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THE Tarsney Act, under which designs are invited in competition for the more important Government buildings, is to be extended in its operation, so as to take in buildings of a smaller class. The reason of this is said to be that the practice of employing private architects for the large buildings of the Government has had such satisfactory results that the authorities desire to try the same system with small ones. Of course, the profession will approve this decision, not only on the general ground that trained professional architects are entitled to recognition from the public authority, but, in the interest of the community, on account of the probability that the small Government buildings, if designed under the same conditions as the large ones, can be made beautiful and varied specimens of the best American art. We have no fault to find with the recent public buildings of a less important class; on the contrary, they have done the greatest credit to official architecture; but monotony, even of good work, is to be avoided; and an occasional building of this class, by another hand, will do much to excite public interest.

MR. ALBERT J. HAYDEL writes to the *Evening Post*, commenting on the fact that, while statutes, unfortunately not very strictly enforced, now require a certain amount of fresh air in tenement-houses, and, in some States, in school-houses and public buildings, and prohibit spitting in railroad stations and public conveyances, no care is taken to secure decent ventilation in workshops, stores and other places where men and women are employed all day long. In view of the fact that this continual breathing of foul air prepares the system for tuberculous infection, Mr. Haydel thinks that, at least, outlet flues should be provided for all such rooms, which would, especially in winter, when doors and windows are generally kept shut, gradually exhaust the foul air, allowing it to be replaced by such fresh air as could leak in through key-holes and around windows. This would be an excellent plan, and, with a little experience, it would probably be adopted by the proprietors of stores and workrooms, simply for the sake of profiting by the increased efficiency of their employes in decently fresh air. It may be remarked that the outlets should be placed out of reach, or they would infallibly be closed by the very people for whose benefit they were put in, on the theory, which is firmly fixed in the minds of nine-tenths of the community, that they "let in cold air." Not long ago, we were requested to look at a room in a cottage, which was reported as being "damp" in cold weather. It certainly was damp, the water running down in little streams over the wall-paper in cold days; but, to our mind, this condition was easily

accounted for by the fact that the room was practically air-tight. Outside sashes were screwed on the windows, the stove-hole in the chimney had thick paper pasted over it, and a small ventilator in the ceiling was covered with carpeting. Our suggestion that the removal of the paper covering from the stove-hole would give a change of air, and probably modify the condition of dampness, was received with the objection that the cold air blew so freely down the flue that this was impracticable. We explained that the impression of cold air blowing down the flue was, in this case, as in most others, due simply to the strong current of warm air from the room rushing up the flue, and causing, by evaporation from the skin, a slight sensation of coolness on the hands, when held near the opening; and followed up the explanation by demonstration with a lighted match, after the paper had been torn off. After some persuasion, the stove-hole was allowed to remain open for one night, with marked results in dissipating the dampness; but prejudice, as usual, was stronger than either reasoning or experience, and the next day the paper was pasted on again.

THE Society of Beaux-Arts Architects has established a course of study for architectural draughtsmen, very similar to that of the Paris School of Fine-Arts. Any group of students may choose a master under whom they desire to study, and each group will form something like a Parisian *atelier*, the work of the students being exhibited and judged by a jury drawn from members of the Society. At present, construction, mathematics and similar branches are left for the student to learn in other ways, the classes under the direction of the Society being devoted to architectural planning and design, archaeology and history, and to modelling, and drawing from the cast. The instruction, as in Paris, consists of a series of competitions, devoted at first to easy planning, and the use of the orders, and, later, to archaeology, in the sense of discrimination of styles, and advanced planning and design. The nine-hour sketches for each problem must be made in the Architectural Department of Columbia University, and the rendered drawings must be handed in seven weeks later. An exception in the case of sketches is, however, made in favor of students not resident in New York, who are allowed to do the work under the supervision of an architect approved by the Committee. The rendered drawings must be delivered before nine o'clock on the day appointed for exhibition and judgment, at the building of the Art Students' League, and will then be examined and the awards made, medals and first and second mentions being conferred, and certificates being granted at the end of the year to students who have obtained a certain number of values for the year. The jury consists in all cases of six members of the Society. Any member who has five pupils exhibiting at any judgment is entitled to a place on the jury; other places are assigned by the Committee. Any person, of either sex, is permitted to enter the first year of the course, known as Class B, without preliminary examination. The second class, known as A, is open only to those who have obtained certain awards in Class B. The Committee recognizes that draughtsmen cannot command their own time, and students are not limited in this respect, but are allowed to do the work as they may have opportunity. Particulars of this interesting scheme, and of the prizes generously offered for two-day sketches by Messrs. Whitney and Lloyd Warren, may be obtained by addressing the Secretary of the Committee on Education, 3 East Thirty-third Street, New York.

M. PLANAT, in *La Semaine des Constructeurs*, pleads for a little more consideration, on the part of the owners of new houses, of the health and comfort of servants, who are very far from sharing in the architectural luxuries which surround their masters in modern dwellings. A new play, the *White Aprons* of M. Bénére, devoted to the sufferings and the virtues of domestics, has been very successful at one of the Paris theatres; and, as usual, the critics, in their sympathy for the heroes and heroines of the piece, denounce the architects who plan for servants the dens in the basement or the garret in which most of them are obliged to live; so that M. Planat, as a friend of the profession, feels himself bound to

come to their help, and to point out that architects are obliged to plan what their clients require, so far as the law or the rules of good construction do not oppose, and that it is not their fault that the prevailing fashion sacrifices the servants to the splendor of the masters' rooms. At the same time, he suggests to owners that a reasonable regard for their dependents might lead, without disadvantage, to some slight sacrifice of the gorgeousness of the masters' rooms for the sake of air and sun in the servants' rooms. In Paris, as in this country, it was formerly most common to arrange separate servants' rooms in each flat, or apartment; so that every family had its own servants beside it. Now, however, in order to gain room in the rentable apartments, the servants' rooms are collected together, usually in the upper part of the roof, which could not be utilized for any other purpose, and where they are exposed, not only to heat and cold and bad air, but to the demoralizing influence of the worst characters among them, from whom they cannot escape. French people are very often sincerely attached to their servants. We have seen a French lady wake with a kiss an old "bonne," asleep on the deck of a steamer; and affection on one side is fully reciprocated on the other. For this reason, particularly, it is not surprising that an appeal on behalf of the humbler, but often more devoted and self-sacrificing, portion of the family has met with an immediate response in Paris; and it is by no means impossible that the public authority may intervene in this detail of planning, as it has in so many others, and require better accommodation for servants in apartment-houses. As M. Planat says, the architects would be the first to rejoice at regulations which would enable them to reconcile their duty to their clients with their humanitarian notions; and there can be no doubt that the great majority of French families, who are compelled to see their servants, for whose physical and moral health they feel a certain responsibility, exposed to the conditions provided for them by landlords, would also welcome them.

A NEW system of separation of oil from the condensed water of steam-boilers has been introduced, which seems very promising. Every architect who has had much to do with steam-plants knows that a very considerable economy, both of fuel and water, is secured by returning to the boilers the water condensed from exhaust steam. Theoretically, all the steam produced in the boiler can be condensed and returned, after having done its work in furnishing power and heat; and, as the condensed water is returned to the boiler at a temperature not far below the boiling-point, all the coal which would be needed to heat cold water to that point is saved. In practice, however, especially where high-speed engines are used, the oil used to lubricate the cylinders and valves blows out in fine particles with the steam, and is brought back with the condensed water to the boiler. Much of the oil thus brought back is suspended in the condensed water in globules so small that they pass readily through the finest tissues, and they show no tendency to collect into larger globules, which could be removed by a filter, condensed water having been known to retain its oily particles in suspension, unchanged, for ten years. Small as the particles are, however, they are very injurious, not only to the working of a boiler, but to the boiler itself. For some reason, not, perhaps, clearly understood, the boiling-point of water containing minute globules of oil in suspension is much higher than that of pure water, so that just so much more coal is consumed in making steam from it; and the oil itself, under the influence of the heat, seems to undergo a chemical change, which renders it corrosive, boilers using condensed water being often deeply grooved and pitted around the inside, at the water-line.

WHERE there are many greas-traps, or separators, in use, which remove the larger particles of oil from the condensed water; and, on sea-going steamers, where it is very important to save the condensed water, it is filtered through barrels of excelsior or fibre of some kind, to which the oil adheres; but even these devices will not remove all the oil. Recently, however, a chemical process has been brought into use, by which the condensed water is mixed, before being filtered, with solutions of sulphate of alumina and carbonate of soda. These two substances, on meeting in solution, form a copious and dense precipitate, which entangles the particles of oil, and can itself be readily filtered out, carrying the oil with it. Only a very small dose of the chemicals is required, and the operation takes but two or three minutes, so that the water is not

materially cooled before it reaches the boiler again, perfectly purified.

THE *Schweizerische Bauzeitung* gives some information about the Isthmus of Panama which is very timely, now that the treaty has been signed, and the United States is about to complete the great canal. It appears that the climate of the Isthmus, as might be presumed from its situation between two great oceans, is very equable, the thermometer rarely rising above ninety degrees, even at noon, and falling at night to about sixty degrees, while constant sea-breezes temper the sultriness during the rainy season. The latter is not very prolonged, nor is the rainfall very great, the average for the last twenty years having been about sixty-seven inches at Panama, and ninety-four in the interior; while the average on the line of the proposed Nicaragua Canal is nearly three hundred inches. It cannot be denied that the Isthmus is unhealthy, but the reports of its unhealthiness have been greatly exaggerated. Colon, as the rainiest part of it, is probably the most unhealthy; while Panama, on the Pacific side, is drier, and less malarious. Whether the mosquito of the Panama fever will be discovered by our ingenious explorers, and exterminated, remains to be seen; but, until he has been rendered harmless, young men, under twenty-five, should keep out of his reach, the mortality among people of that age, as shown by the statistics of the French Canal Company, being very great. Men thirty to fifty years old resist the disease far better than younger ones. Yellow fever, which is much less dangerous than the Panama fever, has not shown itself on the Isthmus since work on the Canal stopped, the presumption being that the upturning of the soil had something to do with the great mortality from it during active operations. As a precaution, both against Panama fever and yellow fever, care should be taken to avoid indigestible food, fruit and liquors; to drink plenty of water, but little or no beer or wine; to avoid exposure to the night air; and to take a liberal dose of quinine at the first appearance of fever symptoms. It is probable that the American disposition toward the use of machinery will show itself in the employment of excavating-machines on a great scale, and this will be of advantage to the health of all concerned.

THE Imperial Academy of Fine-Arts at St. Petersburg has appointed a committee to "study" the creation of what seems to be a sort of Fine-Arts Society building at St. Petersburg, to contain a large exhibition-room, studios for artists, and comfortable apartments for the widows and children of deceased artists. The building is to cost a million roubles, or about five hundred and fifty thousand dollars, exclusive of the decoration, which is to be entrusted to the most distinguished Russian artists. Contributions of money have been promised from the Imperial Academy of Fine-Arts, the Society for the Encouragement of Russian Art, the Ladies' Art Club, and other artistic organizations, and the Imperial Court will, it is supposed, favor the undertaking.

WE have all heard of the architect who "forgot the staircase" in the house which he designed for his too confiding client; but no one, so far as we know, has ever been able to give definitely the name of this ornament to the profession. It appears, however, from some researches which M. Charles Lucas describes in *La Construction Moderne*, that no less a person than M. Honoré de Balzac, the novelist, did really forget the staircase in his house, not on account of the negligence of his architect, but in spite of the latter's warnings. Balzac was a person of great determination, and when he began his house at Ville d'Avray, the Villa des Jardies, where, many years afterward, the great Léon Gambetta died, he was displeased to find that, as he thought, the architect had made the staircase too large and the rooms too small. He therefore, after the manner of certain other clients of over-modest architects, ordered the rooms to be made larger, saying that he would see about the staircase afterwards. The increased size of the rooms secured in this way pleased him, and he made them still bigger, deaf to all suggestions of the architect and builder, until they occupied all the space in the house. It is probably not literally true that the building was all finished before he discovered that there was no way of reaching the upper stories but by a ladder; but it is certain that it was so far advanced that the staircase had to be built outside.

RESULT OF AN ARBITRATION BETWEEN CLIENT AND ARCHITECT.

AN architect's disputes with his clients about rates of compensation are usually settled quietly. A professional man must always try to stand in the good graces of his employer if possible, and with this end in view he is not apt to press just claims to a conclusion when to do so would make an enemy. In this particular case the architect was employed without any stipulation as to terms. A well-studied plan of a beautiful \$15,000 country-house was carried through the stage of working drawings, specifications and detail-drawings before the owner decided to give up the undertaking and ask for his bill. The bill was rendered on a basis of 8 per cent and the client objected very strenuously. Further correspondence between the parties developed the fact that the architect claimed the drawings as his property. The dispute was finally left to the arbitrator for settlement, and here follows the

REPORT OF THE ARBITRATOR:

"BEFORE coming to a conclusion in this matter I have consulted many authorities, including the Secretary of the American Institute of Architects, and I have spent some time in looking up all the legal cases which have been reported that would in any way bear upon the case.

"There are two points-of-view from which a judgment could be rendered, viz:—

"A. The strictly legal point-of-view; and

"B. An ethical and professional point-of-view.

"I think that the architect's claims could not be successfully maintained before a judge and jury. The precedents of the courts seem to establish beyond question that in the absence of any specific agreement the understood and proper remuneration for an architect's services is based upon 5 per cent of the proposed expenditure. Acting on this basis, and in view of the detailed drawings made and partial supervision performed, it would be fair to make an allowance of 4 per cent on \$15,000, namely, \$600, and the courts would decide without question that the client was the owner of the plans, specifications and details, and a free agent in the use of same when the time came for the erection of the building. This judgment would be in strict accordance with the schedule of the American Institute of Architects and according to the opinion of many members of the profession. Ordinarily no question would arise. But in this case the architect claims not to be bound by custom of others and sets out to establish a custom of his own.

"The evidence before me proves that it is this architect's custom, and the custom of a large number of other architects, to charge from 7½ per cent to 8 per cent for all country work. I have inquired particularly of a great many members of the profession, and am satisfied that there are a sufficiently large number of practitioners making this charge to give it an authority of custom equally strong in ethics as opposed to the prevailing minimum schedule of the American Institute of Architects.

"It is admitted that the architect was employed with no stipulation made as to terms. Was the client justified in assuming that the terms would be 5 per cent? He had in his employ at the same time five or six other more or less well-known architects, and all the new work they were doing for him was based on a charge of 5 per cent. For alterations and additions the charge was 8 per cent, and in one case where special service, with clerk-of-works, was given, a charge of 10 per cent.

"Was it the architect's duty to inform the client that his charge was more than 5 per cent? This is more or less a delicate matter. It would have been better no doubt if he had sent his printed schedule to the client. At the same time, he had been practising architecture in this client's neighborhood for years, and had built houses for many of his neighbors at a uniform charge of 8 per cent. It is fair to assume that the architect considered this fact. If one goes to a doctor or lawyer and engages his services without any special agreement as to terms one must pay the customary rate for such services; not the customary rates that obtain with others, but the customary rate of the particular doctor or lawyer employed. The client says that the architect under such circumstances might have charged him 10 per cent, 15 per cent or 20 per cent, but this is hardly the case. The architect could only charge what he could prove to be his well-established custom, and his custom also would have to be proved to be fair and reasonable. When I am asked as an arbitrator if the charge of 8 per cent for country-houses is fair and reasonable I answer without hesitation, 'Yes.' The architect very justly points

out in his claim the special value which an architect may give by careful study and good drawings. It is certainly cheaper to pay 8 per cent for a good thing than 5 per cent for a mediocre result.

"It has been maintained for years by the profession that for certain kinds of work that an architect does he is very much underpaid. It has been held to be the duty of architects to secure adequate compensation where they are able to do so. This is a distinct gain to the profession at large, and it is exactly what happens in other professions. The better the man's work, the more he should be paid for it. It is not fair that all architects should be paid alike. Some are worth more than others and give a value to their clients far in excess of the increased price they charge for their services. I am convinced that this view is a fair and equitable one, and in accordance I decide that the compensation should be based upon 8 per cent. In fixing upon the sum, however, I think it would be fair to make some allowance for the client's ignorance of the architect's terms, and I suggest that the sum of \$750 be agreed upon as a satisfactory settlement.

