means employes may to a large extent be protected from the possibility of such calamitous explosions as that which occurred on November 26, 1901, when seventy-eight persons were killed and injured at the factory of the Pemberthy Injector Company, Michigan.

The Tenement-house Law of the State of New York also provides against this risk by requiring "that every tenement-house hereafter erected exceeding six stories, or parts of stories, in height above the curb-level shall be a fireproof tenement-house; nor shall any tenement-house be altered so as to exceed such height without being made a fireproof tenement-house."

The Chicago City Building Ordinance also requires that buildings used for the sale, storage or manufacture of merchandise, office-buildings, hotels, and certain classes of domestic buildings, shall, if over 100 feet high, be entirely of fireproof construction. This implies, *inter alia*, that all parts of such buildings that carry weights or resist strains, and also all stairs and all elevator enclosures and their contents, shall be made entirely of incombustible material, and that all metallic structural members shall be protected against the effects of fire by incombustible and non-conducting materials. Door and window mullions must also be faced with cast-iron, terra-cotta, or similar fire-resisting materials.

A very elementary but exceedingly useful regulation is in force in Buffalo as follows: "All gas-brackets shall be placed at least 3 feet below any ceiling or woodwork, unless the same is properly protected by a shield, in which case the distance shall not be less than 18 inches. No swinging or folding gas-brackets shall be placed against any woodwork. Gas-lights placed near window-curtains or any other combustible material shall be protected by a proper shield."

The New York Charter also provides "that all lights used in theatres and other places of public amusement, manufactories, stores, hotels, lodging-houses, and in show-windows shall be properly protected by globes or glass coverings."

In view of the fact that a large number of disastrous fires in commercial premises are caused through inflammable material coming in contact with naked gas-jets, such provisions as those above mentioned may properly be classed amongst those directly preventive measures tending to the safety of life.

While public buildings such as theatres, music-halls, churches and chapels for the accommodation of large numbers of persons are very properly dealt with as regards means of escape, a somewhat analogous class of building — viz, dry-goods stores — are, as a rule, ill-regulated upon this point. The risk from fire in these establishments is patent to all. One of the largest of such establishments in the United States is eight stories high. Each floor, which is undivided by party-walls, and has an area of over 80,000 feet, is occupied by ranges of counters, and the gangways between are in parts encumbered with light drapery hangings. It is said that during the busy seasons between 10,000 and 20,000 persons may be found upon the premises at one time. In spite of the provision of external escape-stairs, automatic sprinkling-apparatus, etc., the outbreak of even a small fire

¹ A paper by Mr. Charles A. Daubney [A.], Godwin Bursar 1902, F. S. I., read before the Royal Institute of British Architects, and printed in the *Journal of that Society*.

when the premises are crowded with the public would probably result in a disastrous panic. Upon this point some of the building-regulations appear to need amendment by providing for the subdivision of such extensive areas by proper party-walls.

New York will permit an ordinary building which fronts on three streets to be 105 feet wide and 210 feet deep. If it fronts on two streets it may be 12,500 feet in area. Power is given to the city authorities to grant a still further extension of this area in the case of buildings not exceeding three stories in height. There does not appear, however, to be any limitation to the extent to which an undivided fireproof building may be erected. In Philadelphia, too, enormous floor-areas may be planned.

In Chicago buildings of ordinary construction are restricted to floor-areas of 9,000 feet; buildings of slow-burning or mill construction may extend to 12,000 feet; and buildings if erected of fireproof materials throughout need no dividing-walls if under an area of 15,000 feet. Openings protected with fireproof doors in the dividing-walls are permitted. Public safety from fire demands that the enormous conflagration-risks existing in the neighborhood of these buildings should be more strictly supervised. Few commercial buildings require such extensive undivided floor-space.

The subdivision of premises by party-walls affords a substantial check to a conflagration, and an excellent means of escape by the construction of openings in the walls may be provided. In the event of a fire breaking out in any one portion, persons can escape through the openings into an area unaffected by flame or smoke. The area of an undivided building is a well-recognized item in the consideration of the fire-risk on that building. An estimate of the extent to which a building may be erected without unduly increasing the risk to the building and employes may be gathered from the regulations of the insurance-companies. A normal building of ordinary construction is one with an area not exceeding 2,500 feet, and with a height not exceeding 50 feet; if fireproof construction be used, then the building may be extended to an area of 5,000 and to a height of 100 feet. In a building of the latter class at least 2,000 persons can be employed, assuming 250 cubic feet as the allowance for each employe, which is the general requirement in the United States, as it is under the Factory Law in this country. It may also be noted that a building of 5,000 feet area can be so planned with alternative means of escape that none of the employes shall be compelled to travel on any floor more than about 100 feet in order to reach an escape. This limit of about 100 feet is also one incorporated in some European regulations.

THE LIMITATIONS OF FIRE.

As has been suggested above, regulations could not be framed so as entirely to prevent fire breaking out in a commercial building; much, however, can be done to prevent the spread of fire. By the use of cross-walls extensive and dangerous conflagrations may be checked. The vertical spread of fire in a building must also be checked. This is naturally accomplished by providing unpierced floorings, or where stairs, lifts, etc., are necessary by separating them from the building. Thus, flame and smoke would not pass upwards, and the burning materials would not fall from floor to floor.

At a recent disastrous fire in London the conflagration appears to have been limited for some time to one room, and kept in check by an ordinary glazed partition. It rapidly spread, however, when the glass was broken by heat and water, and the flames and smoke found ready escape up a shaft occupied by an open lift and staircase.

It is true that lifts and staircases may form one of the chief interior ornamental features of an important building. The necessity of providing adequate safety for the employes within a building may require some slight modification in the present methods of planning staircases, etc., but it is suggested that this modification need not militate against architectural effect.

In the United States very definite opinion has been formed upon the treatment of lifts and other shafts in a building. In the Buffalo building-laws is found a valuable provision for the prevention of the rapid spread of fire through burning materials falling through skylights at the bottom of lighting shafts. These skylights are required to be constructed with prismatic lights in iron frames or with thick glass protected with wire-netting. Similar materials or wired-glass must be used in manufacturing premises, hotels, etc., for skylights over portions of premises to which the public has access.

The Chicago Building Ordinance requires that the well-hole of lifts shall be supplied with hatches to close automatically, otherwise, in all non-fireproof buildings, the shaft must be enclosed with an entirely self-supporting brick wall or tile partition extending from the foundations to 6 feet above the roof. In buildings of fireproof construction the enclosure must be of incombustible material of a light construction which may be supported upon the floor-joists. The door-openings must be fitted with iron doors so secured that, excepting on the ground floor, they may not be opened from the inside. A skylight and ventilator, one-twentieth the area of the shaft, must be provided at the top.

The New York State Tenement-house Law permits lifts and dumb-waiters to be constructed in the well-hole of stairs, where the stairs themselves are enclosed in brick walls and are entirely fireproof. In other cases the enclosures must be fireproof throughout, with self-closing doors at the openings. Under the New York Building Code also all dumb-waiter shafts generally must have walls of brick or other fireproof material with self-closing fireproof doors, and where

the shaft does not go to the level of the floor of the lowest story the bottom of the shaft must be sealed with fireproof material.

Under this code lifts in non-fireproof buildings of the factory class must be enclosed with brick walls extending 3 feet, at least, above

the roof. The openings in these enclosures must be fitted with fireproof shutters or doors, and the top must be covered with a skylight three-quarters of the area of the shaft. Passenger-elevators, enclosed with open grillework, however, may be erected within staircases where the stairs and enclosures are fireproof throughout. In all new and existing hotels, if of non-fireproof construction, lifts must be enclosed in fireproof walls.

The Pittsburgh regulations require all buildings over 60 feet in height to be entirely of slow-burning and fireproof construction, and in such buildings lifts to be enclosed entirely with incombustible materials. Only such openings as are necessary for doors are permitted in the enclosures. The enclosures may be of 4 inch solid wood. Under these regulations no staircase shall encircle a lift.

The Buffalo regulations are somewhat similar.

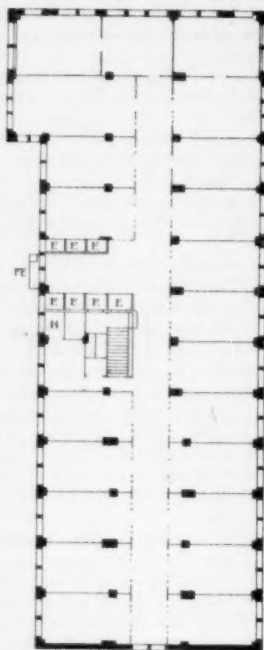
The Rochester (N. Y.) regulations are less stringent: they require lifts, if enclosed all up, to have enclosures of brick or wood sheathed on each side with metal, and fireproof doors to the openings. Should they not be entirely enclosed, metalwork enclosures not less than 7 feet high may be used.

From these regulations it may

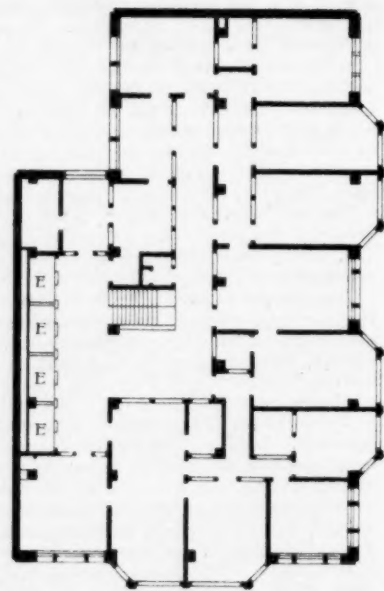
be gathered that the consensus of opinion points to the desirability of complete enclosure of lifts. In this way the rapid diffusion of smoke and flame throughout a building may be prevented. Naturally, passenger-lifts in the well-hole of staircases are, to a large extent, unobjectionable, from the point-of-view of fire-risk, so long as the staircases themselves are properly enclosed.