"In regard to the second claim made by the architect I decide without hesitation that the client is entitled to the plans, details and specifications. It may be assumed that if the client ever executes this house the architect will be employed to do the work. In that case the client would be credited with the \$750 paid at this time and the architect would have to complete the work for \$450. The client, however, becomes the absolute owner and custodian of the plans until the house is erected. He is free, moreover, to employ another architect if he should so desire. The house once completed, however, the plans belong to the architect and must be returned to him. In making this decision I do not wish to be considered as ignoring the well-known custom held so strongly by all architects that plans and specifications as instruments of service are the property of the architect. They are the property of the architect only after the result and the erection which these tools served to execute have been produced, and until such time they are properly at the owner's discretion. To maintain any other view would be to require an owner to pay something for nothing.

"From the architect's point-of-view the contention is that he always stood ready to execute the house from his own plans, and that he ought to have the privilege of so doing, to guard his reputation as architect and artist, and that the client would not be paying something for nothing. Suppose the erection of the house should be delayed so long that the architect might die in the meantime? He cannot leave his artistic equity as an asset to his heirs. The client or his heirs could not be deprived of producing the result with the tools which the architect had been paid to prepare."

Now for the sequel: The arbitrator thought he had done very well by the architect. The owner grumbled at the award, but offered to pay the \$750 upon receipt of a copy of the drawings. It will be noted that the custody and ownership of the drawings was really technical. If the house was ever built the award was virtually a payment on account. The owner would have had a legal right to employ another architect to complete the house, it is true, but this was an unlikely contingency. As a matter of fact, the project was dead. Why shouldn't the architect deliver his drawings and take the \$750? He did not do this, but finally accepted \$500 and the right to keep his drawings. He thought the great principle of the ownership of drawings as tools of his trade was at stake and deliberately sacrificed \$250 to maintain it. Was his action justifiable and necessary? Has the arbitrator made a mistake in his rulings? It is desirable in the interests of the profession that these questions should be taken up and settled by those in authority.

F. A. WRIGHT.

[THE questions with which Mr. Wright closes his tale deserve answers, and we hope that more than one of our readers will find himself impelled to express his views. — EDS. AMERICAN ARCHITECT.]

THE HOUSING CONDITIONS IN BOSTON.¹

THE housing conditions of Boston may be studied under five aspects:—

1. The growth of population compared with the increase of houses.
2. The facilities for the building of new houses by private enterprise.
3. The influence of philanthropic efforts in building model blocks and separate homes.
4. Building-laws.
5. The diminution of slum conditions.

¹ A paper by Robert Treat Paine, Esq., Boston, Mass., reprinted from *The Annals of the American Academy of Political and Social Science*, July, 1902.

The following table has been prepared by Dr. E. M. Hartwell, statistician, of Boston:—

POPULATION AND NUMBER OF DWELLING-HOUSES WITH PER CENT OF ANNUAL INCREASE.

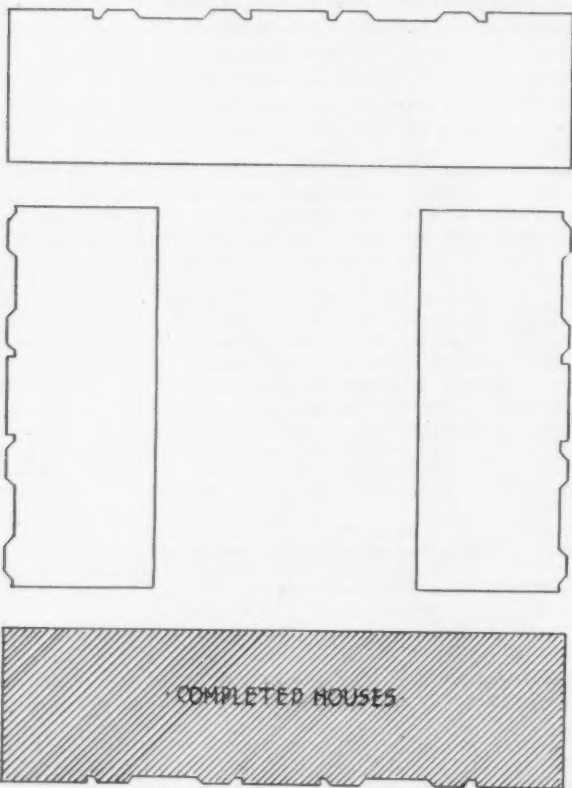
Year.	Estimated Population.	Per Cent Increase.	Total Number of Dwelling-houses.	Per Cent Increase.	Of those Vacant Dwellings.
1891	457,772	2.07	53,429	2.42	1,104
1892	467,260	2.07	54,853	2.67	1,369
1893	476,945	2.07	56,730	3.42	1,446
1894	486,830	2.07	58,310	2.79	1,868
1895	496,920	2.07	60,039	2.96	1,964
1896	509,102	2.45	60,278	.40	2,205
1897	521,583	2.45	61,573	2.15	2,127
1898	534,370	2.45	62,850	2.07	2,647
1899	547,470	2.45	63,890	1.65	2,902
1900	560,892	2.45	64,846	1.56	2,686
1901	573,579	2.26	65,600	1.10	2,627

In the ten years from 1891 to 1901, while the population increased from 457,772 to 573,579, or 25.3 per cent, the number of dwelling-houses increased from 53,429 to 65,600, or 22.8 per cent, not quite keeping pace; and though not a few of the new buildings are capacious tenement-houses, yet actual conditions have probably not improved. It is to be noted that 4 per cent of the dwellings are vacant.

2. The facilities for the building of new houses in the suburbs steadily increase. The suburbs of Boston are deservedly healthy and are ample for a vast population.

The President of the Boston Elevated Railway Company has furnished the following statistics, which show in the last five and ten year periods a marvellous development and explain the exodus outward from the crowded centre into happy and healthy suburban life on some of the hundred hills which make these suburbs so attractive. This outward migration shows no sign of culmination, but is still under full headway.

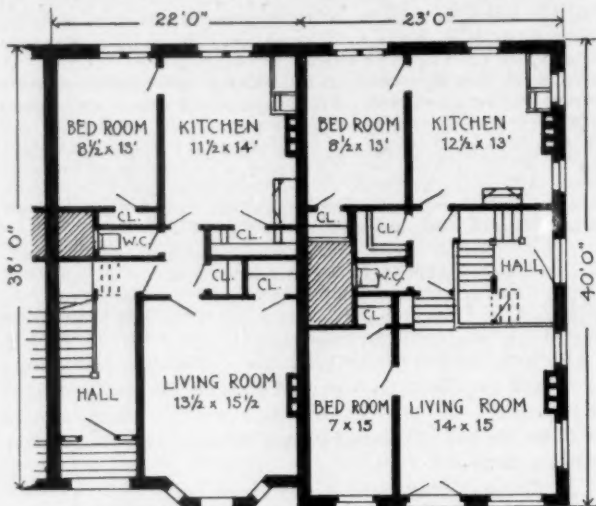
The running-time of the cars has improved so that it now averages nine miles per hour on the whole system, against six miles or less ten years ago when horses were used, and within the last five years it has been reduced about 8 per cent. The track mileage increased from 260 miles in 1891 to 296 in 1896 and 408 in 1901. "For the year ending September 30, 1891, we ran 2,326,274 trips, 17,462,572 miles, carried 119,264,401 revenue passengers and 8,466,311 free-transfer passengers. The average length of each trip at that time was 7.5 miles. Five years later we ran 2,822,142 trips, 25,841,907 miles, carried 166,862,288 revenue passengers and 17,566,361 free-transfer passengers. The average length of each trip was 9.16 miles. Five years later, or for the last fiscal year, we ran 3,883,737 trips, 43,631,384 miles, carried 213,703,983 revenue passengers and 65,000,000



free-transfer passengers. The length of each trip has increased to 11.23 miles."

The cooperative-bank system has greatly promoted the construction and separate ownership of the modest and cosy little homes springing up so rapidly in all the suburbs of Boston. The Pioneer

Bank was started in 1877, and to-day there are in Boston eighteen of these cooperative banks with a capital of \$5,029,478, nearly the whole of it loaned out on small estates. A score of years ago it was no easy matter to obtain a "building loan," but cooperative banks have perfected the systems of loans to builders upon houses "in process



of construction." The admirable process of small monthly payments not only educates the borrowers into habits of saving, but in a few years reduces the loan, so that the old-fashioned savings-banks with their immense capital can take up at lower rates these loans, when they are reduced to a statute limit of 60 per cent of the value of the estate. Hence, it is the case that the \$5,000,000 of cooperative bank capital by no means measures the full beneficial influence of this system in the growth of suburban homes.

3. The influence of philanthropic enterprise, compared with that of private business, has been insignificant.

Three incorporated societies are working in a small way, the oldest, the Boston Cooperative Building Company, chartered in 1871. With a capital of \$292,000, it has about \$400,000 invested in seventy-eight houses with 985 rooms, occupied by 311 families containing 1,023 persons.

The Harrison Avenue group of twenty-four three-storied brick houses, each, except the corners, arranged for three families, has attracted deserved attention, with its hollow square in the centre, tastefully arranged as a playground for the children, and a bit of beauty for the parents.

The Company has just started to reproduce this hollow square on its last purchase of 33,000 feet on Massachusetts Avenue. Mr. A. W. Longfellow, the architect of the Harrison Avenue group, furnishes this plan of a corner and of a normal interior house just completed on Massachusetts Avenue, showing the latest developments of model tenement-house design, and also a land plan.

The thirty-one years of life of this Company show many vicissitudes, 7 per cent being earned for some years, and then from 1876 to 1889, dividends were stopped or reduced to 3 per cent and earnings were invested. Recently dividends have been 6 per cent or 5 per cent. But the capitalization of undivided profits has been so large that it is not possible to ascertain what the just annual earnings are from year to year, and hence the educational influence is lost upon other capitalists who might be incited, by a clear and exact statement of facts to follow the most commendable lead of this Company in building the very best model tenements and having them managed by the considerate care of women agents.

The Workingmen's Building Association was organized in 1888, to build small separate houses for sale. Its first purchase of 668,591 feet, about three miles out in Roxbury, was most successful. This tract was divided into 150 lots, averaging 4,457 feet, so that one acre has ten lots, with an estimated population of sixty to seventy souls.

The houses cost from \$1,800 to \$3,000, and were almost all for single families, total cost of a house and land varying from \$2,600 to \$4,500. They were all sold by 1894. Its next venture in Dorchester found the demand for single houses painfully reduced in the depression of the last seven years, while a marked preference shows itself for "two-family" or "three-flat" houses.

This Company has not succeeded in building houses at lower cost, to its great regret.

4. The building-laws of a city greatly influence results. Boston was startled by its great fire of 1872 into creating a stringent code. This was remodelled in 1885, chapter 374. After a commission had studied the subject anew, the present code was enacted in 1892, chapter 419, with subsequent amendments.

Two features are especially important:—1. The percentage of the area of a lot which may be built upon. 2. The height of the buildings and the provisions as to fireproof construction.

The law of 1892 permitted three-quarters of the area to be covered, measuring to the middle of the streets on which the lot abuts. This

proviso, however, would allow a building to cover the whole of a lot 60 feet deep on a 40-foot street. The Act also required two exposures on open spaces at least 10 feet wide, of an aggregate length of 1 foot, for every 25 square feet occupied by the building.

These last provisions, however, were found not to prohibit the construction of a huge four-storied tenement-house on a lot 42 feet wide and 101 feet deep, built on a dumb-bell plan, with only about 2 feet of open land across a part, but not the whole, of the rear. It was the erection, in 1894, of this barrack, which led many observers to doubt whether these new conditions were not worse than the old; whether these vast tenement-houses, sometimes called model houses, were not far worse in many essentials for the health and welfare of their occupants than the little old houses, often built of wood, which they replaced. These views are confirmed by the deliberate judgment which Miss Octavia Hill has put on record in her valuable chapter in the second volume of Charles Booth's great work on London.

The construction of this great tenement-house, with such trifling rear light, occasioned the Act of 1895, chapter 239, which reduced the area to be occupied from 75 to 65 per cent, and also required an open space across the whole rear of the building, and of a depth equal to one-half the width of the front street, not exceeding 20 feet, or an equivalent area of open space in the rear of other dimensions.

The Act of 1897, chapter 413, section 9, exempts corner lots from this requirement of open rear land, and also gives the Building Commissioner discretion to accept "an equivalent area of open space in the rear or on either side of such building."

It is worthy of note that these requirements are less stringent than those in the new tenement house law, chapter 334, of 1901, for Greater New York, which limits the building to 90 per cent of a corner lot and 70 per cent of any other lot.

Secondly, the law of 1897, chapter 413, section 3, required every tenement-house to be a first-class building, *i. e.*, "of fireproof-construction throughout." It was at once apprehended that this requirement, that all tenement-houses must be of fireproof-construction, would stop the building of tenement-houses for tenants paying moderate rents. Subsequent investigation showed, that after existing permits had been exhausted, few, if any, tenement-houses were built with tenements renting at \$16 a month or less. Reaction set in, and by the Act of 1900, chapter 321, the requirement of fireproof-construction was removed from tenement-houses of not more than four stories and not more than 50 feet in height, but here again came a proviso limiting these houses to "two families, or less, above the second story."

This is the present tenement-house law of Boston. It seriously handicaps the construction of tenement-houses, but whether this is too stringent, and the influences are harmful, is not yet apparent. So far as an impulse is given to scatter the population out into the healthier suburbs and into the small, separate, detached suburban homes, each with its little plot of land, instead of the fearful overcrowding of families in the huge new tenement-houses, students of the social welfare of the people must certainly rejoice.

In the old North End of Boston, where population is densest and rentals are highest, the erection of new tenement-houses and the remodelling of old buildings into tenement-houses are visible in many of the streets. On the other hand, in the southerly part of old Boston, such enterprise is nearly at a standstill and rents are falling, owing probably to the greater attractiveness of the neighboring suburbs.

The definition of a tenement-house by the number of tenements, rather than by the number of rooms, discriminates with unintended harshness on just that class whose welfare ought especially to be studied, the very poor, the lone widow, the widower, the parent with a single child, who always finds with difficulty a single spacious room, and usually pay higher rents because of the short supply of such much-needed accommodation. Twenty years ago a committee of the Associated Charities made a report to show the importance of building tenements of a single room and to call the attention of capitalists to this need. A small one-storied house with only four rooms, adapted for the needs of four separate women, must conform to all the expensive provisions of the tenement house code.

A just and judicious amendment should define a tenement-house as having more than three tenements "and containing more than twelve rooms."

Workers among the poor were surprised last year at orders issuing from the Board of Health, for single tenants to vacate single rooms. Such a notice was nailed on the door of the large "square room" in the model block of the Boston Coöperative Building Company, on Canton Street, occupied by a lone old woman. It is supposed that this mistaken policy has been abandoned.

A strange thing happened in 1892; the building-law of that year, chapter 419, in its final section 138, repealing numerous laws, included a repeal of the health provision, 1885, chapter 382, section 4, defining for health purposes a "tenement-house." So that since 1892, the Board of Health has been shorn of so much of its powers over tenement-houses as depended on the definition, so carefully inserted in the health law of 1885, which has been since then the health code of Boston. Perhaps it is stranger still that no allusion can be found in the annual reports of the Board of Health to this mysterious and probably unintended curtailment of health powers, the exact legal effect whereof no man can tell.¹

¹ The Board of Health, in their Report for 1900 (p. 40), say: "A tenement-house in Massachusetts is one occupied by four or more families, while in New York it is one occupied by three families which was the law in Massachusetts until

5. A crusade for the extirpation of the slums of Boston has been waged for the last fifteen years, thus far with no great success. Housing conditions are justly to be condemned so long as old, dilapidated and unsanitary buildings are allowed to stand, often so overcrowded upon the land that sunlight and air are practically shut out. Such conditions are a disgrace to any city. They tempt the most wretched of the poor, or vicious, or criminal classes to worse degradation. The bread-winner loses his health, which is his only wealth. Children grow up in shameless loss of self-respect. Frequent visitors are physicians, police-officers, and charity-agents; physicians to struggle with needless disease, the police to arrest criminals created by their foul environment, and charity-agents to relieve countless varieties of want caused by cruel and unjust conditions of life.

Private initiative has been struggling in these years to secure more vigorous action by the Board of Health in the destruction of the worst slums. Prof. Dwight Porter, acting under the auspices of a voluntary committee, made an investigation and "Report upon a Sanitary Inspection of Certain Tenement-house Districts in Boston," in 1888, which really started the movement.