A reference to figures 1, 2, 3, 4, 5 and 6 of the plans of some tall office-buildings will show that generally the lifts in these buildings are unenclosed — open ornamental grilles are used. These buildings are of fireproof construction throughout, and a few ordinary fires have been recorded in connection with such. Possibly, therefore,

it is unnecessary to insist upon their lifts being enclosed. Figure 1 is one of the upper-floor plans of the twelve-story National Life Building, Chicago. Figure 2 is a typical floor-plan of the sixteen-story Reliance Building, Chicago. These two plans indicate the small amount of external wall-space possible under the American system of steel construction. Figure 3 is a plan of the thirteen-story Fort Dearborn Building, Chicago. Figure 4 is a plan of the Hanover Bank Building, the most recently erected "skyscraper" in New York. Figure 5 is the plan of the eleven-story Potter Building, New York. Figure 6 is the plan of the Exchange Court Building, New York. Many persons are of opinion that in these buildings ordinary fire-risk to life may be looked upon as non-existent. It is true that little besides the ordinary furniture, books, etc., within the offices is inflammable, and a fire would be easily confined to a single room, without creating much notice or alarm in the building. Apart from the question of furnace and boiler risk in these buildings, no provision



Plan of the National Life Bldg. Chicago
Scale 20 Feet
Fig. 1. E E, Passenger-lifts; F E, Fire-escape; H, Goods-lift.
Messrs. Jenny & Mundie, Architects, Chicago, Ill.



Plan of the Reliance Building - Chicago
Scale 20 Feet

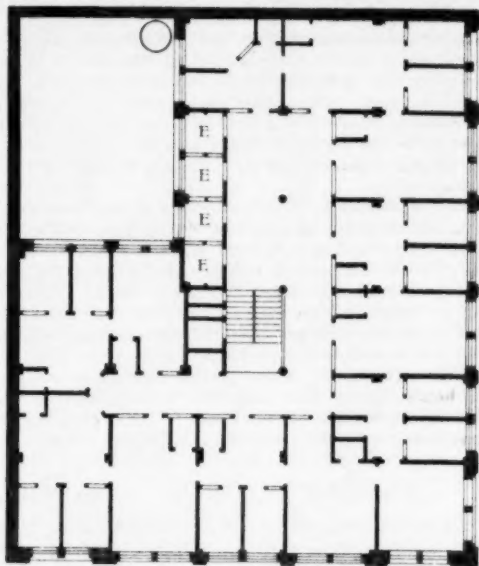
Fig. 2. E E, Passenger-lifts.
Messrs. D. H. Burnham & Co., Architects, Chicago, Ill.

appears to be made with regard to the shops usually found in the ground-floor hallway. Tobacconists and newspaper stalls are sometimes provided here, and a slight outbreak of fire in one of these stalls might easily result in the lift and staircase wells becoming instantly charged with smoke, which would spread throughout the

main open excepting when the cage itself is opposite, in which case the lift-well is plugged at that point, and fire and smoke cannot ascend.

THE SUPPRESSION OF FIRE.

The ability to suppress a fire in its initial stages is an important element in considering means of escape from fire. Private hose-



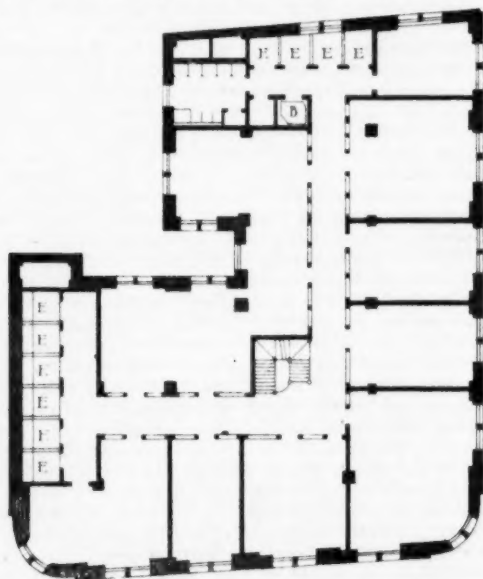
Plan of Fort Dearborn Building Chicago Ill

Scale 30 Feet

Fig. 3. E E, Passenger-lifts. Messrs. Jenny & Mundie, Architects, Chicago, Ill.

upper halls and corridors and cause alarm and panic, resulting in serious risk to life. These shops should be prohibited, and if the lifts were kept at a distance from the stairs and both shut off from the main corridors by swing-doors, if only of ordinary glazed construction, the risk of the fire spreading would be materially diminished.

Objection is frequently taken to the enclosing of lifts with fireproof walls. It is urged that doors, even if self-closing, must be fixed open during the passage of goods, and may easily be left open afterwards by careless and indifferent persons, in which case the benefit of the complete enclosure is lost. This difficulty can be met in several ways. Hatches closing automatically may be placed at each floor-level, but, as they must be pushed open by the lift-cage during its travel up and down, the speed of the lift is curtailed. Automatically-

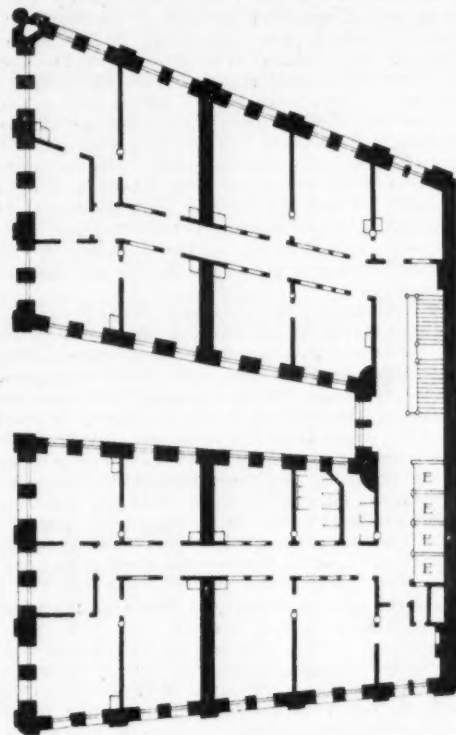


Plan of the Hanover Bank Building New York

Scale 30 Feet

Fig. 4. E E, Passenger-lifts; B, Bank-lift. Messrs. Clinton & Russell, Architects, New York, N. Y.

lifting doors may be provided. The objection to this arrangement, however, is that the doors rise and fall as the cage passes all intermediate floors. The best form of lift-door is one which can only be opened from the inside and which locks the lifting-apparatus, when open, by a simple device of cord and pulley. The doors cannot re-



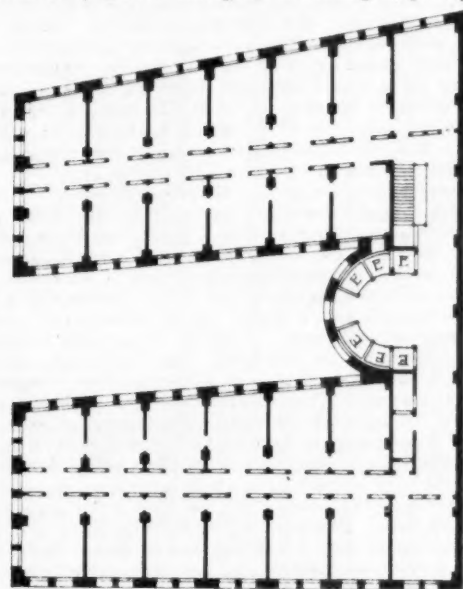
Plan of the Potter Office Building New York

Scale 30 Feet

Fig. 5. E E, Passenger-lifts.

hydrants coupled with a private fire-brigade may do much in this direction. It is, however, not unknown for such provisions to fail under the stress of an actual outbreak. Plentiful supplies of sand, buckets of water, and hand-grenades have been advocated as a ready method of fire-extinction in the initial stages.

A system of sprinklers throughout a building is, perhaps, more



Plan of the Exchange Court Building New York

Scale 30 Feet

Fig. 6. E E, Passenger-lifts. Messrs. Clinton & Russell, Architects, New York, N. Y.

effectual. It lessens danger to life, inasmuch as a volume of water will usually descend immediately upon an outbreak and suppress flame and smoke. It may also be claimed that the sight of a stream of water descending will tend to prevent unreasonable panic among employes.

A point of considerable importance in this connection is that many employes may be rendered incapable of flight in the event of even a slight outbreak. They will, therefore, remain in an atmosphere rapidly becoming charged with noxious vapors unless the fire is dealt with immediately upon the outbreak. Some of the large commercial buildings have been completely equipped with these sprinklers at a cost not exceeding £7 per 1,000 feet of floor-space protected. This is a trifling expenditure upon the part of the owner or occupier, when, according to insurance calculations, the fire-risk to property, and incidentally to life, will be reduced by at least 40 per cent.

In the United States much is expected of its fire-brigades, and it is assumed that in different problems of escape, such as those in connection with tall office-buildings, the fire-brigade will be speedily upon the scene of an outbreak to assist the occupants. It is assumed that in the event of fire in these and similar lofty buildings, the occupants will enter their rooms and close the doors until the fire has been subdued. To this end the New York Building Code demands that in all new buildings exceeding 150 feet in height a steam-pump and a lift shall be kept in readiness for the use of the members of the fire-department during all hours of the day and night and on holidays and Sundays.

As already pointed out, the question of escape in case of fire is not dealt with alone, but in conjunction with other questions affecting the problem. For instance, opportunity is taken by the authorities when providing external iron fire-escapes to attach stand-pipes. In this way the fire-brigade are able in the majority of cases, and without the assistance of the ordinary street fire-escape, to reach immediately any of the upper floors of a building, to attack the fire, and to render assistance to persons who have been unable to escape.

The Chicago Building Ordinance requires that generally all manufacturing premises, office and domestic buildings, churches, etc., four or more stories in height, shall be provided with external balconies, ladders and stand-pipes at each floor-level. The stand-pipe must be 3 inches in diameter, with two hose-connections at the lower end and at each floor-level. Buffalo also empowers the Board of Fire Commissioners to call for stand-pipes to be affixed upon buildings in addition to the fire-escapes referred to below.

It will appear, therefore, that to some extent such buildings are not self-contained as regards means of escape, but are dependent upon external assistance. Although, as in March, 1888, when all street-traffic in New York was blocked owing to a heavy blizzard, there may be a few occasions when the fire-department are unable to render the anticipated assistance, this disadvantage is counterbalanced by the direct influence which the fire-department possesses in fire-questions affecting all buildings.

[To be continued.]

SIGNBOARDS.

THE 200 competitive signboards on view at the Hôtel de Ville interest and amuse Paris. This exhibition has been got up by M.

Detaille, who is tired, he protests, of the uniformity of modern Paris, and imagines that if shopkeepers could be induced to hang out "signs," as in former times, there would be less cause for complaint. Would there? We have already *l'art de l'affiche*, which is charming when reduced to the proportions of the quarto volume, but frightful when spread out to the size of American placards on hoardings. The old-fashioned signboard arose out of the general conditions of the time in which it flourished. If one then sent a servant fresh from the country on an errand to M. Dupont, the silk mercer, or to Mlle. Mallarmée, the modiste, in such or such a street, the messenger could not find the shop because unable to read; but if the mistress said, "Go to the sign of 'la Belle Arlésienne,'" or to that of "le Chapeau Fleuri," there would be no danger of not being able to deliver the message. Only persons of good means knew how to read and write, though in Paris schools of design were so numerous that nearly all the working-class people knew how to draw, and to draw well. The milliner's assistant could sketch the head of a lady setting up to fashion with a hat or bonnet placed on it such as the former proposed to furnish. It was of the greatest importance to make clever sketches of this kind. The French are still a visual people, but must have been so to an extraordinary degree in the eighteenth century. What spoke to the eyes carried away gentle and simple, but especially the latter. Signboards to accomplish the objects of those who hung them out had to catch the eye and hold it, to be simple, clear, striking and to answer exactly to their names. There could be no mistake about a *belle marchande de poisson*, or *la pêche miraculeuse*, or *le carpe et le lapin*, or *la clé d'or*, or *l'ours blanc*, *le renard et la poule*. Houses in front of which the pictorial signs swung seldom rose higher than a first-floor and an attic. The ground was low, the streets were narrow and had bends which greatly added to their picturesqueness, and if the houses devoted to commercial purposes were often mean-looking, their great variety gave them a kind of charm which the signboard enhanced.

The eye is now too surfeited with *l'art de l'affiche*, illuminated advertisements, advertising vanishing-pictures, advertisement-vans, and placards, to take in a sign of old-fashioned proportions and character. The three best at the Hôtel de Ville exhibition would, if hung out over shop-doors, be scarcely noticed. They are "*Au Fin Gourmet*," by Truchet; "*A l'Ane Rouge*," by Willette; and "*O P'ti Cien*," by Gérôme. "*Au Petit Mousquetaire*," by Detaille, is too complex, too subtle, too overlaid with details. The eye has to take in rose

bushes, a stone vase and a stone balustrade, on which the *Petit Mousquetaire* is seated in a coquettish attitude. It has to take in the white outspread wings that, sprouting from his shoulders, form a background, and the tree behind them. Nothing hits the eye or amuses. "*Au Fin Gourmet*," on the other hand, strikes, is easy to remember, and is very amusing. We see a party of white geese that have just come up to a copper stewpan. This utensil excites the curiosity of some, alarms others and gives rise to an anserous conclave. There is an intuitive idea among them that it is their fate to be stewed in that saucepan, which is funnily conveyed. "The Red Donkey" is merely a donkey's head looking out through a round aperture and braying. "*O P'ti Cien*" represents a dear little white dog that looks the image of misery as *il fait le beau*, or "begs." A pair of spring eyeglasses are over the dog's head. This sign is for an optician's shop.

Another of Willette's is Napoleon on a white horse and a winged Victory, as if mounted on a pillion, behind him with an arm round his waist. The Old Guard follow. His horse walks across a symbolical map, that of Europe and a corner of the Union Jack, representing possibly Hanover, on which Bonaparte seized. This sign is truly a thing of beauty. I am inclined to think that no artist ever depicted a white thoroughbred more felicitously than Willette on this occasion. His second sign is for a shopkeeper in the Rue Bonaparte. We have kings' heads, queens' heads, actors' heads and actresses' heads looking like magnified postage-stamps. The public here has no enthusiasm for such images, not even when made up of Conservatives. — *Paris Correspondence London Truth*.

WASHINGTON STREET-CLEANING.

TO the careful observer who is familiar with street conditions in the leading cities of the United States, there is no doubt that

Washington is the cleanest city in the United States. This is made possible for two reasons: First, because the department is managed on a strictly non-partisan and merit-system basis; second, because it has the best equipment that money will buy. Warner Stutler, the Superintendent of the Street-cleaning Department of Washington, possesses many of the traits of the late Colonel Waring, which has enabled him to bring the conditions in Washington up to its present high standard. Not the least in importance of these qualifications is the one inducing him to try every new device for street cleansing which gives a reasonable assurance of efficiency.

Something over a year ago he tried a "pick-up" hand street-sweeper and was so pleased with the test that he entered into a contract with the manufacturers to supply 130 sweepers at \$6.25 a month, the manufacturer to keep the same in perfect repair during the year, the sweepers to become the property of the city at the end of twelve months. "By the use of these sweepers," he said, "the laborers can clean one-third more area than they could with the hand-brooms and at the same time do the work better. The further reduction in the cost of the work on account of the use of the hand-machine, which amounts to \$90 per day, or \$24,300 per annum, has enabled us to enlarge the daily area by adding thereto 500,000 square yards, thus making the daily hand-cleaning schedule for the current year 2,000,000 square yards."

In referring to the work of this machine, Mr. Stutler said: "Previous to the adoption and use of these machines 210 men, with hand-brooms, cleaned a daily area of 1,565,809 square yards, making a total area during the year of 413,765,028 square yards at a cost of \$76,439.47; whereas the same force, using the machines, cleaned 1,920,417 square yards per day, or a total of 515,992,920 square yards during the year at a cost of \$79,704.46. It will therefore be seen that 354,608 square yards more per day were cleaned during the past fiscal year than during the previous year, making a total increase in area cleaned of 102,227,892 square yards at the comparatively small cost of \$3,264.99; whereas under the hand-broom method this increase in area would have cost us \$18,912."

"During the year 1901 the cost per 1,000 square yards was 18.6 cents and during the past year this rate was reduced to 15.8 cents, which includes, for wear and tear, one-fifth of the cost of the 130 sweepers, due entirely to the adoption of these machines."

"The daily area cleaned, therefore, was not only enlarged and the expenses reduced, but the streets were kept cleaner than ever before."

"During the current year a further reduction in the cost will be shown for the reason that the 130 machines now belong to the District, which will mean a saving of \$8,556.25 previously paid for rental less the necessary cost of maintaining and repair. It is believed that by the end of the present fiscal year it will be shown that the cost per 1,000 square yards for hand-cleaning will be less than 15 cents."

It is evident from the foregoing account given by Mr. Stutler that without these machines he would not be able to cover as much area nor keep it as clean at so light an expense. And it is also evident that not only the cities, but small towns which have smooth pavements, could adopt this method in keeping streets clean. One of the greatest needs of American cities to-day is streets thoroughly cleansed. The use of this machine affords the means for achieving the desired end. — *Municipal Journal and Engineer*.

NEW MEMBERS OF THE NEW YORK ART COMMISSION. — Mayor Low has appointed, for terms of three years, A. Phimister Proctor and Loyall Farragut, members of the New York Art Commission, to succeed Daniel C. French and Samuel P. Avery, respectively. — *Exchange*.

BOOKS PAPERS

MR. TANNER'S very full title-page almost wholly obviates the necessity of giving any general description of this excellent book¹ further than to say that it contains fifty plates, 12" x 17", and eight or ten pages of brief descriptive notes. It is merely one of the evergrowing series of books written in the graphic language that is understood in every country of the world, as useful to the Portuguese Brazilian or the Russian Slav as to the Frenchman or the American.

In style and manner of presentation the book is a fit companion for Prentice's book on the Spanish Renaissance which was issued by the same publishers some ten years ago, and the general character of the illustrations is fittingly exhibited by the few reductions of some of the plates which we reproduce elsewhere.

In the way of unfavorable criticism we have only to point out that since the title-page declares that the illustrations are drawn from the work of three centuries it would have been helpful to some users if the actual, or approximate, date had been attached to each subject, and if, further, the name of the known designer had also been stated. These facts are, as a rule, given in the prefatory notes, but it is so common a failing with architects to leave text-matter unread and to derive all their information from the plates of their books alone that it is distinctly a mistake in all such cases not to place upon each plate the essential descriptive particulars.

Mr. Tanner has selected his subjects with much judiciousness and has presented them in a clear and masterly manner, and if one feels inclined to say that the result is "scrappy," he has but to ask himself how could fifty plates covering the same period and similar subjects be brought together without being inevitably chargeable with being scrappy? It is unwise to expect too much. Yet, time and again we have heard architects declare of such works that if a book of a similar bulk had been devoted to a single subject — as staircases, or mantels, or ceilings — that that would have been just the book that they would have bought; and yet when a work prepared on just the lines they recommended was offered to them they declined to purchase because in their opinion — at that time — each book should be devoted to a single "style" and not to a single motif. And there you are! No one but the publishers of architectural works can realize what very funny people to deal with architects are as a rule. The result of the artistic idiosyncrasies that prevail amongst architects is that architectural books have to be unduly expensive, and the working-architect has to pay vastly more for his library than he can properly afford, while the publishers of architectural books have their capital embarked in one of the most precarious of possible undertakings.

MR. LEWIS F. DAY'S book² on stained-glass has reached its second edition, and appears with freshly revised text. Without being as ambitious as the splendid works of Winston and others, Mr. Day's book has the merit, for the professional reader, of being the production of a practical glass-designer of many years' experience, as well as an earnest and almost life-long student of glass in all parts of Europe; while the system of illustration, in black and white, but using the heraldic signs for color, although less brilliant than the colored plates of the great historical works, is really more satisfactory to the student, for the reason that, if he is earnest enough to copy or trace the patterns for himself, filling in the outlines by hand with something like the varied tints of actual glass, he will get a much better insight into the art of putting pieces of colored glass together than he could by studying the flat pigments of Winston and Owen Jones, which are very far from conveying an idea of the real effect of a window. Among the 250 or more illustrations which Mr. Day gives, there are many which lend themselves admirably to such use. In fact, one of the principal charms of the book is its practical character, as a guide to the art, rather than as an historical account of what has been done in it; and, although the characteristics of various periods are clearly given, and in very interesting detail, not only of color, but of glazing, leadwork and painting, they are treated as suggestions for the designer, and are the more valuable on that account. With the same view, a much greater range is included in the work than in most of the standard books on stained-glass. Not only is the invention of colored glass traced back to the Phœnicians, who, as the author surmises, may very possibly have passed off the glass beads often found in Egypt and other parts of Africa as real jewels, but examples of the early Arabian work, of colored glass set in plaster, and of Roman translucent mosaic in marble, are given, which afford useful suggestions. Naturally, as an expert designer of glass, Mr. Day finds examples from all over Europe to illustrate his points, but the book gains greater variety and interest, for the ordinary reader as well as for the student, in this way, and the tourist, either architect or amateur, could hardly find a better or more con-

venient book to take with him both to England and the Continent, for helping him to judge correctly of the infinitely varied examples of colored glass which he is likely to meet with, or to appreciate their beauties.