Committees of the Associated Charities have lodged indictments against many vile slums and have been heard by the Board. In 1891-2, the State caused the Bureau of Labor to make a thorough and exhaustive investigation. The report of Hon. H. G. Wadlin sets forth in two volumes the results. (Twenty-second and Twenty-third Annual Reports of the Bureau of the Statistics of Labor. "A Tenement-house Census of Boston," made pursuant to chapter 115, Resolves of 1891.)

Sanitary conditions were classified under five heads: Excellent, good, fair, poor and bad. It may be truly stated that tenements falling so low as to be classed "bad" are so intolerable as to demand most summary measures for their destruction, yet 1,346 houses were found to deserve this just but terrible condemnation (Vol. I, p. 577).

"It may be safely assumed that whenever a tenement was designated as entirely bad as to its inside condition, that is, to be more explicit, was bad as to facilities for light and air, ventilation and cleanliness, such a tenement was unfit for human habitation. The existence of such tenements forms primarily an indictment against the landlord who is responsible for their condition. They should either be abandoned or improved. In some cases such improvement as would render them suitable for occupancy can easily be made; in other cases, no doubt, they should be permanently abandoned." (Vol. 2, p. 417.)

"The existence of defective outside sanitary conditions is, upon the whole, an indictment against the city; for while some of the defects are due to unclean or poorly kept private ways and alleys, the responsibility of the city for the existence of such defects can hardly be avoided." (Italics are the writer's.) (Vol. 2, p. 418.)

In the reports of the Boston Board of Health no allusion is found to this fearful indictment by the authorities of the Commonwealth, or to the following municipal report.

In 1895 a special committee of the Common Council was appointed to consider what improvement could be made in the tenement districts of Boston, and what legislation was needed. They made a very brief "Partial Report" (Document 125 of 1895), from which may be quoted: "In the North End the tenement-houses are to day a serious menace to public health. . . . The most astounding circumstance in connection with this investigation that attracted the attention of your committee is the social and financial standing of the owners of the most of these tenement-houses."

In 1897 a study was made, under the direction of the Tenement-house Committee of the Twentieth Century Club, of certain typical slums, and the results were published with plans of some seven areas where buildings were old, dilapidated and so overcrowded on the land that no remedy was possible except destruction either of all or of many of the tenements. ("Some Slums in Boston," by H. K. Estabrook, May 15, 1898.)

A public hearing was granted by the Board of Health on June 27, 1898, and many competent experts and real-estate owners testified to the intolerable conditions. Mayor Quincy attended the hearing and promised strong support. Commendable progress was made in vacating or destroying some of the worst slums for about three years. But the exercise of the power to "destroy" seems recently to have been paralyzed, perhaps, as a result of pending litigation.

The law grants two powers to the Board of Health to deal with these evils. Since 1850, chapter 108, tenements may be "vacated" if adjudged unfit for human habitation. This power should be exercised only after thorough investigation and on deliberate judgment, setting forth true and sufficient causes. It may easily work grave injury to owners if exercised unjustly. Yet, when justly exercised, orders to vacate should be adhered to and not lightly rescinded because of political or other pressure. Observe that this power to vacate requires no destruction of the building and cannot justly prevent use of the vacated tenement for other fit purposes, not of human habitation.

In 1897, chapter 219, the power to destroy [the statute word is "remove"] buildings first appeared in Massachusetts. Its origin is interesting. The British "Housing of the Working Classes Act," 1890 (53-54 Vict., chapter 70), section 30-37, is the origin, so far

the statute was amended in 1894." This sentence is rich in blunders. No amendment was made in 1894. The Health Act of 1885, chapter 382, section 4, defined a tenement-house as one with "more than three families." The Act of 1889, chapter 450, section 4, changed this to "more than two families." But the whole thing was repealed by 1892, chapter 419, section 138, so that since 1892 there has been no definition at all of a tenement-house in the health code of Boston.

as I know, of this new power "to order the demolition" of a "dwelling-house" "unfit for human habitation." Section 38 enlarged this power and made it apply to "obstructive buildings," thus condemning one building because it injures another building. It is surprising that any American lawyer could suppose that such a power would be sustained in America, where the unlimited powers of the British Parliament are much curtailed by constitutional safeguards.

Yet New York soon copied this British Act (1895, chapter 567, amended by 1897, chapter 57) in shape so condensed as to make its injustice more conspicuous. This Act was enforced for a few years in the city of New York, till owners of property began to defend their rights in court. The suit of *Dassori vs. the Health Department* of New York has settled that this law cannot be enforced to its full extent.

"Proof that rear tenement-houses, each five stories high, lighted only from a court on the west or front from 5 to 11 feet wide, and a space, or opening, of 11 inches wide at the southeast corner of the court, and a space on the east side of 8 inches filled with all sorts of filth, occupied by 115 persons, showing a death-rate almost twice the normal one, damp, filthy, infested with vermin, and filled with foul smells, and by their construction interfering with the light which would otherwise have been enjoyed by tenement-houses on the front of the lots, justifies a finding that the rear tenement-houses are unfit for habitation, but does not necessarily establish the fact that they are not capable of being made fit for other uses to which the owner might lawfully put them, nor does it show that the nuisance could not be abated in any other way than by their destruction.

"The owner of a tenement-house cannot be compelled to submit to its destruction, if it is on his own land, merely because some building adjacent to it is, by reason of its existence, deprived of proper ventilation." (*N. Y. Health Dept. vs. Dassori*, Appellate Division Reports, Vol. 21, p. 348. October, 1897.)

Boston deserves no credit for the slovenly shape in which this faulty law was reproduced, 1897, chapter 219, closely following the language of the New York Act. First, the power to vacate is set forth, yet while covering the same ground as our ancient and well-tried statute (1850, chap. 108; Pub. Sts., chap. 80, sec. 24; Revised Laws, chap. 75, sec. 71), neither repeals nor amends it. Then follows the power to order "removed," i. e., destroyed, a building irremediably "unfit for human habitation."

Statute 1899, chapter 222, enlarged these powers of the Board of Health so that the order may be not merely to "vacate" a building "unfit for human habitation," but to "cease to use" a building "unfit for use"; the power to order buildings destroyed remaining limited to those "unfit for human habitation."

The suit (October, 1900) of *Holland vs. Durgin et al.* [Board of Health] has gone on appeal to the Supreme Court. It raises interesting questions as to this last statute, its constitutionality, the lawfulness of a decree to remove without previous notice to or opportunity to be heard by the owner, as well as the lawfulness of an order to remove stables occupied by horses and sheds only for storage as "unfit for habitation" (*sic*), the statute language being "unfit for human habitation."

The Board of Health is thus clothed with transcendent powers, whose exercise vitally affects the physical and moral welfare, especially of that large portion of the people who are lowest in the economic scale. These powers should only be lodged in the hands of men of strong character, sound judgment, sanitary experience and genuine love for the plain people. Yet, the action of the Boston Board of Health has been characterized for many years past by mysterious apathy.

The law provides that the Board of Health shall make annually "a full and comprehensive statement of its acts during the year, and a review of the sanitary condition of the city," yet, in the annual volumes of the last ten years, the space devoted to the sanitary condition of the city has been utterly insignificant.

"To this subject, houses vacated, nearly a whole page is devoted in the Report for 1892; nearly two pages in the Report for 1893; from four to six lines in each of the Reports for 1894, '95 and '96; and not one word in the Report for 1897. Throughout the 122 pages of this last Report, this extremely important duty to vacate houses unfit for occupancy is not mentioned.

"The Report for 1895 says only this: 'The number of houses which the Board has ordered vacated during the year because of their unsanitary condition is 112; of this number, however, a very large per cent were put in a satisfactory condition before the expiration of the time allowed the occupants to quit the premises, and in such cases the orders were not enforced.' The Report for 1896 simply quotes this one sentence, word for word — except that '121' is substituted for '112.' This one sentence, then, is the 'full and comprehensive statement' of the Acts of the three years, 1895-7."

In none of these Reports since 1892 "is a list given either of houses ordered vacated or of houses actually vacated, yet hundreds of other lists and tables are given, as lists of stables ordered discontinued, of passageways paved, and even of minor defects in certain houses. While in the reports of the New York Board of Health there are complete lists of houses vacated and of those demolished, in only two of our Reports, those for 1892 and '93, are any of the houses ordered vacated named."

The objection of injury to tenants by the destruction of slums has no weight. The Associated Charities (Report of 1898, pp. 40-48)

seized the occasion of the building of the South Station and the change in the neighborhood, in 1897-8, to cause a careful study to be made of the results upon the welfare of the twelve poorest families known to them when that sudden and forced migration occurred. "It brought out the interesting fact that in every case the condition of the family was improved by the change."

Death-rates by wards are shown in the Annual Report of 1901 of the Registry Department of Boston for the first time, so that it is possible to compare. The ghastly fact stands out that the death-rate in some wards is more than double what it is in the healthier wards, viz, one person dying in the year 1900 out of thirty-nine in Ward 7, forty in Ward 13, forty-one in Ward 6 and forty-two in Ward 5, contrasted with one in eighty-one in Ward 25, seventy-two in Ward 24, seventy-one in Ward 23, sixty-nine in Ward 20 (p. 5).

Now that this table proves how the murder of the innocents goes on, the public conscience should be aroused. Statisticians will also tell us that the ratio of sickness keeps pace with the ratio of death, so that sickness among the poor, with its train of evils, is twofold more than good sanitary conditions should tolerate.

The model buildings of London have told the world what a powerful influence upon the length of life (and, of course, upon the amount of sickness) of their occupants is exerted by healthy homes. The Peabody buildings with a population of about 20,000 show a death-rate of about one in seventy-one; and the Waterlow buildings, with 30,000 tenants, about one in 100, while the rate of all London is about one in fifty-seven. In Boston, one out of forty-eight dies yearly.

A Tenement-house Commission will probably be appointed by the Mayor this year, to consider and report upon existing conditions and possible improvement.

On the whole, the outlook is full of hope. Vigilance and vigorous action are demanded of all municipal authorities. Public interest is aroused. The action of other cities in Great Britain as well as in New York and other American cities warns Boston not to fall behind in this movement, which will surely give to us and our children a healthier city for the homes of the plain people, with its plague spots extirpated, and an increasing proportion of the population living out in suburban homes in this city of unsurpassed suburban beauty.

A COUNTRY WITHOUT STRIKES.¹

HENRY DEMAREST LLOYD, who did the Australian Colonies in 1899, considers that he learned much in New Zealand, and he has published, mainly for the benefit of his countrymen across the pond, a small octavo styled "*A Country without Strikes: a Visit to the Compulsory Arbitration Court of New Zealand.*"

In the first chapter the weary old conservative arguments are trotted out on crutches, only to be knocked down nine-pin fashion on every succeeding page.

"Compulsory arbitration is an impossibility; it is a contradiction in terms. You cannot compel men to work whether they want to or not; you cannot compel men to arbitrate or fix prices by law; you cannot settle wages and conditions of labor by laws of the Legislature, instead of by laws of supply and demand."

"No, we can't do it," assents the New Zealander; "and yet, somehow, it's just what we are doing."

The year 1891 saw a great strike covering the whole of the shipping-interest of Australasia. Thence it spread to allied trades, till the relations of capital and labor were more or less strained in all directions and in all the colonies. In Melbourne, for instance, feeling ran so high that large numbers of the adult male inhabitants were enrolled as special constables. After lasting for some months the industrial battle ended in a defeat for labor.

In New Zealand the Hon. William Pember Reeves set himself to study some means of preventing similar and worse occurrences in the future. He found that there was no lack of legislative machinery ready to his hand in the laws already on the statute-books of other countries, for there had been innumerable well-meaning attempts to deal with strikes, lock-outs, and dislocations of the labor-market, while Great Britain herself legislated in that direction as far back as 1824. The Mother Country also passed amending Acts in 1867 and 1872, but they have not prevented strikes. In Massachusetts Mr. Reeves found most excellent administrative machinery, apparently only waiting to be set in motion. Yet they have strikes in Massachusetts. France has had her *conseils de prud'hommes* for eighty years, which regulate the conduct of industry; but France has strikes.

Arbitration and conciliation laws and boards existed in many countries and in as many different forms. But however they varied in mechanism or administration they were all alike in one particular — they all failed of their object. Mr. Reeves asked himself how this could be. What was the one factor common to all these legislative failures? He found it in this, that in all these countries arbitration was optional. A Manchester manufacturer warned him, "If you are to have arbitration at all it will be of no use if you do not make it compulsory. Every man who thinks he may lose a strike is ready to go to arbitration, while the man who thinks he is going to win will have none of it."

Mr. Reeves had his first Bill ready in 1892. Three times did it come before both Houses to be thrashed out before it finally became law in 1894.

¹ Extract from a paper by Alice Henry in the *Westminster Review*.

Mr. Lloyd offers a criticism of the Compulsory Arbitration Act in detail and in operation, and his conclusions are mainly these:—

1. It places no embargo on private opinion or private agreements; it neither prevents nor encourages trade-disputes; these go on just the same, *but work goes on too*. The Act nowhere says you shall not dispute. It only says when you cannot agree you must not settle the point by industrial war, you must bring the points in dispute before a properly constituted court and abide by its decision under penalty of a heavy fine, repeated if necessary as often as may be. The innocent shall not suffer, the country shall not be out of pocket merely because certain individuals differ about the wages in a certain trade or about the conditions of that trade. Speaking of the perennial disputes in the boot-trade:—

"In this instance we see the first case which appears before the court continuing to appear, and we know that it will reappear. The masters and the men are both strongly organized; they hold unshakable convictions; they have even 'conscientious scruples'; they are not satisfied, for neither has secured what he asked for, but they find it less intolerable to obey the award and go on than to give up the business. The trade is kept in continual agitation for six years, but how innocent the agitation! Instead of strikes, riots, starvation, bankruptcy, passion, and all the other accompaniments of the Homestead method, there has been—debate! The total loss is a few weeks' time of only a dozen men. The manufacturers have not been ruined; they have not had to shut down their works; they have not fled the country. The workmen have gone on working, buying land and building homes and paying for them, rearing children and building up industry and the State as well as their homes."

2. Compulsory arbitration is in no way analogous to the old sumptuary laws of the Middle Ages, where governments and corporations arbitrarily fixed the price of bread, the rent of land, the rate of a blacksmith's wages, and went on to discriminate between the wearers of hoddens and the wearers of silk; because wages, hours, conditions of labor are discussed by chosen representatives with the aid of a disinterested arbitrator who must be, mark, a judge of the Supreme Court, aided if necessary by experts, and must on the whole be decided by weight of evidence, the sole object of the sitting being to discover as nearly as may be what is the natural wage under any given set of circumstances.

3. It protects organized employers against guerilla competitors. Over and over again in the history of the labor-movement the most just agreement, acceptable alike to reasonable employers and reasonable men, has been upset by some underselling cut-throat competitor.

4. Compulsory arbitration acts as an educative influence on both masters and men. Both sides must keep proper books, both must express themselves civilly and temperately. An employer no longer finds it of any use to talk at large, make vague assertions as to his generous treatment of his employés, or claim indulgence on the credit of unproved statements as to huge business losses. "Very well," says the Court, "give us proof of your generosity, show by your books how trade is going." One man declared solemnly and quite honestly that an advance of 5 per cent in wages would ruin him. The award meant much more than 5 per cent. And yet after trial of the new conditions, this same employer candidly admitted, "I believe it will work out all right. We have reorganized our methods and are getting on first rate." And this was after every one had been assured that "Judges know nothing of business." The attendant compulsory publicity has also had a wholesome secondary effect in raising trade standards in the direction of thorough and honest work.

The total money-price that New Zealand paid for four years of industrial peace up to November 1, 1899, was £4,400, the cost of the administration of the Arbitration and Conciliation Act.

Trade-organization and peace! What would a fine old crusted Tory say to a law which stated in its original preamble that its object was partly "to encourage the formation of industrial unions and associations"? And why? Because with an organization you can know where you are, but with free-lances as soon as you have disarmed one there pops up another to be reckoned with. So the Act encourages organization on the part of both employers and employed. It does so very cunningly. Seven men in any trade can form a union and claim all its privileges, and they can practically make terms for their unorganized fellows, so that they cannot be undersold by blacklegs. To prevent employers dodging the law by refusing to organize, an individual master can be summoned before the court, and the whole of the masters in the trade in that district are bound by a decision given against a single master. So that employés find it pays to organize.

And what of that terrible bogey the agitator? He still lives and flourishes, but he is very harmless now. He may foment a dispute, ending in a harmless arbitration; he can no longer bring about a strike.