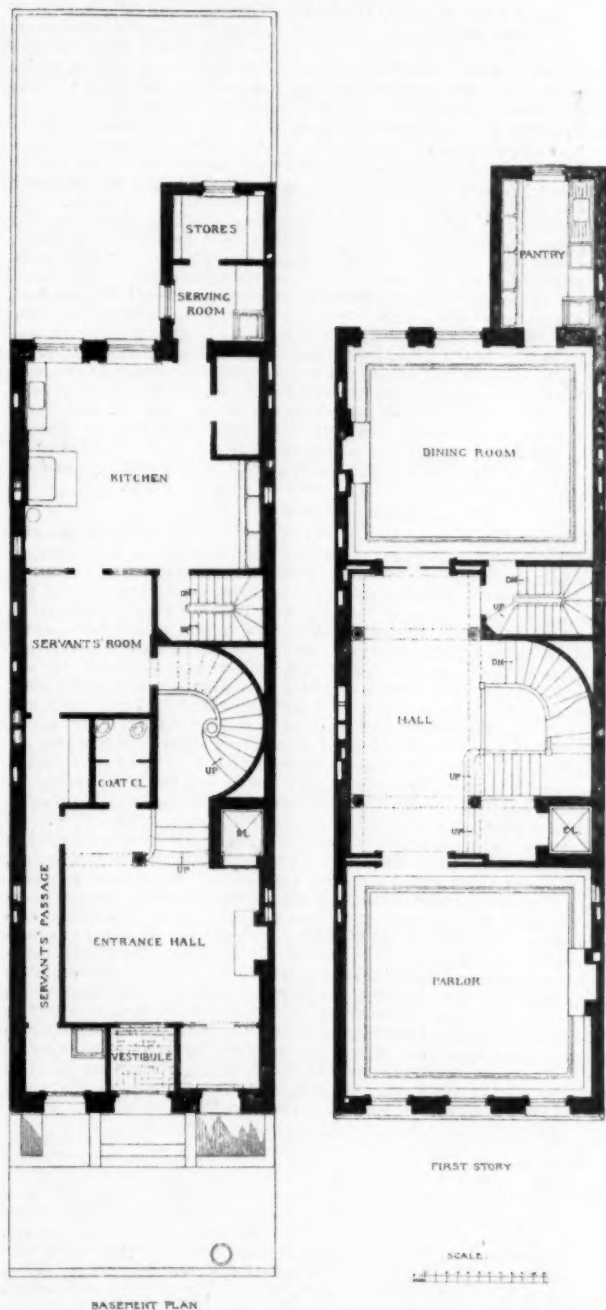
ILLUSTRATIONS

[Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.]

"THE DRYDEN ARMS," DRYDEN, N. Y. MR. E. G. W. DIETRICH, ARCHITECT, NEW YORK, N. Y.

RATHSKELLER IN THE "DRYDEN ARMS."

AN INEXPENSIVE HOUSE, NEW YORK, N. Y. MESSRS. ROBERTSON & POTTER, ARCHITECTS, NEW YORK, N. Y.



ENTRANCE PORCH: CITY-HALL, WORCESTER, MASS. MESSRS. PEABODY & STEARNS, ARCHITECTS, BOSTON, MASS.

Additional Illustrations in the International Edition.

ENTRANCE PORTICO: PUBLIC LIBRARY, PROVIDENCE, R. I. MESSRS. STONE, CARPENTER & WILLSON, ARCHITECTS, PROVIDENCE, R. I.

¹"English Interior Woodwork of the XVI, XVII and XVIII Centuries." A series of the best and most characteristic examples of Chimney-pieces, Panelling, Staircases, Doors, Screens, etc., measured and drawn, and with introductory and descriptive text. By Henry Tanner, Jr., A. B. I. B. A., Joint Author of "Some Architectural Works of Inigo Jones." London: B. T. Batsford, 94 High Holborn. New York: Charles Scribner's Sons, 153-7 Fifth Ave. 1903. Price \$15 net.

²"Windows": A Book about Stained Glass. By Lewis F. Day. Second Edition. London: B. T. Batsford. Chas. Scribner's Sons, New York. 1902. Price \$10.50.

VARIOUS STAIRCASES: TWO PLATES.

THESE plates and those which follow are copied from Mr. Tanner's book "English Interior Woodwork" which is noticed elsewhere in this issue.

DETAILS FROM ALL HALLOWS, BARKING, CHURCH.

THRONE AND STALLS IN THE CONVOCATION ROOM, OXFORD, ENG.



THE LONDON AND NEW YORK OBELISKS.—A recent writer on the conquest of Egypt by the Arabs in the seventh century has much to say that will interest those to whom the obelisk in Central Park is an object of curiosity. Dr. A. J. Butler says that the two obelisks of red Aswan granite before the Cæsarian, first a temple to Julius Cæsar begun by Cleopatra and finished by Augustus Cæsar, then the Church of St. Michael as altered by Constantine, then the Cathedral of Alexandria, were great marvels of the Arabians when they took the city, A. D. 642; their historians subsequently embellished them with famous attributes. They made a lighthouse out of them and averred that it was built on a foundation of glass in the form of a crab and had figures of brass on its summit. When Commander Gorrington removed the obelisk in Central Park, it was found that the shaft did rest on four crabs, but of bronze. One is in the Metropolitan Museum and bears an inscription. Confusing it with the famous Pharos at the mouth of the branch of the Nile on which Alexandria stands, the Arabian chronicler says of the figures of brass: "One figure pointed with its right hand to the sun, wherever it might be in the heavens, and lowered its hand as the sun sank. Another pointed to the sea in the direction from which an enemy was approaching, and, as the enemy approached, it cried out in a terrible voice, which could be heard two or three miles away." Dr. Butler suggests that the obelisk now in London may have rested on crabs carved out of obsidian, a natural glass, and that the figures mentioned did stand on the metal-caps of the obelisk, while the "voice" might have been some form of syren on or near the great Pharos, the most famous lighthouse of the ancient world. There is nothing impossible in the existence of an hydraulic syren at that epoch, nor in clockwork which may have raised and lowered the arms of a metal statue on the top of an obelisk so as to follow the course of the sun from dawn to setting. But Dr. Butler sees in the story of the figure "pointing to the sun" a Hermes or Victory of the Greek type standing on one foot. The new work is published by the Oxford Press under the title "The Arab Conquest of Egypt and the Last Thirty Years of the Roman Dominion."—N. Y. Times.

WESTMINSTER ABBEY AND ST. MARGARET'S.—Very few people who see Westminster Abbey realize till they get inside that it is the loftiest church in England. Placed where it is in London, and in such a part of London, it cannot possibly soar over all surrounding buildings in the way in which much smaller churches soar over all surrounding buildings in other places. Even if it had towers in proportion to its size, St. Peter of Westminster could never soar over Westminster in the way that St. Peter of York soars over York. At York it is not merely the towers, it is the bulk of the minster itself which rises above the city. The ridge of Westminster is 40 feet or more higher than that of York, but Westminster can never while it stands be the same predominant object which York is. It has still less chance of overtopping all its neighbors, since a neighboring building has sprung up by which it is itself overtopped. St. Peter's is higher than other English minsters, but it is not higher than they are in the proportion in which other buildings at Westminster are higher than the same kind of buildings in other English cities. Its positive size is therefore likely to be forgotten. But we are recalled to its positive size when we see that a parish church of the larger sort, with a tower which would alone be a prominent object in most towns, seems small by the side of it. Our ancient minsters were none of them built to stand alone. A great church, whether secular or monastic, was only part of a whole. It always had other buildings adjoining or standing near to it, grouping with it and thereby increasing its effect. Gateways, refectories, bishops' palaces, prebendal houses, wherever they retain their ancient character, group with the church and improve its effect. Among these subordinate buildings a subordinate church is often found, and it always helps to set off its mightier neighbor to greater advantage. St. Margaret's is more important and needful for this purpose than the subordinate church anywhere else. It is an essential part of the group, which it would be the ruin of the whole effect of the Abbey to take away.—The Architect.

FLOODING OF THE HUDSON-RIVER TUNNEL.—A serious accident happened January 6, in the work of constructing the new tunnel under the North River, from Fifteenth Street, Jersey City, to Morton Street, New York, which resulted in the north side of the tunnel being completely flooded. The south side is also threatened in a similar manner. The accident happened just after the night-shift of workmen had gone off duty. The flooding of the tunnel was caused by an imperfect shield which had been placed in position by the usual process of boring. It is fortunate that the break came at the time it did, because had it occurred earlier in the morning or later the workmen would not have had time to escape with their lives. At the superintendent's and engineers' offices it was stated that it was impossible to tell how much damage had been done until an examination of the tunnel had been made. It is believed, however, that the flooding of the tunnel will put back the work considerably.—Exchange.