Experience shows what a weak reed is arbitration if merely optional, for it leaves the conclusive word with an irresponsible minority, often unprincipled and always uncontrollable.

At this moment an amendment of the Act is pending, but its tendency is rather to extend the scope of legislation and to strengthen the compulsory element by abolishing the courts of conciliation, which have hitherto been the ante-chamber through which suitors approached the supreme tribunal.

Those who so bitterly resent the compulsory clauses seem to forget that as far back as we can trace courts of justice there has always been a compulsory background to them all, even to civil courts, adjudicating between man and man or between bodies of men. Neither man singular nor men collectively are allowed in civilized countries to settle their differences with their fists. Even over their tongues they must keep some control; witness actions for libel and defamation of character. And once one party has hailed the other before bench or jury, by that bench's decision or by that jury's finding both must abide. Yet no one cavils at this, or dreams of saying that litigants should be free to walk out of any court, flouting its verdict. Then why should not the yet larger collections of men, the masters and men who compose whole trades, and whose industrial disputes weaken national prosperity and starve women and children, be equally the subjects of judicial discipline. What in the new legislation wears at first glance the aspect of a strange and untried novelty is seen on closer examination to be but an extension and development of the law's sphere of action, an extension at once simple and natural, more inevitable in the increasing complexity of social conditions, in short, an old friend with a new face.



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

UNITED STATES FISHERIES BUILDING: LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

EXTERIOR DETAILS OF THE SAME BUILDING.

LAMP-STANDARD FOR THE SAME BUILDING.

END ELEVATION: UNITED STATES GOVERNMENT BUILDING, LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO. MR. JAMES KNOX TAYLOR, SUPERVISING ARCHITECT, WASHINGTON, D. C.

FOR further illustration of this building see our issue for January 31st, last.

DESIGN FOR A NEW WEST FRONT, HEREFORD CATHEDRAL. MR. J. OLDRID SCOTT, ARCHITECT.

THIS plate is copied from *Building News*.

Additional Illustrations in the International Edition.

HOUSE OF R. H. BOGG, ESQ., PITTSBURGH, PA. MESSRS. ALDEN & HARLOW, ARCHITECTS.

HOUSE OF J. O. PONTEFRAC, ESQ., SEWICKLEY, PA. MESSRS. ALDEN & HARLOW, ARCHITECTS.

MONUMENT TO EVERHARDO T'SERCLAES, GRANDE PLACE, BRUSSELS, BELGIUM. M. JULIEN DILLENS, SCULPTOR.

MONUMENT TO PIERRE VAN HUMBEECK, BRUSSELS, BELGIUM, M. JULES BARBIER, ARCHITECT; M. CHARLES SAMUEL, SCULPTOR.

THE SULTAN'S KIOSK, OGHAMOUR.

HOTEL GREEN, ANNEX, PASADENA, CAL. MR. F. L. ROEHRIG, ARCHITECT, LOS ANGELES, CAL.

FOUNTAIN IN THE VILLA DEL POPOLO, NAPLES, ITALY.

A FOUNTAIN, RAVELLO, NEAR NAPLES, ITALY.



GEROME'S MODELS FOR MR. C. M. SCHWAB. — Jean Leon Gérôme, the sculptor, has just completed the models of two statues which were ordered by Charles M. Schwab for the decoration of his new house at New York. The models represent "Labor" and "Metallurgical Science." The first shows a robust workman vigorously handling a tool with which he is stirring molten metal; the second is represented by a female figure of the American type with an animated face stamped with energy and intense thought. The figure is clad in antique drapery. M. Gérôme says he tried to symbolize Mr. Schwab's entire life in these two figures. The workman is clad in trousers and shoes only. The statues will be cast in bronze, and are to be more than life-size. — *Exchange*.

ALL HALLOWS, LONDON.—The following resolution has been adopted by the Society of Antiquaries: "The Society of Antiquaries of London hears with regret that there is a proposal on foot to destroy the Church of All Hallows, Lombard Street, in the City of London, a building of interest in itself as being the work of Sir Christopher Wren, and containing much fine woodwork of his time. The Society ventures to appeal to the parishioners to withhold their assent to any scheme that will involve the destruction of their church." A similar resolution was agreed to on Tuesday by the London and Middlesex Archaeological Society. The present church, as is well known, was erected by Wren at a cost of £8,058. It was completed in 1694. Its predecessor is referred to in John Stowe's "Survey of London" and the passage is worth reprinting: "In Lombard street is one fair parish called Allhallows Grasse church in Lombard street; I do so read it in evidences of record, for that the great market went down that way, when that street was far broader than now it is, being straitened by encroachments. This church was lately new built. John Warner, armourer, and then grocer, sheriff 1494, built the south aisle; his son, Robert Warner, esquire, finished it in the year 1516. The pewterers were benefactors toward the north aisle, &c. The steeple, or bell-tower, thereof was finished in the year 1544, about the 36th of Henry VIII. The fine stone porch of this church was brought from the late dissolved priory of St. John of Jerusalem by Smithfield, so was the frame for their bells, but the bells being bought were never brought thither, by reason that one old Warner, draper, of that parish deceasing, his son, Mark Warner, would not perform what his father had begun and appointed, so that fair steeple hath but one bell, as friars were wont to use. The monuments of this church be these. The said Warners and John Walden, draper." The church was not entirely destroyed in the fire, although it suffered grievously. For a time the parishioners continued to use it, but eventually it had to be taken down, and the existing building was then erected by Wren. The woodwork referred to in the resolution of the Society of Antiquaries comprises an altar-piece, on which a pelican and seven candlesticks are introduced as symbols. — *The Architect*.

HARNESSEING THE HUDSON.—The plan of the Hudson River Water-power Company at Spier Falls, where the Hudson is to yield up its power for the use of mankind in distant cities, is being pushed along rapidly. The work of building this dam has been going on two years, and is expected to be completed in July. The dam and power-house, costing \$2,000,000, are expected to produce 50,000 horse-power. To do this the turbine waterwheels will be run at a 90-foot head. Each of the ten wheels will be directly coupled with a 5,000-horsepower generator. The dam itself is, as told, upward of 2,000 feet long. It is composed of solid granite and averages about 90 feet in height. It is anchored in the mountains on either side and rests on the rock bottom of the river. In getting to the bottom a trying experience was encountered in "the big hole" in the middle of the river. This occupied an acre and a half, and was about 70 feet deep. This was excavated three times before the foundation was finally laid. After the first two excavations freshets swept away all the falsework and undid the work of weeks. The greatest height of the dam at any one point is 150 feet. It will contain 181,000 cubic yards of masonry. The power-house is to be situated on the Saratoga County side, in the shadow of the dam, in what was formerly the bed of the river. Ten 12-foot steel tubes will take the water from the diverting canal to generators. The wires and the patrolmen do the rest. This power-supply business is by no means an experiment. There is a plant at Mechanicsville, 14 miles from Troy and 20 miles from Albany. This develops at present 7,000 horse power. Most of this is used in the General Electric Works at Schenectady and in running the trolley-cars in Troy and Albany. Two more dams are in prospect. In a few years the entire water-power will be found to be a practically constant quantity, since the State has become interested in maintaining storage-dams at Indian Lake and at other points along the headwaters of the Hudson. These will tend to equalize the flow, keeping back the water in times of freshet and releasing it at times when needed. — *Boston Transcript*.

ALUMINIUM AND ITS USES.—The characteristics and uses of aluminium are thus described by a writer in "Nature": "The two most marked characteristics of aluminium, on which its principal applications depend, are its high affinity for oxygen and its low specific gravity. The former of these properties causes aluminium to play a part of considerable importance in the metallurgy of other metals. Thus, in the casting of steel, iron, brass, etc., the addition of a small quantity, two to five pounds per ton, of aluminium is found greatly to improve the finished casting; the aluminium, by combining with the occluded gases, reduces the blowholes and renders the metal being cast more fluid and ultimately more homogeneous. Though the actual quantity employed in this manner is but a small percentage of the metal to which it is added, the total consumption of aluminium for this purpose is stated to be very large. A second use for aluminium depending on the same principle has been devised by Dr. Goldschmidt for producing high temperatures, and has been applied to the welding of iron rails, pipes and so forth. A mixture of iron-oxide and finely divided aluminium is used, and is ignited by means of a magnesium ribbon; a very high temperature is immediately reached by the oxidation of the aluminium at the expense of the oxygen of the iron-oxide. This process having been only lately introduced has not yet become of much commercial importance, but is full of promise. Aluminium is now finding considerable employment as a substitute for copper as an electrical conductor, especially in America, where it is used to a large extent in connection with the transmission of power over long distances. One of the most important of these installations is the transmission of 12,000 horse-power from the Snoqualmie Falls to Seattle and Tacoma, a distance of more than 40 miles. In this scheme an alloy of aluminium with $1\frac{1}{2}$ per cent of copper has been used, the lightness and strength of this alloy enabling

spans of 150 feet to be made with safety. A great saving in the number of poles is thus effected, which is one of the principal advantages gained. Numerous other important transmission schemes might be quoted in which aluminium is used, or in which it has been decided to use it. As has been just pointed out, the use of aluminium effects a great saving in the number of poles required; it also involves dealing with a much smaller weight of conductor, and is, finally, cheaper than copper. In round numbers, for equal conductivity, the section of an aluminium-cable is one and a half times that of a copper one, the weight is half, and the tensile-strength three-quarters. It is the decreased weight which, in spite of the smaller tensile-strength, allows longer spans to be used, and this effect can be made more marked by the use of a suitable alloy possessing increased strength without much diminished conductivity, or much higher specific gravity. An interesting table showing the variation, according to the price of copper, in the price per pound that can be paid for aluminium for equal conductivity and equal cost has been printed. From this it appears that with copper at its present price of about tenpence per pound, twenty-one pence per pound could be paid for aluminium, which is two or three pence above its market price, showing that aluminium-conductors are cheaper."

A JACK-OF-ALL-TRADES.—The following application made to the Civil Service Commission by an applicant for a place as draughtsman in the engineer service establishes a new record for Jacks-of-all-trades. The request read: "From November, 1896, to May 30, 1900, I travelled in the United States on a tour of sociologic and economic observation, and worked in nearly all the States and principal cities. Started without any money and commanded salaries at the following professions, trades and kinds of common labor: Surveyor, draughtsman (topographical, architectural and engineering), writer for newspapers and magazines, bridge-carpenter, house-carpenter, boat-builder, blacksmith's helper, boiler-maker's helper, farm-hand, cook, hunted geese and ducks for market, photographer, lumberman, lecturer, shoveller on railroad grades, dishwasher, shingler, teamster, cowboy and cattle-shipper, solicitor, cleaned old bricks, railroad steel, gang-work, wood-chopper, worked in sawmills and factories, rafted logs, wrote advertising, etc. Can command salary at more different kinds of labor than any living man. Immune from malaria fever, mountain fever, lazy fever or any other disease. Expert on matters relating to physical or mental development. At present writing a series of articles for a New York magazine. Not afraid of heat or cold from exposure. Not afraid of wild animals, microbes, men, political parties or work. Can swim any river in the United States. Expert with shotgun, can also shoot rifle. Can endure fatigue and exposure. Can handle gangs of men. Realizing the fact that examining-boards are apt to doubt some of the above assertions, I have on deposit in a savings-bank of New York the sum of \$50, which I will forfeit to them if I cannot substantiate every assertion made when put to a practical test." — *Exchange*.

THE ETHERIZATION OF PLANTS.—The London Times gives an account from a correspondent of the "etherization" of plants, a new process whereby plants naturally flowering in the spring are made to produce blossoms during the previous autumn. The process is simple. The plants are stored in a small galvanized tank. Then ether is poured into a small cup fixed to the top of the tank, whence, after the tank has been securely fastened, the ether is allowed to evaporate for a period of forty-eight hours. During this time the plants shed their leaves and may be described as being in a state of intoxication. After this period the plants are exposed to the air for another period of forty-eight hours. This, in turn, is followed by a second period of etherization, after which the plants are removed to an ordinary forcing-house, and within two or three weeks begin to flower freely.

THE CONDITION OF THE PROCURATIE, VENICE.—The announcement of openings in the Procuratie Vecchie in Venice is enough to excite a panic in the mind of the most courageous citizen. That building is so connected with others that there cannot fail to be apprehension that if it should succumb various other structures on the Piazza must share the same fate. Then what becomes the centre of Venetian life? The Procuratie Vecchie is the oldest of the buildings on the Piazza, which many of the observers consider to be only one palace. It was constructed about 1500 by Bartolomeo Buono. The procurators were originally no more than the church-wardens of the basilica of St. Mark. By degrees their power was extended until they became almost like the old Chancery Court in England. They embodied the equity of the Republic. It was at one period the custom to select the Doge from the members. In the sixteenth century it was necessary to provide further accommodation for them, and the Procuratie Nuove was commenced under the direction of Scamozzi; but it is believed that Sansovino had much to do with the preparation of the design. The ancient library which is connected with the palace was declared by Palladio to be the richest and most ornamented that had been erected since the time of the ancients. The Procuratie Nuove was converted into a palace when Eugene Beaucharnais was Viceroy of Italy. The buildings have been allowed to fall into the occupation of several people. They are not likely to leave their apartments so long as they have a prospect of compensation. At any cost repairs will have to be undertaken, and, once embarked upon them, there is no saying where they may end. — *The Architect*.

MEMORIAL TO JAMES WATT.—Andrew Carnegie has notified the Provost of Greenock, Scotland, that he is prepared to give \$50,000 to erect a memorial to James Watt, the inventor, who was born in that city on January 19, 1736, in recognition of his engineering achievements; or Mr. Carnegie will head a movement in America to raise a large fund which, in conjunction with sums raised in Great Britain, will provide for a more extensive scheme of commemoration. — *Exchange*.

THE AMERICAN ARCHITECT

AND BUILDING NEWS

ADVERTISERS' TRADE SUPPLEMENT

No. 249

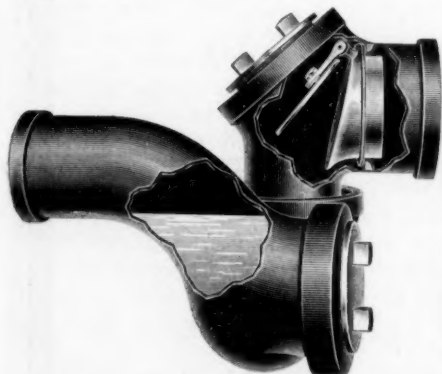
SATURDAY, FEBRUARY 7, 1903

VOLUME LXXIX
No. 1415

THE NEW CRAWFORD TRAP.

THE Crawford Running Trap recently placed upon the market by the Crawford Specialty Company, of Boston, Mass., promises to attain a wide popularity among architects and builders on account of its evident superiority, in several respects, to many of the traps which have been longer on the market. The fact that it is the invention of a man thoroughly practical in his line of work, one who has for years had very much to do with sanitary problems, who, during this period, has been obliged to do the best he could with traps of all kinds, and, consequently, has had unlimited opportunity for studying the good points as well as defects of each, should bespeak for this Trap a very general introduction throughout the country, for the Crawford is the result of a close study of the conditions to be met and mistakes to be avoided in a trap of this type.

The sectional illustration herewith given is self-explanatory. It shows that it is constructed upon correct lines. Practical men will easily recognize its superior features; but to call more direct attention to the especial points claimed by the manufacturers we would mention:—



The New Crawford Trap.

First.—The Crawford is free from the pockets to be found in many traps now on the market, and which afford just so many depositories for the accumulation of foul matter. No such defects exist in this Trap; and the trap-screws are so located that it is a simple matter to clean out the drain either from the house or sewer side, and to easily get at every part of the Trap itself.

Second.—This Trap is made in two sections, hence, is easily adjusted to any desired angle; consequently, the number of fittings required to meet the line of soil-pipe is reduced to a minimum. Furthermore, the swivel joint

which allows of this adjustment is *under water*, so that any leakage from this cause is avoided.

Third.—The screw on sewer side of the Trap is always under water, consequently there is an entire avoidance of the danger from escape of sewer-gas, which is always possible with top-screw traps.

Fourth.—There are no rubber, leather, or other description of gaskets used on the Crawford—it is all metal.

Fifth.—The Crawford is, apparently, a perfect water-seal Trap; but as an extra safeguard the back-water valve has been added. This back-water valve has a full-sized opening and a drop of $1\frac{1}{2}$ inches from outlet of valve to water-line of Trap, thus preventing any accumulation of foreign matter and ensuring free action. And, too, the lip of the valve is so constructed that there is no possibility of the lodgment of any substance there to prevent the closing of the gate. The back-water valve may be dispensed with in some places.

Sixth.—These traps are all carefully tested before shipment from the factory, and are warranted tight. The back-water valves and screws are of special design and of extra heavy pattern.

These are some of the essential features of superiority claimed for the Crawford Trap, and an inspection and comparison with other makes apparently substantiate them. At least it seems a conservative statement that this Trap contains more good features than a majority of those now on the market. Certainly we are not aware of any one trap having more to commend it, and its inventor has made good use of his knowledge of the mistakes of his predecessors.

It is, we believe, the intention of the Crawford Company to introduce these Traps through the trade, and its management invites correspondence with architects and dealers throughout the country, concerning prices and other information.

NATURAL ASPHALT AS A ROOFING-MATERIAL.

ASPHALT, or solid bitumen, is a natural pitch found in different countries, the most accessible and economical for use in the United States for roofing-purposes being obtained from the remarkable and inexhaustible deposits in the Island of Trinidad.

One of the reasons for the remarkable durability of Natural Asphalt—so well authenticated by historic evidence—and for the comparatively perishable nature of pitch and other coal-tar materials, lies in the fact that

the oils of the Asphalt are not volatile at any natural temperature, and are therefore permanent; while in all materials manufactured from coal-tar there are volatile oils which evaporate on exposure to the sun and air, destroying the flexibility and life of the materials. The fact is now well known that any pitch or cement manufactured from coal-tar thus gradually deteriorates until, in the course of a few years, it becomes brittle and crumbles away. Felt saturated with coal-tar in like manner hardens until it becomes brittle and, finally, worthless.

The greater durability of Natural Asphalt over that of coal-tar materials is confirmed and illustrated in a very striking manner by subjecting the two materials to a temperature not exceeding 200 degrees Fahrenheit. At this temperature, the coal-tar pitch and felt become brittle and worthless within forty-eight hours, while the Asphalt cement and felt, after three weeks' exposure to the same heat, retain their toughness and flexibility.

Coal-tar materials undergo the same deterioration under the heat of the sun as in the above test. Asphalt materials, properly prepared, remain absolutely unchanged during years of exposure to sun and air. Hence, their permanent adhesiveness, strength and durability.

Specifications for Roofing.—Cover the roof with two thicknesses of Warren's Composite Roofing Felt, manilla-paper side down, lapping each sheet 17 inches over the preceding one, and securing with nails through tin discs about $2\frac{1}{2}$ feet apart. Over the entire surface of the Composite Felt thus laid mop an even coating of Warren's Anchor Brand Natural Asphalt Roofing Cement. Over this coating of cement lay one thickness of Anchor Brand Asphalt Felt, lapping each sheet at least 2 inches over the preceding one, sticking these laps thoroughly with the hot Asphalt Roofing Cement, and securing with nails through tin discs. Over this first sheet of Anchor Brand Felt mop again an even coating of cement, and over this lay a second sheet of Anchor Brand Felt, having the laps come in the middle of the first sheet of Anchor Brand Felt beneath, sticking the 2-inch laps as before, and securing with nails through tin discs about $1\frac{1}{2}$ inches from the upper edge of the sheet. Over the entire surface of the felt thus laid spread an even coating of the Anchor Brand Cement, covering it immediately with a sufficient body of well-screened dry gravel. If the roofing is applied in cold weather the gravel must be heated.

Description of Materials.—As will be seen

[Published to-day, February 7, 1903]

PART XII

**“THE
GEORGIAN
PERIOD”**

[PRICE \$6.00]

Containing 47 plates—gelatine, half-tone and line—10" x 14", 36 pages of text enlivened by 64 cuts, and the index for the third Volume.



This Part completes the third and final Volume of a work that critics have agreed to hold worth doing and to have been well done. We ourselves believe it to be a work of real value to the practising architect, for whose daily needs we have prepared it.



In the past we have done all that we could to enable subscribers to procure the work at the lowest practicable cost, and in future will accommodate purchasers in the matter of distributing payment over a reasonable period of time so far as we find it businesslike to do so.



As previously announced, the work now becomes a net publication at \$60.00, but we will allow those who have some, but not all, of the Parts to place orders for the remainder of the work at the discount rate until March 1, 1903.



AMERICAN ARCHITECT & BUILDING NEWS CO.

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NEW YORK

from the foregoing specifications, the foundation of the Anchor Brand Roofs consists of two thicknesses of Composite Felt. This felt is composed of one sheet of wool-felt saturated with an asphalt composition and one sheet of manilla-rope paper, the two being secured together with a layer of pure Natural Asphalt Cement. The use of the manilla-paper in this way produces a Composite Felt having a tensile strength fully five times greater than ordinary roofing-felts. The layer of Asphalt Cement between the manilla-paper and the wool-felt prevents injury to the roof by moisture from beneath.

The Anchor Brand Felt is one sheet of the best wool-felt saturated with an asphalt composition, and is fully ten per cent heavier than the heaviest grade of felt ordinarily used in composition roofing.

The Anchor Brand Asphalt Cement is manufactured from Refined Trinidad Asphalt and heavy non-volatile oils, with the addition of such other compounds as experience has shown to be necessary to produce an Asphalt Roofing Cement which will withstand the expansion and contraction incident to changes of temperature.

Economy. — The economy of the Anchor Brand Roofing as compared with composition roofs in which coal-tar or its products are used lies in the fact of its much greater durability, which is due to the fact that the materials do not contain oils which are volatile at natural temperatures. As compared with tin-roofing the first-cost is no greater, and if the cost of the frequent painting necessary to ensure the life of the tin is added, the advantage will be largely in favor of the Anchor Brand Roofing.

Adaptability. — The Anchor Brand Roofing is not only adapted to flat surfaces, as are those composition roofings in which coal-tar or its products are used, but can be safely used on surfaces varying in pitch from $\frac{1}{2}$ inch to 4 inches per foot. It has been used with perfectly satisfactory results on surfaces as steep as 5 inches per foot. The advantage of this will be appreciated by those who find it necessary to have their roofs steeper than the ordinary flat roof.

Experience. — The Anchor Brand Roof is not new and untried, but has been in actual use for upwards of twenty-five years. While there are numerous roofs of our first manufacture still in satisfactory condition, we believe that those applied in later years will show still greater durability owing to the use of our Composite Felt.

Application. — The application of the Anchor Brand materials is placed in the hands of such experienced roofers in various parts of

the country as we believe will do only thoroughly conscientious work.

WARREN CHEMICAL & MFG. CO.
NEW YORK, N. Y.

STEEL STRUCTURES.

NOTABLE BUILDINGS PROTECTED FROM CORROSION BY DIXON'S SILICA-GRAPHITE PAINT.

THE enormous buildings of structural steel which have recently been erected in New York City, as well as those now in process of construction, have attracted considerable attention. Souvenir pictures of these magnificent office-buildings and hotels have caused people in all parts of the globe to wonder at the march of progress in the New World.

An element of vital importance in the lasting capacity of the modern high building is the durability of its structural steel and iron. Realizing this fact, architects are laying much stress on the necessity of the selection and specification of a paint that will prove a durable protective coating.

As the modern steel building-frame commonly carries the entire load sustained by the structure, together with its own weight, any active influence which tends to impair the durability of the metal weakens the resistance of the building itself and serious consequences are likely to follow.

Although the army of paint-salesmen is large, competition keen and time precious, well-worded, candid and concise statements as to the merits of a protective coating will usually appeal to the good judgment of the architects and engineers under whose supervision the buildings are planned and erected.

The following enumeration of some of the steel and iron structures in Greater New York which have been, or are being, painted with Dixon's Silica-Graphite Paint forcibly marks the continuous and well-merited success of this product: —

Butterick Building, Broad-Exchange Building, largest office-building in the world; American Exchange National Bank Building, Atlantic Mutual Insurance Building, New Mutual Life Insurance Buildings, Hanover Insurance Company Building, Broadway-Chambers Office-building, Boudoin Building, Office-building, 68 William Street; the Wyls Building, Astor Hotel, Knickerbocker Hotel, New Marie Antoinette Hotel, Algonquin Hotel, Aeolian Building, St. Regis Hotel and Apartments, Childs's Thirty-fourth Street Building, Apartment-house, Sixty-first Street and Madison Avenue; Siegel-Cooper Company's Warehouse, Apartment-house, Eighty-first Street and Riverside Drive; Wall-Exchange Build-

ing, Office-building, Twenty-eighth Street and Broadway; twelve-and-a-half-story Hotel, Seventy-seventh Street, near Columbus Avenue; twelve-story Office-building, Greenwich and Warren streets; Tiffany Mansion, Seventy-second Street and Madison Avenue; Apartment-hotel, Forty-seventh Street, east of Seventh Avenue; Store, Loft and Office-building, 27 East Twenty-first Street; Government Buildings, Navy Yard, Brooklyn; ten-story addition Hotel St. George, Brooklyn; Apartment-hotel, Clinton Street, Brooklyn; iron shutters of New York Dock Company's Warehouses, Brooklyn; Apartment-hotel, Ninety-fourth to Ninety-fifth Street and Broadway, New York City; Public School No. 188, East Houston Street, largest public-school building in New York.

ANOTHER SIGNAL SUCCESS FOR THE YANTACAW.

A VERY successful exhibition of the effectiveness of the "Yantacaw Chemical Fire-extinguisher" has just been given.

A structure, 16 feet high and about 7 feet square, was erected and filled with slats, boards and shavings. It was then thoroughly saturated with kerosene-oil and lighted.

The Chief of the local Fire-department took charge of the affair, and gave the signal when to play on the fire. He gave the word after allowing the fire to gain a good headway, and the stream was turned on and the fire extinguished in about five seconds.

It was lighted up again and the performance repeated with even greater rapidity than before. The Chief then requested permission to try the extinguisher belonging to the Rescue Truck Company on the fire. It was lighted up again and the Chief ordered a six-gallon carbonic-acid-gas extinguisher turned on, but his efforts to control it were useless, and the fire still burnt fiercely. The Chief then ordered that the Yantacaw play on one side of the box, and the carbonic-gas machine on the other. The difference was at once apparent, as the Yantacaw side was instantly black, while the other side still burned.

Finally, the Yantacaw went over to the other side and put the fire out. The tests were highly interesting and instructive, as heretofore it has always been conceded that the carbonic-gas was the best known extinguisher, but it was proved very plainly at this test that the Yantacaw is away ahead.

YANTACAW MFG. CO.,
PHILADELPHIA, PA.

FIREPROOF WINDOWS.

W. H. MULLINS, of Salem, Ohio, desires to call the attention of architects and builders

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AMERICAN PORTLAND CEMENT

An artificial Portland Cement of the highest character made under the supervision of Chemists and Engineers connected with the Alsen's Cement Works of Hamburg, Germany, superior to all other American Portland Cements, absolutely sound, uniform, and of great strength.

SINCLAIR & BABSON, Gen'l Agents, 45 Broadway, New York

Works at Alsen, N. Y., on Hudson River

to the fact that he has just completed the purchase of the Watson Fireproof Window Company, including all their machinery and dies and the exclusive right to manufacture under the Watson patents in all States and Territories of the United States, also for export, excepting Illinois, Maine, New Hampshire, Vermont, Rhode Island, Massachusetts and the city of Greater New York. He desires to secure manufacturers' agents in every city throughout his territory, and would be pleased to correspond with parties relative to terms. After a careful investigation of the art of fireproof window-building he has been compelled to acknowledge the superiority of the Watson frames over all others heretofore made, and has therefore purchased the right, as before stated, of manufacture. Catalogues and full information will be cheerfully furnished to all interested parties.

WISCONSIN GRAPHITE PAINT

Is one of the products of the most valuable discovery yet made in mineral-paint pigments. Its affinity for iron and steel is so much greater than any other pigment, so complete in fact, that it is come to be considered by those who have employed it "The Life Preserver" of iron and steel.

Its adhesion to metal is so absolute that it practically becomes as a part of the metal to which it is applied, therefore cannot blister or peel, and is proof against acids, alkalies, sparks and fire.

When properly applied with pure linseed-oil it is impossible to sweat it off; therefore is proof against heat, steam and moisture.

It has no chemical action on the oil used as conveyor; instead, it preserves the original virtue of the oil; therefore is elastic and will not crack.

Being of the same family as the diamond and charcoal, it cannot have an oxidizing influence on metal, and therefore is a preventive of rust.

Structural ironwork, bridgework, railroad equipment, marine-work, smoke-stacks, blast-furnaces, boilers, tanks and piping require a preservative paint that will stand the highest, as well as the lowest, temperature without cracking; that is impervious to gases, acids and alkalies; that will withstand steam and moisture, and permanently so. Any paint failing in these essentials exposes the surface and lays it liable to destruction.

The combinations of the elements of quality in Wisconsin Graphite Paint necessarily makes it of a character to meet all the conditions requisite in a metal-preserving paint.

The same properties that make Wisconsin Graphite Paint so valuable in its use on iron and steel surfaces also make it of exceptional value for use on wood, especially so when exposed to the weather.

Tests made with it covering a period of seven years have demonstrated its superiority for these purposes.

Wisconsin Graphite Paint is ground in pure kettle-boiled linseed-oil.

While it will mix readily with other ingredients used in ordinary paints, the best results are obtained by using pure linseed-oil. Being amorphous, it can be reduced to much finer powder than foliated graphites, and therefore incorporates with the oil more readily and stays in suspension longer—twelve and thirteen months showing only the slightest sediment.

In using Wisconsin Graphite Paint more satisfactory results are obtained by using thin coats and many of them. The surface should be thoroughly clean and dry. The second coat should not be applied until the first is thoroughly dry. Six months is not too long to intervene between each coat.

A gallon of Wisconsin Graphite Paint will cover three times more surface than will a gallon of lead or mixed paint. It spreads easily and can be applied by any one.

Wisconsin Graphite Paint is put up in packages of all sizes to suit the demand. Our guaranty goes with every package.

Made in the various colors required in such a paint.

Samples sufficient for a practical test will be sent to responsible parties on request.

Wisconsin Graphite Dry furnished in quantities to suit.

Dipping Paints.—We recommend our dipping paints for chains, riveted steel pipe and agricultural implements. Also especially adapted to electric arc-light shades and fixtures.

Architects, contractors and builders will conserve their best interests by using on all metal-work the "life preserver" of iron and steel.

WISCONSIN GRAPHITE CO.,
PITTSBURGH, PA.

SAFETY TREADS FOR THE NEW YORK SUBWAY.

A CONTRACT has been signed by Mr. John B. McDonald, contractor for the building of the New York Subway, for the use of Mason Safety Treads upon the stairs of all the stations (about fifty in number) of this great tunnel. The Safety Treads are to be set in granolithic, flush with the surface, and

securely anchored in place. This form of construction has been successfully used in many places, and was approved by the architects and engineers of the Rapid Transit Construction Company only after careful investigation, as being the best possible safeguard against slipping and possessing the utmost durability. The same device is used on the station-stairs of the Manhattan Railway and the Brooklyn Bridge (wood steps), and the Subway and Elevated Road in Boston (iron steps).

AMERICAN MASON SAFETY TREAD CO.,
BOSTON, MASS.

NOTES.