SEA-WALLS AND GROYNES.—From time to time large sums of money have been expended in trying to prevent the erosion of our coasts, especially on the sandy beaches of Long and Coney islands by the erection and repairing of sea-walls. The money might just as well be pitched directly into the sea. That's where it goes, anyhow, with little delay. Wooden and brush matwork-jetties have been tried. They are better than walls, but still far from satisfactory, except under different conditions, as in the Eads protection of the Mississippi. The only sure cure is by groynes of riprap thrust out perpendicularly to the shore line. This is no mere theory. The worst surf in the world, with three stupendous rollers which in calm or storm thump the shores of Madras, Pondicherry, and other ports of the Coromandel Coast of India, has been defied by these groynes, which have deflected and broken up the inshore currents and have built up a shingle beach, constantly, though slowly, expanding. At Cochin, on the Malabar Coast, the ancient capital of the Dutch East Indies, in 1868, an extraordinary freak of the Indian Ocean tore away the sandy beach which had for centuries been nearly half a mile wide, dashed up to the bluffs whereon a lighthouse shed its welcoming and warning rays, and finally broke into and ruined the old burying-ground where the colonial magnates of Holland had reposed. Then, with the actual example of Madras under their noses, the Madras Government tried to stop the ravages of the sea by sea-walls. The sea laughed at them. Finally, after much argument, in which the writer took an active part—his scrap-book still contains some of his articles in the Madras *Athenæum*—groynes were thrown out. The sea receded and the beach began to grow again almost as fast as it had been washed away. Why not try this at Coney Island? The money wasted there on sea-walls would have given us the park Commissioner Young so earnestly desires.—W. L. D. O'Grady in the N. Y. Times.

DUST FROM SANITARY POINT-OF-VIEW.—At the Sanitary Congress recently held in Manchester, England, among other important matters relating to sanitation which were discussed, the question of how effectively to deal with superfluous and harmful dust occupied a prominent position. Sir J. Crichton-Browne, the orator of the medical profession in Great Britain, delivered an address, as president of one of the sections, and took dust as his text. He said, in part, that industrial dust, apart from poisonous or pestilential mixture, was a sufficiently interesting theme from a sanitary point-of-view, for the returns of mortality revealed that, notwithstanding the highly successful crusades against it, it was still responsible for an appalling amount of suffering, disablement and death. A detailed examination of the condition of work in each of the twenty-two principal dusty trades brought out clearly that it was the dust that was primarily at fault in causing their unhealthfulness, for there was always a relation between the death-rate and the quantity and quality of the dust present. There could be no doubt that it was ganister dust that was responsible for the alarming mortality among those who worked in mines, brought to light by Dr. Birmingham and Dr. Robert Shaw, and that it killed, not by inducing phthisis in the ordinary sense of the term, although that was the commonly certified cause of death, but by setting up a more or less widespread fibrosis in the lungs, to which tuberculous phthisis was merely secondary. The miners, who suffered most seriously from the effects of dust, were, of all the classes of workers among it, those whom it was most difficult to protect, but their safety would be greatly enhanced by improved ventilation of the mines on well recognized principles, perhaps by the spraying of them from time to time, so that the dust might be laid, and by the use of flameless explosives that get rid, as far as possible, of carbonic oxide, and by insisting upon long intervals for meals, during which open-air breathing might be enjoyed. A miner's life is not only dangerous by reason of the chance of accident, but also on account of its menace to health. Unless a coal-mine is thoroughly well ventilated, it is obvious that it cannot be a healthy place in which to live. But of all the causes which render picking for coal an occupation harmful to health, no one is more injurious than the constant presence of dust. If some workable plan could be devised whereby the amount of dust might be diminished in coal-mines, the lot of the miner would be made far more endurable than it is under the conditions now generally prevalent.—Medical Record.

WINDOWS MADE OF PAPER.—Surgeon Captain K. Tamura, of the Imperial Japanese Army, addressed a recent meeting of the military surgeons of this country, and in the course of his remarks Dr. Tamura called attention to the use of paper for windows in Japan, in place of glass. It is shown that where no ventilation can take place through glass, the air passes through the paper quite freely. Moreover, the texture of the paper is such that, while admitting the air, it prevents in some degree the passage of germs through it. This point was determined by counting the number of colonies of bacteria developed on media inside and outside the house. It was thus found that 97 per cent of the bacteria of the air were removed. The speaker summed up in the adroit Oriental way: "It is well known that a citizen of Paris inhales 7,500 bacteria germs in a day; one in Berlin, 5,000 of them. We Japanese, who live in air containing three times as many as Berlin and twice as many as Paris, inhale only 2,000 bacteria germs in a day, simply because we use paper for the windows of our homes.—Philadelphia Public Ledger.

LAST week we referred to the demands which had been made on M. Osiris in respect of the restoration of the Château de Malmaison. The French tribunals can sometimes be severe, especially in cases of unwarranted demands. The contractors employed by M. Osiris have been made to suffer. The contractor for masonry has not only had his claim reduced from 400,000 francs to 250,000 francs, or nearly one-half, but he has been ordered to pay seven-eighths of the expenses. The locksmith will have to pay M. Osiris 3,000 francs. The painter and the joiner will also have to meet the remainder of the costs.—The Architect.

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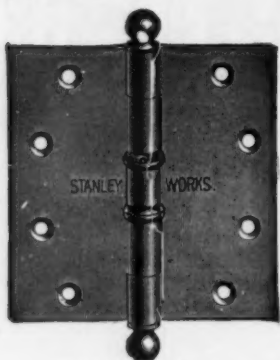
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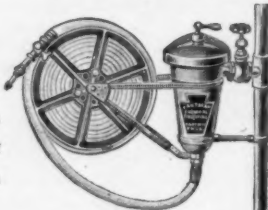
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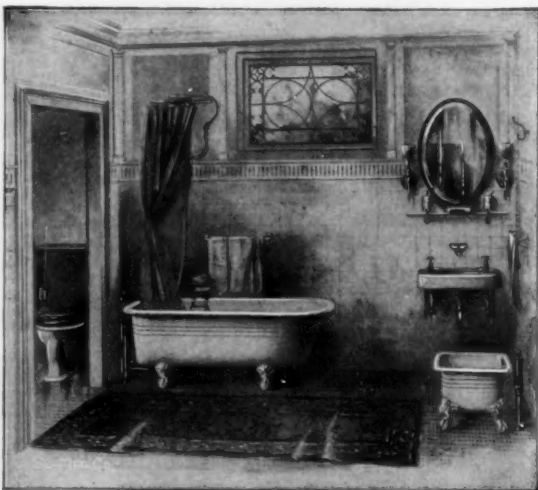
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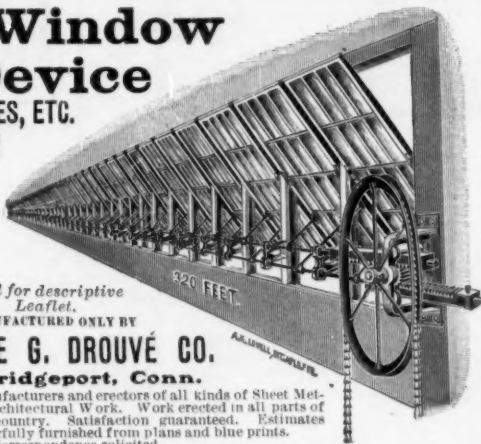


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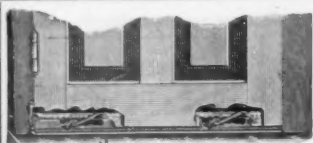
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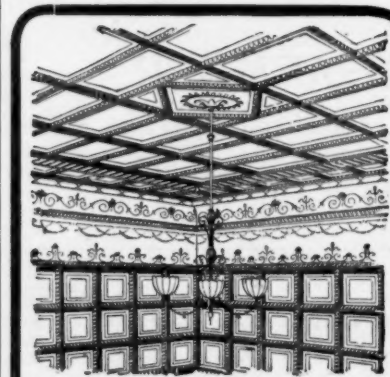
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The Bill prays for a preliminary writ of injunction, to be continued during the pendency of the suit, and upon the final determination thereof to be made perpetual, and also demands an accounting and damages.

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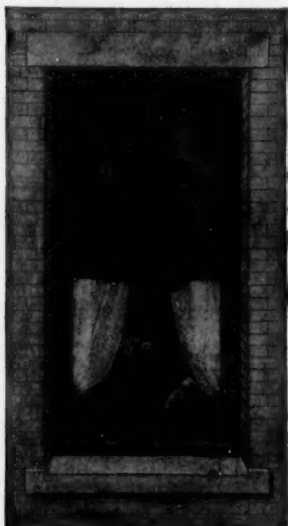
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Cleveland, O.—Press reports state that a nine-story brick and steel office-building will be erected

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

by the Wellman-Seaven-Morgan Engineering Co. Cost, \$30,000.

Council Bluffs, Ia.—Andrew Carnegie has offered to contribute \$50,000 for a public library in this city on condition that the city furnish a site and appropriate \$5,000 for maintenance.

Crookston, Minn.—E. Strassburger has made plans for a \$20,000 building, 50' x 140', for Fontaine & Anglin.

Danville, Va.—The Dan River Power & Mfg. Co. are erecting a \$300,000 dam and power-house and the first mill building will be begun shortly, followed by another. About \$1,500,000 will be invested in the two mills. The contractors are J. W. Bishop & Co., of Providence, R. I., the engineers, Lockwood, Greene & Co., of Boston, Mass.

Dayton, O.—The United Brethren Publishing Co. is to remodel its present building, at a cost of about \$300,000.

Delaware, O.—Andrew Carnegie offers this city \$200,000 for the erection of a public library.

Denver, Col.—It is stated that the School Board has purchased ten lots at 9th and Lincoln Aves. on which a \$100,000 school-building will be erected in the spring.

Des Moines, Ia.—Plans have been drawn for a theological building for the trustees of the Drake University.

Hallett & Rawson, 615 Walnut St., have prepared plans for buildings to be erected at W. 15th and Locust Sts. for the Still College and Infirmary of Osteopathy.

Mrs. D. R. Ewing will erect a library building at Drake University. Cost, \$25,000.

The Polk County Republican Club will erect a new club-house.

Duluth, Minn.—M. S. and H. J. Cook are having plans prepared for a \$30,000 brick building to be erected on Superior St., near 2d Ave. W.

Everett, Mass.—An ordinance has been passed by the Board of Aldermen for the erection of a \$25,000 police station.

Fond du Lac, Wis.—A two-story brick building is to be erected by the Bechard Brewing Co. at a cost of \$25,000.

Fort Smith, Ark.—It is stated that the Frisco R. R. Co. will erect a two-story brick depot at this place, to cost \$60,000.