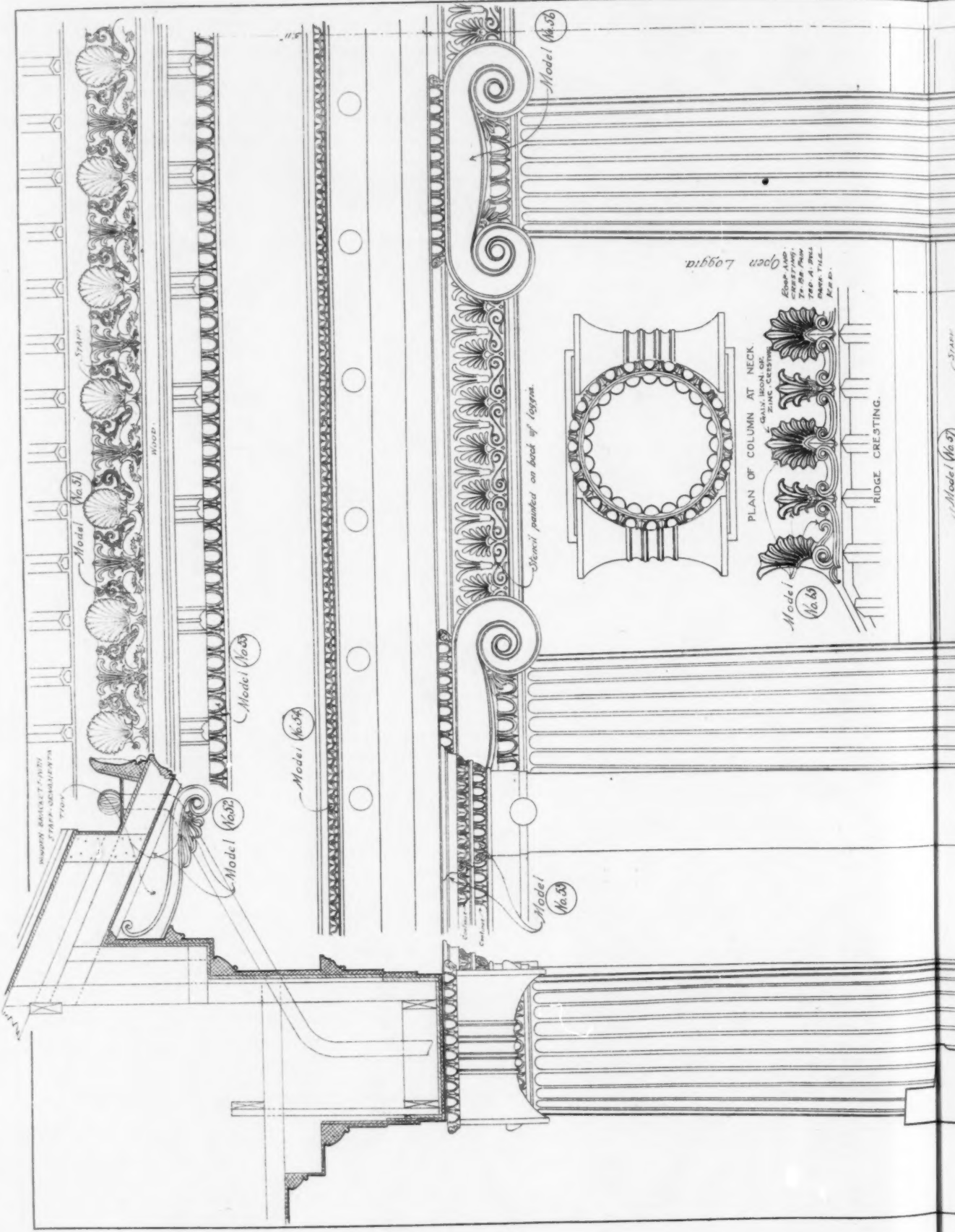
THE American Sheet Steel Company has closed the most gigantic sales-contract of its history. The material that will be made in the next year under its terms will swell the Sheet Steel Company's gross earnings by \$6,490,000. The agreement for this tremendous business was entered at the Pittsburgh offices of the American Sheet Steel Company with representatives of all the thirty-four constituent concerns of the National Roofing & Corrugating Company. The Roofing & Corrugating Company agrees to take all of its requirements in sheets during the year of 1903 from the sheet-producing constituents of the United States Steel Corporation.

The Roofing Company next year will consume about 80,000 tons of black sheets, the cost of which will be about \$4,240,000. — *Pittsburgh Gazette.*

THE Kinnear & Gager Company, Columbus, Ohio, have moved their works and office from Fourth and Chestnut to No. 326 Mt. Vernon Avenue.

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THE Otis Elevator Company report the following contracts recently closed: North German Lloyd Steamship Company, Hoboken, N. J., ten electric passenger-elevators; Kean Van Cortlandt & Company Building, 28-32 Pine Street, New York, N. Y., four hydraulic elevators; Hotel Willard, Washington, D. C., four hydraulic elevators and two electric elevators; and the Belvidere Hotel, Baltimore, Md., seven plunger elevators with a car-travel of 160 feet.



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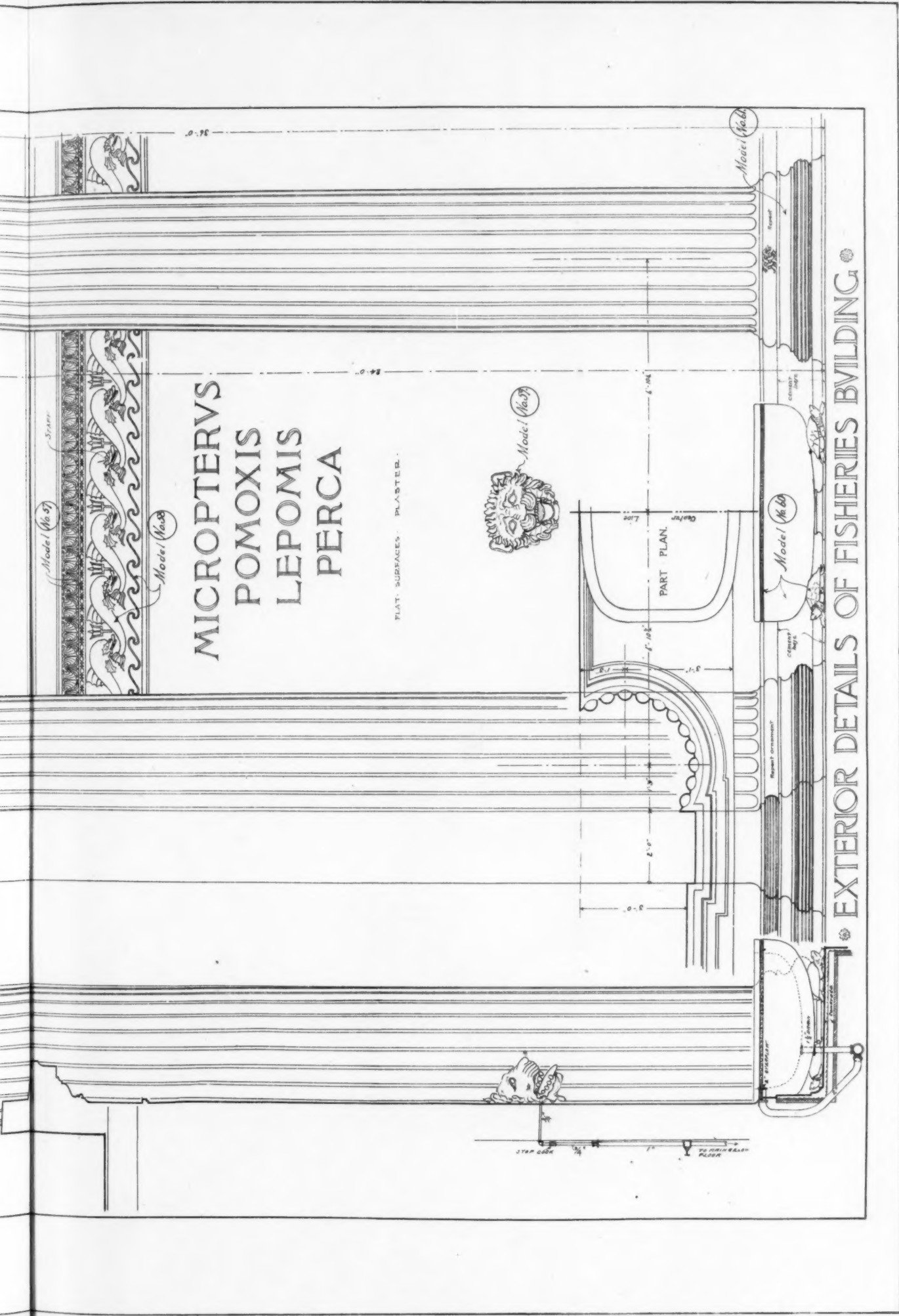
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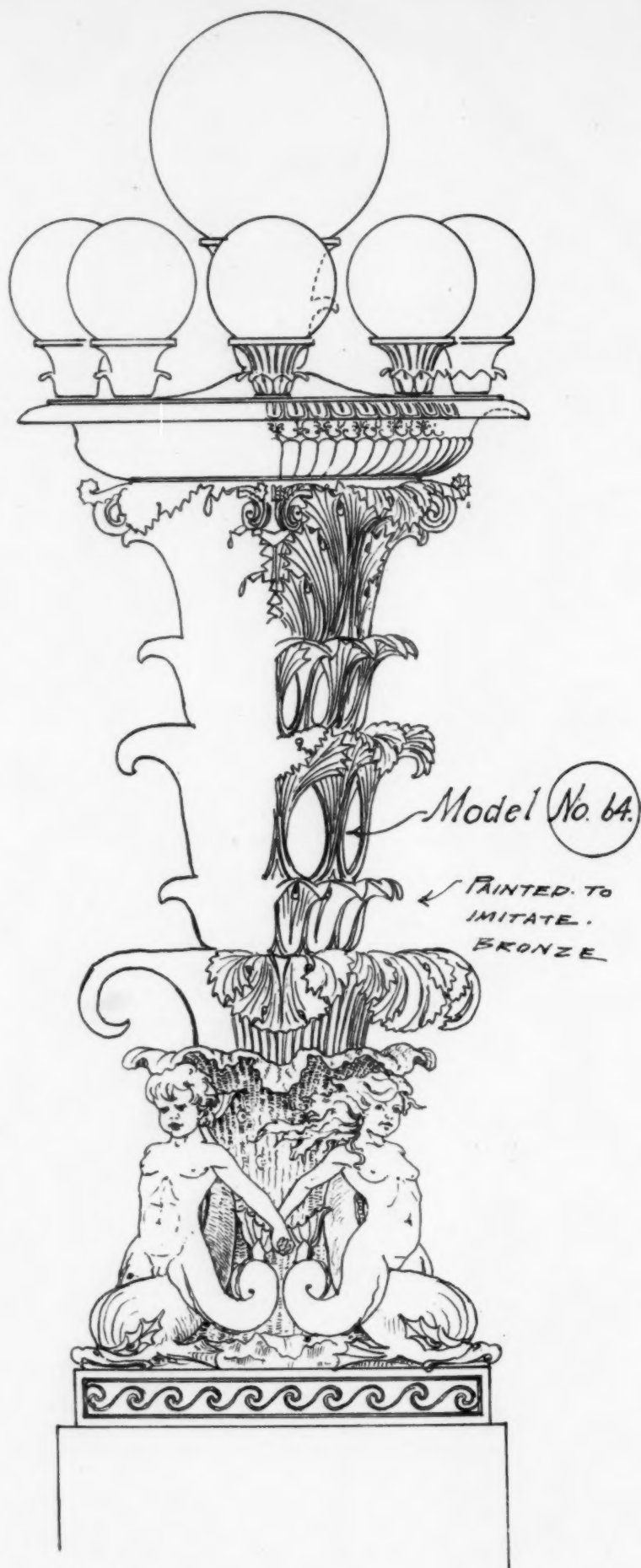
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The American Architect
 Feb. 7, 1903.
 No. 7475

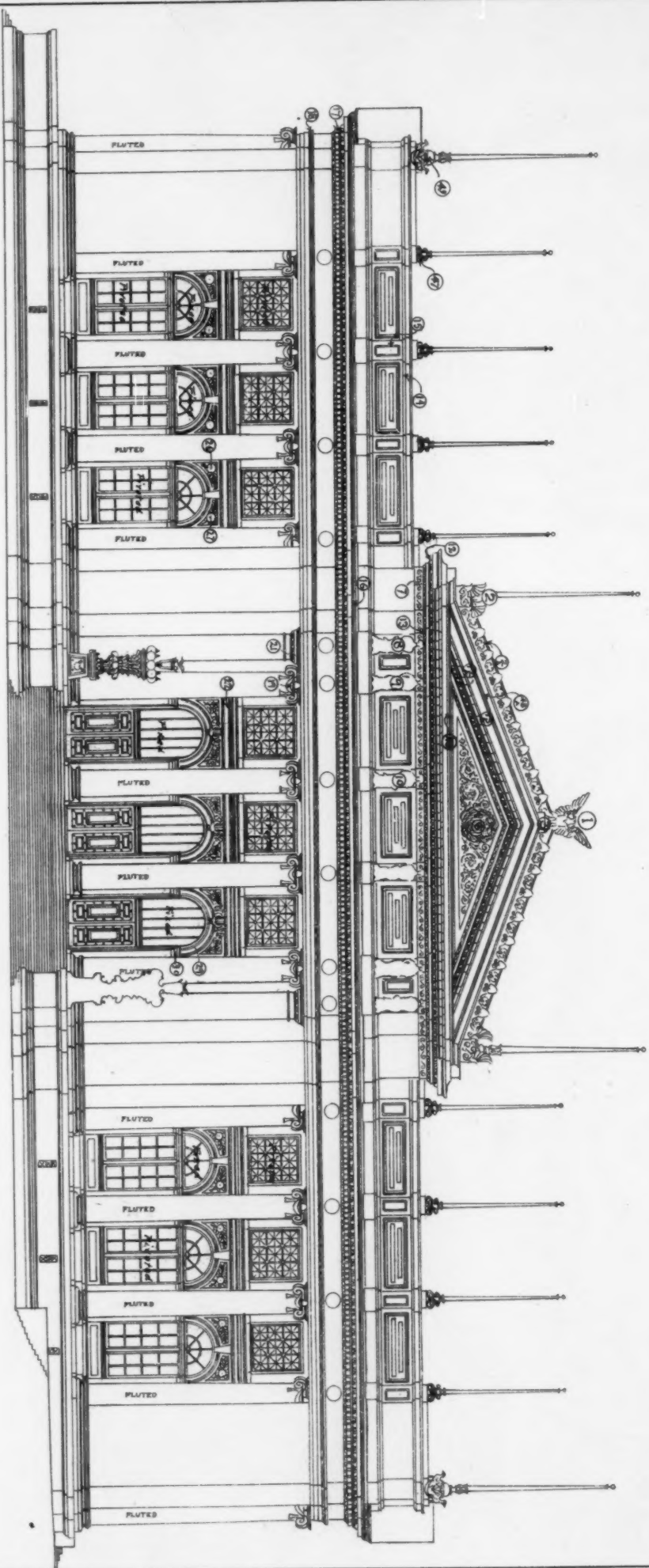


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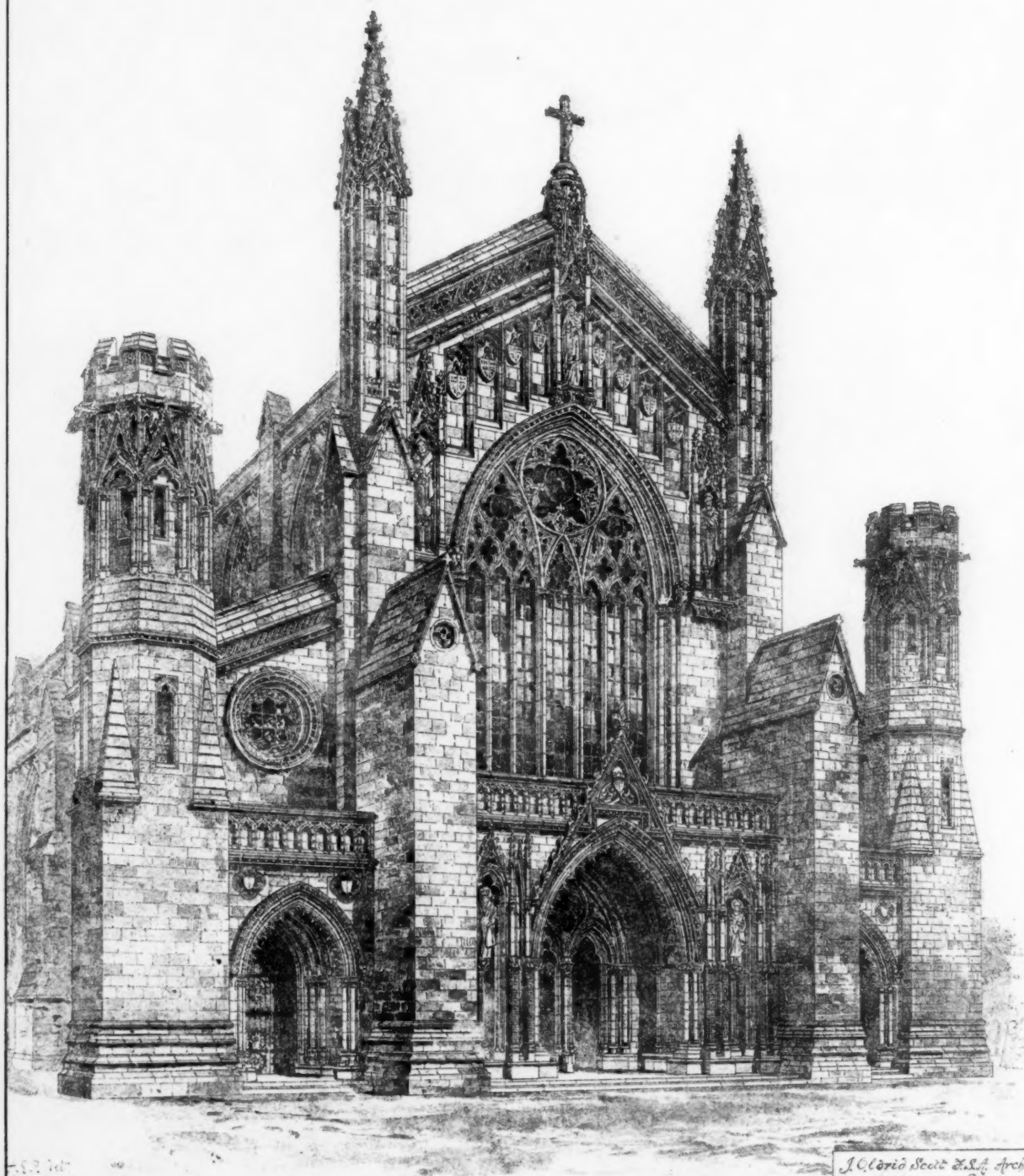
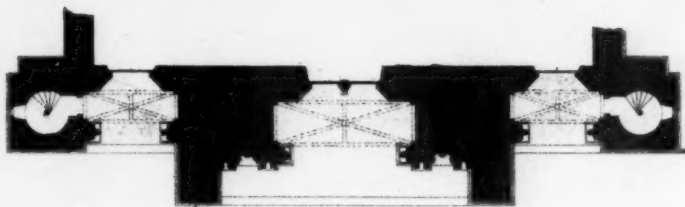


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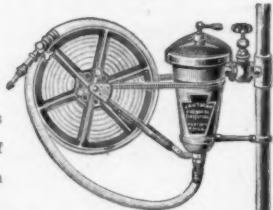
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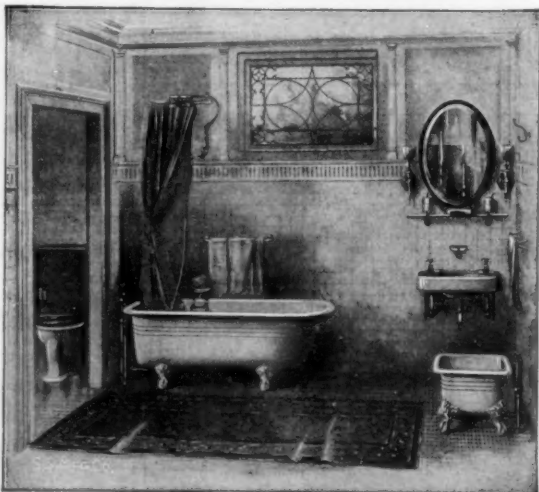
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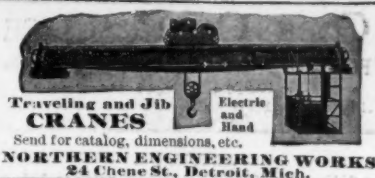
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CODE OF PRACTICE FOR SUB-ESTIMATING AND SUB- CONTRACTING

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 no 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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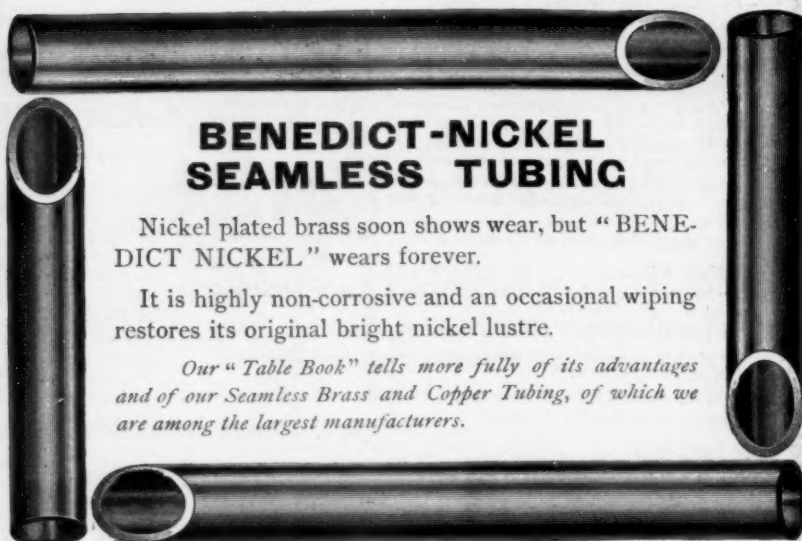
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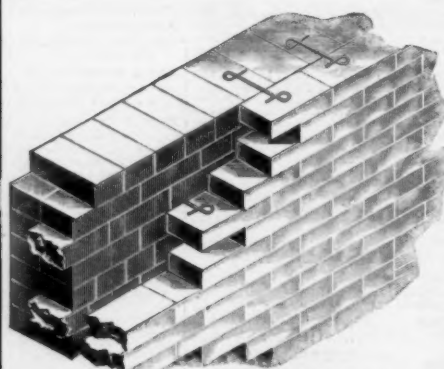
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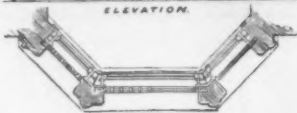
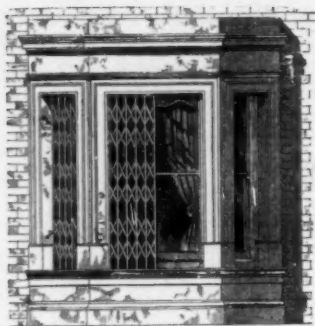
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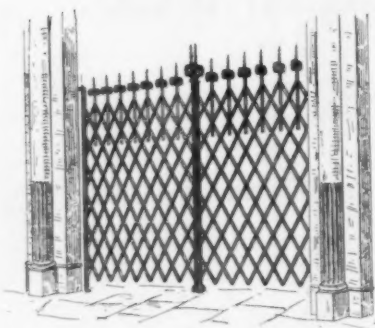


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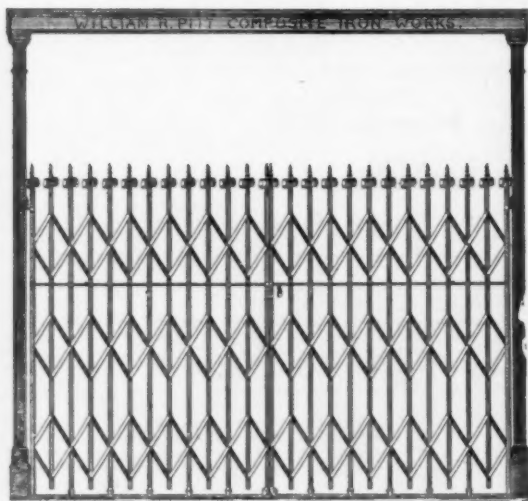
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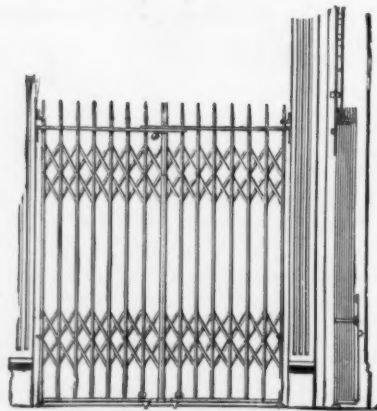


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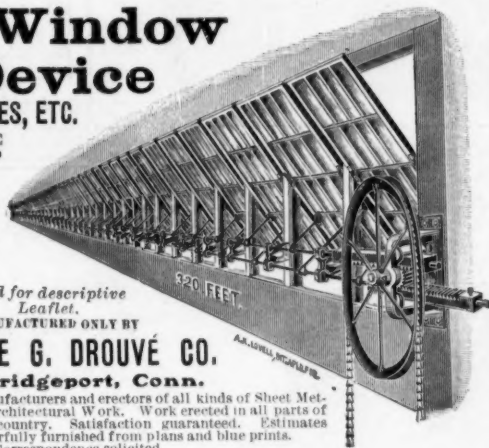


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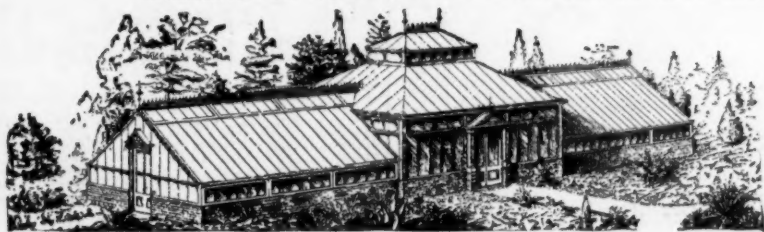
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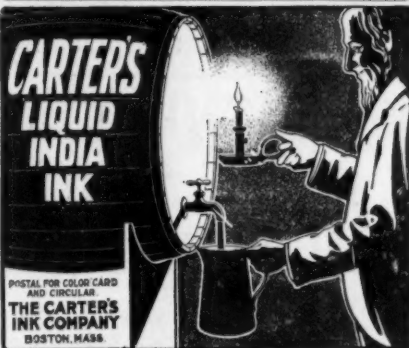


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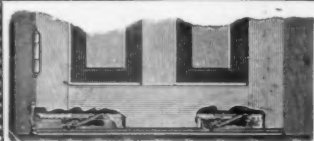
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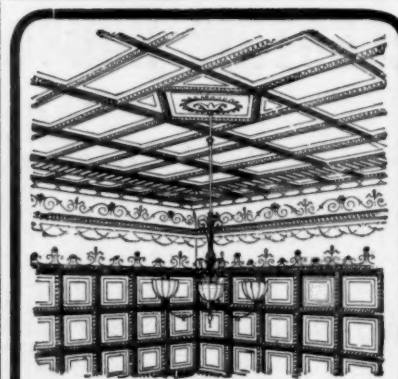
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THE KEASBEY & MATTISON CO., the owners of the patents for magnesia covering, have commenced a suit in the United States Circuit Court for the Southern District of New York against the Philip Carey Mfg. Co., George D. Crabbs, J. E. Breese, Schoellkopf, Hartford & Hanna Co., J. F. Schoellkopf, Jr., James Hartford, W. W. Hanna, C. P. Hugo Schoellkopf and Jesse W. Starr, to restrain the defendants from making and selling magnesia covering for boilers and steam pipes containing more than 50 per cent of magnesia, and especially coverings containing 85 per cent magnesia.

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.

☞ All persons are respectfully requested to refrain from purchasing covering infringing these patents, as such purchasing must of necessity lead to suit. ☞

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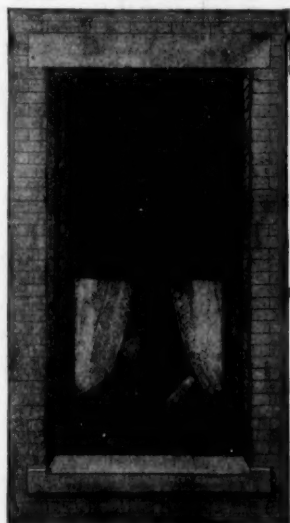
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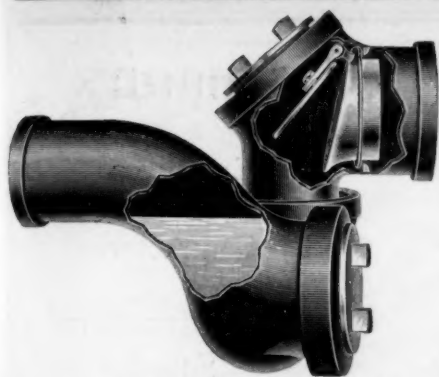
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

State and Madison Sts.—Cost from \$500,000 to \$750,000.
Irving W. Kelley, 59 Dearborn St., has prepared plans for a four-story addition, 45' x 75', to Friendly & Vosshardt's manufacturing plant at 194 Mather St. Addition will be of brick and cost \$35,000.
Cordele, Ga.—A union station is to be erected here costing \$30,000.
Decatur, Ill.—It is stated that the Board of Education has decided to erect a two-story structure to replace the present Church St. School, at a cost of about \$45,000.
Fort Sheridan, Ill.—P. J. Weber, 1142 Rookery Building, Chicago, has drawn plans for a \$25,000 theatre to be erected here.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Georgetown, D. C.—Plans are stated to have been prepared for the erection of an addition to the Georgetown University; probable cost, \$65,000.
Greenville, S. C.—A plant for manufacturing yarns from cotton-mill waste will be established here by the McGee Manufacturing Co. Mr. McGee plans that the capital be \$100,000, and over half of this amount has been subscribed.
Lewiston, Idaho.—It is stated that the School Trusts have decided to erect a two-story building on Normal Hill, to cost \$25,000.
Manchester, N. H.—It is stated that a bill has been introduced in the Council appropriating \$48,000 for the erection of an armory here.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Marion, Ind.—It is stated that the contract will soon be let for the rebuilding of the Marion High School recently destroyed by fire; probable cost, \$40,000.
Marquette, Mich.—It is stated that the Catholic diocese of Marquette and Sault Ste. Marie will erect an orphan asylum here, to cost \$50,000.
Muskogee, Ind. Ter.—An opera-house and hotel are to be erected at this place. Cost, \$75,000.
New Haven, Conn.—F. W. Vanderbilt, who gave a dormitory to Sheffield Scientific School last fall, has announced his intention of giving another. Ground has just been broken for the first on Wall St., and it will be completed in June, 1904. The second dormitory will stand on College St., just around the corner from the first. It will closely resemble the other in architecture.
About one-half of the sum needed to build the central hall of the Peabody Museum at Yale has been collected. The total cost will be about \$250,000.
New York, N. Y.—Title to the old Brunswick Hotel property at 5th Ave., 26th and 27th Sts., has passed to the Hotel Brunswick Co., which has been organized to take the estate at a valuation of \$2,500,000. Contracts to build the new twenty-story hotel building have been made with the General Building & Construction Co. for \$3,500,000. The work of tearing down the old buildings will begin shortly and foundations for the new one laid. It is estimated that the building will be completed in two years. It will contain 1,100 rooms, and will be managed by Gustav Bauman of the Holland.
A bill has been introduced authorizing Mayor Low to appoint a commission to select and locate in the Borough of Manhattan a site upon which to erect a municipal building as near fireproof as can be practically secured. The commission is authorized to advertise for the submission to them of plans and specifications for the building, "and may offer reasonable prizes for such plans and specifications, not exceeding seven in number, as shall in the judgment of said commission and of the Art Commission of said city be the best plans and specifications submitted to them." No sum is named as the cost of the structure, and it is to be paid for out of the proceeds of city bonds sold to obtain the money.
The Interborough Rapid Transit Co. is considering the advisability of establishing a private hospital for its employees, to be in readiness about one year from the time when the tunnel system is completed.
It is said that land is being acquired between Fort Montgomery and Newberg for the founding of a colony. J. Pierpont Morgan, Wm. Rockefeller, James Stillman and E. H. Harriman are interested. Back from the Hudson, between Fort Montgomery and the slope that begins at Cornwall and ends in level ground at Newburg, for several miles westward there is a wilderness of mountain ridges of unoccupied and unimproved land. West Point is in this tract. Some 25,000 acres, including the valleys and approaches to it on the north, west and south, form a perfect location for a great park of magnificent houses and clubs.
The Alumni of Columbia University has started a fund of \$400,000 for the erection of a hall for the college department, appropriating \$1,000. The classes of 1899 and 1900 at their recent reunions have contributed \$500 each to the fund.
Norman, Okla. Ter.—The Board of Regents of the Oklahoma University has decided to rebuild the Science Hall recently destroyed by fire, at a cost of \$35,000.
Peterborough, N. H.—Tarbell's block, which was nearly ruined by fire on December 7, has been sold at auction to a syndicate of citizens composed of William G. Livingston, James F. Brennan, Alvin Townsend, Herbert F. Nichols, Charles H. F. Perry and Lewis P. Wilson, for \$8,100. These men purchased the lot to prevent the repair of the old building in separate lots, and to insure the building of a first-class block, covering the entire lot, which may be a credit to the town.
Philadelphia, Pa.—Chas. J. Brooke, 14 S. Broad St., has drawn plans for 80 three-story and 40 two-story brick and stone dwellings, to be erected in West Philadelphia. Cost, \$300,000.
Portland, Ore.—Plans have been drawn by Davis C. Lewis, Chambers Building, for a residence for Joseph N. Teal, to be erected on St. Clair St. Probable cost, \$25,000.
Princeton, N. J.—Report states that a movement is on foot among the classes from '92 to '97 to build a Gothic dormitory on Princeton's campus as a class memorial. It is also stated that the class of '92 has decided to give a dormitory to mark its centennial celebration in 1912. The Real Estate & Trust Co. of Philadelphia, will act as custodian of the fund. The new dormitory of the class of '79 will be erected this spring.
Reading, Pa.—It is reported that a \$30,000 extension will be erected at the Widows' Home. Architect, A. Smith, 531 Court St.
Richmond, Va.—Plans have been drawn by Noland & Baskerville, Chamber of Commerce Building, for a \$30,000 office-building and bachelor apartments, to be erected by the State Insurance Co.
Sac City, Ia.—The plans of Murphy & Ralston, of Waterloo, have been accepted for a \$40,000 high school.
Schenectady, N. Y.—The Board of Education has adopted the plans of Penn Varney, of Lynn, Mass., for two schools, one to be erected at Brandywine Ave. and Becker St., and the other at E. Liberty and Niskayuna Sts.; total cost, \$100,000.
Springfield, Mass.—A new church building or an addition to the present structure of the Emmanuel Congregational Society will doubtless be built during the coming year.
Steep Falls, Me.—Henry Pierce, who formerly lived in Biddeford, died recently leaving a large estate. He bequeaths \$25,000 for a public library here.
St. Louis, Mo.—Extensive improvements are to be made in the 14th St. theatre as soon as the lease to the Germania Club expires, which will be on April 20. The seating capacity will be increased and the exterior will be rendered more attractive. The renovated building will be ready to open September 1.