Ithaca, N. Y.—Carrère & Hastings are to prepare plans for the extension of Cornell University. There will be 38 new buildings erected at a cost of \$5,000,000.

Johnson City, Tenn.—Andrew Carnegie has given the National Soldiers' Home, of this city, \$25,000 for a library. Contracts for the erection not let.

Kansas City, Mo.—The Prospect Ave. Christian Church Society will sell its present site and erect a \$100,000 edifice on a new location.

Knoxville, Tenn.—The Southern Railway announces that it will expend about \$1,000,000 in

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

improvements on the Knoxville and Ohio and the Knoxville, Cumberland Gap and Louisville branches of its systems. The improvements will consist of new steel bridges that will carry heavier locomotives than those now used on that road, enlarging and walling of tunnels, reduction of grades and heavier rails on certain portions.

La Crosse, Wis.—Frank Nixon and J. J. Hogan are interested in the erection of a \$100,000 hotel.

Long Island City, N. Y.—Operations will begin shortly toward the erection of the largest gas plant in the world in the Astoria section. The plant will cover 300 acres, and it will probably take five years to complete its erection. The plans for the plant have been entirely completed. When in operation, employment will be given to several thousand men.

Los Angeles, Cal.—The First Baptist Society is to erect an edifice at Telegraph Ave. and Jones St. Cost, \$70,000.

Madisonville, Ky.—A \$40,000 ice factory and laundry building will be erected in the spring by the Spring Lake Ice Co.

Marion, O.—Andrew Carnegie is stated to have offered this city \$25,000 for a library.

Milwaukee, Wis.—The Wisconsin Gas & Coke Co. has been incorporated and will establish a complete modern plant in this city to be in operation by next fall. Estimated cost, \$1,000,000. It will take several years to complete the entire system as planned and the cost will be from \$3,000,000 to \$4,000,000.

Robert A. Johnston will erect a stable and warehouse, 38' x 235', on Florida St., near Clinton, to cost \$20,000. Crane & Barkhausen, architects.

Moscow, Idaho.—The M. E. Society is considering the erection of an edifice, to cost \$25,000.

Muncie, Ind.—A company of glass-workers, having a capital stock of \$75,000 has been formed to construct a large coöperative window-glass factory. Construction will be commenced very soon.

New Decatur, Ala.—It is stated that the Decatur Hotel Co. has been incorporated, with a capital of \$25,000, to erect a hotel at Lafayette and Railroad Sts.

New York, N. Y.—The New York Journal has bought the Hotel Virginia property, the block bounded by 53th St., Grand Circle, 8th Ave. and Broadway. A twenty-story building to be occupied exclusively by the New York Journal will be erected on the site.

The work of removing the old buildings on the City Hotel site is well under way. A five-story building for the Manufacturers' Outlet Co. will be erected at a cost of about \$120,000. Thornton & Thornton are the architects, and the terms of the contract call for completion by October 15th of the present year.

Alterations will be made to the Long Island Railroad waiting-room at 34th St. A one-story extension will be added to the present structure making the waiting-room 117' x 197', extending from 34th to 33d Sts. The cost is placed at \$10,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

The Brownson Catholic Club has bought a plot in 146th St., near 3d Ave., on which it will erect a three-story club-house, 25' x 95'.

North Tonawanda, N. Y.—Andrew Carnegie is stated to have offered this city \$20,000 for a public library.

Olneyville, R. I.—A twelve-room school-building of handsome design will be erected on the Barton Street side of St. Mary's Church, to cost between \$60,000 and \$70,000. The chapel now standing on this site will be moved to Bainbridge Ave. The new building is being designed by Murphy & Hindle, and will be three stories in height, of brick with limestone trimmings.

Omaha, Neb.—Walter Brandes will remodel the building at 10th and Pacific Sts. as a hotel, at a cost of \$70,000.

Contractor John H. Harte has begun work for the erection of a new building for the Nebraska Telephone Co., adjoining its present building at 18th and Douglas Sts. Will be 66' x 66', three-story and basement, of buff brick and terra-cotta. Cost, \$40,000. T. R. Kimball, architect.

Pawtucket, R. I.—The Phillips Insulated Wire Co. contemplates erecting a \$50,000 manufacturing building. It will be brick, one-story, 175 by 50 feet.

Philadelphia, Pa.—Andrew Carnegie has offered to give this city a million and a half dollars toward the extension of its free library system. It is not known as yet whether the city will accept the offer. The subject must first be considered by the City Council.

It is reported that Joseph Wharton, founder of the Wharton School of Science and Economy of the University of Pennsylvania, will build a commodious building for the school on Woodland Ave., opposite the Wister Institute of Anatomy. The building will be equipped with all modern facilities and will cost at least \$200,000.

Pittsburgh, Pa.—It is stated that the Congregation of Friendship Ave. Presbyterian Church will erect a chapel at Roup St. and Friendship Ave., to cost \$25,000.

A \$75,000 six-story fireproof building will be erected at 5th Ave. and Washington St. by the Washington National Bank.

John Goettman, of Goettman Bros., 336 Diamond St., proposes to build a \$40,000 warehouse on Penn Ave.

A new \$500,000 theatre is to be erected here next summer by Nixon & Zimmerman, of Philadelphia, on the north side of 6th Ave., between Montour Way and Cherry Alley. It will have a broad entrance on 6th Ave. and a port-cochere on either side. The interior will resemble the plan of the Metropolitan Opera-house in New York. It will have a seating capacity of 2,500.

Portland, Ore.—W. D. Fenton is to erect a three-story building on 6th and Oak Sts., to cost \$35,000.

Providence, R. I.—The American Ship Windlass Co. will soon begin the construction of a large foundry building. It is to stand on land recently acquired and adjoining its present plant.

R. C. Watrous & Co. have sold to a Mrs. Suddard for Theodore Burgess Smith a house lot about 45 by 80 feet on the southerly side of Bellevue Ave., near Elmwood Ave. The purchaser expects to build a residence here in the spring.

The five-story building to be erected for the Manufacturers' Outlet Co. on the old City Hotel site will be completed about October 15th of the present year. Construction work will be done by Hartwell, Williams & Kingston, at a cost of \$120,000. Thornton & Thornton are the architects.

B. F. Keith and E. F. Albee are negotiating for the site of a new theatre. It is the block west of the site of the present Keith Theatre fronting on Westminster and Mathewson Sts.

Pueblo, Col.—F. W. Cooper, 108 Pope Block, has completed plans for a theatre to be erected at Lake Minnequa, to cost about \$22,000.

Racine, Wis.—C. J. Hansen has plans for a three-story brick hotel building, 40' x 112', to cost \$30,000.

Reading, Mass.—Andrew Carnegie has offered \$12,500 for a public library building, the town to give \$1,250 yearly for its support.

Reedsburg, Wis.—Omeyer & Thorl will furnish plans for a \$40,000 high-school building to be erected here, having been successful in a competition with a score or more of architects.

Richmond, Va.—It is stated that the Whitlock Estate will erect a store and office-building on 8th and Main Sts., at a cost of \$25,000.

River Rouge, Mich.—The Ferguson district school board has approved plans for a \$30,000 school-building to be erected on Burke Ave.

San Antonio, Tex.—It is reported that the R. C. Theological Seminary is to be erected on Laurel Heights. Cost, \$30,000. Architects, McSweeney & McSweeney, Hicks Building.

San Francisco, Cal.—It is said that the trustees of Chas. T. and Jennie A. Crocker have decided to erect a four-story business building on Powell and Geary Sts., at a cost of \$200,000. Plans by Bliss & Faville.

Scranton, Pa.—Ground will soon be broken for the new Clemens silk mill. J. D. Williams & Bro. will erect a store building, at a cost of \$40,000.

Seattle, Wash.—It is reported that the Rainier Club will erect a club-house from plans by Architect Cutter. Cost, \$50,000.

Sharon, Pa.—The Board of Education has decided to erect two schools, each to cost \$35,000.

Sheldon, Ia.—The \$50,000 high school at this place has been burned; insurance \$25,000. It will be rebuilt at once.

Shreveport, La.—Plans have been prepared by Architect Otto Wolf, 1345 Arch St., Philadelphia, Pa., for a \$175,000 three-story brick brewery building, 80' x 151', to be erected here for Louis P. Hart, of New Orleans, and others.

Sioux City, Ia.—R. E. Purslow has had plans completed for the erection of a six-story hotel at the corner of 3d and Nebraska Sts. by Geo. W. Burkhead, architect. It is expected to spend \$60,000 upon the hotel. Work will be begun in the early spring.

G. O. Swasey will erect a \$40,000 business block in the spring at the corner of 4th and Jennings Sts.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

South Bend, Ind.—The Studebaker Manufacturing Co. has presented to the Young Men's Christian Association \$200,000, to be used for the construction of a building as a memorial to the five original Studebaker brothers, the last one of whom, Clem Studebaker, died last year.

South Manchester, Conn.—Cheney Bros., silk manufacturers, are now planning a \$100,000 reservoir to supply water for the village.

Spartanburg, S. C.—J. Walter Allen is soliciting subscriptions to the stock of a company who proposes forming to build a \$250,000 cotton-factory. The leading business men and a number of the cotton-mill operators seem disposed to join in the enterprise.

Spokane, Wash.—A. Held, 516 "The Rookery," has drawn plans for an apartment-house to be erected for F. Beck, to cost \$60,000.

Starke, Fla.—Bradford County farmers talk of building a spool and thread cotton-mill here. They have made no definite plans as yet.

St. Joseph, Mo.—It is stated that the Elks will erect a building to cost \$40,000.

St. Louis, Mo.—Edward F. Nolte, 620 Chestnut St., has prepared plans for the erection of a seven-story hotel and theatre building at Grand Ave. and Olive St. Cost, \$750,000.

A. F. Rosenheim, 717 Lincoln Trust Building, has drawn plans for a twelve-story office-building to be erected at 7th and Pine Sts. Cost, \$400,000.

It is reported that the Missouri Botanical Garden Co. will build a \$45,000 six-story brick and stone factory and warehouse, 53' x 140'. Plans by Architects Legg & Hallaway, 715 Locust St.

The Antlers Investment Co. has purchased the premises No. 712 Washington Ave. At the expiration of the present lease the building on the site will be remodelled.