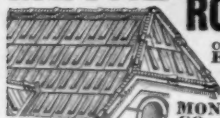
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

A large modern apartment-house is to be erected on Lindell Boulevard, west of Boyle Ave., by the Greer-Anderson Realty Co. and H. A. Vrooman, backed by Eastern capitalists. The location has not been definitely made known.

Trenton, Mo.—The plans of G. A. Berlinghof, Beatrice, Neb., have been adopted for the court-house and jail. Cost, \$60,000.

Wellesley Hills, Mass.—The officers and managers of the Convalescent Home for Children at this place which was burned nearly to the ground recently, have issued an appeal for money to rebuild the home at once, and state that contributions may be sent to Mrs. H. G. Curtis, treasurer, 179 Marlboro St., Boston, or to the Old Colony Trust Co., Ames Building.

Wilmington, Mass.—A petition has been presented to the Committee on Towns that this town may borrow \$30,000 outside the debt limit, for the purpose of purchasing land and building a town-hall. There was no opposition.

COURT-HOUSE.

[At Franklin, La.] Plans will be received February 16 by the Police Jury for erecting a court-house, to cost not less than \$110,000. 1415

SCHOOL.

[At Cleveland, O.] Plans for the construction of a \$60,000 12 room school-building in this city will be received until February 20 by Edward A. Roberts, clerk board of supervision of public buildings, Chamber of Commerce building. 1415

PROPOSALS.

ELECTRIC-LIGHT FIXTURES.

[At New Bedford, Mass.] 209 Thames St., Newport, R. I. Sealed proposals will be received here until February 16, 1903, for installing electric-light fixtures in barracks, 3 sets officers' quarters, administration building, guard-house, 1 double set N. C. O. quarters, bakehouse and quartermaster and commissary storehouse at Fort Rodman, New Bedford, Mass. Information furnished on application. CAPT. T. H. SLAVENS, Q. M. 1415

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PROPOSALS.

GYMNASIUMS.

[At Columbus, O.] Bids are wanted February 16 for erecting 2 gymnasiums for the Ohio State School for the Blind. Stribling & Lunis, architects. ALFRED ROBINSON, sec'y. 1415

MATERIAL FOR ERECTION OF SCHOOL.

[At Weatherford, Okla. Ter.] Bids are wanted February 14 for furnishing material for erecting the Southwestern Normal School. J. H. Bennett, architect, Guthrie. L. W. BAXTER, Territorial Supt. of Pub. Instruction, Guthrie. 1415

LIBRARY.

[At Portsmouth, O.] Bids will be received February 15 by Richards, McCarthy & Bulford, architects, "The Ruggery," Columbus, O., for erecting a library. 1415

IOWA BUILDING.

[At St. Louis, Mo.] Bids are wanted February 25 for erecting the Iowa building on the Louisiana Purchase Exposition Grounds, St. Louis, Mo. Proudfoot & Bird, architects, 712 Crocker Building, Des Moines. F. R. CONAWAY, sec'y, Iowa Comm. 1416

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 29th, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 4th day of March, 1903, and then opened, for the construction (including plumbing, heating apparatus, electric conduits and wiring) of the extension of the U. S. Custom-house and Post-office at Alexandria, Virginia, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Custodian at Alexandria, Va., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1416

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 26th, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 24th day of March, 1903, and then opened, for supplying all labor and materials to erect and complete a stone "Gateway and Lodge," in accordance with plans and specifications on file in the office of Peters, Burns & Preitinger, architects, Kohn's Building, Dayton, O. Bids must be made in round sums, and to include all branches of labor and materials called for. Only such bids will be considered. All bids must be accompanied by a certified check equal to 5 per cent of amount of bid, drawn to order of John W. Byron, Commissary of Subsistence and Superintendent of Post Fund, which check will be forfeited in case the successful bidder refuses to or fails to enter into contract as required; otherwise to be returned to the bidder. Bidders must state the time required to complete the work. The Home reserves the right to reject any or all proposals, or to divide the contract between two or more bidders. A sufficient bond will be required from the successful bidders, and in addition, ten per cent of contract price will be retained from each payment until the

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 31, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 12th day of March, 1903, and then opened, for furnishing the low pressure steam heating apparatus, etc., complete in place for the U. S. Post-office at Janesville, Wisconsin, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Janesville, Wis., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1416

PROPOSALS.

Treasury Department, Office Supervising Architect, Washington, D. C., January 24th, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 11th day of March, 1903, and then opened, for furnishing the low-pressure steam heating apparatus, etc., complete in place, for the U. S. Post-office at Wilkesbarre, Pennsylvania, in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Wilkesbarre, Pa., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1416

Treasury Department, Office of the Supervising Architect, Washington, D. C., February 3, 1903. Sealed proposals will be received at this office until 3 o'clock P. M. on the 10th day of March, 1903, and then opened, for the construction (except heating and elevator) of the extension to the U. S. Court-house, Post-office, etc., at Fort Smith, Ark., in accordance with the drawings and specification, copies of which may be had at this office or the office of the Custodian at Fort Smith, Ark., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1416

BUILDING.

[At Fort Terry, N. Y.] Sealed proposals for constructing, plumbing, heating and electric wiring, frame barrack building and for constructing gun shed and machine shop building here will be received until February 28, 1903. S. Y. BRITT, Q. M. 1416

RIPRAP.

[At Ashland, Wis.] Bids are wanted February 24 for furnishing and placing about 26,000 tons of riprap at Ashland. D. D. GAILLARD, Corps Engrs., U. S. A., Duluth, Minn. 1416

NOTICE TO CONTRACTORS.

GATEWAY AND LODGE.

[Near Dayton, O.] Sealed proposals will be received at the Central Branch, National Home for D. V. S., near Dayton, O., until 2 o'clock P. M. March 12th, 1903, for supplying all labor and materials to erect and complete a stone "Gateway and Lodge," in accordance with plans and specifications on file in the office of Peters, Burns & Preitinger, architects, Kohn's Building, Dayton, O. Bids must be made in round sums, and to include all branches of labor and materials called for. Only such bids will be considered. All bids must be accompanied by a certified check equal to 5 per cent of amount of bid, drawn to order of John W. Byron, Commissary of Subsistence and Superintendent of Post Fund, which check will be forfeited in case the successful bidder refuses to or fails to enter into contract as required; otherwise to be returned to the bidder. Bidders must state the time required to complete the work. The Home reserves the right to reject any or all proposals, or to divide the contract between two or more bidders. A sufficient bond will be required from the successful bidders, and in addition, ten per cent of contract price will be retained from each payment until the

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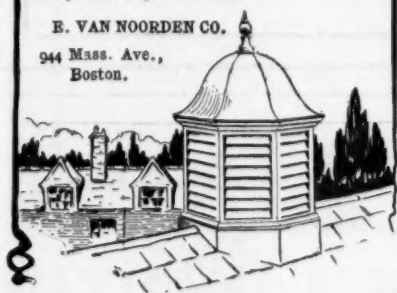
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PROPOSALS.

contract shall have been completed. Blank forms and specifications for bidders will be furnished from the office of the C. of S. and Supt. Post Fund upon application. Envelopes containing proposals should be endorsed "Proposals for Gateway and Lodge," and addressed to the undersigned. JOHN W. BYRON, C of S. and Supt. Post Fund. Approved: J. B. THOMAS, Governor. P. O. Address, National Military Home, O. Dated February 5, 1903. 1416

GATES.

[At Nashville, Tenn.] Bids will be received at the U. S. Engr. Office, February 28 for 4 pairs of steel lock gates, filling valves, etc., for Locks A and No. 1, Cumberland River. 1417

SEWERS.

[At Washington, D. C.] Office of the Commissioners, D. C., Washington, D. C. Sealed proposals will be received at this office until February 14, 1903, for constructing sewers. Forms, specifications and necessary information may be obtained at this office. HENRY B. F. MACFARLAND, HENRY L. WEST, JOHN BIDDLE, commissioners, D. C. 1415

STEEL BUILDING.

[At League Island, Pa.] Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until February 21, 1903, for constructing a brick and steel building for machine, boiler and blacksmith shops, Navy Yard, League Island, Pa. Appropriation, \$307,650. Plans and specifications can be seen at the Bureau, or will be furnished by the Commandant of the navy yard named upon deposit of \$25 to secure their return. MORDECAI T. ENDICOTT, chief of bureau. 1415

RUBBLESTONE.

[At Newburyport, Mass.] Bids are wanted February 18 for delivering 30,000 tons of rubblestone in jetties at Newburyport Harbor. CAPT. HARRY TAYLOR, Corps Engrs. 1415

ROADS AND WALKS.

[At Fort Revere, Boston Harbor, Mass.] Depot Quartermaster's Office, 170 Summer St., Boston, Mass. Sealed proposals will be received at this

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PROPOSALS.

office until February 21, 1903, for constructing roads and walks at Fort Revere, Nantasket Head, Boston Harbor, Mass. Proposals and information furnished on application. Plans and specifications can be seen at this office. A. M. PALMER, depot quartermaster. 1415

RUBBLESTONE.

[At Isles of Shoals, Me.] U. S. Engineer Office, Winthrop Building, Boston, Mass. Sealed proposals for delivery of 25,000 tons of rubblestone in breakwater at Isles of Shoals, Me., will be received here until February 20, 1903. Information furnished on application. HARRY TAYLOR, capt., engr. 1415

PROPOSALS.

CHURCH.

[At Willmar, Minn.] Bids for the erection of a new church for the Lutheran Free Church congregation of Willmar, will be received until February 24. Plans and specifications can be seen at Omeyer & Thor's office, St. Paul, Minn. 1415

CONSTRUCTION, HEATING, PLUMBING, ETC.

[At Fort Ethan Allen, Vt.] Office, Constructing Q. M., Burlington, Vt. Sealed proposals will be received until February 20, 1903, for constructing, heating, plumbing, gas-piping, electric wiring of two barracks and one bachelor officer's



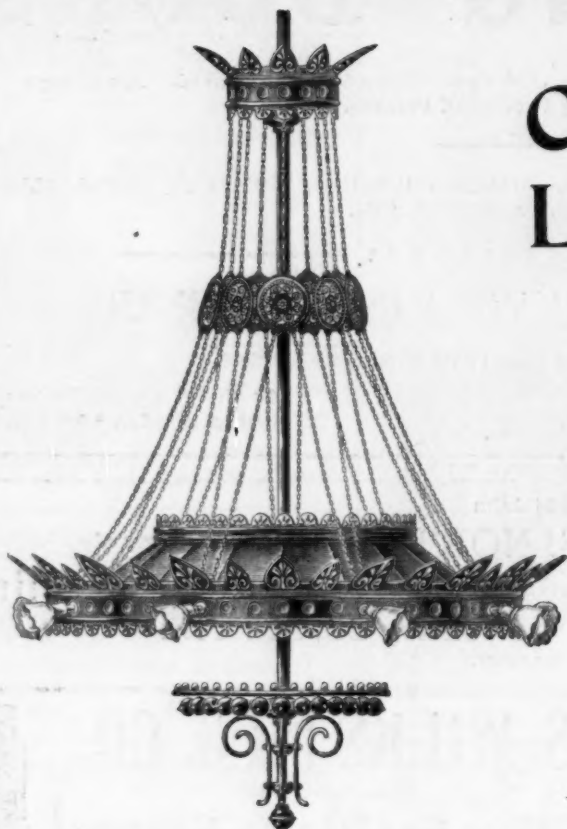
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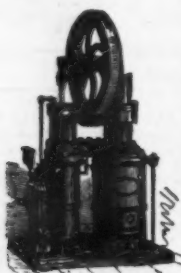


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CEMENT.

[At Winnipeg, Man.]

Sealed tenders, addressed to the Chairman of the Committee on Works, for the supply of from 15,000 to 20,000 barrels of cement will be received at the office of the undersigned until February 17, 1903. Specifications and forms of tender may be obtained at the office of H. N. Ruttan, city engineer, Winnipeg, Manitoba, Can. C. J. BROWN, city clerk. 1415

BRIDGE FLOOR.

[At Bay City, Mich.]

Sealed proposals will be received at the office of the Bay County Bridge Commission, Bay City, Mich., until February 14, 1903, for furnishing the material and reconstructing the floor system of the Lafayette Ave. Bridge. Specifications and information may be obtained from Blomshild & McCloy, consulting engineers, Bay City, Mich. By order of the Commission. Blomshild & McCloy, engineers. 1415

GRADING.

[At Fort Riley, Kan.]

Sealed proposals will be received here until February 16, 1903, for grading. Information furnished on application here; also at offices of Depot Quartermasters, Chicago, Ill.; St. Louis, Mo., and Omaha, Neb. CAPTAIN G. O. CRESS, Q. M. 1415

DORMITORY.

[At Chillicothe, Okla. Ter.]

Bids are wanted February 19 for furnishing ma-

PROPOSALS.

terial for constructing a stone dormitory and an addition to a stone dormitory at the Chillicothe school. Address W. A. JONES, Comr. of Indian Affairs, Washington, D. C. 1415

ENGINE PLANT, ETC.

[At Chicago, Ill.]

Bids are wanted February 24 for the engine plant of the Post-office, Court-house, etc., in Chicago; also at the same time for the electrical generators of the said building. Plans and specifications may be obtained upon request, accompanied by a certified check of \$100 (each branch), payable to the Treas. of the U. S., or order. Henry Ives Cobb, architect, Chicago Building, Washington, D. C. 1416

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 24, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 9th day of March, 1903, and then opened, for the installation of a conduit and electric wiring system for the U. S. Post-office at Jamestown, N. Y., 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 the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1416

Treasury Department, Office of the Supervising Architect, Washington, D. C., January 22, 1903. Sealed proposals will be received at this office until 2 o'clock P. M. on the 2d day of March, 1903, and then opened, for furnishing the low-pressure steam heating apparatus, etc., complete in place for the U. S. Post-office at Jamestown, N. Y., in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Superintendent at Jamestown, N. Y., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1416

PROPOSALS.

BUILDING.

[At Phoenix, Ariz.]

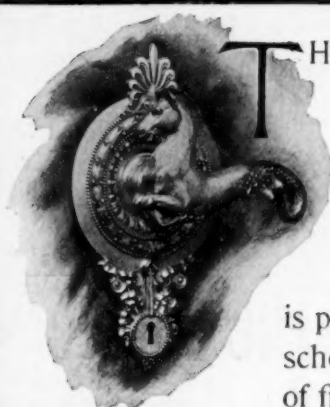
Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals addressed to the Commissioner of Indian Affairs, Washington, D. C., will be received at the Indian Office until February 17, 1903, for furnishing the necessary materials and labor required to construct and complete 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

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