A syndicate has bought land at the corner of Lindell Boulevard and Boyle Ave. for \$23,000. It has plans ready for a \$120,000 hotel and will begin at once excavating for erection of same.

The members of the Boose-Wiles cracker and candy company of Kansas City, who have been here the past week selecting a site for a cracker factory, have chosen a place for a permanent location, but have not announced the exact location.

Frank R. Tobin, of the Tobin Painting Co., has purchased land at the corner of 13th and Pine Sts., for \$40,000. Mr. Tobin owns additional property adjoining. He will erect a six-story building.

The Buckingham Hotel Co. has approved the plans drawn by Architect E. C. Janssen and awarded



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

the contract for the construction of the elegant hotel building at the northeast corner of King's Highway and Pine St. The contractors, the Hoffman Co., will break ground for the building at once.

The Continental Glass Manufacturing Co., recently organized, has secured an eligible site and will begin in a few weeks the erection of a building suitable for its use at the corner of 3d and Barton Sts. The company proposes to put up a one-story building covering the entire lot, which is about 132 by 255 feet. The structure is estimated to cost \$25,000, and will be used in the manufacture of table glassware, lamps and other wares. Plans are being drawn for the building.

St. Paul, Minn.—It is reported that the funds to be used for erecting school-buildings the coming season will be apportioned as follows: \$30,500 for an 8-room school, for the 5th Ward for which A. F. Ganger will prepare plans; \$33,000 for the 1st Ward, for which J. W. Stevens will prepare plans; \$18,500 for addition to the Irving School, for which Hermann Kretz & Co. will prepare plans; and \$15,500 for the Baker School at St. Anthony Park, for which E. J. Donohue has plans.

Tacoma, Wash.—The Wilkeson Vitriified Clay Co. has been formed here to engage in the manufacture of fire clay and pressed brick. A plant to cost \$60,000 will be constructed at Chamber's Creek, about four and a half miles from this place.

Tekoa, Wash.—Russell & Vincent, Spokane, have drawn plans for a \$20,000 hotel for Frank H. Quinn.

Tuxedo Park, N. Y.—The Erie R. R. Co. will erect a depot here, to cost \$65,000.

Utica, N. Y.—The erection of a municipal and county building in this city is contemplated. If erected, it will probably cost \$150,000.

Waco, Tex.—The St. Louis Southwestern Ry. Co. will erect a \$50,000 depot at Franklin and 3d Sts.

Washington, D. C.—Andrew Carnegie has offered \$350,000 for the erection of branch libraries here, the city to provide the sites and arrange for the support of the libraries.

At a meeting of the National Board of Managers of the Daughters of the American Revolution, the President, Mrs. Charles W. Fairbanks, announced that the proposed site for the hall in this city has been entirely paid for, and that the treasury of the Order contained \$61,000 toward the amount needed for the erection of the building.

Representative Warner, of Illinois, has introduced a bill appropriating \$50,000 for a statue to the late Major General Franz Siegel, to be erected in this city.

Watertown, Mass.—The Watertown Gas Light Co. is arranging for the building of a new electrical plant to be finished in the early spring.

Waukesha, Wis.—Plans have been drawn by Van Ryn & Cass, of Milwaukee, for the \$50,000 Ovit office-building. It will have all modern conveniences.

Wausau, Wis.—Andrew Carnegie will donate \$30,000 for the erection of a public library.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Webster City, Ia.—It is reported that a factory for the production of hollow blocks will be established by the Concrete Stone Co.

West Roxbury, Mass.—C. G. M. Carlson has bought property at the corner of Centre St. and Lakeville Pl. He intends to erect thereon a number of first-class brick apartment-houses.

Williams Bay, Wis.—It is stated that the Yerkes observatory building, recently destroyed by fire at a loss of \$25,000, will be rebuilt.

Williamstown, Mass.—Prominent alumni of Williams College have interested themselves in a plan to secure an inn which will be open the year around and give the best accommodations, and plans are now being drawn for such a house by New York architects, and will doubtless be submitted to the alumni at the dinner to be given in New York soon. The plans will call for a building with a frontage of 150 feet and a depth of about 60 feet. There will be 50 sleeping-rooms and the usual reception, dining and store rooms, parlors, halls, baths and closets. Such a building would cost \$40,000, outside of furnishings, which will cost \$10,000 more.

Willmar, Minn.—A stock company is being formed to erect a \$30,000 hotel.

Wilmington, Del.—Plans are in preparation by Amos W. Barnes, architect and engineer, of 9th and Walnut Sts., Philadelphia, Pa., for a large manufacturing plant to be erected here.

Winnipeg, Man.—The C. P. R. is arranging to erect a handsome new passenger station. The cost is not determined.

The Young Men's Liberal Club proposes the erection of a building, 40' x 130', to cost complete \$50,000.

Worcester, Mass.—The Hahnemann Hospital Association is planning the erection of another hospital to cost \$50,000.

Yankton, S. D.—Plans of W. R. Parsons & Son Co., Des Moines, Ia., were adopted for the new court-house. Cost, \$40,000.

APARTMENT-HOUSES.

New York, N. Y.—Eighteenth St., nr. 1st Ave., 2 six-sty' bk. flats, 50' x 73'; \$100,000; o., M. Larkins; a., G. F. Pelham.

Heater St., Nos. 107-109, six-sty' bk. flat with store, 42' 8" x 45' 0"; \$25,000; o., Kleinfeld & Hamburger; a., Horenburger & Straub.

Spring St., Nos. 201-205, six-sty' bk. flat with store, 45' x 50'; \$35,000; o., H. Fine; a., Horenburger & Straub.

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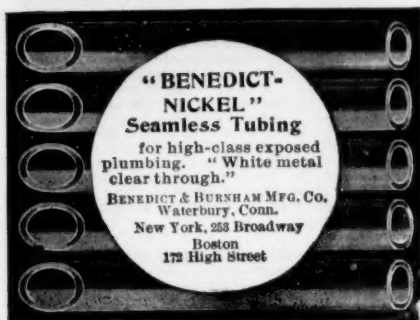
New York, N. Y.—Ninety-first St., nr. 1st Ave., four-sty' bk. school, 88' 8" x 100'; \$100,000; o., Church of Our Lady of Good Counsel; a., F. A. de Neuron.

FACTORIES.

New York, N. Y.—One Hundred and Thirty-sixth St., nr. Willow Ave., one-sty' bk. factory, 47' x 147'; \$11,000; o., International Manufacturing Co.; a., Chappell & Bostworth.



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BUILDING INTELLIGENCE.

HOUSES.

Cambridge, Mass.—Ellsworth Ave., No. 15, Ward 8, three-st'y bk. & fr. dwell.; \$5,000; o. Mrs. W. T. McGuire; a. Nathan Douglas; b. J. J. Powers.
Grant St., No. 25, Ward 8, three-st'y fr. dwell.; \$4,000; o. Bridget Smith; a. Hayden Bros.; b. John C. McGirr.

Dawson, Minn.—Two-st'y fr. dwell., 28' x 36', hot water; \$5,000; o. A. J. Peterson; a. Louis Lockwood, St. Paul.

Melrose, Minn.—Two-st'y fr. dwell., 28' x 35', hot water; \$5,000; o. Dr. P. A. Helbert; a. Omeyer & Thori.

New York, N. Y.—W. One Hundred and Thirty-eight St., Nos. 606-616, 6 four-st'y bk. dwells., 16' x 18' x 55'; \$72,000; o. Parsons & Squier; a. C. B. Chestersmith.

LIBRARIES.

New York, N. Y.—Alexander Ave., cor. 140th St., three-st'y bk. library, 50' x 80'; \$75,000; o. New York Public Library; a. Babb, Cook & Willard.

STABLES.

New York, N. Y.—Broadway, nr. 130th St., seven-st'y bk. stable, 49' 11" x 98'; \$30,000; o. S. Horton, 373 Amsterdam Ave.; a. F. A. Rooke, 439 Fifth Ave.

STORES.

New York, N. Y.—One Hundred and Fifteenth St., Nos. 429-431, seven-st'y bk. loft building with stores, 45' 6" x 90'; \$50,000; o. S. Epstein; a. Sass & Smalheiser.

TENEMENT-HOUSES.

New York, N. Y.—Avenue C, Nos. 89-95, 2 six-st'y bk. tenements with stores, 40' x 41' x 83'; \$50,000; o. I. Kleinfeld; a. Horenburger & Straub.

One Hundred and Thirty-seventh St., nr. 5th Ave., 2 six-st'y bk. tenements, 36' 3" x 39' 11"; \$60,000; o. M. S. A. Wilson; a. Sass & Smalheiser.
Broome and Ridge Sts., six-st'y bk. tenement with store, 41' 6" x 49' 6"; \$40,000; o. Levine & Davis; a. Bernstein & Bernstein.

E. Twenty-first St., Nos. 338-340, six-st'y bk. tenement with stores, 40' x 79'; \$35,000; o. S. Parnass, 257 Henry St.; a. Horenburger & Straub, 122 Bowery.

Madison and Centre Sts., six-st'y bk. tenement with stores, 50' x 86'; \$30,000; o. C. Friedman, 123 E. 112th St.; a. Bernstein & Bernstein, 111 Broadway.

WAREHOUSES.

New York, N. Y.—Washington Pl. and Mercer St., eleven-st'y bk. loft, 49' 9" x 100'; \$225,000; o. H. & H. Sonn, 440 Washington St.; a. H. Fouchaux, Broadway & 624 St.

E. Nineteenth St., No. 35, six-st'y bk. loft building, 25' 6" x 82'; \$29,000; o. B. Wronstadt; a. J. C. Cocker.

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SCHOOL.

[At Glenville, O.]

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PROPOSALS.

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 14, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 25th day of February, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Creston, Iowa, in accordance with drawings and specification, copies of which may be obtained at this office, or at the office of the Superintendent of Construction at Creston, Iowa, at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1413

BUILDING.

[At Mountain Lake, Minn.]

J. H. Dickman and Julius Glasman will receive bids on January 30 for the erection of the new building for the State bank and for a business building for Julius Glasman. H. C. Gerlach, architect, Mankato, Minn. 1413

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 15th, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 3d day of March, 1903, and then opened, for the low pressure, steam heating and mechanical ventilating apparatus, etc., for the U. S. Public Building at Helena, Montana, in accordance with the drawings and specification, which will be furnished at the discretion of the Supervising Architect on application at this office, or at the office of the Superintendent of the building at Helena, Montana. **JAMES KNOX TAYLOR, Supervising Architect.** 1414

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 17, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 5th day of March, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Janesville, Wisconsin, in accordance with the drawings and specification, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Janesville, Wis., at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1414

BUILDING.

[At Phoenix, Ariz.]

Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals addressed to the Commissioner of Indian Affairs, Washington, D. C., will be received at the Indian Office until February 17, 1903, for furnishing the necessary materials and labor required to construct and complete a frame dairy barn and brick hospital, a brick addition to dining hall and a brick addition to the boys' dormitory, all with plumbing and electric light, at the Phoenix School, Arizona, in strict accordance with plans, specifications and instructions to bidders. For further information apply to Chas. W. Goodman, Supt. Indian School, Phoenix, Ariz. **W. A. JONES, Commissioner.** 1415

OFFICE-BUILDING.

[At Lancaster, Pa.]

Bids for the erection of a \$40,000 brick office-building, having slag roof, steam heat and elevator, are desired by Joseph P. Breneman, 135 North Duke St. 1413

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 12th, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 19th day of February, 1903, and then opened, for the construction of the extension to the U. S. Post-office at Burlington, Iowa, in accordance with the drawings and specification, copies of which

PROPOSALS.

may be had at this office, or at the office of the Custodian at Burlington, Iowa, at the discretion of the Supervising Architect. **JAMES KNOX TAYLOR, Supervising Architect.** 1413

CITY-HALL.

[At Houston, Tex.]

Bids for the erection of a two-story brick city-hall building, and market-house will be received until February 2. Architects, George E. Dickey & Co. D. D. BRYAN, City Secretary. 1413

OFFICE-BUILDING.

[At Flint, Mich.]

Bids will be received until February 1 for the erection of a three-story office-building, 110' x 80', for the Knights of the Loyal Guard. Clark & Munger, Bay City, architects. F. H. RANKIN, Secretary. 1413

HOSPITAL.

[At Springfield, O.]

It is stated that bids are wanted February 1 for erecting a four-story brick and stone city hospital, including steam-heating apparatus, laundry machinery, and an elevator; cost, about \$60,000. R. C. Gotwald, architect, 56 and 57 Gotwald Building. 1413

HOTEL.

[At Beaumont, Tex.]

Bids are wanted February 2 for erecting a five-story hotel. MARK WIESS, Pres. Threadneedle Hotel Co. 1413

WAREHOUSE.

[At Aberdeen, S. D.]

Sealed proposals will be received at the architect's office until February 2d, 1903, for furnishing the necessary labor and material, including heating and plumbing, required to construct and complete a 100' x 150', four-story and basement brick wholesale grocery warehouse for Jewett Bros., at Aberdeen, S. D. Plans may be seen at the Builders' Exchanges in St. Paul and Minneapolis, Minn. Jewett Bros., Aberdeen, S. D., or at the office of Joseph Schwarz, architect, Sioux Falls, S. D. 1413

OFFICERS' QUARTERS, ETC.

[At Mare Island, Cal.]

Bids will be received at Washington, D. C., until February 30 for building officers' quarters, contagious disease hospital, and for changing main hospital building at Mare Island, Cal., navy yard. A. S. KENNY, paymaster general, U. S. N. 1414

LIBRARY.

[At Geneseo, N. Y.]

Proposals for the construction, electric lighting, plumbing, gaspiping and heating of a library building at the State Normal School will be received by Charles E. Skinner, State superintendent of public instruction, Albany, until January 30. 1413

CHURCH.

[At Scotchbridge, O.]

Bids will be received January 31 by the Trustees of the U. P. Church for furnishing material and erecting a church. R. S. DAVIDSON, Sec'y. 1413

STEWARD'S QUARTERS.

[At Fort Wadsworth, N. Y.]

Sealed proposals for building one set of brick hospital steward's quarters here will be received until February 2, 1903. Information furnished on application. Work to commence on building April 1, 1903. LIEUT. GEO. L. HICKS, JR., Q. M. 1413



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CODE OF PRACTICE FOR SUB-ESTIMATING AND SUB-CONTRACTING

Adopted by the Master Builders' Association of the City of Boston, Aug. 2, 1894.

ARTICLE I.

Obligation of Principal Contractor to Sub-Contractor.

A principal contractor is under obligation to treat upon an equal basis all estimates which he "receives" prior to putting in his own bid. Estimates must be considered as "received" when they come into a principal contractor's possession, either by his direct solicitation or by being accepted by him. The opening of a bid, knowing it to be such, constitutes receipt of the same.

A principal contractor is under no obligation to use a bid which he has not solicited, accepted, or received, but if he does not wish to use the estimate of a sub-bidder he should decline it, if proffered personally, or should return it unopened if sent to him by mail or otherwise. The retention of a bid should be construed as a receipt of the same.

A principal contractor, when making up his estimate, is not entitled to receive bids from sub-contractors if he is at the same time making himself their competitor by figuring their portion of the contemplated work. It is legitimate for a principal contractor to figure all portions of work, depending upon one for what are usually known as sub-estimates, but it is not legitimate for him to receive bids from others for sub-work if he is himself figuring those portions independently.

ARTICLE II.

Award of Sub-Contracts.

The principal contractor having been awarded a general contract should immediately award the sub-contracts to the lowest bidder in each branch.

ARTICLE III.

Penalty for not Awarding Contract to Lowest Sub-Bidder.

A principal contractor failing to award a sub-contract to the lowest sub-bidder to whom he is under obligation as previously provided should be liable to pay damages to the said lowest bidder, in amount not less than ten per cent of the amount of the estimate.

Payment of such damages will not relieve the principal contractor from liability to discipline under provisions of Article X of the By-Laws of this Association.

ARTICLE V.

Payments to Sub-Contractors.

Unless the contracts made with sub-contractors otherwise provide, payments during the progress of the work should be made by the principal contractor to the sub-contractors upon the same basis of payment, in relation to amount of work performed, as is prescribed in the contract made by the principal contractor with the owner.

Final payment to a sub-contractor should be considered as due at the expiration of thirty days after the completion of his work and its approval by the architect or owner, unless otherwise provided by the sub-contract or agreement.

ARTICLE VII.

Obligation of Sub-Contractor to Principal Contractor.

Should a sub-contractor refuse to contract at the amount of the estimate he has given to a principal contractor who has used the said estimate in good faith, he then should be liable to the said principal contractor for damages in amount not less than the difference between the amount of the estimate which was submitted by him and the amount at which the principal contractor may be obliged to contract the work.

Payment of such damages will not relieve the sub-contractor from liability to discipline under provisions of Article X of the By-Laws of this Association.

ARTICLE X.

Bids to Architects or Owners.

When bids for separate departments of work on a building are solicited by the architect or the owner, they should be submitted with the understanding that they are direct estimates, for which direct contracts are to be made by the owner with the lowest bidder, and no other disposition of such bids should be permitted without consent of the bidder submitting the same.

Sub-bids should be given only to the principal contractors who are estimating the work in question, and should not be left with architects or owners for the inspection and information of principal contractors. Sub-contractors must understand that bids thus left with architects or owners are in great danger of losing their confidential character, and that if they so leave them they cannot claim protection or redress under the first article of this Code.

SUGGESTIONS.

Members of this Association having sub-contracts to let, or material to buy, should, as far as may be consistent with business principles, deal only with members of the Association, or at all events give their fellow-members an opportunity to compete, and then give them the preference, other things being equal.

All bidders should take cognizance of the danger they may be subjected to through the practice, so prevalent in some architects' offices, of making change in plans or specifications, or in both, during the progress of estimating. Correction of this pernicious practice can only be obtained through refusal by contractors to estimate under such conditions.

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. . . 1895. . .

SECTION 1. No Member should enter into
partnership, in any form or degree, with any
builder, contractor, or manufacturer.

SECTION 2. A Member having any ownership
in any building material, device or invention,
proposed to be used on work for which he is
architect, should inform his employer of the
fact of such ownership.

SECTION 3. No Member should be a party to
a building contract except as "owner."

SECTION 4. No Member should guarantee an
estimate or contract by personal bond.

SECTION 5. It is unprofessional to offer draw-
ings or other services "on approval" and
without adequate pecuniary compensation.

SECTION 6. It is unprofessional to advertise in
any other way than by a notice giving name,
address, profession, and office hours, and
special branch (if such) of practice.

SECTION 7. It is unprofessional to make altera-
tions of a building designed by another archi-
tect, within ten years of its completion,
without ascertaining that the owner refuses
to employ the original designer, or, in event
of the property having changed hands, with-
out due notice to the said designer.

SECTION 8. It is unprofessional to attempt
to supplant an architect after definite steps
have been taken toward his employment.

SECTION 9. It is unprofessional for a Member
to criticise in the public prints the professional
conduct or work of another architect except
over his own name or under the authority of
a professional journal.

SECTION 10. It is unprofessional to furnish de-
signs in competition for private work or for
public work, unless for proper compensation,
and unless a competent professional adviser
is employed to draw up the "conditions" and
assist in the award.

SECTION 11. No Member should submit draw-
ings except as an original contributor in any
duly instituted competition, or attempt to
secure any work for which such a competition
remains undecided.

SECTION 12. The American Institute of Archi-
tects' "schedule of charges" represents mini-
mum rates for full, faithful and competent
service. It is the duty of every architect to
charge higher rates whenever the demand for
his services will justify the increase, rather
than to accept work to which he cannot give
proper personal attention.

SECTION 13. No Member shall compete in
amount of commission, or offer to work for
less than another, in order to secure the work.

SECTION 14. It is unprofessional to enter into
competition with or to consult with an archi-
tect who has been dishonorably expelled from
the "Institute" or "Society."

SECTION 15. The assumption of the title of
"Architect" should be held to mean that the
bearer has the professional knowledge and
natural ability needed for the proper invention,
illustration and supervision of all building
operations which he may undertake.

SECTION 16. A Member should so conduct his
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Published Saturday, November 15

"The American Vignola"

PART I

The Five Orders of Architecture

BY

WILLIAM R. WARE

Professor of Architecture, Columbia University

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